Final Report ..... Phase II

WESTERN TRANSPORTATION TRADE NETWORK - WTTN

1999

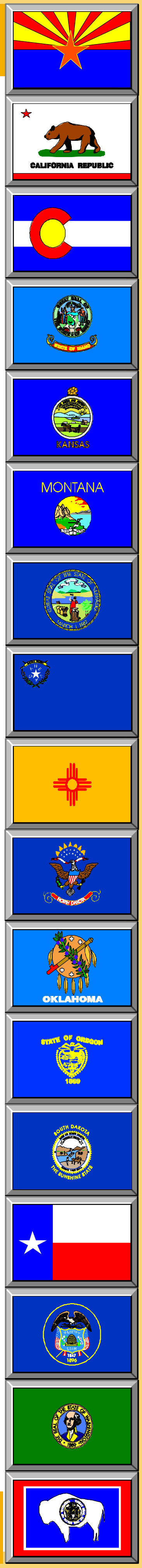


TABLE OF CONTENTS

Chapter 1
INTRODUCTION AND OVERVIEW

The Western Transportation Trade Network (WTTN) is a surface freight transportation concept which seeks to enhance the economic prosperity of the 17 western U.S. states. The WTTN concept was developed by the Western Association of State Highway and Transportation Officials (WASHTO) and, to date, has comprised a two-phase study:

- *Phase I* – Completed May 9, 1997, WTTN Phase I explained the WTTN concept, identified freight transportation systems and commodity movements throughout the WTTN states, identified and described the WTTN network (20 multimodal trade corridors), and identified trade corridor issues and needs. Phase I is a separately bound report volume dated 1997.
- *Phase II* – This second phase was completed in July 1999 and is summarized in this report document. The Phase II work builds upon the results of Phase I and focuses on the specific highways, rail lines, ports, waterways, airports, COFC/TOFC facilities and grain elevators within the 20 designated WTTN Trade Corridors. Freight transportation performance is evaluated, and deficiencies are identified from the freight transportation perspective.

WASHTO SUPPORT FOR WTTN

The WTTN concept was born in 1994, via the WASHTO Standing Committee on Planning, and as endorsed by the CAOs of the 17 states (Resolution 94-1).

In 1994, WASHTO established the WTTN mission, as follows:

WTTN Mission Statement

The purpose of WTTN is to promote economic growth and to maximize regional trade opportunities among Canada, the United States, and Mexico by defining and implementing a multimodal transportation and trade network.[1]

[1] "Western Transportation Trade Network Concept Paper," WASHTO Standing Committee on Planning, March 1994.

Within the context of that mission statement, WTTN was charged by WASHTO with four specific objectives:[2]

1. Develop a coalition of state DOTs and utilize the input of other interested parties, including private sector and non-profit organizations, to develop a multimodal transportation trade network in the western U.S.

2. Collect an adequate level of information on trade and its impact on the transportation system, in order to forecast and address network deficiencies and needs.

3. Develop a standardized database of information to support network investment decisions, which is compatible with GIS interface, related to transportation and trade in the western U.S.

4. Define performance objectives of the multimodal transportation and trade network and identify performance measures descriptive of the network.

The focus of WTTN is therefore trade, both domestic and international. Trade, as defined herein, refers to freight movement by surface transportation (trucking, railroads, waterways), and access to intermodal facilities such as ports, airports and intermodal container terminals.

TWO-PHASE WTTN STUDY

To attain the WTTN objectives, a two-phase WTTN study was designed.

WTTN Phase I – The Phase I study had three objectives:

1. Explore trade and freight transportation throughout the western U.S. and, based on these assessments, identify a multimodal transportation trade network for the western U.S. (the WTTN trade network);

2. Examine that defined WTTN trade network (rail lines, highways, intermodal facilities) and identify transportation infrastructure deficiencies that are adversely affecting trade and freight transportation; and

[2] Resolution 94-1, Annual CAO Workshop, WASHTO, March 26, 1994.

3. Demonstrate that a regional (multi-state) approach to WTTN corridors, to freight transportation issues, and to WTTN trade network needs and opportunities, has merit.

The Phase I work was successfully completed in 1997. Based on that work, the WASHTO states decided to proceed with the Phase II work.

<u>WTTN Phase II</u> – The Phase II work was designed to address four subjects, comprising Tasks 1 through 4:

- *Task 1: WTTN Performance Objectives* – Identify performance objectives for each of the WTTN Trade Corridors. These are to be goals, from the freight industry's perspective, for suggestion to the individual states.
- *Task 2: Existing WTTN Corridor Performance* – Determine how well each WTTN trade network route is currently performing as compared with the Task 1 performance objectives. A comparison of goals and actual performance would yield a set of "deficiencies."
- *Task 3: General Nature of Benefits and Potential Solutions* – Identify a "menu of solutions" that could be considered to help achieve the goals and qualitatively explain the benefit types that might occur if the deficiencies were overcome.
- *Task 4: Identify Intermodal Facilities and Their Access* – Identify such intermodal facilities as water ports, railroad TOFC/COFC facilities, reload facilities, grain elevators and airports that are of significance to the WTTN corridors. Identify intermodal issues and deficiencies.

The WTTN states contracted with a consultant team[3] led by Wilbur Smith Associates to assist with the development of the WTTN Phase II study.

PHASE II STUDY SPONSORS

The WTTN Phase II study was sponsored by the western states and the U.S. Department of Transportation.

[3] Wilbur Smith Associates and Felsburg Holt & Ullevig.

Participating States – Thirteen states chose to sponsor the WTTN Phase II study, as represented by their state transportation agency:

- Arizona Department of Transportation
- California Department of Transportation
- Colorado Department of Transportation
- Idaho Department of Transportation
- Montana Department of Transportation
- New Mexico State Highway and Transportation Department
- North Dakota Department of Transportation
- Oregon Department of Transportation
- South Dakota Department of Transportation
- Texas Department of Transportation
- Utah Department of Transportation
- Washington State Department of Transportation
- Wyoming Department of Transportation

All participating states provided ideas, guidance, and data. The study's results reflect a general consensus of the states, but should not be assumed to reflect the specific positions or policies of any specific state. This is because some states might disagree with certain items contained in this report, and no state was asked to approve or adopt the report. Instead, the report as written reflects the consultant team's work, with certain data and guidance inputs provided by the states.

Lead State – One state was elected by the participating states to administer both phases of the study effort, and to serve as contract manager. This role was served by the Colorado Department of Transportation.

Federal Role – The study was supported in principle and supported financially by the U.S. Department of Transportation.

THE WTTN TRADE CORRIDOR NETWORK

A cornerstone of the WTTN program is the identification of the trade network itself. Phase I addressed that issue and identified a WTTN trade network. Phase II refined the Phase I findings and made a number of changes to that defined WTTN network.

Characteristics of a WTTN Trade Corridor

In identifying the WTTN trade corridor network, the participating states addressed such example issues as:

- What is a trade corridor?
- How is it defined?
- Are there many such trade corridors in the western states?
- What are the implications of one corridor being designated a trade corridor, and another corridor not being so designated?
- What is a trade network?

After considerable reflection and discussion among the states, the characteristics of a trade corridor became evident. It was determined that a trade corridor should:

- Be multi-state in nature
- Connect significant end points
- Be a wide, multimodal corridor
- Not be highway – or rail line-specific
- Carry regionally significant freight
- Serve intermodal facilities
- Serve international border crossings
- Serve important economic centers
- Include selected NHS highways

- Include selected railroad main lines
- Reflect future trade expectations
- Connect with out-of-region corridors, and
- Comprise all movement directions.

In discussions with the participating states, it was decided that, because the WTTN Mission Statement and Objectives called for a single trade network, a single WTTN network, together with a multimodal “supporting network,” should be designated. In this way, all rail lines, and the entire National Highway System (NHS), would be included, at least in the supporting system. This WTTN network and its supporting system were defined as follows:

> Multimodal Transportation Trade Network (WTTN) – A system of broad geographic bands connecting major endpoints over which regionally-significant interstate freight is carried by one or more modes. These modes are confined to road, waterway and rail. Excluded are pipelines and air cargo.
>
> Supporting Transportation System – Comprises the remaining highway, rail, air, and other systems within the western region. The supporting system includes all other highways on the NHS, all rail lines, the region’s intermodal facilities, ports, airports, and other freight transportation facilities.

These definitions were made to allow the identification of regional freight corridors throughout the WTTN region; they were not intended to concentrate only on the states with high volume freight corridors. The mode of transportation was also not identified in these definitions. Some corridors may have only one surface mode while others may have any combination of road, rail, and waterway routes within them.

Trade Corridor Identification Process

Based on the corridor characteristics and the network definitions, a six-step process was followed in Phase I whereby the trade corridors were identified. This process was as follows:

- States provided previous state-specific freight corridor designations, criteria used, and data that might be useful.

- The consultant reviewed that material, and submitted to the states a procedure, a set of criteria, and a set of definitions to be used to identify a preliminary set of trade corridors.

- The states used those procedures and criteria, plus other materials and/or criteria that the state believed important, and identified preliminary sets of freight corridors within the state's boundaries. These preliminary lists of corridors were sent to the consultant.

- The consultant reviewed each state's corridor designations, and identified contradictions and conflicts that may exist between states.

- The consultant depicted the rationalized results on suitable mapping and descriptive material.

- The participating states met to review the results and to finalize the WTTN Trade Corridor designations.

Several states desired additional corridors; however, to make certain the trade corridor criteria were consistently applied, only those agreed upon by the states were included.

The list of 20 WTTN Trade Corridors identified in Phase I was slightly modified by the states in Phase II. Two corridors (#17 and 18) were combined into one (Mexico – Canada/Midwest) and a new corridor was added along U.S. 59 (Laredo – Indianapolis). These changes were made to better reflect commodity flows between Mexico and the Upper Midwest and to recognize an important corridor (U.S. 59) that had been left off the list of WTTN corridors during Phase I pending results of a feasibility study.

The 20 WTTN Trade Corridors

The 20 trade corridors which now comprise the WTTN trade network are shown on Exhibit 1-1. These generalized corridor bands are typically multimodal, typically multi-state, and cover the entire 17-state region. Every state has two or more such corridors.

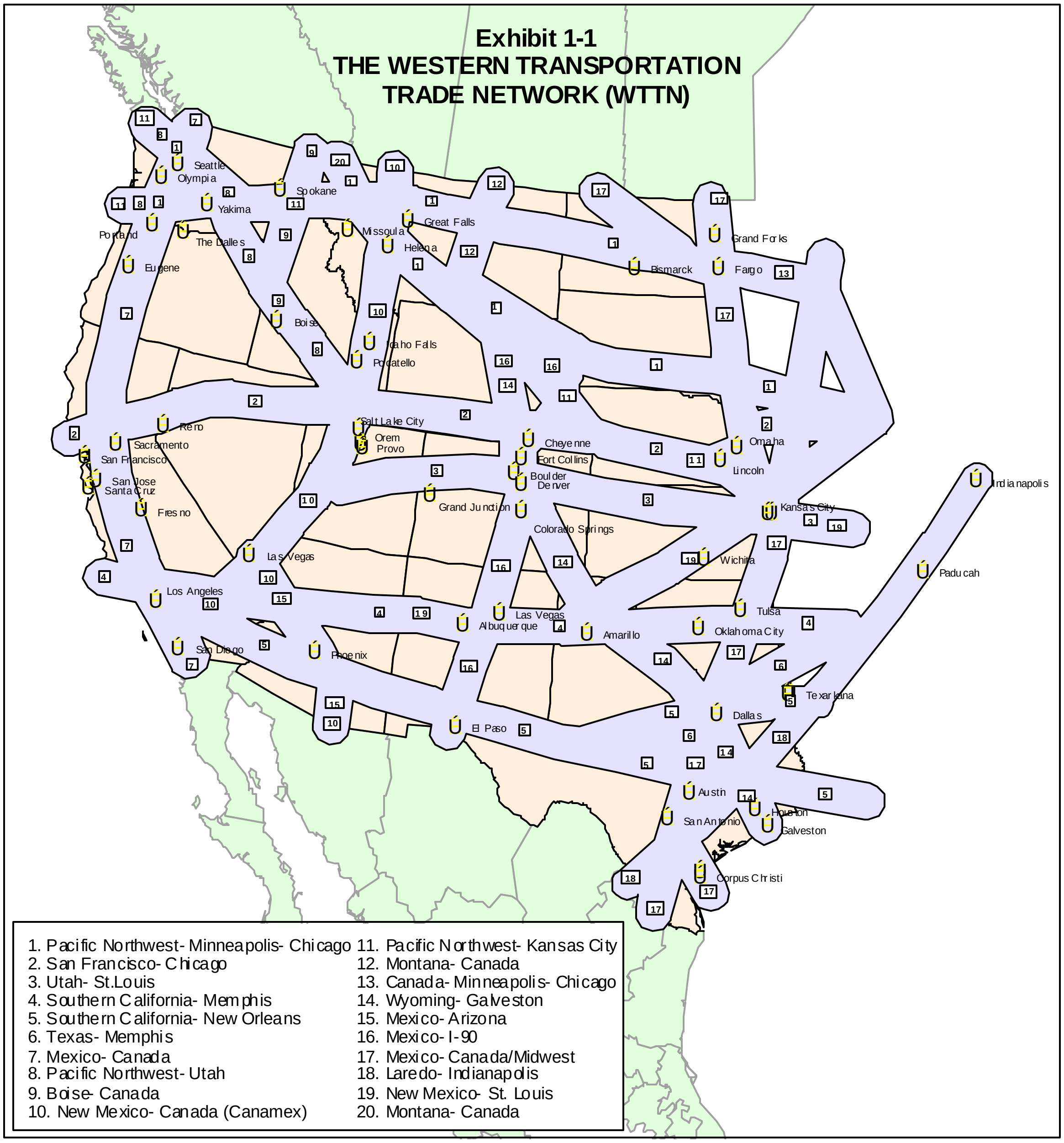


Exhibit 1-1
THE WESTERN TRANSPORTATION TRADE NETWORK (WTTN)
Seattle
Olympia
Spokane
Yakima
Portland
The Dalles
Missoula
Great Falls
Helena
Eugene
Boise
Idaho Falls
Pocatello
Grand Forks
Fargo
Bismarck
Salt Lake City
Orem
Provo
Reno
Sacramento
San Francisco
San Jose
Santa Cruz
Fresno
Cheyenne
Fort Collins
Boulder
Denver
Omaha
Lincoln
Indianapolis
Grand Junction
Kansas City
Colorado Springs
Wichita
Paducah
Las Vegas
Los Angeles
San Diego
Phoenix
Albuquerque
Amarillo
Tulsa
Oklahoma City
Texarkana
Dallas
El Paso
Austin
San Antonio
Houston
Galveston
Corpus Christi
1. Pacific Northwest- Minneapolis- Chicago
2. San Francisco- Chicago
3. Utah- St.Louis
4. Southern California- Memphis
5. Southern California- New Orleans
6. Texas- Memphis
7. Mexico- Canada
8. Pacific Northwest- Utah
9. Boise- Canada
10. New Mexico- Canada (Canamex)
11. Pacific Northwest- Kansas City
12. Montana- Canada
13. Canada- Minneapolis- Chicago
14. Wyoming- Galveston
15. Mexico- Arizona
16. Mexico- I-90
17. Mexico- Canada/Midwest
18. Laredo- Indianapolis
19. New Mexico- St. Louis
20. Montana- Canada

CONCLUSIONS FROM PHASE I

The Phase II effort builds upon the results of Phase I. The key conclusions from Phase I concerning the trade corridors are as follows.

WTTN Trade Corridor Conclusions from Phase I

Considerable effort was expended to identify the major trade corridors of the western U.S. This designation process yielded a number of trade corridor conclusions, including:

- The trade corridors are all multi-state and/or international in nature. Cooperative and coordinated multi-state approaches to the transportation corridors may therefore have merit and may in fact be essential.
- While some trade corridors dominate in terms of tonnage moved or value handled, everything is relative. On a proportionate basis, a less used corridor in a sparsely populated state could be relatively more economically significant to that state than is a heavily traveled route in a heavily populated state. Hence, there is a need for trade corridor designations throughout the western U.S.
- The interrelationships in trade movements suggest that it is too simplistic to regard trade as comprising a series of individual trade corridors. Instead, as is the case with passenger transportation, the WTTN is a true "trade network" – just as the name implies.
- Because so much freight moves between states, deficiencies or activities in one state can affect trade activities in another state. Therefore, regional (multi-state) approaches and sharing of information between states are important to the creation of an efficient regional freight system.
- Trade generally moves from origin to destination without regard for state and even international borders. The private sector makes its plans and carries its freight with little attention to such boundaries. States, however, tend to be constrained by such boundaries since their planning and funding is limited to their single state. Improved decisions regarding multi-state trade would be possible if the states were able to develop multi-state trade corridor planning and program approaches.
- Multi-state highway corridor coalitions (interest groups) are becoming increasingly prevalent. These groups are corridor specific and multi-state in nature. Multi-state corridor-specific coordination by the states might be a timely approach. To reflect

the multi-state nature of trade corridors, the U.S. should develop some type of legal mechanism whereby multi-state corridors can be cooperatively planned, programmed and funded by the states.

- If additional work is to be done relative to regional freight issues, it may be that the WTTN Trade Corridors should be grouped, with the states working together to deal with these trade corridor packages. WASHTO and the Western Governor's Association might seek such approaches.
- The technical advances offered by Commercial Vehicle Operations (CVO) and other Intelligent Transportation System (ITS) approaches to improving freight transportation efficiency especially lend themselves to multi-state approaches to corridor evaluation.
- The western states should put the trade corridor provisions of TEA-21 to good, productive use.

Next Step Recommendations from Phase I

The WTTN concept and study represents one of the first state-initiated (as opposed to federally initiated) attempts at regional (multi-state) voluntary investigation of freight transportation. In this sense, it was experimental. It caused the participating states to get together and deliberate and coordinate; it was a learning exercise; and, it defined and investigated certain elements of the western states' freight system.

As discussed in Phase I, this experimental study represented an initial step into the issues of regional freight, trade corridors, and voluntary coordination among the states. If it is to be effective, more elaboration, greater detail and additional work may be needed if the states are to benefit from this initial trade assessment. Following are several of the "next steps," as suggested in Phase I.

- "A next logical step would be to establish specific performance objectives in each trade corridor. These would be developed in close liaison with the private sector freight industry, and could provide the states with insights concerning where the freight industry would most be interested in projects and programs."

- "If performance objectives are established, a next step might then be to identify how well each corridor is performing relative to its objectives. Performance could be monitored, as could causes of performance deficiency."

- "Implicit in this study is the theory that if deficiencies in the WTTN corridors are dealt with, the freight industry, interstate and international trade, and the WTTN states' economies will benefit. Such benefits and which actions might cause the benefits to occur, remain to be demonstrated. That could be an element in any next step."

- "Intermodal facilities and services are an important element in the physical distribution process. This initial WTTN study (Phase I) was only able to identify intermodal facilities. A logical next step would be to assess these intermodal facilities, their performance, their deficiencies, and their needs."

These suggestions from Phase I were ultimately used by the states to define the WTTN Phase II work activities.

CONGRESSIONALLY IDENTIFIED "HIGH PRIORITY CORRIDORS"

The U.S. Congress has also been active in the identification of transportation corridors believed to merit special attention. Congress has identified 43 "High Priority Corridors" nationally. These were identified in three items of legislation:

- Intermodal Surface Transportation and Efficiency Act of 1991 (ISTEA) – Sec. 1105(c) – 21 corridors;
- NHS Designation Act of 1995 – 8 added corridors; and
- TEA-21 – Section 1118 – 14 added corridors.

The 43 High Priority Corridors are shown on Exhibit 1-2. The High Priority Corridors located in the 17 WTTN states are listed on Exhibit 1-3, together with their relevant WTTN Corridor number. Several observations are relevant:

- The 20 WTTN Trade Corridors include every Congressionally-identified High Priority Corridor located in the western states. This means that any federal funding or other programs associated with the High Priority Corridors may also fit the WTTN corridors.

- The WTTN work should help the WASHTO states in their use of these federal funds.

Exhibit 1-2
HIGH PRIORITY CORRIDORS

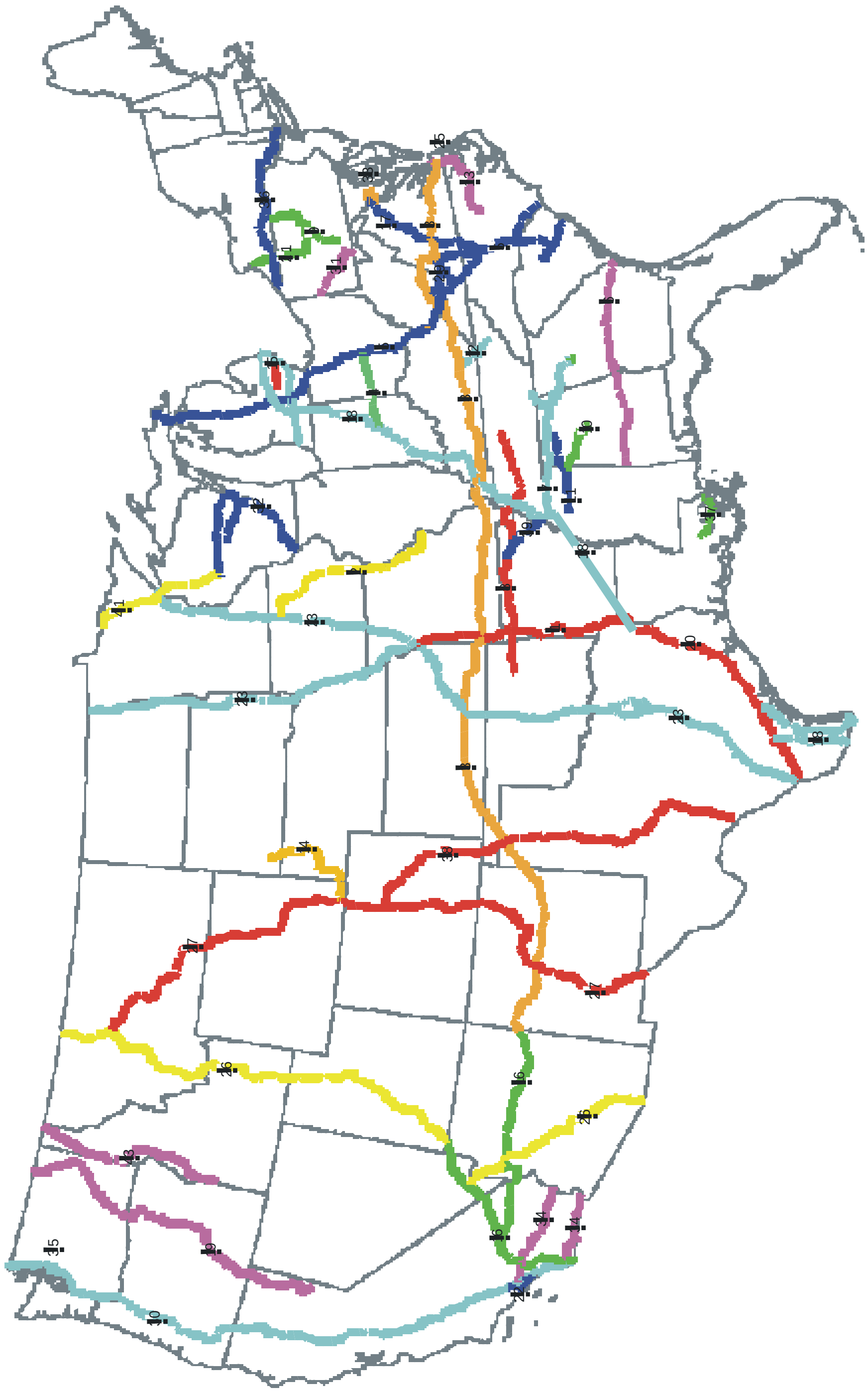


EXHIBIT 1-3
HIGH PRIORITY CORRIDORS IN THE 17 WESTERN STATES
Section 1105(c) of ISTEA (P.L. 102-240), as amended through P.L. 105-206

No.	High Priority Corridors	WTTN States	WTTN Trade Corridor No.
(3)	East-West Transamerica Corridor	Kansas, Oklahoma, Texas, Colorado, New Mexico, Utah, Arizona, Nevada and California	19 (portions)
(14)	Heartland Expressway	Colorado, Nebraska and South Dakota	16
(16)	Economic Lifeline Corridor	California, Arizona, and Nevada	4, 10 (portions)
(18)	I-69 Corridor	Texas	18, 17 (portions)
(19)	United States Route 395 Corridor	Washington, Oregon, California and Nevada	9, 1 (portions)
(20)	United States Route 59 Corridor (I-69)	Texas	18
(22)	The Alameda Transportation Corridor	California	4, 5
(23)	The Interstate Route 35 Corridor	Texas, Oklahoma, Kansas, Nebraska, North Dakota, and South Dakota	17, 19 (portions)
(26)	The CANAMEX Corridor	Arizona, Nevada, Utah, Idaho, and Montana	10, 15 (portions)
(27)	The Camino Real Corridor	Texas, Colorado, New Mexico, Wyoming, and Montana	20, 16, 14 (portions) 11(portions), 1 (portions)
(30)	Interstate Route 5	California, Oregon, and Washington	7

EXHIBIT 1-3
HIGH PRIORITY CORRIDORS IN THE 17 WESTERN STATES
Section 1105(c) of ISTEA (P.L. 102-240), as amended through P.L. 105-206

No.	High Priority Corridors	WTTN States	WTTN Trade Corridor No.
(34)	The Alameda Corridor East and Southwest Passage	California	4, 5
(35)	Everett-Tacoma FAST Corridor	Washington	7
(38)	The Ports-to-Plains Corridor	Texas, Oklahoma and Colorado	14
(43)	The United States Route 95 Corridor	Idaho	9

NOTE: Some corridors are defined in detail, some more generally. The most inclusive corridor concept consistent with statutory language has been used for this listing.

- The west appears to have received a "fair share" of the Congressional High Priority Corridor designations.
- The High Priority Corridors are generally in a north-south orientation which, as presented in WTTN Phase I, makes sense due to NAFTA and due to the less developed north-south transportation systems of the WTTN states.
- The WTTN network contains more east-west corridors/routes than the Federal High Priority Corridors.

TRADE CORRIDOR AND BORDER CROSSING TEA-21 PROGRAM

Of immediate interest to the western states relative to trade corridors and border crossings, is Section 1118 of TEA-21.

TEA-21 Section 1118: National Corridor Planning and Border Infrastructure Programs

The WTTN Trade Corridors (and the transportation facilities within each corridor) have been shown to be of critical importance to the economies of the WTTN Region, the entire United States, and the world. Several special funding programs have been established by Congress that recognizes their importance by allocating federal financial assistance over and above regular formula apportionments.

Two of these special programs are the National Corridor Planning and Development Program (NCPD) and the Coordinated Border Infrastructure Program (CBI), which together provide up to $700 million over the final five years of TEA-21. The High Priority Corridor portions of each WTTN corridor are automatically eligible for the NCPD Program funding. The CBI Program focuses on border infrastructure and telecommunications at international crossings, which are key components of 12 WTTN Trade Corridors.

On May 27, 1999 Secretary Slater announced allocation of $123.6 million in Federal FY 1999 for these two programs. The WTTN states and WTTN Trade Corridors were well-represented in the FY 1999 allocation. Of the $123.6 million allocated in FFY 1999 for 55 projects nationwide, $64.7 million (52 percent) is targeted for 25 projects in WTTN corridors. This heavy emphasis from the U.S. DOT recognizes the importance of improving the WTTN infrastructure.

It is reported that the single TEA-21 program for which U.S. DOT has received the greatest public input and interest is the trade corridors program. When U.S. DOT asked for applicants for the initial $123.6 million for fiscal year 1999, it received applications totaling more than $2 billion. There appears to be great need, and great national interest, relative to trade, trade corridors, and border crossings.

After a process of selection, U.S. DOT has identified those projects which will participate in the initial trade corridor funding (for fiscal year 1999). Those projects located in the 17 western states, and the WTTN Trade Corridors within which they are located, are shown on Exhibit 1-4.

Exhibit 1-4
FFY 1999 NCPD & CBI ALLOCATIONS
WTTN STATES

Lead State	Project	$(M)	WTTN Corridor(s)
AZ	Canamex design	1.0	10, 15
AZ	Hoover Dam Bypass	2.0	10, 15
AZ	Commercial vehicle station @ Nogales	2.5	10, 15
AR	I-69 environmental studies	10.0	18
CA	S905 engineering, right of way	7.4	5
CA	Mexicali Border Crossing feasibility	0.3	7
ID	US 95 engineering, right of way	1.2	9
KS	US 54 engineering	0.6	19
MO	I-35 ITS	0.8	17
MT	Billings Bypass feasibility	0.2	1, 11
NM	S136 widening	4.0	16
ND	Border crossing improvements	0.2	17
OK	I-35 bridge	3.0	17
OR	I-5 multimodal corridor study	2.0	7
SD	S79/I-90 interchange	3.0	1, 16
TX	Laredo border crossing improvements	6.2	17, 18
TX	US 281 construction	1.8	17
TX	Hidalgo border crossing improvements	1.9	17
TX	International Bridge @ El Paso	2.4	16
TX	I-35 add lanes	1.7	17
WA	FAST grade separations, port access	10.0	7
WA	Whatcom County border coordination	0.8	7
WA	Whatcom O/D study	0.2	7
WA	Whatcom outreach & market program	0.2	7
WY	US 87 engineering	1.3	1, 11

THIS PHASE II STUDY REPORT

This second phase of the WTTN study is documented in two written reports:

- Executive Summary Report
- Final Study Report

The Final Study Report has six chapters (1-6) and six appendices (A-F).

Chapter 1: Introduction and Overview – This overview of the WTTN and the WTTN Phase II study.

Chapter 2: Transportation Facilities within Each WTTN Corridor – Identification of those specific highways, rail lines and other transportation facilities which comprise the WTTN network.

Chapter 3: Highways Analysis – The establishment of specific performance standards on each highway, identification of how each highway and highway link is performing, identification of resultant highway and bridge deficiencies, and types of solutions and benefits to be derived if the deficiencies were to be alleviated.

Chapter 4: Railroad Analysis – The identification of performance standards which the West's shippers of freight would appreciate, comparisons with how the railroads are actually performing, identification of deficiencies and shippers' ideas concerning those deficiencies, solution types, and ways deficiency alleviation might be of benefit to the WTTN states.

Chapter 5: Intermodal Facilities Analysis – The identification of important intermodal facilities (railroad TOFC/COFC, water ports, grain elevators, airports, and reload facilities) in the participating WTTN states, and the identification of issues and deficiencies regarding those intermodal facilities.

Chapter 6: Conclusions and Recommendations - A summary of the study's findings, including recommendations and opportunities available to the WTTN states.

Appendices – Six Appendices which contain detailed work that supports the study.

Chapter 2
TRANSPORTATION FACILITIES WITHIN EACH WTTN CORRIDOR

The 20 Western Transportation Trade Network (WTTN) Corridors of Exhibit 1-1 were identified in a generalized sense in the WTTN Phase I study. In Phase I, however the specific highways, rail lines, intermodal facilities and other facilities which make up each corridor were not specifically identified.

Because WTTN Phase II focuses on how well each corridor (and each highway, rail line, etc., within each corridor) is currently performing, their subsequent deficiencies and their potential "menu of solutions," it is necessary that the specific transportation facilities within each WTTN corridor be identified.

The entire Phase II study team (including each state) was involved in this identification process. The results, by mode, are presented on the following exhibits in chapters 2 and 5:

Exhibit	Facilities in Each WTTN Corridor
2-1 and 2-8	Highways
2-14	Rail Lines
5-20	Airports
5-23	Grain Elevators
5-26	TOFC/COFC Facilities
5-30	Cargo Ports

HIGHWAYS WITHIN EACH WTTN CORRIDOR

The specific highways determined to comprise a WTTN corridor usually, but not always, fall within the corridor boundaries shown on the maps. This is because the WTTN corridors really are intended to reflect alternative routes travelling from one place to another; the corridors are not intended to be limited in terms of width. The 20 WTTN corridors, and the specific highways included, are shown in Exhibit 2-1.

Highway Identification Process and Criteria

An important product of the WTTN Phase II study is to quantify corridor performance against baseline objectives. In order to quantify performance, measures of effectiveness were established and gauged against minimum tolerable standards on specific highways. This was accomplished through the identification of a facility-specific network of highways, gathering of data representing this network, and establishment of a process that identifies infrastructure deficiencies. Using these infrastructure deficiencies, assessments of facility performance and truck efficiencies were made. The highway identification process included input from each participating state.

Highway Criteria – The highway network identification process began with information developed during the WTTN Phase I Study (see Phase I, Chapters 3 and 4). Using the information developed by the states as a starting point, the consultant identified and listed highways determined to be important to WTTN truck operations. These important highways were linked with and assigned to a specific WTTN corridor(s) based on their location and termini served. The consultant then surveyed each state individually to determine which additional routes the states believed should be included in a WTTN Highway Network. Basic criteria indicated that, to be included, a highway:

- Should be higher-order facilities (probably part of the National Highway System); this is based on the assumption that higher-order state, U.S. and Interstate routes are more likely to be built to withstand truck weights and to accommodate large vehicles.
- Should be located within or serve termini in one of the 20 WTTN Trade Corridors. The purpose of the WTTN Phase II study is to continue the work from Phase I, as opposed to identifying different corridors.

Exhibit 2-1
HIGHWAYS IN EACH WTTN TRADE CORRIDOR

- Should serve multi-state long distance freight traffic within the corridor. The study recognized the importance of local truck movements, but the purpose of the study was to quantify the trucking operations that serve long distance operations (and termini) both within and outside the WTTN Region. A basic premise of the WTTN concept is that infrastructure within the Region is serving long distance freight traffic that ultimately benefits domestic and international markets within and outside the WTTN Region.

Highway Links vs. Corridors – It is recognized that the process of identifying specific WTTN highways has both similarities and differences from the WTTN Trade Corridor concept. Following are some examples of these key similarities and differences:

- WTTN corridors are generally multi-state in nature; while many WTTN highways serve multiple states, others are wholly contained within a state.

- WTTN corridors connect significant freight endpoints (Chicago, San Francisco, Memphis, New Orleans, etc.), while WTTN highways typically serve just a portion of the corridor.

- Both WTTN corridors and highways serve regionally significant freight traffic, international crossings, movements in all directions, and important economic centers.

- Both WTTN corridors and highways must consider future trade expectations. While the tendency may be to focus on existing patterns and volumes, the states emphasized the need to consider future traffic volumes, new destinations, and anticipated growth.

- An example of this point is the inclusion of the Laredo – Indianapolis Corridor #18 in the WTTN. This corridor links Laredo, Houston and Texarkana on U.S. 59 with Memphis, Evansville, Indianapolis and Detroit. While no interstate-type facility exists in most of the corridor now, it has been the subject of considerable recent study to determine feasibility as a Congressionally-mandated High Priority Corridor. This corridor holds future promise as a freight route linking the Great Lakes Region with Mexico via Indianapolis and Memphis.

- Corridors serve external endpoints (Chicago, St. Louis, etc.), while WTTN highways terminate at the WTTN Region boundaries.

The states' suggestions for additional WTTN highways were presented to the WTTN Steering Committee, which reviewed every suggested highway in detail. The states did suggest some routes of marginal import regionally, but of significant import to local economies. The Steering Committee's role was one of ensuring that important freight highways serving regional travel were included in the Network. The Committee decided to exclude many suggested highways, while it added others determined by the Committee to meet the definition and criteria for the WTTN Highway Network. Each state was provided the opportunity to defend the nomination of an individual highway as a WTTN highway and question the inclusion of other highways.

Highways Selected for WTTN Inclusion

WTTN Highway Network – The resulting WTTN Highway Network comprises 26,346 miles of road, broken into 67 separate *highway links*. For presentation/summary purposes, some highway links are combined to connect logical termini. For example, a WTTN highway link from Interstate 94 at Billings, Montana to the Canadian border stretches over portions of three different marked routes (U.S. 87, U.S. 191 and Montana Route 19), but is represented as one WTTN highway. The WTTN highways and WTTN corridors are shown in Exhibit 2-2.

Exhibits 2-3 and 2-4 depict the composition of the WTTN highways by system and compare the average length of WTTN highways. Exhibit 2-5 depicts the WTTN Network composition as a subset of all WTTN Region highway mileage.

Interstate Highways – Of the 67 separate WTTN highway links, 32 are part of the interstate system, representing 16,992 miles (average length of 531 miles). Of the 18,041 miles of interstate highways in the 17 WTTN states, 94 percent are included in the WTTN Highway Network, which reflects the overall goal of including most higher-order facilities in the WTTN.

Exhibit 2-2
NATIONAL HIGHWAY SYSTEM AND WTTN HIGHWAYS

Exhibit 2-3
HIGHWAY SYSTEM TYPES COMPARISON
WTTN HIGHWAYS
Miles by System Type

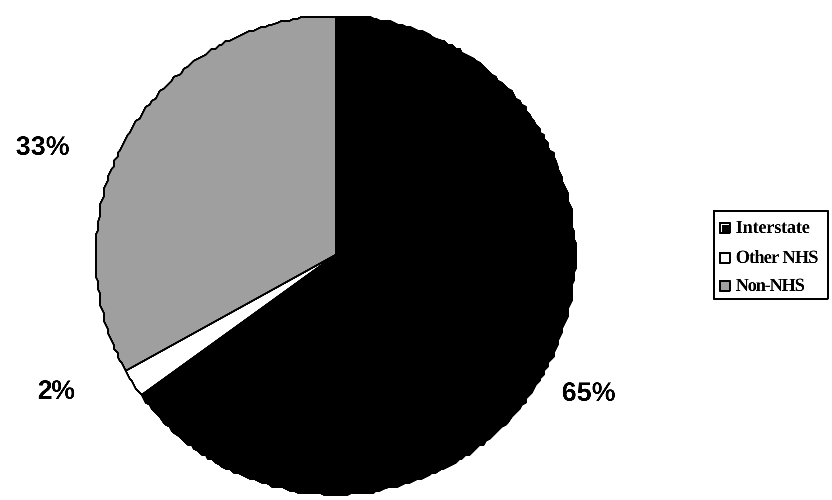


Exhibit 2-4
WTTN AVERAGE HIGHWAY LENGTH

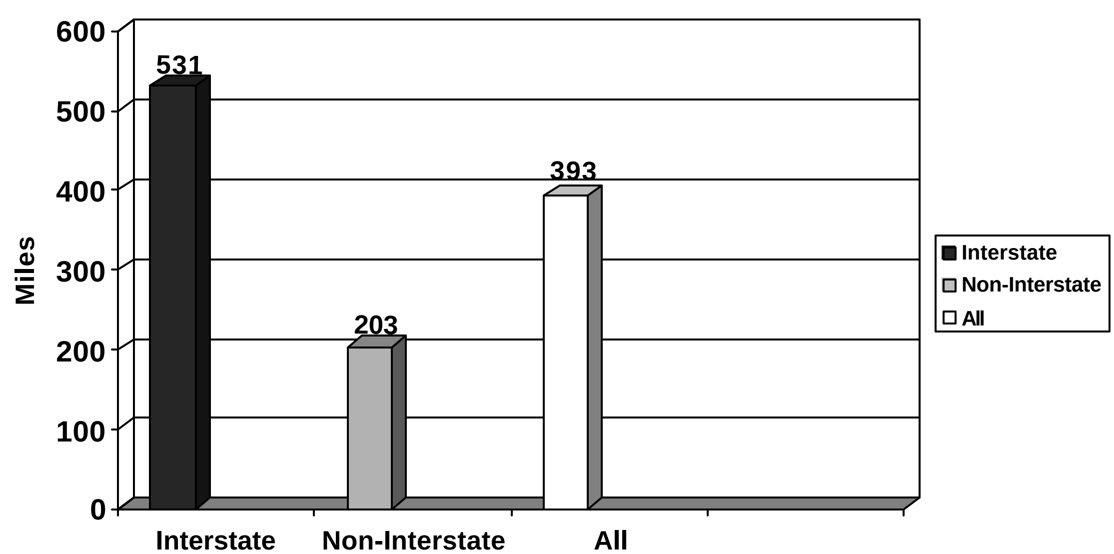
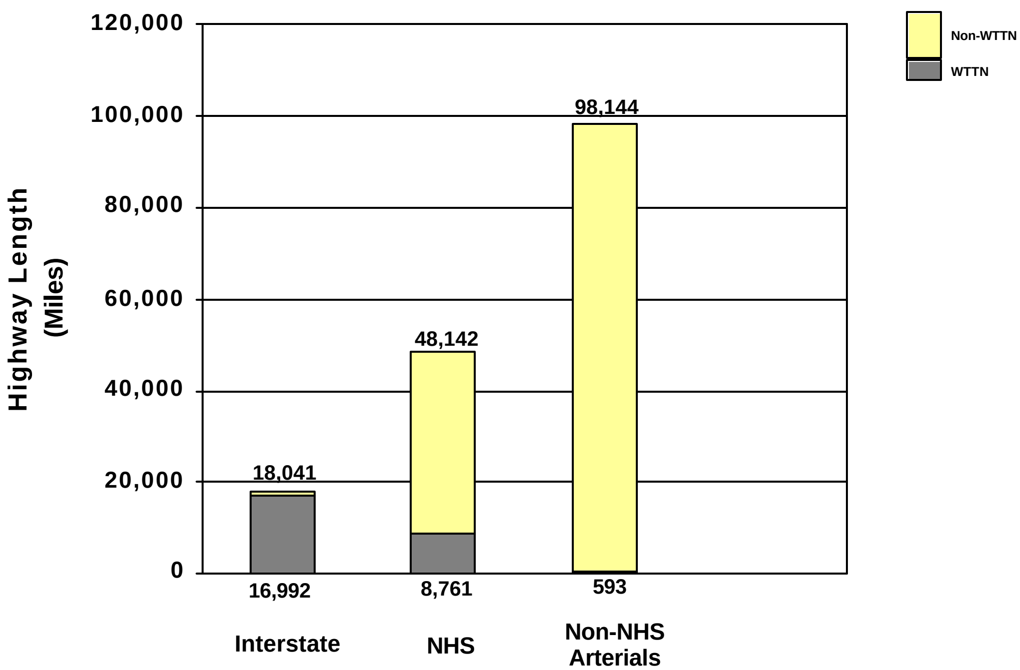


Exhibit 2-5
MILES OF WTTN HIGHWAYS IN THE WTTN REGION



Non-interstate NHS Routes – The 17 WTTN states have 48,142 non-interstate miles on their National Highway System (NHS). Of these, just over 18 percent (8,761 miles) are included in the WTTN Highway Network. The NHS is a system approved by Congress in 1995 as an outgrowth of the ISTEA legislation. NHS routes, like WTTN facilities, also serve long distance interregional traffic, intermodal facilities, and major freight generators. They are a higher-order subset of the principal arterial system.

Non-NHS Routes - Criteria for the WTTN Highway Network discouraged inclusion of highways that are not part of the NHS. Such highways are classified as lower order rural principal arterials, urban other principal arterials, rural/urban minor arterials, and rural/urban collectors. These facilities, as distinguished by their functional classification, tend to serve trips of shorter distances. Also, because the highway portion of the WTTN is a *truck* network, lower order facilities are usually excluded from state-designated truck systems (Class I, II, III designation). Therefore, these lower order highways were generally considered inappropriate for inclusion in the WTTN Highway Network.

However, the participating states agreed to include 593 miles of non-NHS highways in the WTTN Network, all of which are classified as principal or minor arterials. Inclusion of these routes in the WTTN Highway Network was approached on a case-by-case basis. Those non-NHS sections included in the Network are:

- U.S. 6, Loveland Pass (CO) – this 20-mile segment is an alternate route for hazardous materials which bypasses the I-70 Eisenhower Tunnel;
- U.S. 12, from U.S. 287 to I-94 at Forsyth (MT) – this 273-mile section serves heavy truck traffic as a bypass alternative to I-90 through Billings and Butte;
- U.S. 281, U.S. 14 to U.S. 20 (SD, NE) – a 121-mile section of U.S. 281 was excluded from NHS designation, but is included here for continuity between I-80 and I-94;
- New Mexico Route 136, St. Teresa Border Crossing (NM, TX) – an important border crossing that connects with I-10 north of El Paso (8 miles); and
- U.S. 287 from I-45 to U.S. 69 (TX) – the continuation of U.S. 287 from Colorado through Amarillo and Dallas-Ft. Worth to Port Arthur (171 miles).

The 17 WTTN states have 98,144 miles of non-NHS arterials, just 0.6 percent of which is included in the WTTN Network. The 46 non-interstate WTTN highways average about 203 miles in length, less than half the length of the average WTTN interstate highway.

The WTTN Region highway mileage by state and system is listed in Exhibit 2-6. Of the 164,327 highway miles classified arterial or higher in the 17 WTTN states, about 16 percent are included in the WTTN Highway Network. Texas has the largest amount of WTTN mileage (4,790), while Nevada has the least (566). A visual examination of the regional map (Exhibit 2-2) suggests the WTTN Highway Network is most dense in the northwestern part of the WTTN Region (Montana, Idaho, Washington) and Texas.

Table 2-6
WTTN REGION ARTERIAL HIGHWAY MILEAGE (1996)

	Interstate		Other NHS		Other Arterials		All Arterials	
State	Total	WTTN	Total	WTTN	Total	WTTN	Total	WTTN
Arizona	1,167	1,167	1,645	231	3,193	0	6,005	1,398
California	2,428	2,103	5,149	679	22,918	0	30,495	2,782
Colorado	954	749	2,476	238	5,861	20	9,291	1,007
Idaho	611	608	1,760	778	1,918	0	4,289	1,386
Kansas	872	821	2,927	299	6,393	0	10,192	1,120
Montana	1,204	1,204	2,669	1,782	3,333	273	7,206	3,259
Nebraska	480	456	2,526	643	5,375	40	8,381	1,139
Nevada	571	554	1,581	12	1,409	0	3,561	566
New Mexico	1,000	996	1,972	370	2,544	6	5,516	1,372
North Dakota	569	569	2,152	669	3,720	0	6,441	1,238
Oklahoma	930	891	2,381	98	5,592	0	8,903	989
Oregon	728	723	2,999	183	3,540	0	7,267	906
South Dakota	678	664	2,253	386	4,033	81	6,964	1,131
Texas	3,234	2,948	10,103	1,669	19,252	173	32,589	4,790
Utah	940	910	1,244	0	2,088	0	4,272	910
Washington	763	717	2,635	644	4,979	0	8,377	1,361
Wyoming	912	912	1,670	80	1,996	0	4,578	992
Total	**18,041**	**16,992**	**48,142**	**8,761**	**98,144**	**593**	**164,327**	**26,346**

Exhibit 2-7 summarizes WTTN Highway mileage by WTTN Trade Corridor, and Exhibit 2-8 lists the highway links within each corridor. It is important to recognize that a highway can be listed in more than one WTTN Trade Corridor. For example, Interstate 82 serves Corridor 1 (Pacific Northwest – Minneapolis - Chicago) and Corridor 11 (Pacific Northwest - Kansas City). Thus, the 81 highways listed in Exhibit 2-7 include some duplication/double-counting. This duplication is not intended to suggest that highways in more than one WTTN corridor are more important than others, but instead demonstrates that specific highways serve destinations in more than one WTTN corridor.

Exhibit 2-7
MILEAGE BY WTTN TRADE CORRIDOR

	WTTN Trade Corridor	Number of Highways	WTTN Mileage
1	Pacific NW-Minneapolis-Chicago	10	4,781
2	San Francisco-Chicago	3	1,754
3	Utah-St. Louis	2	1,126
4	Southern California-Memphis	2	1,546
5	Southern California-New Orleans	5	2,746
6	Texas-Memphis	2	857
7	Mexico-Canada	10	2,162
8	Pacific NW-Utah	1	734
9	Boise-Canada	3	672
10	Mexico-Canada (Canamex)	4	2,155
11	Pacific NW-Kansas Ciity	7	2,369
12	Montana-Canada	1	260
13	Canada-Minneapolis-Chicago	2	442
14	Wyoming-Galveston	4	1,738
15	Mexico-Arizona	1	337
16	Mexico-I-90	4	1,380
17	Mexico-Canada/Midwest	9	3,472
18	Laredo-Indianapolis	3	1,013
19	Mexico-St. Louis	6	2,087
20	Montana-Canada	2	854
Total		81	32,485

Exhibit 2-8
WTTN HIGHWAYS IN EACH WTTN CORRIDOR

Route[1]	Termini	States
Corridor 1	**Pacific NW-Minneapolis-Chicago**	
I-90	I-5 @ Seattle to Sioux Falls, SD	WA, ID, MT, WY, SD
I-94	I-90 @ Billings to Fargo, ND	MT,ND
I-84	I-5 @ Portland to I-82	OR
I-82	I-90 to I-84	WA, OR
U.S. 2	I-5 N. Seattle to Grand Forks, ND	WA, ID, MT, ND
U.S. 12	U.S. 95 @ Lewiston to I-90 @ Missoula, MT	ID, MT
U.S. 12	I-90 NW of Butte to I-94 @ Forsyth, MT	MT
U.S. 87/S 200	I-90 @ Missoula to U.S. 2 @ Havre, MT	MT
S 18	I-5 in Seattle to I-90 E. Seattle	WA
U.S. 395	I-82 to I-90	WA
Corridor 2	**San Francisco-Chicago**	
I-80/U.S. 101	I-280 in San Francisco to Omaha	CA, NV, UT, WY, NE
I-238/580/880	I-80 in Oakland to I-5 E. of San Francisco	CA
I-205	I-580 to I-5 E. of San Francisco	CA
Corridor 3	**Utah-St. Louis**	
I-70	I-15 to Kansas City	UT, CO, KS
U.S. 6	Loveland Pass	CO
Corridor 4	**Southern California-Memphis**	
I-40	I-15 to Ft. Smith, AR	CA, AZ, NM, TX, OK
S 58	S 99 to Barstow	CA
Corridor 5	**Southern California-New Orleans**	
I-8	I-5 in San Diego to I-10 S. Phoenix	CA, AZ
S 94/125	San Diego (I-5 to I-8)	CA
I-10	I-5 in Los Angeles to E. Beaumont, TX	CA, AZ, NM, TX
I-20	I-10 to W. Shreveport, LA	TX
S 60	I-10 in Los Angeles to I-10 near Beaumont, CA	CA
Corridor 6	**Texas-Memphis**	
I-20	I-10 to W. Shreveport, LA	TX
I-30	Dallas (I-20) to Texarkana	TX

Route[1]	Termini	States
Corridor 7	**Mexico-Canada**	
I-5	Mexico (S. of San Diego) to Canada	CA, OR, WA
I-205	Around Portland	OR, WA
I-405	In Portland	OR
I-405	I-5 in Los Angeles to I-5 @ Irvine	CA
I-710	Long Beach to I-5	CA
I-805	I-5 to I-15 in San Diego	CA
U.S. 97/S 58	I-5 @ Weed, CA to I-5 @ Eugene	CA, OR
S 7/86/78	Mexico to I-10	CA
S 905	I-5 in San Diego to Mexico	CA
S 99	I-5 S. Bakersfield to I-5 @ Sacramento	CA
Corridor 8	**Pacific NW-Utah**	
I-84	I-5 in Portland to I-80 E. of Salt Lake City	OR, ID, UT
Corridor 9	**Boise-Canada**	
U.S. 95	I-84 W. Boise to Canada	ID
U.S. 195	U.S. 95 (Idaho SL) to I-90 @ Spokane	WA
U.S. 395	Spokane to Canada	WA
Corridor 10	**Mexico to Canada (Canamex)**	
I-19/I-10/ U.S. 93/60	Mexico to I-15 @ Las Vegas	AZ, NV
I-15	I-5 @ San Diego to Canada	CA, NV, AZ, UT, ID, MT
I-215	I-15 @ Temecula to I-15 N. San Bernadino	CA
U.S. 20/191	I-15 @ Idaho Falls to I-90 W. Bozeman, MT	ID, MT
Corridor 11	**Pacific NW-Kansas City**	
I-82	I-90 to I-84	OR, WA
I-84	I-5 @ Portland to I-82	OR
I-86	I-84 to I-15 @ Pocatello, ID	ID
I-90	I-5 in Seattle to I-25	WA, ID, MT, WY
I-25	I-90 to I-80 @ Cheyenne	WY
I-80	I-25 @ Cheyenne to Omaha	WY, NE
U.S. 26	I-25 to I-80	WY, NE
Corridor 12	**Montana-Canada**	
U.S. 87/S 19/U.S. 191	I-94 @ Billings to Canada	MT

Route[1]	Termini	States
Corridor 13	**Canada-Minneapolis-Chicago**	
U.S. 52	Canada to I-94 @ Jamestown, ND	ND
I-94	U.S. 52 to I-29	ND
Corridor 14	**Wyoming-Galveston**	
I-25	I-90 to I-70 @ Denver	WY, CO
I-70	I-25 @ Denver to U.S. 40/287 @ Limon	CO
U.S. 287	I-70 @ Limon to Port Arthur	CO, OK, TX
I-45	I-30 @ Dallas to Galveston	TX
Corridor 15	**Mexico-Arizona**	
I-10/17/19	Mexico to I-40 @ Flagstaff, AZ	AZ
Corridor 16	**Mexico-I-90**	
I-25	I-10 @ Las Cruces to I-90 N. Casper, WY	NM, CO, WY
U.S. 287/S 14	I-25 @ Ft. Collins to I-80 @ Laramie, WY	CO, WY
S 79/U.S. 385	I-90 to I-80 @ Sidney, NE	SD, NE
S 136	St. Teresa Border to I-10	NM, TX
Corridor 17	**Mexico-Canada/Midwest**	
I-35	Laredo, TX to Kansas City	TX, OK, KS
I-37	I-35 in San Antonio to Corpus Christi (U.S. 181)	TX
I-44/U.S. 287	I-35 N. Dallas/Ft. Worth to Joplin	TX, OK
I-45	I-30 in Dallas to Galveston	TX
I-135	I-35 to I-70 @ Salina, KS	KS
I-29	Sioux City to Canada	SD, ND
U.S. 81	I-70 @ Salina, KS to I-29 @ Watertown, SD	KS, NE, SD
U.S. 281	I-80 @ Grand Island, NE to I-94 @ Jamestown, ND	NE, SD, ND
I-335	I-35 to I-70 @ Topeka, KS	KS
Corridor 18	**Laredo-Indianapolis**	
U.S. 59	Laredo to I-30 @ Texarkana	TX
U.S. 77	Brownsville to U.S. 59	TX
U.S. 281	Mexico to I-37	TX
Corridor 19	**New Mexico-St. Louis**	
I-40	Albuquerque to Ft. Smith, AR	NM, TX, OK
I-44	I-35 N. Oklahoma City to Joplin	OK
I-35	I-40 in Oklahoma City to Kansas City	OK, KS
I-235	I-135 N. to I-135 S. of Wichita	KS

Route[1]	Termini	States
U.S. 54	I-10 in El Paso to I-235 @ Wichita	TX, NM, OK, KS
U.S. 70	I-25 to U.S. 54	NM
Corridor 20	**Montana-Canada**	
I-15/S 3	I-94 @ Billings to Canada	MT
I-90/U.S. 93	Billings to Canada	MT

(1) See Exhibit 2-2 for map which depicts each WTTN corridor.

HIGHWAY SEGMENTATION

In order to conduct detailed deficiency and performance analyses on the individual highways in the WTTN Highway Network, it was necessary to subdivide each highway into logical sections. This was done so that each section could be individually analyzed for deficiencies and performance characteristics, then combined with other sections to provide summary information for different termini within the WTTN Region.

Segmentation Process

For purposes of analyzing deficiencies and performance, the 67 WTTN highway links were divided into 206 *supersegments*. The division of WTTN highways into supersegments allows for easier analysis and the ability to calculate performance attributes between city pairs or other termini. A "break" was made in a WTTN highway to create a new supersegment for the following general instances:

- Route passes through an urbanized area with significant congestion, speed reduction, and/or change in operating conditions. Separate breaks were made for the following urbanized areas:

  - Los Angeles
  - San Diego
  - San Francisco
  - Sacramento
  - Portland
  - Seattle/Tacoma
  - Spokane
  - Salt Lake City
  - Las Vegas
  - Reno
  - Cheyenne
  - Denver

- Colorado Springs
- Phoenix
- El Paso
- San Antonio
- Houston
- Dallas/Ft. Worth
- Amarillo
- Corpus Christi
- Oklahoma City
- Tulsa
- Topeka
- Wichita

- Intersection of WTTN highways that comprise major routing decision points. For example, I-90 was broken at the I-94 intersection at Billings, Montana because eastbound trucks must make a travel choice. Other examples of routing breaks include:

  - I-15/I-40 in California
  - I-40/U.S. 93 and I-17 in Arizona
  - I-10/I-19 in Arizona
  - I-70/U.S. 40 in Colorado
  - U.S. 2/U.S. 95 in Idaho
  - I-84/I-86 in Idaho
  - I-15/I-86 in Idaho
  - I-90/U.S. 95 in Idaho
  - U.S. 95/U.S. 12 in Idaho
  - I-15/U.S. 20 in Idaho
  - I-90/U.S. 93 in Montana
  - I-40/U.S. 54 in New Mexico
  - I-84/I-82 in Oregon
  - I-5/S 58 in Oregon
  - I-90/U.S. 281 and U.S. 81 in South Dakota
  - I-29/I-94 in North Dakota
  - I-10/I-20 in Texas
  - I-15/I-70 in Utah
  - I-5/I-90 in Washington
  - I-25/U.S. 26 in Wyoming
  - I-29/I-90 in South Dakota

Supersegments were also defined in order to connect logical city pairs, including:

- Butte/Great Falls (I-15)
- Butte/Missoula (I-90)
- Reno/Salt Lake City (I-80)
- Las Vegas/Salt Lake City (I-15)
- Las Cruces/Albuquerque (I-25)
- Albuquerque/Amarillo (I-40)
- Denver/Cheyenne (I-25)
- San Francisco/Portland (I-5)
- Billings/Bismarck (I-94)
- Minot/Grand Forks (U.S. 2)
- Oklahoma City/Kansas City (I-44)
- Rapid City/Sioux Falls (I-90)
- El Paso/San Antonio/Houston (I-10)
- Phoenix/El Paso (I-10)
- Ft. Worth/Houston (I-45)
- Seattle/Spokane (U.S. 2)
- Cheyenne/Omaha (I-80)

The states decided that supersegments should cover similar roadway stretches regardless of state boundaries. Therefore, WTTN highways were not broken into supersegments at state lines. For example, Supersegment Number 160 on Interstate 70 stretches from Interstate 15 in Utah to the western urban limit of Denver. The Utah and

Colorado portions of that supersegment were analyzed separately and later combined because of separate state data submittals.

