Chapter 5: TRANSPORTATION SYSTEM PLAN

The Clackamas County Transportation System Plan (TSP) will guide transportation related decisions and identify the transportation needs and priorities in unincorporated Clackamas County from 2013 to 2033. The TSP has been created in coordination with the County's 16 cities, the State of Oregon, area transit providers, and other affected agencies and has been vetted through an extensive public process, including a series of public outreach events and twelve Public Advisory Committee meetings. The public and county staff worked together to develop the following vision for the TSP and six goals to guide implementation of this vision:

> *Building on the foundation of our existing assets, we envision a well-maintained and designed transportation system that provides safety, flexibility, mobility, accessibility and connectivity for people, goods and services; is tailored to our diverse geographies; and supports future needs and land use plans.*

TSP GOALS

- Goal 1: Provide a transportation system that optimizes benefits to the environment, the economy and the community
- Goal 2: Plan the transportation system to create a prosperous and adaptable economy and further the economic well-being of businesses and residents of the County.
- Goal 3: Tailor transportation solutions to suit the diversity of local communities.
- Goal 4: Promote a transportation system that maintains or improves our safety, health, and security.
- Goal 5: Provide an equitable transportation system.
- Goal 6: Promote a fiscally responsible approach to protect and improve the existing transportation system and implement a cost-effective system to meet future needs.

BACKGROUND AND ISSUES

The County's transportation system includes an extensive network of public and private transportation facilities, including roads, railways, airports, pipelines, waterways, and multi-use paths. The system is intended to allow people to travel where they need to go safely and efficiently, while also providing for efficient movement of goods. The County's transportation system is also intended to support sustainable land use patterns and policies to serve a multitude of public needs without sacrificing air and water quality or creating noise pollution.

Government agencies, public and private service providers, and developers are involved in building and maintaining the County's transportation system. Metro, Portland's metropolitan planning organization, sets general policy guidelines for design, distributes regional funding for certain types of projects within its boundary, and sets standards for the operation of the

transportation system located within the Portland Metropolitan Urban Growth Boundary (UGB). All transportation facilities must conform to standards and guidelines outlined by federal, state and, in some cases, Metro regulatory documents.

Clackamas County faces several challenges as it attempts to continue to develop and maintain a safe and integrated transportation system, appropriate for and accessible to all potential users.

- Limited funding: Funding levels for roads, the backbone of the transportation system, have not kept pace with the mobility needs of our society. Limited funding makes it a challenge to balance the need for maintenance and management of existing facilities with the need for building new facilities to accommodate increased trip demand. As a result, the backlog of needed road maintenance and construction projects has grown larger.

- Reducing congestion: Community members help reduce traffic congestion when they choose to take the bus, join a carpool, or bicycle and walk to destinations. Reducing congestion decreases the need for costly road construction projects while improving air quality, neighborhood livability and access to goods, services and employment.

  Improving the relationship between land uses and transportation can also decrease reliance on automobiles and reduce congestion. Some ways to improve this relationship are to: alter the site design of new construction at or near major transit stops; increase connectivity in transportation systems; provide better pedestrian and bicycle facilities; use land more efficiently; and encourage mixed-use developments.

- Balancing needs: All land-based modes of travel, except rail and pipeline, must share the public rights-of-way. These modes includes autos, trucks, buses, bicycles, pedestrians and, in some localities, equestrians. Balancing the need for mobility (through movement of traffic) with the need for local movement and access to individual properties often creates design and safety challenges for roadways.

- Safety: From 2005 to 2009, there were approximately 160 fatalities and 1,245 serious injuries in Clackamas County due to traffic crashes. One of the County's goals is to improve the safety of its system for all users and reduce the number and severity of crashes for future years. Developing facilities to accommodate all modes of travel will help reduce conflicts that lead to safety problems for some users. The adopted Transportation Safety Action Plan calls for a 50 percent reduction of fatal and serious injury crashes by 2022.

- Fostering economic growth: Monitoring the effects of transportation on employment and economic activity is important during both good and bad economic times. Of particular significance are the ways transportation can be used as a tool to sustain and promote economic development both in the urban industrial and commercial centers and within the county's distinctive rural economy, including agriculture, forestry and equestrian facilities.

- Addressing environmental impacts: Development of transportation infrastructure needs to be sensitive to potential impacts to neighborhoods and to the natural environment, in order to create and maintain livable communities, preserve air and water quality, and conserve energy.

The northwest urban area of the County is within a designated Air Quality Maintenance Area (AQMA). Presently the AQMA meets state and federal air quality standards, but federal law requires the region to implement measures to maintain federal air quality standards. Federal law also prohibits significant degradation of air quality in the Mt. Hood Wilderness.

- Ensuring accessibility: In many areas of the County, transportation disadvantaged populations, such as the elderly, disabled or low-income residents, need improved access to public transit and special transportation services. Clackamas County will ensure that new and rebuilt roads are planned and designed to perform all necessary functions, including being accessible to those who choose not to drive or cannot drive.
- Maintaining and improving rural area roads: Clackamas County also is challenged by the responsibility to maintain and develop a safe and functional road network in rural areas. Upgrades to aging rural roadways are needed to enhance safety and accommodate different modes of travel.

TSP ORGANIZATION

To implement the vision and goals and to address the issues identified above, a series of policies have been created to direct the County in its efforts to build and maintain a multi-modal transportation system. Under each policy category, the countywide policies are listed first, followed by the urban policies, and the rural policies.

The policies are presented in this chapter by major topic or transportation mode as follows:

- **Foundation and Framework**: includes policies relating to coordination; safety; equity, health and sustainability; intelligent transportation systems; and transportation demand management
- **Land Use and Transportation**: includes policies relating to the integration of land use and transportation; parking; rural tourism; and scenic roads.
- **Active Transportation**: includes policies relating to pedestrian and bicycle facilities and multi-use paths.
- **Roadways**: includes policies relating to functional classification; urban and rural roadway considerations; project development; improvements to serve development; and performance evaluation and access standards.
- **Transit:** includes policies relating to transit and transit-supportive amenities.
- **Freight, Rail, Air, Pipeline and Water Transportation**: includes policies relating to general freight movement; freight trucking; rail; airports; pipelines; and water transportation.
- **Finance and Funding:** includes policies relating to funding capital transportation improvements and maintenance.
- **Transportation Projects and Plans:** includes policies relating to the 20-year and five-year capital improvement plans. Also identifies Special Transportation Plans that are adopted by reference as refinements of the TSP and plans or studies that need to be completed in the

future to support the TSP.

- **Definitions:** relevant definitions for use within this chapter.

The TSP also contains the following components:

- The County's ***20-year Capital Improvement Plan:*** a complete list of needed transportation-related projects to address gaps and deficiencies in the transportation network (Tables 5-3[a-d]).
- **Tables, Maps and Figures** illustrating the transportation system and street cross sections, and presenting guidelines and standards for developing the system.
- **Background documents** including detailed findings and conclusions relating to the various components of the transportation system (Appendix B).

FOUNDATION AND FRAMEWORK

Clackamas County's transportation networks serve local communities and also tie into regional networks. Creating a transportation system that is safe and accessible for all users must be done within the context of federal, state, and regional regulations. The system needs to be responsive to new initiatives adopted by these regulatory bodies to ensure the development of a complete and sustainable transportation system. It needs to be responsive to new approaches, techniques and measures developed for assessing the performance of the system. Intelligent Transportation Systems (ITS) and Travel Demand Management (TDM) techniques are two such tools that can be effective in managing the costs of the system and enabling better performance.

Safety is consistently mentioned by citizens as one of the highest concerns related to the transportation system, regardless of individuals' preferred methods of travel. The accessibility of the transportation system for all individuals is also a primary concern. Therefore, prioritizing safety and accessibility is essential in the planning, design, operation and maintenance of the transportation system.

5.A. Compliance and Coordination Policies

5.A.1 Support intergovernmental partnerships needed to promote coordination and address multi-jurisdictional transportation needs.

