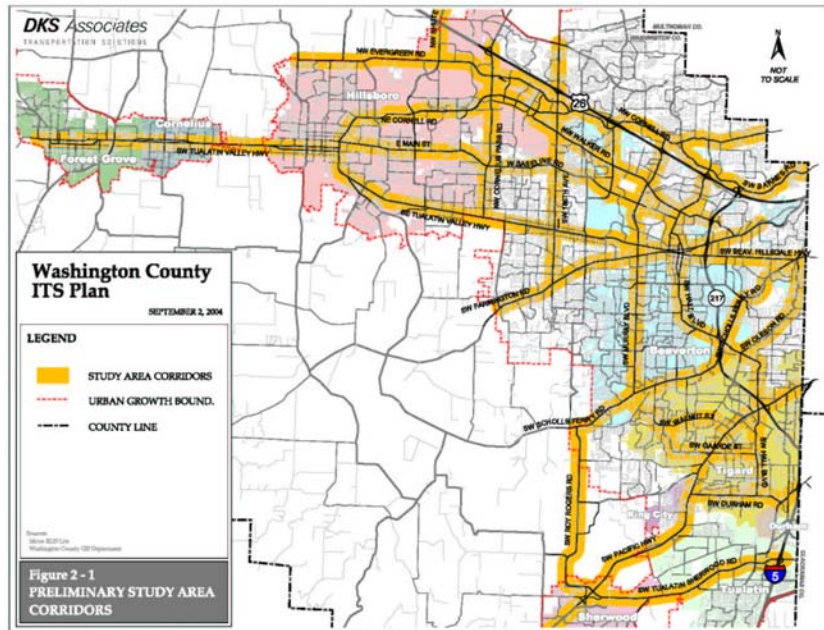


Chapter 1: Introduction and Summary

1.1 INTRODUCTION

Washington County, in partnership with ODOT, City of Beaverton, City of Tualatin, City of Tigard, City of Hillsboro, City of Portland, TriMet, FHWA, WCCCA, and Tualatin Valley Fire and Rescue, has developed an Intelligent Transportation System (ITS) Plan for the county’s roadways. The five-year plan will guide advanced technologies and management techniques that will improve the safety and efficiency of the transportation system. The Washington County ITS Plan was developed in a manner consistent with similar efforts in the region and state to ensure that ITS efforts throughout the state are coordinated and complementary



Washington County ITS Study Area Corridors

1.2 WHAT IS ITS?

Intelligent Transportation Systems involve the application of advanced technologies and proven management techniques to solve transportation problems, enhance safety, provide services to travelers, and assist transportation system operators in implementing suitable traffic management strategies. ITS focuses on increasing the efficiency of existing transportation infrastructure by providing tools to manage congestion resulting from non-recurring events such as weather, traffic incidents and road construction. As a result this enhances the overall system performance and reduces the need to add capacity (e.g., travel lanes). Efficiencies are achieved by providing services and information to travelers so they can (and will) make better travel decisions and to transportation system operators so they can better operate and manage the system seamlessly across jurisdiction boundaries.

1.3 WHY DEVELOP AN ITS PLAN?

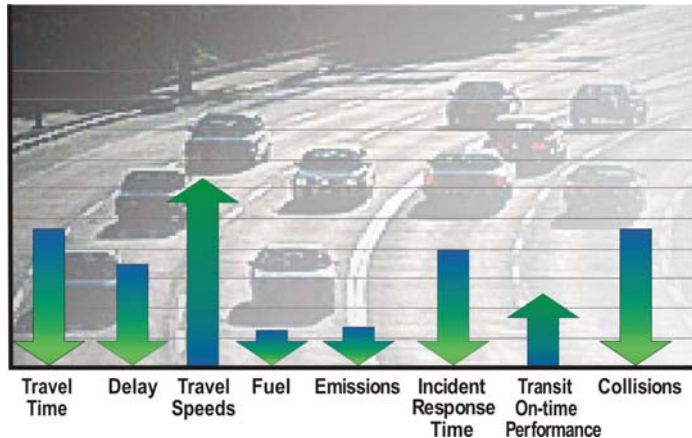
An ITS plan provides a framework of policies, procedures, and strategies for integration of an area's existing resources to effectively meet future regional transportation needs and expectations. The following reasons provide the basis for developing an ITS plan for Washington County:

- ◆ The region cannot build itself out of congestion.
- ◆ The region endeavors to maximize the efficiencies and improve the safety of the existing infrastructure.
- ◆ The public demands better information about traffic congestion.
- ◆ The plan fosters multi-agency coordination for 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.

1.4 WHAT ARE THE EXPECTED BENEFITS?

Intelligent Transportation System projects are aimed at improving the safety and operational efficiency of our existing transportation infrastructure by:

- ◆ Reducing vehicle delays related to congestion
- ◆ Reducing collisions and incident response times
- ◆ Providing travelers with real-time information to make informed route and mode choice decisions.