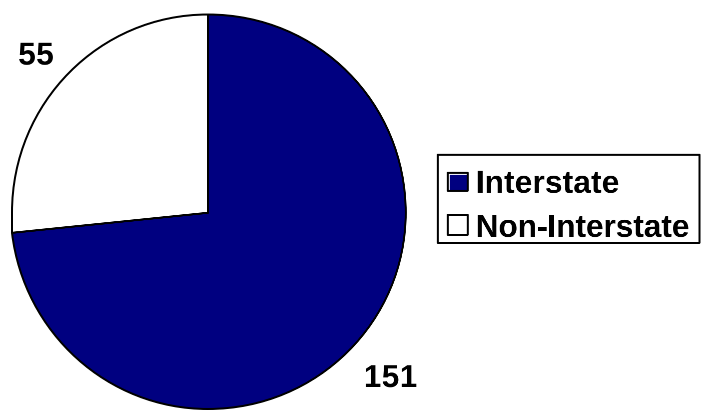
Resulting Supersegments – Exhibit 2-9 lists the WTTN corridors, number of WTTN highways and mileage in each, and the number of supersegments by corridor. The exhibit adds to 81 corridor highways, 32,485 WTTN highway miles, and 261 supersegments due to duplication.

Exhibit 2-9
SUPERSEGMENTS BY WTTN CORRIDOR

WTTN Corridor	Termini	No. of WTTN Highways	WTTN Miles	No. of WTTN Supersegments
1	Pacific NW-Minneapolis-Chicago	10	4,781	28
2	San Francisco-Chicago	3	1,754	19
3	Utah-St. Louis	2	1,126	7
4	Southern California-Memphis	2	1,546	11
5	Southern California-New Orleans	5	2,746	20
6	Texas-Memphis	2	857	5
7	Mexico-Canada	10	2,162	23
8	Pacific NW-Utah	1	734	6
9	Boise-Canada	3	672	5
10	Mexico-Canada (Canamex)	4	2,155	22
11	Pacific NW-Kansas Ciity	7	2,369	21
12	Montana-Canada	1	260	1
13	Canada-Minneapolis-Chicago	2	442	2
14	Wyoming-Galveston	4	1,738	13
15	Mexico-Arizona	1	337	4
16	Mexico-I-90	4	1,380	13
17	Mexico-Canada/Midwest	9	3,472	33
18	Laredo-Indianapolis	3	1,013	5
19	Mexico-St. Louis	6	2,087	18
20	Montana-Canada	2	854	5
Total		81	32,485	261

Overall, the 206 WTTN supersegments average about 128 miles in length. Of these, 151 are on interstate routes, averaging 112 miles in length, compared with the 55 non-interstate supersegments averaging 170 miles in length.

Exhibit 2-10
WTTN HIGHWAY SUPERSEGMENTS



A detailed list of supersegments is provided in Appendix B as well as individual state and urbanized area maps with the supersegments number shown in red (Appendix A).

RAILROADS WITHIN EACH WTTN CORRIDOR

The railroad lines comprising the WTTN Rail System were defined in WTTN Phase I. This rail system is shown in Exhibit 2-11. The lines depicted on this map are main lines, most of which are owned by either the Burlington Northern and Santa Fe Railway (BNSF) or the Union Pacific Railroad (UP).

Rail System – The WTTN Phase I rail lines were selected from the 1994 Western rail system. At that time, railroads operating in the WTTN states had approximately 58,000 miles of track as shown in Exhibit 2-12. Not surprisingly, Texas had the most mileage with nearly 11,000 miles. As can be seen from the map, the system is more dense in the eastern part of the region because of the many lines built in the Midwest to capture grain traffic, and the convergence of competing railroads on the east-west gateways such as New Orleans, Memphis, Kansas City, St. Louis, and Chicago.

Exhibit 2-11
MAJOR WTTN RAILROADS

Exhibit 2-12
RAILROAD MILEAGE IN WESTERN STATES
1994

State	Mileage	Class I Railroads [1]
Arizona	2,126	ATSF, SP
California	6,672	ATSF, BN, SP, UP
Colorado	3,035	ATSF, BN, SP, UP
Idaho	2,317	BN, UP
Kansas	5,730	ATSF, BN, KCS, NS, SOO, SP, UP
Montana	3,301	BN, UP
Nebraska	3,463	ATSF, BN, CNW, UP
New Mexico	1,999	ATSF, BN, SP
North Dakota	4,161	BN, SOO
Nevada	1,200	SP, UP
Oklahoma	3,474	ATSF, BN, KCS, SP, UP
Oregon	2,082	BN, SP, UP
South Dakota	1,939	BN, CNW, SOO
Texas	10,681	ATSF, BN, KCS, SP, UP
Utah	1,467	SP, UP
Washington	2,917	BN, UP
Wyoming	1,737	BN, CNW, UP
Total	**58,301**	

(1)

ATSF	Atchison, Topeka and Santa Fe	NS	Norfolk Southern
BN	Burlington Northern	SOO	Soo Line
CNW	Chicago and NorthWestern	SP	Southern Pacific
KCS	Kansas City Southern	UP	Union Pacific

Note: Several railroads have merged since 1994. Following are the current railroads serving these states:

BNSF	Burlington Northern and Sante Fe	CP	Soo Line now part of CP
KCS	Kansas City Southern	UP	Southern Pacific, Chicago and North/ Western, and Union Pacific
NS	Norfolk Southern		

SOURCE: Association of American Railroads (AAR)

Rail Carriers – As shown in Exhibit 2-12, there were eight large Class I railroads in the region in 1994. The class distinction denotes the level of operating revenue earned by a railroad[1]. Class I railroads earn the highest levels. Dominant railroads were the Burlington Northern (BN), the Atchison, Topeka and Santa Fe (ATSF), the Southern Pacific (SP), and the UP. Since 1994, two mergers have occurred which have reduced the number of major railroads serving the Region.

As a result of recent railroad consolidations, two rail carriers dominate the West: the BNSF and UP. BNSF was created by the 1995 merger of the BN and the ATSF. Union Pacific, which had been acquiring a number of other railroads through the 1980s and 1990s, bought SP and began combined operations in 1996.

Of the two railroad systems, UP has more miles of track. As of 1995, UP and SP operated on a combined trackage of 51,677 miles[2] in that year, BN and ATSF operated on a combined trackage of 44,462 miles. BNSF, however, serves more Western states: In 1998, the merged UP system had operations in 16 of the 17 states in the WTTN area. BNSF had operations in all 17. Exhibit 2-13 lists the states served by each railroad.

An “x” indicates that a railroad has operations in a particular state. Operations can be over rail lines which the railroad owns outright, or over rail lines on which the railroad possesses trackage or haulage rights. These rights allow the railroad to operate trains over the lines of another railroad. An example of trackage rights would be the BNSF rights to run trains on UP’s central corridor route (WTTN Corridor 2) between Denver and Northern California.

There are other Class I railroads operating in the WTTN area. These include the Kansas City Southern Railroad (KCS) and the Canadian Pacific Railway (CP). However, the numbers of states served by these carriers are far fewer, as can be seen in the exhibit.

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[1] The U.S. Surface Transportation Board classifies railroads on the basis of their annual revenue. For 1996, a Class I railroad was one having $255 million in revenue for the year. This level may vary from year to year.
[2] *Analysis of Class I Railroads 1995*, published by the American Association of Railroads.

Exhibit 2-13
MAJOR RAILROADS IN WTTN STATES

State	BNSF	UP	KCS	CP	MRL	DME
1 Arizona	x	x				
2 California	x	x				
3 Colorado	x	x				
4 Idaho	x	x			x	
5 Kansas	x	x	x			
6 Montana	x	x			x	
7 Nebraska	x	x	x			x
8 Nevada	x	x				
9 New Mexico	x	x				
10 North Dakota	x			x		
11 Oklahoma	x	x	x			
12 Oregon	x	x				
13 South Dakota	x	x		x		x
14 Texas	x	x	x			
15 Utah	x	x				
16 Washington	x	x				
17 Wyoming	x	x				x

In addition to the Class I railroads, there are numerous short line railways in the WTTN states. The short line terminology refers to a railroad's relative length of haul. As these railroads generally originate and terminate traffic, carrying the traffic to and from main line railroads, their hauls typically are short compared to those of the main line hauls. Of these various short lines, the two largest are Montana Rail Link (MRL) and the Dakota, Minnesota & Eastern Railroad Corporation (DME). MRL operates from northern Idaho to south central Montana. DME operates in South Dakota, Nebraska, Wyoming, Minnesota and Iowa.[3] Both of these railroads were created from the spin-off of lines belonging to major Class I railroads.

Rail Lines Selected for WTTN Inclusion

Having the higher freight traffic densities and larger networks, BNSF and UP were the principal focus of the WTTN Phase I rail analysis. Rail deficiencies in the WTTN corridors were identified only for BNSF and UP lines, with one exception[4]. Lighter density lines and most short lines were not viewed as WTTN corridor lines other than in the context of handling traffic to and from the main lines. An exception was MRL, which was included as a major segment of WTTN Corridor 11 (Pacific Northwest - Kansas City).

Exhibit 2-14 identifies the set of trade corridors relative to the railroad lines of the Western U.S. Most lines within these corridors are owned by BNSF and UP. As in Phase I, the primary focus of analysis in Phase II was on the BNSF and UP main lines.

As can be seen, these rail lines run in four principal east - west corridors, and comprise the western end of the transcontinental rail routes (WTTN Corridors 1, 2, 4 and 5). Lines also run in two principal north - south corridors (WTTN Corridors 7, and 17). Several other major routes crisscross between the east - west and north - south corridors.

The corridors on the western end of the WTTN area terminate at the major West Coast metropolitan areas and seaports of Seattle/Portland, San Francisco/Oakland, and Los Angeles. Eastern termini include the major mid-continent gateways of Chicago, Kansas City, St. Louis, Memphis, and New Orleans. North - south routes run from the Canadian to the Mexican borders of the U.S., and from the Midwest to the Gulf of Mexico.

[3] The DME has plans for a new rail line running to the Powder River Basin coal mines in Wyoming.
[4] Capacity, congestion, safety, environment, and community impact deficiencies were cited for the CP line between Fairmont and Portal, North Dakota in Corridor 13.

Exhibit 2-14
WTTN RAIL LINES

OTHER TRANSPORTATION FACILITIES WITHIN EACH WTTN CORRIDOR

While highways and rail lines comprise the principal surface transportation routes, the intermodal facilities within the corridors are of equal importance. These “other” intermodal transportation facilities (airports, grain elevators, rail TOFC/COFC and reload facilities, and water ports), are the initiators and/or receptors of much of the freight served by the highways and rail lines. A total of 335 WTTN intermodal facilities were identified in the study. The transportation facility analysis, which examines ground access issues by category type, is included in Chapter 5 of this report. Each type of facility is mapped and listed separately, along with the general criteria applied regionwide to designate such facilities.

- The WTTN states designated 18 **airports**, including one proposed facility (see Exhibit 5-20).
- Of the 234 **grain elevators** included in the WTTN analysis, all but nine are located in five states (see Exhibit 5-23).
- The states identified 55 **rail intermodal** facilities (TOFC and COFC operations) and **rail reload** handling a wide variety of commodities (see Exhibit 5-26).
- The four WTTN states with ocean access designated 27 public **ports** for inclusion, plus Lewiston, Idaho (see Exhibit 5-30).

Please refer to Chapter 5 for a discussion of these intermodal facilities.

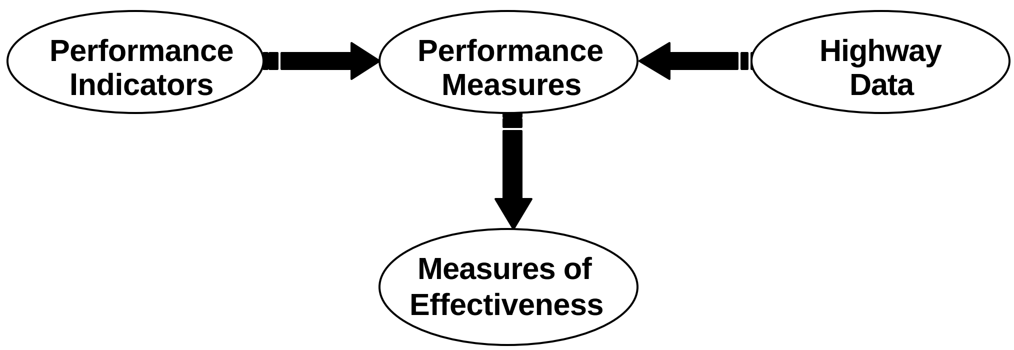
Chapter 3
HIGHWAYS ANALYSIS

The consultant worked closely with the WTTN Steering Committee to develop a process through which the performance of truck traffic on WTTN highways could be determined.

PERFORMANCE STANDARDS

<u>Process</u>

Exhibit 3-1
WTTN ANALYSIS PROCESS



The performance analysis process is based on the ability to quantify the following four basic *indicators of truck performance*:

- *Operating cost* – price per mile of driving a vehicle, including fuel, oil, tires, depreciation, and repairs.
- *Operating speed* – average speed (mph) to traverse a defined roadway section, usually expressed in peak and off-peak hours, under favorable weather conditions without exceeding the prevailing safe speed.
- *Safety* – use of accident and fatality data to identify roadway sections with geometric deficiencies.
- *Reliability* – on-time delivery.

Studies by the Federal Highway Administration and other consultants have yielded a much longer list of potential truck performance indicators. However, this consultant's work in other studies and this WTTN Steering Committee determined that these four performance indicators best represent those factors over which the roadway system itself, and its capacity and physical features, have a bearing.

These indicators of truck performance are not readily measurable, nor can they be determined directly. However, the establishment of quantifiable *performance measures,* as surrogates of the performance indicators, can be used to identify and quantify the causes of truck performance problems by identifying infrastructure deficiencies that affect truck performance. The performance measures (deficiencies) can be translated into *measures of effectiveness* that allow truck performance to be expressed in concise, consistent terminology.

Performance Measures - The consultant recommended focusing on the *outcome* side of highway planning characteristics to quantify truck performance on WTTN highways. The following performance measures were recommended to the Committee for consideration:

- *Pavement/Bridge Condition* – assess current WTTN highway pavement conditions using the International Roughness Index (IRI) or Pavement Serviceability Rating (PSR) as consistent reporting devices. Assess bridge conditions using National Bridge Inventory (NBI) data. Pavement and bridge conditions affect truck cost through higher maintenance/repair bills and detour routings. Poor pavement/bridge conditions slow trucks down, affecting travel speed, and make travel less safe. Poor pavement and bridge conditions directly impact truck reliability.

- *Pavement Geometry* – measure how geometric restrictions (lane width, shoulder width, bridge underclearance) affect truck performance. Narrow lanes are less safe, especially for large vehicles, and frequent speed reductions due to lane width directly impact speed and reliability. Narrow lanes and bridges lead to frequent speed cycling, which increases operating cost.

- *Roadway Alignment* – determine the impact of horizontal and vertical alignment on truck performance. Steep vertical alignment (grades) and radical horizontal alignment (curves) directly contribute to speed cycling, safety risks, and increased costs due to speed recovery. Alignment problems are among the most costly to address, and greatly affect the cost and reliability of freight traffic.

- *Congestion* – examine the effects of congestion, both existing and at future traffic levels, on truck performance using level-of-service (LOS) and volume/capacity measures. Congestion has the most direct effect on operating speed and the cost of trucks. Frequent speed changes due to congestion increases the safety risk and hampers reliability. Many trucks attempt to traverse congested urbanized areas during off-peak hours to avoid delays. Therefore, it was determined that the consultant would examine congestion during both peak and average daily intervals. "Peak" is defined as the busiest hour during the day.

  In many studies, the peak travel time (both time and duration) is established so that congestion effects can be quantified for an individual city or route. The broad extent of the WTTN Region and significant disparity between peak hours (the peak hour is decidedly different in Cheyenne than in Los Angeles) makes individualized congestion determinations expensive and of questionable value. The more important determination is how truck traffic performs in peak conditions, regardless of when the peak exists.

Certainly, it is possible to select other measures to estimate truck performance; however, these four outcomes/measures were selected because each impacts all four performance indicators. Further, it was determined that each can be readily measured using data normally available through state DOTs.

MINIMUM TOLERABLE CONDITIONS

The evaluation process involves establishing *minimum tolerable conditions (MTCs)* for truck performance on WTTN highways. Minimum tolerable conditions represent the lowest acceptable threshold for truck performance and facility condition/geometry in specific, measurable areas. MTCs are very different from *design standards*, which are the parameters to which a new, reconstructed, or rehabilitated roadway is brought. For example, the shoulder width design standard for a rural interstate-type facility might be 12 feet, whereas the WTTN truck minimum tolerable condition for the same facility is eight feet.

Each state establishes different design standards and establishes its own minimum tolerable conditions. MTCs are frequently used in the transportation capital programming process to signal the need for an improvement once a measure falls below the minimum. For this study, it was desirable to establish a set of minimum tolerable conditions that are consistent across the WTTN Region. Therefore, the minimum tolerable conditions established for this study represent a consensus of the WTTN Steering Committee for trucking operations across the entire WTTN Region. The states represented in the WTTN Region establish unique minimum tolerable conditions to quantify highway needs and set capital improvement priorities in their states. The WTTN Minimum Tolerable Conditions are in no way intended to replicate or replace these individual state criteria.

HPMS - The consultant and Steering Committee agreed to use terminology and definitions consistent with the FHWA's Highway Performance Monitoring System (HPMS). The HPMS is the nation's highway database, maintained by the FHWA using data supplied by the states, and updated on a regular basis. The HPMS is supported by a suite of computer software that uses HPMS data to calculate performance characteristics, estimate capital needs by functional classification and category, model traffic growth and pavement deterioration, calculate capacity and congestion, and other factors over time. Information produced by the HPMS is used by transportation agencies, the FHWA, USEPA, and Congress. In fact, HPMS output is used to compute the apportionment of some federal highway funding authorized by TEA-21. Because both the states and consultant are familiar with this system, the WTTN performance evaluation is based upon data and processes from the HPMS, modified for use in the WTTN Region.

The HPMS was developed to replace a series of random needs studies requested by the FHWA. The new system is based upon a statistically valid sample of roadway sections by functional classification, volume group, and geographic area. The sample remains constant over time so the FHWA can model items like pavement deterioration and traffic growth using real field data. In addition, the FHWA asks the states to update the HPMS data on a regular basis. Some items which can change quickly, like traffic volume and pavement condition, are updated more frequently than other data items.

Higher-order routes, like interstates, typically have 40 to 60 percent of their mileage sampled by the HPMS. The sample rate decreases as the functional classification drops in importance. Not every route in a state is necessarily sampled for the HPMS; the random nature of selecting sample sections ensures representation of like routes with like traffic volumes, but there is no requirement that every route be sampled. That said, many states sample their routes at rates higher than the FHWA minimum, especially on interstates on the NHS. The number of states with 100 percent representation on higher-order functional classes in the HPMS is growing. This is because more states have come to appreciate and use some of the supporting analytical software provided by the FHWA to help quantify investment needs over time.

The states also must report certain information for the highway *universe*, which is part of the HPMS database. For example, the states must report mileage, ADT, route number, ownership, and pavement condition for the *universe* of principal arterials (all mileage, whether sampled or not). HPMS sample sections on principal arterials have other additional data requirements, including detailed pavement/improvement information, geometrics data, traffic/capacity data, and environmental data. The universe reporting requirements lessen as functional classification drops to other arterials and collectors.

The nature and extent of data reported routinely to support the HPMS become important as the consultant and WTTN Steering Committee considered data collection requests to support the WTTN deficiency analysis.

Specific MTCs - The WTTN Highway Corridors Truck Minimum Tolerable Conditions (MTCs) are listed in Exhibit 3-2. Each Minimum Tolerable Condition category corresponds with one of the performance measures listed earlier. The column headings in Exhibit 3-2 help differentiate the MTCs for various facility types (interstate-type vs. non-interstate-type) in various operating environments (flat/rolling/mountainous terrain and urban). MTCs for each of the facilities studied in this effort (interstate vs. non-interstate) in various operating environments (flat/rolling, mountainous as well as urban) are described in Exhibit 3-2. The goal is to minimize the number of categories of MTCs needed to accurately assess the highway system.

Exhibit 3-2
WTTN HIGHWAY CORRIDORS
TRUCK MINIMUM TOLERABLE CONDITIONS

	INTERSTATE-TYPE[1]			NON-INTERSTATE-TYPE[2]		
	Flat/ Rolling	**Moun-tainous**	**Urban**	**Flat/ Rolling**	**Moun-tainous**	**Urban**
Roadway						
Pavement Condition						
- IRI (Roughness)	120	120	120	170	170	170
- PSR (Condition)	3.0	3.0	3.0	2.5	2.5	2.5
Lane Width	12	12	12	12	12	12
Shoulder Width	8	8	8	4	4	4
Vertical/Horizontal Alignment Adequacy	2	2	--	2	2	--
Speed Limit	65	60	55	55	55	55
Weighted Design Speed (WDS)	70	70	70	60	60	60
Bridges						
Deck Condition	4	4	4	4	4	4
Superstructure, Substructure	4	4	4	4	4	4
Operating Rating (tons)	28	28	28	28	28	28
Posted Load Limit	5	5	5	5	5	5
Underclearance	4	4	4	4	4	4
Deck Geometry	4	4	4	4	4	4
Approach Rdwy Alignment	4	4	4	4	4	4
Operation						
Volume/Capacity Ratio[3]	0.75	0.75	0.92	0.80	0.80	0.52
Level-of-Service (LOS)	C	C	D	C	C	D
Measure of Effectiveness Truck Operating Speed	65	50	40	55	45	35

1. 4 or more lanes, divided, full control of access.
2. Undivided or divided, <full access control.
3. Indicator only, as the V/C ratio is dictated by the facility type and LOS.

Interstate-type highways are distinct from other highways in the WTTN network. Interstate-type highways have four or more lanes, are divided by a median, and have full control of access. These facilities perform at a much higher level than *non-interstate-type highways*, which are generally two-lane facilities in rural areas and signalized two and four-lane arterials in urban areas and smaller towns. Non-interstate-type facilities are generally built to lower design standards than interstate-type highways. That is, they may have steeper grades, more curves, restricted passing opportunities, narrower shoulders, lower speed limits, etc. These lower standards mean that the operating speeds of all vehicles, especially trucks, are much lower than interstate-type highways. It is for this reason that the MTCs are distinctly different for these two general types of facilities. It follows that performance expectations and minimum acceptable conditions are lower also.

Each facility type is divided into three environments: flat/rolling, mountainous, and urban. Once again, as-built conditions vary significantly for a highway in mountainous terrain versus comparable facilities in flat, open terrain and with urban settings. It follows that performance expectations and acceptable conditions will vary also. For example, alignment variations in mountainous terrain reduce vehicle-operating speeds below the speed that the same vehicle would operate at on flat terrain. Therefore, the minimum tolerable truck operating speed is 50 mph in mountainous terrain for interstate-type highways and 65 mph in flat and rolling terrain.

Information on each of the individual MTCs is provided in the following subparagraphs. Both an overall definition and explanation of minimum values is provided.

- *Pavement Condition*. The measure of pavement condition is crucial in assessing highway performance. Pavement conditions contribute to overall operating cost because of speed cycling and the additional vehicle repairs necessitated by rough road conditions (especially tires and shocks). Poor pavement conditions also contribute to a variety of safety problems (weaving, loss of skid-resistance, unpredictable speed changes, etc.).

  The most widely accepted expression of pavement roughness is the International Roughness Index (IRI). For the HPMS, the IRI is a required value for all rural minor arterial HPMS samples, and all universe and sample sections classified as principal arterial or on the National Highway System. The IRI, as the name implies, is a measure of pavement roughness, not condition. It is expressed as inches/mile as a three-digit number (maximum 632). The minimum tolerable IRI for interstate-type facilities is 120, which corresponds to the high end of the "fair" range as defined by the FHWA. For non-interstate-type facilities, the WTTN minimum tolerable IRI is 170, which is mid-range of the "fair" category.

The PSR is a 0 to 5 value reported to the nearest tenth. PSR is a value derived from the Pavement Serviceability Index and other sufficiency ratings, and is designed to assess pavement condition, not roughness alone (like IRI). The PSR is somewhat subjective in nature and there is no universal/standard PSR measuring equipment, so it is a less-preferred measure for the FHWA in the HPMS (it is required for paved roadways only when the IRI is not available). The consultant and Steering Committee have defined a minimum tolerable PSR for interstate-type facilities as 3.0 and 2.5 for non-interstates, which correspond to the mid- to high range of the fair condition rating.

The consultant values the condition-rating assessment aspect of the PSR and prefers it to the IRI for the purposes of the WTTN performance analysis. The PSR provides a more inclusive evaluation of pavement condition. The IRI is less useful since it can provide deceptively high (deficient) ratings for rough, yet sound, concrete and deceptively low (adequate) ratings for structurally poor bituminous pavements that ride smoothly. The WSA deficiency model checks first for the availability of the PSR and uses it alone if available. If a PSR value is not available, the WSA deficiency model uses the IRI. The following exhibit taken from the HPMS Field Manual depicts pavement condition definitions for different PSR ratings.

- *Lane Width & Shoulder Width*. The minimum tolerable truck lane width for WTTN highways is 12 feet, regardless of facility type. The Steering Committee and consultant agreed that the 12-foot lane width was a key safety component that would impact non-interstate highways only, but was very important to safety considerations. The minimum tolerable shoulder width of eight feet on interstate-type highways is less than the interstate design standard, while the four-foot minimum for non-interstates is hardly adequate to allow a truck pull-off. Shoulder deficiencies are recognized as contributors to safety problems, but most states do not program capital funds for projects to improve only shoulders. Shoulder improvements are typically scheduled as part of a larger rehabilitation improvement; therefore shoulders-only improvements will not be identified as part of the WTTN analysis.

- *Alignment Adequacy*. Alignment adequacy is an expression that defines the extent of vertical and horizontal alignment deficiencies (curves and grades). The HPMS requires curve and grade data to be reported for all paved rural arterials and urban principal arterials. However, this data is very difficult to collect and report in the detail requested by the FHWA. The states have expressed considerable frustration with this data item. In fact, the FHWA is currently reducing the required data for curves and grades in response to the states concerns.

Exhibit 3-3
PAVEMENT CONDITION RATING

PSR	Description
4.0 – 5.0	Only new (or nearly new) superior pavements are likely to be smooth enough and distress free (sufficiently free of cracks and patches) to qualify for this category. Most pavements constructed or resurfaced during the data year would normally be rated in this category.
3.0 – 4.0	Pavements in this category, although not quite as smooth as those described above, give a first class ride and exhibit few, if any, visible signs of surface deterioration. Flexible pavements may be beginning to show evidence of rutting and fine random cracks. Rigid pavements may be beginning to show evidence of slight surface deterioration, such as minor cracks and spalling.
2.0 – 3.0	The riding qualities of pavements in this category are noticeably inferior to those of new pavements, and may be barely tolerable for high-speed traffic. Surface defects of flexible pavements may include rutting, map cracking, and extensive patching. Rigid pavements in this group may have a few joint failures, faulting and/or cracking, and some pumping.
1.0 – 2.0	Pavements in this category have deteriorated to such an extent that they affect the speed of free-flow traffic. Flexible pavement may have large potholes and deep cracks. Distress includes raveling, cracking, rutting and occurs over 50 percent of the surface. Rigid pavement distress includes joint spalling, patching, cracking, scaling and may include pumping and faulting.
0.0 – 1.0	Pavements in this category are in an extremely deteriorated condition. The facility is passable only at reduced speeds, and with considerable ride discomfort. Large potholes and deep cracks exist. Distress occurs over 75 percent or more of the surface.

Source: HPMS Field Manual, 1998.

Nonetheless, alignment problems are key contributors to reduced truck performance. Steep grades slow loaded truck speeds to a crawl, and sharp curves also reduce truck speeds. Poor alignment affects safety, cost, speed and congestion for trucks. Therefore, the consultant team is very interested in obtaining accurate alignment data without asking for additional data to be collected. For the purposes of the WTTN deficiency analysis, the consultant prefers to use raw HPMS curve and grade data, which is translated into an expression of adequacy by the HPMS software programs (0 to 4 scale). For both curves and grades, an expression of adequacy of "2" is the minimum tolerable (see Exhibit 3-4 from the HPMS Field Manual). This rating of adequacy is defined as "all curves can be safely and comfortably negotiated at the prevailing speed limit" for horizontal alignment. For grades, a "2" rating means the vertical alignment provides "sufficient sight distance for safe travel and does not substantially affect the speed of trucks." The Steering Committee and consultant agreed that conditions worse than a "2" rating were unacceptable for the WTTN Highway Network.

Exhibit 3-4
HPMS ALIGNMENT DEFINITIONS

Code	Description
Item 60 – <u>Vertical Alignment Adequacy (Rural Date Item) (Length = 1)</u>	
This item is required for paved rural major collectors unless Grades by Class (Item 61) is reported for the section. (See Table IV-4). If Item 61 is not reported for the required systems (paved rural arterials and paved urban principal arterials) this item should be appropriately coded. The following codes will be used:	
0	Item 61 (Grades) is reported (the HPMS calculation software will insert an appropriate code based on the grade data), or this item is not required for the section.
1	All grades (rates and length) and vertical curves meet minimum design standards appropriate for the terrain. Reduction in rate or length of grade would be unnecessary even if reconstruction were required to meet other deficiencies (i.e., capacity, horizontal alignment, etc.).
2	Although some grades (rate and/or length) and vertical curves are below appropriate design standards for new construction, all grades and vertical curves provide sufficient sight distance for safe travel and do not substantially affect the speed of trucks.
3	Infrequent grades and vertical curves that impair sight distance and/or affect the speed of trucks (when truck-climbing lanes are not provided).
4	Frequent grades and vertical curves that impair sight distance and/or severely affect the speed of trucks; truck-climbing lanes are not provided.
Item 57 – <u>Horizontal Alignment Adequacy</u>	
0	Item 58 (Curves) is reported (the HPMS calculation software will insert the appropriate code based on the curve data), or this item is not required for the section.
1	All curves meet appropriate design standards for the type of roadway. Reduction of curvature would be unnecessary even if reconstruction were required to meet other deficiencies (i.e., capacity, vertical alignment, etc.).
2	Although some curves are below appropriate design standards for new construction, all curves can be safely and comfortably negotiated at the prevailing speed limit on the section. The speed limit was not established by the design speed of curves.
3	Infrequent curves with design speeds less than the prevailing speed limit on the section. Infrequent curves may have reduced speed limits for safety purposes.
4	Several curves comfortable and/or unsafe when traveled at the prevailing speed limit on the section, or the speed limit on the section is severely restricted due to the design speed of curves.

Source: HPMS Field Manual, 1998.

- *Speed Limit*. The speed limit, though regulatory in nature, was included as a deficiency to be evaluated because of its important contribution to truck operations, especially in dense areas where partial and non-access controlled facilities are subject to signalization. The stop-and-go nature of urban arterials affects truck performance by introducing speed cycles. The acceleration from a stop for trucks slows the entire traffic stream, increasing congestion, causing safety problems, and greatly increasing operating costs. The regulatory speed limit is unrelated to the design speed of the roadway; rather, it is in response to adjacent development and prevailing speeds in dense areas.

  The WTTN minimum tolerable truck speed limit ranges between 55 mph and 65 mph. The rather high threshold for speed limit will trigger the identification of "speed limit only" deficiencies, especially on urban arterials.

- *Weighted Design Speed (WDS).* The weighted design speed is an expression (in mph) of the maximum speed a vehicle could safely travel on a highway unrestricted by the presence of other vehicles. The WDS is a function of horizontal alignment; thus, the presence of sharp curves will reduce the WDS. Minimum tolerable conditions for WDS are introduced into the WTTN analysis to identify roadway anomalies where a highway's design is severely limited due to curvature. Horizontal alignment adequacy, as defined in the MTCs for WTTN, essentially override the need for WDS assessment.

- *Bridges*. Highway bridges typically affect vehicle operations only when conditions become severe. For example, a bridge becomes seriously deficient when it must be posted to less than legal loads. This causes vehicles to detour around the posted bridge, which significantly impacts speed and cost, and can impact safety if the detour roadway is of a lesser standard. The WTTN bridge minimum tolerable conditions are derived to identify bridges that are in serious structural condition, are under-designed for modern legal limits, have approach roadway alignment or deck geometric deficiencies that cause them to be functionally obsolete, or have vertical/horizontal underclearance restrictions that would impact truck operations.

  Deficient bridges are described in two general ways: functionally obsolete and structurally deficient. A structurally deficient bridge is much more serious, as this classification means the bridge has load-bearing members whose condition has deteriorated to the point that the bridge should be repaired. Structurally deficient bridges should be posted for weight restrictions and undergo significant rehabilitation or complete replacement to restore the legal load-carrying capacity of the bridge. A functionally obsolete bridge is one that has geometric restrictions that hinder the operations of certain vehicles. Functionally obsolete bridges have narrow decks, narrow horizontal underclearance, low vertical underclearance, and/or poor approach roadway alignment.

The minimum tolerable bridge conditions used in the WTTN evaluation are tied directly to the FHWA's National Bridge Inventory Program (NBIP) analysis, which uses the National Bridge Inventory (NBI) database. The bridge MTCs are established "across the board" so there is no difference between facility type or environment. Minimum tolerable ratings of "4" on a 0 to 9 scale correspond to a "poor" condition rating, as defined by the FHWA, in each of the following categories:

- *Deck* – condition rating of the vehicle-carrying surface; a poor deck rating can lead to a bridge being classified as structurally deficient.

- *Superstructure* – condition rating of that part of the bridge above the piers; this is the above-deck steel for a truss bridge and the concrete/steel load-supporting member between the top of the piers and the deck for other typical bridges. A poor superstructure rating can lead to a structurally deficient classification.

- *Substructure* – condition rating of that part of the bridge below the superstructure. This is typically the bridge piers, abutments, piles, footings, etc. Bridges with poor substructure ratings can be classified structurally deficient.

- *Underclearance (vertical and horizontal)* – adequacy of the bridge to allow legal-sized vehicles to operate, both from a vertical clearance perspective (15 feet) and horizontal (8 to 10 feet for arterials). Bridges with inadequate underclearances can be classified functionally obsolete. A bridge receives a reduced rating if its clearances are less than design standard (17 feet vertical and 30 feet horizontal). Many states, notably South Dakota, have identical MTCs and design standards to recognize the importance of moving over-sized loads. A deficiency analysis using identical MTCs and design standards, of course, appreciably increases the number of bridges with deficient clearances.

- *Deck Geometry* – a rating which describes the width of the deck. A poor deck geometry rating can lead to a functionally obsolete classification. The "4" rating for this item corresponds to different bridge widths, depending upon the functional classification, type of operation, and bridge length.

- *Approach Roadway Alignment* – description of the alignment adequacy of the approach roadway. Poor alignment of the approach roadway is defined as a "substantial" reduction in speed being required, as compared with the adjacent highway section.

A rating of "5" is the MTC for Posted Load Limit, which is defined as "no posting required." The bridge operating rating, which is the "absolute maximum permissible load level to which the structure may be subjected," is evaluated at a minimum tolerable level of 28 tons. Low operating ratings can lead to a classification of structurally deficient.

- *Operation (V/C ratio and LOS).* Roadway operational deficiencies are manifested as congestion (i.e., too many vehicles trying to travel a roadway with inadequate capacity). The results include more accidents, slower speeds, and higher costs, especially for trucks. The WTTN deficiency analysis for operations examines the volume-to-capacity ratio and level of service on each WTTN highway. The minimum tolerable level of service (LOS) is "C" in rural areas and "D" in urban environments. The LOS is a qualitative expression of operating conditions (congestion) when a roadway is accommodating various traffic volumes, using an alphabetic rating (A to F), as defined below:

    - A - free flow (low volumes and high speeds)
    - B - stable flow, (speeds restricted somewhat by volume)
    - C - restricted stable flow (lower speed, less maneuverability)
    - D - approaching unstable flow (speed considerably affected by changes in operating conditions)
    - E - unstable flow (at or near capacity, some stoppages)
    - F - forced flow (volumes exceed capacity, slow speeds, frequent stoppages)

  The LOS minimum tolerable condition is related to the volume-to-capacity (v/c) ratio in that v/c is merely an indicator dictated by facility type and level of service. LOS is driven by the most important truck urban operations indicator, operating speed. The Steering Committee establish minimum tolerable truck operating speeds ranging from 35 mph on non-interstate-type urban arterials to 65 mph on interstate-type facilities in flat/rolling terrain. It is from this key truck measure of effectiveness that the minimum tolerable corresponding LOS and V/C were derived for the deficiency analysis.

  The minimum tolerable truck operating speed does not vary by time of day. This study recognizes that operating conditions differ vastly between congested and uncongested conditions, which correspond to peak and off-peak times in urban areas. However, the minimum tolerable truck operating speed is a constant expression regardless of time of day. This is examined in more detail in the performance discussion later in this chapter.

HIGHWAYS DEFICIENCY ANALYSIS

Process: HPMS Systematic Approach

Roadways and bridges in the WTTN Highway Network are considered deficient if their design, condition, or operating attributes fall below the minimum tolerable conditions outlined above. In order to consistently evaluate all WTTN highways without initiating an expensive, new data collection effort, the Steering Committee decided to use an *HPMS Systematic Approach* to calculating deficiencies.

HPMS And Other Data

Because the HPMS is a universal database and has a consistent reporting format across the 17-state WTTN Region, it is the logical data base from which to build an analytical procedure. Under this approach, the consultant identified those HPMS data items needed to determine deficiencies in each MTC outlined in the previous sections. To determine deficiencies for each performance attribute, the following question applied: "What HPMS data are needed to determine if a highway is deficient in this category?"

The consultant reviewed the MTCs for each highway attribute and determined the minimum HPMS-type data required to accurately assess each. The WTTN States were asked to provide this data (see Exhibit 3-5) on their *non-sampled* WTTN highways. Because the consultant owned a copy of the 1996 HPMS Data Base, detailed information was requested only for non-sampled mileage.

The data request was designed to ask states to provide information already on-hand in a familiar HPMS format. The states were also asked to provide materials (map or straight-line diagram) to help the consultant physically associate a data string with a roadway section. By combining the HPMS data and information provided by the states, the consultant was able to create a database for 100 percent of the WTTN Highway Network.

HPMS-type data describes a series of short highway sections of like attributes that are combined to represent a *supersegment*. In rural areas, an HPMS sample section averages several miles in length but, in urban areas, the average sample section is less than one mile in length. The FHWA and states work together to specify criteria for “section breaking,” but the idea is to create a section break when certain geometric attributes change (lane width, alignment adequacy, access control, shoulder width, number of lanes), administrative aspects (functional class, county, jurisdiction), or operational characteristics (ADT, % trucks). HPMS section breaks occur frequently, so a section represents a highway length of like characteristics.

The WTTN approach is designed to be less rigorous and demanding than the standard HPMS approach. For example, where an HPMS break may occur with a 10 percent jump in ADT or a two-foot change in shoulder width, these changes are not significant for the purposes of the WTTN deficiency analysis. The approach employed by the consultant, therefore, is to group many HPMS sections to form a WTTN supersegment. The data for the entire segment was then averaged in a weighted fashion (by mileage) to represent the entire section.

Exhibit 3-5
WTTN HIGHWAYS DATA REOUEST

HPMS Item #	Description	HPMS Section	Non-HPMS Section
3	State Code	X	X
6	County	X	X
7A	Section ID	X	X
8	LRS Mileposts	X	X
9	Rural/Urban Designation		X
10B	Urbanized Area Code		X
12	Functional System Code		X
17	Route Signing		X
19	Route Number		X
25	Section Length		X
28	AADT		X
30	Number of Through Lanes		X
32	Access Control		X
35/36	Pavement Condition (IRI and/or PSR)		X
51	Lane Width		X
53	Shoulder Width		X
57	Horizontal Alignment Adequacy (will be calculated if Item 58 is provided)		X
58	Curves by Class (Length)		X
59	Type of Terrain		X
60	Vertical Alignment Adequacy (will be calculated if Item 58 is provided)		X
61	Grades by Class (Length & Number)		X
63	Speed Limit		X
64	Weighted Design Speed (can be calculated by WSA if Item 58 is provided)		X
65A	% Single Unit Commercial Vehicles (Peak & Off-peak)		X
65B	% Combination Commercial Vehicles (Peak & Off-peak)		X
666	K-Factor (will be defaulted if not provided)		X
67	Directional Factor (will be defaulted if not provided)		X
68	Peak Capacity		X
73	Future AADT		X
74	Year of Future AADT		X
79A/B	# At-Grade Controlled Intersections (Signals/Stop Signs)		X

HPMS-Only States - The states worked hard to provide the consultant with the data requested. However, due to non-participation by four states in the Region, the consultant had only the HPMS sample section data to describe the WTTN highways. In addition, several participating states were unable to provide the data requested.

The consultant team suggested the HPMS sample *might* be considered adequate in the HPMS-only states if the HPMS sample covered a significant amount of WTTN highway mileage and the sample was widely distributed. That is, the HPMS sample would be considered representative of the entire supersegment under certain conditions, and the sample's characteristics would be assumed representative of the entire supersegment.

At the San Antonio Steering Committee meeting, it was agreed that coverage of about 40-50 percent was desired for interstates and 20-25 percent for non-interstates. In addition, the sample sections should be distributed so that several portions of the route are represented. This was especially important in urbanized areas, so congestion-related deficiencies would not be weighted by a sample from just the CBD or outlying area. The Steering Committee and consultant reviewed the supersegment data coverage in the HPMS-only states on a case-by-case basis and made a determination concerning whether the sample was adequate to represent the entire length.

The consultant assembled a spreadsheet, which was distributed to the Steering Committee for review (the spreadsheet is contained in Appendix B). The spreadsheet listed each supersegment and provided the complete length and the sample representation. Each supersegment was assigned a rating based upon the sample adequacy (extent and distribution). Based upon the review by the Steering Committee and consultant, it was agreed that insufficient data was available to adequately assess highway deficiencies on all or part of 10 supersegments of the WTTN network.

This means the sample is inadequate to the point that individual supersegment analysis is not recommended. However, when these 10 supersegments are combined with other supersegments *on a corridor basis*, the sample size appears adequate for each of the 20 WTTN

Trade Corridors. Missing data items reduce the usable data in some deficiency categories to less than 50 percent in Corridors 12, 14 and 20. However, the consultant believes the data expansion in these instances accurately reflects highway conditions in the corridors.

Deficiency Analysis - Once the data was received by the consultant, the information by sample section ("data string") was assigned to supersegments, combined with data from the HPMS database, and sorted for analysis. A deficiency model was built to analyze available data against agreed Truck Minimum Tolerable Conditions, and estimate/summarize deficiencies by type for each supersegment. Deficiencies are summarized and grouped into the following categories:

- *Pavement* – the consultant's deficiency model separates sections by functional classification, access control and number of lanes before applying the MTC (see Exhibit 3-6)

- *Speed Limit* – the model determines those supersegments that have an average speed limit lower than the minimum tolerable conditions.

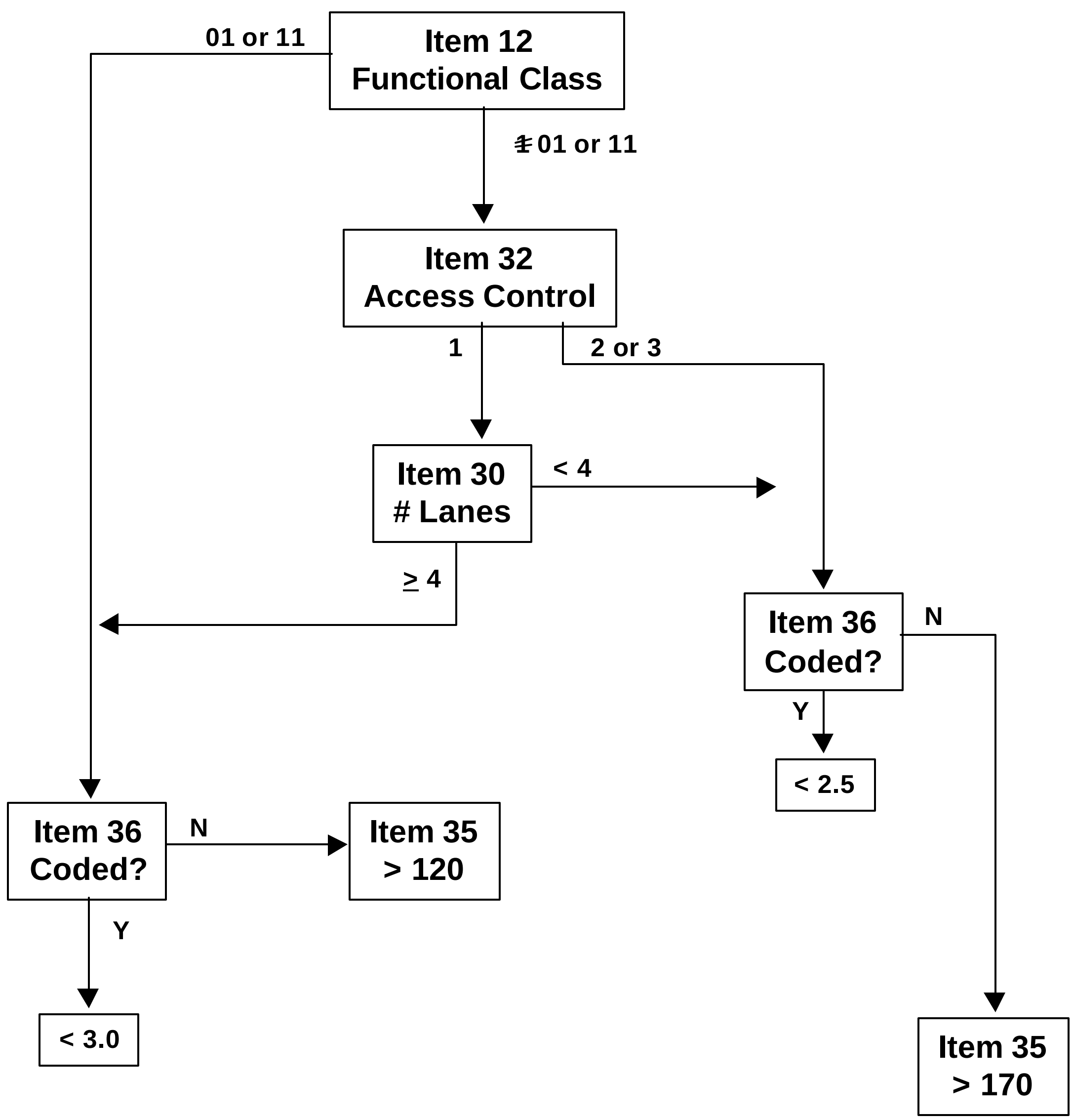
- *Alignment* – if complete curve and grade data were available, the HPMS AP model (as modified by the consultant) was used to compute adequacy; otherwise, state-provided assessments of alignment adequacy were used.

- *Congestion* – this deficiency model (see Exhibit 3-7) classifies a section into one of five categories:

    - Multilane, full access control (interstate)
    - Multilane, less than full access control (expressway)
    - Any signalized section
    - Urban, no signals, less than four lanes
    - Rural, no signals, less than four lanes

- *Bridges* – consultant's model compares bridge ratings with bridge MTCs.

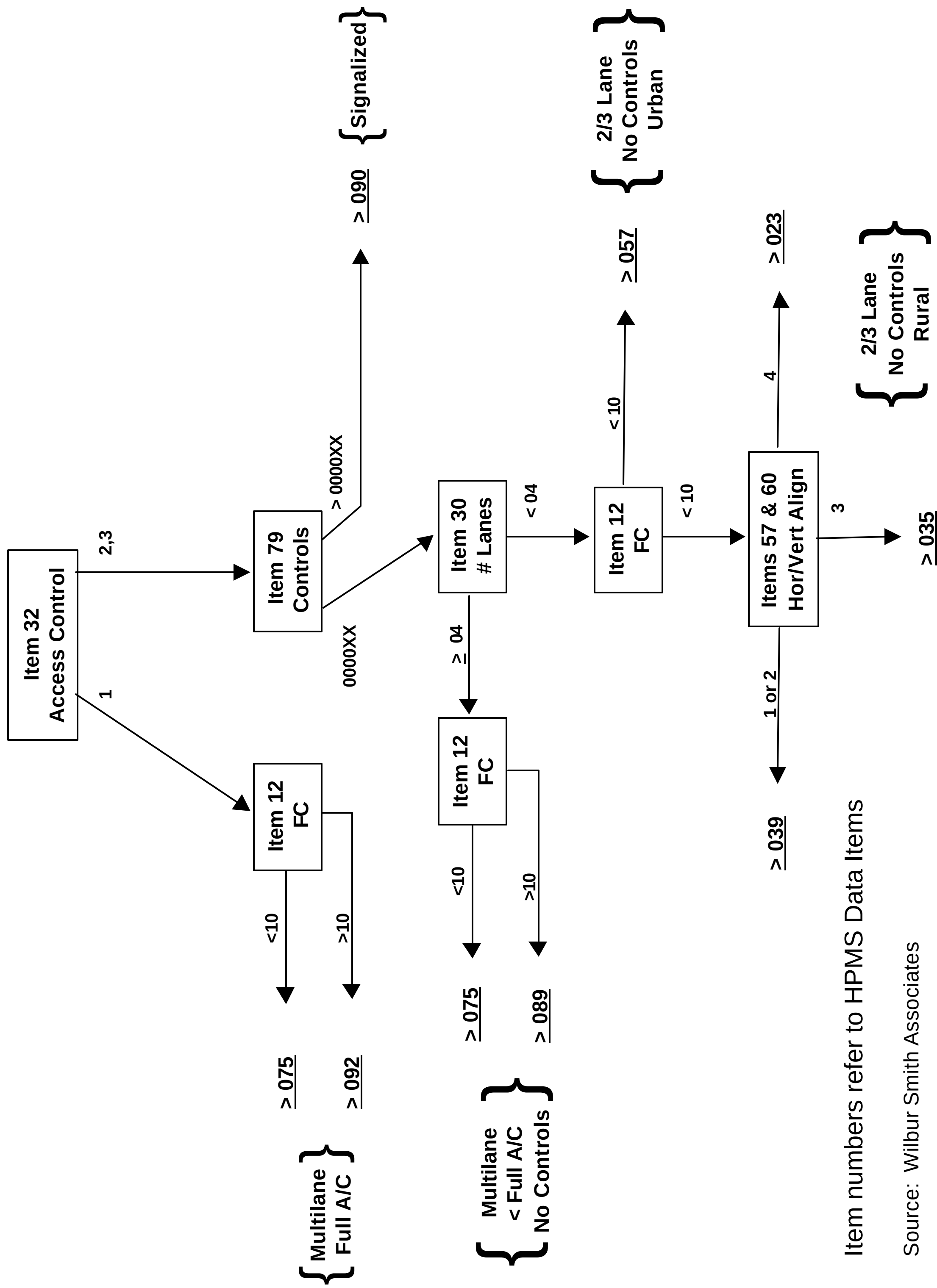
Exhibit 3-6
PAVEMENT CONDITION DEFICIENCY MODEL



Items refer to HPMS Data Items

Source: Wilbur Smith Associates

Exhibit 3-7
CRITICAL V/C DEFICIENCY MODEL



Item numbers refer to HPMS Data Items

Source: Wilbur Smith Associates

DEFICIENCIES

Highway deficiencies were calculated and summarized by supersegment using the process detailed above. Deficiencies, expressed as a percent of length, were identified for each of the following deficiency categories:

- Pavement Condition
- Lane Width
- Shoulder Width
- Vertical Alignment
- Horizontal Alignment
- Speed Limit
- Capacity (1996)
- Capacity (2016)

Rural sections were analyzed separately from urban sections, and the results by supersegment are presented in Appendix C. An example of the Appendix C presentation is shown on the next page (Exhibit 3-8). For each supersegment, urban and rural deficiencies are presented separately, then combined (*ALL SECTIONS*). In the example (SS #82, I-25 in Colorado), the state provided data for 100 percent of the mileage in the supersegment. Therefore, the rural *sample length* of 113.455 miles equals the *expanded length* in most deficiency categories. However, in some deficiency categories (shoulder width, horizontal alignment, 2016 capacity) the data was not available to conduct a complete determination of deficiencies for the entire supersegment length. The *ADEQUATE* and *INADEQUATE EXPANDED LENGTH* still adds to the entire length because the data was deemed sufficient to represent the full supersegment. The *SAMPLE RATE* column shows the percent of the data usable for a particular deficiency type.

WTTN Roadway Deficiencies by Type – Deficiencies were summarized for all WTTN highway supersegments (the *universe*). For the universe mileage, 2016 Capacity, Pavement, 1996 Capacity, and Shoulder Width were the most frequent deficiencies identified in the WTTN Trade Corridors. Future (2016) Capacity was deficient on 22.5 percent of the WTTN highway

Exhibit 3-8

WTTN DEFICIENCY SUMMARY
SUPERSEGMENT #82 EXAMPLE

Super-Segment NO 82 in COLORADO : I-25 Termini: New Mexico SL - Colorado Springs UL

RURAL LENGTH	113.455(36 SECTIONS COVERING	113.455 MILES)
URBAN LENGTH	18.368(29 SECTIONS COVERING	18.368 MILES)
TOTAL LENGTH	131.823(65 SECTIONS COVERING	131.823 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	89.933(32)	23.522(4)	113.455	79.27	20.73	100.00
LANE WIDTH DEFICIENCY	113.455(36)	.000(0)	113.455	100.00	.00	100.00
SHOULDER W. DEFICIENCY	102.309(26)	11.146(1)	30.752	90.18	9.82	27.11
VERT. ALIGN. DEFICIENCY	113.455(36)	.000(0)	113.455	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	111.974(34)	1.481(1)	95.177	98.70	1.30	83.89
SPEED LIMIT DEFICIENCY	113.455(36)	.000(0)	113.455	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	113.455(36)	.000(0)	113.455	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	113.455(27)	.000(0)	30.752	100.00	.00	27.11

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	15.034(22)	3.334(7)	18.368	81.85	18.15	100.00
LANE WIDTH DEFICIENCY	18.368(29)	.000(0)	18.368	100.00	.00	100.00
SHOULDER W. DEFICIENCY	18.136(25)	.232(1)	16.704	98.74	1.26	90.94
VERT. ALIGN. DEFICIENCY	18.368(29)	.000(0)	18.368	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	18.368(29)	.000(0)	18.368	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	14.680(20)	3.688(9)	18.368	79.92	20.08	100.00
CAPACITY DEFICIENCY 1996	18.368(29)	.000(0)	18.368	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	16.493(23)	1.875(3)	16.704	89.79	10.21	90.94

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	104.967(54)	26.856(11)	131.823	79.63	20.37	100.00
LANE WIDTH DEFICIENCY	131.823(65)	.000(0)	131.823	100.00	.00	100.00
SHOULDER W. DEFICIENCY	120.445(51)	11.378(2)	47.456	91.37	8.63	36.00
VERT. ALIGN. DEFICIENCY	131.823(65)	.000(0)	131.823	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	130.342(63)	1.481(1)	113.545	98.88	1.12	86.13
SPEED LIMIT DEFICIENCY	128.135(56)	3.688(9)	131.823	97.20	2.80	100.00
CAPACITY DEFICIENCY 1996	131.823(65)	.000(0)	131.823	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	129.948(50)	1.875(3)	47.456	98.58	1.42	36.00

Note: The numbers in ( ) indicate the number of sample sections

mileage, followed by pavement condition (12.4 %), Current (1996) Capacity (7.2 %), Shoulder Width (6.7 %), Speed Limit (3.9 %), Horizontal Alignment (2.2 %), Lane Width (1.4 %), and Vertical Alignment (0.6 %).

Exhibit 3-9 shows urban WTTN highways have more than twice the pavement condition, 1996 capacity, and speed limit deficiencies, a higher percent of lane width deficiencies, and nearly three times the percentage of 2016 capacity deficiencies as rural WTTN highways.

Exhibit 3-9
WTTN ROADWAY DEFICIENCY ANALYSIS SUMMARY

	% of Expanded Length		
Deficiency	**Adequate**	**Deficient**	**Sample Rate**
Rural			
Pavement Condition	89.6	10.4	81.6
Lane Width	98.7	1.3	70.9
Shoulder Width	92.4	7.6	75.6
Vertical Alignment	99.3	0.7	69.4
Horizontal Alignment	97.4	2.6	69.3
Speed Limit	96.8	3.2	78.8
1996 Capacity	94.1	5.9	67.7
2016 Capacity	82.7	17.3	65.1
Urban			
Pavement Condition	78.0	22.0	79.7
Lane Width	98.2	1.8	72.4
Shoulder Width	97.8	2.2	71.6
Vertical Alignment	100.0	0.0	65.4
Horizontal Alignment	97.8	2.2	65.3
Speed Limit	92.6	7.4	73.2
1996 Capacity	86.1	13.9	72.4
2016 Capacity	52.1	47.9	70.9
Total			
Pavement Condition	87.6	12.4	81.3
Lane Width	98.6	1.4	71.2
Shoulder Width	93.3	6.7	75.0
Vertical Alignment	99.4	0.6	68.7
Horizontal Alignment	97.4	2.6	68.7
Speed Limit	96.1	3.9	77.9
1996 Capacity	92.8	7.2	68.5
2016 Capacity	77.5	22.5	66.1

U.S. Comparison. Limited data is available to compare WTTN highways with like highways across the country. In the following exhibit however, comparisons for lane width, 1996 capacity and pavement condition are shown between the WTTN highways universe and the U.S. National Highway System, weighted by Interstate/non-interstate in the same proportion. Although this does not provide an exact comparison, it does show how WTTN highways compare with similar highways nationwide in some deficiency categories.

Exhibit 3-10 shows WTTN highways have far fewer deficiencies in lane width, pavement condition and urban capacity. Only in rural capacity are the WTTN highways performing worse (5.9% compared with 3.9%). These findings suggest that WTTN corridors are appropriate candidates for creation of a trade network.

Exhibit 3-10
HIGHWAY DEFICIENCIES COMPARISON
WTTN HIGHWAYS vs. U.S. HIGHWAYS
1996

	WTTN % Deficient	U.S. % Deficient
Lane width – rural	1.3	10.9
Lane width – urban	1.8	12.7
1996 Capacity – rural	5.9	3.9
1996 Capacity – urban	13.9	41.0
Pavement condition – rural	10.4	17.9
Pavement condition – urban	22.0	31.6

Source of U.S. Data: FHWA

Deficiencies by Corridor - Deficiencies are initially calculated by supersegment, then summarized for presentation by WTTN Trade Corridor in Exhibit 3-11.