5.A.2 Work collaboratively with federal, state, regional, and local agencies and with County residents to pursue the County's road safety programs and plans.

5.A.3 Work with state and local partners to implement the Oregon Transportation Safety Plan.

5.A.4 Coordinate with the Oregon Department of Transportation (ODOT) in implementing the Oregon Transportation Plan (OTP), Oregon Highway Plan (OHP), Statewide Transportation Improvement Program (STIP), and with other state transportation planning policies, guidelines and programs.

5.A.5 Work with the Oregon Office of Emergency Management to ensure that the TSP supports effective responses to natural and human-caused disasters and emergencies and other incidents, and access during these incidents.

5.A.6 **Urban** Coordinate with Metro and local governments to implement the Regional Transportation Plan (RTP), Regional Transportation Functional Plan (RTFP), Urban Growth Management Functional Plan (UGMFP), and local transportation plans.

5.A.7 **Rural** Pursue formation of an Area Commission on Transportation (ACT) for the portions of Clackamas County outside the Portland Metropolitan Urban Growth Boundary to facilitate a coordinated approach to addressing issues on the state transportation system.

5.B. Road Safety Policies

5.B.1 Update the Clackamas County Transportation Safety Action Plan (TSAP) every five years to include necessary changes and document the progress toward the plan's goal of a 50 percent reduction in fatal and serious injury crashes by 2022.

5.B.2 Identify transportation system safety improvements that will reduce fatal and injury crashes for all modes of travel and meet the TSAP goal.

5.B.3 Address the County's top three crash cause factors of Aggressive Driving, Young Drivers (ages 15-25) and Roadway Departure utilizing education, emergency medical services, enforcement, engineering and evaluation.

5.B.4 Support programs, policies, regulations and actions that increase awareness and education about the safety of the transportation system for all users.

5.B.5 Support programs that utilize data-driven approaches to improve safety of the transportation system.

5.B.6 Align County departments, external safety groups, and other public agencies toward common transportation safety goals.

5.B.7 Integrate roadway, safety and traffic data management, health and emergency services data sources.

5.B.8 Integrate Highway Safety Manual (HSM) principles into the planning, engineering, design, operation and maintenance of the transportation system.

5.C. Equity, Health and Sustainability Policies

5.C.1 Support programs and projects, such as pedestrian and bike connections to transit stops, that expand and improve transportation options for residents in areas with identified transportation-disadvantaged populations.

5.C.2 Protect neighborhoods, recreation areas, pedestrian facilities, bikeways and sensitive land uses (such as schools, daycare centers and senior centers whose users are more vulnerable to pollution) from transportation-related environmental degradation. Coordinate transportation and land use planning and use mitigation strategies, such as physical barriers and design features, to minimize transmission of air, noise and water pollution from roads to neighboring land uses.

5.C.3 Work with public agencies, private businesses and developers to increase and improve infrastructure necessary to support use of vehicles that use alternative fuels.

5.C.4 Ensure that programs to encourage and educate people about bicycle, pedestrian, and transit transportation options are appropriate for all County residents, particularly transportation-disadvantaged populations.

5.C.5 Build working partnerships between the County's Public Health and Transportation Divisions and utilize tools, such as health impact assessments, to better connect the effects of transportation projects with the health of communities.

5.C.6 Support the continued provision of public transportation services to County populations that are un-served or under-served, as well as the network of community-based, transportation services for seniors and persons with disabilities.

5.D. Intelligent Transportation Systems (ITS) Policies

5.D.1 Implement a wide range of ITS strategies aligned with the TSP vision and goals by ensuring safe, efficient, and equitable mobility for people and goods.

5.D.2 Update the ITS Action Plan every five years as part of the County's 5-Year Capital Improvement Program.

5.E. Transportation Demand Management (TDM) Policies

5.E.1 Implement Transportation Demand Management techniques—including education, encouragement, and enforcement—appropriate for all County residents , in order to increase efficient use of existing transportation infrastructure and minimize congestion and safety concerns by offering choices of mode, route, and time.

5.E.2 Support and participate in efforts by Metro, the Department of Environmental Quality (DEQ), transit providers, and any area Transportation Management Associations (TMAs) to develop, monitor and fund regional TDM programs.

5.E.3 Provide adequate bicycle and pedestrian facilities to employment areas to encourage use of bicycles or walking for the commute to work and to improve access to jobs for workers without cars.

5.E.4 Support programs that work with schools to identify safe bicycle and pedestrian routes to connect neighborhoods and schools. Seek partnerships and funding to support improvement of these routes.

5.E.5 **Urban** Work with County employers located in concentrated employment areas to develop Transportation Management Associations (TMAs) to coordinate and support private-sector TDM efforts and to work toward mode share targets (Table 5-1) adopted in this Plan.

5.E.6 **Urban** Establish the following year 2040 non-drive-alone targets for growth concept design types (as identified on Map 4-8):

TABLE 5-1
Year 2040 Non-Drive-Alone Modal Targets

Design Type	Non-Drive-Alone Modal Target
Regional Centers Station Communities Corridors	45-55% of all vehicle trips
Industrial Areas Employment Areas Neighborhoods Regionally Significant Industrial Areas	40-45% of all vehicle trips

5.E.7 **Rural** Encourage employers and schools outside urban growth boundaries to implement a range of TDM policies to help their employees and students reduce vehicle miles traveled, maximize use of existing transportation facilities, and increase walking, biking and transit use.

LAND USE AND TRANSPORTATION

Integrating transportation plans with land use plans is a key element in effective management and operation of the entire transportation system. Roads support the wide range of land activities that take place in both the urban and rural areas. Because of the diverse nature of activities and land use types found in Clackamas County, it is of particular importance that the transportation systems are designed to accommodate both urban networks and the different needs of rural area users, including providing safe routes for users of all modes to enjoy the rural area's scenic beauty, and for those participating in agri-tourism and activities related to forestry.

Planning for appropriate amounts of parking supports efficient development of the land within communities. Accommodating on-street parking and planning for off-street parking needs are Transportation System Management (TSM) techniques that are consistent with the Metro Region's 2040 Growth Concept, meet the objectives of the Transportation Planning Rule (TPR), and comply with DEQ's Air Quality Maintenance Plan.

5.F. Integration of Land Use and Transportation Policies

5.F.1 Land use and transportation policies shall be integrated consistent with state law regarding preservation of farm and forest lands.

5.F.2 Support efforts to enhance and maintain the function of State highways and County arterials through land use policies, access management strategies, and roadway improvements.

5.F.3 Support and promote an integrated approach to land use and transportation planning and implementation that encourages livable and sustainable communities, decreases average trip length and increases accessibility for all modes.

5.F.4 Support and promote transportation investments that support complete and sustainable communities as a long-term strategy to reduce reliance on long commutes out of the County to employment destinations.

5.F.5 Recognize the County's rural economic engine and the importance of moving goods from rural businesses (including farms, nurseries, livestock, and lumber) to distribution centers.

5.G. Parking Policies

5.G.1 Set minimum and, where appropriate, maximum limits on allowed off-street parking of motor vehicles relative to building size, location and use, and to adjacent land uses. In the urban area, parking standards shall be coordinated with regional parking requirements.

5.G.2 Require new multi-family, commercial and institutional development to provide bicycle parking.

5.G.3 Allow shared parking and, where appropriate, on-street parking to be used to comply with parking standards.

5.G.4 **Urban** Allow the removal of existing, on-street parking along arterials and collectors to create bikeways, construct travel or turning lanes, or increase sight distance.

5.G.5 **Urban** Increase area for on-street parking in residential zoning districts by minimizing the width of driveway accesses.

5.G.6 **Urban** Encourage off-street parking in commercial, industrial, and high density residential areas to be located at the sides or rear of buildings, where practical.

5.G.7 **Urban** Consider allowing for decreased parking area requirements for development along transit routes, if the development provides pedestrian, bicycle and transit amenities. See Map 5-8a.

