OREGON ITS PERFORMANCE AND BENEFITS PLAN

WORK ORDER #1:
ITS BENEFITS WEB PAGE

Technical Report 1: Web Page Content

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Prepared for the

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Salem, OR

June 30, 2003

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ACKNOWLEDGMENTS

GLOSSARY OF ABBREVIATIONS

ATIS	Advanced Traveler Information System
ATS	Alternative Transportation System
Caltrans	California Department of Transportation
DOI	Department of Interior
DOT	Department of Transportation
FEIS	Final Environmental Impact Statement
FOT	Field Operational Test
GGBHTD	Golden Gate Bridge Highway and Transportation District
GGNRA	Golden Gate National Recreation Area
GMP	General Management Plan
HAR	Highway Advisory Radio
ITS	Intelligent Transportation Systems
LOS	Level of Service
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MTC	Metropolitan Transportation Commission
MUNI	Municipal Railway Bus System
NEPA	National Environmental Policy Act
NHP	National Historic Park
NHS	National Historic Site
NM	National Monument
NMP	National Military Park
NP	National Park
NPS	National Park Service
NRA	National Recreation Area
NS	National Seashore
SALLY	Sausalito Area Local Land Yacht
TDM	Transportation Demand Management
TTIS	Traveler and Tourist Information System
UICPSU	University of Idaho's Cooperative Park Studies Unit
VMS	Variable Message Signs

ABSTRACT

Forthcoming in final version.

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1.   INTRODUCTION

The emergence of intelligent transportation systems (ITS) technology within the last dozen years has provided transportation planners and engineers with a new set of tools to address the growing challenges of the transportation system. ITS, which consists of a variety of advanced computer and communications technologies that may improve the operations of the transportation system, has been implemented by every state to some level, along with many smaller jurisdictions. The Oregon Department of Transportation has been a state that has aggressively implemented ITS projects to address both urban and rural transportation needs.

Because most ITS investments have occurred recently, there is limited public awareness of the potential benefits of these technologies. In an environment where government agencies are increasingly held accountable for the quality and benefit of services they provide to the populace, having ready access to this benefits information is critical. Several organizations, including the U.S. Department of Transportation ITS Joint Program Office and ITS America, have sought to communicate the benefits of ITS to the general public. However, the national scope of these organizations often means that the applicability or relevance of the benefits of a particular project may not be appreciated by citizens of a given state.

As ODOT has continued to invest in deploying ITS technologies, ODOT staff get increased questions about the benefits of ITS technologies. They have found that there is limited availability of one-stop benefits information that would be accessible and useful to the public. Consequently, ODOT contracted with the Western Transportation Institute to produce a series of web pages that would seek to articulate the benefits of ITS. The goal of this project was to demonstrate the performance and benefits of ODOT's ITS deployments to the traveling public and transportation decision makers in easy-to-understand, non-technical language.

This report provides documentation for how the content of the web pages was developed. The methodology that was used to develop the web pages is summarized in Chapter 2. Chapter 3 provides a diagram as to the overall structure of the web pages. Based on the review of the literature of relevant benefits, Chapter 4 identifies several areas where benefits information is lacking. Chapter 5 concludes with recommendations for next steps.

2.   METHODOLOGY

ODOT's growing infrastructure spans a variety projects which provide various benefits to numerous stakeholder groups. This chapter describes how thi

2.1.   Develop Benefits Categories

ODOT's investment in ITS spans a variety of projects providing numerous types of benefits. It was agreed early on in this project that categories needed to be developed to classify the various benefits that may be associated with ODOT's ITS projects. Table 2-1 shows the list of benefits categories that were developed.

Table 2-1: Benefits Categories

- Traveler Safety
- Traveler Information
- Traffic and Incident Management
- Maintenance (Efficiency)
- Transportation Security
- Public Transportation
- Commercial Vehicle Operations and Safety

2.2.   Inventory Oregon's ITS Projects

With the benefits categories established, it was necessary to enumerate ODOT's ITS projects. One issue that came up with this task was defining what constituted a project. For example, ODOT has a network of dozens of road weather information systems (RWIS) to help staff with roadway maintenance; however, many of these sites were deployed independently as different projects. ODOT's ITS unit had developed a project list for its web site and had produced a similar document in 2001 for this web page project; however, both lists were dated. After review and revision, a new list of ODOT's projects was developed; these are listed in .