Exhibit 3-11
HIGHWAY DEFICIENCIES BY WTTN CORRIDOR

WTTN Trade Corridor	Miles	Percent Deficient: Pavement Condition	Lane Width	Shoulder Width	Vert Align	Hor Align	Speed Limit	1996 Capacity	2016 Capacity
1	4,781	12.1	2.5	14.4	0.8	3.4	5.2	5.0	11.2
2	1,754	18.4	0.5	5.9	2.5	0.0	0.3	8.3	22.7
3	1,126	10.9	1.1	14.2	0.0	1.5	5.4	7.5	18.8
4	1,546	7.9	0.0	0.0	0.0	0.0	2.8	3.8	9.7
5	2,746	10.7	0.2	0.1	0.0	0.7	0.9	4.0	26.5
6	857	2.5	0.0	0.4	0.0	2.0	0.2	1.4	25.3
7	2,162	34.3	0.6	1.8	1.3	2.8	2.6	13.0	64.2
8	734	12.5	0.0	6.9	0.0	3.7	0.0	2.3	5.6
9	672	7.7	11.1	33.9	5.4	18.1	5.9	40.2	65.7
10	2,155	12.2	0.0	15.4	0.9	3.4	7.0	13.1	40.8
11	2,369	14.4	0.5	0.7	0.0	0.6	2.3	3.4	8.9
12	261	3.7	2.5	76.5	0.0	0.0	3.7	0.6	2.5
13	442	5.4	0.0	0.0	0.0	0.0	1.8	0.0	0.0
14	1,738	11.8	2.2	0.1	0.0	1.4	9.9	7.5	17.8
15	337	1.5	0.3	0.2	0.0	0.0	5.0	2.7	8.3
16	1,380	15.9	0.1	3.2	0.1	3.0	2.6	9.3	13.0
17	3,472	9.4	1.0	1.9	0.0	3.0	1.2	5.2	24.6
18	1,013	3.1	4.9	0.0	0.8	3.4	12.3	14.6	29.8
19	2,087	6.9	2.1	3.7	0.0	0.1	4.1	3.8	12.0
20	854	11.9	2.2	19.1	0.9	1.3	9.1	9.9	19.9
Total		**12.4**	**1.4**	**6.7**	**2.6**	**2.2**	**3.9**	**7.2**	**22.5**

Table shows highways deficient by corridor within each deficiency category. Deficiencies are expressed as a percent of length (centerline miles).

Source: Wilbur Smith Associates

A brief summary of deficiencies in each WTTN Trade Corridor follows. A supersegment was determined to have “significant” deficiencies if the percent of deficiency exceeds the average of all corridors for that deficiency. For example, 12.4 percent of all WTTN highway mileage has pavement condition deficiencies. Those supersegments that exceed the average of 12.4 percent are considered to have “significant” pavement condition deficiencies.

To reiterate, the deficiencies mentioned below are measured against the Minimum Tolerable Conditions established for this study, which may not be the same criteria each state uses to determine deficiencies on an individual project basis.

<u>Corridor 1, Pacific NW-Minneapolis-Chicago</u> – Corridor with the most mileage (4,781) stretching from Seattle to Minnesota, including I-90, I-94, U.S. 2, U.S.12, U.S.87, U.S.395 and other routes. The corridor is in the top five in lane width deficiencies (U.S. 2 in Washington, Idaho, and Montana, U.S. 87 in Montana, S18 in Washington) and also has notable alignment deficiencies (U.S. 2 in Washington, Idaho and Montana, U.S. 12 west of Missoula, U.S. 87/S200 in Montana). Pavement condition deficiencies are prominent on I-90 from the Idaho state line to I-25 (MT, WY) and U.S. 2 in western Montana. U.S. 2 in Washington and Idaho and U.S. 12 in from Lewiston to Missoula have notable capacity deficiencies (current and future).

<u>Corridor 2, San Francisco-Chicago</u> – Corridor highways are I-80 (San Francisco-Omaha) and some urban interstate routes in San Francisco. I-80 has significant pavement deficiencies (CA, NV, UT, WY), making Corridor 2 the second highest in pavement deficiency share (18.4%) of the 20 Corridors. Significant 2016 capacity deficiencies also are noted in San Francisco, Sacramento, and Reno, while the Sacramento to Reno section has vertical alignment and shoulder width deficiencies as well.

<u>Corridor 3, Utah-St. Louis</u> – This corridor (mostly I-70) has above average deficiencies in only shoulder width (Utah), with some pavement deficiencies in Colorado, and 1996/2016 capacity deficiencies in Colorado and Kansas.

<u>Corridor 4, Southern California-Memphis</u> – This corridor is mostly I-40 from California to Arkansas. The only significant deficiencies are 2016 capacity (Albuquerque, Oklahoma City) and pavement condition through New Mexico, with the remaining deficiencies isolated.

<u>Corridor 5, Southern California-New Orleans</u> – This corridor includes I-8, I-10, I-20 and several CA state routes. Corridor 5 routes have above average deficiencies in 2016 capacity (San Diego, Los Angeles, El Paso, San Antonio, Houston, Dallas) only, with some pavement deficiencies (I-8 and I-10 in CA).

Corridor 6, Texas-Memphis – (I-20 and I-30 in Texas). These routes have significant deficiencies in only the 2016 capacity category (Dallas).

Corridor 7, Mexico-Canada – (I-5 from San Diego to Canada plus numerous urban interstates and some state routes). This corridor has the highest share of pavement deficiencies of the 20 Corridors (34.3%) and the second highest share of 2016 capacity deficiencies (64.2%). The pavement deficiencies are concentrated mostly in California and Oregon, and most supersegments have current and/or future capacity problems. US 97/S 58 in Oregon also has a myriad of problems (pavement, shoulder width, alignment, capacity). S 99 and S 7/86/78 in California have significant pavement deficiencies as well.

Corridor 8, Pacific NW-Utah – (I-84). This corridor, stretching from Seattle to Salt Lake City, has above average horizontal alignment deficiencies in Oregon (though just 3.7%), and notable pavement deficiencies (12.5%), though scattered.

Corridor 9, Boise-Canada – (U.S. 95, U.S. 195, U.S. 395 in ID and WA). These three two-lane highways traverse rugged terrain between Boise and the Canadian line, and have the highest percentage of lane width (11.1%), vertical alignment (5.4%), horizontal alignment (18.1%), current capacity (40.2%) and future capacity (65.7%) deficiencies of the 20 Corridors.

Corridor 10, Mexico-Canada (Canamex) – (mostly I-15 from Mexico to Canada, I-10/I-19/ U.S. 60/U.S. 93 from Mexico to Las Vegas, and U.S. 20/191 in Idaho and Montana). Highways in Corridor 10 have some of the highest deficiency rates in four categories: horizontal alignment (3.4% deficient), speed limit (7.0%), 1996 capacity (13.1%) and 2016 capacity (40.8%). Capacity deficiencies are prominent on I-15 in California, near Las Vegas, and through Salt Lake City, on I-215, and the two-lane crossing of Hoover Dam on U.S. 93 in

Arizona and Nevada (which also has speed limit deficiencies), U.S. 60/U.S. 93 in and northwest of Phoenix. U.S. 191 in Montana has some alignment deficiencies are on US 191 in Montana.

Corridor 11, Pacific NW-Kansas City – (Interstates 82, 84, 86, 90, 25 and 80 plus US 26 in WY and NE). The only prominent deficiency in Corridor 11 is pavement condition (14.4% deficient). Sections with significant pavement problems include I-25 north of Cheyenne, I-80 in Cheyenne, I-84 in Portland and eastern Oregon, I-86, and I-90 in Montana and Wyoming. U.S. 26 in Nebraska has above average lane width deficiencies.

Corridor 12, Montana-Canada – (U.S. 87/U.S. 191 and S19 in Montana). At 261 miles in length, this corridor between Billings and the Canadian line has the smallest number of miles of the 20 Corridors. It has the highest percentage of shoulder deficiencies (76.5%) and isolated lane width and pavement condition deficiencies.

Corridor 13, Canada-Minneapolis-Chicago – (U.S. 52 and I-94 in ND). This 442-mile corridor has some isolated pavement condition deficiencies (5.4%), but virtually no other problems.

Corridor 14, Wyoming-Galveston – (parts of I-25 and I-70 in WY and CO, U.S. 287 in CO, OK, TX, and I-45). The highways in Corridor 14 are "average" in most every deficiency category, and have above average deficiencies in lane width (2.2%) and speed limit (9.9%). The lane width problems are on U.S. 287 between Amarillo and Dallas, while the speed limit deficiencies are notable on U.S. 287 in Oklahoma and Texas (Wichita Falls to Ennis). All of I-45 has 2016 capacity deficiencies, while pavement condition deficiencies are notable on I-25 in Wyoming and Colorado, and on I-70 from Denver to Limon, Colorado.

Corridor 15, Mexico-Arizona – (Flagstaff to Mexico on I-10, I-17, I-19). This short (337 miles) section has no significant deficiencies except speed limit on I-19.

Corridor 16, Mexico-I-90 – (I-25 plus several state routes in NM, CO, SD, WY). Corridor 16 highways have prominent pavement condition deficiencies (15.9%), with few other notable problems. I-25 has significant pavement condition problems along its entire length and notable horizontal alignment deficiencies, while U.S. 385/S79 from Rapid City to I-80 has significant horizontal alignment, shoulder width, and some capacity deficiencies.

Corridor 17, Mexico-Canada/Midwest – (Interstates 35, 37, 44, 45 and 29 plus parts of U.S. 287 in Texas, U.S. 81 and U.S. 281 in Kansas, Nebraska, and the Dakotas). With 3,472 miles of highways, this north-south corridor has the second highest mileage of the 20 Trade Corridors. Despite its length and diversity, it has above average deficiencies in only 2016 capacity (24.6%). The future capacity deficiencies are prominent along I-35 (San Antonio through Dallas, and in Oklahoma), I-37 (in San Antonio and Corpus Christi), I-44 in Oklahoma City and Tulsa, all of I-45, I-135 in Wichita, U.S. 81 in Nebraska and South Dakota, and U.S. 281 from I-90 to ND (which also has pavement, lane width, shoulder width and horizontal alignment problems). Portions of I-35 (San Antonio through Oklahoma City), I-37 (Corpus Christi), I-44 (Oklahoma City), and I-45 (Houston) have significant 1996 capacity deficiencies, while I-29 (through the Dakotas), U.S. 81 in Nebraska, and U.S. 281 in South Dakota have notable pavement condition deficiencies.

Corridor 18, Laredo-Indianapolis – (U.S. 59, U.S. 77 and U.S. 281 in Texas). These U.S. routes in Texas are among the highest in five of the eight deficiency categories: lane width (4.9%), horizontal alignment (3.4%), speed limit (12.3% -- highest of the 20 corridors), 1996 capacity (14.6% -- second highest), and 2016 capacity (29.8%). Capacity deficiencies are prominent on U.S. 59 from Laredo through Houston, and the Houston to I-30 segment has numerous lane width and speed limit deficiencies. U.S. 77 has significant speed limit deficiencies, while U.S. 281 has alignment problems.

Corridor 19, New Mexico-St. Louis – (I-40, I-44, I-35, I-235, U.S. 54, and U.S. 70 in NM). The 2,087 miles in Corridor 19 have above average deficiencies in lane width (2.1%) and speed limit (4.1%). I-35, I-40 and I-44 each has significant capacity deficiencies through

Oklahoma City. U.S. 54 has lane width and pavement condition deficiencies of note from El Paso to I-40 (TX, NM), and speed limit deficiencies in Oklahoma and Kansas. U.S. 70 in New Mexico also has notable speed limit and 1996 capacity deficiencies.

Corridor 20, Montana-Canada – (parts of I-15 and I-90, U.S. 93 and S 3 in Montana). The 854 miles in this corridor connecting Billings with Canada have above average deficiencies in lane width (2.2%), shoulder width (19.1%), vertical alignment (0.9%), speed limit (9.1%), and 1996 capacity (9.9%). U.S. 93 from Missoula to Canada, a two-lane roadway through rugged terrain, has significant shoulder width, speed limit and capacity deficiencies. S 3 (Billings to Great Falls) has significant deficiencies in shoulder width, speed limit, lane width, and horizontal alignment. I-90 from Missoula to Billings has significant pavement condition deficiencies.

HIGHWAY BRIDGES DEFICIENCIES ANALYSIS

The consultant and Steering Committee agreed to use the National Bridge Inventory (NBI) database as the basis of the bridge deficiency analysis. This database, which is maintained by FHWA with the help of all the states, contains a description of every bridge in the nation more than 20 feet long. In addition to bridge identification and location, the database includes many items concerning the geometry and condition of the bridge.

For this study, it was agreed to focus on a limited number of potential bridge deficiencies. The eight potential bridge deficiency categories and their minimum tolerable conditions were listed earlier in Exhibit 3-2. They include:

- Deck Condition
- Superstructure Condition
- Substructure Condition
- Operating Rating
- Posted Load Limit
- Underclearance (for bridges above a WTTN highway)
- Deck Geometry
- Approach Roadway Alignment

Each of these potential deficiencies corresponds to a data item in the NBI database. The coded values for each relevant bridge were compared with the minimum tolerable thresholds and deficiencies were identified when the minimum tolerable conditions were not met. It should be noted that (1) the agreed upon list of potential bridge deficiencies is limited i.e., a full bridge needs study would analyze many more data items; and (2) the bridge minimum tolerable conditions adopted in this study are not necessarily the same each state would use.

The WTTN bridges were identified in the NBI database by the highway description carrying (or above) the structure. For example, all bridges on or under I-25 in Colorado were selected from the NBI database for further analysis. A total of 25,734 bridges were identified as serving the WTTN corridors.

The results of the bridge deficiency analysis are presented by corridor in Exhibit 3-12. A total of 327 (1.27%) bridges were found to have at least one of the selected deficiencies. The only deficiencies found were *operating rating* and *posted load limit*. These two types of deficiency could prevent some trucks from using the affected routes. There were no bridges with deck condition, superstructure condition, substructure condition, deck geometry or approach roadway width deficiencies. This does not mean that an individual state conducting a deficiency analysis of these same bridges would not find them inadequate. It is simply that all bridges met the minimum tolerable condition selected (rating of "4" corresponds to a "poor" condition) for these deficiency categories in the WTTN study.

Corridor 14, Wyoming-Galveston, has the most (68) deficient bridges, many of them in Texas. Corridor 12, Montana-Canada, has a relatively large number of deficient bridges (16) considering its short length. Corridor 13, Canada-Minneapolis-Chicago is the only corridor with no deficient bridges.

In Exhibit 3-12, please note that bridges with a "Posted Load Limit" deficiency will likely also be indicated deficient in "Operating Rating." Also, the number of bridges with deficiencies may not add to the total because one bridge may be deficient in more than one category.

While the overall number of deficient bridges may appear small for the total length of highways considered (327 bridges over 32,485 miles), each deficient bridge may cause trucks to detour around the affected bridge on alternate highway routes, which significantly impacts travel time.

PERFORMANCE ANALYSIS

<u>Measures Of Performance</u>

The WTTN Steering Committee and the consultant identified four major potential truck performance indicators: operating cost, operating speed, safety, and reliability. Because some of these indicators are not readily measurable, or require data that is not available on a consistent basis, the WTTN Steering Committee and the consultant agreed to focus on truck operating speed as the key study performance measure. Operating speeds for both single unit trucks and combination trucks were estimated for each road segment based on the conditions of the roadway, including roadway geometry and alignment, pavement condition, speed limit and traffic volumes.

Two types of operating speeds were calculated: one is the *average daily operating speed* and the other is the *peak hour operating speed* as defined by the peak hour factor or "K" factor for each road segment. Because it is not known when a truck would travel over a specific highway section during peak hour, the peak hour operating speed assumes that every section is traveled during peak hour. As a result the calculated peak hour speed and travel time for an entire corridor is pessimistic, as it is unlikely that a truck would travel every section during peak hour conditions.

Exhibit 3-12
WTTN-BRIDGE DEFICIENCY ANALYSIS
Corridor Results

		Number of Bridges with Following Deficiencies							Number of
Corridor	**Functional Class**	**Deck Condition**	**Superstr. Condition**	**Substr. Condition**	**Deck Geometry**	**Approach Rdwy. Width**	**Operating Rating**	**Posted Load Limit**	**Bridges Deficient**
1	**Pacific NW-Minneapolis-Chicago (4,781 Miles)**								
	Rural Interstate	0	0	0	0	0	1	1	2
	Rural Other PA	0	0	0	0	0	28	2	29
	Rural Minor Arterial	0	0	0	0	0	0	1	1
	Urban Interstate	0	0	0	0	0	2	0	2
	Urban Other PA	0	0	0	0	0	1	0	1
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**32**	**4**	**35**
2	**San Francisco-Chicago (1,754 Miles)**								
	Rural Interstate	0	0	0	0	0	0	5	5
	Rural Other PA	0	0	0	0	0	0	3	3
	Urban Other Fwy./Exp.	0	0	0	0	0	4	0	4
	Urban Other PA	0	0	0	0	0	1	1	2
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**5**	**9**	**14**
3	**Utah-St. Louis (1,126 Miles)**								
	Rural Interstate	0	0	0	0	0	12	0	12
	Urban Interstate	0	0	0	0	0	3	0	3
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**15**	**0**	**15**
4	**Southern California-Memphis (1,546 Miles)**								
	Rural Interstate	0	0	0	0	0	11	6	11
	Rural Other PA	0	0	0	0	0	1	0	1
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**12**	**6**	**12**

Exhibit 3-12
WTTN-BRIDGE DEFICIENCY ANALYSIS
Corridor Results

Corridor	Functional Class	Number of Bridges with Following Deficiencies: Deck Condition	Superstr. Condition	Substr. Condition	Deck Geometry	Approach Rdwy. Width	Operating Rating	Posted Load Limit	Number of Bridges Deficient
5	**Southern California-New Orleans (2,746 Miles)**								
	Rural Interstate	0	0	0	0	0	2	1	3
	Urban Interstate	0	0	0	0	0	2	1	3
	Urban Other PA	0	0	0	0	0	0	1	1
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**4**	**3**	**7**
6	**Texas-Memphis (857 Miles)**								
	Rural Interstate	0	0	0	0	0	15	2	15
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**15**	**2**	**15**
7	**Mexico-Canada (2,162 Miles)**								
	Rural Interstate	0	0	0	0	0	20	1	21
	Rural Other PA	0	0	0	0	0	14	0	14
	Urban Interstate	0	0	0	0	0	7	0	7
	Urban Other Fwy./Exp.	0	0	0	0	0	1	0	1
	Urban Other PA	0	0	0	0	0	3	0	3
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**45**	**1**	**46**
8	**Pacific NW-Utah (733 Miles)**								
	Rural Interstate	0	0	0	0	0	12	0	12
	Rural Minor Arterial	0	0	0	0	0	1	0	1
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**13**

Exhibit 3-12
WTTN-BRIDGE DEFICIENCY ANALYSIS
Corridor Results

		Number of Bridges with Following Deficiencies							Number of
Corridor	**Functional Class**	**Deck Condition**	**Superstr. Condition**	**Substr. Condition**	**Deck Geometry**	**Approach Rdwy. Width**	**Operating Rating**	**Posted Load Limit**	**Bridges Deficient**
9	**Boise-Canada (672 Miles)**								
	Rural Other PA	0	0	0	0	0	3	0	3
	Urban Other PA	0	0	0	0	0	0	1	1
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**4**
10	**Mexico-Canada (Canamex) (2,155 Miles)**								
	Rural Interstate	0	0	0	0	0	1	0	1
	Rural Other PA	0	0	0	0	0	1	0	1
	Urban Other PA	0	0	0	0	0	1	0	1
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**3**
11	**Pacific NW-Kansas City (2,369 Miles)**								
	Rural Interstate	0	0	0	0	0	1	6	7
	Rural Other PA	0	0	0	0	0	0	5	5
	Urban Interstate	0	0	0	0	0	2	0	2
	Urban Other PA	0	0	0	0	0	0	1	1
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**3**	**12**	**15**
12	**Montana-Canada (260 Miles)**								
	Rural Other PA	0	0	0	0	0	16	0	16
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**16**	**0**	**16**

Exhibit 3-12
WTTN-BRIDGE DEFICIENCY ANALYSIS
Corridor Results

		Number of Bridges with Following Deficiencies							Number of
Corridor	**Functional Class**	**Deck Condition**	**Superstr. Condition**	**Substr. Condition**	**Deck Geometry**	**Approach Rdwy. Width**	**Operating Rating**	**Posted Load Limit**	**Bridges Deficient**
14	**Wyoming-Galveston (1,738 Miles)**								
	Rural Other PA	0	0	0	0	0	38	3	41
	Urban Interstate	0	0	0	0	0	8	0	8
	Urban Other Fwy./Exp.	0	0	0	0	0	12	0	12
	Urban Other PA	0	0	0	0	0	7	0	7
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**65**	**3**	**68**
15	**Mexico-Arizona (337 Miles)**								
	Rural Interstate	0	0	0	0	0	0	1	1
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**
16	**Mexico-I-90 (1,380 Miles)**								
	Rural Interstate	0	0	0	0	0	4	0	4
	Rural Minor Arterial	0	0	0	0	0	1	0	1
	Urban Interstate	0	0	0	0	0	9	0	9
	Urban Other Fwy./Exp.	0	0	0	0	0	1	0	1
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**15**	**0**	**15**
17	**Mexico-Canada/Midwest (3,472 Miles)**								
	Rural Interstate	0	0	0	0	0	16	0	16
	Rural Other PA	0	0	0	0	0	2	0	2
	Urban Interstate	0	0	0	0	0	9	0	9
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**27**	**0**	**27**

Exhibit 3-12
WTTN-BRIDGE DEFICIENCY ANALYSIS
Corridor Results

Corridor	Functional Class	Number of Bridges with Following Deficiencies: Deck Condition	Superstr. Condition	Substr. Condition	Deck Geometry	Approach Rdwy. Width	Operating Rating	Posted Load Limit	Number of Bridges Deficient
18	**Laredo-Indianapolis (1,013 Miles)**								
	Urban Other PA	0	0	0	0	0	13	0	13
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**13**
19	**New Mexico-St. Louis (2,087 Miles)**								
	Rural Interstate	0	0	0	0	0	11	6	11
	Rural Other PA	0	0	0	0	0	8	0	8
	Urban Other Fwy./Exp.	0	0	0	0	0	2	0	2
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**21**	**6**	**21**
20	**Montana-Canada (854 Miles)**								
	Rural Other PA	0	0	0	0	0	7	0	7
	Total Corridor	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**7**

Truck Operating Speed Methodology

Truck operating speeds are calculated for each sample section where the necessary data is available. Operating speeds over a combination of segments are then calculated by adding travel time and distance for each segment and calculating the new speed.

Because the necessary data was not available for every segment of the WTTN corridor highways, an expansion process was developed to reduce the potential impact of incomplete roadway segment data. This expansion process was necessary because operating speeds could not be calculated in two cases: (1) if no sample section data was available; or (2) if the sample segment data was incomplete (a minimum number of data items had to be available to calculate operating speeds). The expansion was done primarily at the supersegment level on a state-specific basis. Because operating speeds are very sensitive to functional class, the expansion at the supersegment level was first done by functional class (that is, expanding supersegment sample results to 100 percent of the supersegment). In a few cases (where no data existed for an individual supersegment), results from corridor highway segments were expanded to the total corridor length.

The operating speed calculation for each sample segment or link is based on the methodology of the HPMS Analytical Package (AP) used by FHWA to estimate highway needs. The process is summarized in Exhibit 3-13 and as follows:

1. Based on the type of facility (urban interstate versus two-lane rural arterial, for example) and the ratio of Average Annual Daily Traffic (AADT) to hourly capacity, the AADT is distributed into as many as 12 time periods, each with a specific hourly Volume to Capacity ratio (V/C ratio). Obviously, the higher the AADT compared to capacity, more traffic occurs during congested (high V/C ratio) periods.

2. For a given time period, *initial speed* per vehicle type is then estimated based on the time period, V/C ratio, type of facility, weighted design speed and the speed limit. This initial speed is adjusted to take into account pavement condition and the section’s alignment characteristics (steep grades and/or sharp curves reduce speed). The “initial” speed represents operating speed assuming neither speed change nor stop or idling time.

3. The *initial speed* is translated into *initial time* to travel the length of the highway segment.

4. Next, the average number of speed change cycles and stop cycles per vehicle mile of travel per vehicle type is calculated, based again of the facility type and the V/C ratio. Those cycles are then translated into excess travel time and average idling time is added.

5. *Initial travel time* and *excess travel time* by vehicle type are added for each time period to estimate total travel time for that period.

6. *Average daily operating speed* is calculated by weighting travel time by time period by the proportion of traffic during that period and translating into speed. Implicit in this calculation is that the proportion of trucks in the traffic stream stays constant during the day. However, operating speeds would increase if peak hour truck percentages drop significantly.

Peak hour operating speed is estimated in a similar fashion, but assumes a single time period whose V/C ratio is the peak hour V/C ratio as defined by the peak hour or "K" factor.

EXISTING CONDITIONS

Operating Speeds by Supersegment - Truck operating speeds were calculated and summarized by supersegment using the process detailed above. Results by functional class and supersegment are included in Appendix D. An example of the Appendix D presentation is shown in Exhibit 3-14.

For each supersegment, non-expanded results are first presented by functional class. The total lengths of all the sample segments, which were used in the analysis of the supersegment, are listed first. This is followed by items describing the characteristics of the supersegment, including average number of lanes, target speed (the minimum tolerable operating speed for the WTTN highways as defined earlier), speed limit, design speed and AADT. The purpose of listing these items is to better understand calculated existing operating speeds. For example, two/three-lane highways have lower operating speeds than equivalent four-lane highways because of passing difficulties. Similarly, low speed limits will result in low operating speeds on facilities no matter what the road conditions are. The target speed is listed as a point of reference between the minimum tolerable and actual operating speeds. Once this reference point was established, average daily and peak period speeds/travel times were calculated for single unit trucks and combination trucks. By comparing these speed and travel time values (based on actual conditions) against minimum tolerable speeds discussed earlier (Exhibit 3-2) in the study, it is possible to determine which facilities are most efficient.

Exhibit 3-13
TRUCK OPERATING SPEED METHODOLOGY

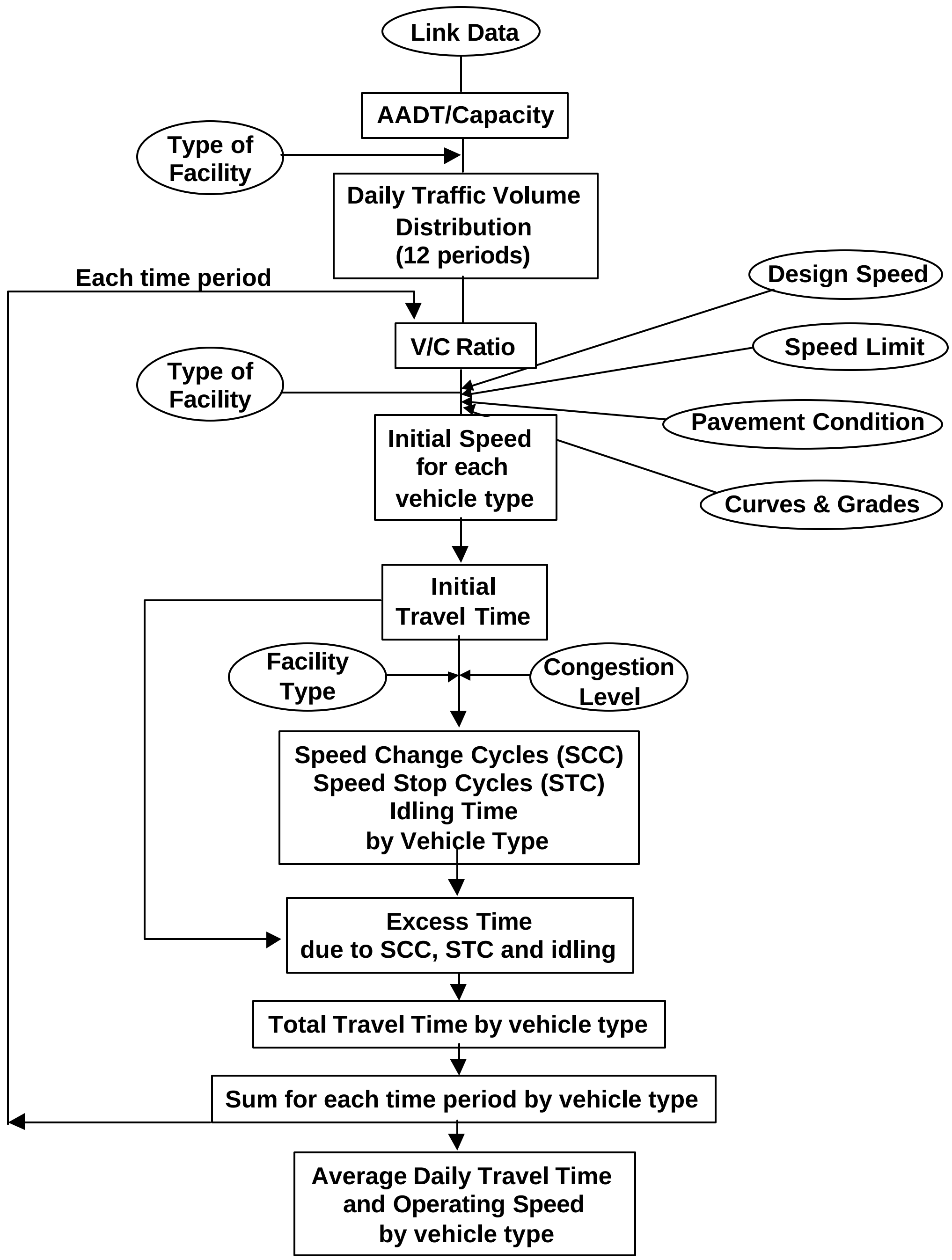


Exhibit 3-14
EXISTING CONDITIONS EXAMPLE

WTTN-Operating Speeds
Colorado Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
82	**I-25**		**New Mexico SL - Colorado Springs UL**								
R.Int		113.5	4.0	64.5	68.6	70.0	12,520	56.7	50.4	56.7	50.4
U.Int		18.4	4.0	40.0	59.1	69.4	25,827	54.9	52.2	50.3	48.0
Total Sample		131.8									
TOTAL	**131.8**		**4.0**	**59.4**	**67.1**	**69.9**	**14,375**	**56.4**	**50.7**	**55.7**	**50.1**
Time (HR)								**2.3**	**2.6**	**2.4**	**2.6**
83	**I-25**		**Through Colorado Springs**								
U.Int		18.8	4.1	40.0	57.5	68.6	68,262	49.4	46.6	22.2	21.9
Total Sample		18.8									
TOTAL	**18.8**		**4.1**	**40.0**	**57.5**	**68.6**	**68,262**	**49.4**	**46.6**	**22.2**	**21.9**
Time (HR)								**0.4**	**0.4**	**0.8**	**0.9**
84	**I-25**		**Colorado Springs UL - Denver UL**								
R.Int		37.2	4.1	65.0	68.0	70.0	51,191	55.7	50.4	43.1	39.9
U.Int		7.2	4.3	40.0	65.0	67.8	56,515	53.7	50.1	39.4	37.8
Total Sample		44.4									
TOTAL	**44.4**		**4.1**	**59.0**	**67.5**	**69.6**	**52,054**	**55.4**	**50.4**	**42.4**	**39.6**
Time (HR)								**0.8**	**0.9**	**1.0**	**1.1**
85	**I-25**		**Through Denver**								
U.Int		31.4	6.6	40.0	56.2	69.8	158,026	44.3	41.5	17.0	16.8
Total Sample		31.4									
TOTAL	**31.4**		**6.6**	**40.0**	**56.2**	**69.8**	**158,026**	**44.3**	**41.5**	**17.0**	**16.8**
Time (HR)								**0.7**	**0.8**	**1.8**	**1.9**

Overall results for the entire supersegment are then listed, as well as the overall time required to travel the entire supersegment. The overall supersegment results have been expanded as outlined earlier. The extent of the expansion can be estimated by comparing the “Sample Length” on the “Total Sample” line with the “GIS Length” on the “TOTAL” line (see Exhibit 3-14).

Daily Operating Speeds by Corridor – The same methodology and the same report format were used to estimate and present the operating speed performance by WTTN Trade Corridor. They are detailed in Appendix D and summarized in Exhibit 3-15.

Only three corridors -- Corridor 6, Texas-Memphis (I-20 and I-30 in Texas); Corridor 7, Mexico-Canada (I-5 from San Diego to Canada); and Corridor 15, Mexico-Arizona (I-10, I-17, I-19 from Flagstaff to Mexico) — meet the target travel times for both single unit trucks and combination trucks. This means that the average speed for travel from one end of the corridor to the other end under existing daily traffic conditions exceeds the minimum acceptable travel speeds developed for this study. Four other corridors -- Corridor 2, San Francisco-Chicago; Corridor 5, Southern California-New Orleans; Corridor 10, Mexico-Canada (Canamex); and Corridor 17, Mexico-Canada/Midwest -- meet the target travel time for single unit trucks only.

Three corridors have “significant” operating speed deficiencies, defined as total travel time more than 10 percent above the target travel time for both single unit trucks and combination trucks. These corridors are Corridor 9, Boise-Canada (U.S. 95, U.S. 195, U.S. 395 in ID and WA); Corridor 12, Montana-Canada (U.S. 87/U.S. 191 and S19 in Montana); and Corridor 20, Montana-Canada (parts of I-15 and I-90, U.S. 93 and S3 in Montana). One common factor among these three corridor highways is that they have some of the lowest average number of lanes (mostly two-lane highways). Two have the lowest average number of lanes of all the corridors and the third ranks 17th. Obviously, it is difficult to travel efficiently on two-lane highways because of passing difficulties and the likely restrictive speed limits. Concurrently, the corridors mentioned above as having the best daily travel time have the highest average number of lanes. However, corridors with the largest average number of lanes tend to suffer the most substantial drop in speed during peak hours.

Exhibit 3-15
Existing Operating Speeds by WTTN Corridor

Corridor Number	Corridor Length	Average No. Lane	Target Speed	Average Daily Speed		Peak Hour Speed		Target	Average travel Time		Peak Hour Travel Time	
				Single Truck	Comb.Truck	Single Truck	Comb.Truck	Time (HR)	Single Truck	Comb.Truck	Single Truck	Comb.Truck
1	4781.3	3.3	56.0	53.3	50.9	50.2	48.0	85.4	89.7	93.9	95.2	99.5
2	1754.3	4.5	58.0	58.5	55.2	47.7	45.6	30.2	30.0	31.8	36.8	38.4
3	1125.7	4.1	57.3	56.8	52.9	54.9	51.2	19.6	19.8	21.3	20.5	22.0
4	1546.2	4.0	59.4	59.2	56.5	57.7	55.1	26.0	26.1	27.4	26.8	28.1
5	2745.6	4.5	56.5	58.8	56.1	47.6	46.0	48.6	46.7	48.9	57.6	59.7
6	857.0	4.5	53.2	60.0	56.8	49.4	47.4	16.1	14.3	15.1	17.3	18.1
7	2162.5	5.0	50.9	53.4	51.0	36.3	35.3	42.5	40.5	42.4	59.5	61.3
8	733.5	4.0	60.3	58.1	54.6	56.9	53.6	12.2	12.6	13.4	12.9	13.7
9	672.0	2.2	51.8	45.2	42.9	41.1	39.2	13.0	14.9	15.7	16.4	17.1
10	2155.3	4.2	54.4	54.9	52.7	46.0	44.5	39.6	39.3	40.9	46.9	48.5
11	2368.9	3.9	58.9	58.4	55.5	56.5	53.8	40.2	40.6	42.7	42.0	44.1
12	259.6	2.2	53.6	45.7	42.7	42.0	39.3	4.8	5.7	6.1	6.2	6.6
13	442.0	3.0	56.7	53.2	51.4	49.8	48.2	7.8	8.3	8.6	8.9	9.2
14	1738.0	3.7	52.7	49.0	46.8	42.6	40.9	33.0	35.4	37.2	40.8	42.5
15	337.4	4.6	52.9	60.4	60.4	45.3	45.3	6.4	5.6	5.6	7.5	7.5
16	1379.9	3.7	57.0	54.1	50.8	48.6	45.9	24.2	25.5	27.2	28.4	30.0
17	3472.5	3.8	54.6	55.3	53.2	46.9	45.5	63.6	62.8	65.3	74.0	76.4
18	1013.0	3.4	48.3	45.4	44.2	40.4	39.4	21.0	22.3	22.9	25.1	25.7
19	2086.7	3.6	55.7	53.6	51.2	48.8	46.8	37.5	38.9	40.8	42.8	44.6
20	853.8	3.2	57.2	50.5	47.5	48.1	45.4	14.9	16.9	18.0	17.8	18.8

Corridor Length =Total mileage of WTTN highways in the corridor.
Avg. No. Lanes = Average number of lanes on the WTTN highways.
Target Speed = Average minimum tolerable speed for all highways.
Average Daily Speed = Calculated 24-hour average speed (mph) for single and combination trucks.
Peak Hour Speed = Calculated average speed (mph) during peak period for single and combination trucks.
Target Time (HR) = Calculated hours needed to travel all corridor highways at target speed.
Average Travel Time = Hours needed to travel all corridor highways at existing average daily speed.
Peak Hour Travel Time = Hours needed to travel all corridor highways at existing peak hour speed.

Time Savings By Corridor

The potential for improvement in truck operating speed in the WTTN corridors was explored by simulating different types of improvements and estimating the likely impact on truck operating speed and travel time. Four types of improvements were considered and analyzed:

- *Pavement Condition*: Pavement condition set to a minimum of 3.1 for interstates and 2.6 for non-interstates.
- *Alignment:* Curves and grades reset to achieve tolerable standards, which vary by functional class and terrain. This improvement was not applied to interstate highways, as it was assumed that interstates have been designed with the best possible alignment given the prevailing local terrain.
- *Congestion:* Level of service not to exceed LOS C for interstates and LOS D for others.
- *Speed Limit*: Speed limits set to a minimum of 65 mph (flat or rolling terrain) or 60 mph (mountainous terrain) for rural interstates and to 55 mph for all others.

These improvements were simulated cumulatively in the order presented above, i.e., congestion improvements are implemented with the pavement condition improvements and the alignment improvements.

The types of improvements considered bring the various design elements to the minimum tolerable levels as defined earlier. They do not correspond to design standards, which might be used when building a new highway. As a result, there is no change for those segments of road which already meet or exceed all the minimum tolerable conditions. The improvements are made "universally" in the sense that no consideration is given to the feasibility of any such improvement. The purpose of this analysis is simply to explore what type(s) of improvement would most improve truck travel time along the various WTTN corridor highways.

The same methodology used to estimate existing operating speeds and travel times was employed for the improved conditions analysis. The results by supersegment are presented in

Appendix D. The results by corridor are summarized in Exhibit 3-16 for average daily travel time savings.

Overall, the potential for average daily time savings from the simulated improvements is relatively small (2.5 percent of existing travel times for single unit trucks and 2.6 percent for combination trucks). The contributions to the travel time reduction from congestion reduction and speed limit improvements are the highest (34 percent each of the savings for single unit trucks, 30 and 31 percent of the savings for combination trucks). The contribution of the pavement condition improvement averages 18 percent for both single and combination trucks. Interestingly, the alignment improvements do more to improve travel time of combination trucks than for single unit trucks. However, these results are not uniform among corridors since the improvements considered affect some corridors more than others. For example, since alignment improvements were not considered for interstates, those corridors with a large proportion of interstate highway mileages would not experience improved efficiency. Similarly, speed limit improvements are likely to have a more pronounced effect on lower functional classes (most interstates are posted at target speed limits).

- Three corridors (Corridor 6, Texas-Memphis; Corridor 8, Pacific NW-Utah; and Corridor 11, Pacific NW-Kansas City) show relatively little potential travel time benefits from the improvements considered. The WTTN highways in these corridors have relatively few major deficiencies.
- The corridors with the highest potential average daily time savings are:
  - *Corridor 7 (Mexico-Canada)* – congestion improvements increase operating speed by 4.0% (both vehicle types);
  - *Corridor 9 (Boise-Canada)* – alignment corrections increase operating speed by 3.2% for combination trucks;
  - *Corridor 12 (Montana-Canada)* – operating speed improves most with alignment and speed limit corrections;

Exhibit 3-16

PERFORMANCE ENHANCEMENT TIME SAVINGS BY CORRIDOR

Daily Average

Corridor Number	Corridor Length	Target Speed/Time	Existing Conditions Single Truck	Existing Conditions Comb.Truck	Cumulative Improvements: Pavement Condition Single Truck	Pavement Condition Comb.Truck	Curves and Grades Single Truck	Curves and Grades Comb.Truck	Congestion Single Truck	Congestion Comb.Truck	Speed Limit Single Truck	Speed Limit Comb.Truck
1	4,781.3											
Speed (MPH)		*56.0*	*53.3*	*50.9*	*53.6*	*51.2*	*54.0*	*51.8*	*54.1*	*51.9*	*54.6*	*52.4*
Time(HR)		85.4	89.7	93.9	89.2	93.4	88.6	92.4	88.3	92.1	87.5	91.3
Time Saving					**0.5**	**0.5**	**1.1**	**1.5**	**1.4**	**1.8**	**2.2**	**2.6**
2	1,754.3											
Speed (MPH)		*58.0*	*58.5*	*55.2*	*58.9*	*55.6*	*58.9*	*55.6*	*59.4*	*56.0*	*59.4*	*56.0*
Time(HR)		30.2	30.0	31.8	29.8	31.6	29.8	31.6	29.5	31.3	29.5	31.3
Time Saving					**0.2**	**0.2**	**0.2**	**0.2**	**0.5**	**0.5**	**0.5**	**0.5**
3	1,125.7											
Speed (MPH)		*57.3*	*56.8*	*52.9*	*57.1*	*53.1*	*57.2*	*53.3*	*57.2*	*53.3*	*57.6*	*53.6*
Time(HR)		19.6	19.8	21.3	19.7	21.2	19.7	21.1	19.7	21.1	19.5	21.0
Time Saving					**0.1**	**0.1**	**0.1**	**0.2**	**0.1**	**0.2**	**0.3**	**0.3**
4	1,546.2											
Speed (MPH)		*59.4*	*59.2*	*56.5*	*59.3*	*56.6*	*59.5*	*56.8*	*59.6*	*57.0*	*59.9*	*57.2*
Time(HR)		26.0	26.1	27.4	26.1	27.3	26.0	27.2	25.9	27.1	25.8	27.0
Time Saving					**0.0**	**0.1**	**0.1**	**0.2**	**0.2**	**0.3**	**0.3**	**0.4**
5	2,745.6											
Speed (MPH)		*56.5*	*58.8*	*56.1*	*59.0*	*56.3*	*59.0*	*56.3*	*60.3*	*57.5*	*60.3*	*57.5*
		48.6	46.7	48.9	46.6	48.8	46.6	48.8	45.6	47.8	45.5	47.7
Time Saving					**0.1**	**0.1**	**0.1**	**0.1**	**1.1**	**1.1**	**1.2**	**1.2**
6	857.0											
Speed (MPH)		*53.2*	*60.0*	*56.8*	*60.0*	*56.9*	*60.0*	*56.9*	*60.0*	*56.9*	*60.0*	*56.9*
Time(HR)		16.1	14.3	15.1	14.3	15.1	14.3	15.1	14.3	15.1	14.3	15.1
Time Saving					**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
7	2,162.5											
Speed (MPH)		*50.9*	*53.4*	*51.0*	*54.2*	*51.7*	*54.4*	*52.0*	*56.6*	*54.0*	*56.7*	*54.1*
Time(HR)		42.5	40.5	42.4	39.9	41.9	39.8	41.6	38.2	40.1	38.1	40.0
Time Saving					**0.6**	**0.5**	**0.7**	**0.8**	**2.3**	**2.3**	**2.4**	**2.4**

Exhibit 3-16
PERFORMANCE ENHANCEMENT TIME SAVINGS BY CORRIDOR
Daily Average

Corridor Number	Corridor Length	Target Speed/Time	Existing Conditions		Cumulative Improvements: Pavement Condition		Curves and Grades		Congestion		Speed Limit	
			Single Truck	Comb.Truck	Single Truck	Comb.Truck	Single Truck	Comb.Truck	Single Truck	Comb.Truck	Single Truck	Comb.Truck
8	733.5											
Speed (MPH)		*60.3*	*58.1*	*54.6*	*58.3*	*54.7*	*58.3*	*54.7*	*58.5*	*54.9*	*58.5*	*54.9*
Time(HR)		12.2	12.6	13.4	12.6	13.4	12.6	13.4	12.5	13.3	12.5	13.3
Time Saving					**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	**0.1**	**0.1**	**0.1**
9	672.0											
Speed (MPH)		*51.8*	*45.2*	*42.9*	*45.4*	*43.1*	*46.1*	*44.5*	*46.1*	*44.5*	*46.8*	*45.2*
Time(HR)		13.0	14.9	15.7	14.8	15.6	14.6	15.1	14.6	15.1	14.4	14.9
Time Saving					**0.1**	**0.1**	**0.3**	**0.6**	**0.3**	**0.6**	**0.5**	**0.8**
10	2,155.3											
Speed (MPH)		*54.4*	*54.9*	*52.7*	*55.2*	*52.9*	*55.3*	*53.1*	*56.1*	*53.9*	*56.4*	*54.2*
Time(HR)		39.6	39.3	40.9	39.1	40.7	39.0	40.6	38.4	40.0	38.2	39.8
Time Saving					**0.2**	**0.2**	**0.3**	**0.3**	**0.9**	**0.9**	**1.1**	**1.1**
11	2,368.9											
Speed (MPH)		*58.9*	*58.4*	*55.5*	*58.6*	*55.7*	*58.6*	*55.7*	*58.7*	*55.8*	*58.9*	*56.0*
Time(HR)		40.2	40.6	42.7	40.4	42.6	40.4	42.5	40.4	42.5	40.2	42.3
Time Saving					**0.2**	**0.1**	**0.2**	**0.2**	**0.2**	**0.2**	**0.4**	**0.4**
12	259.6											
Speed (MPH)		*53.6*	*45.7*	*42.7*	*45.8*	*42.8*	*46.5*	*44.0*	*46.5*	*44.0*	*47.8*	*45.1*
Time(HR)		4.8	5.7	6.1	5.7	6.1	5.6	5.9	5.6	5.9	5.4	5.8
Time Saving					**0.0**	**0.0**	**0.1**	**0.2**	**0.1**	**0.2**	**0.3**	**0.3**
13	442.0											
Speed (MPH)		*56.7*	*53.2*	*51.4*	*53.3*	*51.5*	*53.4*	*51.5*	*53.4*	*51.5*	*54.1*	*52.2*
Time(HR)		7.8	8.3	8.6	8.3	8.6	8.3	8.6	8.3	8.6	8.2	8.5
Time Saving					**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	**0.1**

Exhibit 3-16
PERFORMANCE ENHANCEMENT TIME SAVINGS BY CORRIDOR
Daily Average

					Cumulative Improvements							
Corridor	Corridor	Target	Existing Conditions		Pavement Condition		Curves and Grades		Congestion		Speed Limit	
Number	Length	Speed/Time	Single Truck	Comb.Truck	Single Truck	Comb.Truck	Single Truck	Comb.Truck	Single Truck	Comb.Truck	Single Truck	Comb.Truck
14	1,738.0											
Speed (MPH)		*52.7*	*49.0*	*46.8*	*49.3*	*47.0*	*49.4*	*47.1*	*49.8*	*47.5*	*51.2*	*48.7*
Time(HR)		33.0	35.4	37.2	35.2	37.0	35.2	36.9	34.9	36.6	33.9	35.7
Time Saving					**0.2**	**0.2**	**0.2**	**0.3**	**0.5**	**0.6**	**1.5**	**1.5**
15	337.4											
Speed (MPH)		*52.9*	*60.4*	*60.4*	*60.4*	*60.4*	*60.4*	*60.4*	*62.8*	*62.8*	*63.4*	*63.4*
Time(HR)		6.4	5.6	5.6	5.6	5.6	5.6	5.6	5.4	5.4	5.3	5.3
Time Saving					**0.0**	**0.0**	**0.0**	**0.0**	**0.2**	**0.2**	**0.3**	**0.3**
16	1,379.9											
Speed (MPH)		*57.0*	*54.1*	*50.8*	*54.4*	*51.0*	*54.5*	*51.1*	*54.9*	*51.4*	*55.1*	*51.6*
Time(HR)		24.2	25.5	27.2	25.4	27.0	25.3	27.0	25.2	26.8	25.1	26.7
Time Saving					**0.1**	**0.2**	**0.2**	**0.2**	**0.3**	**0.4**	**0.4**	**0.5**
17	3,472.5											
Speed (MPH)		*54.6*	*55.3*	*53.2*	*55.6*	*53.4*	*55.7*	*53.6*	*55.9*	*53.8*	*56.4*	*54.2*
Time(HR)		63.6	62.8	65.3	62.5	65.0	62.4	64.8	62.1	64.6	61.5	64.0
Time Saving					**0.3**	**0.3**	**0.4**	**0.5**	**0.7**	**0.7**	**1.3**	**1.3**
18	1,013.0											
Speed (MPH)		*48.3*	*45.4*	*44.2*	*45.4*	*44.2*	*45.7*	*44.6*	*45.8*	*44.7*	*47.0*	*45.8*
Time(HR)		21.0	22.3	22.9	22.3	22.9	22.2	22.7	22.1	22.7	21.6	22.1
Time Saving					**0.0**	**0.0**	**0.1**	**0.2**	**0.2**	**0.2**	**0.7**	**0.8**
19	2,086.7											
Speed (MPH)		*55.7*	*53.6*	*51.2*	*53.8*	*51.4*	*54.1*	*51.8*	*54.3*	*51.9*	*55.1*	*52.6*
Time(HR)		37.5	38.9	40.8	38.8	40.6	38.5	40.3	38.4	40.2	37.9	39.6
Time Saving					**0.1**	**0.2**	**0.4**	**0.5**	**0.5**	**0.6**	**1.0**	**1.2**

Exhibit 3-16
PERFORMANCE ENHANCEMENT TIME SAVINGS BY CORRIDOR
Daily Average

					Cumulative Improvements							
Corridor	Corridor	Target	Existing Conditions		Pavement Condition		Curves and Grades		Congestion		Speed Limit	
Number	Length	Speed/Time	Single Truck	Comb.Truck	Single Truck	Comb.Truck	Single Truck	Comb.Truck	Single Truck	Comb.Truck	Single Truck	Comb.Truck
20	853.8											
Speed (MPH)		*57.2*	*50.5*	*47.5*	*50.8*	*47.8*	*51.3*	*48.5*	*51.3*	*48.6*	*52.0*	*49.2*
Time(HR)		14.9	16.9	18.0	16.8	17.9	16.6	17.6	16.6	17.6	16.4	17.4
Time Saving					**0.1**	**0.1**	**0.3**	**0.4**	**0.3**	**0.4**	**0.5**	**0.6**
All Corridors	32,485.2											
Speed (MPH)		*55.4*	*54.5*	*52.0*	*54.8*	*52.2*	*55.0*	*52.5*	*55.4*	*52.9*	*55.9*	*53.4*
Time(HR)		586.6	595.9	625.2	593.1	622.3	591.1	618.8	586.0	613.9	580.8	608.8
Time Saving					**2.8**	**2.9**	**4.8**	**6.4**	**9.9**	**11.3**	**15.1**	**16.4**

Existing Conditions = Average daily "Speed (MPH)" for both vehicle types over all corridor highways.
Time (HR) = Hours needed to travel all highway mileage at existing speed.
Cumulative Improvements = Simulated improvements to pavement condition shown with resulting speed (mph), time (HR), and Time Savings (hours). Curve & Grade information includes pavement improvement (thus, "CUMULATIVE"). Likewise, congestion improvements include both Pavement and Curve/Grade improvements, and Speed Limit assumes all four categories are in place.

- *Corridor 14 (Wyoming-Galveston)* – largest operating speed gains are due to speed limit improvements.

- *Corridor 15 (Mexico-Arizona)* – operating speed increases nearly 4% due to congestion improvements;

- *Corridor 18 (Laredo-Indianapolis)* – largest gains due to speed limit corrections;

- *Corridor 19 (New Mexico-St. Louis)* – significant operating speed increases due to alignment and speed limit improvements; and

- *Corridor 20 (Montana-Canada)* – alignment corrections contribute most to speed gains.

More significant changes/improvements in operating speed are possible when individual supersegments are analyzed. For average daily conditions, the following supersegments show considerable potential for speed gains when improvements are simulated:

State	Route	Termini	Deficiency
AZ	I-15	Nevada SL – Utah SL	Pavement
AZ	I-17	Flagstaff - Phoenix	Congestion
CA	I-5	In Los Angeles	Congestion
CA	I-10	In Los Angeles	Congestion
CA	I-15	In San Diego	Congestion
CA	I-405	In Los Angeles	Congestion
CA	I-710	In Los Angeles	Congestion
CA	I-880	In San Francisco	Congestion
CA	S60	In Los Angeles	Congestion
CO	I-25	In Colorado Springs	Congestion
CO	I-25	In Denver	Congestion
CO	U.S. 6	Loveland Pass	Congestion
MT	U.S. 12	Idaho SL – Missoula	Speed Limit
NM	I-40	In Albuquerque	Congestion
OR	I-5	In Portland	Congestion
OR	I-84	In Portland	Congestion
SD	I-90	I-29 – Minnesota SL	Pavement
TX	I-45	In Houston	Congestion
TX	U.S. 287	I-44 – Dallas	Speed Limit
WA	I-5	In Seattle	Congestion
WA	U.S. 2	Spokane – Idaho SL	Speed Limit
WA	S 18	In Seattle	Congestion
WY	U.S. 26	I-25 – Nebraska SL	Speed Limit

Exhibit 3-17 presents the same results for peak hour travel times. As could be expected, the potential for travel time savings during peak hours are much larger, due mostly to the congestion relief. Those corridors which showed the largest improvements between target speeds and average peak operating speeds (Exhibit 3-17), are Corridors 2, 5, 6, 7, 10, and 15. The gap between target speed and calculated peak hour speed is a better indicator of congestion problems than the daily capacity deficiency analysis since the latter does not indicate the severity of the problem in peak hours. Overall, peak period speeds would rise by nearly 15 percent, and the variability between peak and off peak truck travel would be substantially reduced with this simulation.