5.G.8 **Urban** Consider requiring shared parking within mixed-use development and where adjacent land uses are compatible.

5.H. Rural Tourism Policies

5.H.1 **Rural** Encourage agri-tourism and other commercial events and activities that are related to and supportive of agriculture, in accordance with the provisions of ORS 215. Mitigation of traffic impacts and other event impacts may be required to reduce the effects of these limited land uses on the County road system.

5.I. Rural Scenic Roads Policies

5.I.1 Implement a County Scenic Road System that is safe and attractive for all users.

5.I.2 Promote the protection of recreation values, scenic features and an open, uncluttered character along designated scenic roads.

Developments adjacent to scenic roads shall be designed with sensitivity to natural conditions and**:**

a) Scenic roads shall have strict access control on new developments.
b) Scenic roads should have shoulders wide enough for pedestrians or bicycles, or a separated path where feasible and when funding is available.
c) Turnouts shall be provided where appropriate for viewpoints or recreational needs.
d) Design review of developments adjacent to scenic roads shall require visual characteristics and signing appropriate to the setting.
e) Buildings shall be set back a sufficient distance from the right-of-way to permit a landscaped or natural buffer zone.
f) Parking areas adjacent to scenic roads shall be separated from the right-of-way by a landscaped buffer.
g) Any frontage roads adjacent to scenic roads shall be separated by a vegetative buffer where feasible
h) Underground placement of utilities shall be encouraged.

5.I.3 The following facilities shall be designated scenic roads: *(see Map 5-1 Scenic Roads)*

- Wilsonville Road
- Stafford Road (City of Lake Oswego to Mountain Road)
- Schaeffer Road
- Pete's Mountain Road (Schaeffer Road to the Tualatin River)
- SW Mountain Road, Canby Ferry Road, N. Locust, NE 37th, and Holly Street
- Canby-Marquam Highway (City of Canby to Hwy 211)
- Clackamas River Drive
- Springwater Road (Clackamas River Drive to Hayden Road)
- Hayden Road
- Redland Road
- Fischer's Mill Road
- Marmot Road/Barlow Trail Road/
- Ten Eyck Road/SE Lusted Road from Ten Eyck Road to the County line.
- Lolo Pass Road
- Salmon River Road
- Still Creek Road
- Timberline Road and West Leg Road
- I-205 west of the Willamette River
- Highway 99E from Oregon City to New Era Rd
- Oregon City Bypass (Newell Creek Canyon segment)
- Highway 211 (Canby-Marquam Highway to Estacada)
- Highway 224 (Carver to Barton and south of Estacada)
- Highway 26 east of the City of Sandy
- Highway 35/Forest Service Road 386

5.I.4 Support implementation of the Oregon Scenic Byway System, including the Mt. Hood Scenic Byway and the West Cascades Scenic Byway.

ACTIVE TRANSPORTATION

Recognizing the increasing importance of having multiple ways to travel through a community and through the region has led to an increased awareness for designing transportation systems to safely enhance active transportation modes. "Active Transportation" is defined to include walking, bicycling and horseback riding.

The County completed transportation systems planning for pedestrian and bicycle modes in 1995 to implement the state's Transportation Planning Rule (TPR), particularly the following TPR principles:

1. Land use and transportation are intimately related.
2. Over reliance should not be placed on any one transportation mode.
3. Walking and bicycling reduce the number of motorized vehicle trips.
4. Compact, mixed-use development encourages the use of non-motorized modes.
5. Well-planned, properly designed facilities will encourage people to make trips by non-motorized modes.
6. Facilities for these non-motorized modes are essential for people not having access to an automobile, and constitute desirable elements in a well-designed community that are enjoyed by people who can drive, but choose to walk or bicycle.

These principles underlie the development of the Clackamas County Pedestrian Master Plan and the Clackamas County Bicycle Master Plan, both of which are adopted by reference. Both master plans were prepared under the guidance of the Clackamas County Pedestrian and Bikeway Advisory Committee, which was guided by the following vision:

> *Create an environment which encourages people to bicycle and walk on networked systems that facilitate and promote the enjoyment of bicycling and walking as safe and convenient transportation modes.*

The Clackamas County Active Transportation Plan (ATP), adopted by reference in Appendix A, contains priority routes connecting communities in both the urban and rural portions of the County. Development of the principal active transportation routes described in the ATP would provide opportunities for residents to safely bicycle or walk to schools, parks, shopping, and employment centers.

5.J. General Active Transportation Policies

5.J.1 Coordinate the implementation of pedestrian facilities and bikeways with neighboring jurisdictions and jurisdictions within the county.

5.J.2 Ensure an opportunity for a diverse and representative citizen involvement in the county pedestrian and bicycle planning process by sponsoring the Clackamas County Pedestrian and Bikeway Advisory Committee (CCPBAC) as a forum for public input. Recruit representatives of transportation disadvantaged populations as part of this process.

5.J.3 Monitor and update the Clackamas County Pedestrian Master Plan, Bicycle Master Plan, and Active Transportation Plan through data collection and evaluation, and review activities necessary to maintain and expand the programs established in these plans.

5.J.4 Support bicycle, pedestrian and transit projects that serve the needs of transportation disadvantaged populations.

5.J.5 Coordinate with pedestrian, bicycle, and trail master plans, and with special transportation plans of the County, Oregon Department of Transportation, the United States Forest Service, Metro, and parks providers to achieve safe and convenient off-road, multi-use path and trail systems connecting to on-road pedestrian facilities and the bikeway networks.

5.J.6 Support the continuation of the "Bikes on Transit" program on all public transit routes.

5.J.7 Inform property owners of their responsibilities for the maintenance of sidewalks and pedestrian pathways.

5.J.8 Identify low traffic volume streets that are appropriate for signing as bicycle routes to enhance safety and connectivity and to supplement the system of bikeways found on the major street system.

5.J.9 **Rural** Support bicycle and pedestrian projects that improve access to public transit stops and provide connections to significant local destinations.

5.K. Design Policies

5.K.1 Require bikeways and pedestrian facilities for all new roadway construction or substantial reconstruction, allowing for flexibility to accommodate characteristics of terrain, scenic qualities, existing development, and environmental constraints.

5.K.2 Design and implement innovative bicycle and pedestrian facilities that improve the convenience and safety of these facilities. Use facility types described in the Active Transportation Plan as a reference.

5.K.3 Improve the safety and appeal of walking and biking by supporting the development of bikeways and pedestrian facilities and networks on low volume or local roads and off of existing street rights-of-way.

5.K.4 **Urban** Identify pedestrian facilities and bikeway improvements necessary to ensure direct and continuous networks of pedestrian facilities and bikeways on the county road system.

5.K.5 **Urban** Identify locations where bicycle and pedestrian access is blocked by rivers and other natural barriers and encourage the creation of bicycle and pedestrian facilities to extend across these barriers.

5.K.6 **Urban** Review development plans to ensure that they provide bicycle and pedestrian access.

5.K.7 **Urban** Create a networked system of pedestrian facilities and bikeways connecting cities, neighborhoods, commercial areas, community centers, schools, recreational facilities, employment centers, other major destinations, regional and city bikeways and pedestrian facilities, and other transportation modes. Utilize separate accessways for pedestrian facilities and bikeways where street connections are impractical or unavailable.

5.K.8 **Rural** Support the safe movement of equestrians in rural areas.

5.L. Construction Policies

5.L.1 Construct all pedestrian facilities, bikeways, and multi-use paths according to the current County design standards and to the applicable cross section, allowing for flexibility to accommodate characteristics of terrain, scenic qualities, existing development, and environmental constraints, and different designs identified in adopted Special Transportation Plans.

5.L.2 Construct all pedestrian facilities, bikeways, and multi-use paths designated on the Planned Bikeway Network (Maps 5-2a and 5-2b); the Essential Pedestrian Network (Map 5-3); and the Active Transportation Plan (Maps 5-12a and 5-12b).