Quantifiable benefits resulting from Intelligent Transportation Systems include:

- ◆ Reduced vehicle delays
- ◆ Reduced collisions
- ◆ Improved air quality
- ◆ Reduced fuel consumption
- ◆ Improved travel times

Another benefit, which is more difficult to quantify, includes reducing driver frustration and anxiety by providing real-time travel information. Additionally, improving efficiency by coordinating agency actions can produce long-term savings, particularly in relation to coordinating regional projects and regional response to incidents. Detailed benefits for projects are summarized in Chapter 5.



1.5 WASHINGTON COUNTY USER NEEDS

To ensure the success of the *Washington County ITS Plan*, a coalition of stakeholders and system users was created to gather input and build consensus. The stakeholders consisted of representatives of the following agencies:

- ◆ Washington County
- ◆ The City of Beaverton
- ◆ The City of Forest Grove
- ◆ The City of Hillsboro
- ◆ The City of Portland
- ◆ The City of Sherwood
- ◆ The City of Tigard
- ◆ The City of Tualatin
- ◆ Federal Highway Administration
- ◆ TriMet
- ◆ Tualatin Valley Fire & Rescue
- ◆ Oregon Dept. of Transportation
- ◆ WCCCA (911)

Interviews with key stakeholders covered local agency specific needs. Mailed questionnaires focused primarily on gathering the big-picture user needs. After completion of the interviews, a meeting was held with key stakeholders to discuss and verify the transportation needs and determine any additional needs. Detailed user needs are discussed in Chapter 3.

1.6 WASHINGTON COUNTY FIVE-YEAR ITS PLAN

This section provides details regarding the Washington County Five-Year Plan projects. A total of 7 projects were identified as reasonable short-term list of projects. Table 1-1 gives a brief description each project with additional details provided in Chapter 5.

Table 1-1 Washington County Five-Year Project List

Project #1	Signal System Evaluation and Implementation
Objective	Install central signal system software that allows remote management of traffic signals and is integrated with other agencies throughout the region. Configure a Virtual (TOC) at Washington County at Walnut Street for the monitoring and control of regional traffic operations. Establish a communications connection from Washington County to the City of Portland traffic signal system server.
Project Cost	Estimated Capital Cost: \$335,000 Estimated O&M Costs: \$5,000
Benefits	<ul style="list-style-type: none"> • Gives opportunities for travel time benefits and reduction of pollutants. • Data collection • Integration of multi-jurisdictional arterial systems. • Information sharing capabilities. • Ability to monitor and control traffic control systems in real-time from a remote location. • Ability to respond to complaints in a timely and cost-effective manner. • Supports Arterial Management projects

Project #1a	Beaverton Signal System
Objective	Install central signal system software that allows remote management of traffic signals and is integrated with Washington County and other jurisdictions in the region. Configure a “Virtual” Traffic Operations Center (TOC) at the City of Beaverton for monitoring and control of City maintained traffic operations. Establish a communications connection from the City of Beaverton to City of Portland traffic signal system server.
Project Cost	Estimated Capital Cost: \$245,000 Estimated O&M Costs: \$3,500
Benefits	<ul style="list-style-type: none"> • Gives opportunities for travel time benefits and reduction of pollutants • Integration of multi-jurisdictional arterial systems. • Information sharing capabilities. • Ability to monitor and control traffic control systems in real-time from a remote location. • Ability to respond to complaints in a timely and cost-effective manner. • Supports Arterial Management projects

Project #2	Arterial Management System on Scholls Ferry Road
Objective	Deploy an arterial surveillance and management system on Scholls Ferry Road from Hall Boulevard to Murray Boulevard that provides traffic-responsive corridor management, traveler information, improved freight mobility, and supports incident management.
Project Cost	Estimated Capital Cost: \$881,000 Estimated O&M Costs: \$42,000
Benefits	<ul style="list-style-type: none"> • Integration of multi-jurisdictional arterial and freeway systems. • Reduce travel times 8 to 25 percent¹ by coordinating traffic signals. • Reduce arterial delays 15 to 30 percent by coordinating traffic signals. • Reduce fuel consumption 5 to 15 percent by coordinating traffic signals. • Improved agency response to signal timing changes and evaluation of signal timing complaints by providing the ability to monitor signal timing and make changes remotely. • Reduced incident response time. • Reduced emissions. • Improved incident management. • Increased traveler information. • Monitor truck traffic and provide count (volume, occupancy, vehicle classification, etc.) data.

¹ Quantitative Benefits for travel times, arterial delays, and fuel consumptions are taken from *Estimating the Benefits of ITS Projects*, TTI, Project Summary Report 0-1790-S.