Examination of Appendix D information by supersegment shows that, for peak hour conditions, considerable improvements in operating speed are possible. This includes all the sections that experience significant average daily speed gains (above), plus:

State	Route	Termini
AZ	I-10	In Phoenix
AZ	I-10	Phoenix – Tucson
AZ	U.S. 60	I-17 – I-40
CA	I-80	In Sacramento
CA	I-80	Sacramento – San Francisco
CA	I-205	In San Francisco
CA	I-215	In Los Angeles
CA	I-805	In San Diego
CA	S 94	In San Diego
CA	I-15	In Los Angeles
CO	I-25	Colorado Springs – Denver
CO	I-70	In Denver
MT	U.S. 20	Idaho SL – I-90
MT	U.S. 93	I-90 – Canada
NM	I-25	In Albuquerque
OR	I-5	Eugene – Portland
OR	I-205	In Portland
OR	I-405	In Portland
TX	I-10	In Houston
TX	I-30	In Dallas – Ft. Worth
TX	I-35	In San Antonio
TX	I-35	San Antonio – Dallas
TX	I-35	In Dallas – Ft. Worth
TX	U.S. 59	In Houston
TX	I-20	In Dallas – Ft. Worth
TX	I-45	Dallas – Houston

Exhibit 3-17
PERFORMANCE ENHANCEMENT TIME SAVINGS BY CORRIDOR
Peak Hour

Corridor Number	Corridor Length	Target Speed/Time	Existing Conditions		Cumulative Improvements: Pavement Condition		Curves and Grades		Congestion		Speed Limit	
			Single Truck	Comb.Truck	Single Truck	Comb.Truck	Single Truck	Comb.Truck	Single Truck	Comb.Truck	Single Truck	Comb.Truck
1	4,781.3											
Speed (MPH)		*56.0*	*50.2*	*48.0*	*50.5*	*48.3*	*50.8*	*48.8*	*52.4*	*50.3*	*52.8*	*50.7*
Time(HR)		85.4	95.2	99.5	94.7	99.0	94.2	98.0	91.2	95.1	90.5	94.3
Time Saving					**0.5**	**0.5**	**1.0**	**1.5**	**4.0**	**4.4**	**4.7**	**5.2**
2	1,754.3											
Speed (MPH)		*58.0*	*47.7*	*45.6*	*48.1*	*46.0*	*48.1*	*46.0*	*58.8*	*55.4*	*58.8*	*55.4*
Time(HR)		30.2	36.8	38.4	36.4	38.1	36.4	38.1	29.9	31.7	29.9	31.7
Time Saving					**0.4**	**0.3**	**0.4**	**0.3**	**6.9**	**6.7**	**6.9**	**6.7**
3	1,125.7											
Speed (MPH)		*57.3*	*54.9*	*51.2*	*55.2*	*51.5*	*55.2*	*51.6*	*57.0*	*53.1*	*57.3*	*53.4*
Time(HR)		19.6	20.5	22.0	20.4	21.9	20.4	21.8	19.8	21.2	19.6	21.1
Time Saving					**0.1**	**0.1**	**0.1**	**0.2**	**0.7**	**0.8**	**0.9**	**0.9**
4	1,546.2											
Speed (MPH)		*59.4*	*57.7*	*55.1*	*57.8*	*55.2*	*57.9*	*55.5*	*59.2*	*56.6*	*59.4*	*56.8*
Time(HR)		26.0	26.8	28.1	26.7	28.0	26.7	27.9	26.1	27.3	26.0	27.2
Time Saving					**0.1**	**0.1**	**0.1**	**0.2**	**0.7**	**0.8**	**0.8**	**0.9**
5	2,745.6											
Speed (MPH)		*56.5*	*47.6*	*46.0*	*47.8*	*46.2*	*47.8*	*46.2*	*59.6*	*56.8*	*59.6*	*56.9*
Time(HR)		48.6	57.6	59.7	57.4	59.5	57.4	59.5	46.1	48.3	46.0	48.3
Time Saving					**0.2**	**0.2**	**0.2**	**0.2**	**11.5**	**11.4**	**11.6**	**11.4**
6	857.0											
Speed (MPH)		*53.2*	*49.4*	*47.4*	*49.5*	*47.4*	*49.5*	*47.4*	*59.2*	*56.1*	*59.2*	*56.1*
Time(HR)		16.1	17.3	18.1	17.3	18.1	17.3	18.1	14.5	15.3	14.5	15.3
Time Saving					**0.0**	**0.0**	**0.0**	**0.0**	**2.8**	**2.8**	**2.8**	**2.8**

Exhibit 3-17
PERFORMANCE ENHANCEMENT TIME SAVINGS BY CORRIDOR
Peak Hour

Corridor Number	Corridor Length	Target Speed/Time	Existing Conditions Single Truck	Existing Conditions Comb.Truck	Cumulative Improvements: Pavement Condition Single Truck	Pavement Condition Comb.Truck	Curves and Grades Single Truck	Curves and Grades Comb.Truck	Congestion Single Truck	Congestion Comb.Truck	Speed Limit Single Truck	Speed Limit Comb.Truck
7	2,162.5											
Speed (MPH)		*50.9*	*36.3*	*35.3*	*36.9*	*35.8*	*37.0*	*36.0*	*54.7*	*52.2*	*54.8*	*52.3*
Time(HR)		42.5	59.5	61.3	58.6	60.4	58.5	60.1	39.5	41.4	39.5	41.3
Time Saving					**0.9**	**0.9**	**1.0**	**1.2**	**20.0**	**19.9**	**20.0**	**20.0**
8	733.5											
Speed (MPH)		*60.3*	*56.9*	*53.6*	*57.1*	*53.7*	*57.1*	*53.7*	*58.5*	*54.9*	*58.5*	*54.9*
Time(HR)		12.2	12.9	13.7	12.8	13.7	12.8	13.7	12.5	13.4	12.5	13.4
Time Saving					**0.1**	**0.0**	**0.1**	**0.0**	**0.4**	**0.3**	**0.4**	**0.3**
9	672.0											
Speed (MPH)		*51.8*	*41.1*	*39.2*	*41.2*	*39.3*	*41.7*	*40.4*	*43.3*	*41.9*	*43.8*	*42.4*
Time(HR)		13.0	16.4	17.1	16.3	17.1	16.1	16.6	15.5	16.0	15.3	15.9
Time Saving					**0.1**	**0.0**	**0.3**	**0.5**	**0.9**	**1.1**	**1.1**	**1.2**
10	2,155.3											
Speed (MPH)		*54.4*	*46.0*	*44.5*	*46.2*	*44.7*	*46.3*	*44.8*	*54.9*	*52.8*	*55.2*	*53.0*
Time(HR)		39.6	46.9	48.5	46.6	48.2	46.5	48.1	39.2	40.9	39.0	40.7
Time Saving					**0.3**	**0.3**	**0.4**	**0.4**	**7.7**	**7.6**	**7.9**	**7.8**
11	2,368.9											
Speed (MPH)		*58.9*	*56.5*	*53.8*	*56.7*	*53.9*	*56.7*	*54.0*	*58.1*	*55.2*	*58.3*	*55.4*
Time(HR)		40.2	42.0	44.1	41.8	43.9	41.8	43.9	40.8	42.9	40.6	42.8
Time Saving					**0.2**	**0.2**	**0.2**	**0.2**	**1.2**	**1.2**	**1.4**	**1.3**
12	259.6											
Speed (MPH)		*53.6*	*42.0*	*39.3*	*42.1*	*39.4*	*42.7*	*40.4*	*44.0*	*41.6*	*44.9*	*42.4*
Time(HR)		4.8	6.2	6.6	6.2	6.6	6.1	6.4	5.9	6.2	5.8	6.1
Time Saving					**0.0**	**0.0**	**0.1**	**0.2**	**0.3**	**0.4**	**0.4**	**0.5**

Exhibit 3-17
PERFORMANCE ENHANCEMENT TIME SAVINGS BY CORRIDOR
Peak Hour

Corridor Number	Corridor Length	Target Speed/Time	Existing Conditions		Cumulative Improvements: Pavement Condition		Curves and Grades		Congestion		Speed Limit	
			Single Truck	Comb.Truck	Single Truck	Comb.Truck	Single Truck	Comb.Truck	Single Truck	Comb.Truck	Single Truck	Comb.Truck
13	442.0											
Speed (MPH)		*56.7*	*49.8*	*48.2*	*49.9*	*48.3*	*50.0*	*48.4*	*50.9*	*49.2*	*51.5*	*49.8*
Time(HR)		7.8	8.9	9.2	8.9	9.2	8.8	9.1	8.7	9.0	8.6	8.9
Time Saving					**0.0**	**0.0**	**0.1**	**0.1**	**0.2**	**0.2**	**0.3**	**0.3**
14	1,738.0											
Speed (MPH)		*52.7*	*42.6*	*40.9*	*42.9*	*41.1*	*42.9*	*41.2*	*48.6*	*46.4*	*49.9*	*47.4*
Time(HR)		33.0	40.8	42.5	40.6	42.3	40.5	42.2	35.7	37.5	34.8	36.6
Time Saving					**0.2**	**0.2**	**0.3**	**0.3**	**5.1**	**5.0**	**6.0**	**5.9**
15	337.4											
Speed (MPH)		*52.9*	*45.3*	*45.3*	*45.3*	*45.3*	*45.3*	*45.3*	*62.1*	*62.1*	*62.6*	*62.6*
Time(HR)		6.4	7.5	7.5	7.4	7.5	7.4	7.5	5.4	5.4	5.4	5.4
Time Saving					**0.1**	**0.0**	**0.1**	**0.0**	**2.1**	**2.1**	**2.1**	**2.1**
16	1,379.9											
Speed (MPH)		*57.0*	*48.6*	*45.9*	*48.8*	*46.2*	*48.9*	*46.2*	*53.8*	*50.5*	*54.0*	*50.7*
Time(HR)		24.2	28.4	30.0	28.3	29.9	28.2	29.8	25.6	27.3	25.5	27.2
Time Saving					**0.1**	**0.1**	**0.2**	**0.2**	**2.8**	**2.7**	**2.9**	**2.8**
17	3,472.5											
Speed (MPH)		*54.6*	*46.9*	*45.5*	*47.1*	*45.6*	*47.2*	*45.7*	*54.2*	*52.2*	*54.7*	*52.6*
Time(HR)		63.6	74.0	76.4	73.7	76.1	73.6	75.9	64.0	66.5	63.5	66.0
Time Saving					**0.3**	**0.3**	**0.4**	**0.5**	**10.0**	**9.9**	**10.5**	**10.4**
18	1,013.0											
Speed (MPH)		*48.3*	*40.4*	*39.4*	*40.5*	*39.5*	*40.7*	*39.8*	*44.8*	*43.7*	*45.8*	*44.7*
Time(HR)		21.0	25.1	25.7	25.0	25.6	24.9	25.4	22.6	23.2	22.1	22.7
Time Saving					**0.1**	**0.1**	**0.2**	**0.3**	**2.5**	**2.5**	**3.0**	**3.0**

Exhibit 3-17
PERFORMANCE ENHANCEMENT TIME SAVINGS BY CORRIDOR
Peak Hour

Corridor Number	Corridor Length	Target Speed/Time	Existing Conditions		Cumulative Improvements: Pavement Condition		Curves and Grades		Congestion		Speed Limit	
			Single Truck	Comb.Truck	Single Truck	Comb.Truck	Single Truck	Comb.Truck	Single Truck	Comb.Truck	Single Truck	Comb.Truck
19	2,086.7											
Speed (MPH)		*55.7*	*48.8*	*46.8*	*49.0*	*47.0*	*49.3*	*47.3*	*53.0*	*50.7*	*53.7*	*51.3*
Time(HR)		37.5	42.8	44.6	42.6	44.4	42.4	44.1	39.4	41.2	38.9	40.7
Time Saving					**0.2**	**0.2**	**0.4**	**0.5**	**3.4**	**3.4**	**3.9**	**3.9**
20	853.8											
Speed (MPH)		*57.2*	*48.1*	*45.4*	*48.4*	*45.7*	*48.8*	*46.3*	*50.1*	*47.4*	*50.7*	*47.9*
Time(HR)		14.9	17.8	18.8	17.6	18.7	17.5	18.4	17.0	18.0	16.8	17.8
Time Saving					**0.2**	**0.1**	**0.3**	**0.4**	**0.8**	**0.8**	**1.0**	**1.0**
All Corridors	32,485.2											
Speed (MPH)		*55.4*	*47.5*	*45.6*	*47.8*	*45.9*	*47.9*	*46.1*	*54.2*	*51.7*	*54.6*	*52.1*
Time(HR)		586.6	683.4	711.8	679.3	708.2	677.5	704.6	599.4	627.8	594.8	623.4
Time Saving					**4.1**	**3.6**	**5.9**	**7.2**	**84.0**	**84.0**	**88.6**	**88.4**

The improvements considered in this analysis would reduce average truck travel time, but not as significantly as desired. The only peak hour corridor to meet target speed/time with the improvements considered is Corridor 5, and it already met the target time for single unit trucks without the improvements. To understand these results, it is necessary to look at the corridor's existing performance by functional class, as summarized in Appendix D. The largest discrepancy between target speed and actual speed often occurs on the lower functional classes which have a lower average number of lanes. This could indicate that the best way to improve travel time on these corridors is to improve the design of the roads and to increase the number of lanes for all segments of each corridor to four, which would be an expensive proposition.

SUMMARY OBSERVATIONS

1. There are three WTTN corridors (6, 7, and 15) which currently have end-to-end truck (single and combination truck) travel speeds which exceed the minimum tolerable speeds established for the study on a daily basis.

    - Each corridor is largely composed of interstates.
    - Overall speeds/travel times are up to 14 percent faster than the average daily target speed.
    - As congestion builds in the future, speeds are likely to fall below minimum tolerances.
    - Peak period speeds for these corridors are below peak hour targets.

2. Three corridors have calculated truck travel times which are more than 10 percent worse than the target times. These are Corridors 9, 12, & 20.

    - From a travel time perspective, these are some of the shortest corridors.
    - The corridors are also have the highest proportion of two-lane highways.
    - Peak hour existing speeds are 5 to 10 percent below existing daily average speeds.

3. Four corridors (2, 5, 10, and 17) meet the average daily target travel speed corridor wide for single unit trucks, but not for combination trucks. Considering just peak hour conditions, none of these corridors meet the peak hour speed target. All other

corridors are slightly below daily targets and more substantially below peak hour targets.

4. Simulating various improvements throughout each corridor (rehabilitating pavement, alignment improvements, capacity additions, and speed limit increases) yields only about a 2.5 percent increase in the quality of truck travel (speed/travel time) throughout the network on a daily basis. From a peak period standpoint however, there is a 15 percent improvement.

   - Such improvements would reduce the variability in travel times for peak and off peak periods, which is critical for trucking operations.

   - Almost two-thirds of the daily improvements are related to congestion reduction and speed limit increases (split evenly), an additional 18 percent of the daily improvements are related to upgrade pavement condition. The alignment improvements do more for combination trucks than single units (which can be understood based on the effect of grades and curves on the combination unit power trains).

   - 95 percent of peak period travel time improvements are achieved through capacity additions.

5. The best (and most expensive) way to improve truck travel throughout the region would probably be to widen all two-lane highways to four lanes regardless of whether there is congestion. The most appropriate use of resources may be to concentrate improvements where congestion is bad and expected to become much worse.

MENU OF SOLUTIONS

The potential menu of highway solutions is comprised of a list of 30 solutions that could be implemented to improve truck travel on the WTTN network. As each state may not use the same criteria to identify deficiencies as have been established in the Minimum Tolerable Conditions (MTCs) criteria for this study, this menu of potential solutions tool is intended to provide each state with a list of improvements that *could* be considered to ameliorate deficiencies on the highways, not to give the states specific direction regarding what must be done.

Process

The WTTN Steering Committee developed a list of 30 potential solutions to be included in the menu of highway solutions. These potential solutions were reviewed in light of the eight deficiency types[1] being analyzed for each highway supersegment. The Steering Committee separated the 30 potential solutions into two categories: 1) those whose impacts are easily measured and relate directly to the list of deficiencies, and 2) those whose impacts are not as easily quantified, but which may be equally important to the freight industry. The two categories are called “principal” highway solutions and “supplemental” highway solutions, respectively.

Each of the principal solutions related directly to one or more of the eight deficiency types. Additionally, 16 of the 22 supplemental solutions were found to correspond with one or more of the deficiency types. The results of these findings were grouped into two solution matrices identifying which potential solutions appropriately related to each of the eight deficiency types. The principal and supplemental solutions matrices are shown in Exhibits 3-18 and 3-19, respectively. These matrices are applicable for both urban and rural segments.

The potential solutions matrices were used to identify appropriate principal and supplemental potential solutions for each of the supersegments, based on the deficiencies identified using the minimum tolerable conditions (MTCs) established for this study. A summary of potentially applicable solutions has been prepared in tabular form by supersegment for each state, with the deficiencies and potential solutions for each supersegment listed adjacent to one another for easy reference. Additionally, there are some circumstances where notes of clarification relating to the deficiencies and/or solutions for a supersegment are necessary; these are provided in the table as appropriate. The deficiency/solution tables for all states are in Appendix F.

[1] The eight deficiencies include: pavement condition, lane width, shoulder width, vertical alignment (grades), horizontal alignment (curves), speed limit, existing capacity (year 1996) and future capacity (year 2016) as described on page 3-21.

Exhibit 3-18
PRINCIPAL HIGHWAY SOLUTIONS MATRIX

Solutions	Deficiencies							
	P Pavement	LW Lane Width	SW Shoulder Width	VA Vertical Alignment	HA Horizontal Alignment	SL Speed Limit	CE Capacity 1996	CF Capacity 2016
1 Improve pavement conditions (resurface, enhance maintenance program, increase pavement strength)	X				X	X		
2 Improve roadway geometrics (curves, turning radii)								
3 Increase lane widths to 12 feet		X						
4 Increase shoulder widths to be in accordance with AASHTO standards			X					
5 Reconstruct existing roadway without adding lanes	X			X	X			
6 Reconstruct existing roadway including additional lanes							X	X
7 Modify existing roadway to control/reduce access							X	X
8 Widen roadway; construct with additional lanes							X	X

Exhibit 3-19
SUPPLEMENTAL HIGHWAY SOLUTIONS MATRIX

		Deficiencies							
	Solutions	P Pavement	LW Lane Width	SW Shoulder Width	VA Vertical Alignment	HA Horizontal Alignment	SL Speed Limit	CE Capacity 1996	CF Capacity 2016
9	Construct new/rehabilitated interchanges							X	X
10	Provide truck by-pass routes in crucial areas							X	X
11	Construct alternative roadway							X	X
12	Construct new/improved tunnels							X	X
13	Provide specified truck lanes (climbing lanes or with special design standards)				X			X	X
14	Provide additional run-away truck ramps				X				
15	Eliminate/improve/grade-separate at-grade rail crossings							X	X
16	(Re-)develop HOV lanes to accommodate trucks							X	X
17	Regulate minimum speeds in left lanes (instead of prohibiting trucks from left lanes)				X			X	X
18	Improve ports-of-entry operations							X	X
19	Utilize ITS (including: permitting/ports-of-entry; weather/accident advance alerts; speed warnings; Commercial Vehicle Operations (CVO) improvements; weigh-in-motion)							X	X
20	Provide incentives to encourage off-peak travel							X	X
21	Consider TDM (improve transit to reduce highway congestion)							X	X
22	Encourage local jurisdictions to provide adequate land to accommodate external distribution centers							X	X
23	Encourage road-railer technology							X	X
24	Support maintenance and improvement in other modes (including piggy-back trailers on trains, pipelines, mode shift)							X	X

Additionally, the following six improvements are of general benefit to the trucking industry, but do not directly relate to any of the eight deficiencies listed above:

25 Design interchanges and connector roadways to terminals to accommodate the longer combination vehicles
26 Expand chain-up areas
27 Provide adequate rest areas and other parking areas that accommodate trucks (in number and size)
28 Encourage and provide driver education
29 Improve truck maintenance and technology (engines, brakes, etc.)
30 Change regulations to allow the longer combination vehicles and heavier loads

Solution Types

Principal Solutions – The principal solutions matrix includes eight potential solutions, with each of the solutions listed relating to at least one of the eight deficiencies. These principal solutions are, as mentioned earlier, those with results that are easily measured and directly related to the deficiencies. These improvements to the highway corridors can be directly applied to truck travel time models to determine improvements in truck travel performance across corridors. Although most of these potential solutions and their application are straightforward, several unique considerations specifically discussed by the WTTN Steering Committee are worthy of note.

Supplemental Solutions – The supplemental solutions matrix includes 16 potential solutions that can be correlated to at least one of the eight deficiencies. These supplemental solutions pertain primarily to the capacity deficiencies; three of the solutions are associated with deficiencies in the vertical alignment of the roadway. Additionally, six supplemental improvements which could be beneficial to the trucking industry, but do not directly relate to any of the eight deficiencies, were identified and are shown below the Supplemental Matrix in Exhibit 3-19.

Unique Considerations

Shoulder improvements are a principal solution which are typically scheduled as part of a larger rehabilitation improvement project. In the deficiency/solutions tables, improving shoulder widths are shown as a potential principal solution when another improvement that would typically include or accommodate shoulder width reconstruction such as roadway widening or reconstruction, construction of additional lanes, or pavement improvements are also shown.

There are a few circumstances where increased shoulder widths is the only potential principal solution for a supersegment, or where it is shown as a potential principal solution along with “improve roadway geometrics” (which would not typically include reconstruction of shoulders). In these cases, improving shoulder widths is shown as a potential solution with a note in Appendix F stating that "shoulders should be widened to meet AASHTO standards as part of a corridor improvement project".

Speed limit is a deficiency that can be affected by a variety of roadway conditions including grades, curves, or lane widths. In most cases, where speed limit is identified as a deficiency there is at least one other deficiency also identified; often the speed limit is deficient, at least in part, as a result of another deficiency identified for that supersegment. Therefore, as a general solution to the speed limit deficiency, "improve roadway geometrics" has been identified as a potential principal solution. However, there are a few circumstances where speed limit is the only deficiency identified for a supersegment. Some of these deficient segments may be locations where the highway goes through a community and the speed limit is reduced primarily for safety. It is ***not*** recommended that the speed limit be raised to the MTC at these locations.

There are also some circumstances where speed limit is identified as a deficiency along with another deficiency that would not typically affect the speed limit (shoulder width or capacity deficiencies). In this case, or where speed limit is the only deficiency identified but is not a result of being located in a town, it is recommended that the speed limit change be considered to meet the MTC. Therefore, as appropriate, a note in Appendix F has been included on the deficiency/solution table stating that "consider raising speed limit to MTC if no safety or other concerns preclude it."

Solutions by Corridor

As discussed earlier in the chapter, the most common deficiencies found in the WTTN highway supersegments were year 2016 capacity, pavement, year 1996 capacity, and shoulder width, respectively. Consequently, the potential solutions corresponding to these deficiencies were the most commonly identified potential improvements.

A brief summary of deficiencies in each WTTN corridor was presented earlier in the chapter. Appropriately, a summary of the potential solutions by corridor follows. It should again be noted that these potential solutions are based on the MTCs established for this study, which may differ from individual state standards, and should be used as a tool to obtain improvement suggestions.

Corridor 1, Pacific NW-Minneapolis-Chicago - The most prominent primary solution suggested throughout this corridor is to increase the lane widths on narrow two-lane highways to 12 feet. Additionally, there are significant segments within the corridor where improvements to the roadway geometrics, pavement condition, and/or roadway capacity are suggested.

Corridor 2, San Francisco-Chicago – Along I-80, improving pavement conditions is the predominant solutions menu item suggested. Through San Francisco, Sacramento, and Reno 2016 capacity improvements are included in the menu of solutions.

Corridor 3, Utah-St. Louis – Along I-70 in Utah, shoulder width is a stand-alone deficiency. Shoulder widths are recommended to be considered as part of other corridor reconstruction projects (which may be programmed outside of this study). Improving pavement conditions and existing and future capacity issues are included in the menu of solutions for the eastern portion of I-70 in this corridor.

Corridor 4, Southern California-Memphis – Improving pavement conditions and future capacity deficiencies primarily make up the menu of solutions for this corridor. Overall, this corridor has below average deficiencies and therefore a smaller menu of solutions.

Corridor 5, Southern California-New Orleans – Pavement condition improvements and future capacity improvements constitute the majority of the potential solutions for this corridor.

Corridor 6, Texas-Memphis – Future capacity improvements, primarily in the Dallas area, are the main solutions menu items listed for this corridor.

Corridor 7, Mexico-Canada – Pavement condition improvements and future capacity improvements are the predominant potential solutions suggested. Through Oregon, the menu of solutions includes a wide variety of improvements. Correcting urban congestion deficiencies would require a myriad of expensive improvements, especially in Los Angeles, San Francisco, Portland and Seattle.

Corridor 8, Pacific NW-Utah – Improving pavement condition and roadway geometrics, as well as roadway reconstruction without adding lanes, due to pavement deficiencies and curves, are the prevailing menu items for this corridor.

Corridor 9, Boise-Canada – The three two-lane highways in this corridor have the most extensive menu of solutions, and, overall is the corridor in greatest need of improvement, based on the MTCs established for this study. Percentage-wise, all of the menu items, except for improve pavement conditions and increase shoulder widths, are most significant in this corridor. Expensive alignment corrections in rugged terrain would improve speeds significantly.

Corridor 10, Mexico-Canada (Canamex) – This corridor also includes a variety of solutions menu items, primarily improve roadway geometrics, reconstruct roadways without adding lanes as well as both existing and future capacity improvements. The capacity problems would be addressed through a Hoover Dam bypass, adding lanes to U.S. 60/93, and a Phoenix bypass.

Corridor 11, Pacific NW-Kansas City – The most prominent solutions menu item for this corridor is to improve pavement conditions. Additionally, future capacity improvements are shown throughout the states' solutions menus, and pavement condition improvements are shown for US 26 in Nebraska.

Corridor 12, Montana-Canada – Increasing shoulder widths is the primary solutions menu item noted, as approximately three-quarters of the corridor is deficient in shoulder width. However, this menu item is often shown throughout the corridor in conjunction with other potential solutions (such as improving pavement conditions and increasing lane widths) that would naturally include increasing shoulder widths. It is recommended that other improvement projects scheduled include increasing shoulder widths.

Corridor 13, Canada-Minneapolis-Chicago – Isolated pavement condition improvements are suggested in the menu of solutions for this rather short corridor.

Corridor 14, Wyoming-Galveston – This corridor includes a variety of solutions menu items; speed limits should be considered in the menu of solutions. Most of the speed restrictions are on two-lane portions of U.S. 287 and on Interstates 25 and 70 in Denver.

Corridor 15, Mexico-Arizona – No significant menu of solutions items are included for this corridor as there are few deficiencies in this short corridor.

Corridor 16, Mexico-I-90 – Improving pavement conditions is the most recurrent menu item for this corridor. Also included with some frequency are improving roadway geometrics and roadway reconstruction without additional lanes as they relate to horizontal alignment deficiencies, increasing shoulder widths and improving capacity deficiencies. Addressing capacity on I-25 along Colorado’s front range could include expensive bypasses.

Corridor 17, Mexico-Canada/Midwest – Improving capacity deficiencies, both existing and future, along with improving pavement conditions, are the most notable solutions menu items suggested. These are on I-35, I-37 and I-44 in urban areas, requiring expensive treatments. The two-lane U.S. 81 and U.S. 281 highways may require added lanes to improve operating speeds.

Corridor 18, Laredo-Indianapolis – In this corridor, the solutions menu repeatedly suggests increasing lane widths, improving roadway geometrics, and improving pavement conditions. Speed limit should also be considered in the menu of solutions. Four-laning and adding access control may be the best way to address these problems.

Corridor 19, New Mexico-St. Louis – A fairly inclusive menu of solutions is suggested for this corridor, with improving lane width and speed limit more frequently suggested. Extensive investment is needed on U.S. 54 to significantly improve truck speeds.

Corridor 20, Montana-Canada – The menu of solutions for this corridor is an inclusive list of all the potential menu of solutions items with the primary item being to increase shoulder widths. Since increasing shoulder widths is always shown as a menu item along with another menu item that could easily include improving shoulders, it is suggested that shoulder improvements be included with one of these other improvements.

Chapter 4
RAILROAD ANALYSIS

The railroads and the rail system serving the 17 western states were documented in the WTTN Phase I Final Report. The major rail lines comprising that railroad system were shown on Exhibit 2-11. In sum, the railroad system in the West totals over 58,000 miles of trackage. The dominant railroads are the Burlington Northern Santa Fe (BNSF) and the Union Pacific/Southern Pacific (UP).

The WTTN Phase I Study documented this rail system and its utilization; it also identified deficiencies in that rail system in a very generalized sense. What the WTTN Phase I work did not do is address how well the West's rail system is performing. That performance assessment was reserved for WTTN Phase II.

PERFORMANCE STANDARDS

The measurement of railway performance is quite different from that of trucks. For trucks, transit time is a key element, including the actual speed of the trucks. For railroads, performance indicators include time but also include many other things.

Survey of Railroad Users

A reasonable starting point for understanding what is important in terms of railroad performance is to ask those who use the services. Consequently, a survey of western rail shippers was conducted as part of the study. The survey process began in the Spring of 1998 with the identification of a limited number of major rail shippers in California, Oregon and Washington. Shippers served by Union Pacific Railroad (UP) and Burlington Northern and Santa Fe Railway (BNSF), the two dominant carriers in the West, were initially targeted in a series of in-person interviews. Handling a mix of commodities, these shippers shared their insights regarding the service parameters they expect of their rail service providers. Key performance standards named by shippers included such things as reliable transit times and rail car availability.

These preliminary findings were presented to the WTTN Steering Committee in the September 1998 meeting in Portland, Oregon. At the conclusion of the presentation, all states were asked to provide lists of rail shippers within their states. The states listed shippers which, in their opinion, had significant rail operations. Using these lists as a guide, these shippers were then interviewed by telephone.

In total, 53 shippers and two short line railroads were interviewed[1]. The short lines were included, as these are owned by shippers they serve and handle decision making for rail transport on the shippers' behalf. All interviews were conducted over a seven-month period from May 1998 to January 1999. One nationwide shipper, having operations in all 13 WTTN states, was also contacted. The number of shippers interviewed averaged slightly more than four per state. The number of shippers contacted in each state is shown in Exhibit 4-1.

Exhibit 4-1
WTTN RAIL SHIPPERS SURVEYED

Arizona	**3**	**Oregon**	**5**
California	**5**	**South Dakota**	**3**
Colorado	**2**	**Texas**	**7**
Idaho	**4**	**Utah**	**5**
Montana	**5**	**Washington**	**3**
North Dakota	**3**	**Wyoming**	**6**
New Mexico	**3**	***National shipper***	***1***

Total: 55 shippers (including 2 short lines)
Average shippers interviewed per state: 4.2

Survey Results

In large part, the additional interviews reiterated the preliminary findings. That is, among shippers in all the WTTN 13 participating states, reliable transit time and car availability were the primary concerns. Reliable transit time was defined as the ability of railroads to haul shipments between origins and destinations in a reasonable and consistent time frame. Typical railroad transit times are most commonly represented by published schedules or are specified in contracts with individual shippers. Car availability was defined as the ability of the railroads to respond in a timely manner to shipper requests for empty and serviceable rail cars for loading.

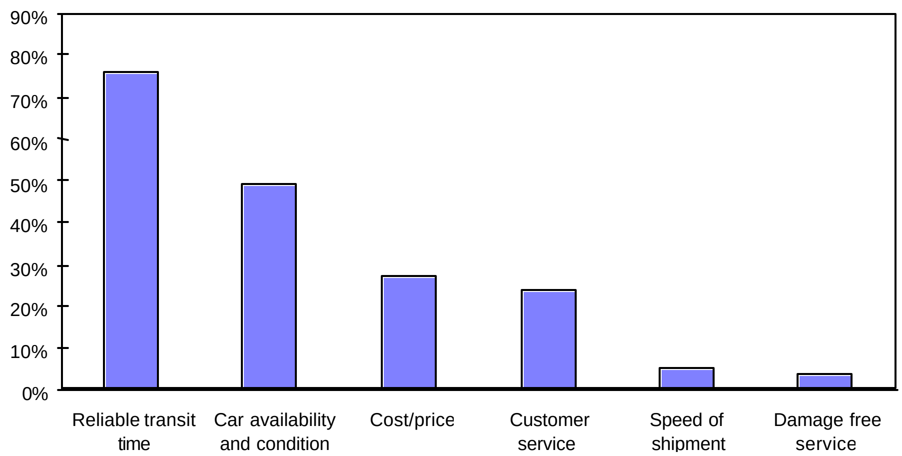
In addition, the shippers also identified two other major performance standards. These were the cost of rail transport services, and customer service. By cost, the shippers were referring specifically to the prices that they must pay the railroads for transportation. By customer service, the shippers meant a number of things. These included the on-time delivery and pick-up of rail cars, and a continuous two-way communication flow whereby railroads keep shippers well informed about the status of shipments. While citing their customer service concerns, shippers recognized the need for railroads to be internally focused on operational improvements. Nevertheless, they desired the railroads to also become more externally focused on the individual shippers' needs.

Other performance standards cited by shippers included the speed of shipments and damage-free service. However, these standards were cited infrequently compared to the four preceding standards. Also, they can be viewed as restatements of concerns regarding reliable transit time and a customer service focus. For these reasons, the analysis described in the following section deals with the four performance standards most frequently cited by shippers. Exhibit 4-2 presents a breakdown of how often particular standards were cited by shippers.

[1] Short line railroads typically haul traffic to and from main line, intercity railroads. In many cases, short lines are former branch line operations of main line or truck line railroads that were sold or leased to private operators.

Exhibit 4-2
WTTN RAIL SHIPPER PERFORMANCE STANDARDS

By Percent of 55 Respondents Contacted May 1998 through Januar



It is noted that beginning in mid-January 1999, the American Association of Railroads (AAR) began publishing four performance measures for eight major North American railroads. These measures included:

- Total cars on line;
- Average train speed;
- Average terminal dwell time; and
- Bill of lading timeliness.

Some of these measures speak directly to the issues of concern which shippers identified in the survey. This was predictable, as the list above was developed through a consensus of shippers and railroads. However, as the AAR began its reporting from January, its information did not provide meaningful corroboration of shipper comments regarding service during most of the study period. It is more likely that this information will be more helpful in judging improvements in rail service from this point forward than in analyzing performance of the past. The AAR makes this data available through the following website: *http://www.railroadpm.org*.

RAILROAD DEFICIENCY ANALYSIS

Having identified those indicators of railroad performance that the shippers view as important, the next step was to identify how well the railroads in the WTTN states are performing (in the view of those who use the railroads).

Subsequent questions posed to the shippers were aimed at determining how well the railroads were doing in relation to the performance standards named by the shippers. Specifically, the questions were aimed at understanding how closely the railroads were performing to expectations of shippers. The difference between expectations and actual railroad performance became the measure of a deficiency in railroad service quality.

For example, if a shipper stated that transit time reliability was a performance standard, that shipper was asked how long it should take for a railroad to move the shipper's freight between origin and destination. If the shipper answered seven days, the shipper was then asked how many days it regularly takes the serving railroad to move the freight. If on balance the railroad makes the delivery in the expected seven-day period, then the railroad was judged to be performing to standard. However, if the railroad is regularly late with shipments, the railroad's service was determined to be deficient. The extent to which the railroad is typically late was calculated as the railroad's deficiency in transit time reliability.

<u>Rail Service Deficiencies by Type</u>

As there were four primary performance standards cited by shippers, there are four types of performance deficiencies analyzed. The foremost standard cited was transit time reliability. Previously, this standard was defined as the ability of the railroad to move freight within reasonable and consistent time frames. The relevant type of deficiency to be analyzed, therefore, pertains to lateness of shipment arrival.

Similarly, the study looked for the most relevant measures of deficiencies in each of the three other performance standards cited by shippers. The particular deficiency types and the evidence of their existence in the WTTN states are discussed below.

Transit Time Reliability - As mentioned before, shippers were asked to cite their expectations of transit time between their major origins and destinations. They then recounted their actual transit time experiences. The difference between the expectation and the actual performance determined the extent of the deficiency. An illustration of how the variances were quantified for this analysis can be seen in Exhibit 4-3.

In this example, Shipper A indicates an expected transit time of five days between an origin and a destination, both of which are located in WTTN Corridor 1 (between the Pacific Northwest and Chicago). That shipper's rail server is found to be making the haul in five days. As a result, there is no variance and therefore no deficiency. Shipper B expects six days between an origin and a destination in Corridor 2 (between the San Francisco Bay Area and Chicago). However, Shipper B's rail server is making the haul in seven days, resulting in a variance of one day and a deficiency of 17 percent (the degree to which existing transit time exceeds the shipper's expectation). Shipper C also is experiencing a one-day variance in Corridor 3 (between Utah and St. Louis). But, because this shipper's expected transit time is four days as compared to six for Shipper B, the extra day in transit time is a greater percentage of Shipper C's total expected transit time. Accordingly, the transit time deficiency suffered by Shipper C is calculated at 25 percent.

Exhibit 4-3
EXAMPLE TRANSIT TIME RELIABILITY ANALYSIS
Example Of Variance Measurement

Shipper	Corridor	Expected (days)	Existing (days)	Variance (days)	Deficiency (percent)
A	1	5	5	0	0%
B	2	6	7	1	17%
C	3	4	5	1	25%

The formula described above provided a methodology to begin a qualitative assessment of rail service in the WTTN rail corridors. Each shipper's description of existing service was treated as a single observation of how much existing performance varied from expectations. As in the illustration above, the variance and degree of deficiency were calculated for each observation. The degrees of deficiency themselves were given ratings. The lesser percentages received a correspondingly lower rating number. The lower the rating number indicated the closer a particular corridor's existing performance was to shippers' expectations. As individual shippers' experiences varied, these ratings were averaged by the number of observations in a corridor. In this way, small shippers' experiences carried the same weight as those of the larger shippers. The rating system applied to corridor performance is seen in Exhibit 4-4.

Exhibit 4-4
TRANSIT TIME RELIABILITY ANALYSIS
Transit Time Deficiency Rating

0-19%	1
20-39%	2
40-59%	3
60-79%	4
80%+	5

- Ratings are averaged for each corridor.
- Small and large shipper ratings have an equal value

The survey results, indicating how corridor performance fared in this analysis, can be seen in Exhibit 4-5. It is noted that observations were obtained for only 16 of 20 WTTN Trade Corridors. Of these 16 corridors, only 11 corridors had four or more observations for at least one railroad. It is suggested that four observations may be sufficient to begin to understand the status of a railroad's service in a particular corridor. While observations are limited, the Exhibit 4-5 analysis nevertheless covers the main routes utilized by rail shippers. BNSF and UP routes in the various corridors are analyzed. Some observations for BNSF were made on services using trackage rights on UP (e.g., Corridor 2 between Stockton and Denver, Corridor 18 between Houston and Corpus Christi).

Exhibit 4-5
TRANSIT TIME RELIABILITY ANALYSIS
WTTN Rail Corridor Performance Score Card

WTTN Corridor	End Points	BNSF Ratings	BNSF Observations	UP Rating	UP Observations
1	Pacific Northwest-Chicago	1.6	14	0	0
2	San Francisco – Chicago	1	3	2.3	30
3	Utah – St. Louis	1.5	4	1	1
4	Southern California – Memphis	2.5	10	0	0
5	Southern California – New Orleans	0	0	4.5	6
6	Texas – Memphis	1	1	2.3	4
7	Canada – Mexico (West Coast)	2	4	2.7	7
8	Pacific Northwest – Utah	0	0	2.5	12
10	Mexico – Canada (Canamex)	0	0	2.3	14
11	Pacific Northwest – Kansas City	1	1	1.8	4
14	Wyoming – Galveston	1.3	3	0	0
16	Mexico – Wyoming	5	1	1.7	3
17	Mexico – Upper Midwest	3	3	2.6	7
18	Laredo – Indianapolis	5	1	0	0
19	New Mexico – St. Louis	3	2	2	2

NOTE: The larger the ratings number, the more deficient the railroad service (in terms of transit time reliability).

While there are other railroads operating in the West, WTTN Trade Corridors mainly consist of routes belonging to these two railroads. Furthermore, shipper comments tended to focus on the performance of BNSF and UP. The major east - west routes of these railroads are included here. These are:

- BNSF's northern tier route between the Pacific Northwest and Chicago (WTTN Corridor 1).
- UP's central corridor route between Northern California and the Midwest (WTTN Corridor 2).
- BNSF's southern tier route between Southern California and Texas (WTTN Corridor 4).

- UP's southern tier route between Southern California and New Orleans (WTTN Corridor 5).

North-south corridors also are included; three having four or more observations are:

- BNSF and UP routes between the Pacific Northwest and Southern California (WTTN Corridor 7);
- UP's route between eastern Idaho and Southern California (WTTN Corridor 10); and
- UP's route between the Midwest and Laredo, Texas (WTTN Corridor 17).

In some cases, shippers cited origin-to-destination routes which required movements across more than one corridor. For example, a shipper in Texas may move freight on UP between an origin in Wyoming and a destination in Texas. In this case, existing performance of the move was assessed for both Corridors 2 and 17; the latter being UP's main routing from the Midwest to the Gulf Coast. Specifically, if the shipper cited a variance yielding a calculated 35 percent deficiency in transit time for the move, a rating of 3 was ascribed to both corridors. This methodology was followed for all like observations. This was done because it was not possible, based on shipper comments alone, to specifically identify where the problem areas on such multiple corridor routings exist. While UP and BNSF were approached for comment on specific corridor performance, railroad participation in this study was minimal. Neither railroad provided substantial detail on corridor performance.

It should also be noted that, in a few cases, shippers were reluctant to provide specific variance data. In such instances, deficiency ratings were inferred from the shippers' general assessments of service quality.

While the analysis lacked significant railroad input and was by its nature a non-scientific sampling, it nevertheless is reflective of actual shipper experience on the western rail systems through the latter half of 1998. It was during this period that severe service problems on both UP and BNSF were reported on several key routes. These routes include both UP's and BNSF's southern tier routes. In the analysis above, both routes show mediocre to poor performance ratings. A summary listing of the pros and cons on the methodology is seen in Exhibit 4-6.

Exhibit 4-6
TRANSIT TIME RELIABILITY ANALYSIS
Methodology Pros And Cons

PROS	CONS
• Shipper based	• Limited railroad input
• Shippers included from all WTTN participant states	• Non-scientific sampling
• Shippers of numerous commodities surveyed	• More observations in some corridors than others
• Large and small shippers included	• No observations in some corridors
• Includes major corridors	

Car Availability - With regard to car availability, the study sought to understand whether the shippers believe railroad car supply is either "bad," "improving," or "good." Bad was defined as car availability being far from expectations; improving, as approaching expectations; and good, as at or near expectations. To the extent that a railroad's car availability was cited as bad or improving, its car availability was determined to be deficient.

Exhibit 4-7 indicates that shippers reported that car availability conditions were better on the UP than the BNSF. That is, the vast majority of BNSF users reported that railroad's car availability conditions as being bad. By contrast, less than a third of UP users reported UP's car availability conditions as being bad. One reason for the disparity between the two railroads could be that the demand for BNSF service, which was generally perceived to be superior to UP's during most of 1998, exacerbated demand for cars on BNSF and created car availability shortfalls. Overall, shipper comments indicated that only slightly better than one-fourth of respondents believe car supply in the West was good. At the same time, slightly less than three-fourths reported conditions to be either bad or improving - in other words, deficient.

Exhibit 4-7
CAR AVAILABILITY ANALYSIS
Shipper Assessments By Percent Of Respondents

	Bad	Improving	Good	Total
BNSF	69%	8%	23%	100%
UP	31%	38%	31%	100%
TOTAL	48%	24%	28%	100%

Bad: Far from expectations.
Improving: Approaching expectations.
Good: At or near expectations.

Specific car types, whose availability was cited by shippers as bad or improving, are listed in Exhibit 4-8. More than three-fourths of cars reported in short supply consist of four types: box cars, covered hopper cars, gondolas, and open top hopper cars. The most significant availability shortfall was reported for box cars. Historically one of the most versatile of car types, box cars are used for shipments of lumber, paper, and general merchandise, among other things. Most products that can be shipped in box cars can also be shipped in intermodal containers and trailers. So popular has intermodal transportation proven in recent years that car building has focused on intermodal. Nevertheless, the demand for box cars persists. With few if any new box cars being added to fleets, shortages in this car type may continue and even get worse.

Exhibit 4-8
CAR AVAILABILITY ANALYSIS
Car Type Availability Assessed By Respondents as Bad or Improving

Box Cars	24%
Covered Hopper Cars	17%
Gondolas	21%
Open Top Hopper Cars	14%
Other	24%
TOTAL	100%

Though perceived shortfalls in car supply are clearly evident from shipper comments, a review of railroad car fleets showed that the numbers of cars on western railroads, including the BNSF and UP systems (and their predecessor railroads), have increased since 1990 by almost 12 percent. However, as can be seen in Exhibit 4-9, both tons originated and revenue ton-miles have increased by far greater percentages during the same period[2]. If one assumes that the capacity of cars has only made marginal gains over the period[3], one can conclude that increases in demand for these cars (measured by tons originated) has exceeded increases in supply by better than two to one. Furthermore, because of recent rail consolidations (including those creating today's BNSF and UP systems), cars are carrying their loads over longer distances (reflected in increased revenue ton-miles). The longer distances traversed lengthens car turn or cycle times (the time required to return an empty car to an origin for reloading), consequently contributing to shipper complaints about car availability.

[2] Yearly tons originated and revenue ton-mile figures are cited in the AAR's 1998 edition of "Railroad Facts."
[3] According to figures cited in the 1998 edition of "Railroad Facts," average freight car capacity has plateaued at about 92 tons per car. This leveling off is a function of maximization of axle loadings (load tonnage divided by typically four wheel axles per car) and car design limitations.

Exhibit 4-9
CAR AVAILABILITY ANALYSIS
Western Railroads

	Car Supply	Tons Originated (thousands)	Revenue Ton-Miles (millions)
1990	251,004	677,897	665,045
1997	279,932	862,704	917,220
CHANGE	11.5%	27.3%	37.9%

While railroad car supply has grown in the West, this is not the case nationwide. According to the 1998 edition of "Railroad Facts" published by the AAR, the number of railroad-owned freight cars declined 17 percent between 1988 and 1997. On the other hand, car ownership by shippers and other non-railroad entities has increased by almost 42 percent. This trend in private car ownership has served at least partially to bridge the gap in car availability. It has produced benefits for the railroads in that they are responsible for maintaining fewer cars. Railroad operating expenses for leases and maintenance have decreased as a consequence. Car-owning shippers have benefitted in that they no longer have to compete with other shippers for a declining railroad-controlled car supply. However, even in this environment, there can be a negative implication for car-owning shippers. That is, with the railroads decreasingly responsible for car payments (and shippers correspondingly more so), a question remains as to how much of an incentive the railroads have to shorten car cycle times. One possible answer is that railroads will have less of an incentive over time.

Customer Service - The study also examined the expectations of shippers with regard to the railroads' customer service orientation. Typically, a shipper identified a railroad as having substandard customer service if the railroad regularly fails to pick up or deliver a loaded rail car at a specific time. This is because the shipper may have to call a shift of workers to unload the rail car. If the car fails to appear, the shipper still has to pay the idle workers. Thus, the shipper has incurred an expense with no offsetting benefit. Similarly, shipper comments regarding inaccurate railroad information concerning shipment status, too few capable employees, or a railroad's poor problem resolution skills were taken as evidence of deficient customer service. Exhibit 4-10 presents a breakdown of how shippers defined their customer service performance standards.

Exhibit 4-10
CUSTOMER SERVICE ANALYSIS
Definition of Performance Standards by Percent of Respondents

On-Time Pick-Up and Delivery of Cars	Ease of Doing Business
38%	**62%**
▸ Save Cost	▸ Accurate Information ▸ Empowered Employees ▸ Problem Resolution

As can be seen, 38 percent of shippers which identified consumer service as a performance standard indicated that they were very concerned about on-time pick up and delivery of cars. This, they indicated, delivers benefits on the cost side. Generally speaking, these shippers stated that their serving railroads were not performing well in this regard. At the same time, 62 percent of shippers which identified customer service as a performance standard voiced desires for more accurate information concerning shipment status. They also called for more railroad employees with the training and the resources to respond effectively to shipper inquiries and requests, and to fix service problems. These shipper concerns are expressed as "ease of doing business" with a railroad.

Cost of Rail Service - Because the cost of railroad transportation service was cited as a performance standard, the study looked for evidence that the prices or rates which railroads charge have increased, remained the same, or decreased in current dollar and constant dollar (or deflated) terms over time. The extent that rail prices have increased, while deficiencies in service are known to exist as well, would be taken as evidence of a potential deficiency. However, information provided by the AAR indicates that this is not the case; in fact, the opposite seems to be true – railroad rates are declining.

As can be seen on Exhibit 4-11, the cost of freight rail transportation nationally has decreased in both current dollar and constant dollar terms. The key measurement is revenue per ton-mile, which is a surrogate for rail rates. As an example, 100 tons carried 100 miles yields 10,000 revenue ton-miles; given 2 cents per revenue ton-mile, a revenue rate of $2 per mile or $2 per ton can be deduced. In the illustration below, railroad revenues per ton-mile decreased 12 percent in the 10-year period between 1987 and 1997[4]. When the figures are deflated by three percent per year, it can be seen that revenues per ton-mile have decreased 36 percent in constant dollar terms over the same period. From these figures, one can conclude that on balance shippers are paying less for their rail transportation than they have at any time in the recent past. It would appear, therefore, that no substantial deficiency with regard to the cost performance standard exists (although specific exceptions to this may exist, e.g., some shipment situations may have witnessed cost increases).

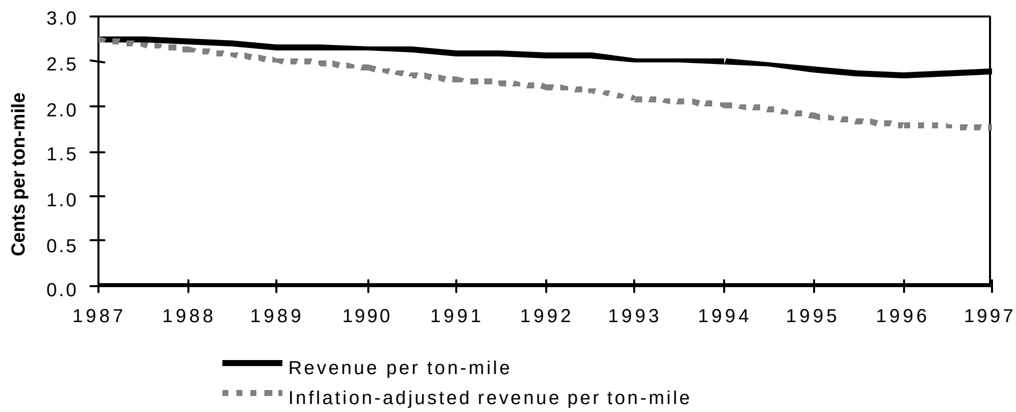
Deficiencies by WTTN Trade Corridor

An attempt was also made to identify railroad deficiencies on a corridor-specific basis.

Transit Time Reliability - Of the four major performance standards mentioned above, only transit time reliability was able to be assessed on a corridor-specific basis. This is because transit time can be measured between origin and destination, which in turn can be matched with a specific WTTN Trade Corridor. As observed in the preceding Exhibit 4-5, deficiencies on a corridor basis can be measured by how far existing performance is from the standard. A deficiency rating of 1 covers transit times varying from 0 percent to 19 percent longer than expected by shippers. Generally speaking, shippers' comments indicated a tolerance of a low level of variance from their expectations. The range represented by a 1, therefore, was meant to reflect this shipper tolerance.

[4] Revenue per ton-mile figures were provided by the AAR.

Exhibit 4-11
RAIL REVENUE PER TON-MILE
Decreases 12% in 10 Years
(Down 36% adjusting for 3% annual inflation)



Those rail routes with average scores equal to and greater than 2 (indicating transit times at least 20 percent longer than expected by shippers) based on four or more observations are listed below.

- UP's central route between the San Francisco Bay Area and the Midwest (WTTN Corridor 2). This route had a rating of 2.3, based on 30 individual observations.
- BNSF's southern tier route between southern California and Texas (WTTN Corridor 4). This route had a 2.5 rating, based on 10 individual observations.
- UP's southern tier route between southern California and New Orleans (WTTN Corridor 5). This route had a 4.5 rating (the worst of all corridors), based on six observations.
- UP's Texas - Memphis route (WTTN Corridor 6). This had a 2.3 rating based on four observations.
- UP's West Coast route between Seattle and Los Angeles (WTTN Corridor 7). This route had a rating of 2.7 with seven observations.
- UP's Pacific Northwest - Utah route (WTTN Corridor 8). This had a rating of 2.5 with 12 observations.

- UP's route between Pocatello and southern California (WTTN Corridor 10). This had a rating of 2.3 with 14 observations.

- UP's Midwest - Texas route (WTTN Corridor 17). This had a rating of 2.6 with seven observations.

- BNSF's Canada-Mexico route (WTTN Corridor 17). This had a rating of 2.0 with four observations.

Most of the problems reported by shippers were on the UP system. These UP problems were largely related to widespread service breakdowns, which persisted between 1997 and most of 1998. However, these service problems were improving through the second half of 1998. In fact, during the course of the seven-month interview period, shippers cited a trend toward service improvement on UP. As a direct result of interviews conducted in the December - January time frame, the average score obtained for UP's southern tier route (WTTN Corridor 5) decreased to a 4.5 from a previously calculated score of 5 (indicating transit times running at least 80 percent longer than shippers' expectations).

Other Performance Standards and Deficiencies - Car availability is typically critical only at origins. Whether car availability is a corridor-specific issue could not be determined from the survey, given the limited shipper responses. The multi-dimensional customer service standard, with a varied emphasis on on-time pick-ups and deliveries as well as an empowered workforce and other factors, is likewise untied to performance on particular corridors. Lastly, costs were looked at in terms of a general trend within the rail industry rather than on either a rail corridor basis or even a rail system basis.

MENU OF SOLUTIONS

Solution Types

A menu of solutions for deficiencies with regard to transit time reliability, car availability, and customer service is discussed below. Solutions for cost of rail services deficiencies were not investigated because the evidence gathered in the study indicated that no such meaningful deficiency exists.

The solutions are generally of two types. One type pertains to *physical solutions* for achieving performance standards. These would include, for example, increasing height clearances through the UP's Cascade Mountain tunnels in Northern California and Oregon in order to accommodate efficient configurations of certain cargo such as double-stack container traffic. The other type pertains to *operational solutions*. These would include such things as decentralizing train dispatching from corporate headquarters to the geographic regions in which trains operate, with the goal of safer and more reliable transportation.

Physical and operational solutions that can be linked with specific corridors are cited in the following entitled "Solutions by Corridor." The more general, system-wide solutions for transit time reliability, car availability, and customer service deficiencies are listed first.

It should be noted that almost all of these solutions were suggested by users of the rail systems - the shippers. In many cases, railroad support for implementing these solutions would be likely. In others, the railroads may disagree with the shippers. However, it was difficult if not impossible to assess the extent the railroads may agree and disagree, lacking any significant input from the railroads representatives. The solutions are underlined below as they were received, with minimal subsequent clarifications provided by the consultants. In some cases, shipper comments are contradictory. This was to be expected, as the comments reflect a broad geographic and commodity mix of shippers, whose interests naturally differ. Also below are public policy and general management policy solutions which shippers suggested to address various rail deficiencies. As numerous shippers expressed their desire for anonymity, no shippers are specifically identified with any suggested solutions.

Transit Time Reliability - General *physical solutions* suggested by shippers include:

- Eliminate at-grade crossings wherever possible. Doing so will both reduce accident potential and increase train speeds.
- Add more track near production centers to keep operations fluid. Shippers related that many times, for lack of sufficient sidings or lead tracks, cars cannot be delivered to production centers. These cars are often left in yards, thereby robbing the yards of much needed capacity.

- Increase railroad capacity in general. This could be done by such investments as double tracking or lengthening sidings.

- Add more locomotives to pull trains.

General *operational solutions* suggested by shippers include:

- Build unit trains for steel and other commodities, like those that exist now for coal, wheat and intermodal shipments. Unit trains typically enjoy lower costs due to the handling of only one commodity in one car type. But of particular relevance here, these trains also typically enjoy much faster transit times, as little or no intermediate switching and sorting of cars are required between origin and destination.

- Decentralize dispatching to provide more customer sensitive and efficient service. Shippers complained that dispatchers working in distant centralized locations often lack detailed knowledge of local conditions. As a result, shipments have been unnecessarily delayed.

- Expand fast, cost-effective intermodal service to lesser markets. Railroads tend to provide intermodal service only between major metropolitan markets like Chicago and Los Angeles. This trend has left more rural markets underdeveloped in terms of intermodal rail service. Intermodal cars to and from these markets may be mixed with carload traffic. As a result, transit times can be longer and less reliable.

- Encourage railroads through incentives to achieve reliable transit times. Railroads could be rewarded for improved service reliability. A model for such a system is Amtrak's inventive program, which rewards host freight railroads for expediting Amtrak trains across their systems.

- Apply statistical analysis to determine service problem root causes. One shipper cited a practice of regular meetings with a rail carrier to identify common and special causes of variability in transit times. The shipper and carrier then jointly pursue potential solutions.

- Address yard-operating problems, which cause rail cars to remain for unnecessarily long periods in yards. Typically yard problems include insufficient capacity to sort traffic efficiently. As a result, yards become congested, with trains unable to enter and leave the yards. Down stream effects include deterioration of main line transit times.

- Hire more crews to man the trains, in order to avoid crews exceeding their maximum allowable work hours per day. Without relief, crews can "die on the law," resulting in trains being left not only stopped but unattended.

- Implement directional running wherever practical. Where a railroad has two more or less parallel lines, directional running allows traffic to move in a single direction on each line. Doing so mimics the efficiencies of double tracking, thereby providing for enhanced transit time reliability. Directional running has been made possible through various western railroad consolidations, as a result of which former rivals have become one. An example can be found in WTTN Corridor 6, where UP now has two lines. Until UP's 1996 merger with the former SP, both UP and SP operated as competitors on roughly parallel routes in the corridor. UP now uses one route for northbound traffic, and uses the other for southbound traffic.

- Perform better hand-offs to and from locals. While main line trains haul rail cars between major markets, local trains are responsible for pick-up and delivery of cars. Poor coordination for interchange of traffic between main line and local trains results in delays and poor transit time performance.

- Deploy more locals, ensuring timely interchanges of rail cars with main line trains.

- View the coal business with a higher priority. One shipper claimed that railroads do not aggressively pursue the coal business as they do other business. As a result, coal train transit times are not as reliable as they could be, the shipper said.

- Run scheduled trains rather than eliminating them due to periodic locomotive shortages. A shipper claimed that a railroad occasionally cancels regular service, and distributes locomotive power arbitrarily to other trains. As a result, transit time for the shipper's freight has increased.

<u>Car Availability</u> – Shipper-suggested *physical solutions* include the following:

- <u>Build more cars of all common types</u>.

- <u>Build more box cars in particular</u>. Box cars have not been built in years, though fairly large numbers have been rebuilt. When they derail, box cars are often scrapped, thereby reducing fleet size even more.

Shipper-suggested *operational solutions* include the following:

- <u>Better utilization of cars</u>. Building more cars would address the car availability issue in one way. Alternatively, improved utilization of existing fleets would address the same issue. Improved utilization implies a heightened consciousness among railroads to position empty cars for reloading as quickly as possible. Railroads have incentive to do this now for their owned cars. However, to the extent that significant car numbers are owned not by the railroad but by non-railroad entities, the railroads have less of an incentive to improve turn or cycle time - the key measure for car utilization.

- <u>More management focus on wheat versus coal and intermodal traffic</u>. One shipper felt that management attention was diverted away from wheat movements. As a result, fewer cars were being made available for wheat movements relative to cars for other types of freight, the shipper claimed.

- <u>Better information systems to allow cars to be delivered as needed</u>. One shipper remarked that poor railroad information systems result too often in “bunching cars together.” That is, the serving railroad often delivers too many cars to the shipper at one time. As a result, many cars remain unused for prolonged periods at the shipper’s loading facility. This practice serves to exacerbate car availability conditions.

- <u>Shippers should order cars earlier than needed, if delivery problems are anticipated</u>.

- <u>Improved yard operations, helping cars through yards</u>. Shippers remarked that cars often traverse the main line well, only to become delayed by yard handling. As every yard is different, there are as many answers to improving yard operations as there are yards. This comment was reflective of a shipper’s concern rather than specific in terms of any technical solution.

- <u>Railroads should encourage shippers to maximize the potential of car ordering systems to guarantee prompt car deliveries</u>. A shipper related that major railroads have car ordering protocols which can be helpful in delivering cars as desired. The core problem may be one of inadequate training for the shipper in the use of these systems.

- Open access will provide for greater car availability by creating a more competitive environment. Open access is currently being promoted in Congress as a means to ensure competition for "captive shippers" - shippers that are served exclusively by one railroad. Some shippers have argued that the lack of competition for their business has resulted in higher rates and less than satisfactory service, inclusive of inadequate car availability. In their opinion, open access would allow other qualified carriers to pick up and deliver cars for a formerly captive shipper, thereby simultaneously stimulating competition for the shipper's business and improving rail service.

- Add to yard crews and supervision so that cars can be "found" in yards. One shipper related his impression that that too often rail cars in effect have been lost in yards. The shipper referred to various instances when cars were not identified properly by number and location. If such information is not noted accurately when cars come into a yard, switching and delivery of cars can be delayed, worsening already tight car availability. It is noted that major railroads have been involved in the development of a technology which may ultimately address this issue. The technology, commonly referred to as Automatic Equipment Identification (AEI), is aimed at gathering car identification numbers electronically. AEI "readers" pick up the car numbers from transponders. With readers located throughout yards, the precise location of cars could be ascertained with every move. Presently, however, AEI readers are commonly found at strategic points such as the entrances and exits of yards rather than on every track.

- Increase car maintenance budgets to get bad-ordered (mechanically non-road worthy) cars back into operation faster. One shipper complained that underfunded equipment maintenance budgets result in cars being out of revenue service longer than they need to be.

- Increase car velocity, thereby increasing utilization. One shipper pointed out one way to decrease turn or cycle times is to increase the speed with which cars traverse rail systems. This can be done by various means, including boosting maximum speed limits, or adding locomotive power to longer, heavier trains. Both solutions may require substantial capital investment.

- Encourage shippers to invest in cars through lower "per diems." These are lease payments for rail cars. They are often quoted on a daily or per diem basis. Low per diems would encourage shippers to lease cars themselves rather than depending on the railroad controlled car supply.

- Railroads need to reduce terminal dwell times. This shipper echoed the impression of many shippers that cars are being unnecessarily delayed in yards. The science for reducing dwell times exists, but this know how is underutilized by the railroads, the shipper said.

Customer Service – Shipper-suggested *physical solutions* include the following:

- More tracks near production centers to allow for more Storage-In-Transit (SIT). SIT typically might occur at a petrochemical plant, where loaded tank cars might be positioned on sidings until the cars' contents are needed for production. Adding more SIT tracks will provide more space for such tank cars and remove cars from yards where they can hinder fluid operations.

- More power both to run trains and to speed them up.

Shipper-suggested *operational solutions* include the following:

- Railroads need more customer focus. One shipper stated railroads have placed their improvement emphasis in recent times on operations rather than the needs of the ultimate users of the systems - the shippers.

- Railroads and shippers need to stay "close" to each other, and seek to work together to resolve problems. One shipper said the relationship between shipper and railroad too often becomes adversarial and consequently unproductive. This trend could be countered with an increased commitment to each other, the shipper suggested.

- Improved internal and external communications so shippers can have accurate information as to the status of their shipments.

- Empower the employee, with whom the shipper has the most contact, to resolve problems. One shipper said that railroad workers closest to shippers often have the best understanding of what is required to improve service for the shipper. However, the shipper related, too many times these employees lack the authority to implement positive changes.