5.L.3 Construct interim pedestrian facilities and bikeways, as appropriate, on existing streets that are not built to the applicable cross section and where the construction of full street improvements is not practicable or imminent as determined by the County Planning Director and County Road Official or County Engineer.

5.L.4 **Urban** Require that new development include construction of walkways and accessways within the development and between adjacent developments, where appropriate.

5.L.5 **Rural** In Unincorporated Communities, construct walkways adjacent to or within areas of development (such as schools, businesses, or employment centers) and at rural transit stops.

5.M. Facilities Policies

5.M.1 Encourage the provision of appropriate, supportive facilities and services for bicyclists, including showers, lockers, bike racks on buses, bike repair and maintenance information/clinics, and secure bicycle parking.

5.M.2 Establish and maintain way-finding systems to facilitate bicycle travel.

5.M.3 Install and maintain the signage and bicycle amenities identified in the Active Transportation Plan.

5.M.4 **Urban** Encourage the provision of street lighting to increase the visibility and personal security of pedestrians and bicyclists.

5.N. Multi-Use Path Policies

5.N.1 Support acquisition and development of multi-use paths on abandoned public and private rights-of-way.

5.N.2 Collaborate with the appropriate service providers, such as park providers, to plan for multi-use paths that accommodate equestrian facilities where possible.

5.N.3 **Rural** Consider multi-use paths where travel lanes or wide paved shoulders along roadways may not provide adequate safety for pedestrians or bicyclists.

5.N.4 **Rural** Consider equestrian uses when designing and constructing multi-use paths. Work with local communities and interest groups to plan, develop and maintain multi-use paths that also provide equestrian features. Plan for parking areas at such multi-use paths that support parking needs of equestrians, as well as needs of other path users.

5.N.5 **Rural** Establish a program to plan, develop, and maintain multi-use paths in the rural part of the County.

ROADWAYS

The County's road system permits the movement of goods and people between communities and regions, using any of a variety of modes of travel. Roads provide access to virtually all property. They support established communities and serve new development. They connect rural communities and urban neighborhoods. Roads give structure to our urban form, define our commuting patterns and influence our perceptions of what is far away or close at hand.

Creating and maintaining a safe, continuous County-wide road system, which accommodates movement by all travel modes, means setting standards for development of new roads and redevelopment of existing roads, including design and access standards for urban and rural roads. To ensure roads continue to meet the transportation demands of the County, a method to measure the ongoing performance of the system is essential. In response to new technologies and financial constraints, recent changes have been made to these standards on the state and regional levels. These changes are reflected in this TSP.

5.O. Functional Classification and Design Policies

5.O.1 Designate and develop roadways according to the functional classifications and guidelines illustrated in the County Road Typical Cross Sections (Figures 5-1a through 5-1f, and Figures 5-2a through 5-2f) while allowing flexibility to accommodate characteristics of terrain, scenic qualities, environmental constraints, existing development, and adopted Special Transportation Plans.

5.O.2 Designate freeways, arterials, collectors and connectors as shown on Map 5-4a and Map 5-4b. Roadways that do not presently exist but are shown on these maps are shown in approximate locations.

5.O.3 Maintain and improve roads consistent with their functional classification, and reclassify roads as appropriate to reflect function and use.

5.O.4 Require changes in Comprehensive Plan designation and zoning designation to comply with the Transportation Planning Rule (OAR 660-12). Evaluations of the transportation system for this purpose shall rely on existing transportation facilities and on planned facilities found in the 20-Year Capital Projects list (Table 5-3a). State transportation facilities shall be evaluated according to the Oregon Highway Plan, Regional Transportation Plan, Transportation Planning Rule, and other applicable state requirements.

5.O.5 Develop and implement traffic calming strategies, appropriate for the road functional classification, that will improve the safety and convenience of travel by all modes, particularly in areas with high crash rates or high rates of bicycle and/or pedestrian activity.

5.O.6 **Urban** Consider the Metro Regional Street Design Classifications when designing new county roads or redesigning existing county roads, prior to construction or reconstruction. Map 5-5 shows which roads are designated by each Design Classification.

5.O.7 **Urban** Minimize impacts of managing storm water by allowing for Metro's alternative street standards, such as "green streets," as design alternatives.

5.O.8 **Urban** Design arterials and collectors to allow safe and convenient passage of buses, bicycles, and pedestrians.

5.O.9 **Urban** Streets, alleys, bikeways, pedestrian facilities, multi-use paths, trails and transit stops are allowed uses in all urban zoning districts. Consider all state and County policies relating to these facilities when widening, improving or constructing new transportation infrastructure.

5.O.10 **Rural** Plan to support the existing development pattern and through traffic needs of the rural communities, and not to support or promote urbanization.

5.O.11 **Rural** Consistent with ORS 215.283(3) and OAR 660, Division 12, County road capital improvement projects may be designed and constructed to improve safety and bring roads up to county standards outside the UGB. If the road capital improvement project is not otherwise allowed and would require expansion of right-of-way exceeding the road improvements allowed in the Agriculture or Forest districts, a goal exception would be required for such a project, as provided for in ORS 215.283(3).

5.O.12 **Rural** Streets, alleys, bikeways, pedestrian facilities, multi-use paths, trails and transit stops are allowed uses in all rural zoning districts with the exception of Agricultural and Forest Districts in which they are conditionally allowed by ORS 215.213, 215.283 or OAR Chapter 660, Division 6 (Forest Lands).

5.O.13 **Rural** Recognize the importance of resource-related uses such as agriculture and forestry to the local economy, and the need to maintain a transportation system that provides opportunities to harvest agricultural and forest products and deliver them to market.

5.O.14 **Rural** Design, construct and reconstruct rural arterials and collectors to allow safe and convenient passage of trucks, buses, pedestrians and bicyclists.

5.O.15 **Rural** Support the safe movement of agricultural equipment in rural areas by improving existing roads to county standards and considering design features such as signs, pull-outs for slow-moving vehicles, reduced speeds, and limiting curbs where equipment may move to the shoulder or out of the right-of-way.

5.P. Project Development Policies

5.P.1 Before building new roads or adding capacity to existing roads, consider Transportation System Management (TSM) strategies for using the existing road system, including associated pedestrian and bicycle facilities, and system capacity most efficiently.

TSM strategies include:
1. Access Management;
2. Alternative/Modified Standards (Performance and/or Design Standards);
3. Intelligent Transportation System (ITS) applications;
4. Operational Improvements;
5. Parking Standards;
6. Enhanced Bicycle and Pedestrian Facilities; and,
7. Road Diet *(For example, restriping a low volume, 4-lane road to a 3-lane configuration with bicycle and pedestrian facilities).*

5.Q. Access Standard Policies

5.Q.1 Ensure safe and convenient access for bicyclists, pedestrians, and transit users for land uses that are open to the public. Apply access management in a flexible manner to allow reasonable access and balance the needs of all roadway users.

5.Q.2 Improve multimodal operations and safety by ensuring that Interchange Management Areas and other access plans and projects are coordinated with multimodal connectivity standards and are designed to support safe and convenient access and travel for all modes, when appropriate.

5.Q.3 Support the implementation of state access management standards (OAR Chapter 734, Division 51, as amended, and the Oregon Highway Plan) on state highway facilities and within Interchange Management Areas. Coordinate with the Oregon Department of Transportation for access control on state highways.

5.Q.4 If feasible, allow only collectors, connectors, or other arterials to intersect arterials.

5.Q.5 Access Standards shall be implemented through the Zoning and Development Ordinance and the County Roadway Standards. Where access management standards are adopted by the County in Special Transportation Plans, those standards shall apply.

5.Q.6 Developments should be designed to place driveway accesses on streets with the lowest functional classification or the lowest traffic volume.

5.R. Policies on Improvements to Serve Development

5.R.1 Require new development to be served by adequate transportation facilities and access points that are designed and constructed to safely accommodate all modes of travel.