Because this project is intended to highlight the benefits of ITS in Oregon, it was preferred to emphasize ODOT projects which had evaluations completed or underway. Table 2-2 also indicates which projects were in the process of being evaluated, and by whom, as of February 2003.

Table 2-2: ODOT Projects and Evaluation Status

Project	Evaluation		
	Underway	Evaluator	Status
511 in Oregon	No		
Advanced Curve Warning System	Yes	PSU	In Progress
Automated Wind Warning Systems	Yes	WTI	In Progress
California/Oregon Advanced Transportation Systems (COATS)	Yes	SAIC	In Progress
COMET	Yes	PSU	In Progress
Downhill Speed Warning System	No		
Dundee Queue Detection System	Yes	ODOT	
Flood Warning Detection Systems	No		
Frontier Travel Time Estimation	Yes	WTI	In Progress
Highway Travel Conditions Reporting System (HTCRS)	No		
Interstate 5/Barbur Blvd Corridor Management	Yes	SAIC	In Progress
Length Detection System	No		
National Emergency Messaging System	No		
Operation Green Light	Yes	OSU	Complete
Overheight Vehicle Warning System	No		
Region 2 Incident Response	Yes	PSU	Complete
Regional Trip Planner	Yes	SAIC	In Progress
Remote Control Mobile Home Signs	No		
Roadway Weather Information Systems (RWIS)	No		
Snow Zone	No		
Transit Signal Priority (Tri-Met)	Yes		
Transit Tracker (Tri-Met and C-TRAN)	Yes	SAIC	In Progress
Transportation Operations Center System	No		
Transportation Operations Centers	No		
Travel Information Council (TIC) Partnership	No		
TripCheck	Yes	ODOT	
Video Architecture	No		

2.3.   Identify Goals, Objectives, and Measures of Effectiveness

Goals, objectives and measures of effectiveness were identified for each of the projects listed in Table 2-2, based on information gathered from the ODOT ITS unit's web site, project justification documents and evaluation plans, communication with ODOT staff, and analysis of similar systems elsewhere in the country.

2.4.   Sort Projects Into Benefits Categories

The objectives identified for each ODOT project were used to classify them into one or more of the seven benefits categories. The projects identified under each category are shown in Table 2-3. It should be noted that for the narratives that would be developed for each category that each project would have a detailed breakdown in only one category.

Table 2-3: ODOT Projects by Benefits Category

Traveler Safety
1. Advanced Curve Warning System (Myrtle Creek on I 5)
2. Automated Wind Warning Systems (Humbug Mt. & Yaquina Bay)
3. Flood Warning Detection System (Coos Bay & Seaside)
4. Downhill Speed Warning System
5. Dundee Queue Detection System
6. Length Detection System (McKenzie Pass)

Traveler Information
1. 511 in Oregon
2. Frontier Travel Time Estimation
3. Regional Trip Planner
4. TripCheck (Inc. HTCRS, VMS, Camera & RWIS Network)

Traffic and Incident Management
1. COMET
2. I-5/Barbur Boulevard Corridor
3. Region 2 Incident Response Evaluation
4. Transportation Operations Centers
5. Transportation Operations Center System
6. TripCheck (Inc. HTCRS, VMS, Camera & RWIS Network)

Maintenance (Efficiency)
1. Automated Wind Warning System (Humbug Mt. & Yaquina Bay)
2. Flood Warning Detection System (Coos Bay & Seaside)
3. Remote Control Mobile Home Signs
4. RWIS
5. Snow Zone

Transportation Security
1. National Emergency Messaging System
2. Transportation Operations Centers
3. Transportation Operations Center System

Public Transportation
1. Regional Trip Planner
2. Transit Signal Priority (Tri-Met)
3. Transit Tracker

Commercial Vehicle Operations and Safety
1. Downhill Speed Warning System
2. Length Detection Systems (McKenzie Pass)
3. Operation Green Light
4. Overheight Detection System

2.5.   Identify Related Studies

To supplement data available through ODOT evaluations, it was necessary to identify studies of similar systems nationally or internationally that could provide useful, relevant and comparable benefits information. Many resources were accessed, including evaluations available through the U.S. Department of Transportation ITS Joint Program Office, ITS America, and the ITS Benefit-Cost Database maintained by USDOT through a contract with Mitretek Systems.