- More crews to run trains. Too often, one shipper believes trains are left idle because of too few employees. As a result, pick-up and delivery times are not made.

- More hands-on supervision by management, which has become too thin as a result of recent railroad mergers.

- Better training to allow employees to respond to the needs of shippers.

- Streamline processes in which shippers interface with the railroad. A clear example of a process in need of improvement pertains to rate quotations and billing, one shipper said. Working with the railroad should be "simple and seamless, like going on line with the Internet."

- Promote open access, which will drive improvements in customer service.

Public and General Management Policy Suggestions for Rail Deficiencies

- Allow funds for highway improvements to be spent on other modal infrastructure projects. These could include rail projects, according to one shipper.

- Encourage on-dock rail facilities at ports to speed trains and lessen road congestion. Such facilities are so named because they are adjacent to traditional container handling facilities at ports. Containers traveling inland need only a short transfer move between the "dock" and the railroad, rather than a highway move to intermodal rail terminal in a more remote location.

- Encourage flexible labor agreements to run shorter, faster trains to lesser markets. Partially to maximize the productivity of labor, some railroads prefer running longer but slower trains between major markets.

- Encourage railroads to extend service to lesser markets. A strategy could include public sector financing of capital and/or operating costs.

- Provide funding options for short lines to modernize their locomotives, cars, tracks, yards, and other facilities. One shipper stated that typically undercapitalized short lines will increasingly become unable to accept rail cars with higher load capabilities. As a result, shippers served by these short lines will find it more difficult to obtain competitive rail services.

- Fix labor contracts to ensure that railroads achieve benefits of mergers. One shipper said that UP has been unable to achieve efficiencies inherent with integrating UP and former SP workers. In some cases, such integration and other workforce rationalization have been precluded by existing labor contracts, the shipper said.

- Coordinate infrastructure investments to ensure sufficient capacity for freight and commuter railroads. One shipper pointed to the growth of commuter railroads, which is coming at the expense of capacity for growing freight volumes. A strategy could include public agency sharing of rail capacity improvement costs.

- Preserve used rail assets. These would include facilities like UP's Modoc Line in northern California and its Tennessee Pass route in central Colorado, one shipper suggested. It is noted that UP announced plans in 1998 to preserve these lines in order to preserve the capacity that they imply for the UP system. States might consider subsidizing operations on uneconomic lines. Also, the lines might be "railbanked." Established by Congress, railbanking is a method by which lines proposed for abandonment can be preserved through interim conversionn to trail use. Lastly, states can buy lines from railroads that otherwise would be abandoned. Washington State has brought two branch lines since the late 1980s in order to keep them in service.

- Ensure that sales of freight lines to commuter operations do not reduce freight rail capacity where it is needed.

- Make state funding available for railroad terminal improvements.

- Utilize state funding to address port/rail interface issues. One shipper cited southern California as one example where port related traffic dominates the capacity of railroads, thereby negatively affecting other traffic flows in the area. State funding could provide for capacity improvements benefiting the movement of all commodities.

Solutions by Corridor

Because transit time reliability was also discussed in terms of performance on specific corridors, it is possible to discuss some solutions, both physical and operational, on a corridor-specific basis. The physical solutions to constraints affecting transit time reliability are cited in Exhibit 4-12. As in the preceding section, most of the solutions were suggested by shippers. In addition, some of the solutions were suggested or are already supported by the railroads.

Exhibit 4-12
RAILROAD PHYSICAL SOLUTIONS BY WTTN TRADE CORRIDOR
Solutions to Transit Time Reliability Deficiencies

Corridor Identification	Solution Description
WTTN Corridor 1 (Pacific Northwest–Chicago)	• Restore the Ellensburg - Lind Cutoff in Washington State to reduce miles to and from Puget Sound on BNSF. • Capacity improvements to BNSF and UP on Columbia River routes in Washington State and Oregon. • Build the FAST (Freight Action Strategy) Corridor on BNSF between Tacoma and Seattle to speed trains and reduce interface with road traffic.
WTTN Corridor 2 (San Francisco-Chicago)	• Increase UP tunnel clearances in the Sierra Nevada Mountains in northern California. • More double tracking and longer sidings on UP's central corridor between California and Utah. • Relocate UP yard operations and main line in Salt Lake City, Utah, to a less urban location. Doing so will minimize conflicts between road and rail traffic and provide for facility expansion. Both consequences could serve to improve reliability. • Fix UP bottlenecks between North Platte, Nebraska and Kansas City, Missouri.
WTTN Corridor 4 (Southern California-Memphis)	• Centralized Traffic Control (CTC) signaling between Barstow and Needles, California on BNSF's heavily utilized southern tier route to provide for more fluid traffic flows. • Double track 250 miles of BNSF's heavily utilized single track between Barstow, California and Belen, New Mexico.
WTTN Corridor 5 (Southern California-New Orleans)	• Build Alameda Corridor East, a proposed major grade separation project of UP main line trackage running east of Los Angeles toward San Bernardino, California.
WTTN Corridor 7 (Mexico-Canada, West Coast)	• Increase tunnel clearances on UP through Cascade Mountains in northern California and Oregon. Doing so will allow for the running of expedited double-stack container trains.
WTTN Corridor 8 (Pacific Northwest-Utah)	• Double tracking and grade improvements on the UP main line through the Blue Mountains in Oregon in order to speed trains and lessen congestion.

Corridor Identification	Solution Description
WTTN Corridor 10 (Mexico-Canada)	• Expand UP's "landlocked" Pocatello, Idaho yard, having limited ability to handle increasing business.
WTTN Corridor 17 (Mexico-Canada/ Upper Midwest)	• New intermodal yard in Laredo, Texas so trains can avoid downtown. Laredo is an endpoint of UP's main line between Texas and the Midwest. • New bridge at Laredo to reduce congestion at current single track bridge. • Fix UP bottlenecks between Taylor and San Antonio, Texas.

Shipper suggested operational solutions for transit time reliability relative to specific corridors are cited in Exhibit 4-13.

Exhibit 4-13
RAILROAD OPERATIONAL SOLUTIONS BY WTTN TRADE CORRIDOR
Solutions to Transit Time Reliability Deficiencies

Corridor Identification	Solution Description
WTTN Corridor 1 (Pacific Northwest-Chicago)	• Directional running on the Columbia River routes. This would require coordination between BNSF which owns a main line on the north side of the river, and UP which owns a main line on the south side of the river. As mentioned before, directional running mimics the efficiencies inherent in double tracking.
WTTN Corridor 5 (San Francisco-Chicago)	• Intermodal trains between the Ports of Los Angeles and Long Beach and the San Bernardino Valley. Such trains will speed container traffic between the ports and the "Inland Empire." At present, container traffic must use congested southern California freeways.

BENEFITS OF ACHIEVING PERFORMANCE STANDARDS

Direct Benefits and Beneficiaries

The solutions suggested above are aimed at addressing performance deficiencies in the three areas most critical to shippers: transit time reliability, car availability, and customer service. If the physical and operational solutions set forth are effective, they should result in direct benefits accruing to the prime freight industry participants - the railroads and the shippers.

Railroads stand to gain from improved infrastructure and lower operating costs. Shippers stand to gain due to improved service and lower total transportation costs. Both railroads and shippers will find their abilities to compete for new revenues enhanced. Various direct benefits resulting from solutions to deficiencies in the critical performance areas are examined qualitatively below.

Freight Industry Benefits

Transit Time Reliability - From a railroad perspective, direct benefits pertaining to reduced cost and enhanced revenue potentials can be predicted by the improved transit time reliability. Expenditures for fuel, maintenance, and labor likely will decline as trains move more efficiently over their systems. On the other hand, more locomotive power and more track capacity will mean railroads can handle more trains and earn more revenues.

The shippers will benefit by having their freight delivered in time frames they can rely on. Reliable transit times will provide shippers with the ability to downsize inventories and carrying costs. Also, by having freight arrive as desired, shippers will have greater ability to respond effectively to the requirements of their customers. Predictably, they will be less likely to be caught out of stock because trains fail to make their expected transit times. Accordingly, shippers' market competitiveness will be enhanced, allowing them to pursue additional revenue opportunities.

Car Availability - With improved car availability, railroads will be able to respond more effectively to the shipper demands for cars. Doing so will mean that that railroads will be able to carry more loaded cars. As railroads carry more freight, they will earn more revenues.

Shippers will gain by having cars delivered when ordered. A western grain shipper reported that he is able to invoice grain shipments once they are loaded onto a grain car. An improved car availability, therefore, can mean that a shipper will realize revenue from a shipment sooner. Cash flow will be improved as a result. This dynamic has a meaningful implication on the cost side. With improved cash flow, a shipper will be able to borrow less to finance operations, and thereby reduce interest cost.

Customer Service - A strong customer service orientation will enhance the image of the railroads' service quality. Being known for on-time deliveries and ease of doing business predictably will enhance the railroads' ability to compete with themselves and with trucks for shippers' business. To the degree they are successful in this competition, revenues will grow.

As railroads gain volume density on their lines, opportunities for bolstering operating income will manifest themselves. A common example pertains to carrying new traffic on existing trains. In cases where trains have capacity available, the incremental cost of carrying new traffic is often minimal as most of the train cost can be allocated to carrying the train's base traffic. As a result, the contribution to operating income provided by the new traffic is high relative to the train's base traffic.

With the railroads performing pick-ups and deliveries in a more timely manner, shippers will be able to schedule their labor forces more accurately, thereby reducing cost due to idle time and improved productivity.

Economic Benefits

The solutions above were suggested as means to improve the utility of Western rail systems in ways most meaningful to shippers. The solutions pertain to specific deficiencies in rail service. Improving transit time reliability, car availability and customer service will benefit shippers directly. For example, double tracking a congested single-track route may provide for more reliable transit times. The resulting transit time improvements may, in turn, allow shippers to maintain lower inventories thereby reduce carrying costs. The positive financial effect of reduced demand on cash flow will be both straightforward and immediate.

By their nature, these solutions will also deliver broader economic benefits. In ongoing research on the quantification of benefits resulting from improvements in rail systems, the Federal Railroad Administration has defined these benefits in terms of user benefits and non-user benefits. These two classifications are described below, along with explanations of how the solutions cited in the preceding section might deliver these benefits.

Solutions, of course, come with the costs to implement them. There are cost trade-offs for benefits. However, quantification of net benefits was not attempted here. Rather, the benefits were assessed in a more qualitative manner.

User Benefits – As the name implies, these are benefits that accrue to the users of the transportation systems. The carrying cost savings that a shipper might experience because of improvements in transit time reliability are an illustration of a user benefit, for the shipper is clearly a user of a rail system.

Such benefits can be further defined in terms of ***direct benefits*** and ***indirect benefits***. The aforesaid carrying cost savings is a direct benefit, for it represents an out-of-pocket savings to the shipper. Indirect benefits accrue to users of adjacent transportation systems, such as highways. An example would be the travel timesavings and vehicle operating cost savings experienced by truckers and motor vehicle operators. That is, to the extent that truckloads are drawn off congested highways and onto reliable railroads, there will be less congestion on highways for the trucks and cars that remain. Less congestion will result in faster transit time and less delay resulting in wasted fuel.

Non-user Benefits – These are benefits that accrue to the society at large. Five typical non-user benefits are:

- Fuel savings;
- Emission savings;
- Reduced highway maintenance costs;
- Reduced public tax bill; and
- Reduced highway congestion.

In the preceding example of a double tracking solution for enhanced transit time reliability, the improvement will allow trains to cross a formerly congested section of single-track expeditiously. Fuel, which had been consumed wastefully, as trains idled, unable to move, will be saved. Fuel savings will also develop from diversions of truckloads to more efficient rail systems[5]. As a result of improved transit times and diversions of truck traffic to rail, emissions will be reduced[6].

Also, as shippers divert their truckloads to railroads more capable of moving trains reliably, highway maintenance costs will be reduced. Reduced highway maintenance costs will represent savings in public taxes needed to pay for them. As more loads are handled on efficient and reliable rail systems, highway congestion will also be ameliorated. Consequences include increased transit times for trucks that remain on highways, fuels savings resulting from less idle time for trucks and cars, and emission savings.

Other Benefits – It can be argued that industries served by safe, reliable, and efficient transportation systems enjoy a competitive advantage. If transportation system deficiencies ultimately raise transportation costs, then finding solutions to these deficiencies will lower

[5] According to the AAR, one locomotive can move one ton of freight almost 300 miles on one gallon of diesel fuel, while a truck move a ton only about 100 miles per gallon. The AAR further claims that if 10 percent of freight moving by highway were diverted to rail, the nation could save 200 million gallons of fuel annually. See the AAR Website at www.aar.org.

[6] According to the AAR, railroad locomotives emit one-tenth the hydrocarbons and particulate matter for every billion ton-miles of transportation, and one-third the nitrogen oxide and carbon monoxide, as compared to trucks. The AAR quotes the American Society of Mechanical Engineers as predicting that 2.5 million fewer tons of carbon dioxide would be emitted to the air annually, given a 10 percent diversion of intercity truck borne freight to rail. See the AAR Website at www.aar.org.

transportation costs. Lower costs can lead to lower prices for goods sold, making them more attractive in the marketplace. Industries reaping the benefits of transportation system improvements, therefore, may be well-positioned to experience growth in revenues. As businesses grow, employment likely will follow. Service industries, catering to the needs of producers, will find new opportunities. Also, new industries will be drawn to areas served by efficient transportation systems so that they can benefit from lower transportation costs.

Justification for solutions to transportation system deficiencies may be found in that efficient transportation systems can be a fundamental factor setting the stage for a robust economy. According to figures frequently cited by the AAR, railroads account for nearly 40 percent of the ton-miles generated in the U.S. Ton-miles, in fact, is a means of quantifying freight activity by representing weight and distance. By this measure, railroads are a major component in the nation’s transportation system. Improvements to the efficiency of the nation’s rail system, accordingly, can yield lower national transportation system costs. These lower costs, in turn, can help keep U.S. industry competitive, and thereby contribute to national economic development.

Chapter 5
INTERMODAL FACILITIES ANALYSIS

In addition to the highways and rail lines comprising the WTTN system, the system also includes "intermodal facilities." Intermodalism is sometimes confused with *multimodalism* and, for purposes of the WTTN study, it is relevant to distinguish between the two terms. The definitions for these terms have evolved through the ISTEA era into TEA-21 and beyond, as follows:

> An intermodal transportation system is an operationally-based transportation network consisting of public and private infrastructure for moving people and goods **using combinations of transportation modes** for the same trip. Multimodalism refers to modal **choices in the same corridor**, essentially serving the same origin/destination pair. An intermodal transportation system connects these elements in a seamless manner that emphasizes the efficiency, safety, and environmental needs of passengers and freight.

This WTTN study chapter focuses on intermodal facilities where cargo is transferred between the modes. For example, goods are transferred between the modes at such facilities as:

- *Ports* – from rail or truck to water transportation, and vice versa, and between barges and ships;
- *Airports* – usually to/from truck from/to airplanes;
- *Grain Elevators* – usually from trucks to rail or water, sometimes from rail to water, sometimes from barge to ships;
- *TOFC/COFC* – usually from/to truck from/to rail, or at ports to/from rail from/to water transportation;
- *Other* – including reloads, timber and wood products loading from trucks to rail, or automobiles from/to truck to/from rail.

Excluded in this definition are truck-to-truck transfers, warehouses, etc.

SURFACE FREIGHT VOLUMES

In order to place intermodal traffic into perspective, total truck and railroad volumes in the western states were developed in WTTN-Phase I.

Commodity Types

As shown in Exhibit 5-1, the WTTN database reveals that almost 1.5 billion commodity tons moved to/from BEAs within the study area in 1994. Of the 1.5 billion tons, 670 million moved by rail and 810 million by truck.

The rail traffic is dominated by a single commodity -- coal. Almost half (44 percent) of the rail tonnage falls into this category. Although coal is not an "intermodal" commodity, because it typically is not exchanged between the modes, it has dramatic impacts on the capacity of the rail system within some of the WTTN corridors and is therefore relevant to the WTTN intermodal issue.

The next largest rail commodity, and based on the study definition, a true intermodal move, is farm products (unprocessed from the farm), or at least the grain component of that commodity group. The next is Food Products (processed foods) followed closely by Chemicals. Neither of these groupings is typically an intermodal move because each is produced at plants and typically loaded directly into trucks or rail cars. The fifth largest commodity tonnage, Miscellaneous Mixed Shipments, is intermodal because it is comprised of containers and piggyback truck trailers (TOFC/COFC). Thus, two of the five top rail commodities are largely intermodal traffic. The two together comprise about 15 percent of the rail tonnage, or about 7 percent of total truck and rail tonnage.

Commodities carried by truck are not dominated by single commodity groups. Lumber or Wood Products, Clay, Concrete, Food and Petroleum are major truck commodities (in terms of tonnage carried).

Exhibit 5-1
PRINCIPAL WTTN REGION FREIGHT TONNAGE BY COMMODITY [1]
1994

STCC	DESCRIPTION	TRUCK TONS	RAIL TONS	TOTAL
01	Farm Products	24,711,307	64,293,256	89,004,563
08	Forest Products	21,704	5,702	27,406
10	Metallic Ores	1,500,792	4,711,024	6,211,816
11	Coal	43,501,462	294,330,349	337,831,811
13	Crude Petroleum Or Natural Gas	4,547,826	2,168,321	6,716,147
14	Nonmetallic Minerals	23,535,193	23,686,846	47,222,039
19	Ordnance Or Accessories	40,067	100,944	141,011
20	Food Or Kindred Products	140,715,587	58,536,185	199,251,772
21	Tobacco Products	91,648	22,824	114,472
22	Textile Mill Products	700,549	182,488	883,037
23	Apparel Or Related Products	237,968	79,356	317,324
24	Lumber Or Wood Products	167,149,492	28,190,873	195,340,365
25	Furniture Or Fixtures	367,817	113,056	480,873
26	Pulp, Paper Or Allied Products	10,016,539	7,655,422	17,671,961
27	Printed Matter	926,720	138,705	1,065,425
28	Chemicals Or Allied Products	67,022,486	53,061,369	120,083,855
29	Petroleum Or Coal Products	125,420,371	35,496,830	160,917,201
30	Rubber Or Misc Plastics	3,154,621	963,402	4,118,023
31	Leather Or Leather Products	76,939	47,147	124,086
32	Clay, Concrete ,Glass Or Stone	162,313,793	35,164,777	197,478,570
33	Primary Metal Products	8,148,153	9,796,403	17,944,556
34	Fabricated Metal Products	3,083,704	685,940	3,769,644
35	Machinery	2,428,243	719,883	3,148,126
36	Electrical Equipment	1,520,412	466,264	1,986,676
37	Transportation Equipment	5,051,965	8,127,801	13,179,766
38	Instrum, Photo Equip, Optical Eq	381,707	89,484	471,191
39	Misc Manufacturing Products	606,331	196,662	802,993
40	Waste Or Scrap Materials	3,438,211	2,912,474	6,350,685
41	Misc Freight Shipments	168,288	175,585	343,873
42	Shipping Containers	134,412	698,757	833,169
43	Mail Or Contract Traffic	59,295	36,020	95,315
44	Freight Forwarder Traffic	13,205	121,611	134,816
45	Shipper Association Traffic	9,401	31,128	40,529
46	Misc Mixed Shipments[2]	9,360,581	37,581,896	46,942,477
47	Small Packaged Freight Shipments	3,247	2,643	5,890
	TOTAL [3]	810,460,036	670,591,427	1,481,051,463

(1) Cargo with an origin and/or a destination in the WTTN states.
(2) Principally containers and piggyback.
(3) This is total of the 3 top commodity groups for each study area state. Grand total of all tonnage is another 20 percent "

SOURCE: Reebie Associates

Commodity Movements

Seven commodity groupings comprise 90% of all tonnage moved by rail and truck in the WTTN states. The volumes, BEA zones of origin or destination in the West, and the modes (truck or rail) for these dominant commodities are shown on Exhibits 5-2 through 5-8. BEA zones are groupings of counties as developed by the U.S. Department of Commerce, Bureau of Economic Analysis.

COFC/TOFC Flows – Exhibit 5-2 shows the container volumes moved by rail and truck. A number of observations are made:

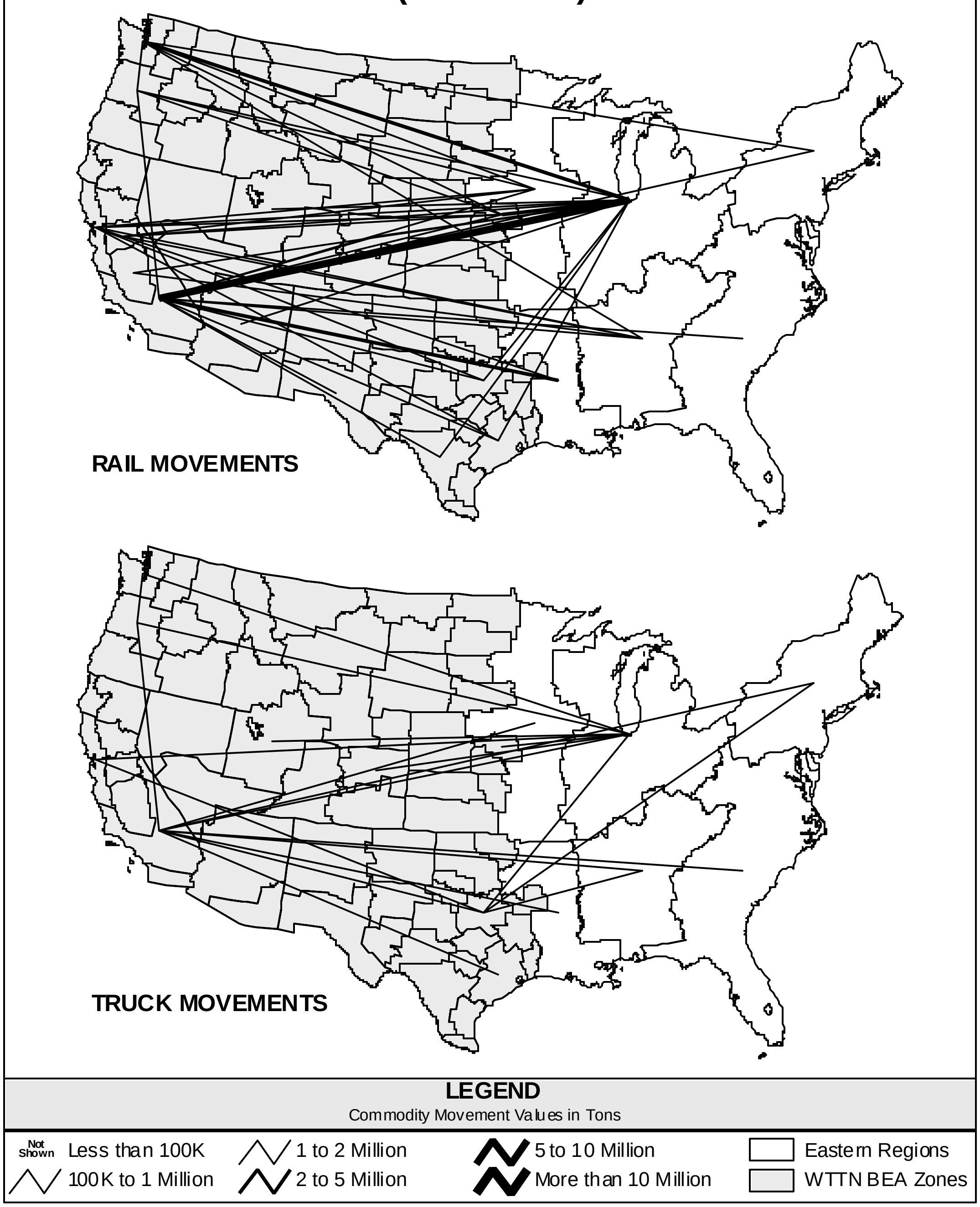
- The principal moves generally are east-west (rather than north-south);
- The principal moves are long distance;
- On the west end, they start (or end) at the major port city (and major population centers) BEAs – Los Angeles/Long Beach, San Francisco-Oakland, Seattle-Tacoma, Portland;
- This implies that much COFC/TOFC cargo is international in nature or at least indicates port use;
- The Chicago gateway to the east dominates;
- The truck moves tend to be in the same direction as the rail moves; and
- The north-south moves include Southern California-Pacific Northwest and between Texas and the Midwest.

Virtually all COFC/TOFC traffic is "intermodal" in nature, at least using trucks at one end point, port on the other end, rail in between or, if hauled by truck, usually port on one end. In addition, some containers move by barge between the other modes. COFC/TOFC is therefore very relevant to the WTTN intermodal facilities issue.

Exhibit 5-2

MISCELLANEOUS MIXED SHIPMENTS (1994)

(Containers)



Farm Products Flows – Exhibit 5-3 presents the principal farm products flows by rail and truck. Farm products comprise wheat, barley, corn, and other crops, and exhibit very different movement patterns than do containers. For example.

- Both east-west and north-south movements by rail are notable;
- There are numerous grain origin/destination pairs; they are not dominated by only a few destinations;
- Considerable volumes are destined to Texas and Louisiana, implying Gulf Coast port use;
- There are major moves to the West Coast port cities; and
- Long distance truck farm products typically comprise perishables.

Because grains are typically collected by truck and carried over the roadway system to the grain elevator, then carried by rail or barge, then often passing through the West Coast and Gulf Coast ports, the Farm Products are also “intermodal” in nature.

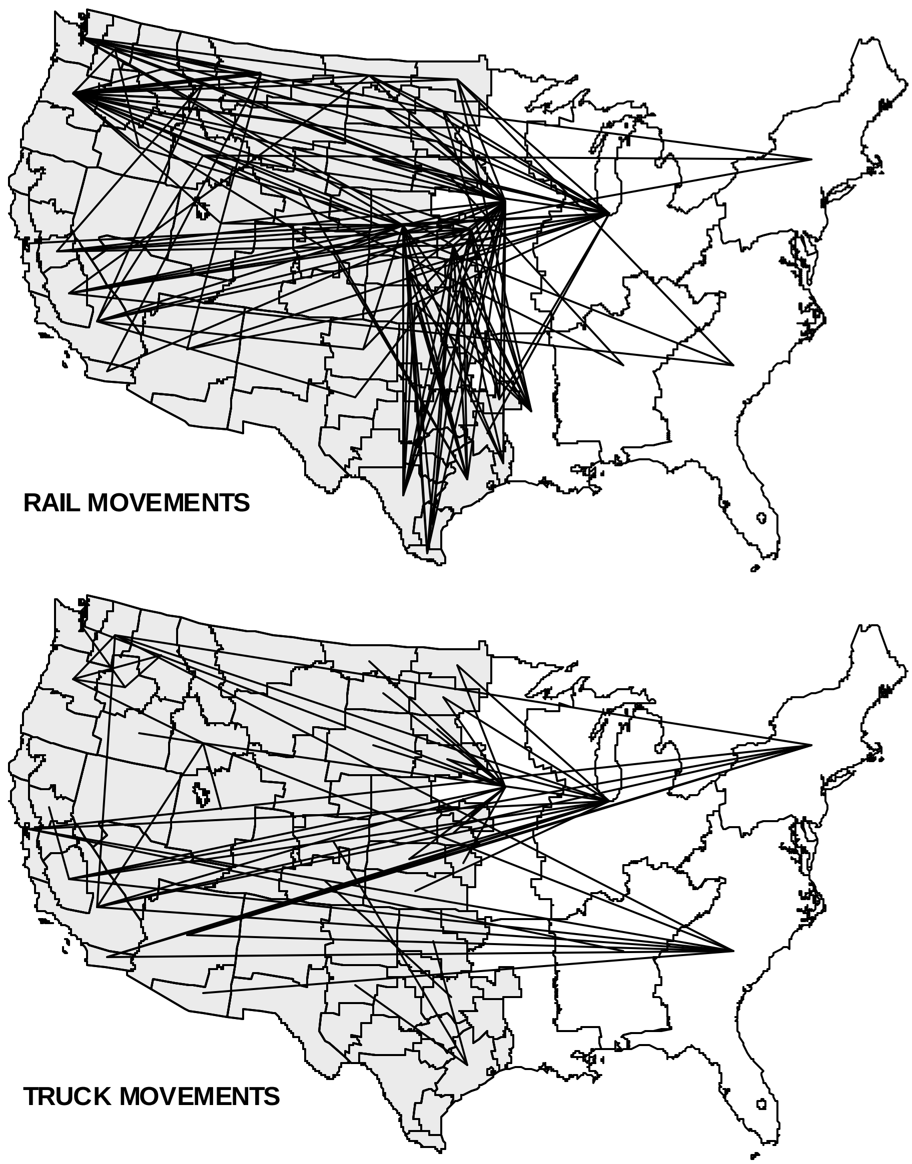
Coal Flows – Exhibit 5-4 presents the principal coal flows in the West. Observations include:

- There are few coal origins, with the Powder River Basin of Wyoming dominating;
- The coal movements tend to be concentrated on a few corridors, implying that the coal is routed over certain predominantly west-east rail main lines, all of which are included in the WTTN corridor designations;
- The coal destinations lie principally in the midwest and south central U.S.; and
- Very little coal moves by truck for long hauls.

Because western coal is typically loaded directly onto rail cars from off-road vehicles, conveyors, and mines, coal is not really an “intermodal” commodity, nor are coal mines intermodal facilities.

Exhibit 5-3

FARM PRODUCTS (1994)



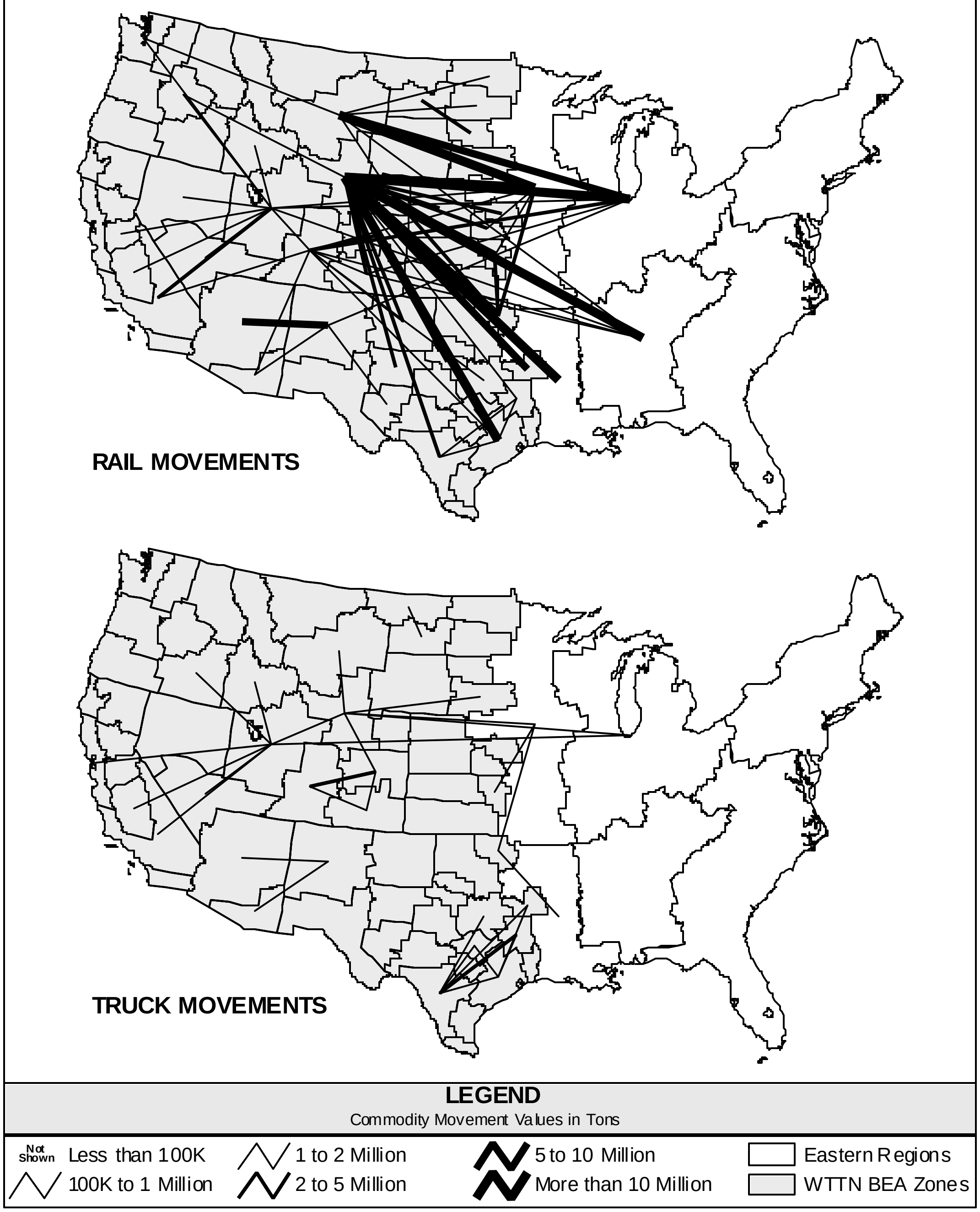
LEGEND

Commodity Movement Values in Tons

Not Shown Less than 100K
100K to 1 Million
1 to 2 Million
2 to 5 Million
5 to 10 Million
More than 10 Million
Eastern Regions
WTTN BEA Zones

Exhibit 5-4

COAL (1994)



Lumber or Wood Products – Exhibit 5-5 presents the principal wood products movements. These movements indicate that:

- There are a few specific movement pairs, most notably the north-south move in the Pacific Northwest (the I-5 corridor);
- Trucks carry more lumber and wood products tonnage than does rail, although rail carries it further; and
- The I-5 truck moves are very dense, and the moves are also dense into the port BEAs on the West Coast.

Food and Kindred Products – These comprise principally processed foods, and the moves are shown on Exhibit 5-6. As shown:

- Commodity flows involve many origin/destination pairs, meaning that these moves occur on many different highways and rail lines;
- Trucks carry almost three times as much as does rail; and
- There is more movement all the way across the country than for many other commodities, especially by truck.

There is nearly always processing involved prior to the truck and rail moves for this commodity grouping. Therefore it is not treated as an intermodal commodity type.

Clay, Concrete, Glass and Stone – This is a major commodity group comprised of several different commodities, some of which, such as sand and gravel, are used in large quantities. As shown on Exhibit 5-7:

- These commodities often are carried very short distances;
- Those carried longer distances are usually specialty items; and
- Trucks carry nearly five times the volume of rail, generally due to the short distances and delivery to construction sites.

These are not treated as intermodal in the WTTN study, because the study is regional (multi-state) in nature.

Exhibit 5-5

LUMBER OR WOOD PRODUCTS (1994)

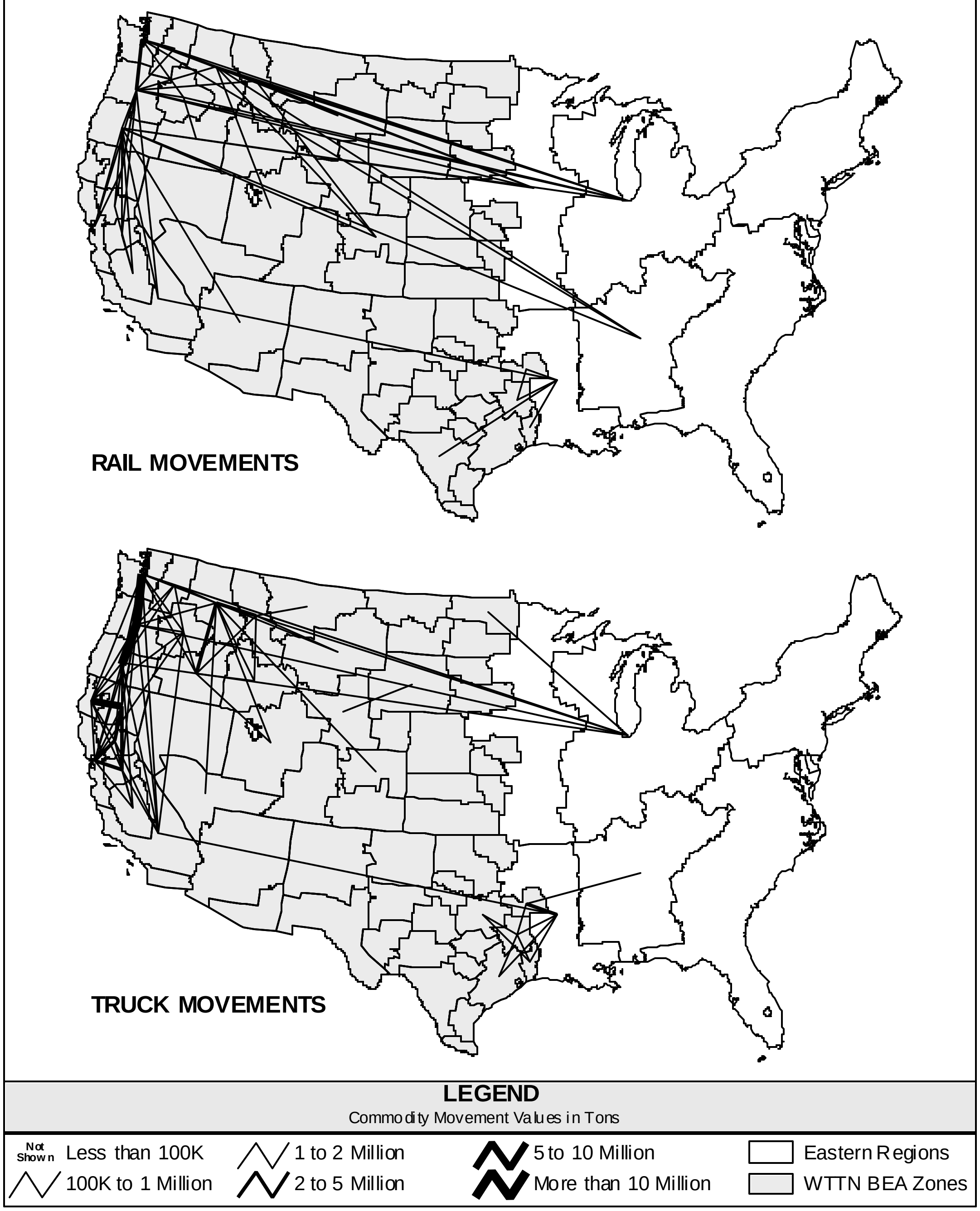


Exhibit 5-6

FOOD OR KINDRED PRODUCTS (1994)

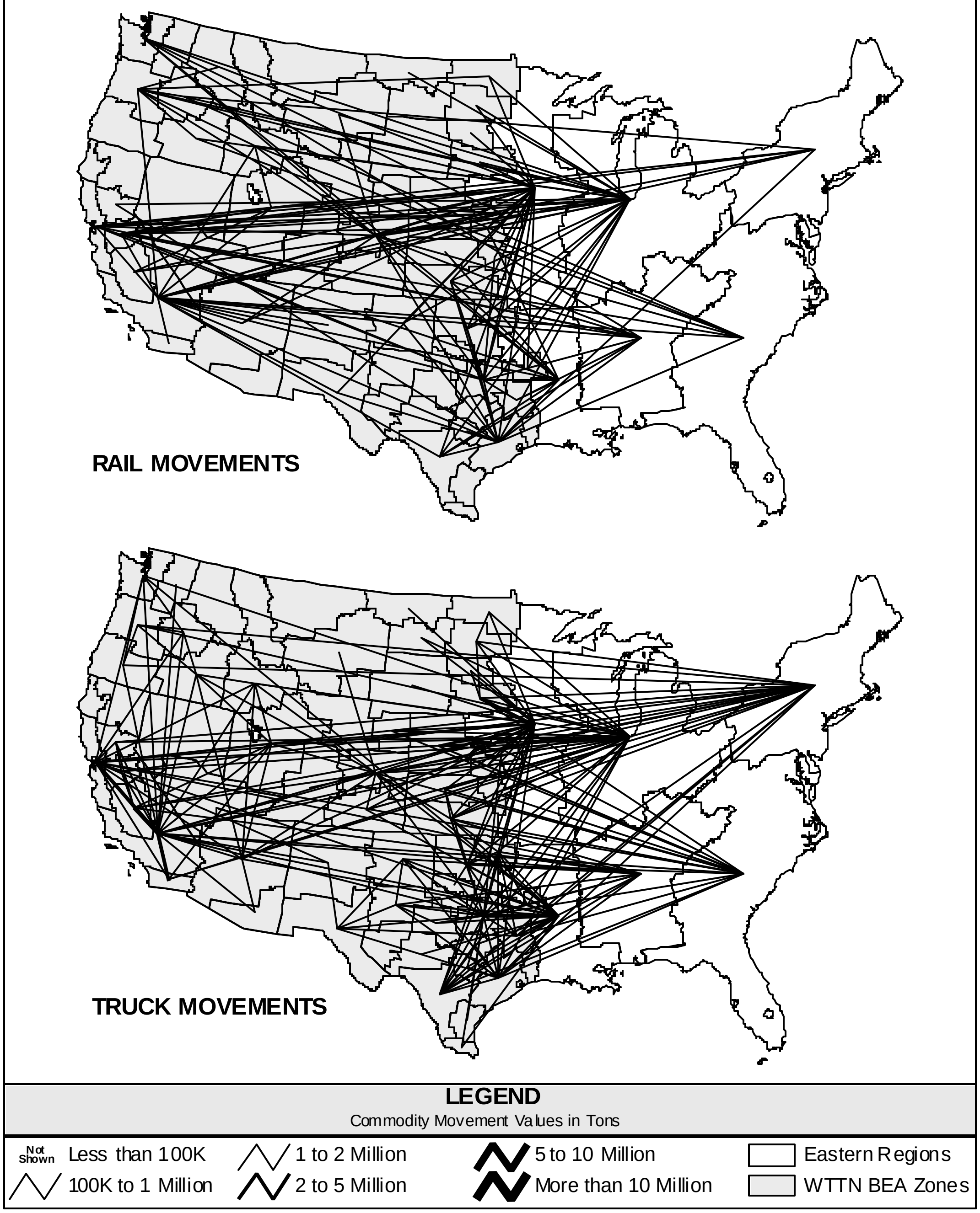
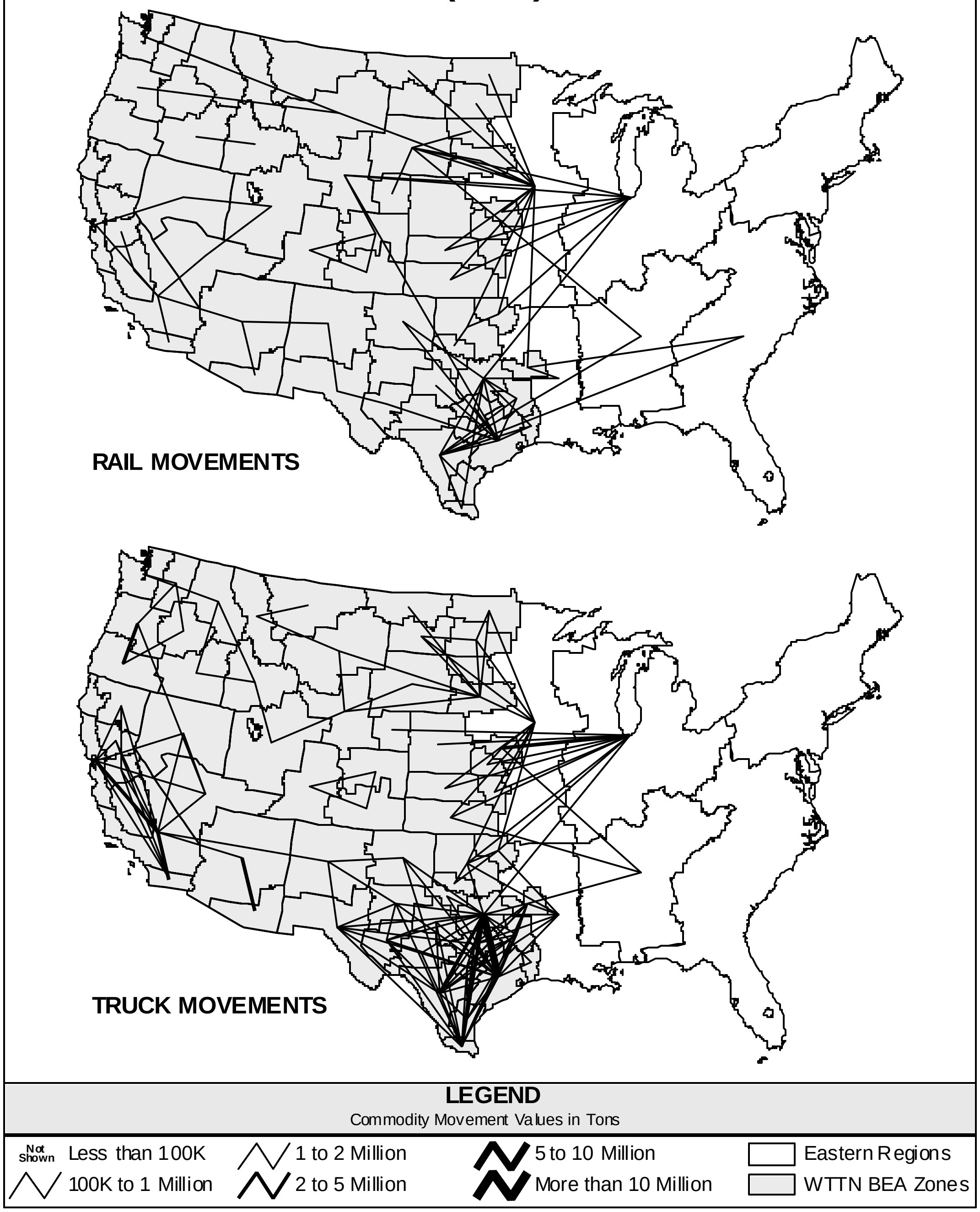


Exhibit 5-7

CLAY, CONCRETE, GLASS OR STONE PRODUCTS (1994)



Chemicals and Allied Products – Chemical moves are shown on Exhibit 5-8. These moves are typically:

- From the chemical production centers of Texas, Louisiana and other states;
- Nationwide;
- Equally split between rail and truck.

Seldom are these true intermodal moves, since the chemicals are typically moved to/from large storage facilities on both ends of the journey, although considerable volumes move by barge (with truck or rail used at the endpoints).

Petroleum or Coal Products – These moves are shown on Exhibit 5-9. This commodity grouping is processed fuels, by-products of processing, or derivatives. These flow maps suggest:

- Trucks are the dominant mode of carriage; and
- Flows are multi-directional, but there are still several principal origin-destination patterns.

Again, these are not true intermodal flows but rather start at a processing plant, ending at a warehouse or retailer, with less substantial intermodal exchange. There may be an intermodal component if movements also involve water or pipelines.

Exhibit 5-8

CHEMICALS OR ALLIED PRODUCTS (1994)

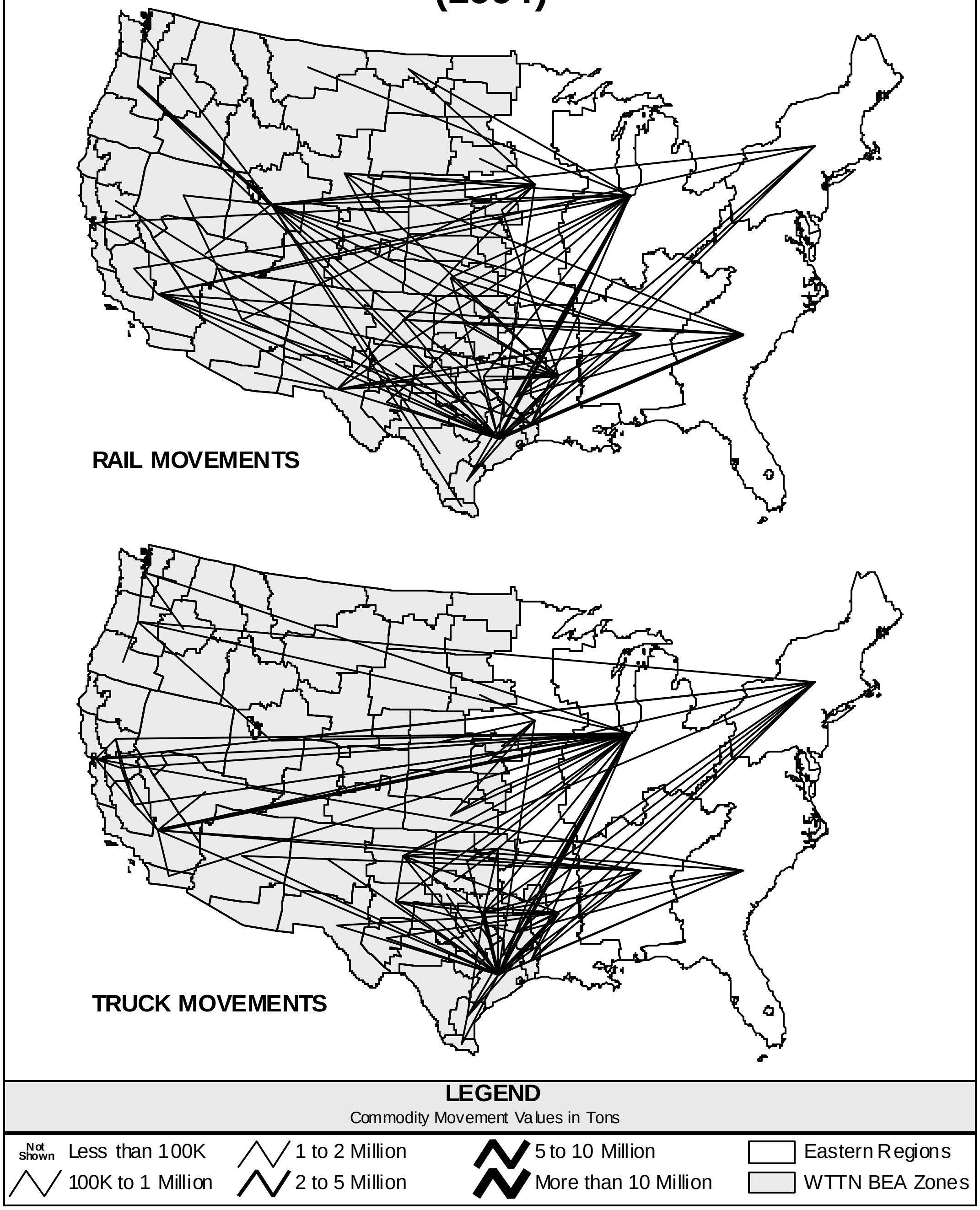
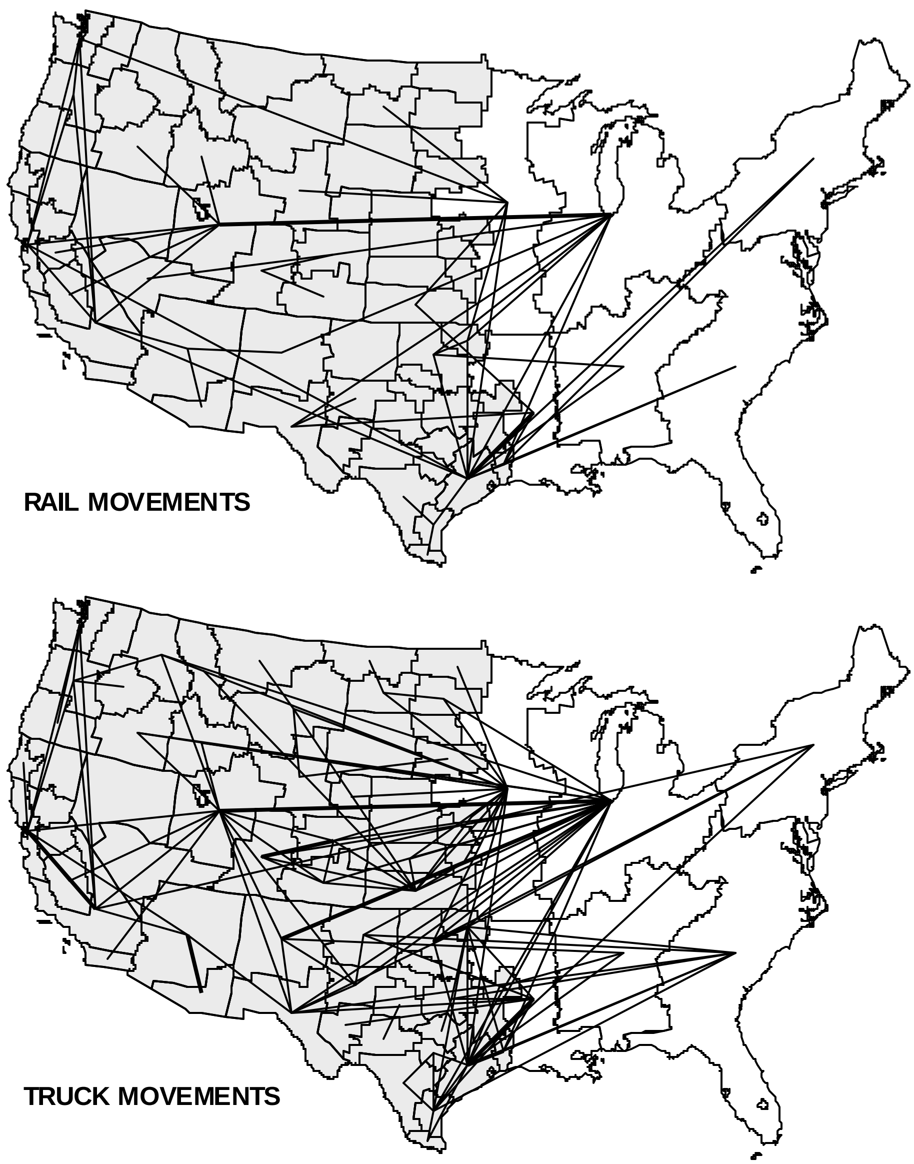


Exhibit 5-9

PETROLEUM OR COAL PRODUCTS (1994)



LEGEND

Commodity Movement Values in Tons

Not shown Less than 100K	1 to 2 Million	5 to 10 Million	Eastern Regions
100K to 1 Million	2 to 5 Million	More than 10 Million	WTTN BEA Zones

FEDERAL INTERMODAL CONNECTORS CONDITION AND INVESTMENT STUDY

TEA-21 directed that FHWA conduct a "freight connectors" study. FHWA developed a study scope and methodology and, working through each state, developed data relative to each intermodal connector to a major intermodal facility as defined by FHWA. The results of this federal study are not yet available.

The Federal Study

The federal work was intended to identify impediments for connector roads to major intermodal facilities in the U.S. Intermodal facilities were defined as "... facilities which provide for the transfer of freight or passengers from one mode to another." [1] Major freight facilities were identified primarily on the basis of volume criteria such as number of tons, trucks, or containers.

Intermodal Facility Criteria – The FHWA study attempted to focus on those intermodal facilities which generated and attracted large volumes of traffic. For example, the freight criteria used to identify and select the intermodal facilities to be included were:

- *Airports* – 100 trucks per day in each direction, or 100,000 tons per year arriving or departing;
- *Ports* – 50,000 TEUs (a TEU is a twenty-foot long container, or equivalent) per year, or more than 100 trucks per day in each direction. For bulk ports, 500,000 tons per year or 100 trucks per day.
- *Truck/Rail* – 50,000 TEUs per year or 100 trucks per day in each direction.

Identified Intermodal Facilities – In applying these criteria, the western states identified the numbers of intermodal facilities to be in the FHWA study listed on Exhibit 5-10.

[1] "Guidelines and Criteria for Identifying National Highway System Connections to Major Intermodal Terminals," FHWA, April 14, 1995.

Exhibit 5-10
U.S. DOT STUDY FREIGHT INTERMODAL FACILITIES IN THE WEST
April 24, 1998

	NUMBER OF FREIGHT INTERMODAL FACILITIES				
State	***Airports*** (1)	**Ports**	**Rail**	**Pipeline**	**Total**
Alaska	7	7	0	1	15
Arizona	3	0	0	0	3
California	13	13	16	4	46
Colorado	5	0	5	4	14
Hawaii	5	7	0	0	12
Idaho	1	1	0	1	3
Kansas	1	0	2	1	4
Montana	1	0	0	0	1
Nebraska	1	0	2	1	4
Nevada	2	0	0	0	2
New Mexico	1	0	0	0	1
North Dakota	2	0	0	0	2
Oklahoma	2	0	1	1	4
Oregon	3	9	5	1	18
South Dakota	2	0	2	0	4
Texas	23	19	14	14	70
Utah	1	0	2	2	5
Washington	14	11	6	0	31
Wyoming	0	0	0	0	0
TOTAL	**87**	**67**	**55**	**30**	**239**

(1) Many airports may have been designated due to their passenger volumes

SOURCE: Intermodal Connectors Condition and Investment Study, FHWA.

Intermodal Connector Data – FHWA then asked each state to prepare inventory information pertaining to the connector road which connects the intermodal facility with the nearest NHS highway. The data which each state prepared relative to each intermodal connector included:

- *Geometric and Physical Features* – pavement condition, road width, shoulders, turning radii, vertical clearances, weight limitations, drainage issues, etc.;
- *At-Grade Railroad Crossings* – numbers, warning devices, sight distance, rough crossing surface, delays, etc.;

- *Traffic Operations and Safety* – congestion, traffic signals, turning issues, queues at gates, accidents, problems at junction with NHS highway, truck route signs, etc.; and
- *Past and Programmed Investments* – including improvements made or planned.

Relevance to WTTN Study

The Intermodal Connectors Conditions and Investment Study being conducted by FHWA and the states is relevant to the WTTN study because:

- It is interested in the need for better access to intermodal facilities in the West, including those in the WTTN states;
- It assessed the intermodal facilities that were identified prior to the study;
- The NHS and the WTTN highways are, in some instances, one and the same; and
- It is comprehensive across the states, and represents work that the WTTN study need not duplicate.

However, the federal study departs from the WTTN study in that the FHWA study:

- Includes only roadway connectors; and
- Includes only the very largest intermodal facilities (excluded many other facilities important to local economies).

As a result, the FHWA study is useful to the WTTN intermodal work.

INTERMODAL FACILITIES IN THE WESTERN U.S.

In WTTN Phase I a modest effort was made to identify intermodal facilities that might be relevant to the WTTN issues. In Phase II, the effort was continued, in greater depth.

Intermodal Facilities Criteria and Process

General guidelines were developed which were used by the states to identify their intermodal facilities. These included:

- The WTTN intermodal facilities refer to freight and commodity facilities only; passengers and passenger facilities are not part of the WTTN study.
- Cargo Ports – The WTTN facilities include only public use ports (not private terminals) and public port authorities (that include either public or private terminals).
- Airports – Although cargo volumes are generally quite low relative to the other modes, the value of the cargo handled is quite high. Therefore the major airports are included in the study.
- Rail Intermodal Facilities – The study includes COFC/TOFC, grain elevator, reload, bulk transfer and other facilities that bring cargo in or out by water or truck (and are therefore intermodal). For purposes of the WTTN study, the selected grain elevators are large and capable of handling unit trains, or with high storage capacity or a high number of railcars shipped annually.
- The study excludes facilities that are truck-to-truck only. These are not “intermodal.”
- The study excludes facilities that involve significant processing or manufacturing, such as: a beer brewery, gasohol plant, timber yard or mill where logs are received and cut into lumber, corn sweetener plants, etc. These are processing facilities, not intermodal transportation facilities.
- The study excludes study facilities located at a source when the incoming cargo is not handled by over-the-road trucks. For example, the study excludes coal or ore loading facilities at the mine where off-road vehicles or conveyors are used to carry the material to the rail or truck or barge loading facilities.
- The study excludes liquid bulk centers wherein one mode is pipeline, since pipelines are not part of the WTTN study.