5.R.2 For new developments and land divisions, require right-of-way dedication, on-site frontage improvements to the applicable standards as shown in the roadway Cross

Sections (Figures 5-1a through 5-1f and Figures 5-2a through 5-2f) and the County Roadway Standards, and off-site improvements necessary to safely handle expected traffic generated by the development and travel by active modes. Where roadway standards are adopted by the County in Special Transportation Plans, those standards shall apply.

5.R.3 Assess anticipated off-site traffic impacts caused by new developments. The developer may be required to participate financially or otherwise in the provision of off-site improvements, dedications or other requirements.

5.R.4 For new development proposed on a site identified on Map 5-6 (*Potentially Buildable Residential Sites >5 Acres in UGB*), require a conceptual street plan that is consistent with requirements of this section and provides for full street connections at intervals of no more than 530 feet, where feasible.

5.R.5 Require new development that will require construction of new streets to provide full street connections at intervals of no more than 530 feet, where feasible. If full street connections are not feasible at such intervals, require accessways for pedestrians, bicyclists or emergency vehicles at intervals of no more than 330 feet. Exceptions may be made where there are barriers, including topography, railroads, freeways, pre-existing development, existing easements, or environmental constraints such as streams and wetlands.

5.R.6 New development shall accommodate on-site traffic circulation within the boundaries of the site, not by circulating vehicles on and off the site through multiple access points using the public road system. Internal circulation plans should avoid relying on "backing out" maneuvers for new driveways onto all rural arterials and collectors.

5.R.7 **Urban** Require implementation of a road network for undeveloped sites illustrated on Map 5-6. Existing roads shall be extended to provide a direct, connected system.

5.R.8 **Urban** Where appropriate, develop and implement neighborhood traffic circulation plans for all modes intended to improve circulation while minimizing safety concerns and exposure to air and noise pollution.

5.R.9 **Urban** Discourage motor vehicle through-trips on local, connector and collector roads, and encourage bicycle and pedestrian travel on these roads.

5.R.10 **Urban** Allow flexible criteria and standards for local streets that are less than 200 feet in length, are expected to carry very low traffic volumes, and are not capable of being extended.

5.R.11 **Urban** Private streets may be appropriate in areas with topographic constraints that make construction of a road to County standards not feasible. Private roads are not classified as local roads and are not maintained by the County.

5.R.12 **Urban** Require that changes to Comprehensive Plan land use designations within the Interchange Management Areas identified on Map 5-7 be consistent with Oregon Administrative Rules 660-012-0060. If the land uses allowed by the new Comprehensive Plan land use designation would cause the interchange mobility standards to be exceeded, either the change shall be denied or improvements shall be made such that the mobility standards are met.

5.R.13 **Rural** Discourage through trips on rural local roadways.

5.S. Performance Evaluation Measure Policies

5.S.1 For County roads, establish the method of calculating roadway capacity and the impact of new development on that capacity in the County Roadway Standards.

5.S.2 Evaluate capacity needs for roadways within the urban area using the Regional Motor Vehicle Performance Measures shown in Table 5-2a, except as established below. All capital construction shall be designed not to exceed the maximum V/C ratio.

Table 5-2a
PERFORMANCE EVALUATION MEASURES FOR THE URBAN AREA
Weekday Mid-day and Weekday PM Peak Periods

	Maximum Volume to Capacity (V/C) Ratio		
Federal and State Principal Arterial Street Segments and Intersections	**Mid-day One-Hour Peak**	**1st Hour, PM Peak**	**2nd Hour, PM Peak**
OR 99E from OR 224 interchange north to county line	0.99	1.1	0.99
I-205 I-5 OR 212 OR 224 OR 213	0.90	0.99	0.99
County Street Segments and Intersections by Metro Urban Design Type *See Comprehensive Plan Map 4–8*			
Regional Centers Town Centers Main Streets Station Communities	0.99	1.1	0.99
Corridors Neighborhoods Employment Areas Industrial Areas Intermodal Facilities	0.90	0.99	0.99

5.S.3 Exceptions to the performance evaluation measures for review of development proposed on property within Metro's boundary are established as follows:

5.S.3.1 Within the Clackamas Industrial Area, no performance evaluation measures shall apply.

5.S.3.2 For the intersections of SE Park Avenue/OR 99E, SE Park Avenue/SE Oatfield Road, and SE Park Avenue/SE 27th Street, performance evaluation measures of the Station Community Design Type shall apply.

5.S.4 Evaluate capacity needs for roadways in the rural area using the performance evaluation measures shown in Table 5-2b.

Table 5-2b
PERFORMANCE EVALUATION MEASURES FOR THE RURAL AREA
Weekday, AM and PM Peak Periods

	Maximum Volume to Capacity (V/C) Ratio	
County Roads and ODOT Facilities and Intersections based on posted speed and highway classification	**1st Hour, PM Peak Period**	**2nd Hour, PM Peak Period**
Inside city UGBs	0.80 to 0.95	0.80 to 0.95
Inside Unincorporated Communities	0.70 to 0.80	0.70 to 0.80
All other Rural areas	0.70 to 0.75	0.70 to 0.75
County rural road intersections and road segments outside of rural area cities	**Minimum Level of Service (LOS) or Maximum Volume/Capacity Ratio; Weekday Peak Periods**	
	AM Peak Hour	**PM Peak Hour**
Road segments and Unsignalized Intersections	LOS E	LOS E
Signalized and Roundabout Intersections	0.90	0.90

5.S.5 Exception to the performance evaluation measures for review of development proposed on property in the rural area is established as follows:

5.S.5.1 Within Government Camp Village, no performance evaluation operating standards shall apply.

5.S.6 The maximum volume to capacity ratio for the ramp terminals of interchange ramps shall be v/c 0.85. (1999 Oregon Highway Plan, OHP Policy 1F Revisions, Adopted by OTC: Dec. 21, 2011).

5.S.7 Where more than one performance measure would apply at an intersection, the measure allowing the higher level of congestion will be used, except for ramp terminal intersections.

5.S.8 Evaluate transitioning from transportation concurrency to safety analysis when a traffic impact study (TIS) is required of new development.

5.S.9 The County will work with Metro and ODOT over five years to develop Alternate Road Capacity Performance Standards, required by the Oregon Highway Plan Policy 1.F., to address the following five intersections. These intersections were forecast not to meet the Capacity Performance Standards adopted in the 2013 TSP and there were no projects identified that could make the intersections meet the standards.

- SE Harmony Road/SE Linwood Avenue
- OR 212/SE 172nd Avenue – ODOT Intersection
- OR 212/SE 282nd Avenue – ODOT Intersection
- OR 213/S. Henrici Road – ODOT Intersection (traffic signal or roundabout)
- OR 224/SE Lake Road/SE Webster Road – ODOT Intersection

TRANSIT

Public transit service is essential for the mobility of many County residents, and provides an affordable option for others who prefer to use it. The County contains five major public transportation systems. Tri-County Metropolitan Transportation District of Oregon (TriMet), the state's largest transit provider, serves generally the western, more urbanized part of the county. The County also is home to four rural transit providers: South Clackamas Transportation District (SCTD) serving the Molalla area, Sandy Area Metro (SAM), Canby Area Transit (CAT) and Wilsonville's South Metro Area Transit (SMART). Clackamas County also directly supports the Mountain Express service which provides public transit to the Hoodland area along the Highway 26 corridor east of the City of Sandy. All of these services provide public transit as well as specialized services for seniors and persons with disabilities (paratransit) as mandated by the American with Disabilities Act.

Clackamas County participates in the development and implementation of the Coordinated Human Services Transportation Plan which addresses the services available to vulnerable populations throughout the Portland metropolitan area.

The County can influence the type of service provided and the way new developments interface with transit and provide amenities for transit riders. Busses operated by the six districts, as well as each of the school districts in the county must safely share the county's roads with all other users.

5.T. Transit Policies

5.T.1 Work with transit agencies to identify existing transit deficiencies in the County, needed improvements, and additional park-and-ride lots needed to increase the accessibility of transit services to all potential users.