Project #3	Arterial Management System on Tualatin-Sherwood Road
Objective	Deploy an arterial surveillance and management system on Tualatin Sherwood Road from I-5 to Teton Avenue that provides traffic-responsive corridor management, traveler information, improved freight mobility, and supports incident management.
Project Cost	Estimated Capital Cost: \$791,000 Estimated O&M Costs: \$26,000
Benefits	<ul style="list-style-type: none"> • Integration of multi-jurisdictional arterial and freeway systems. • Reduce travel times 8 to 25 percent by coordinating traffic signals. • Reduce arterial delays 15 to 30 percent by coordinating traffic signals. • Reduce fuel consumption 5 to 15 percent by coordinating traffic signals. • Improved agency response to signal timing changes and evaluation of signal timing complaints by providing the ability to monitor signal timing and make changes remotely. • Reduced incident response time. • Reduced emissions. • Improved incident management. • Increased traveler information. • Monitor truck traffic and provide count (volume, occupancy, vehicle classification, ect.) data.

Project #4	Arterial Management System on SW 185th Avenue
Objective	Deploy an arterial surveillance and management system on SW 185 th Avenue from Baseline Road to the US 26 interchange that provides traffic-responsive corridor management, traveler information, improved freight mobility, and supports incident management.
Project Cost	Estimated Capital Cost: \$870,000 Estimated O&M Costs: \$33,000
Benefits	<ul style="list-style-type: none"> • Integration of multi-jurisdictional arterial and freeway systems. • Reduce travel times 8 to 25 percent by coordinating traffic signals. • Reduce arterial delays 15 to 30 percent by coordinating traffic signals. • Reduce fuel consumption 5 to 15 percent by coordinating traffic signals. • Improved agency response to signal timing changes and evaluation of signal timing complaints by providing the ability to monitor signal timing and make changes remotely. • Reduced incident response time. • Reduced emissions. • Improved incident management. • Increased traveler information. • Monitor truck traffic and provide count (volume, occupancy, vehicle classification, ect.) data.

Project #5 Arterial Management System on Cornell Road	
Objective	Deploy an arterial surveillance and management system on Cornell Road from downtown Hillsboro to Cornelius Pass Road that provides traffic-responsive corridor management, traveler information, improved freight mobility, and supports incident management.
Project Cost	Estimated Capital Cost: \$1,549,000 Estimated O&M Costs: \$54,000
Benefits	<ul style="list-style-type: none"> • Integration of multi-jurisdictional arterial and freeway systems. • Reduce travel times 8 to 25 percent by coordinating traffic signals. • Reduce arterial delays 15 to 30 percent by coordinating traffic signals. • Reduce fuel consumption 5 to 15 percent by coordinating traffic signals. • Improved agency response to signal timing changes and evaluation of signal timing complaints by providing the ability to monitor signal timing and make changes remotely. • Reduced incident response time. • Reduced emissions. • Improved incident management. • Increased traveler information. • Monitor truck traffic and provide count (volume, occupancy, vehicle classification, ect.) data.

Project #6 Weather Station and Camera on Barnes Road	
Objective	Deploy a roadway weather information system (RWIS) on Barnes Road adjacent to St. Vincent's Hospital to collect atmospheric weather data and local pavement condition information. Install a CCTV camera to monitor conditions and dispatch weather related maintenance vehicles. Make real-time weather information readily available to all users.
Project Cost	Estimated Capital Cost: \$125,000 Estimated O&M Costs: \$4,000
Benefits	<ul style="list-style-type: none"> • Real-time weather and pavement conditions adjacent to St. Vincent's Hospital for travelers and for maintenance personnel. • More efficient allocation of maintenance resources during inclement weather. • Reduce snow and ice control costs by 5 to 10 percent².

² <http://www.benefitcost.its.dot.gov/ITS/benecost.nsf/ID/85489FB7F2452AAE852569610051E265>

Project #7 County Wide Construction Activity Map	
Objective	Develop a user-friendly website that provides up-to-date static and real-time construction information to aid travelers with pre-trip planning.
Project Cost	Estimated Capital Cost: \$90,000 Estimated O&M Costs: \$5,000
Benefits	<ul style="list-style-type: none"> Pre-trip planning capabilities that allow travelers to make informed multi-modal travel decisions. This helps travelers avoid traffic problems, save time, arrive at destinations on time, and reduces frustration and complaints. Customer satisfaction regarding travel options in Washington County. Reduced travel delay. Congestion reduction when travelers choose alternate routes to avoid construction.

1.7 FUNDING

To fully fund the design and construction costs for the five-year ITS project list identified in this deployment plan will require \$4.9 million dollars with an additional \$175,000 of estimated annual operations & maintenance costs. Currently, Washington County has secured \$660,000 in Federal funding with another \$380,000 likely to be funded with the 2006 Metropolitan Transportation Improvement Program (MTIP). Other potential funding sources for funding ITS projects in Washington County include:

- ◆ Washington County Major Streets Transportation Improvement Program 3 (MSTIP3)
- ◆ Traffic Impact Fees
- ◆ Funding support from the Washington County Information Services department
- ◆ Funding support from the Washington County Operations department
- ◆ Joint funding for regional improvements involving other public agencies