Due to the diverse economic composition and character of each state, it was decided essentially that each state, within the general guidelines, would identify the facilities that it wanted included in the study. Each state was requested to:

1. List intermodal facilities that it would like to include in the WTTN study;
2. Provide a rationale for including each facility; and
3. Provide information regarding the identified intermodal facilities.

Number and Type of Intermodal Facilities in the West

Exhibit 5-11 lists the number and type of intermodal facilities designated in this study. The general locations of these identified intermodal facilities are shown on the map on Exhibit 5-12. The precise numbers shown on the map may differ from those on the table, due to the need to simplify the map.

Exhibit 5-11
NUMBER OF INTERMODAL FACILITIES [(e)]
WTTN – 1999

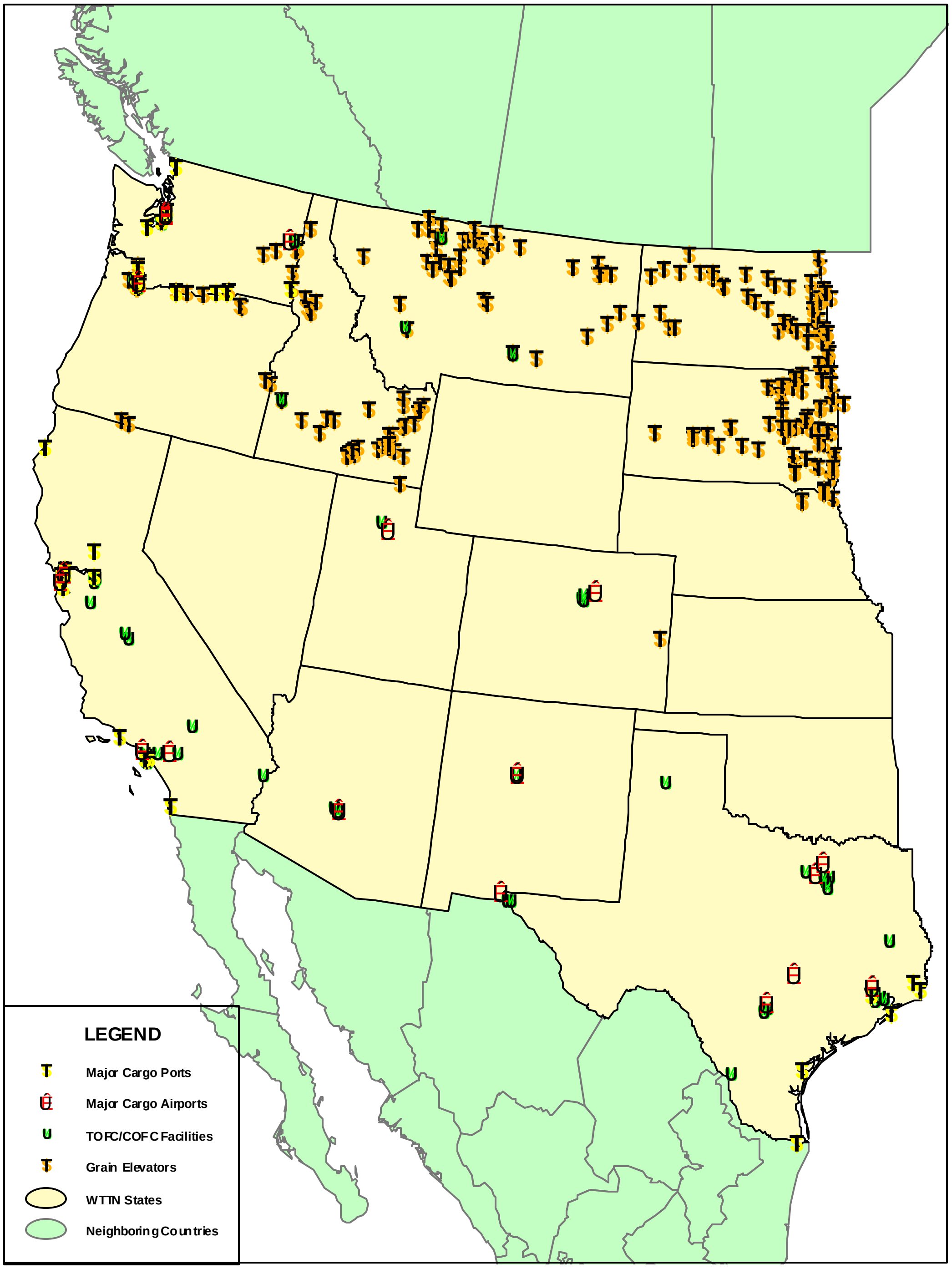
STATE	Air Ports	Grain Elevators	Railroad Intermodal	Water Ports	Other	Total
Arizona	1	0	2	0	0	3
California	4	0	16	11	0	31
Colorado	1	1	2	0	1[b]	5
Idaho	0	40	1	1	0	42
Montana	0	43	3	0	2[c]	48
New Mexico	2[a]	0	2[a]	0	0	4
North Dakota	0	54	0	0	0	54
Oregon	1	21	3	4	0	29
South Dakota	0	67	0	0	0	67
Texas	5	0	16	6	0	27
Utah	1	0	1	0	1[d]	3
Washington	3	8	4	6	1[b]	22
Wyoming	0	0	0	0	0	0
Total	**18**	**234**	**50**	**28**	**5**	**335**

SOURCE: Individual participating states.

a. One proposed.
b. Auto terminal on railroad.
c. Lumber and forest products.
d. Coal loading.
e. This exhibit only depicts the number of intermodal facilities designated for inclusion in the WTTN study. Some states chose not to include certain facility types (California and Texas chose not to include grain elevators). Other states (Nebraska, Kansas, New Mexico, Nevada) did not participate. Therefore, this exhibit is not an accurate estimate of intermodal facilities; it only identifies those selected for inclusion in the WTTN Phase II Study.

Exhibit 5-12

INTERMODAL FACILITIES IN THE WESTERN UNITED STATES



Designation Inconsistencies Among the States - While general criteria were used in identifying the intermodal facilities, the actual designations were developed by the individual states. As a result, there are two types of inconsistencies:

- Some states chose to designate some things (grain elevators, for example) and other states did not. As a result, for example, California and Colorado chose to not designate any (or many) grain elevators. This does not imply that no grain elevators exist; rather, only that the specific state chose not to include them.
- Four western states (Nevada, Nebraska, Oklahoma and Kansas) did not participate in WTTN-Phase II. Therefore, intermodal facilities for those states are not shown in the data and on the maps, although a few of the most obvious intermodal facilities are added (they are not all-inclusive for the non-participating states). Lack of an intermodal facility designation in these four states means nothing other than non-participation in the WTTN study.

AIRPORTS AS INTERMODAL FACILITIES

The West's airports, especially the large airports, are important cargo transport centers which are truly intermodal in nature, principally transferring cargo to/from airplanes from/to trucks. Cargo access into airports includes both truck access and airplane access; however, this WTTN study addresses only surface truck access as an intermodal issue.

Air Cargo Trends and Forecasts

One of the great growth industries of the last 20 years in the western U.S. (and elsewhere) is air cargo. Most of the western states' economies are now tied, directly or indirectly, to using the airplane and airport as a key form of freight transportation for highly valued commodities. And, national and international forecasts indicate that dependence on air cargo will increase in the future, possibly at an accelerating rate.

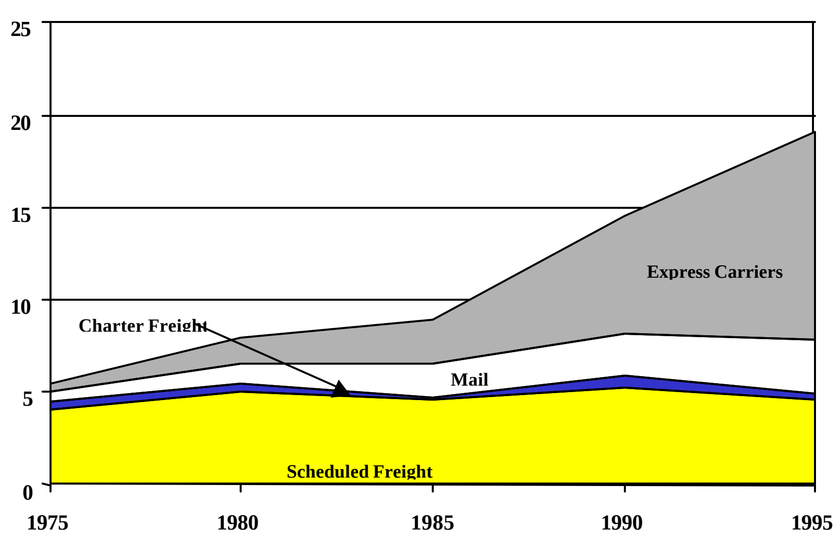
Air Cargo Types – There are three types of air cargo that are relevant to this WTTN study:

- *Air Freight* – Typically carried airport-to-airport by one company (airline), either as scheduled or charter service, in sometimes large shipments. This form of cargo in the western states (and worldwide) is stable, it is not growing.
- *Air Mail* – Carried for the national postal services, air mail is increasing at mild rates of growth.
- *Express Cargo* – Cargo (mainly small overnight parcels) carried by the integrated carriers (Federal Express, UPS, DHL, TNT/GD, others). This cargo form is escalating rapidly in use, and is forecast to keep growing in the western U.S. and worldwide.

Domestic Air Cargo – As shown on Exhibit 5-13, domestic U.S. air cargo has grown dramatically over the past 20 years. This exhibit suggests that:

- The growth in air cargo use is fueled almost entirely by the integrated express carriers (Federal Express, DHL, UPS, etc.);
- Air mail is growing but, as a share of the total, is declining; and
- Scheduled and charter conventional air freight is somewhat stable.

Exhibit 5-13
U.S. DOMESTIC AIR CARGO TRENDS
Revenue Tons Kilometers (billions)

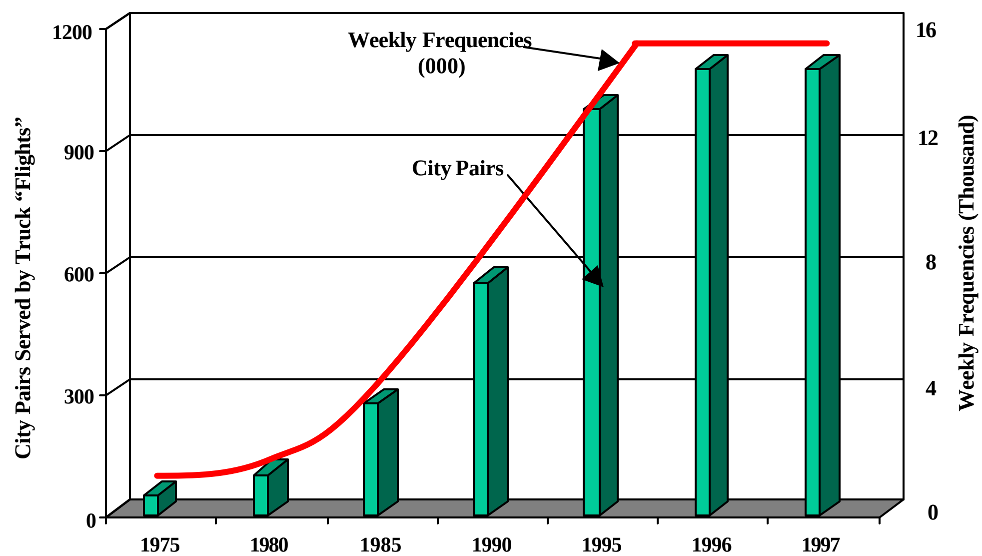


SOURCE: Boeing Commercial Airplane Group

U.S. domestic air express has been growing by 10% annually, a rate which might not be sustained as the market matures. If this is the case, the need to provide additional intermodal truck access capacity at the West's airports would appear to be chiefly for the integrated carriers – which are growing.

Truck to Truck "Flights" – A rather new form of "air cargo" is to use an integrated carrier who, for efficiency reasons, is able to carry some portions of the "air cargo" entirely by truck instead of by aircraft. As shown by Exhibit 5-14, this national trend increased dramatically in 1985-1995, but has since stabilized.

Exhibit 5-14
TRUCK TO TRUCK AIR CARGO TRENDS



SOURCE: Boeing Commercial Airplane Group

This type of carriage is generally less popular in most western states than in the East because of the vast distances involved between most western markets (great distances imply air must be used).

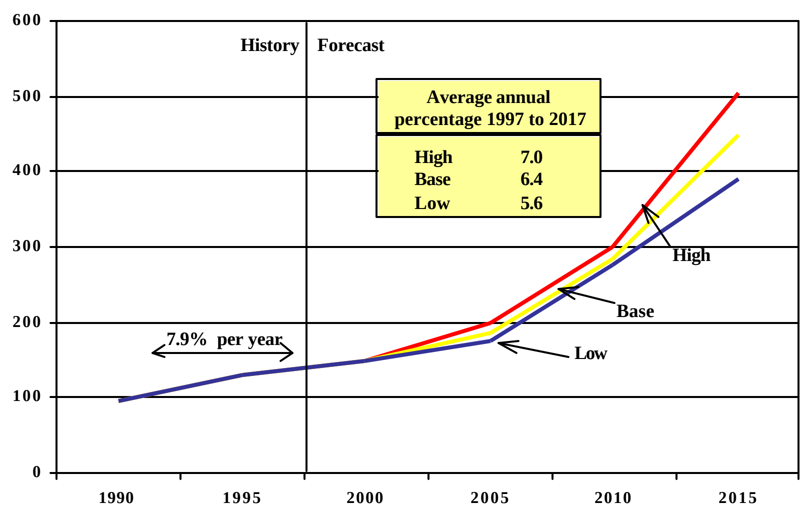
The implication of this truck carriage is that the need to carry the goods to/near the airports to sort (some interchanges to airplanes, some interchanges to other trucks) increases truck access needs to/from airports beyond simply the air cargo demands.

<u>North American Air Cargo Forecast</u> – Air cargo within Mexico-U.S.-Canada has been increasing by 5.6% per year. Available forecasts suggest:

- 5% per year growth through 2020;
- Transborder growth will be higher, at 7.7%;and
- Most of the growth will be express cargo.

<u>International Air Cargo</u> – Worldwide, air cargo is forecast to increase faster than North American air cargo. This means that international cargo through the West's airports will likely continue and could accelerate. Exhibit 5-15 indicates that air cargo worldwide could more than triple in the next 20 years.

Exhibit 5-15
WORLD AIR CARGO FORECAST
RTKs (billions)

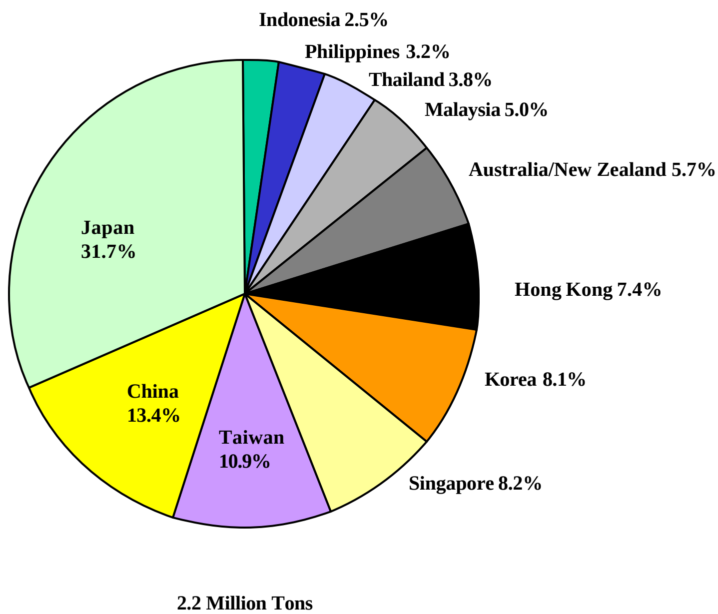


SOURCE: Boeing Commercial Airplane Group

The West's airports have traditionally served as the U.S. gateways to Asia. This should continue, although today's longer range aircraft now allow Chicago, Atlanta and even New York to now offer direct flights to Asia. This could possibly erode the West's airport tonnage statistics.

Expected to lead the way in terms of international air cargo growth will be the Asian economies (despite the recent economic downturns); the transpacific market in 1997 grew by 12.3% in 1997, and then evaporated in 1998. The current Asian market shares for U.S. air cargo are shown on Exhibit 5-16. Japan is the major Asian trading partner and, with economic recovery, should retain its position in the near tern. The China market will eventually be huge, and the others of Asia should recover as their economies recover.

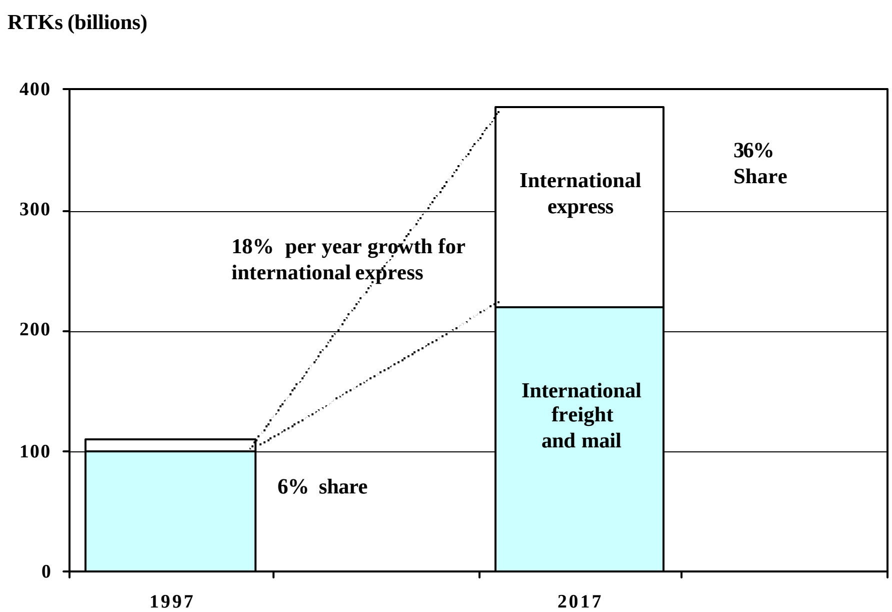
Exhibit 5-16
ASIAN - USA AIR CARGO SHARES



SOURCE: Boeing Commercial Airplane Group

International Express Forecasts – The U.S. has led the world in moving toward the use of the integrated carriers to carry express packages – but the world is expected to quickly catch up. Exhibit 5-17 shows that express has only 6% of the international air cargo traffic market, but is expected to have a 36% share by the year 2017. Also shown, total international cargo will increase dramatically. This is most encouraging, and indicates that states and airports desiring to be a part of this growth will need to invest in airports, air cargo facilities, and airport access.

Exhibit 5-17
INTERNATIONAL AIR CARGO FORECASTS



SOURCE: Boeing Commercial Airplane Group

Near Term Air Cargo Outlook

These statistics present an enthusiastic picture of air cargo growth – in the long term. The immediate term, however, is not nearly so optimistic.

Asian Economic Crisis – Beginning in 1997 and continuing into 1999, the Asian economies have suffered due to financial and other problems. Recessions have occurred in Japan and Korea, currency devaluations in Thailand, and political instability in Indonesia. Statistics indicate that international trade, and especially air cargo, closely follow the health of the national economies. When the economies flounder, air cargo flounders.

Implications for the West's Airports – The year 1998 was not a good one for the West's major airports. Rather than experience air cargo growth, airports were pleased to "hold their own." The Asian downturn is part of the reason, the other part includes the new "open skies" policies and the longer range aircraft so that Asia can now be served by Chicago, Atlanta, and elsewhere.

In 1998 the most noticeable adverse air cargo trends occurred in U.S. exports to Asia carried by air through the West's airports. U.S. air cargo exports to Southeast Asia plunged by over 20% in 1998, down from 25% growth in 1997. Example results:

- Denver International Airport has not been able to attract significant Asian air cargo business;
- Portland International Airport experienced losses in Asian air cargo, and air cargo carriers cancelled some flights to Asia;
- Sea Tac, on the other hand, witnessed Asian air cargo growth in 1998; and
- Directional imbalances (reduced exports to Asia) increased.

While international traffic stalled in 1998, domestic traffic continued to increase – especially by the integrated express haulers.

NAFTA Impact on Air Cargo – Of total North American international cross border air cargo involving the U.S., three-quarters is with Canada, one-quarter with Mexico, combined totaling 540,000 tons. Air cargo trade between the U.S. and Canada/Mexico increased by 18% between 1996 and 1997, but is now expected to more closely follow economic growth in the three countries.

The West's Cargo Airports

Air cargo utilizing the West's airports has been increasing even faster than has air cargo in the U.S. as a whole. This is due to both the economic growth rates in the West, and the historical growth for the Asian economies.

Air Cargo Growth by State – Exhibit 5-18 presents air cargo tonnage by state.

Exhibit 5-18
AIR CARGO TRENDS BY STATE

State	Metric Tons [1] 1990	Metric Tons [1] 1997	Percent Change
Arizona	131,500	350,100	166.2%
California	2,377,700	4,101,600	72.5%
Colorado	283,200	459,900	62.4%
Idaho	13,400	32,700	144.0%
Kansas	18,800	38,000	102.1%
Nebraska	50,300	99,300	97.4%
Nevada	30,300	71,300	135.3%
New Mexico	35,500	80,700	127.3%
North Dakota	1,900	2,000	5.3%
Oklahoma	33,300	50,100	50.5%
Oregon	141,500	284,200	100.8%
South Dakota	7,100	30,100	323.9%
Texas	840,400	1,349,900	60.6%
Utah	115,700	253,200	118.8%
Washington	245,100	393,800	60.7%
Wyoming	400	7,300	1725.0%
Total	**4,326,100**	**7,604,200**	**75.8%**

(1) Airports listed on Exhibit 5-19.

SOURCE: Airports Council International.

As shown on Exhibit 5-18:

- California and Texas, with their huge airports and economies, dominate the West's air cargo tonnage;
- Total air cargo in the West increased by 75.8% 1990-1997, a very impressive growth rate;
- Air cargo growth occurred in every western state; and
- Nine states witnessed growth rates of in excess of 100%.

Air Cargo by Airport – Exhibit 5-19 lists 34 western airports and their cargo tonnages. Interestingly, every listed airport is experiencing air cargo growth. Over half experienced more than a doubling of air cargo tonnage from 1990 to 1997.

Principal Air Cargo Airports – As part of the WTTN study, the state DOTs identified 18 airports as the principal airports with which ground access for cargo may be an issue. These are shown in bold on Exhibit 5-19. For each, the Federal Intermodal Connector Conditions and Investment Study identifier code is also shown. These 18 airports handle over 90% of the West's total air cargo.

All WTTN principal cargo airports are shown in Exhibit 5-20.

Airport Access Issues

Access into airports is overwhelmingly a highway/roadway issue, and is viewed by most people as an automobile access issue (congestion, queuing, parking, signage, rental cars, etc.). But since air cargo has increased so much in recent years, and as many more pickup and delivery trucks are added to the airport access problem, the issue of truck access to the airports has been increasing in importance at many of the West's airports. In fact, many of the West's airports have grown to the point where they could now be viewed as industrial sites, with huge numbers of trucks of all sizes coming and going.

Exhibit 5-19
AIR CARGO BY WEST'S MAJOR CARGO AIRPORTS

State	Associated City	Metic Tons 1990	Metic Tons 1997	Percent Change	Federal Intermodal Connector (1)
Arizona					
	* **Phoenix**	114,200	314,900	175.7%	AZ1A 1
	Tucson	17,300	35,200	103.5%	
California					
	Long Beach	18,200	31,500	73.1%	
	* **Los Angeles**	1,164,900	1,872,900	60.8%	
	* **Oakland**	212,700	678,100	218.8%	
	* **Ontario**	247,300	418,800	69.3%	
	Sacramento	29,500	76,000	157.6%	
	San Diego	52,800	112,900	113.8%	
	* **San Francisco**	567,200	780,000	37.5%	
	San Jose	83,200	111,300	33.8%	
	Santa Ana	1,900	20,100	957.9%	
Colorado					
	Colorado Springs	3,100	22,700	632.3%	
	* **Denver**	280,100	437,200	56.1%	CO22A 1
Idaho					
	Boise	13,400	32,700	144.0%	
Kansas					
	Wichita	18,800	38,000	102.1%	
Nebraska					
	Omaha	50,300	99,300	97.4%	
Nevada					
	Las Vegas	30,300	71,300	135.3%	
	Reno	15,800	40,000	153.2%	
New Mexico					
	* **Albuquerque**	35,500	80,700	127.3%	NM1A 1
	* **Santa Teresa** (2)				No
North Dakota					
	Fargo	1,900	2,000	5.3%	
Oklahoma					
	Oklahoma City	33,300	50,100	50.5%	
Oregon					
	* **Portland**	141,500	284,200	100.8%	OR8A 1, 2, 3, 4
South Dakota					
	Sioux Falls	7,100	30,100	323.9%	
Texas					
	* **Austin**	35,500	91,000	156.3%	TX5A 1
	* **Alliance**	NA	NA	NA	
	* **Dallas-Ft. Worth**	556,700	810,700	45.6%	TX109A 1
	* **Houston Int**	223,000	328,300	47.2%	TX73A 1
	* **San Antonio**	25,200	119,900	375.8%	TX33A 1
Utah					
	* **Salt Lake City**	115,700	253,200	118.8%	UT1A 1
Washington					
	* **Seattle-Tacoma**	245,100	393,800	60.7%	WA41A 1
	* **Boeing Field**	NA	NA	NA	No
	* **Spokane Int.**	NA	NA	NA	WA3A 1
Wyoming					
	Casper	400	7,300	1725.0%	

* Indicates principal cargo airport in WTTN study.
(1) Principal WTTN cargo airport listed as included in the Intermodal Connectors Conditions Investment Study, by FHWA, August 7, 1998.
(2) Proposed Airport.
NA: Data not available

Source: Airports Council International

Exhibit 5-20
MAJOR CARGO AIRPORTS

Changing Nature of Air Cargo – Air cargo is one of the most dynamically changing forms of freight transportation in the western states. This is exhibited by:

- *Emergence of "Integrated" Carriers* – Air cargo has evolved from principally air mail to larger palletized and then containerized airport-to-airport cargo and now to the emergence of the integrated carriers. These include Federal Express, United Parcel Service, TNT, DHL, and others. They are integrated in the sense that they pickup, carry, and deliver the package, generally on a time sensitive and overnight basis.
- *Growth of Air Cargo* – Air cargo, especially of the overnight-integrated type, is rapidly growing, as shown below.

Changing Nature of Truck Trips Into Airports – As the cargo types and volumes carried to/from airports has changed, so have the trucks. For example:

- *Pickup and Delivery Truck Growth* – The types of trucks serving airports has changed to the point where they are now overwhelmingly parcel type trucks, sometimes in great numbers, always on a very constrained time sensitive basis. Access road routings and congestion on the roadway approaches to the airports therefore are becoming more of a problem at some western airports.
- *Service and Catering Trucks* – Many of the trucks arriving/departing are not carrying air cargo but are instead service trucks, e.g., telephone repair, or trucks carrying vendor supplies to the terminal, e.g., food for restaurant, or catering trucks, or others. These trucks are not destined for the airport's cargo terminals but are instead intermingled with arriving passenger traffic.
- *Truck-to-Truck Transfers* – The integrated carriers site their terminals at the airports (either on airport property or in proximity to the airport). Yet much of the cargo that people think is going by overnight air is actually overnight truck. Therefore, there are increasing volumes of overnight-integrated parcels whose trucks go to/from the airports, but whose freight is simply transferred at the airport from one truck to another.

Airport Locations – As places to which cargo can be readily carried by truck, not all airports are ideally located. Some airports are essentially located in the city, surrounded by development and served by an existing surface street system through which trucks destined for the airport must meander. Phoenix Sky Harbor Airport, San Diego, and San Antonio International, for example, have complex street systems through which trucks must maneuver.

Other airports are at new, but distant, locations. Denver International Airport and Dallas Ft. Worth International Airport are examples wherein the access highways are well designed for both auto and truck access, with the key access issue being one of long distance from the city.

Multiplicity of Access Points and Multiple Cargo Facility Locations – The largest western airports have numerous cargo facility locations and numerous route options by which trucks can access the airports from the WTTN corridors. For example, Los Angeles International Airport has cargo facilities spread over much of the airport, and also has more than a dozen surface street options for truck drivers to chose from in accessing the airport from the nearest WTTN corridor (I-5). This means that truck routing guides, truck route designations, etc., have limited potential at some of the West's airport.

Passenger Access Priority – In planning access into the airports, priority is typically given to passenger access since that is the perceived overwhelming need at most of the West's airports. Truck access is typically viewed as a secondary problem, and often one in which the desire is to route the trucks away from the passenger access.

Large Airports/Smaller Airports Access – The West's largest airports have very significant truck access needs and issues. These include, for example, Los Angeles and San Francisco International, Oakland, Portland, Ontario, Sea Tac, and others. The West's smaller airports have significantly less of a truck access issue. For example, Colorado Springs, Austin, Boise, Tucson, etc., have truck access issues only insofar as the trucks intermingle with car traffic and, at times, there is a measure of congestion.

Lack of Good, Designated Airport Connectors – In an ideal world, there would be good, high capacity designated roads capable of connecting each airport's cargo facilities with the NHS and/or WTTN corridors. Due to location, history, funding and other reasons, few of the West's airports have such access opportunities, especially for trucks. This is a problem that can only get worse, as airport use (passengers and cargo) continues to increase relative to roadway capacity.

Solutions and Benefits of Improved Cargo Access to Airports

The issue of cargo access to the West's airports is a trucking and roadway issue, as described above. The extent of the issue varies widely from airport to airport.

Menu of Solutions – Each airport has a master plan, and most of the master plans include access as one of the plan elements. Solution types, from the cargo/truck access perspective, include:

- Isolate cargo truck issues and access from passenger issues and access, by
  - Placing cargo facilities away from the passenger terminal;
  - Designating other (non-passenger terminal) roads as truck access roads;
  - Encouraging non-peak period access by trucks;
  - Managing existing capacity better or expanding capacity on roads leading to the airport's air cargo facilities
- Recognize truck characteristics in the roadway planning and roadway design process, including:
  - Heavy truck weights;
  - Truck turning radii;
  - Truck peaking characteristics; and
  - Queues at airport cargo gates.
- Improve truck routing to airports by
  - Planning of truck routes;
  - Recognizing and resolving land use conflicts; and
  - Incorporating proper truck route signage.
- Improve the ways that truck access is included in the airport and jurisdictional transportation planning process by
  - Explicitly addressing truck cargo access issues;
  - Recognizing that some trucks are cargo trucks, some are service (non-cargo) trucks. Both have airport access needs; and
  - Developing a truck access plan for each airport that is perceived to have truck access issues.

Potential Benefits – The benefits of resolving the truck access issues into the West's airports are many, and include not only the benefits to the air cargo community but also benefits to air passengers, the surrounding community, and even the local economy. For example:

- *Increasing Air Cargo* – The forecasts call for air cargo to triple in 20 years, due principally to express freight. Many airports therefore need to increase their cargo access capabilities. Also, some will take advantage by attracting new integrated cargo hubs. Ontario International Airport attracted UPS; other integrated carriers will be attracted to other airports – if the airports have the necessary capacity features needed.
- *On-Time Delivery* – If the overnight carriers are to meet their deadlines, no component in the transport link can be weak. Airport access must be good, for the freight industry to benefit.
- *Local Shippers/Receivers* – If deliveries are on time, local industry benefits through reliability.
- *Local Economy* – If local industry benefits, the local economy benefits due to increased production, jobs, tax base and value added.
- *Passengers* – If passenger access does not compete for space on the same access roads as trucks, the arriving/departing passengers benefit.

Clearly, the airports of the West need to be viewed as important intermodal facilities for cargo. They are not just passenger facilities.

GRAIN ELEVATORS AS INTERMODAL FACILITIES

The western states vary from state to state and sub-region to sub-region in terms of what is perceived to constitute an important intermodal facility and intermodal issue. Within that context, the intermodal facility type of the greatest importance to some states is the grain elevator, as reflected in those state designations of intermodal facilities. The economic well-being of vast portions of North Dakota and South Dakota, Montana, Idaho, and other states is dependent on agriculture (principally grains), and agriculture depends on the ability to efficiently move large quantities of grains (principally wheat) when and where needed. No where in the plains states is the tie between the economy, the product and the transportation system more pronounced than in the grain business.

Furthermore, the U.S. is the largest exporter of grains in the world. This fact means that the national economy, and the world's need for basic foodstuffs, have a significant stake in the U.S. grain transportation system.

Wheat as a Basis of Some States' Economy

Agriculture is very important to the Upper Great Plains region. Within that, wheat is one of the principal cash crops that can be exported to the rest of the U.S. and to the world. As such, it is a cash crop of immense importance.

Wheat Production – Exhibit 5-21 lists wheat production trends for two regions: the Northern Plains region and the Pacific Northwest region. Between the two regions, the Northern Plains out produces the Pacific Northwest by nearly a two to one ratio for the years 1993/94 to 1996/97. When comparing total production between these same years, both regions show only modest gains: 9% (Northern Plains), 5% (Pacific Northwest). These wheat trends have a number of WTTN implications:

- Production (harvest) is not increasing significantly. Therefore, transportation capacity enhancement may not be a significant issue;
- The issue has more to do with the retention of needed direct access rail service and, in some cases, barge access;
- The need for transportation to be increasingly efficient, to ensure the competitiveness of the West's grain in the global marketplace is a significant issue; and
- The need to be able to react to abrupt marketplace changes, by being able to ship to a diverse set of market destinations, is also important.

Exhibit 5-21
WHEAT PRODUCTION TRENDS BY REGION
Bushels (Millions)

	1993/94	1994/95	1995/96	1996/97	Perc. Chng. 93/94 - 96/97
Northern Plains (1)	660	628	595	717	9%
Pacific Northwest	353	293	318	369	5%

(1) See Exhibit 5-22 for the states in each region.
Source: USDA and Wilbur Smith Associates

Exhibit 5-22 lists wheat production by state. The West produces almost one billion bushels annually.

Exhibit 5-22
WHEAT PRODUCTION BY STATE
Bushels (Millions)

	1998	**Percent of Total**
Northern Plains		
Montana	169	17%
North Dakota	311	32%
South Dakota	121	12%
Wyoming	68	7%
Total	**669**	**68%**
Pacific Northwest		
Idaho	102	10%
Oregon	57	6%
Washington	157	16%
Total	**316**	**32%**
Total Wheat Production	**985**	**100%**

Source: USDA

Wheat Movements – The wheat of this production region is transported in bulk to distant markets throughout the U.S. and the world. These long distance hauls are handled principally by unit grain trains, the Mississippi River system, and the Columbia-Snake River system. Much of the wheat is exported, either through the major West Coast bulk ports such as Portland, or via New Orleans. The grain markets are very competitive, and movements are seasonal. The ability to move large volumes in limited time periods is the key to the success of the grain sale, and a key to the economic well being of the grain producing regions of the U.S.

The Grain Elevators

The grain elevators represent one link in the total grain distribution system which includes:

- Store on farm or at country elevator;
- Truck to elevators;
- Load into railcars or barges or trucks;
- Transport to port or processing plant; and
- Transfer to barge or ship.

The act of transporting grain therefore comprises:

- Trucking, from farm to elevator, over the collector system of roads which includes everything from gravel section line roads to Interstate Highways and other WTTN highways;
- Carriage by truck or rail, over the branch line collector system and/or the railroad main line system; and
- Carriage by barge or ship, especially to export markets.

At intermediate points are the intermodal and non-intermodal grain elevators. Seven of the participating WTTN states felt that grain elevators are so important as intermodal facilities as to include them in this study (several other states that have grain elevators chose to not include them in the WTTN study).

Elevators Included – The map on Exhibit 5-23 together with the listing on Exhibit 5-24, identify the 234 grain elevators identified by the participating states as key relevant intermodal facilities. The states identified only those elevators that are large operations which are mainstays to the regional economy. The identified elevators generally met the following criteria:

- On roads and a rail line or navigable waterway; and
- Handle at least 500 rail carloads per year, or equivalent; or
- Capable of handling unit trains, with most able to handle 50-car trains or more, although a few handle 25-car unit trains; or
- Handle at least 500,000 bushels of grain.

Exhibit 5-23
WTTN INTERMODAL GRAIN ELEVATORS

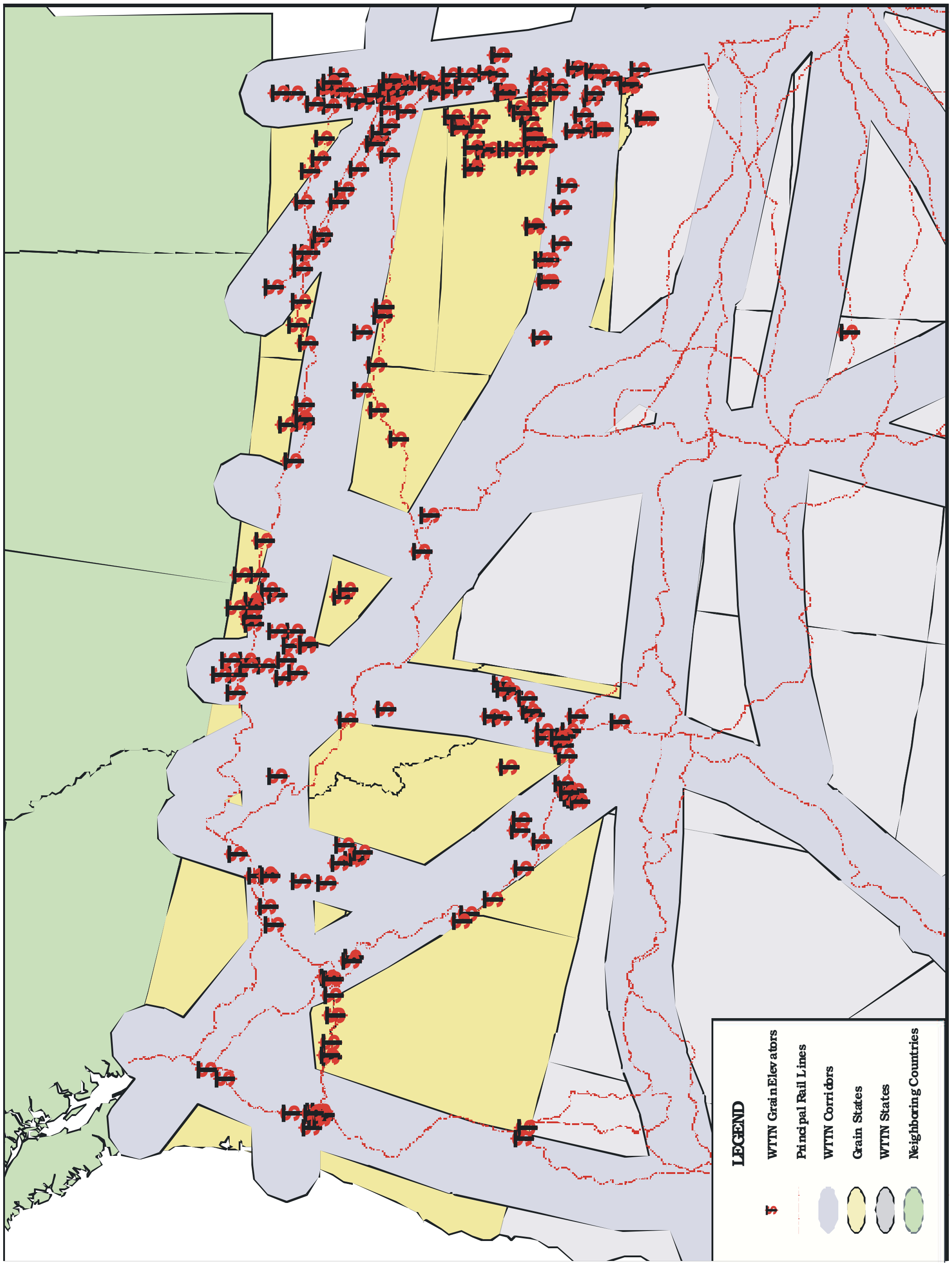


Exhibit 5-24
WTTN GRAIN ELEVATORS

State	Location	Elevators	Criterion	Federal Int. Connector (2)
South Dakota	Aberdeen	4	>500 carloads/yr	No
	Mansfield	1	>500 carloads/yr	No
	Mellette	1	>500 carloads/yr	No
	Redfield	1	>500 carloads/yr	No
	Tulare	1	>500 carloads/yr	No
	Wolsey	1	>500 carloads/yr	No
	Alpena	1	>500 carloads/yr	No
	Mitchell	1	>500 carloads/yr	No
	Dimock	1	>500 carloads/yr	No
	Beardsley	1	>500 carloads/yr	No
	Tripp	1	>500 carloads/yr	No
	Vermillion	3	>500 carloads/yr	No
	Jefferson	1	>500 carloads/yr	No
	Huron	1	>500 carloads/yr	No
	Yale	1	>500 carloads/yr	No
	Bancroft	1	>500 carloads/yr	No
	Willow Lake	1	>500 carloads/yr	No
	Vienna	1	>500 carloads/yr	No
	Watertown	4	>500 carloads/yr	No
	Labolt	1	>500 carloads/yr	No
	Sisseton	1	>500 carloads/yr	No
	Milbank	1	>500 carloads/yr	No
	Claire City	1	>500 carloads/yr	No
	Rosholt	1	>500 carloads/yr	No
	Lake Preston	1	>500 carloads/yr	No
	Arlington	1	>500 carloads/yr	No
	Brookings	2	>500 carloads/yr	No
	Aurora	1	>500 carloads/yr	No
	Madison	2	>500 carloads/yr	No
	Wentworth	1	>500 carloads/yr	No
	Corson	1	>500 carloads/yr	No
	Garretson	1	>500 carloads/yr	No
	Emery	1	>500 carloads/yr	No
	Marion	1	>500 carloads/yr	SD17R 1
	Parker	1	>500 carloads/yr	No
	Canton	2	>500 carloads/yr	SD19R 1
	Beresford	1	>500 carloads/yr	No
	Ipswich	1	>500 carloads/yr	No
	Craven	1	>500 carloads/yr	No
	Groton	1	>500 carloads/yr	No
	Bristol	1	>500 carloads/yr	No
	St. Lawrence	1	>500 carloads/yr	No

Exhibit 5-24
WTTN GRAIN ELEVATORS

State	Location	Elevators	Criterion	Federal Int. Connector (2)
South Dakota (cont'd)	Pierre	1	>500 carloads/yr	No
	Ft. Pierre	1	>500 carloads/yr	No
	Midland	2	>500 carloads/yr	No
	Philip	2	>500 carloads/yr	No
	Claremont	2	>500 carloads/yr	No
	Amherst	1	>500 carloads/yr	No
	Britton	2	>500 carloads/yr	No
	Murdo	1	>500 carloads/yr	No
	Kennebec	1	>500 carloads/yr	No
	Chamberlain	1	>500 carloads/yr	No
Montana	Hardin	1	≥ 52-car track	No
	Harlem	1	≥ 52-car track	No
	Great Falls	3	≥ 52-car track	No
	Big Sandy	1	≥ 52-car track	No
	Carter	2	≥ 52-car track	No
	Fort Benton	1	≥ 52-car track	No
	Miles City	1	≥ 52-car track	No
	Glendive	1	≥ 52-car track	No
	Moore	1	≥ 52-car track	No
	Cut Bank	2	≥ 52-car track	No
	Meriwether	1	≥ 52-car track	No
	Box Elder	1	≥ 52-car track	No
	Gildford	1	≥ 52-car track	No
	Havre	2	≥ 52-car track	No
	Hingham	1	≥ 52-car track	No
	Rudyard	2	≥ 52-car track	No
	Moccasin	1	≥ 52-car track	No
	Chester	1	≥ 52-car track	No
	Joplin	1	≥ 52-car track	No
	Conrad	2	≥ 52-car track	No
	Fallon	1	26-car track	No
	Macon	1	≥ 52-car track	No
	Poplar	1	≥ 52-car track	No
	Wolf Point	3	≥ 52-car track	No
	Butte	1	≥ 52-car track	No
	Choteau	1	≥ 52-car track	No
	Dutton	1	≥ 52-car track	No
	Fairfield	1	≥ 52-car track	No
	Shelby	2	≥ 52-car track	No
	Glasgow	1	≥ 52-car track	No
	Billings	1	≥ 52-car track	No
	Broadview	1	≥ 52-car track	No

Exhibit 5-24
WTTN GRAIN ELEVATORS

State	Location	Elevators	Criterion	Federal Int. Connector (2)
Montana (cont'd.)	Huntley	1	10-car track	No
North Dakota	Devils Lake	1	≥ 100-car track	
	Colfax	1	≥ 100-car track	
	Jamestown	1	≥ 100-car track	
	Gladstone	1	≥ 100-car track	
	Voltaire	1	≥ 100-car track	
	Joliette	1	≥ 75-car track	
	Minot	1	≥ 75-car track	
	Hankinson	1	≥ 50-car track	
	Lakota	1	≥ 50-car track	
	Valley City	1	≥ 50-car track	
	Casselton	1	≥ 50-car track	
	Arvilla	1	≥ 50-car track	
	Williston	1	≥ 50-car track	
	Churchs Ferry	1	≥ 50-car track	
	Amenia	1	≥ 50-car track	
	Portland	1	≥ 50-car track	
	Buffalo	1	≥ 50-car track	
	Hunter	1	≥ 50-car track	
	Thompson	1	≥ 50-car track	
	Clifford	1	≥ 50-car track	
	West Fargo	1	≥ 50-car track	
	Prosper	1	≥ 50-car track	
	Lidgerwood	1	≥ 50-car track	
	Berthold	1	≥ 50-car track	
	Kindred	1	≥ 50-car track	
	Reynolds	1	≥ 50-car track	
	Mooreton	1	≥ 50-car track	
	Portland	1	≥ 50-car track	
	Horace	1	≥ 50-car track	
	Durbin	1	≥ 50-car track	
	Buffalo	1	≥ 50-car track	
	Galchutt	1	≥ 50-car track	
	Grand Forks	3	≥ 50-car track	
	Minot	2	≥ 50-car track	
	Carrington	1	≥ 50-car track	
	Rugby	1	≥ 50-car track	
	Dickinson	1	≥ 50-car track	
	Rogers	1	≥ 50-car track	
	Beach	1	≥ 50-car track	
	Forest River	1	≥ 50-car track	
	Ross	1	≥ 50-car track	

Exhibit 5-24
WTTN GRAIN ELEVATORS

State	Location	Elevators	Criterion	Federal Int. Connector (2)
North Dakota (cont'd)	Ray	1	≥ 50-car track	
	Drayton	1	≥ 50-car track	
	Valley City	1	≥ 50-car track	
	Enderlin	1	≥ 50-car track	
	Velva	1	≥ 50-car track	
	Fessenden	1	≥ 50-car track	
	Harvey	1	≥ 50-car track	
	Wimbledon	1	≥ 50-car track	
	Bowbells	1	≥ 50-car track	
	Leal	1	≥ 50-car track	
Oregon	Portland (3)	7	≥ 500,000 bu	OR13, 14, 15, 24P 1
	North Plains	1	≥ 500,000 bu	No
	Merrill	1	≥ 500,000 bu	No
	Worden	1	≥ 500,000 bu	No
	The Dalles	2	≥ 500,000 bu	No
	Nyssa	1	≥ 500,000 bu	No
	Umatilla	1	≥ 500,000 bu	No
	Vale	1	≥ 500,000 bu	No
	Arlington	1	≥ 500,000 bu	No
	Boardman	2	≥ 500,000 bu	OR2P 1
	Biggs	1	≥ 500,000 bu	No
	Pendelton	1	≥ 500,000 bu	No
	Mission	1	≥ 500,000 bu	No
Idaho	Acquia	2	≥ 25-car track	No
	American Falls	1	≥ 25-car track	No
	Ashton	2	≥ 25-car track	No
	Bancroft	1	≥ 25-car track	No
	Bussell (Dubois) (1)	1	≥ 25-car track	No
	Beetville (Burley) (1)	1	≥ 25-car track	No
	Bliss	1	≥ 100-car track	No
	Burley	1	≥ 25-car track	No
	Camas (Dubois) (1)	1	≥ 25-car track	No
	Collins (Blackfoot) (1)	1	≥ 25-car track	No
	Cottonwood	1	≥ 25-car track	No
	Craigmont	1	≥ 25-car track	No
	Declo	1	≥ 25-car track	No
	Fenn	1	≥ 25-car track	No
	Grangeville	1	≥ 25-car track	No
	Idaho Falls	1	≥ 50-car track	No
	Inkum	1	≥ 25-car track	No
Idaho (cont'd.)	Kamiah	1	≥ 25-car track	No

Exhibit 5-24
WTTN GRAIN ELEVATORS

State	Location	Elevators	Criterion	Federal Int. Connector (2)
	Lewiston	3	≥ 50-car track	No
	Lincoln (Idaho Falls) (1)	1	≥ 50-car track	No
	Michaud (Pocatello) (1)	2	≥ 25-car track	No
	Minidoka	2	≥ 25-car track	No
	Mountain Home	1	≥ 25-car track	No
	Nampa	1	≥ 25-car track	No
	Newdale	3	≥ 25-car track	No
	North Kenyun (Burley) (1)	2	≥ 25-car track	No
	Pocatello	1	≥ 50-car track	No
	Rockford (Blackfoot) (1)	1	≥ 25-car track	No
	Rupert	2	≥ 25-car track	No
	Tybee (Pocatello) (1)	1	≥ 25-car track	No
Washington	Ritzville	1	≥ 50 cars	No
	Sprague	1	≥ 50 cars	No
	Kalama (3)	2	≥ 50 cars	WA12P 1
	Vancouver (3)	1	≥ 50 cars	WA11P 1
	Tacoma (3)	1	≥ 50 cars	WA44P 1
	Seattle (Pier 86) (3)	1	≥ 50 cars	WA45P 1
	Plymouth	1	≥ 50 cars	WA13P 1
Colorado	Cheyenne Wells	1	Unit Train Capability	No

(1) Nearest town.
(2) One or more roads to/from the elevator has been designated as a National Highway System Connector in the 1999 Intermodal Connectors Condition and Investment Study, FHWA.
(3) Rail-Water Export Elevators.

Source: The individual participating WTTN states. Elevators not on this list were not selected by the participating states.

Access Characteristics – All of these elevators use trucks to collect the grains, with those trucks travelling on different combinations of roadways. Most of these elevators use unit grain trains and/or barges/ships to carry the product to its longer distance destination. The elevators have the ability to store the grains and to aggregate/sort it for its outward move.

Grain Elevator Access Issues

These grain elevators, and consequently the entire grain business including each farmer, are confronted with a complex transportation system which involves quite a number of problems of relevance to the WTTN study. One of these problems is access to the grain elevator.

Evolving Nature of Grain Transportation – Over the past decade or so the single-unit farm truck has given way to the multi-axle combination tractor-trailer. The use of larger grain trucks means that the loads per truck are as much as ten times heavier than they once were. Yet, these large, modern trucks carrying the nation's grain supply are often traveling on rural gravel roads, and on rural paved roads with inadequate pavements and/or bridges connecting to paved roads (for short and high-density segments) to roads that access the grain elevators. As railroad branch lines and country elevators are closed, the truck loads are also carried further (to fewer but larger elevators or terminals), and the damage to the roads is potentially greater.

Another aspect of the greater distance is that farmers that are near the large elevators, or that have good access to the large unit train elevators, have a competitive advantage over those which were served by now closed elevators. Those farms more distant to the large grain elevators are at a competitive disadvantage.

Evolving Nature of Railway Grain Transportation – The manner by which the railroads carry the grains has also evolved and changed:

- *Branch Line Abandonments* – The railroads once had an extensive system of branch lines throughout the grain producing states. Through the 1970's and 1980's the railroads sought to "rationalize" their systems, one part of which was an aggressive program to abandon many of their light density rail lines. As a result, many of these branch lines have been abandoned or required preservation through public assistance programs and/or the institution of short line railroads. Some states, e.g., South Dakota and Montana, have even found it necessary to purchase and operate (under contract) some rail lines. As the number of branch lines serving the grain production areas has declined, the need to carry grain further by truck (hence the need for larger trucks) has increased.

- *Unit Trains* – As the railroads moved toward a main line emphasis, they have also moved toward the use of unit trains, ranging between 25/26-car unit trains; 50-52 cars, and 100+ cars. The advantage to the railroad is increased efficiency; the advantage to the farmer is cost savings and competitiveness. Caught in the middle is the grain elevator incapable of handling unit trains, and the farmer located great distances from the unit train elevator. Overall, the unit trains and main lines emphasis has made North American grains increasingly competitive in the world market. However, these improvements are made to the disadvantage of those farms and elevators on the branch lines and/or located at greater distances from the large elevators on the rail main lines.

- *Railcar Sizes* – With the trend toward size economies comes the ever-increasing sizes of railcars to carry the grain. Once carried in narrow-door 40-foot boxcars with 2,000-bu capacity, the railroads switched to100-ton "jumbo hoppers" with up to 3,850-bu capacity, and now may be going to 115-ton hoppers. These efficiencies are passed on to the elevators and farmers able to use them. Unfortunately for some regions of the states, many rail branch lines do not have the ability to handle larger cars. Light weight rail, poor ties, soft roadbed, and low rated bridges prohibit increases in car weights without major improvement expenditures. Therefore, once again, those growers served by branch lines will be at a competitive disadvantage. Furthermore, those states that have invested in branch lines (either rail line rehabilitation, or rail line purchase, or both) will find it necessary to make further investments.

- *Railcar Availability* – Railcar availability is also a significant problem, especially during the harvest season. As an aid to solving this issue, some agencies (Washington) have purchased railcars.

- *Railroad Rates* – Complementing these railroad operational changes, the railroads were effectively deregulated in the 1970's. Therefore, while they once offered regulated single-car rates, the railroads moved to published unit-train tariffs, then to negotiated unit train contract rates. All this favored the large elevator and the larger farms.

Evolution of the Intermodal Grain Elevator – The grain elevators of the West have had to adapt to those changing realities. Years ago the country elevator existed within one day's horse-pulled cart journey of the farm. As the single-unit farm truck gave way to the multi-axle truck, as the branch lines gave way to the rail main lines, the number of country elevators declined and in their place arrived the HTE (High Throughput Elevator). These are typically on rail main lines, capable of handling unit grain trains, and emphasize throughput rather than storage. These HTE's typically have catchment areas of 50-100 miles, thereby requiring efficient collection roads and efficient trucking. Therefore, the type of road, and the condition of that road which connects the farm with the elevator, is becoming more important to the farmer and to the economy.

The evolution of the trucks, the railroads and the grain elevators therefore all occurred simultaneously and all led to efficiency. But, the efficiency gains have been more favorable to some than to others.

Evolution of Grain Markets – The markets for grains were once domestic (initially to the east, then everywhere), but now they include much of the world. Grain trains now move to both coasts, the Midwest, and to the Mississippi River System. The export market was once principally Europe; then it moved to Asia. Now it is many nations.

The result is that the grain producing states and their farmers, and the entire grain industry, must now be able to react to sudden worldwide shifts in the market place. This means that the transportation system must be flexible, able to carry the grains in whichever direction the market dictates, and in whatever volumes and mix of grain strains that the market demands. These needs are not necessarily new. What is new is the need to be increasingly flexible and efficient in order to meet increasingly competitive market demands that change more frequently and volatilely than they once did.

Competitiveness of North American Grain – Many of the farms of the WTTN states are located great distances from the major U.S. markets and from the major ports of export. In order for these grains to be able to compete, the costs (and uncertainties) of grain transportation must be low. The shipping season is short (although it is getting longer), the need to transport vast quantities of grains at peak periods is great, and the ability to have capacity at the elevator, in the trucks, or the trains, and at the ports of export is requisite. Any part of the physical distribution system can be the chokepoint, which in turn can be fatal.

The Farmer Bears the Cost – In the final analysis, it is the individual farmer who must compete with all other sources of grain. If his grain cannot be moved when the market is ready, if he cannot access the unit train facilities, if the port has insufficient capacity, the farmer is the one that suffers. No single element can be allowed to break down. To remain competitive, the farmer, the intermodal grain elevator, the truck and roadway, the railroad and rail line, and the port must all have the requisite capacities.

Solutions and Benefits of Retained and/or Improved Grain Elevator Access

The issue of grain access to/from the West's grain elevators is a railroad and barge (egress) issue and a roadway (access and egress) issue. The extent of the issue varies, depending on each elevator's location and other factors.

Menu of Railroad Solutions – The rail solutions differ, depending on whether the elevator is on a railroad branch line or main line, as well as the elevator circumstances itself.

- If on a railroad branch line, possibly served by a short-line railroad, the solutions include:
  - Upgrade of the rail line physical condition to handle larger hopper cars;
  - Seek state or federal assistance to maintain and/or upgrade trackage; and
  - Seek retention of branch line services, via a variety of public sector and private sector actions including funding, acquisition, etc.

- If on a railroad main line, likely served by a Class I railroad, the solutions include:
  - Assure line capable of handling heavier cars; and
  - Become knowledgeable of railroad competition issues and potential remedial actions such as through the Surface Transportation Board.

- The elevator and its immediate environs might also need to take a number of actions, including:

  - Lengthen rail sidings to handle larger unit trains;
  - Assure that elevator trackage is physically capable of handling heavier cars;
  - Install new elevator equipment to increase railcar loading rate; and
  - Seek rates that reflect railroad efficiency gains.

Menu of Roadway Solutions – The road access issue includes the connector access to the NHS/WTTN corridors, and also the system of collector roads connecting the elevator with the farms. Solutions could include:

- Seek greater awareness of truck-to-elevator access issues by state, county and municipal transportation personnel;
- Seek greater awareness of the grain truck weights, turning radii, and queuing needs;
- Develop more roadway turning lanes at and near the elevators;
- Seek increased roadway pavement and bridge weight capacity, combined with roadway surface and bridge maintenance near the elevators; and
- Seek improved treatments at intersections and at-grade railroad crossings, to reflect the heavy grain truck traffic.

Menu of Waterway Solutions – The waterway solutions apply to Idaho, Washington, Oregon, California and those states served by the inland river system. Potential solutions include:

- Continue investment in lock and dam improvements;
- Dredge channels; and
- Balance economic concerns and environmental concerns.