5.T.2 Emphasize corridor or roadway improvements that help ensure reliable and on-time transit service in the County.

5.T.3 Encourage transit providers to restructure transit service to efficiently serve local as well as regional needs.

5.T.4 Emphasize transit improvements that improve east-west connections; improve service between the County's industrial and commercial areas and neighborhoods; and best meet the needs of all County residents, employees and employers, regardless of race, age, ability, income level and geographic location.

5.T.5 Coordinate with all applicable transit agencies on all new residential, commercial and industrial developments to ensure appropriate integration of transit facilities and pedestrian access to transit facilities.

5.T.6 Require major developments and road construction projects along transit routes to include provisions for transit shelters, pedestrian access to transit and/or bus turnouts, where appropriate.

5.T.7 Promote park-and-ride lots, transit shelters and pedestrian/bikeway connections to transit. Coordinate the location of these facilities with other land uses to promote shared parking and bicycle/ pedestrian-oriented transit nodes.

5.T.8 Coordinate and cooperate with transit agencies to provide transportation for seniors, people with disabilities, and other transportation-disadvantaged populations. Provide continued support for paratransit services as required within a three-quarter-mile distance from fixed-route transit stops.

5.T.9 Coordinate transit-supportive, roadway improvements with transit-providers to ensure financing and implementation of such improvements.

5.T.10 **Urban** Require pedestrian and transit-supportive features and amenities and direct access to transit for new development.

Pedestrian and transit supportive amenities may include pedestrian/bikeway facilities, street trees, outdoor lighting and seating, landscaping, shelters, kiosks, strict standards for signs, and visually aesthetic shapes, textures and colors. Buildings measuring more than 100 feet along the side facing the major pedestrian/transit access should have more than one pedestrian entrance**.** Pedestrian access should be provided to connect transit centers or transit stops on bus routes with centers of employment, shopping or medium-to-high density residential areas within one-quarter mile of these routes.

5.T.11 **Urban** Coordinate with transit providers to achieve the goal of transit service within one-quarter mile of most residences and businesses within the Portland Metropolitan UGB. Support more frequent service within Regional Centers, Town Centers, Station Communities, and Corridors and Main Streets.

5.T.12 **Urban** Work with federal, state and regional agencies to implement high capacity transit in the regional High Capacity Transit (HCT) System Plan in order to help relieve traffic congestion, provide for transportation alternatives to the automobile, and promote the County's economy. See Map 5-8c for the HCT network in the County.

5.T.13 **Urban** Site new commercial, institutional, and multi-family buildings at major transit stops as close as possible to transit, with a door facing the transit street or side street, and with no parking between the building and front lot lines.

5.T.14 **Rural** Focus safety improvements near existing or planned transit stops.

FREIGHT, RAIL, AIR, PIPELINE AND WATER TRANSPORTATION

In 2009, Clackamas County adopted "Open for Business – Economic Development Plan (EDP)." This plan provides a comprehensive guiding policy document for the County to improve, diversify and grow the economy in Clackamas County. Crucial to economic development is the infrastructure that supports the businesses and the employees that work in those businesses. Specific goals and actions called out by the Economic Development Plan include:

- Maintain mobility for people and freight in the face of expected growth; and
- Respond to the opportunities and challenges faced by its cities and rural areas, and support them in their efforts to develop quality jobs and businesses,

Freight, rail, air, pipelines and water transportation make significant contributions to the movement of people and goods; improve the quality of life; and support economic development in Clackamas County.

Policies relating to the movement of freight via roads, rail, air, pipelines or water transportation must also respond to new regulations to ensure the highest level of safety.

5.U. General Freight Policies

5.U.1 Coordinate the planning, development, maintenance and operation of a safe and efficient freight system for all freight modes in Clackamas County with the private sector, ODOT, Metro, the Port of Portland and the cities of Clackamas County.

5.U.2 Promote an inter-modal freight transportation strategy and work to improve multi-modal connections among rail, industrial areas, airports and regional roadways to promote efficient movement of people, materials, and goods.

5.U.3 Work with the private transportation industry, Oregon Economic Development Department, Port of Portland and others to identify and realize investment opportunities that enhance freight mobility and support the County, regional and state economy.

5.U.4 Make freight investments that, in coordination with the County's economic development strategies, help retain and grow the County's job base and strengthen the County's overall economy.

5.U.5 Ensure that freight rail lines and truck routes do not have disproportionately negative impacts on sensitive land uses (places where people with increased risk of adverse impacts from exposure to noise and air pollution are likely to gather, such as schools, senior centers, hospitals, parks, housing). Prioritize mitigation efforts for current sensitive land use areas near freight rail lines and truck routes. Mitigate impacts to sensitive land uses by using vegetative buffers, establishing rail "quiet zones," and coordinating land use plans.

5.V. Freight Trucking Policies

5.V.1 Support the Truck Freight Route System, while not prohibiting the use of other roads for local pickup and delivery of goods and services. (See Maps 5-9a and 5-9b).

5.V.2 Improve and maintain the countywide Truck Freight Route System, the Regional Transportation Plan Freight Routes and Oregon Freight Plan Routes, as shown on Maps 5-9a and 5-9b.

5.V.3 Consider Heavy and Oversize Freight Movement requirements on State and County facilities when developing plans for transportation improvements and land use changes along freight routes designated as ORS 366.215 Corridors, as shown on Maps 5-9c and 5-9d.

5.V.4 Consider the safety of all travel modes that use the Truck Freight Route System when designing improvements to this system.

5.V.5 Accommodate freight travel on the Truck Freight Route System by improving facility design and operations.

5.V.6 Identify street improvements to reduce delays and to improve travel time reliability on roadways in the Truck Freight Route system

5.V.7 Work to improve the safety of Truck Freight Routes for all transportation modes.

5.V.8 Support the development of truck layover facilities/staging areas to reduce the conflicts between parked vehicles and adjoining land uses.

5.V.9 Utilize Intelligent Transportation Systems (ITS) solutions to improve safety and operations of freight movement.

5.W. Rail Policies

5.W.1 Support the safe and efficient movement of goods by rail.

5.W.2 Support the reduction of the number of at-grade crossings of arterial and collector streets on main rail lines to reduce conflicts between rail use and other transportation modes, and improve safety.

5.W.3 On new or reconstructed arterials and urban collectors, prohibit at-grade crossings of main rail lines without traffic restrictive safety devices.

5.W.4 Support expansion and maintenance needed to establish reliable, higher speed (110-125 mph) freight rail service and intercity rail passenger service in the Willamette Valley.

5.W.5 Encourage the development of rail-accessible land uses within industrial areas adjacent to main rail lines.

5.W.6 Support the development of convenient inter-modal facilities such as ramp, terminal and reload facilities for transfers from truck to rail for long-haul freight movement.

5.W.7 Improve the safety and operations of rail transport at at-grade rail crossings and ensure that all at-grade crossings meet the best practices for facilitating safe, multi-modal crossings, as identified in the most recent version of the "Railroad-Highway Grade Crossing Handbook" (Federal Highway Administration [FHWA]).

5.W.8 Identify and protect existing and abandoned rail rights-of-way for future transportation facilities and services.

5.X. Airport Policies

5.X.1 Coordinate with the Port of Portland, the Oregon Department of Aviation, and other affected agencies to implement the Mulino Airport Plan.

5.X.2 Coordinate with Marion County, the City of Wilsonville, the Oregon Department of Aviation, and other affected agencies to develop and implement the Aurora Airport Plan.

5.X.3 Allow new airports as conditional uses in appropriate zoning districts. Require new public use airports to be located within:

- one mile of an arterial roadway, and
- at least one mile away from urban residential areas.

5.X.4 Cooperate with the Oregon Department of Environmental Quality, Oregon Department of Aviation and Federal Aviation Administration to minimize conflicts between airports and uses of surrounding lands.

