



## Transportation System Management and Operations Element

The Transportation System Management and Operations element of the Transportation System Plan (TSP) identifies systems and operational strategies for Washington County to pursue over time. This section focuses on the provision of systems to improve the management and operation of the integrated multimodal transportation network. Transportation System Management & Operations includes four functional areas: multimodal traffic management, traveler information, traffic incident response, and transportation demand management. These topics are organized into the three major sections shown below.

- MultiModal Traffic Management, Operations and Traveler Information
  - › Traffic Control & Traveler Information
  - › Bicycle & Pedestrian
  - › Rural
- Traffic Incident Response
- Travel Demand Management Strategies

*Washington County's Intelligent Transportation System Plan* combines multimodal traffic management and operations and traveler information systems into a coordinated transportation system management architecture. At this time, Washington County does not envision development of a county-based traffic incident response program. The county coordinates with ODOT, which provides a dedicated and efficient incident response program (formerly known as Corridor Management Teams or COMET). Beyond the ODOT incident response program, Washington County relies on emergency services departments (such as the county Sheriff's Office and Tualatin Valley Fire & Rescue) to respond to incidents throughout the transportation system.

### MULTIMODAL TRAFFIC MANAGEMENT, OPERATIONS AND TRAVELER INFORMATION

Washington County seeks to improve the safety, security and movement of goods, people and services for all modes of the transportation network by using advanced technologies, coordinated management techniques, and by providing real-time traveler information. Building and managing a smarter, more efficient transportation system requires cooperation between Washington County, ODOT, and local agencies. Improving the management and operations of the integrated multi-modal transportation network necessitates a combined strategy of capital projects, use of technology, and public transportation. Many of these strategies may be used on corridors where Washington County operates the traffic signals. Washington County will lead these efforts and will coordinate with local agencies and ODOT on the implementation, as applicable.

Washington County, in partnership with numerous stakeholders, has developed an Intelligent Transportation System (ITS) Plan for the county's roadways. The ITS plan will guide the deployment of advanced technologies and management techniques to improve the safety and efficiency of the county's transportation system. The goals of the ITS Plan include:

- Improve the safety and security of our transportation system
- Improve the efficiency of the transportation system
- Provide improved traveler information
- Deploy functional and cost efficient ITS infrastructure
- Integrate regional ITS projects with local and regional partners

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The ITS plan provides a framework of policies, procedures, and strategies for integration of Washington County's existing resources to effectively meet future regional transportation needs and expectations. Key concepts include the following:

- The region cannot build itself out of congestion
- The region endeavors to maximize the efficiencies and improve the safety of the existing infrastructure
- The County strives to deliver better information about traffic conditions
- The plan fosters multi-agency coordination system operations.
- The Federal Highway Administration requires that all ITS projects funded through the Highway Trust Fund shall be in conformance with the National ITS Architecture and applicable standards

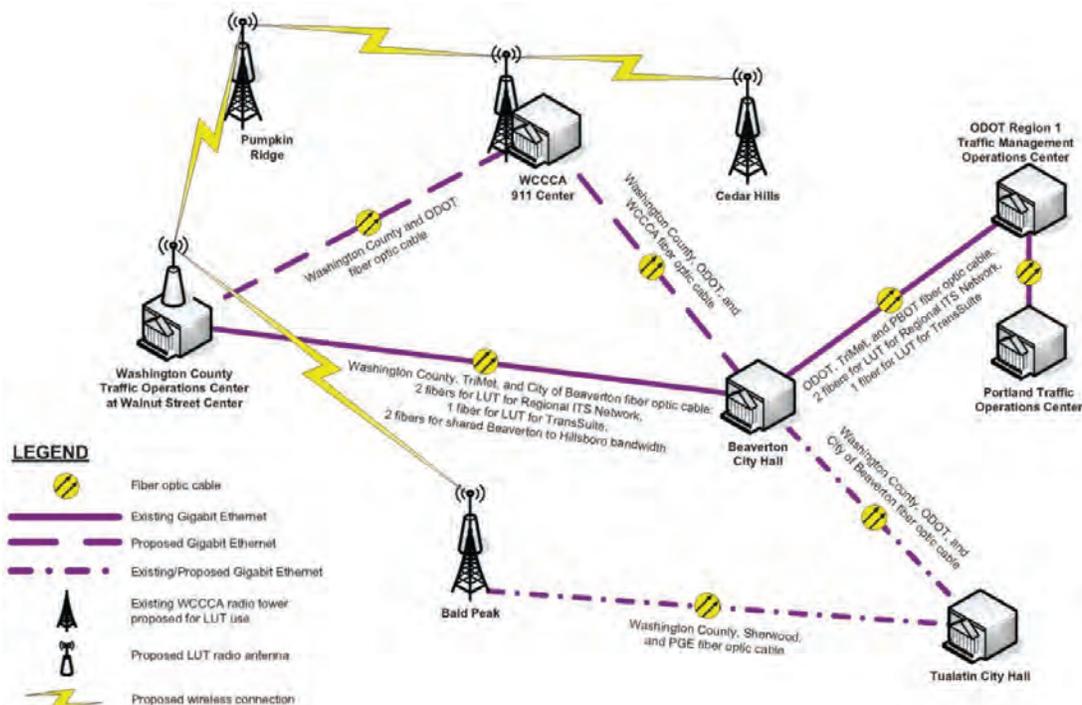
### Traffic Control and Traveler Information

The ITS plan focus on two major categories of systems: 1) Communication Backbone & Centers, and 2) Arterial Management System and Traveler Information Systems. Figure 3-30 depicts the high-level network architecture to connect the operations centers operated by Washington County, with regional operations centers operated by other agencies.