Benefits of These Solutions – The benefits of improving and retaining access to these elevators are potentially sizable.

- *Roadway Benefits* – These have to do principally with trucking efficiency and roadway safety, and include the ability to turn trucks rapidly, resulting in more trips per truck, road improvements that result in less wear and tear, and turning lanes for trucks.
- *Benefits of Continued Railway Access* – The benefits of continued rail access are potentially large to the individual farmer. If the elevators, especially those located on branch lines and/or served by short line railroads, were to lose their rail line, they, like many county elevators before them, would either change function or go out of business. The benefits are therefore:
  - The farms in the region have a better chance to be competitive and viable; and
  - The small communities have a better chance to continue to be viable.

RAILROAD TOFC/COFC AS INTERMODAL FACILITIES

The activity associated with railroad intermodal, or, more specifically, trailer-on-flat-car (TOFC) and container-on-flat-car (COFC) once commonly called piggyback, has increased along with the use of intermodal transportation. In its formative years, dating back to the 1930s, “intermodal” was a means for the railroads to compete with the motor carrier industry which was just coming into its own.

TOFC/COFC Trends and Forecasts

Rail intermodal traffic has grown at significant levels over the last two decades and, because of the value of the goods shipped in containers, has become a major component of the rail traffic mix. The development of large-scale trade with Asia, land bridge operations, and the use of rail by large truckload carriers have all contributed to this growth.

Rail Intermodal Traffic Types – Railroads handle both domestic and international intermodal traffic. International traffic tends to move in containers, and domestic traffic can move in either containers or trailers.

Much of the western intermodal traffic is international in nature derived from the Pacific Ocean seaports of Los Angeles-Long Beach, Oakland, Portland, Tacoma and Seattle. A lot of it moves in some form of “bridge” service where land transportation is substituted for water transport (land bridge which connects water movements on both oceans; mini-bridge which connects one ocean with a destination port on the other shore, i.e., Los Angeles with New York; and micro-bridge which has an interior point on one end of the move).

Domestic intermodal is a substitute for what is typically a long-haul truck movement. This form of intermodal tends to concentrate in so called “lanes” where there are significant traffic volumes which produce economies of scale and permit service frequencies sufficient to compete with truck movements.

Equipment and Operations - In the beginning, railroad intermodal consisted principally of trailers on flat cars. The trailers were loaded mostly using ramps in a manner similar to the way circus trains were loaded and unloaded (and the term circus loading stuck). Cranes were useful in loading trailers, but were expensive. They were required, however, in loading/unloading containers.

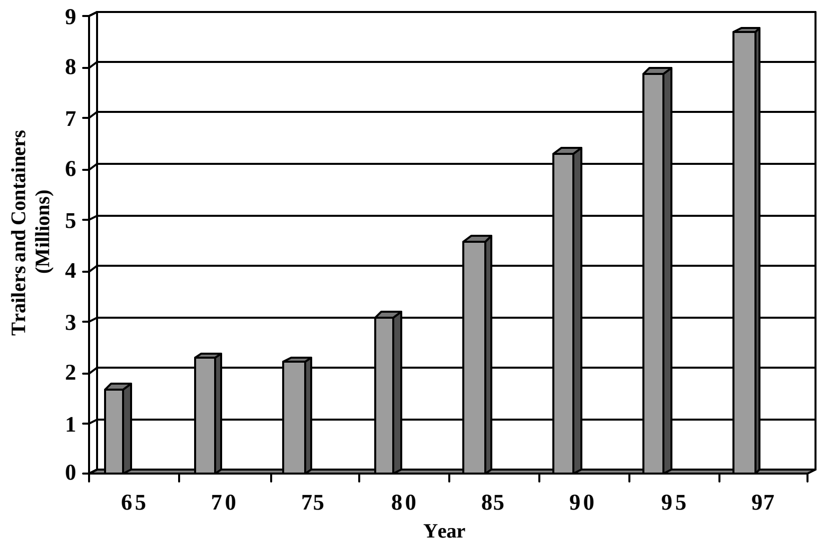
As containers became more commonplace, so did the use of cranes for loading and unloading. Railroad intermodal facilities began to grow in size and become more mechanized, the investments became much larger, and the number of facilities began to shrink as railroads consolidated existing ramps and terminals. As a result, sufficient volumes to justify dedicated and frequent service between major facilities and economies of scale in both train and terminal operation began to develop.

The container revolution in marine transportation led to the development of the double-stack car in the 1980s and subsequent stack-train operations which were initiated by American President Lines. By 1993, 240 eastbound stack-train departures were being made weekly from West Coast container ports. The development of this service necessitated a nationwide effort to improve overhead clearances to accommodate double-stack trains. Tunnels and bridges became impediments to the development of many routes until improvements could be made. Many routes in the East still have yet to be cleared of obstructions, and isolated cases still exist in the West, but the principal routes are open and operating at record levels.

Historic Trends – In 1957, railroads in the U.S. handled just over 400,000 trailers and containers. By 1997, 40 years later, this traffic had increased (22 times) to 8.7 million trailers and containers (see Exhibit 5-25). The real growth, however, did not start until the early 1980s when the 3.0 million threshold was crossed.

The number of containers exceeded the number of trailers for the first time in 1992 -- 3.36 million vs. 3.26 million. In 1997, the number of containers had risen to 5.2 million while the number of trailers remained virtually static at 3.45 million.

Exhibit 5-25
RAILROAD TOFC/COFC TRAFFIC
1965-1997



SOURCE: Association of American Railroads

Forecasts – Six to ten percent annual growth in rail intermodal traffic has been a common range of TOFC/COFC forecasts. Recent problems such as the downturn in the Asian economy and deterioration in western rail service have tempered those forecasts for at least the short term.

The West's Railroad TOFC/COFC Facilities

Due to the long-haul nature of railroad intermodal traffic, railroad TOFC/COFC facilities are particularly significant in the West.

TOFC/COFC Facility Locations – The locations of the 50 WTTN TOFC/COFC facilities are shown on Exhibit 5-26. This illustration depicts those intermodal facilities in all western states, including those not participating in WTTN. Recent railroad mergers have resulted in the two principal railroads having duplicate facilities in several locations. Some carriers already had more than one facility in major metropolitan areas.

Exhibit 5-26
WTTN TOFC/COFC FACILITIES

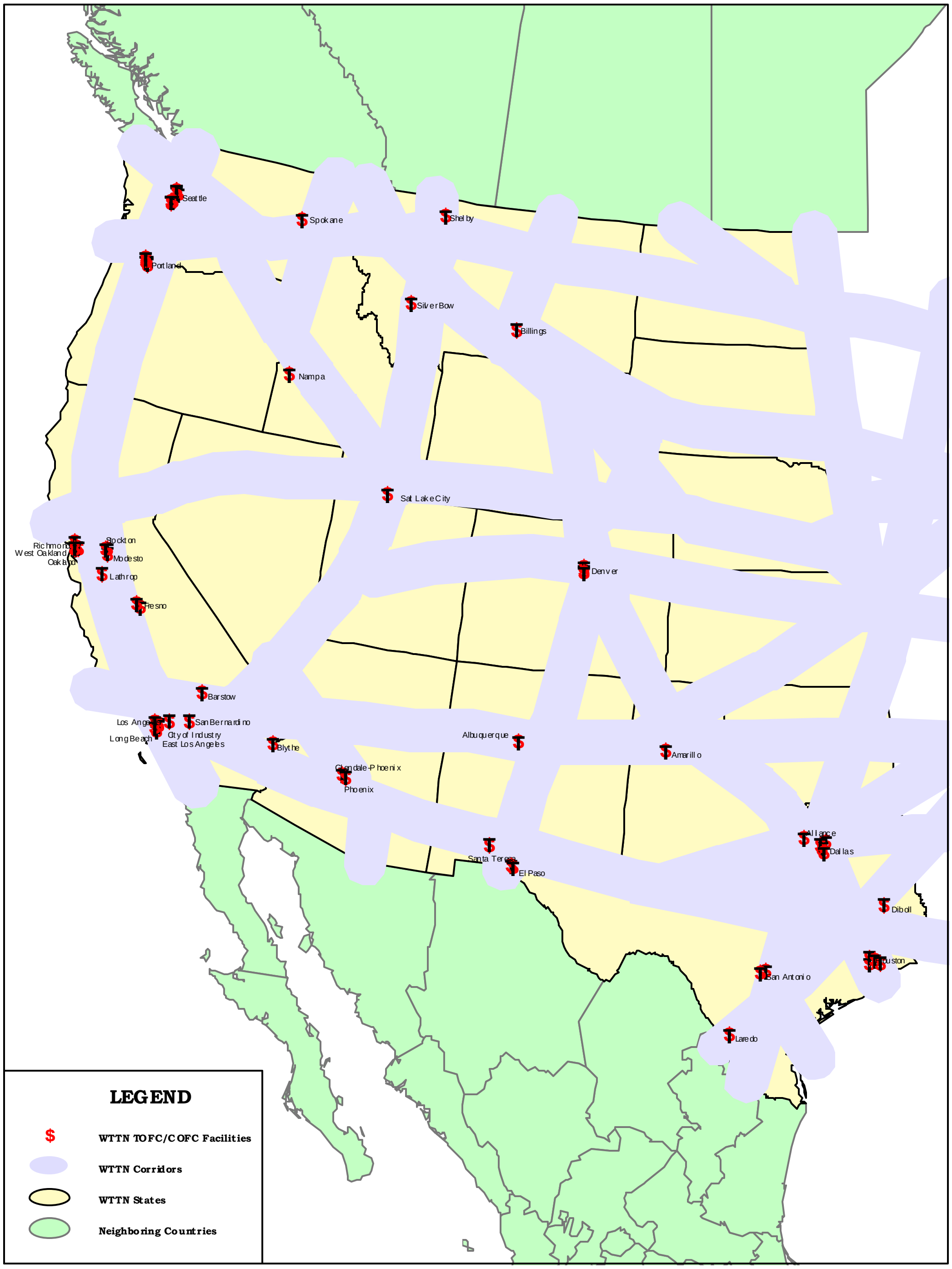


Exhibit 5-26 is accompanied by Exhibit 5-27 which is a list of those facilities identified by the participating states. It contains more detailed location data, lift capacity by terminal and, if applicable, the designated federal intermodal connection.

Seaport Intermodal Facilities – The designated TOFC/COFC locations are exclusive of on-dock or near-dock port-related container facilities. These facilities are typically owned and operated separate from the railroad facilities and are part of the port infrastructure.

TOFC/COFC Access Issues

Railroad TOFC/COFC facilities typically handle domestic as well as international freight traffic (although they have been separated in some locations such as Seattle). In the beginning they were quite often located at the railroad's local yard and remained there as TOFC traffic grew and even took over parts of the yard, or all of the yard, formerly dedicated to the classification of freight cars as carload traffic decreased (and/or as the growing use of unit trains decreased the need to classify cars), and intermodal traffic grew. These yards were not always located where they were readily accessible to the highway system, much less to marine terminals.

Roadway Access - Access to railroad TOFC/COFC facilities are not a lot different than truck access issues anywhere. Typical problems for example are:

- Inadequate vertical and horizontal clearances;
- Lack of traffic signals or turn signals on a signal;
- Lack of turning lanes;
- Inadequate turning radii:
- Excessive grade crossing delays;
- Excessive time required for processing at TOFC/COFC terminal gates;
- Lack of direct access; and
- Too much roadway congestion.

There are really two aspects of the roadway access problem. First is that of local and long-haul domestic movements which might be arriving/departing from many different directions and over several roadways. The second is the port - rail intermodal facility dray, which tends to occur over the route and roadways.

Exhibit 5-27
WTTN RAIL INTERMODAL FACILITIES
TOFC/COFC

City	Identification/ Location	Railroad[1]	Lift Capacity[3]	Federal Int. Connector[5]
		ARIZONA		
Phoenix	1301 E. Harrison Street	UP	60K	AZ16R 1
Phoenix	5281 Tom Murray Road (Glendale)	BNSF	134K	AZ15R 1
		CALIFORNIA		
Blythe	Lovekin Avenue & 16th St.	ARZC	N.A.	
Barstow	H & Main Street	BNSF	83K	
Modesto	300 Condoni Road	BNSF	109K	
Fresno	2989 S. Golden State	BNSF	117K	
Fresno	3135 N. Weber Avenue	UP	38K	
Los Angeles	3770 E. Washington Blvd.	BNSF	945K	
	L.A.T.C. [1] 750 Lamar Street	UP	300K	
Richmond	303 S. Garrard Blvd.	BNSF	215K	
San Bernardino	1535 W. 4th Street	BNSF	278K	
Stockton	1001 South B Street	BNSF	137K	
East Los Angeles	4341 E. Washington Blvd.	UP	425K	
City of Industry	650 S. Stimson	UP	240K	
Lathrop	1000 E. Roth Road	UP	300K	
Long Beach	I.C.T.F.[1] 2401 E. Sepulveda Blvd.	UP[2]	840K	
Oakland	1776 Middle Harbor Road	UP[2]	200K	
West Oakland	1750 Ferro Street	UP	200K	
		COLORADO		
Denver	585 W. 53rd Place	BNSF	201K	CO1OR 1
Denver	1851 40th Avenue	UP	120K	CO12R 1
		IDAHO		
Nampa	2618 Second Street South	UP	40K	No

City	Identification/ Location	Railroad[1]	Lift Capacity[3]	Federal Int. Connector[5]
		MONTANA		
Billings	3311 1st Avenue South	BNSF	25K	No
Shelby	198 BN Right of Way	BNSF	21K	No
Silver Bow	Port of Montana, 119041 German Gulch Rd.	BNSF/UP	N.A.	No
		NEW MEXICO		
Albuquerque	100 Woodward Street S.E.	BNSF	27K	No
Santa Teresa	Camino Real Intermodal [4] Facility	BNSF/UP	N.A.	No
		OREGON		
Portland	Albina Yard, 2745 N. Interstate Avenue	UP	165K	OR12R 1
	Brooklyn (SP), 5424 S.E. McLoughlin Bldv.	UP	120K	OR6R 1
	Willbridge Yard, 3930 NW Yeon Avenue [2]	BNSF	198K	OR9R 1
		TEXAS		
Dallas	Miller-Central Expressway	UP	192K	TX119R 1
	Mesquite-Forney Road	UP	250K	TX118R 1
	N. Main	TCS	N.A.	No
	Shiloh Road	KCS	N.A.	No
San Antonio	Sherman Street (SP)	UP	100K	TX34R 1
	Quintana Road	UP	50K	No
El Paso	Santa Fe Street	BNSF	19K	TX48R 1
	Dodge Street	UP	100K	TX49R 1
Houston	Englewood-Wallisville Road	UP[2]	252K	TX72R 1
	Settegast-Kirkpatrick Blvd.	UP	200K	TX71R 1
	Barbours Cut-Barbours Cut Blvd. (Port of Houston)	UP	72K	TX107R 1
	Strang, TX Brisbane Road	BNSF	198K	TX106R 1
Alliance (Dallas/Fort Worth)	Intermodal Parkway (Haslet, TX)	BNSF	401K	TX120R 1

City	Identification/ Location	Railroad(1)	Lift Capacity(3)	Federal Int. Connector(5)
Amarillo	Farmers Avenue	BNSF	31K	No
Laredo	Port Laredo (I-35, mile #12)	UP	130K	TX21R 1, 2
Diboll		TSE	N.A. (Ramp)	No
		UTAH		
Salt Lake City	1800 N. Beck Street	UP	140K	UT5R 1
		WASHINGTON		
Seattle	4700 Denver Avenue South (ARGO)	UP	275K	WA10R 1
	Seattle International Gateway (SIG), 44 S. Hanford Street	BNSF	329K	WA30R 1
	South Seattle ,12400 51st Place	BNSF	255K	WA64R 1
Spokane	Yardly –1800 N. Dickey	BNSF	54K	WA73R 1

(1) I.C.T.F. – Intermodal Container Transfer Facility
L.A.T.C. – Los Angeles Transportation Center
ARZC – Arizona & California Railroad
BNSF – Burlington Northern Santa Fe
CSXI – CSX Intermodal
KCS – Kansas City Southern
SP – Southern Pacific, now UP
TCS – Triple Crown Services
TSE – Texas South – Eastern
UP – Union Pacific
(2) Also used by CSXI
(3) Annual
(4) Proposed
(5) One or more roads to/from the TOFC/COFC facility have been designated as a National Highway System Connector in the 1999 Intermodal Connectors Condition and Investment Study, FHWA.

Solutions and Benefits of Improved Access

Problems related to access to railroad TOFC/COFC terminals varies by location. For example, some are well located in regard to highway facilities and others are not. Facilities located away from navigable waterways do not have port-related drayage problems.

Menu of Solutions - Both physical and operational problems must be addressed.

- Physical - adequate lane widths, intersection improvements (turn lanes and adequate turning radii), more direct access, etc.; and
- Operational - intersection improvements (traffic signals, turning signal phases), terminal gate improvements, rail-roadway grade separations, etc.

Potential Benefits - Benefits to be generated by improved access to TOFC/COFC facilities fall largely into the transportation efficiency category. While the line-haul element of railroad intermodal transportation is very efficient, the pick-up and delivery function is one of the largest cost elements. More efficient transportation also leads to environmental improvements.

OTHER RAILROAD INTERMODAL FACILITIES

Exhibit 5-28 contains a list of five rail-highway facilities which are very similar to TOFC/COFC facilities in terms of access problems. These facilities handle automobiles or permit the transfer of bulk commodities or lumber.

Due to the limited number of facilities and their similarity to other types of rail-highway transfer, they are included in this presentation, but not discussed further.

Exhibit 5-28
WTTN RAIL RELOAD AND MISCELLANEOUS FACILITIES

State	Location	Facility	RR (1)	Federal Int.Con. (2)
MT	Sunburst	Transload Service Of MT	BNSF	No
	Eureka	Gwynn Lumber	BNSF	No
CO	Rolle	Automobile	BNSF	CO7R 1
UT	Sharp	Canyon Fuel Company Coal Transload	UP	UT7L 1
WA	Seattle	Interbay (Automobile)	BNSF	WA28R 1

(1) BNSF – Burlington Northern Sante Fe
(2) One or more roads to/from the facility have been designated as a National Highway System Connector in the 1999 Intermodal Connectors Condition and Investment Study, by FHWA, August 7, 1998.

PORTS AS INTERMODAL FACILITIES

The volumes of marine traffic and the rapid growth in the numbers of containers handled at western ports have created not only waterway and harbor issues, but a number of landside access issues for the railroads, highway users, and the communities in which the ports are located. The increasing size of ships, especially those transporting containers, with increasing demand for rapid loading and unloading, will continue to exacerbate the problem. These issues are being addressed at some locations, but many still exist.

Water Port Cargo Trends and Forecasts

The 28 water ports of the WTTN study area (see Exhibits 5-29 and 5-30) contain some of the largest ports in the country, both from a tonnage standpoint as well as in terms of the numbers of containers handled. Many of the ports have been major players in waterborne commerce for some time. More recently, the major seaports of the West have become gateways to trade with the Pacific Rim.

Domestic and International Cargo - Exhibit 5-31 displays total tonnage, domestic and international, for 1997 for the 13 largest (in terms of tonnage) western ports. The 13 listed rank in the top 50 nationwide. Note that six of the 13 are located in Texas. Tanker traffic accounted for almost 250 million tons of foreign trade at these Gulf ports.

Total Tonnage vs. Containerized Cargo - Total tonnage handled at six of the West Coast's major ports (Long Beach, Los Angeles, Oakland, Portland, Tacoma and Seattle) between 1975 and 1997 is the subject of Exhibit 5-32. The total consists of both domestic and international trade and all forms of cargo -- bulk, break-bulk and containers. Note that while total tonnage rose from just over 100 million to almost 190 million, an increase of 67 percent, the largest jump in growth for a five-year period occurred between 1975 and 1980. From 1980 to 1997, the increase amounted to just over 40 million tons or 30 percent.

Exhibit 5-29
WTTN WATER PORTS

State	City	Port	Terminals	RR(1)	Federal Int.Connector(2)
ID	Lewiston	Port of Lewiston	4	CSP	ID5P 1
WA	Bellingham	Port of Bellingham	1	BNSF	WA26P 1
	Seattle	Port of Seattle	19	BNSF/UP	WA 38, 45P 1
	Tacoma	Port of Tacoma	8	BNSF/UP	WA44P 1
	Olympia	Port of Olympia	1	BNSF/UP	WA17P 1
	Vancouver	Port of Vancouver	3	BNSF/UP	WA11P 1
	Kalama	Port of Kalama	2	BNSF/UP	WA12P 1
OR	Portland	Port of Portland	5	BNSF/UP	OR13, 14, 15, 24P 1
	The Dalles	Port of The Dalles	1	UP	No
	Boardman	Port of Morrow	1	UP	OR2P 1
	Umatilla	Port of Umatilla	1	UP	No
TX	Port Arthur	Port of Port Arthur	1	KCS/UP	TX154P 1
	Beaumont	Port of Beaumont	6	BNSF/KCS/UP	TX161P 1
	Houston	Port of Houston	9	BNSF/PTRA/UP	TX55, 56, 57, 58, 79P 1,
	Galveston	Port of Galveston	7	BNSF/UP	TX78P 1
	Corpus Christi	Port of Corpus Christi		BNSF/TM/UP	TX12, 13, 14, 15, 16, 84P 1
	Brownsville	Port of Brownsville		BRG/TFM/UP	TX28P 1
CA	Eureka	Humboldt Bay Harbor	4	NWP	
	West Sacramento	Port of Sacramento	5	BNSF/UP	
	Stockton	Port of Stockton	1	BNSF/UP	
	Richmond	Port of Richmond	1	BNSF/UP	
	San Francisco	Port of San Francisco	8	UP	
	Oakland	Port of Oakland	11	BNSF/UP	
	Redwood City	Port of Redwood City	1	UP	
	Port Hueneme	Port of Hueneme	2	VCY	
	San Pedro	Port of Los Angeles	26	BNSF/UP	
	Long Beach	Port of Long Beach	23	BNSF/UP	
	San Diego	Port of San Diego Encinal Terminals	3	BNSF/SDIY	

(1) BNSF – Burlington Northern Santa Fe
CSP – Camas Prairie Railnet
BRG – Brownsville and Rio Grande International
KCS – Kansas City Southern
PTRA – Port Terminal Railroad Association
TM – Texas Mexican
TFM – Transportation Ferrovioria Mexicana
NWP – Northwestern Pacific
SDIY – San Diego & Imperial Valley
UP – Union Pacific
VCY – Ventura County

(2) One or more roads to/from the facility have been designated as a National Highway System Connector in the 1999 Intermodal Connectors Condition and Investment Study, by FHWA, August 7, 1998.

Exhibit 5-30
MAJOR CARGO PORTS

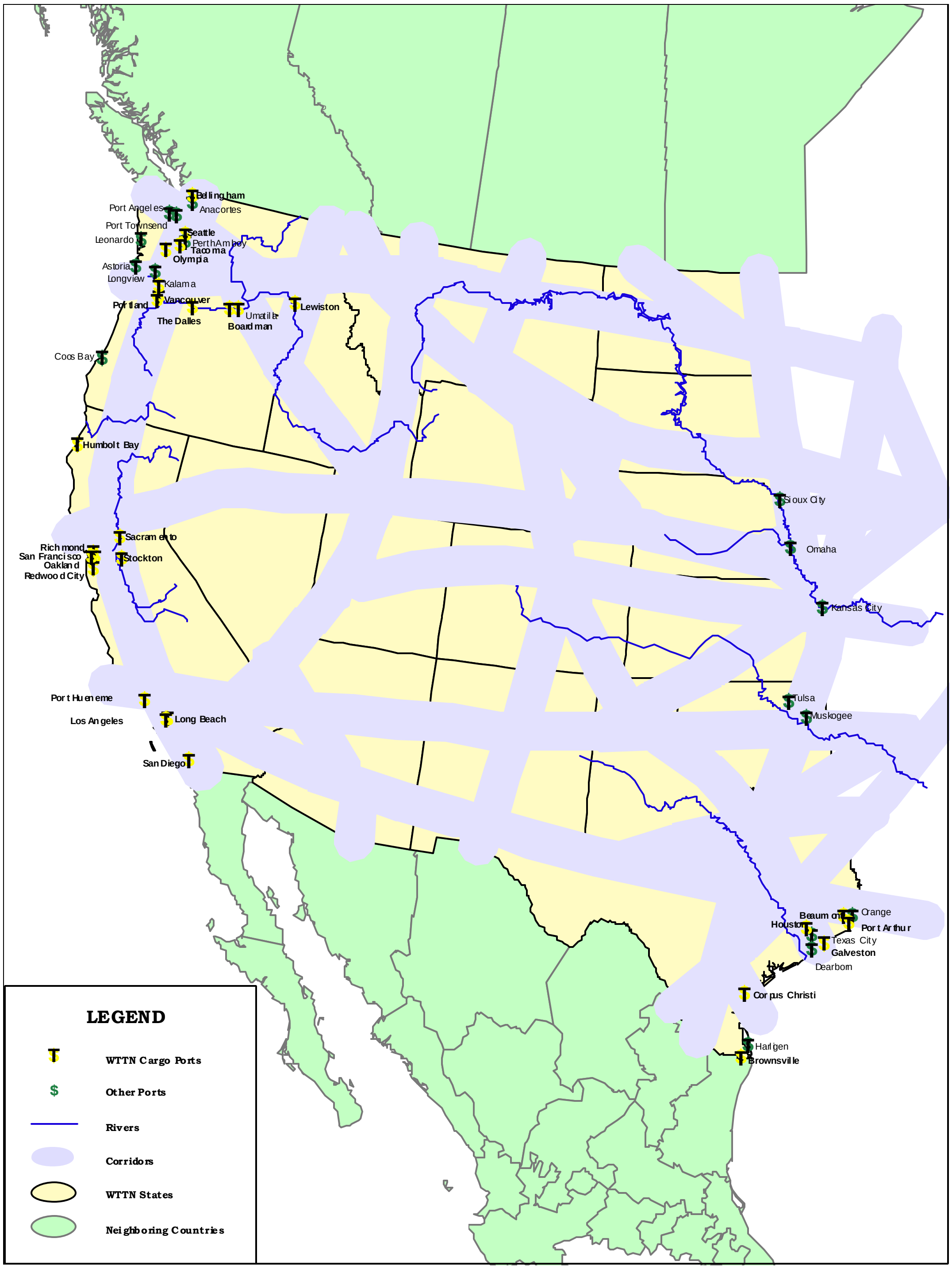


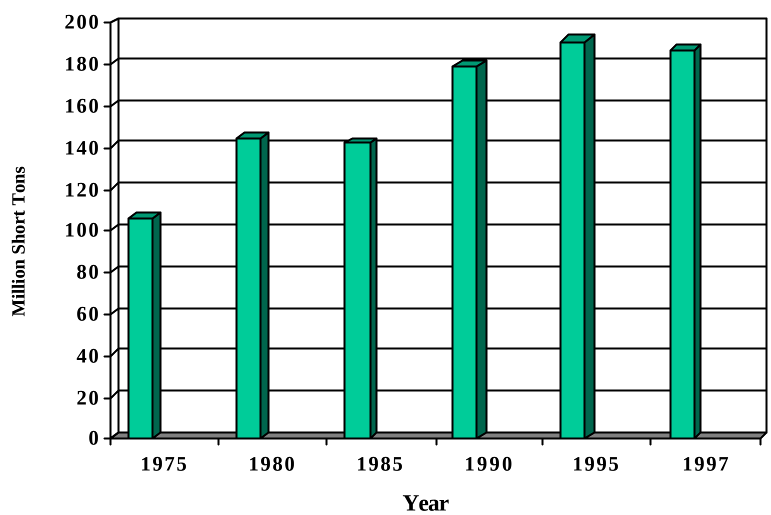
Exhibit 5-31
TOTAL CARGO VOLUME
MAJOR WTTN PORTS - 1997
(Short Tons)

Port	National Rank	Foreign Trade (1)	Domestic Trade (2)	Total Trade
Houston, TX	2	102,846,554	62,609,724	165,456,278
Corpus Christi, TX	5	62,218,692	24,625,068	86,843,760
Long Beach, CA	10	38,356,545	18,898,756	57,255,301
Texas City, TX	11	37,430,678	19,214,997	56,645,675
Beaumont, TX	16	33,626,741	15,038,639	48,665,380
Los Angeles, CA	19	28,579,542	13,194,710	41,774,252
Port Arthur, TX	21	29,728,939	7,589,290	37,318,229
Portland, OR	24	16,538,732	13,022,044	29,560,776
Seattle, WA	25	18,650,546	7,913,684	26,564,230
Freeport, TX	26	21,140,066	5,140,665	26,280,731
Richmond, CA	30	5,220,841	16,484,842	21,705,683
Tacoma, WA	33	13,079,680	7,603,646	20,683,326
Anacortes, WA	46	1,719,226	12,184,288	13,903,514

(1) Foreign Trade = Imports + Exports.
(2) Domestic Trade = Cargo handled coastwise, internally (via the nation's inland waterways, and lakewise (between U.S. Great Lakes ports) as well as "local" and "intraport" shipments.

SOURCE: U.S. Army Corps of Engineers, Waterborne Commerce Statistics Center, New Orleans (LA)
Compiled by American Association of Port Authorities

Exhibit 5-32
WATERBORNE CARGO
Major West Coast Ports
1975-1997



NOTE: Ports are Los Angeles, Long Beach, Oakland, Portland, Tacoma and Seattle
SOURCE: U.S. Army Corps of Engineers, compiled by the American Association of Port Authorities

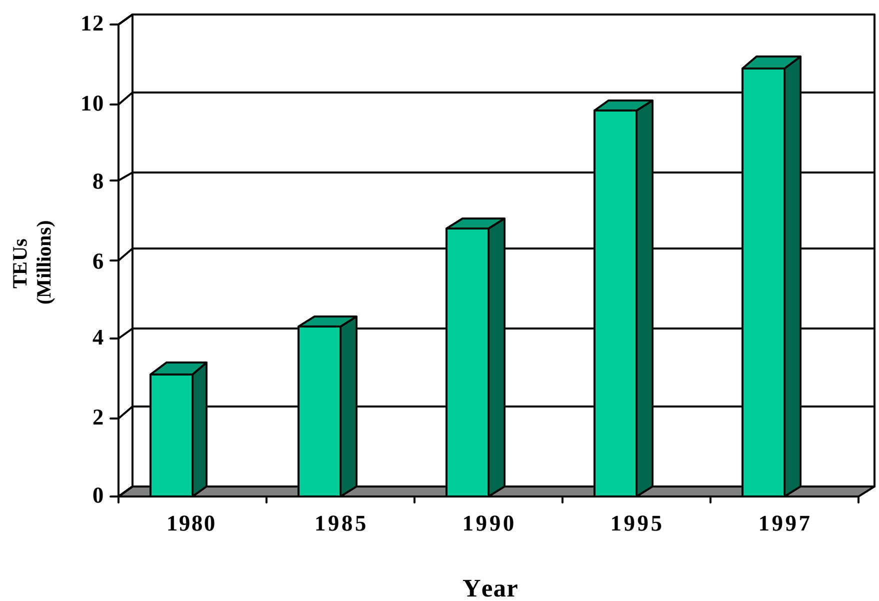
Outstripping total tonnage growth at the six major ports has been the trend toward containerized cargo. For the period between 1980 and 1997, this growth has amounted to 250 percent, from 3.1 million TEUs to almost 11.0 million (see Exhibit 5-33). This growth equates to a 7.7 percent average annual growth rate.

Access Issues

There are numerous waterside and landside access issues surrounding ports today. The landside issues are the focus of this section and are divided into roadway and railway.

Roadway Access - Freight service providers that depend on roadway access to port terminals are confronted with a variety of problems. These impediments generally fall into two broad categories -- operational and physical.

Exhibit 5-33
CONTAINER TRAFFIC
Major West Coast Container Ports
1980-1997



NOTES: Ports are Los Angeles, Long Beach, Oakland, Portland, Tacoma, and Seattle
SOURCE: American Association of Port Authorities

- *Operational Impediments* - Most of the study area ports which experience problems are also located in major cities which are continuing to grow and are having roadway congestion problems. The growth in marine traffic, creating congestion problems of its own, exacerbates the problem. Congestion leads to delays, which in turn increases costs and degrades service.

  The lack of, or poor functioning of traffic signals (lack of turn signals, poor sequencing, lack of synchronization) at key locations adds to congestion and is a common problem for trucks. The absence of, or lack of clarity of, signing and route and pavement marking is another common complaint.

- *Physical Impediments* - As tractors, trailers and containers become larger, roadway design in terms of pavements, bridges, geometrics, and clearances becomes obsolete. This obsolescence manifests itself in short interchange ramps, inadequate turning radii, narrow pavement widths, bridge weight limitations, absence of or not enough grade separations, and similar characteristics.

Railway Access - Operating and physical impediments due to the growth in marine traffic has also been a problem for railroads. The at-grade crossing of roadways has presented problems for both rail and roadway users.

- *Operating Impediments* – Rail access to marine facilities has become increasingly congested, which has manifested itself in both main lines as well as local access lines. Railroads in the West were ill-equipped to handle the onslaught of traffic resulting from overall economic growth combined with the explosion of demand for Powder River Basin coal and the maritime trade with the Far East.

  At-grade rail-roadway problems are discussed in more detail elsewhere, but they are of particular concern in port and other terminal areas where railroad switching and/or slow operations are common, tying up roadway traffic for much longer periods than faster trains on main lines and creating operating and safety problems for the rail operator.

- *Physical Impediments* - Lack of the necessary overhead clearances for double-stack containers was a major problem when that type of shipment began. These problems have been largely resolved, but a few isolated locations still exist. Congestion problems are also being addressed with the addition of capacity by a variety of means, but here again, isolated situations still exist.

  A new problem is the impending increase in car weights from 263,000 lbs. to 286,000 lbs. Most of the western main line rail systems are capable of handling these increased weights, but many secondary lines and branches, as well as individual structures, do not. Bulk shipments to ports, such as minerals and grain, will be impacted.

Solutions and Benefits of Improved Landside Access

Port access issues have attracted considerable attention and commanded the allocation of sizable resources. This attention has been due in large part to the focus on intermodal transportation.

Menu of Solutions - Solutions range from improvement of specific problems at individual locations that are independent of others, to “corridor” approaches where issues are resolved using a coordinated approach. On- and near-dock rail facilities may help solve the off-port dray issue. Many ports, however, do not have the space available for such facilities.

Heavily publicized projects such as the Alameda Corridor in Los Angeles-Long Beach, and the FAST Corridor in the Seattle-Tacoma area, fall into the “corridor” category. The Alameda Corridor is a dedicated freight corridor which will eliminate 200 at-grade rail-roadway crossings, improve freeway access for truck traffic and access to rail intermodal facilities, and vastly improve railroad access to main tracks for trains loaded on-dock. The FAST Corridor is a coordinated approach to the at-grade rail-roadway crossing issue from Everett to Tacoma, Washington.

The port access solution options generally fall into the categories listed below:

- Technology improvements to facilitate port/WTTN access (ITS)
  - Surveillance cameras to identify traffic congestion areas;
  - Incident response on port access routes;
  - Variable message signs on major routes (identifying alternate routes with sufficient advance notice);

- Improved communication between ports and trucks to better manage truck arrivals and departures (alleviating congestion at ports);
- Ramp metering; and
- Weight-in-motion/AVI.

▸ Truck access improvements to ports on local roads, highways, and at interchanges

- Signalization improvements;
- Roadway widening (including turn lanes);
- Improved intersection geometrics (channelization, turning radii);
- Structure improvements (widening, clearance);
- Improved signage (better directions, improved visibility);
- Pavement treatment (including lane (re-)striping and pavement/roadway bearing capacity to accommodate heavy trucks);
- Truck only lanes to/from/around ports;
- Alternate routes to ports;
- Roadway weight limits.

▸ Improved efficiency of container transfer between truck/rail and truck/ship

- Coordinate operation/arrival/departure intervals.

▸ Longer gate hours at marine terminals, allowing off-peak truck access

▸ Rail facilities

- New/expanded on-dock rail facilities;
- Improved intermodal terminals, including shared or joint facilities;
- New/improved rail terminals and yards at port access (including space to build

trains);

- Grade separations along rail lines into ports and through urban regions;
- Consolidation of rail lines into ports for more efficient operations (e.g., Alameda Corridor);
- Increased rail capacity from ports to main lines
  - unit trains (including grain, coal, etc.);
  - car load traffic.

Potential Benefits - The benefits of landside access improvement are numerous. First and foremost are the economic gains from the improvement in transportation efficiencies and related cost of operations. Improvements in the environment can result from transportation efficiencies such as decreased energy usage and related emissions. A variety of safety improvements usually follow also, resulting from improvement in modal operations and the separation of rail and roadway traffic.

The continued growth of the region's water ports depends on adequate landside access as well as waterside operations.

AT-GRADE CROSSINGS

The fact that roadways with cars and trucks, and rail lines with passenger and freight trains, cross at-grade in many locations throughout the western states implies inefficiency and inconvenience (highway vehicles wait for trains), and accident risks. This railroad grade crossing problem is a significant issue, and it is a problem gaining greater recognition.

At- Grade Crossings Issues

Increasingly Significant Problem – The rail-roadway at-grade crossing problem is becoming increasingly more important in the West because:

- *Railroad Mergers and Focusing of Rail Traffic* – As the western railroads have merged, and as they have rationalized their systems, selected rail lines have been abandoned or downgraded. As a result, rail traffic is concentrated on the remaining lines. This means that the at-grade crossings on the main lines receiving the additional rail traffic are witnessing significant growth in train traffic, due to railroad corporate operational decisions in addition to normal growth in traffic.

- *Growth of Railroad Traffic* – Compounding the effects of mergers has been sizable growth in railroad ton-miles, which increased from 160 billion in 1929 to 370 billion in 1970 to 917 billion in 1997. This growth is yielding increased train traffic over the West's grade crossings.

- *Funding for Grade Crossing Elimination* – While the states have done what they can to address this problem, sufficient funding has not been available for at-grade crossing elimination. For example, a typical highway grade separation costs $3 - $5 million. Complex urban separations can cost several times that amount. There are rail lines in the western states that could justify dozens or even hundreds of grade separations.

Railroad Main Lines Split the West's Communities – Many of the WTTN's small communities were initially established in the 1800's because of the location of the railroad and their communication and commerce linkage with the rest of the U.S. This typically meant that the town grew up around the railroad (both sides of the track). Increasingly rail and roadway traffic has contributed to problems in communities split by the rail line.

This problem in the western states is much greater than merely delaying highway vehicular movements. Many small towns have only one medical facility, and it is on one side of town. The only fire station is also on one side of the tracks. The result is that emergency vehicles can be delayed by trains, with disastrous results. This small community issue is especially prevalent along the principal main lines in the West.

Train Traffic Densities – One measure of the main line grade crossing problem is the number of trains daily crossing through western communities. For example:

Exhibit 5-34
EXAMPLE TRAIN DENSITIES

Community	Railroad	Trains Per Day
Cochise, AZ	UP	45
Green River, WY	UP	66
Big Sandy, TX	UP	36
Spokane, WA	BNSF	39
Campbell, WY	BNSF	40
Shelby, MT	BNSF	24

SOURCE: Railroad Merger Documents

<u>Coal Trains Benefit the Entire U.S.</u> – The West's coal is a valuable national resource which benefits the receiving state (Midwest, East Coast, etc.) and the production state (Wyoming, etc.). In between, in the "bridge" states, the grade crossing problems intensify, with little benefit to the disrupted communities. For example, coal production in Wyoming has increased from 7.0 million tons in 1970 to 192 million tons in 1993[2] to 315 million tons in 1998[3]. Nearly all of this coal is transported by rail. Examples of increases in rail traffic densities resulting basically from coal trains follow.

Exhibit 5-35
EXAMPLE MAIN LINE TRAFFIC DENSITY INCREASES

Line Segment	Prior Tonnage (1) (Date – Tons)	Post Merger Tonnage (2)
BNSF East of Donkey Creek, MT	1977 - 49	131
BNSF "South Line" West of Bismarck, ND	1978 - 10-20	50
UP between North Platte-Gibbon, NE	1975 - 100	265

SOURCE:
(1) State Rail Plans.
(2) Respective Merger Documents (BN and ATSF, UP and SP)

2 Wyoming Rail Plan, prepared for the Wyoming Department of Transportation by Wilbur Smith Associates in association with Banner Associates, May 1996.

3 Geological Survey of Wyoming.

DM&E Prospective Rail Line Grade Crossings Issue – The Dakota, Minnesota & Eastern Railroad (DME) has filed an application with the Surface Transportation Board (February 20, 1999) to construct approximately 280 miles of new railroad into the Powder River Basin (PRB) coal fields. The purpose of the project is to provide more efficient access to this low-sulfur coal for Midwestern utilities. The project will also involve upgrading of 600 miles of the existing railroad from western South Dakota to the Mississippi River. Initial project cost is estimated at $1.2 billion.

Initially, 40 million tons of coal per year are estimated to move over the newly created route. Annual tonnage would increase to 100 million within 10 years. This latter tonnage represents approximately 10 percent of total current domestic demand, and 20 percent of the PRB's projected year 2010 production of over 500 million tons.

The initial demand will require the operation of approximately 14 trains (7 loaded and 7 returning empties) per day. Adding the 14 trains to the 3 trains per day on the existing route, results in a total of 17 trains per day which will increase as the coal traffic increases. The DME route will be equipped with a Centralized Traffic Control system or with positive train control, the latter currently in the development and testing stage. Major at-grade rail-roadway crossings are to be equipped with state-of-the-art lights and gates with the effort coordinated (and prioritized by) the Federal Railroad Administration and individual state Departments of Transportation (the existing 600 miles contain 446 public at-grade crossings, of which only 17 have active warning devices). Communities along the route will experience grade crossing impacts of a greater proportion than with current DME operations, especially if projected levels of traffic materialize resulting in up to 37 trains per day.

This proposal will indeed divert trains that would operate over other main lines. However, as the demand for PRB coal continues to increase with new air quality regulations, there will still be an overall increase in the number of coal trains on railroad main lines throughout the West.

Urban At-Grade Crossings – There are also grade crossing problems in the WTTN's cities. The urban grade crossing issues are perhaps similar to the rest of the U.S. Many cities (Seattle, Portland, Oakland, Long Beach, Los Angeles, etc.) have grown up around their ports. The result is that the ports are now located in completely developed, congested parts of town. These ports are served by a multiplicity of urban rail lines, most of which now cross streets at-grade. Some of the West's most expensive projects, e.g., the Alameda Corridor, are attempts to address these issues. Similarly, the West's COFC/TOFC terminals are often located in cities which have grown up around the railroad yards with at-grade crossings being a major problem. These issues are discussed in more detail in other sections of this chapter.

Solutions and Benefits of Grade Crossing Solutions

The rail-roadway at-grade crossing issue is probably one of the industry's largest issues and, ironically, one in which the public sector has a significant role.

Menu of Solutions - Potential solution types consist of those which eliminate grade crossings and those which improve safety and/or operations.

- Eliminate at-grade crossings by
  - Closing crossing;
  - Grade separating crossing (using overpasses or underpasses);
  - Rerouting either the rail line or roadway to eliminate the need for crossings; or
  - Separating the operating times of the different modes.
- Improve safety at at-grade crossings (if not eliminated) by
  - Improving sight distance;
  - Improving warning devices – improve inactive warning devices, replace inactive devices with active devices, add travel lane gates, create four quadrant gates; and
  - Installing roadway median barriers.
- Improve crossing operations by

- Maintaining crossing surfaces;
- Maintaining crossing warning devices;
- Installing smooth crossing surfaces;
- Installing roadway traffic control preemption devices;
- Devising improvement plans on a corridor-wide basis; and
- Fully considering area roadway traffic operations when planning crossing improvements.

Potential Benefits - The railroads, motor vehicle operators, pedestrians, bicyclists and the community at large all can benefit from the broad spectrum of potential grade crossings improvements. For example:

- *Improving Safety* - Reductions in property damage, personal injury and the loss of life for both modes are potential benefits of improving at-grade crossing safety. Ready and speedy access by emergency vehicles will also be a benefit.
- *Improving Operations* - Crossing blockage results in delays, increasing vehicle and operator costs. Rough crossing surfaces increase vehicle maintenance expenses. Reduced operating speeds for railroads over areas of concentrated crossings produce the same results. Grade separations would benefit both vehicles and operators.
- *Installation and Maintenance Costs* - At-grade crossings are expensive to install and maintain. The larger the crossing surface, and the more advanced and extensive the warning devices, the larger the costs. Maintenance expenses relate not only to the warning devices and crossing surface, but become an added burden to the railroad when maintaining track. The crossing surface has to be removed, for example, to install cross ties and surface track. Grade separations therefore benefit the railroad by reducing these costs.

At-grade crossings are a problem for both the public and the rail carriers. Both parties benefit from workable solutions and should be involved in the process.

Chapter 6
CONCLUSIONS AND RECOMMENDATIONS

This two-phase WTTN study addresses surface freight transportation systems, issues and needs throughout the 17-state western region. The study was conducted because:

- The state DOTs recognize the importance of properly incorporating freight issues and needs into their transportation planning programs;
- There is increasing interest in trade corridors, border crossings, the relationship between transportation and economic development, and freight transportation in general;
- There is a need to place each "trade corridor" into its proper perspective; and
- Trade and freight transportation needs seem to be increasing in importance as the nation moves into the 21st Century.

TRADE AND TRANSPORTATION: INCREASINGLY IMPORTANT

The need for the west's shippers to be able to have their cargo moved quickly and efficiently is increasing in importance. Logistics, "seamless transportation," "intermodalism," "trade corridors," and other facets of freight transportation have increasingly become a topic of state DOT and U.S. DOT interest and concern.

By sponsoring this study, the western state DOTs have demonstrated their interest. The states are aware that development of customer-responsive transport logistics infrastructure is fundamental to the economic development success of the region. There are fundamental trends and factors that need to be considered in relating transportation systems and infrastructure to economic development and freight and logistics needs. These trends stem from the increasingly global economy, and the ways in which firms are trying to be competitive in this evolving climate. For the WTTN states, trade with Canada and Mexico (the NAFTA nations) and with the Pacific Rim nations is expected to have an influence on how logistics infrastructure is shaped.

Trade between nations and between states is requiring more from each WTTN state's transportation system. These increasing requirements are a result of many changes that are occurring, including:

- *Trade Growth* – Trade, especially international trade, through the western states is expected to more than double over the next 20 years. The sheer magnitude of this increase will significantly impact the need for additional transportation infrastructure capacity (highways, railroads, ports, airports, intermodal facilities).
- *Redistribution of Industrial Production Centers* – Companies are constantly changing the way they manufacture, and where they manufacture. This impacts the way goods flow, which in turn creates new freight densities and corridors. Emerging corridors provide challenges and opportunities for both transportation facilities providers (providers of highways, rail lines, intermodal facilities) and sellers of transport services (trucking companies, railroads, grain elevators, etc.).
- *Changes in Manufacturing Practices* – As new industries come on line, traditional industries are being forced to restructure and change the way they do business. These changes are impacting freight shipment requirements such as modes used, service levels required, etc.
- *Changes in Freight Transport Needs* – Since the onset of Just-In-Time (JIT) and other manufacturing practices, transport needs have changed, and will continue to change. The JIT industries look at reliability, transit time, efficiency, cost and damage control when evaluating transportation service. State DOT programs influence all of these factors.

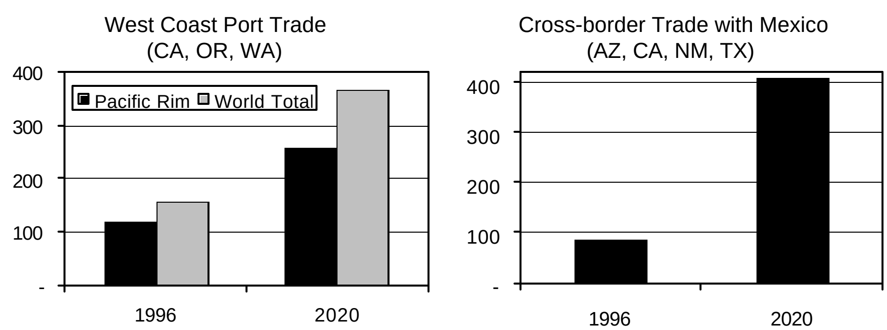
Magnitude of Trade Growth

Trade through the western states is expected to more than double over the next twenty years. The international portion of this growth is largely with the Pacific Rim and the NAFTA countries.

The Pacific Rim Countries - Despite an economic downturn during 1997-1999, ocean trade with the Pacific Rim countries is expected to more than double by 2020, growing from an estimated 120 million tons in 1996 to 260 million tons by 2020. This includes container trade such as manufactured products, as well as bulk and break bulk products such as agricultural products and natural resource products (excluding crude petroleum and natural gas). China is seen as the "sleeping giant" that will drive trade once it eventually undergoes all of its institutional, political and economic changes. Asian "Tigers" like Thailand and South Korea have reportedly bottomed out of their economic woes and are on their way to recovery. Their weaker currencies were a key to boosting exports and that has helped them fight to their way out of their financial crises.

NAFTA Trade – The border states have experienced a great deal of trade growth since the introduction of NAFTA. This is particularly true for the states bordering with Mexico - Arizona, California and New Mexico. And trade through these states is expected to grow by a factor of almost five times by the 2020, from just over 21 million tons in 1996 to over 100 million tons by the year 2020.

Exhibit 6-1
EXAMPLES OF WTTN STATE INTERMODAL TRADE FORECASTS
(Million Metric Tons)



SOURCE: Latin American Trade and Transportation Study, Wilbur Smith Associates, 1999.
NOTE: Trade in all commodities, excluding Crude Petroleum and Natural Gas.

Notwithstanding the other segments of the trade picture (cross-border trade with Canada, ocean trade with other global regions, air cargo), this forecast trade will significantly impact freight transportation infrastructure needs. These would include gateway facilities such as ports, airports, and border crossings, as well as the surface modes (highways, rail and waterways, etc.).

Changing Industrial Production Centers

Although all the trade data is not yet available, it appears that NAFTA has spurred trade growth among the NAFTA partners. For western states, there are several key industrial trends and opportunities stemming from NAFTA trade.

- NAFTA has led to the development of a North American trade and industrial complex.
- The growth in NAFTA related freight densities is helping to improve transportation service levels.
- NAFTA trade is characteristically high value and JIT, placing pressure on more efficient modes of delivery.

Western states, through the continuous development and improvement of their regional freight transportation logistics infrastructure, stand to gain from these trends and opportunities.

The NAFTA Industrial Trade and Production Complex – NAFTA has lead to the development of a de facto trade and industrial complex that stretches across North America. While NAFTA is conventionally viewed as a tool for expanding markets into neighboring countries, it is more than that. NAFTA trade includes trade in intermediate goods between plants/suppliers located in member countries. U.S. manufacturers have established multinational production bases across North America that allow them to effectively manage their factors of production (labor, capital and raw materials), thereby allowing them to maintain a competitive advantage in the global market place. An example is the popularity of “maquiladora” factories in Mexico which are used by U.S. companies to lower production costs for labor intensive processes. Maquiladora activities largely involve manufacturing plants in Mexico which assemble products using U.S. or other foreign components[1].

This trend presents an economic development opportunity for the western states. Developing a logistics infrastructure to support the growth of this new industrial complex will give the WTTN states an edge in attracting industrial development.

The key target industries are makers of, and suppliers to makers of, high tech consumer durables with a relatively short product life cycle. Such sectors rely on the cost efficient movement of parts and components between suppliers, plants, warehouses, and delivery to customers. They include the automotive, electronics, computer, communications, and household appliances sectors. Other sectors that offer opportunities are food and agriculture.

Freight Densities and the New North-South Trade Corridors – Freight densities are fundamental to the quality, level, frequency and cost of freight service. High freight flow densities allow service providers to build cost-effective service networks and routes for their customers. In turn, improvements in freight service lead to efficiencies for industrial customers, thereby improving their competitiveness. Freight densities therefore provide the basis for sustained industrial advancements in the WTTN states. NAFTA trade is impacting the distribution of freight densities throughout border states, as well as the routing of the trade.

For example, U.S.-Mexico maquiladora trade is primarily concentrated between the U.S. and Mexican border states and, between the Mexican border states and the United States' industrial northeast. Traditional trade, by contrast, is more diverse in terms of product origins and destinations and is usually shipped further into the interior of Mexico or the U.S.[2]

NAFTA's emerging north-south freight densities are manifesting themselves in the form of north-south trade corridors that intersect with the traditional east-west corridors. A case in

[1] Binational Border Transportation Planning and Programming Study; 1997, La Empresa, Barton-Aschman
[2] Ibid.

point is the development of the I-5 (High Priority Corridor 30), Canamex (High Priority Corridor 26), and I-35 (High Priority Corridor 23) corridors.

The emergence of the north-south trade routes presents an opportunity for the western states to capitalize on freight densities as a means of attracting industry. Lower transportation costs are an important site location criterion for industry. Developing adequate logistics infrastructure is a step toward drawing the freight densities to western states, thereby improving their competitive edge.

Trucking Will Continue to Play an Important Part in NAFTA Trade – Putting aside trade in natural resource commodities, which moves via the bulk modes, NAFTA trade is characteristically high value and JIT oriented. On the surface, trucking is the most efficient means of transporting such trade because trucks can deliver goods between virtually any two points. The majority of freight movements in the U.S. are by truck. Therefore, as NAFTA trade continues to grow, so will the importance of an efficient trucking logistics system.

Balancing the need of an increasingly efficient truck freight logistics system, and the economic benefits derived from a competitive U.S. economy, with the safety and efficiency needs of the other highway users, will require coordinated multi-faceted planning. States that fall into the existing and new NAFTA trade routes have to plan to adequately accommodate truck freight traffic, or stand to lose the economic benefits of NAFTA.

(Inter)Modal Optimization – While trucking will continue to play an important role, modal optimization is another key to gaining benefits from the NAFTA trade. An efficient transport logistics infrastructure that allows shippers and logistics service providers to conveniently choose between modes, so as to balance cost savings objectives with customer delivery time needs, is important to sustaining the NAFTA industrial trade and production complex. As NAFTA trade densities continue to grow, so do the opportunities for modal choices for shippers. High densities produce the economies of scale necessary for transport service providers to cost effectively consolidate shipments to lower cost modes.

Opportunities for intermodal optimization are best for a key group of freight lanes with specific density, length and commodity characteristics. Rail intermodal opportunities are best for:

- High value commodity lanes, with moderate densities and distances of more than 500 miles; and
- Dry goods commodity lanes, with high densities and relatively shorter hauls.

The opportunity for the WTTN states to enhance intermodal optimization is to develop an intermodal infrastructure of reload centers, especially at the border post interface points and at inland freight intensive markets, in tandem with the private sector, that is consistent with NAFTA's commodity freight lane structure.

Changes In Manufacturing Practices

There are a core set of manufacturing practice changes that relate to trade. These are summarized as[3]:

- Shorter Product Life Cycles;
- Specialized Freight;
- Remanufacturing;
- Globalization;
- Core Competencies; and
- E-Commerce.

[3] Role of the National Highway System Connectors: Industry Context and Issues, FHWA; February 1999.

Shorter Product Life Cycles – Consumer demand domestically and internationally is driving the growth of the new high tech consumer industries such as computing, communications, household electronics, computer games, and the automotive sectors. These industries, to varying degrees, all have short product life cycles. For example, computer chips double their speed every 18 months. The result is, high tech industries have less time to get a product from the drawing board to the shelf, which translates into shorter transport windows, which in turn places great demands on the transportation systems.

Specialized Freight Requirements – High tech industries also have special freight requirements. Their products tend to be smaller in size (cube and weight) and higher in value. These characteristics, combined with the aforementioned time sensitivity, differentiate them from traditional freight handling requirements. Such shipments tend to be more frequent, smaller in size, and to a more far-flung customer base. Because these shipments have the price margins to overcome the cost of more efficient and faster modes, they are biased toward air and truck (LTL) modes. A great deal of the Asian air cargo growth is driven by the high tech industries. Also, NAFTA trucks are laden with high tech parts and components to and from the maquiladoras.

Remanufacturing and Replacement – The onset of remanufacturing, especially on the high tech end, is increasing and also impacting the nature of freight shipments. Although this segment is arguably small when compared with the more traditional volumes, it is unique in the way it influences advances in logistics services. An example of remanufacturing are printer cartridges that are shipped to service centers to be cleaned, retooled and refilled for resale. This is an example of small, frequent shipments that come in from a far-flung customer base, before being redistributed. Again, small frequent shipments tend toward more efficient, and costly, modes such as trucking. Another example is replacement parts and accessories for the automotive after sales market. These are typically time definite shipments that tend towards air and/or trucking.

Globalization – Globalization certainly changes the nature and extent of international trade and freight. In this context, "NAFTAzation and Asiazation" are trends that refer to the development of new markets to sell in, and to produce in. For example, the devaluation of some Asian currencies produced a boon for Asian exports to the U.S. Aside from the sheer magnitude of trade, it severely impacted the balance of equipment. West coast ports built up large inventories of empty containers as a result the trade imbalance. Furthermore, this came at a time of the rail mergers, which were ill-prepared for the Asian surprise. In a less global economy, these shocks would not have been as severe.

Core Competencies – Complexity breeds specialization. In order to cope with all of the challenges of operating in far flung markets such as Asia, Mexico and Canada, industries are turning to their core competencies. In other words, industries are outsourcing, including parts of or all of their transport, warehouse, distribution and logistics activities. While this is not the case with all industries,[4] many industries reason that they are not in the trucking and logistics business. Transport and logistics is viewed as one of the frontiers for cutting costs, and to effectively do so typically requires specialization in that business. Industries are therefore looking at third party specialists to cut costs and improve efficiencies, thereby allowing them to focus on their core competencies. One example in the high tech semiconductor business is National Semiconductor which relies on air freight integrators (like FedEx and UPS) to manage their entire logistics chain, including ground and air transportation (makers of semiconductors rarely use ocean freight), as well as warehouse and distribution.

E-Commerce – The Internet is the driver behind the growth in ecommerce trade. Customers are able to order products online and expect delivery within hours or days. Vendors are able to delay the final assembly and packaging of products until the order is taken. The benefits include allowing vendor to customize products, improve cash flow by delaying final stage costs until the order is taken and lowering distribution/retail costs by cutting out a whole

[4] In fact some industries are doing the opposite by focusing on these functions, specifically the warehouse, distribution and logistics of service and replacement parts, which is seen by some as a valued added business activity.

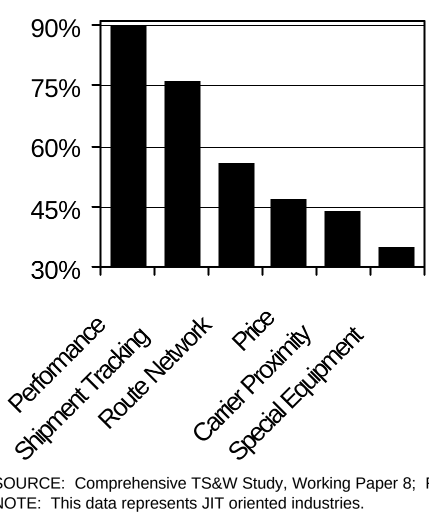
layer of distributors/resellers and the cost of retail shelf space. The impact on transportation is that shipments are small, frequent and high in value. As stated earlier, such shipments tend toward the more efficient and costly modes such as air and trucking (LTL).

