

TABLE OF CONTENTS

PREFACE

P.1 Introduction.....	P-1
P.2 FHWA Compliance	P-1
P.3 ITS Plan Implementation and Maintenance.....	P-2

CHAPTER 1: CURRENT AND FUTURE TRANSPORTATION CONDITIONS

1.1 Introduction	1-1
1.2 Study Area.....	1-1
1.3 Traffic Conditions Summary	1-5
1.4 Transit	1-8
1.5 Traffic Signals	1-11
1.6 ITS Systems and Equipment.....	1-14
1.7 Communications Equipment.....	1-18
1.8 Emergency Management	1-21
1.9 Incident Management.....	1-22
1.10 Special Events	1-23
1.11 Freight.....	1-23
1.12 Traveler Information.....	1-24
1.13 Summary of Relevant Documents	1-24

CHAPTER 2: USER NEEDS ASSESSMENT

2.1 Introduction	2-1
2.2 Stakeholders and System Users	2-1
2.3 Project Mission, Goals, and Objectives	2-3
2.4 Summary of User Needs	2-5
2.5 Strengths, Weaknesses, Challenges and Opportunities	2-10

CHAPTER 3: REGIONAL ITS ARCHITECTURE

3.1 Introduction.....	3-1
3.2 National ITS Architecture Overview	3-3
3.3 Deschutes County Regional ITS Architecture	3-8
3.4 ITS Standards.....	3-15

CHAPTER 4: OPERATIONAL CONCEPT

4.1 Introduction.....	4-1
4.2 Operational Concept Overview	4-2
4.3 Program Area Operational Concepts.....	4-5

Table 6-2: Deployment Projects Schedule	6-22
Table 6-3: Estimated Capital, Operations, & Maintenance Costs for 20-Year Plan.....	6-42
Table 6-4: Estimated Agency Costs for 5-Year Plan	6-43

LIST OF FIGURES

Figure 1-1. Study Area.....	1-2
Figure 1-2: Regional Facilities.....	1-4
Figure 1-3. Existing Problem Areas	1-6
Figure 1-4. Future Problem Areas.....	1-7
Figure 1-5. High Collision Locations and Safety Corridors	1-9
Figure 1-6. Existing and Planned Traffic Signal Locations	1-13
Figure 1-7. Existing and Planned ITS Equipment	1-15
Figure 1-8. Existing and Planned Communications Infrastructure.....	1-20
Figure 3-1: National ITS Architecture Subsystems	3-5
Figure 3-2: ATMS07 – Regional Traffic Control.....	3-7
Figure 3-3: Deschutes County Physical Architecture.....	3-12
Figure 4-1: Traffic Operations and Management Flow Diagram	4-7
Figure 4-2: Traveler Information Flow Diagram.....	4-8
Figure 4-3: Emergency and Incident Management	4-10
Figure 4-4: Bend Dial-A-Ride Paratransit Operational Concept.....	4-11
Figure 4-5: Future Fixed-Route Transit Flow Diagram.....	4-12
Figure 4-6: Information Management Flow Diagram	4-13
Figure 4-7: Maintenance and Construction Management Flow Diagram.....	4-15
Figure 5-1: Existing Deschutes County Communications Infrastructure.....	5-4
Figure 5-2: ITS Deployment Plan.....	5-7
Figure 5-3 Traffic Signal Communication.....	5-8
Figure 5-4: CCTV Video	5-11
Figure 5-5: Communication Network Elements	5-14
Figure 5-6: Generic Star and Multidrop Configuration	5-19
Figure 5-7: Generic Ring Configuration.....	5-19
Figure 5-8: Generic Mesh Configuration.....	5-20
Figure 5-9: Generic Hybrid Configuration.....	5-21
Figure 5-10: Generic Redundant Star Configuration.....	5-21
Figure 5-11: Required Equipment for SONET Backbone	5-23
Figure 5-12: Required Equipment for Gigabit Ethernet Communication.....	5-25
Figure 5-13: ITS Distribution – RS 232	5-27
Figure 5-14: Video Links.....	5-28
Figure 5-15: TCP/IP Network.....	5-29
Figure 5-16: ITS Distribution	5-30
Figure 5-17: Primary and Secondary Corridors and Communication Hub Locations.....	5-34
Figure 6-1: ITS Deployment Plan for 2005-2025	6-17