5.X.5 Require that new airports, airport expansions, or expansions of airport boundaries, except those limited to use by ultra-lights and helicopters, have a runway at least 1,800 feet long and control at least enough property at the end of each runway through ownership, aviation easement, or long term lease to protect their approach surfaces until the approach surfaces are 50 feet above the terrain. Require the runway to be located so as to achieve at least a 20-foot clearance of the approach surface over a county, city or public road.

5.X.6 Apply a Public-Use Airport and Safety overlay zoning district to public-use airports, consistent with ORS 836.600 through 836.630, and as shown on Map 5-10.

5.X.7 Apply a Private-Use Airport and Safety overlay zoning district to privately-owned, private-use airports that served as the base for three or more aircraft, consistent with ORS 836.600 through 836.630, and as shown on Map 5-10.

5.X.8 Recognize privately-owned, private-use airports that served as the base for one or two aircraft on December 31, 1994, as shown in the records of the Oregon Department of Transportation and as shown on Map 5-10.

5.X.9 Encourage establishment of heliports in industrial areas in conjunction with state and federal standards for heliport design and location.

5.X.10 Support the role Clackamas County airports serve in supporting emergency response and disaster assistance.

5.Y. Pipeline Policy

5.Y.1 Work with state and federal regulatory agencies, affected communities and pipeline companies to provide safe, quiet, environmentally sensitive, and efficient transport of bulk commodities.

5.Z. Water Transportation Policies

5.Z.1 Maintain safe and convenient, multi-modal land access to the Canby ferry, and to public and commercial docks and boat ramps

5.Z.2 Support efforts to minimize noise and negative impacts caused by river transportation on air and water quality and to habitat for fish migration.

5.Z.3 Support the continued operation and maintenance of the Willamette Falls Locks to facilitate water transportation on the Willamette River.

FINANCE AND FUNDING

The vast majority of surface transportation funding in the United States is derived from public sources at the federal, state, and local levels and primarily includes gas and vehicle taxes and fees. For a variety of reasons, including more efficient vehicles, trends toward shortening commutes or carpooling, and a general unwillingness to raise gas tax rates, jurisdictions across the nation are facing decreasing levels of available funding for transportation projects. That, combined with rising construction costs, leads to increasing challenges in finding available funds for all the improvements that are needed to the transportation system.

One way to control costs is to spend wisely by focusing on using and maintaining the transportation systems that exist. The County also is committed to identifying and pursuing potential new funding sources for transportation improvements.

5.AA. General Finance and Funding Policies

5.AA.1 Support continuation of current (or equivalent) federal, state, and local funding mechanisms to construct and maintain County transportation projects. Identify and pursue new, permanent funding mechanisms to construct and maintain County transportation facilities and to support programs and projects identified in the TSP.

5.AA.2 Seek dedicated funding sources to implement active transportation projects.

5.AA.3 Establish funding for bicycle, pedestrian and transit projects that serve the needs of transportation disadvantaged populations.

5.AA.4 Consider a transportation system development charge methodology that calculates person trips to allow pedestrian, transit, and bicycle projects, as well as motor vehicle projects, to be funded by TSDCs.

5.AA.5 To the extent practical, invest unrestricted funding sources in a balanced manner between rural and urban areas.

5.AA.6 **Urban** Study creating a transportation facility funding program that establishes a "fee in lieu of" process that may be used by developers to pay for all on-site and off-site transportation facilities required as part of the land development process.

5.BB. Maintenance Policies

5.BB.1 Emphasize maintenance of existing rights-of-way, with improvements where appropriate, to improve traffic flow and safety for all transportation modes at a reasonable cost.

5.BB.2 Determine road maintenance needs and priorities and develop an effective and efficient road maintenance program.

5.BB.3 Develop routine maintenance standards and practices for the transportation system, including traffic control devices.

TRANSPORTATION PROJECTS AND PLANS

The County's Capital Improvement Plan (CIP) includes a 20-year plan for needed transportation improvements and the 5-year programmed projects. The CIP was developed through concentrated and intense scrutiny by County staff and several advisory groups. Needed transportation projects were reviewed and analyzed with respect to how the transportation system is expected to function in 2035; how well each reflected the TSP vision and goals; and based on feedback from the public and several advisory committees. The Public Advisory Committee (PAC) developed the final recommendation to the Planning Commission on the project prioritization.

The purpose of the project prioritization was to identify a set of project that could reasonably be expected to be funded over the next 20 years. The funding forecast completed in 2012 indicates that only around 15% of the funding will be available to construct the needed projects. Therefore, the Capital Improvement Plan is divided into three project lists:

- *20-Year Capital Projects*: contains the prioritized list of needed transportation projects that can reasonably be undertaken given the current estimates of available funding.
- *Preferred Capital Projects*: contains a second group of needed, prioritized transportation projects that the County would undertake if additional funding becomes available during the next 20 years.
- *Long-Term Capital Projects*: contains the remainder of the needed transportation projects. Although these projects will be needed to meet the transportation needs of the County in the next 20 years, they are not expected to be funded or constructed by the County.

The CIP will be updated as needed, and additional studies will be completed to optimize the work completed in this TSP by finding new ways to address known problems that cannot be solved by the current CIP. Special Transportation Plans include policy recommendations for a specific geographic areas or transportation facilities within the County Where conflicts exist between provisions of Special Transportation Plans and provisions of Chapter 5, provisions in the Special Transportation Plans take precedence.

5.CC. Capital Improvement Plan Policies

5.CC.1 Fund and build the transportation improvement projects identified as needed to accommodate and appropriately manage future transportation needs. These projects are found in the following lists: *20-Year Capital Projects* (Table 5-3a); *Preferred Capital Projects* (Table 5-3b); and Long-Term Capital Projects (Table 5-3c). Project locations are shown on Maps 5-11a through 5-11f.

5.CC.2 Maintain a current and complete 5-Year Capital Improvement Program (CIP), which contains the programmed transportation projects in priority order, with estimated costs and assigned responsibility for funding. Update and adopt the 5-Year Capital Improvement Program periodically.

5.CC.3 Support the construction of prioritized, major transportation improvements in the County as identified by other jurisdictions including the Oregon Department of Transportation, Metro, cities, transit agencies and park providers. The list of needed transportation projects to be built by other jurisdictions is located in Table 5-3d. The project locations are shown on Maps 5-11a through 5-11f.

5.DD. Special Transportation Plans and Studies

5.DD.1 Designate the following as Special Transportation Plans:

A. The SE 172nd Avenue/190th Drive Corridor Management Plan, adopted by reference in Appendix A;

B. The Clackamas County Pedestrian Master Plan, adopted by reference in Appendix A;

C. The Clackamas County Bicycle Master Plan, adopted by reference in Appendix A;

D. The Clackamas County Airport Plan, adopted by reference in Appendix A;

E. Transportation elements of the Community Plans and Design Plans included in Chapter 10;

F. The Exception to Statewide Planning Goal 3 (Agricultural Lands), Goal 11 (Public Facilities & Services) and Goal 14 (Urbanization), pursuant to OAR 660, Division 12, to allow for the Arndt Road improvement, which is substantially complete; (For findings of fact and statement of reasons, see Board Order 2003-76.)

G. The Exception to Statewide Planning Goal 3 (Agricultural Lands), Goal 11 (Public Facilities & Services) and Goal 14 (Urbanization), pursuant to OAR 660, Division 12, to allow for the Arndt Road improvement listed as project number 2029 on Table 5-3b and shown on Map 5-11e; (For findings of fact and statement of reasons, see Board Order 2003-104.)

H. The Clackamas County Active Transportation Plan, adopted by reference in Appendix A; and

I. The Clackamas Regional Center Pedestrian/Bicycle Plan, adopted by reference in Appendix A.

5.DD.2 Complete the following studies to develop solutions to problems that were identified during the existing and future conditions analysis of the transportation system, but could not be solved within the scope of the TSP update.