ODOT traveler information signs on Highway 26

Figure 3-30: ITS Communications Backbone





Washington County operates four operations centers:

- Washington County Traffic Operations Center (TOC) at Walnut Street Center,
- Washington County Consolidated Communications Agency (WCCCA) 911 Center,
- Beaverton City Hall, and
- Tualatin City Hall.

Regional operations centers operated by other agencies include:

- ODOT Region 1 Traffic Management Operations Center, and
- City of Portland Bureau of Transportation TOC



Washington County Intelligent Transportation System

### Communications Backbone

The communications backbone network uses a combination of fiber optic cable and wireless communications to connect the centers. The wireless paths shown in Figure 3-31 were identified through a planning level radio frequency analysis. In addition to center-to-center communications, several wireless paths were also identified to provide connectivity to some field devices based on line-of-sight analysis.

### Arterial Management System and Traveler Information Systems

Washington County has identified a number of ITS strategies for improving corridor management and operations over time. These strategies include:

- Routine traffic signal maintenance/operations,
- Enhanced traffic signal timing operations,
- Transit signal priority,
- Traffic surveillance (cameras or detection),
- Trail counters,
- Event management,
- Arterial performance monitoring,
- Real-time traffic flow conditions, and
- Fiber optic cable backbone.

Washington County has deployed several arterial management projects. These projects are aimed at improving the safety and operational efficiency of the existing transportation infrastructure. Potential benefits for the transportation system and travelers include:

- Improved travel time reliability,
- Reduced travel delay,
- Reduced fuel consumption and greenhouse gas emissions,
- Reduced crashes and improved safety, and
- Comprehensive information for travelers to make informed decisions.



### Bicycle and Pedestrian ITS Strategies

Bicycle and pedestrian ITS strategies include information systems to collect data about bicycle and pedestrian travelers, as well as operational systems to enhance the transportation network for these travelers. Information systems may include bicycle detection and trail counters. Bicycle Detection at traffic signals supports the operation of the signal and collects information that the signal has responded to the detection of bicycles (i.e., the presence of the cyclist is counted). Washington County continues to work with county and local Parks and Recreation departments to install bicycle and pedestrian counters where trails cross arterial roadways.

System enhancements for bicycles and pedestrians may include the types of improvements described below.

- Pedestrian Signal Countdown Timers – Pedestrian signal countdown timers can be installed based on the requirements of the Manual of Traffic Control Devices.
- Bicycle/Pedestrian Crossing Enhancements – Enhance visibility of bicycles and pedestrians at crossings, pushbutton-activated beacons or traffic signals
- Bicycle/Pedestrian Based Signal Timing – Adjust signal timing to accommodate bicyclists and/or pedestrians. Including prohibiting flashing yellow arrow when there is a pedestrian call. Reduce pedestrian and bicycle delay at locations with high pedestrian and/or bicycle demand. Bicycles may require longer minimum green times, and longer clearance intervals.

### Rural

Rural systems enhance the operation and safety of rural roadways. These systems are often prioritized at locations with a higher number of collisions. Rural systems may include:

- Weather Stations - Monitor adverse conditions and provide traveler information
- Intersection Warning Systems - Notify drivers of an upcoming intersection or cross-traffic with active warning systems
- Curve Warning Systems - Notify drivers of an upcoming curve using active warning systems
- Queue Warning Systems - Notify drivers that a queue exists ahead using active warning systems
- Size & Speed Warning Systems - Notify drivers of height, length, width, or speed restrictions, typically applied on roadways with compliance issues
- Speed Feedback Systems - Measure and display the speed of approaching vehicles in advance of locations where a slower speed is appropriate



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## TRAFFIC INCIDENT RESPONSE

At this time, Washington County does not envision development of a traffic incident response program. Washington County coordinates with ODOT, which provides a dedicated and efficient incident response program (formerly known as Corridor Management Teams or COMET). Beyond the ODOT incident response program, Washington County relies on emergency services departments (such as the Washington County Sheriff Office and Tualatin Valley Fire & Rescue) to respond to incidents throughout the transportation system.

## TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) is the general term used to describe any activity that provides an alternative to single occupant vehicle trips. Demand management encompasses a range of strategies such as carpooling, staggered work shifts or telecommuting. Strategies may encourage ridesharing (e.g., on site showers, lockers or bike parking), walking to work or providing flexible working hours. Such strategies are viewed as relatively low-cost initiatives that can help reduce traffic congestion and air quality problems. As growth in Washington County occurs, the number of vehicle trips and travel demand in the area will also increase. The ability to provide alternatives will help accommodate this growth. Travel demand management strategies and programs have taken on increased importance and emphasis over time, particularly as interest in green-house gas reductions have increased.

Employers with more than 100 employees at a single work site are subject to the Department of Environmental Quality's Employee Commute Options (ECO) rule. Such employers are required by state regulations to have programs in place intended to reduce the percentage of employees who drive alone to work, and to regularly survey their employees about their commute patterns. An employer participating in an equivalent commute trip reduction program who does not achieve its target auto trip rate by the target compliance date must demonstrate that a good faith effort was made to achieve the target rate.

Washington County coordinates with the Westside Transportation Alliance (WTA) on a variety of employer based TDM strategies. The WTA, the primary Transportation Management Association (TMA) within Washington County, works with its partners and Washington County employers to offer workplace services and programs that help employees commute to work by transit, carpool, vanpool, bicycling and walking. These services include transportation fairs, assistance with ECO Rule compliance, surveying, events, incentive programs, and participation on local and regional transportation planning committees.

Travel Demand Management programs may include a wide variety of commute options and incentives, such as:

- Free TriMet passes for all employees
- Preferential parking for carpooling vehicles
- Bike storage and showers in locker rooms
- Compressed work weeks
- Telecommuting
- Individual Marketing Programs

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