3.   WEB PAGE STRUCTURE

Figure ___ provides an outline of the four different types of pages that are included as a part of the ODOT ITS benefits web page that was developed for this project. Each of these page types are described in the sections below.

3.1.   Main benefits page

The purpose of this page is to provide a main entry point for web site visitors who are interested in obtaining information on ITS benefits in Oregon. It provides hyperlinks to general benefits information web sites (e.g. Mitretek), as well as each of the benefits category pages. It also provides a link to the projects page.

3.2.   Benefits category pages

One page was developed for each of the benefits categories listed in Table 2-1. Each of these pages has a narrative section which opens with a general description of the types of benefits ITS can produce in that category, followed by examples of ODOT's projects in that category and the associated benefits. In the case of the transportation security page, benefits information per se is not available, so information regarding typical benefits is provided.

Each benefit category page also includes an inset box on the right side of the page. This inset box includes links to project pop-up windows for all ODOT projects which have benefits identified in that category, links where more information can be gathered on relevant national examples, and related links that can connect the web page reader to other relevant ODOT and national web sites.

3.3.   Project pop-up windows

These windows are accessed as hyperlinks off of the benefits category pages and the projects page. Each window is intended to provide an overall description of the project, along with links where more information may be available (for example, a project web site or an evaluation document).

Project list

4.   DISCUSSION OF EVALUATION GAPS

- **ODOT-"unique" projects**

  – Snow zone signs

  – Remote control mobile home signs

  – Length detection system (?)

  – Overheight detection

  – Dundee warning lights

  – Flood warning system (?)

- **Two-phase approach**

– Theoretical estimates

– Empirical calculations

5.   EFFECT OF VMS ON TRAFFIC

- **Expensive (~$200K) field element**

- **Purpose: to inform drivers of delays, incidents, etc.**

- **Research question: what effect do VMS actually have on drivers?**

– Most studies of effectiveness rely on simulation, assuming a certain response (e.g. 25 percent diversion)

6.   BENEFITS OF ADDITIONAL FIELD DEVICES

- **Question: What are the marginal benefits of additional ITS field units?**

– CCTV

– RWIS

– VMS

7. USEFULNESS OF TRAVEL TIME INFORMATION

- **Increasing emphasis on collecting/ providing real-time travel time information**

- **Question: How useful would any type of travel time information be to travelers?**

8. TRIPCHECK EVALUATION

- **Previous study by U of O. (2000)**

– Metropolitan Portland

- **Current questions:**

– Market share (e.g. vs. radio, rural vs. urban)

•**How to improve?**

– Who are the users?

•**Types of trips**

•**Region of state / out-of-state**

– What pages are used?

– What information are they looking for?

9. 511 EVALUATION

- **Current focus on call volume**

- **Questions**

– Market share

– Who are the users?

•**Types of trips**

•**Type of information**

•**Region of state / out-of-state**

− Potential enhancements

10. BENEFITS OF TOC/TOCS

• **Focal point of ITS activity in Oregon**

− Emergency response/coordination

− Traffic operations

• **Question 1: what is coordination benefit of TOCs in regional situations?**

• **Question 2: what is benefit/cost associated with a potential Region 5 TOC?**

11. SORTING BENEFITS: LESSONS

• **Traveler safety is a major emphasis, but few comparable evaluations**

• **Little data for transportation security projects**

12. DISCUSSION / NEXT STEPS

• **Revisions / comments**

• **Documentation**

− On web page (structure & maintenance)

− On project (methodology, lessons learned, evaluation gaps)

• **File transition**

13.