A. Conduct an alternatives analysis and land use study to identify and consider roadway improvements to address access to I-5 within the southwest portion of the County and capacity deficiencies along Arndt Road (project #1106).

B. Develop alternative performance standards for intersections and alternative mobility standards within the Clackamas Regional Center design plan area. Determine if this area should be designated as a multimodal, mixed-use area (MMA) as provided in the Transportation Planning Rule (OAR 660-012-0060). (project #1017)

C. Develop a circulation study for the area west of the Clackamas Town Center and conduct a Transportation Infrastructure Analysis. (project #1018)

D. Study the I-205 Multi-use Path gap to identify near term solutions for completing the path. (project #1026)

E. Identify bicycle and pedestrian improvements to better connect OR 224 to the Clackamas Regional Center along 82nd Avenue**.** (project #1032)

F**.** Work with ODOT, the City of Happy Valley and the City of Damascus to review the future need for the Sunrise Unit 2 (parallel to Highway 212, between 172nd Avenue and US 26), identified as a future, planned highway corridor.

G. Work with ODOT, Metro, Oregon City, West Linn and any other affected jurisdiction to analyze and develop a solution to the transportation bottleneck on I-205 between Oregon City and the I-205 / Stafford Road Interchange. This process may include undertaking an Environmental Impact Statement to identify a preferred alternative that addresses the transportation congestion and facility operations issues on this portion of the I-205 corridor.

DEFINITIONS

The following definitions apply to usage within Chapter 5.

Airport, Private Use: An airport restricted, except for aircraft emergencies, to use by the owner and his invited guests. The determination as to whether an airport is private or public use is made by the Oregon Department of Aviation.

Airport, Public Use: An airport that is open to use by the flying public, with or without a request to use the airport.

Bikeway: A paved facility provided for use by cyclists. There are five categories of bikeways.

- Shared Roadway: A type of bikeway where motorists and cyclists occupy the same roadway area. Shared lane markings should be provided in the roadway to designate the shared use of the roadway by bicyclists and motorists. On shared roadway facilities, bicyclists may use the full travel lane. Two types of shared roadway facilities are:
    - Bicycle Boulevard: A bicycle facility in a network of connected low volume and low speed roads (typically local or connector roadways) where bicycles share the roadway with vehicles but bicycle movements are prioritized over vehicle movements.
    - Advisory Lanes: A bicycle facility where the center travel lane is shared by two-way automobile traffic and shoulder bikeways or bike lanes are provided on each side of the center lane. Vehicles may use the shoulder bikeways/bike lanes for passing but must yield to bicyclists and oncoming motorists.
- Shoulder Bikeway: A bikeway which accommodates cyclists on paved roadway shoulder.
- Bike Lane: There are three types of bike lanes:
    - Buffered Bike Lane: Bicycle lanes with a striped buffer providing greater separation from vehicles than a typical bike lane.
    - Protected Bike Lane: Bicycle lanes parallel to the roadway and separated from traffic by a buffer as well as by a barrier such as a landscaped buffer, parked cars, or flexible bollards.
    - Conventional Bike Lane: A section of roadway designated for exclusive bicycle use, at the same grade as the adjacent roadway.
- Bike Path: A bike lane constructed entirely separate from the roadway.
- Cycle Track: An exclusive "grade-separated" bike facility elevated above the street level using a low-profile curb and a distinctive pavement material. Two-way cycle tracks are physically separated cycle tracks that allow bicycle movement in both directions on one side of the road.

Truck Freight Route System: A set of identified arterials, collectors and State facilities that support the efficient movement of goods throughout the County.

Functional Classification: The process by which streets and highways are grouped into classes, or systems, according to the character of traffic service that they are intended to provide. Functional classifications found in Clackamas County and typical characteristics of each classification follow:

- Principal Arterials: (Freeway/Expressway and other designated Principal Arterials). Serves interregional and intraregional trips and carries heavy volume at high speed. Primarily Interstate Freeways and State Highways but also includes other roads designated as Principal Arterials. These roads make up the National Highway System.
- Major Arterial: Carries local and through traffic to and from destinations outside local communities and connects cities and rural centers. Moderate to heavy volume; moderate to high speed.
- Minor Arterial: Connects collectors to higher order roadways. Carries moderate volume at moderate speed.
- Collector: Principal carrier within neighborhoods or single land use areas. Links neighborhoods with major activity centers, other neighborhoods, and arterials. Generally not for through traffic. Low to moderate volume; low to moderate speed.
- Connector: Collects traffic from and distributes traffic to local streets within neighborhoods or industrial districts. Usually longer than local streets. Low traffic volumes and speeds. Primarily serves access and local circulation functions. Not for through traffic in urban areas.
- Local: Provides access to abutting property and connects to higher order roads. New local roads should intersect collectors, connectors, or, if necessary, minor arterials. Not for through traffic.
- Alley: May be public or private, to provide access to the rear of property. Alleys should intersect local roads or connectors. Not for through traffic

Level of service (LOS): A performance measure that represents quality of service of an intersection or roadway segment, measured on an A–F scale, with LOS A representing the best operating conditions from the traveler's perspective and LOS F the worst.

Major Transit Stop: A transit center, major bus stop, or light rail stop, as identified on Comprehensive Plan Map 5-8a, *Transit, Urban*.

Major Transit Street: A street with a Frequent Service Bus Line, as identified on Comprehensive Plan Map 5-8a, *Transit, Urban*; existing or planned High Capacity Transit, as identified on Comprehensive Plan Map 5-8c, *High Capacity Transit (HCT) System Plan*; or both.

Mode (also "travel mode"): A particular form of travel, for example, walking, bicycling, traveling by automobile, or traveling by bus.

Multi-use Path: A paved path built for bicycle and pedestrian traffic that is physically separated from motor vehicle traffic, and can be either within the road right-of-way or within an independent right-of-way.

Pedestrian Facilities: Sidewalks, pedestrian pathways, or other facilities that are designed specifically for pedestrian use, as identified by functional classification in cross sections (Figures 5-1 through 5-3) or as determined appropriate by the County Planning Director and the County Road Official or County Engineer.

Principal Active Transportation (PAT) Route: Priority routes for pedestrian and bikeway facilities which form the "spine" of the County active transportation network that have been identified in the Active Transportation Plan. PAT Routes provide connection to key county destinations, link rural and urban communities, and connect to Parkways and Bikeways as identified in the Metro Regional Active Transportation Plan. Specifics about the appropriate bikeway and/or pedestrian facility treatments for the PAT Routes are included in the Active Transportation Plan.

Trail: A hard- or soft-surfaced facility for pedestrians, bicyclists, or equestrians that is separate from vehicular traffic. Trails often go through natural areas and are designed to have a minimal impact on the natural environment.

Transportation Demand Management (TDM): Strategies to achieve efficiency in the transportation system by reducing demand.

Transportation Disadvantaged: Persons who, because of physical or mental disability, income status, or age, are unable to transport themselves or to purchase transportation and are, therefore, dependent upon others to obtain access to health care, employment, education, shopping, social activities, or other life-sustaining activities, or children who are handicapped or high-risk or at-risk.

Road: A public or private way created to provide ingress to, or egress from, one or more lots, parcels, areas or tracts of land, or that provides for travel between places by vehicles. A private way created exclusively to provide ingress and egress to land in conjunction with a forest, farm or mining use is not a "road." The terms "street," "access drive" and "highway" for the purposes of this Plan shall be synonymous with the term "road."

Roadway: That portion of a road or alley that has been improved for vehicular and pedestrian traffic.

Rural: Outside the Portland Metropolitan Urban Growth Boundary and outside city limits

Urban: Inside the Portland Metropolitan Urban Growth Boundary

Volume-to-Capacity (v/c) Ratio: A volume-to-capacity ratio compares vehicle volumes (the roadway demand) with roadway supply (carrying capacity). Volume refers to the number of vehicles using a roadway at a specific time period (and length of time), while capacity is the road's ability to support that volume based on its design and number of lanes.