Freight Transport Service Requirements

The economy is increasingly customer driven, a phenomenon that is spilling over to the transportation and logistics service sectors. High value markets, the ultimate customers as well as intermediate businesses, are demanding service reliability. Even for the lower value commodity where there is little perceived product differentiation, service is key. A logistics system that allows companies the flexibility to respond to customer needs is important to maintaining a competitive edge. Modal choice is central to the ability to balance customer cost needs versus time delivery needs on a shipment by shipment basis.

The growing emphasis on speed, efficiency and reliability is changing the service requirements expected from the freight transport and logistics sellers.

Exhibit 6-2
CUSTOMER EXPECTATIONS FOR FREIGHT TRANSPORTATION SERVICES
(Since the Onset of Just-In-Time Practices)



SOURCE: Comprehensive TS&W Study, Working Paper 8; FHWA
NOTE: This data represents JIT oriented industries.

A recent study revealed that a carrier's ability to respond quickly and reliably to customer needs is the leading trend among customer expectations.

WTTN PHASE I FINDINGS

Within the context of these logistics events and needs, the WTTN study examined that freight logistics system. The WTTN Phase I work is found in the Final Report dated May 9, 1997. Phase I identified the WTTN state key freight transportation corridors, identified the region's modal systems, identified transportation issues and deficiencies, and assembled interstate freight transportation statistics by mode used, origin/destination and commodity. Following are some of the findings from the WTTN Phase I report.

Multi-State, Regional Approach to Trade Corridors

The WTTN study represents an attempt at multi-state coordination and cooperation in addressing trade corridors and freight transportation in general. The study generated a number of conclusions, from that multi-state regional perspective.

- Long-distance trade does travel in defined trade corridors, most of which are multi-state in nature and most of which are multimodal in nature. These trade corridors are identified in this WTTN study.
- Trade generally moves from origin to destination without regard for state and even international borders. The private sector makes its plans and carries its freight with little attention to such boundaries. States, however, tend to be constrained by such boundaries since their planning and funding is limited to their single state. Improved decisions regarding mult-state trade might be possible if the states were able to develop multi-state trade corridor planning and program approaches.
- There is considerable diversity among the states relative to trade emphasis and attention to freight transportation. Some states have excellent trade data, freight studies and knowledgeable freight expertise; others do not maintain such expertise or interest.
- Because so much freight moves between states, deficiencies or activities in one state can affect trade activities in another state. Therefore, regional (multi-state)

approaches and sharing of information between states are potentially important to the creation of an efficient regional freight system.

- To reflect the multi-state nature of trade corridors, the U.S. could develop some type of mechanism whereby multi-state corridors can be cooperatively planned, programmed and funded.

- The western U.S. has many of the fastest growing population centers in the U.S. This means increased demands on the freight transportation system; it also means continued conflict between the need to move large volumes of freight through communities, and the impact of such movements on those communities.

- The seamless movement of trade across state and national borders is essential for the economic vitality of the western states, the nation, and international trade. This implies similar or common regulations, reporting requirements and operating standards.

- The WTTN states are well positioned to reap the benefits of increased trade, of the North American Free Trade Agreement (NAFTA) and the General Agreement on Tariffs and Trade (GATT), the huge Asian economies, and of freight transportation in general. Coordinated action by the western states may be needed to enable those benefits to occur. WTTN believes that the western states should promote such action from a coordinated, multi-state perspective.

Trade Flows and Freight Data

This study collected, reviewed, and summarized commodity movement, freight transportation, and trade data that are currently available. That information proved useful in identifying the trade corridors. The study yielded a number of observations regarding trade flows:

- Trade flows move overwhelmingly in the historical east-west directions, with more limited movement north-south (there are exceptions – the north-south I-5 corridor on the west coast; the Wyoming to southeast direction coal movements). This helps to explain the historical development of the west's east-west rail and highway networks.

- Trade flows have become increasingly intricate and interdependent, with the global economy depending on the exchange of goods and services. Increasingly a single product (an auto, for example) may have component parts from more than a dozen states and foreign countries. Efficient trade and efficient freight transportation will help the western states to be competitive in the global economy.

- International trade is accelerating. U.S. foreign trade doubled in the past decade, and comprises 12.3 percent of the nation's commerce. Clearly the WTTN states need to do everything possible to reduce barriers to efficient international trade.

WTTN Corridors in the Western U.S.

Considerable effort was expended in this study to identify the major trade corridors of the western U.S. This designation process, and its results, yielded a number of trade corridor conclusions.

- The trade corridors identified in this study comprise the "WTTN Network," shown previously in Exhibit 1-1.
- The trade corridors are all multi-state and/or international in nature. Cooperative and coordinated multi-state approaches to the transportation corridors may therefore have merit and may in fact be essential.
- While some trade corridors dominate in terms of tonnage moved or value handled, everything is relative. On a proportionate basis, a less used corridor in a sparsely populated state could be relatively more economically significant to that state than is a heavily travelled route in a heavily populated state. Hence, there is a need for trade corridor designations throughout the western U.S.
- The interrelationships in trade movements suggest that it is too simplistic to regard trade as comprising a series of individual trade corridors. Instead, as is the case with passenger transportation, the WTTN is a true "trade network" – just as the name implies.
- The trade origin/destination statistics support the contention that there are many trade "bridge" states; that is, much of the freight carried in a certain state is merely passing through on either rail or highway. Maintenance costs and operational impacts are incurred by the bridge state, with little or no economic benefit. The need for multi-state coordination and approach is once again apparent.
- Multi-state highway corridor coalitions (interest groups) are becoming increasingly prevalent. These groups are corridor specific and multi-state in nature. Multi-state corridor-specific coordination by the states might be a timely approach.
- The technical advances offered by Commercial Vehicle Operations (CVO) and other Intelligent Transportation System (ITS) approaches to improving freight transportation efficiency especially lend themselves to multi-state approaches to corridor evaluation.

Corridor Deficiencies Which Affect Efficient Freight Transportation

Phase I then identified perceived transportation facility deficiencies in the designated trade corridors, from the freight perspective. The deficiencies work suggests the following conclusions:

- Every defined WTTN Trade Corridor has some identified transportation infrastructure deficiencies both in urban and rural settings, although the deficiency magnitudes and types differ considerably. From the freight perspective, therefore, there is work to be accomplished in every WTTN corridor.

- Geometrics/surface conditions and capacity/congestion deficiencies are noted on most WTTN highway routes. These affect both freight transportation efficiency and passenger transportation efficiency.

- According to the states, most WTTN corridors with rail lines have some type of noted deficiency. Therefore, the WTTN states should be concerned about both the highway systems and the rail systems, as well as the intermodal facilities and services.

- The deficiencies have been identified in rather broad terms. Specific projects, investments and associated costs were not attempted in this study.

- There are insufficient funds available to the states, federal and local agencies, to effectively deal with this magnitude of infrastructure deficiencies. Therefore, priorities and prioritization processes (using, for example, performance measures of some type) are needed – within corridors, between corridors, within and between modes, between projects of various types, and within and between the participating WTTN states. The states do not collectively have a procedure whereby trade-oriented projects or investments can be prioritized.

- Public investment in transportation infrastructure in the WTTN corridors is but a small part of the total economic cost of freight transportation. The larger part is the huge cost of using that infrastructure, especially the cost of shipping and carrying goods to market. A balance between the costs of public infrastructure investment and the costs of freight carriage is requisite.

- Portions of the western U.S. have economies which require an efficient and safe railroad network. Although most of the rail system is privately owned, with investment decisions made based on market forces, there is still a role for the public sector. Public programs which assist in the maintenance of needed railroad infrastructure are beneficial to the WTTN states. At the federal level, the Local Rail Freight Assistance and the Rail-Highway Crossing programs are needed, and

Congress is encouraged to continue to fund those worthwhile programs. They are important to the western states.

- Efficient freight transportation across the Mexican and Canadian borders is important. Multi-state and multi-national (border crossing) efforts should be continued, e.g., the bi-national border crossing studies and the bi-national discussions.

- Because the capital investment needs are so large, and the available funding so limited, the deficiencies cannot be resolved solely by investment in infrastructure. The western states also need to be more technologically and operationally efficient via the use of ITS, CVO, and other low cost and technologically advanced ways of increasing transportation efficiency.

- The evolution of some forms of freight transportation has moved from cost based decisions to speed based decisions. Freight transport speed, and delivery reliability, have replaced cost as key decision criteria for many in the trade industry. Speed and reliability implies an efficient transportation system.

- The freight modes (rail, highway, pipeline, water, and air) were basically developed independently of each other. It is little wonder, therefore, that intermodal transfer facilities need attention. Locations of many intermodal facilities are not optimum; new facilities may be needed; and others need investment for improvements.

The WTTN Phase I work went on to suggest that additional, more detailed work was needed. Among other things, this more detailed work should include:

- Review of intermodal freight facilities in the WTTN states, including their identification and discussion of their issues;

- Identification of how well the west's highway systems are performing (from the freight industry's perspective); and

- Identification of solution possibilities, and explanation of how the alleviation of deficiencies might help the economies of the WTTN states.

These results led to the conduct of WTTN Phase II.

A SUMMARY OF WTTN PHASE II

Based in part on the generalized results of WTTN Phase I, the WTTN states decided to proceed with Phase II. Phase I was a regionwide investigation of transportation and trade; Phase II is a more detailed review of deficiencies and performance of specific transportation facilities. The "facilities" examination in Phase II covers all modes and intermodal facilities such as rail/truck COFC/TOFC terminals, water ports, airports, and grain elevators. The overall purpose of Phase II is to assess truck and freight transportation performance against a unique set of performance criteria, and then explain potential economic benefits associated with implementing a variety of possible solutions that address deficiencies and improve performance.

Freight Facility Identification

A significant goal in WTTN Phase II was to identify actual freight transportation performance in each WTTN corridor. To accomplish this, the study identified those specific freight facilities (specific highways, rail lines, intermodal facilities) that are construed as being of regional freight importance to the trade corridor.

- *Highways.* The states identified a 26,346-mile network of higher order roadways for inclusion in the WTTN analysis. The WTTN Highway Network is comprised of 94 percent of all interstate highways in the Region, 18 percent of the other National Highway System (NHS) routes, and several isolated non-NHS arterials. The WTTN highways are divided into sections, called *supersegments*, which facilitates analysis; the highway network was divided into 206 supersegments. Separate supersegments were made for most urbanized areas and when WTTN highways intersected, representing a routing decision point. Supersegments average about 130 miles in length.

- *Rail Lines.* Most principal rail lines in the western U.S. are part of the WTTN Rail Network, including most trackage on the BNSF and UP systems. Because the principal rail lines handle most of the freight traffic, most low-density lines were excluded from the WTTN network.

- *Intermodal Facilities*. A unique aspect of the WTTN analysis is the inclusion of intermodal facilities in the WTTN facility network. These facilities handle a significant portion of freight volumes headed to/from the WTTN Region. Because the transportation efficiency aspects of freight movements are so essential to regional competition, evaluation of intermodal access issues at these facilities helps extend the understanding of intermodal obstacles. The states designated 335 freight intermodal terminals for inclusion in the WTTN study.

- *Airports* – Although airports handle relatively low volumes of freight, the value of commodities transported by air is quite high, making them important components of the freight system. The growing nature of air cargo, especially in the overnight parcel business, makes efficiency of the truck/air transfers an important intermodal consideration. The WTTN states identified 18 airports for inclusion in the study.

- *Water ports* -- 28 public-use/public port authority water ports are included in the WTTN evaluation. These include sea ports as well as river ports.

- *Rail intermodal* – TOFC/COFC facilities (50), grain elevators (234), and rail reload terminals (5) are designated.

Highways Evaluation – A systematic process was established whereby each highway included in the WTTN network is assessed in terms of estimated truck performance compared with performance goals.

- For highways, a *performance-based process* focused on four basic indicators of truck performance (operating speed, operating cost, safety and reliability).

- This performance-based process used pavement/bridge condition, roadway geometry, roadway alignment, and congestion to assess truck performance.

- Each performance measure was translated into a set of Minimum Tolerable Conditions (MTCs), which were applied uniformly across the WTTN Region. An MTC is the lowest acceptable threshold for condition, geometry and operation in specific, measurable areas.

- Models were developed that used highway data to calculate existing conditions on the WTTN highways and to compare them with the MTCs to determine if a roadway *deficiency* exists.

- An HPMS *Systematic Approach* to assess deficiencies, based on the FHWA database and analytical package, was utilized to assess highway conditions.

- Highway deficiencies were determined in the following areas for each WTTN Trade Corridor:

- Pavement condition
- Lane width
- Vertical alignment adequacy
- Horizontal alignment adequacy
- Shoulder width
- Speed limit
- Current capacity (1996)
- Future capacity (2016)

- The quantification of deficiencies allowed the calculation of truck operating speed for both peak and average daily conditions to assess *truck-operating speed* versus calculated target speeds. *Thus, operating speed became the key indicator of truck performance calculated in the WTTN Phase II study.*

- The *potential for improving operating speed* on WTTN highways was also estimated. This was done by simulating unspecified improvements that address highway deficiencies and calculating the potential improvement in operating speed (and time). The effort was conducted to estimate the potential for speed improvements only.

Highway Performance and Deficiencies – A significant portion of the effort associated with WTTN Phase II concerned deficiencies and performance of the specific highways included in the 20 WTTN Trade Corridors. A critical early step in performing these evaluations was the identification of Minimum Tolerable Conditions and applying available data through deficiency models to identify deficiencies that affect performance (operating speed). The HPMS database was used as the starting point.

The states were asked to supplement the data available (HPMS database) by providing roadway characteristics information for the non-sampled portion of their WTTN highway network. With all of the available data included, the highways were evaluated against the Minimum Tolerable Conditions on a supersegment basis. Supersegment deficiency data was expanded (when less than 100% of the highway was sampled) and summarized on a corridor basis. The following highway results were noted:

- Highway Deficiencies – The most frequent deficiency in the WTTN Highway Network is capacity, especially future capacity (22.5% deficient), followed by pavement condition (12.4%), and current capacity (7.2%).

- Urban WTTN highways have significantly higher deficient mileage than do rural WTTN highways in the following categories: pavement condition, current capacity, speed limit, lane width, and future capacity.

- Of the 25,734 bridges serving WTTN highways, only 327 were found to have a deficiency (48 with posted load limit, 279 with low operating rating), which can lead to operational problems, delays and extra costs due to detours. Eighty-four of the deficient bridges (nearly 26 percent) are in two corridors (12 and 14). Corridor 13 had no deficient bridges.

- WTTN highways have fewer deficiencies, on average, than similar highways nationwide in lane width (rural and urban), current capacity (urban), and pavement condition (urban and rural). Rural WTTN highways have a higher share of current capacity deficiencies than the national average.

- WTTN Trade Corridors with a higher share of rural two-lane highways generally have more deficiencies than those with mostly multi-lane highways. The rural two-lane facilities, especially those in the mountain states, generally have more alignment, speed limit, and capacity deficiencies.

- Specific observations regarding deficiencies in WTTN Trade Corridors include:

  - Corridor 7 (Mexico-Canada) has the highest percentage of pavement deficiencies (34.3%) and nearly the highest amount of future capacity deficiencies (64.2%).

  - Corridor 9 (Boise-Canada), with its mostly two-lane highways through rugged terrain, has the highest amount of lane width deficiencies (11.1%), vertical alignment deficiencies (5.4%), deficient horizontal alignment (18.1%), current capacity deficiencies (40.2%), and future capacity deficiencies (65.7%).

  - The corridor with the most narrow shoulder mileage is Corridor 12 (Montana-Canada (76.5%).

  - Corridor 18 (Laredo-Indianapolis) has the highest share of speed limit deficiencies (12.3%).

  - The corridors with the fewest deficiencies are Corridor 13 (Canada-Minneapolis-Chicago) and Corridor 15 (Mexico-Arizona).

- Only three WTTN corridors (6, 7, and 15) meet the target truck operating speed for both single unit and combination trucks. Four corridors (2, 5, 10, and 17) meet the operating speed target for single unit trucks.

- Three WTTN corridors have truck operating speeds significantly less than the target speed; Corridor 9 (Boise-Canada), Corridor 12 (Montana-Canada), and Corridor 20 (Montana-Canada).

- The greatest potential improvement for *average daily times* in operating speed (and time saving) is in addressing speed limit, congestion, and pavement condition deficiencies. However, the overall cumulative estimated benefit from all potential improvements is only 2.5%.

  - Alignment improvements provide more benefits to combination trucks than to single unit trucks.

  - Improvements are not uniform among the corridors because of the deficiency mix and the mixture of interstate/non-interstate type highways. Larger improvements were noted in corridors with more two-lane highways.

  - Speed limit improvements tend to have greater benefit on lower functional classifications.

  - Corridors showing little potential for speed/time improvement include Corridor 6 (Texas-Memphis) and Corridor 11 (Pacific NW-Kansas City).

- Potential time savings during peak hour are higher, mostly due to congestion relief. The corridors with the highest potential benefits are those with the most urban mileage (Corridors 2, 5, 6, 7, 10, and 15).

Railways Evaluation – For the analysis of deficiencies in rail performance in WTTN corridors, 55 rail shippers were surveyed. The focus of analysis was on the main line routes of the Burlington Northern and Santa Fe Railway (BNSF) and the Union Pacific Railroad (UP), the predominant operators in the WTTN corridors. A summary of findings follows.

- Four types of performance standards were identified by rail shippers. Deficiencies in these performance standards were defined as the extent to which actual railroad performance varied from shippers' expectations. These standards pertained to transit time reliability, car availability, customer service, and the price of rail transportation services. Of these**, transit time reliability and car availability** were the standards of primary concern to the shippers.

- Shippers reported that both BNSF and UP were delivering **mediocre transit time reliability** on many routes. These observations persisted through most of 1998, a time when both railroads were known to be having substantial operating problems.

- Shippers also reported **shortages in car supply** on both railroads. BNSF was seen as having a worse supply condition than UP. However, only a minority of responding shippers reported supply conditions to be good on either railroad. More than three fourths of cars reported in short supply consisted of four car types: box cars, covered hopper cars, gondolas, and open top hopper cars.

- Many shippers also reported being less than satisfied in various performance areas grouped together here as **customer service**. Specifically, shippers reported deficiencies with regard to the on-time pick-up and delivery of cars, accurate information on shipments, sufficient resources and training enabling employees to respond effectively to shippers' needs, and the ability of employees to fix service problems.

- While the **price of rail transportation services** was cited as a performance standard, the evidence found in the course of this study indicated that, on balance, shippers are paying less for their rail transportation than they have at any time in the recent past.

- Of the performance deficiencies cited above, only the deficiencies with regard to transit time reliability truly lent themselves to analysis on a corridor basis. Nine rail routes in WTTN corridors were identified as having transit times at least 20% longer than expected by shippers. Two of these routes belong to BNSF, and seven belong to UP. However, it should be noted that shippers were reporting an improving transit time reliability on UP toward the conclusion of the survey.

Intermodal Facilities

The WTTN intermodal facility evaluation identified transfer, access and efficiency issues by type of intermodal facility (air, rail, water, truck). Therefore, the study was not able to examine the 335 intermodal facilities *individually*. The observations made in Chapter 5 of this report generally apply to each intermodal facility type.

Airports – Air cargo trends and issues were identified, and 18 airports in the WTTN states were identified as important air cargo intermodal terminals. Example findings included:

- The growth in air cargo is almost entirely due to the success of the integrated carriers (overnight parcels).

- U.S. domestic air express is growing at about 10% annually, creating a need for additional truck access capacity at western airports.
- International air cargo could increase dramatically (triple) over the next 20 years. However, recent economic problems in Asia make the near term outlook for growth less optimistic.
- Air cargo utilizing the west's airports is increasing faster than air cargo growth nationwide.
- Truck-to-truck freight transfers are also prevalent at airports.
- Multiple truck access points at large airports and the intermingling of trucks and cars limit the potential for addressing access problems.
- Priority to passenger access at major airports often relegates truck access to a "secondary" problem.
- Truck access problems at the west's large airports are much more severe than at medium/small airports.

Grain Elevators – Elevators were viewed as important intermodal facilities by six of the states. These states identified 234 grain elevators for inclusion in the WTTN study**.**

- Grain elevators as freight transportation facilities are of great importance to states with a large agricultural sector.
- The U.S. is the world's largest exporter of grain, making transportation efficiency crucial to a region's competitiveness.
- Transportation must be able to react to abrupt changes in the grain market for the WTTN states to be competitive.
- Grain elevators, as both storage and transfer facilities, are a crucial link in the grain distribution system.
- Transport between the grain elevators and farms, other terminals, and other modes, has been greatly impacted by changes in truck design, rail abandonments, formulation of unit trains, increasing rail car capacity, and rail car availability.
- Evolution of the grain elevator has seen the decline of small country elevators being replaced by larger High Throughput Elevators located on rail main lines.

Rail Intermodal Facilities – TOFC/COFC traffic is increasing, thereby causing rail intermodal to be a major, growing component of freight transportation. Fifty rail intermodal facilities were identified for inclusion in the WTTN study.

- Containerized traffic is growing very fast due to growth of international markets.
- Typical roadway access problems common at railroad intermodal facilities include clearance restrictions, geometric deficiencies, delays (at-grade rail crossings, terminal gate processing) and congestion.

Water Ports – Water ports include west coast and Gulf of Mexico seaports and inland river ports. The WTTN study includes 28 water ports.

- Growth of container traffic has impacted port volumes as well as created numerous landside access issues for both roadway and rail.
- Cargo volumes handled at the six WTTN west coast ports increased by 67% between 1975 and 1997.
- Roadway access to water ports is restricted by operational impediments such as roadway congestion, antiquated/inadequate traffic signals, and poor signage.
- Physical restrictions, such as narrow lanes, inadequate bridge clearances, tight geometrics, weight restrictions, and at-grade conflicts, also impede truck access to water ports.
- Rail access deficiencies include both operational (at-grade crossings, slow speeds through congested areas) and physical (clearances, weight limits off main lines).

Menu of Intermodal Facility Solutions

The WTTN study then identified a variety of access oriented solutions that might be considered at the facilities. A wide range of generic solutions was developed that could help states address individual deficiencies. Once the deficiencies were quantified, one or more potential solutions were drawn from the solutions *menu* as an example of actions that could be taken. In no sense were the solutions to be considered specific capital recommendations.

Potential airport access solutions include:

- Isolate/separate cargo traffic from passenger traffic.
- Incorporate critical characteristics of truck traffic (weights, turning characteristics, etc.) into roadway design.
- Improve truck routing at airports through signage, truck route planning, resolving land use conflicts.
- Improve methods for including truck access features into airport planning.

Potential grain elevator solutions include:

- Identify financial assistance to retain/improve service to elevators located on low density or branch lines.
- Improve elevator capability of handling larger, heavier rail cars.
- Increase load-handling ability of sidings (including length).
- Upgrade equipment to increase car-handling rate.
- Seek a greater awareness of grain truck issues/needs (weights, turning requirements, queuing characteristics, turning lanes).
- Improve main and secondary roadway capabilities of handling trucks, including roadway foundations, surface maintenance, bridges, at-grade rail crossings, intersection geometrics.
- Invest in lock/dam improvements, dredge channels.
- Balance economic/environmental concerns.

Rail Intermodal access solutions include:

- Address physical deficiencies (widen lanes, improve intersection geometrics, provide more direct access).
- Implement operational improvements (new/improved signals, signal timing, turn phases, terminal gate improvements, grade separations).

Suggested water port access solutions include:

- Implement technology improvements (communications, AVI, incident detection, congestion surveillance).
- Address truck access problems through roadway/bridge widening and rehabilitation, traffic signalization, geometric enhancements, signage, weight limitations, truck-only routes.
- Improve truck/rail and truck/ship transfer by coordinating operation/departure arrival intervals.
- Finance/implement rail capital improvements, including new on-dock rail facilities, larger/more efficient yards, new grade separations, rail line consolidation, increased capacity between ports and main lines.

RECOMMENDATIONS

The WTTN study (both phases) addressed the subject of trade and surface transportation on a multi-state, multimodal basis. It took a “trade corridor” approach, and sought to be helpful to the participating states, individually and collectively. No state was asked to adopt the study or its findings. Rather, the study is simply meant to be informative, and perhaps thought provoking, and to help the states to deal with the various trade corridor proposals being proposed by various groups.

But, the study does lead in certain directions. These directions, in the form of recommendations to the states, are as follows:

1. **<u>Trade Corridor Funding</u>** – There is great interest nationally regarding trade corridors. This is exemplified by the overwhelming interest in TEA-21 Section 1118 – the National Corridor Planning and Border Infrastructure Programs. With only $123.6 million available this year for the trade corridors and border crossings program, states and local jurisdictions sent funding applications to U.S. DOT for over $2 billion (the program was greatly oversubscribed). In addition, U.S. DOT was inundated with communications and comments indicating interest in the trade corridors program. Hopefully the U.S. Congress and U.S. DOT are listening, and will more adequately address and fund trade corridors work in the future.

2. **<u>Use of Available Trade Corridors Funds</u>** – The western states were allotted $60.6 million of the $123.6 million available this year in trade corridor/border crossing funds (49% of the total nationally). This is a good sign that the west's freight transport needs are being recognized by U.S. DOT. This WTTN study should be used by the WTTN participating states to seek additional available TEA-21 trade corridor funding in future fiscal years.

3. **<u>Multi-State Corridor Planning</u>** – The characteristics of interstate and international trade, corridor special interest groups and the corridors themselves suggest a need for multi-state coordinated approaches to corridor planning and decision making. The trade does not recognize borders, nor do the corridor interest groups, nor do the carriers or the shippers. Multi-state coordination in the planning for trade corridors makes sense.

4. **<u>Freight Network Planning</u>** – Similarly, network planning as opposed to corridor-by-corridor planning also makes sense. Freight and trade moves over complex networks, just as passengers do. Corridor-specific approaches may therefore be overly simplified. All corridors should be placed into perspective, one with the others.

5. **<u>Inclusion of Freight in Statewide Planning</u>** – As called for in ISTEA and again in TEA-21, and as advocated in WTTN, the 17 western states should strengthen the inclusion of freight issues and needs in their statewide and metropolitan transportation planning processes. Several western states are already doing so, others should consider it.

6. **<u>Inclusion of Freight Interests</u>** – As the individual states include freight in their planning processes, they should include freight stakeholders in the deliberation process. For example, freight advisory councils and other methods should be considered.

7. **<u>Western Freight Partnership</u>** – The Western Freight Partnership suggested by the Western Governors Association in 1996 should be supported, as a logical forum for ensuring that private sector concerns and issues are considered in the public sector transportation decision process. The best way for the states to understand freight industry issues and needs is to have a dialogue with representatives of the freight

industry. State specific, corridor specific and multi-state regional dialogue with the trade industry are all to be encouraged.

8. **Inclusion of the General Public** – The general public needs to be informed of the serious transportation issues confronting the western states, the implications for the inefficient movement of freight, and how those inefficiencies will affect the general populace. The public should also come to understand that many freight transportation projects can effectively reduce highway congestion during peak commuter periods.

9. **Improved Communications** – Improved communications may therefore be at the heart of any attempt to improve trade and freight transportation efficiency. This should include:

    - Improved communications between the states and among the state agencies responsible for providing portions of the freight transportation infrastructure.

    - Improved communications between the state representatives and the freight transportation community.

    - Improved communications with the general public, who should be made aware of the challenges concerning freight transportation in the WTTN states.

10. **Support for Short Line Railroads** - As main line railroads continue to sell-off branch lines to short line operators, these operators increasingly are responsible for a significant share in the gathering and distribution of the nation's rail-borne freight. However, because many of these short lines are under-capitalized, capital budgets to ensure that these lines are maintained to a similar degree as the main lines are also under-funded. Predictable consequences include delays in rail shipments as well as embargoes of cars with heavier axle loads from certain branch lines. Shippers on branch lines that cannot accommodate cars with heavier axle loads will be at a competitive disadvantage as compared with shippers on main lines. The WTTN states, therefore, should review conditions on branch lines in the west to determine if there is a role for supporting capital improvements on branch lines critical to the efficient movement of the west's freight.

11. **Rail Car Availability** - WTTN research reflected significant dissatisfaction of rail car supply conditions in the west. This may have been a result of the severe operations problems experienced by the major carriers during the course of the study. These would have served to lengthen transit times and thereby worsen car availability. As service improves, car supply can be expected to improve as well. Nevertheless, car availability may not improve linearly with operating improvements in all cases. Particularly this could be true for short haul markets, which may find themselves in chronic short car supply conditions. A case in point was in the Pacific Northwest, where grain shippers reported difficulty in obtaining consistent car orders from

railroads for the haul to nearby Columbia River ports. As a result, Washington State purchased 47 100-ton covered hopper cars to help handle these grain shipments. The purchases had corollary benefits of maintaining services on branch lines and ensuring shipments by rail which otherwise would have gone by highway. Other states might review the experiences of short haul shippers to see what might be done to alleviate car supply conditions.

12. **Funding of Intermodal Facilities Access** – Access to intermodal facilities continues to be a major issue. The WTTN states should continue their efforts to seek sufficient funding for highway and railway access to ports, airports, elevators, COFC/TOFC facilities and reload facilities. The FHWA's Intermodal Condition and Investment Study can be a major resource in this effort.

13. **At-Grade Rail/Highway Crossings** – With increasing highway and railroad traffic, and as traffic densities focus on certain rail lines, grade crossing alleviation needs are increasing. The states need to consider the commitment of additional resources to this issue.

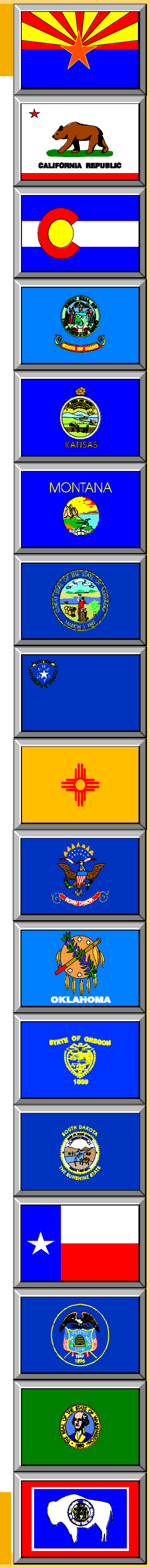
14. **Greater Priority for WTTN Corridors and Facilities** – This study demonstrates the great importance of these WTTN transportation corridors to trade, and therefore to the economy. Corridor issues, from the trade perspective, include capacity in urban areas, pavement condition, bridge and structure postings, and some two-lane highways. All are shown to impede efficient freight services. Perhaps the states could place greater emphasis in their prioritization processes on the WTTN corridors.

Wilbur Smith Associates
Felsburg Holt & Ullevig

Final Report ..... Phase II

WESTERN TRANSPORTATION TRADE NETWORK - WTTN

1999



APPENDIX TABLE OF CONTENTS

Appendix A
WTTN HIGHWAY NETWORK MAPS
(WITH SUPERSEGMENT NUMBERS)

This appendix contains maps of each WTTN state, and selected urbanized area enlargements, that depict the WTTN Highway Network and associated *supersegment* numbers. The maps are grouped by state, listed alphabetically, followed by their enlargements.

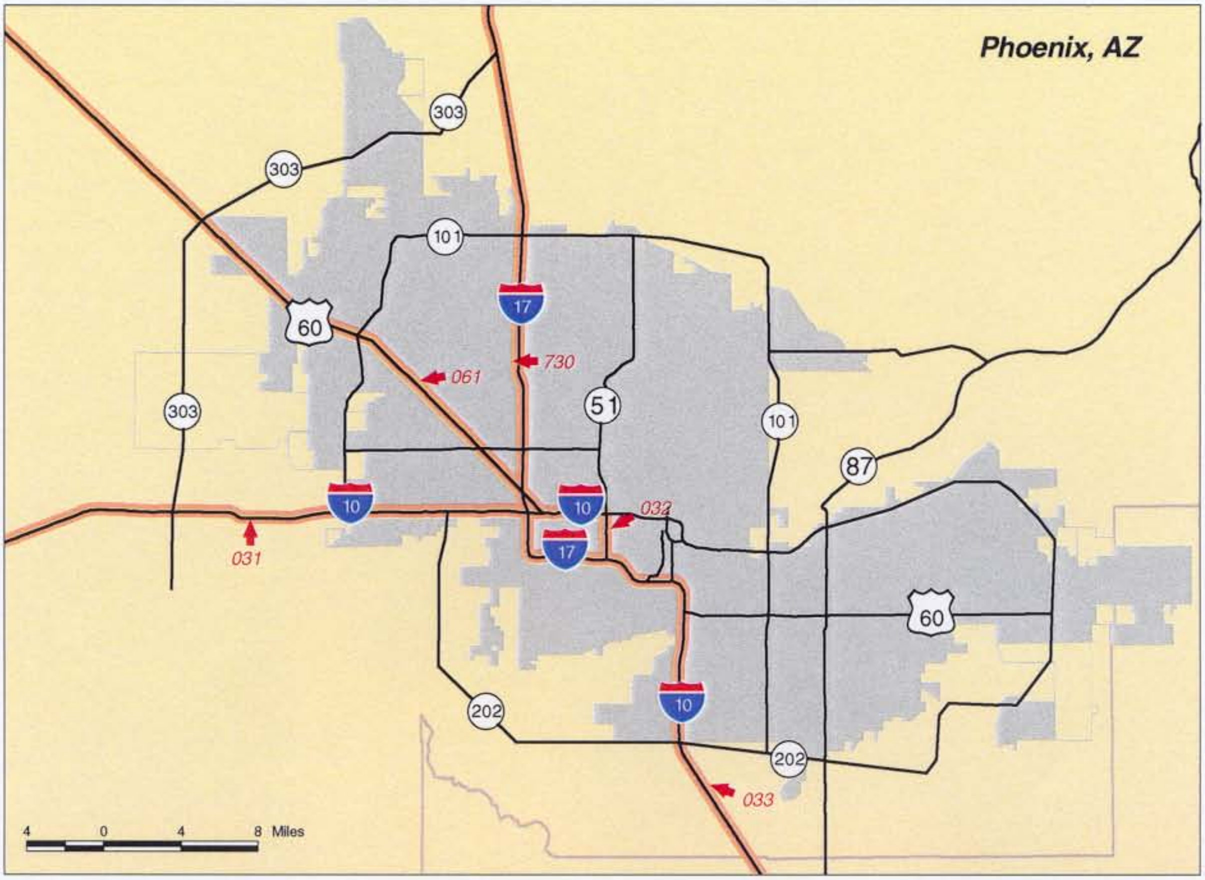
As explained in Chapter 2, analysis of the WTTN Highway Network is possible only if the highways are broken into smaller segments for evaluation of deficiencies and performance. The maps in this appendix show the entire National Highway System (NHS), which includes all Interstate highways. Those highways identified as part of the WTTN Highway Network are illustrated in orange, along with the corresponding supersegment number (red). The specifc descriptions of the supersegments, including termini, are found in Appendix B.

Interstate highways are marked with their traditional blue-and-red shield (,), U.S. marked highways with a black-and-white shield (/), and state marked highways have a round emblem (O).

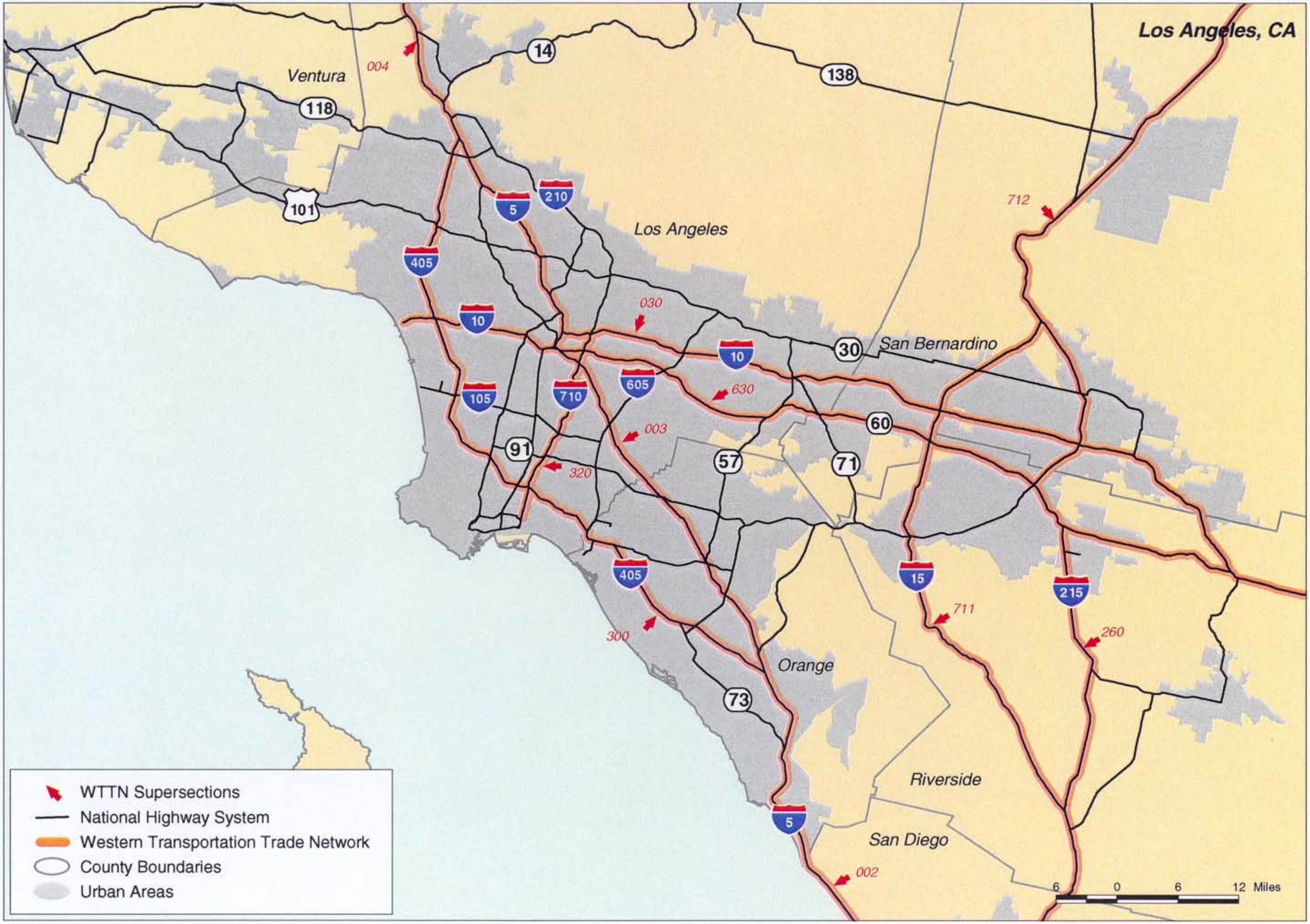
Arizona

715
Mohave
Coconino
Apache
062
131
132
Navajo
Flagstaff
133
130
Yavapai
730
061
La Paz
031
032
Gila
Phoenix
Greenlee
Yuma
Pinal
Graham
Yuma
021
Maricopa
033
034
Tuscon
Pima
060
Cochise
Santa Cruz
WTTN Supersections
National Highway System
Western Transportation Trade Network
County Boundaries
Urban Areas
20 0 20 40 Miles

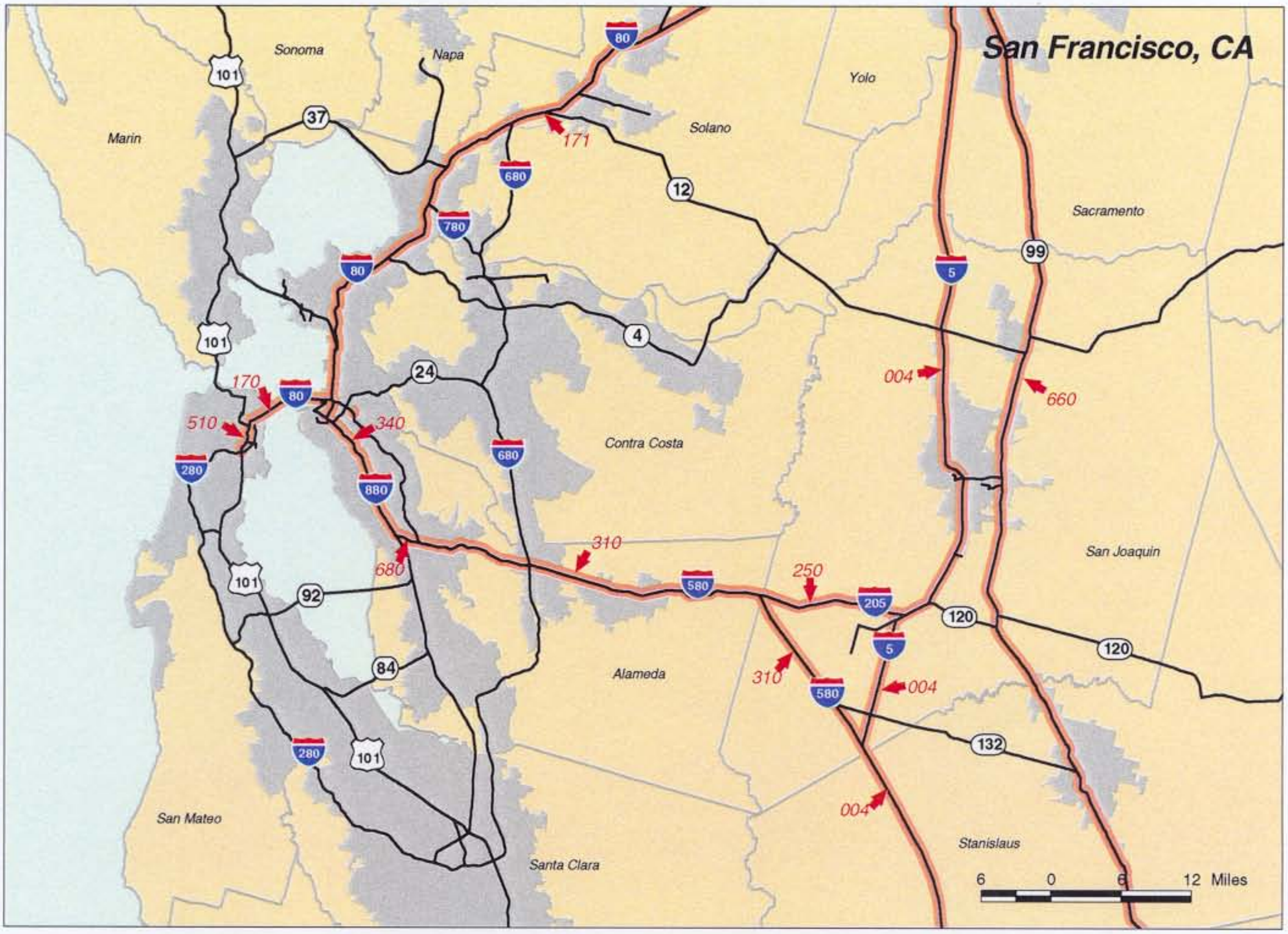
Arizona: Urban Areas

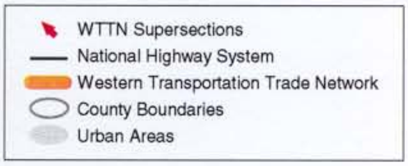


California: Urban Areas

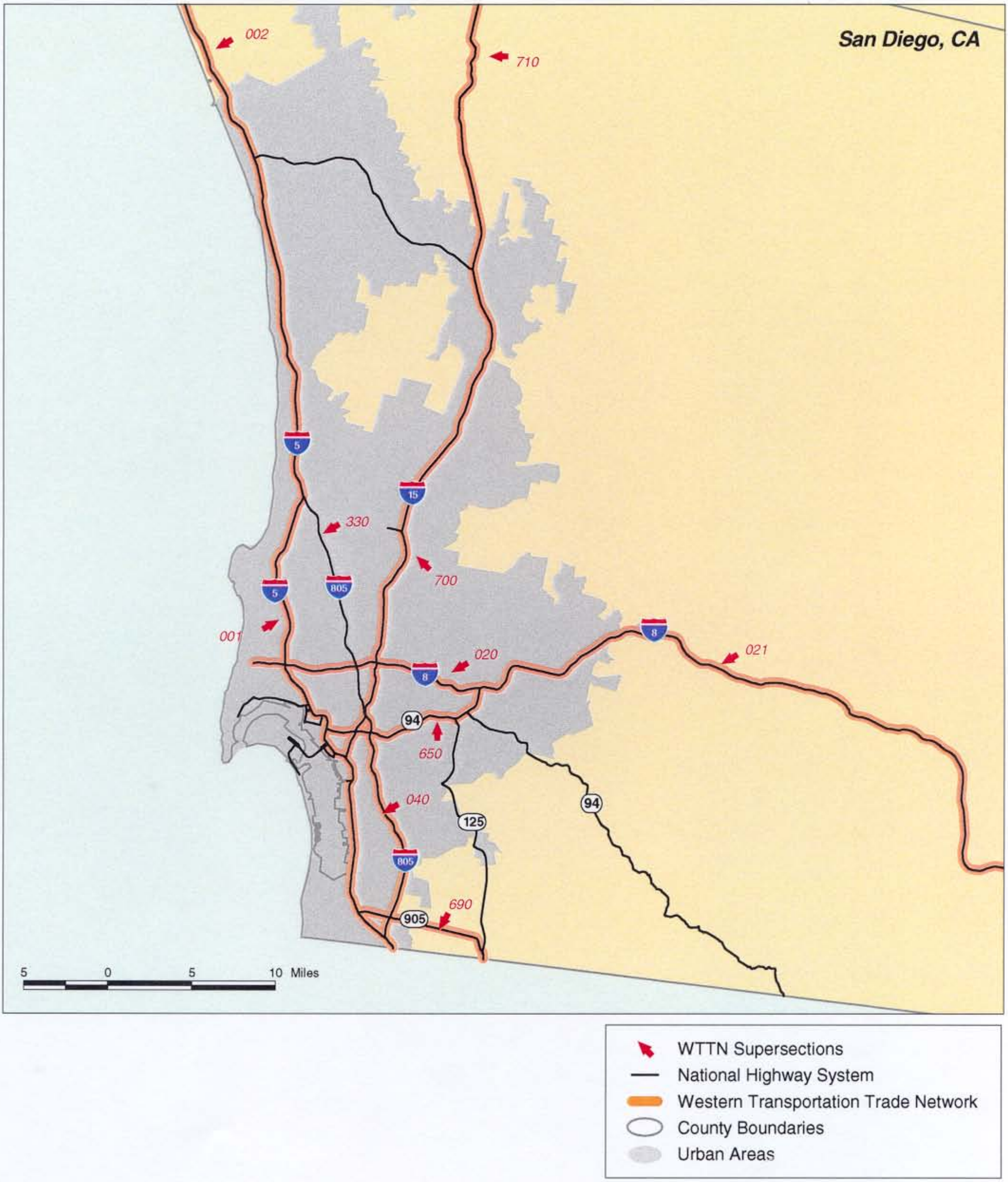


California: Urban Areas

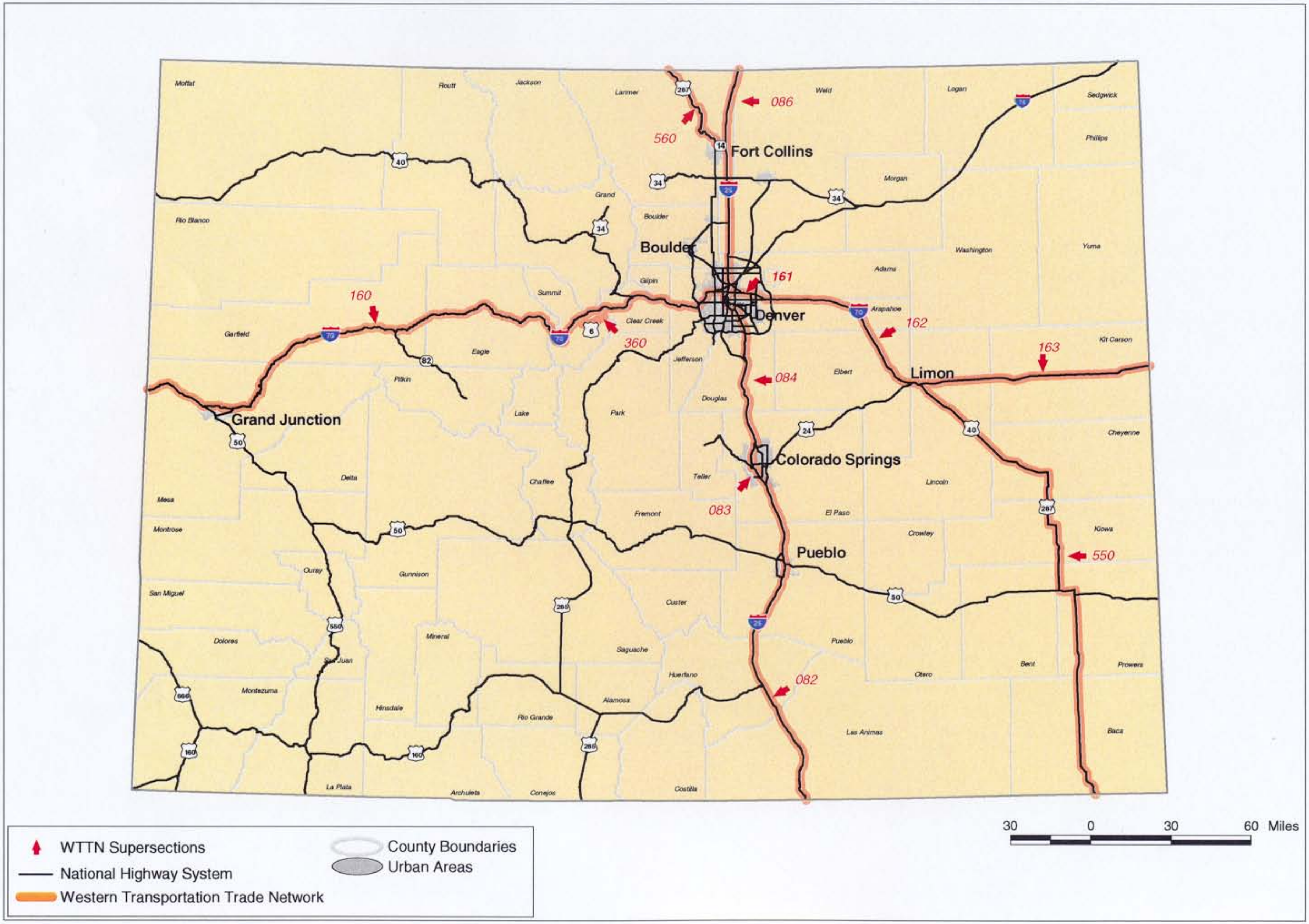




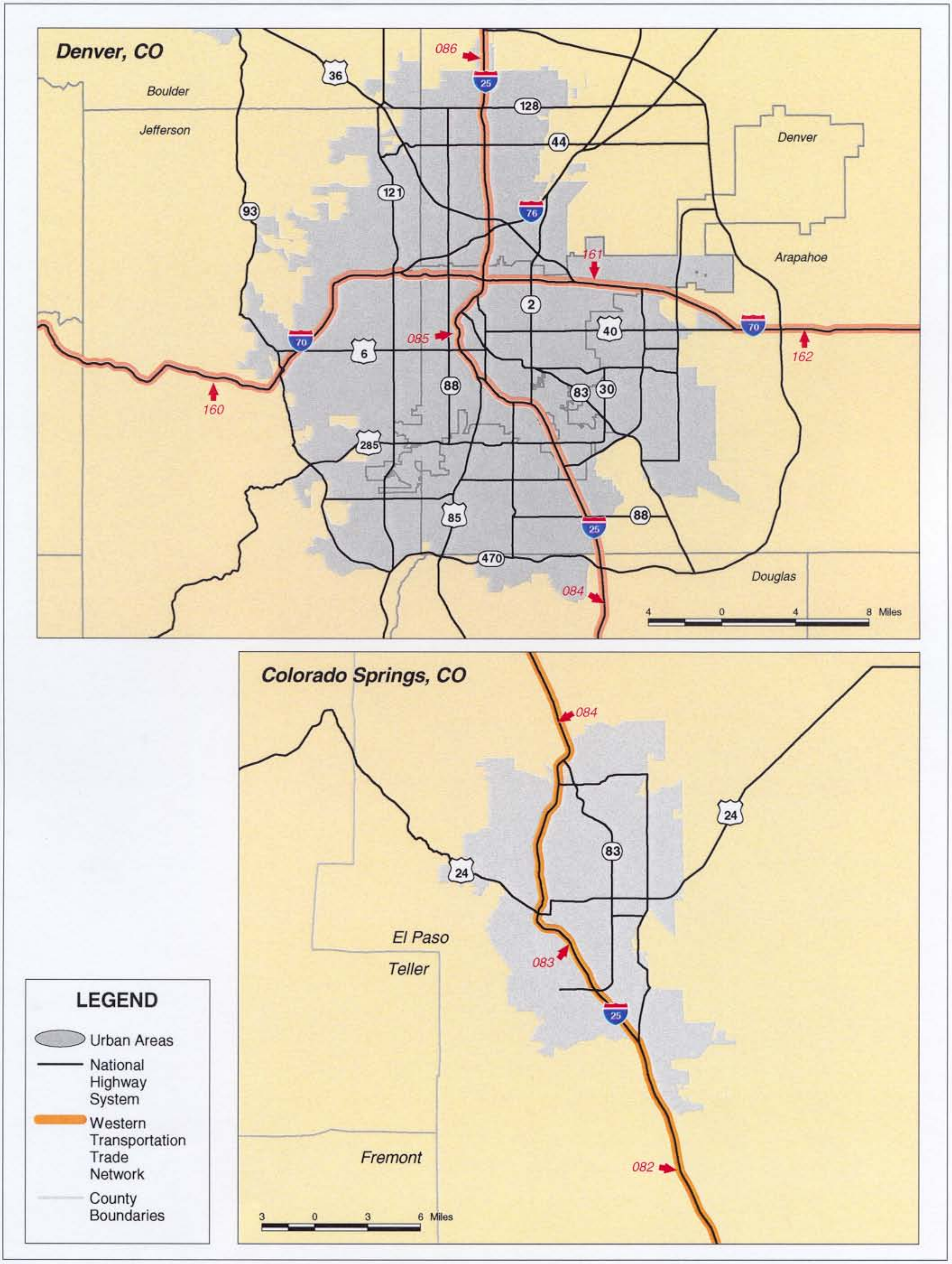
California: Urban Areas



Colorado


Fort Collins
Boulder
Denver
Limon
Colorado Springs
Pueblo
Grand Junction
086
560
161
160
360
162
163
084
083
550
082
WTTN Supersections
National Highway System
Western Transportation Trade Network
County Boundaries
Urban Areas
30
0
30
60
Miles

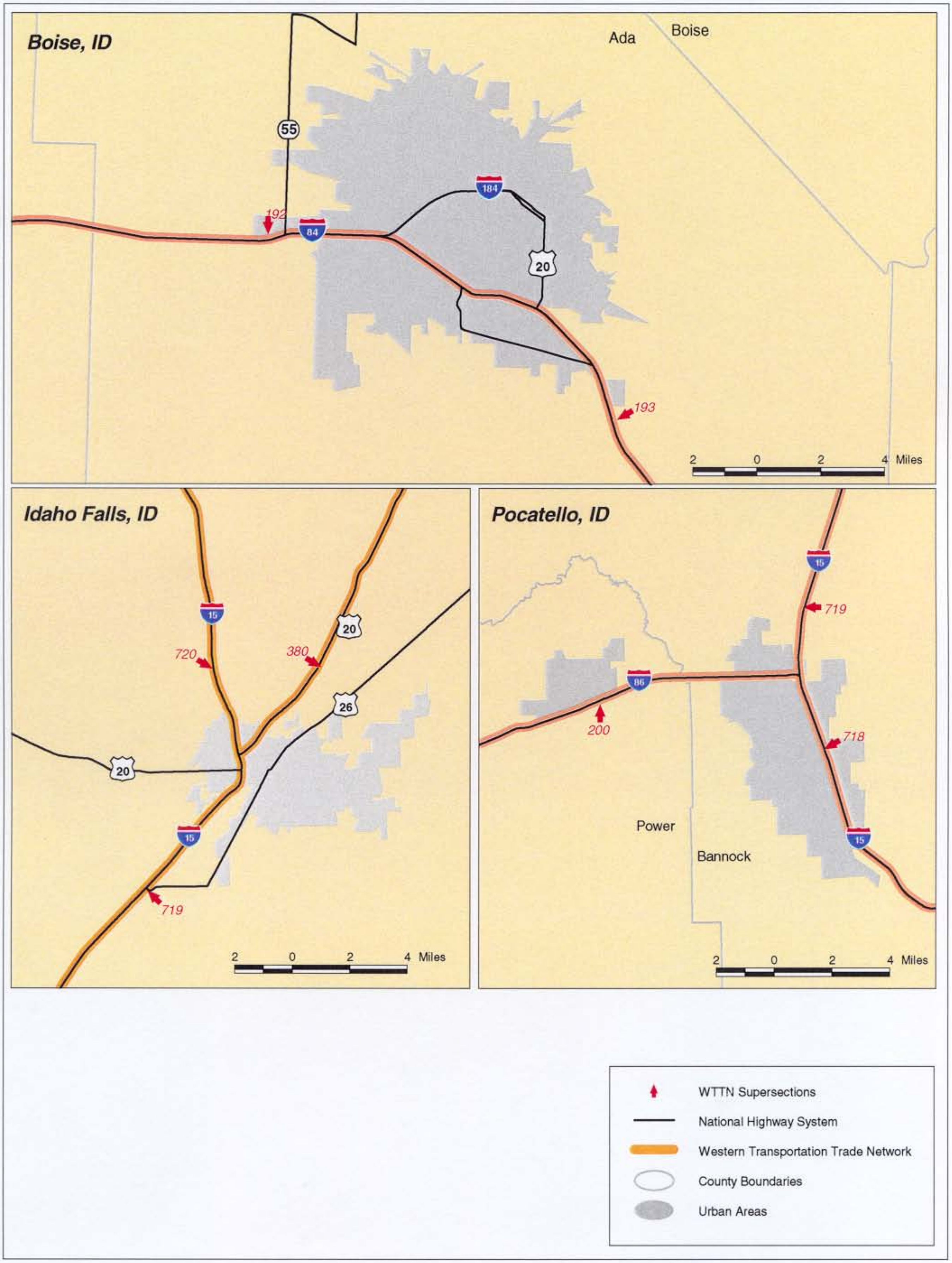
Colorado: Urban Areas



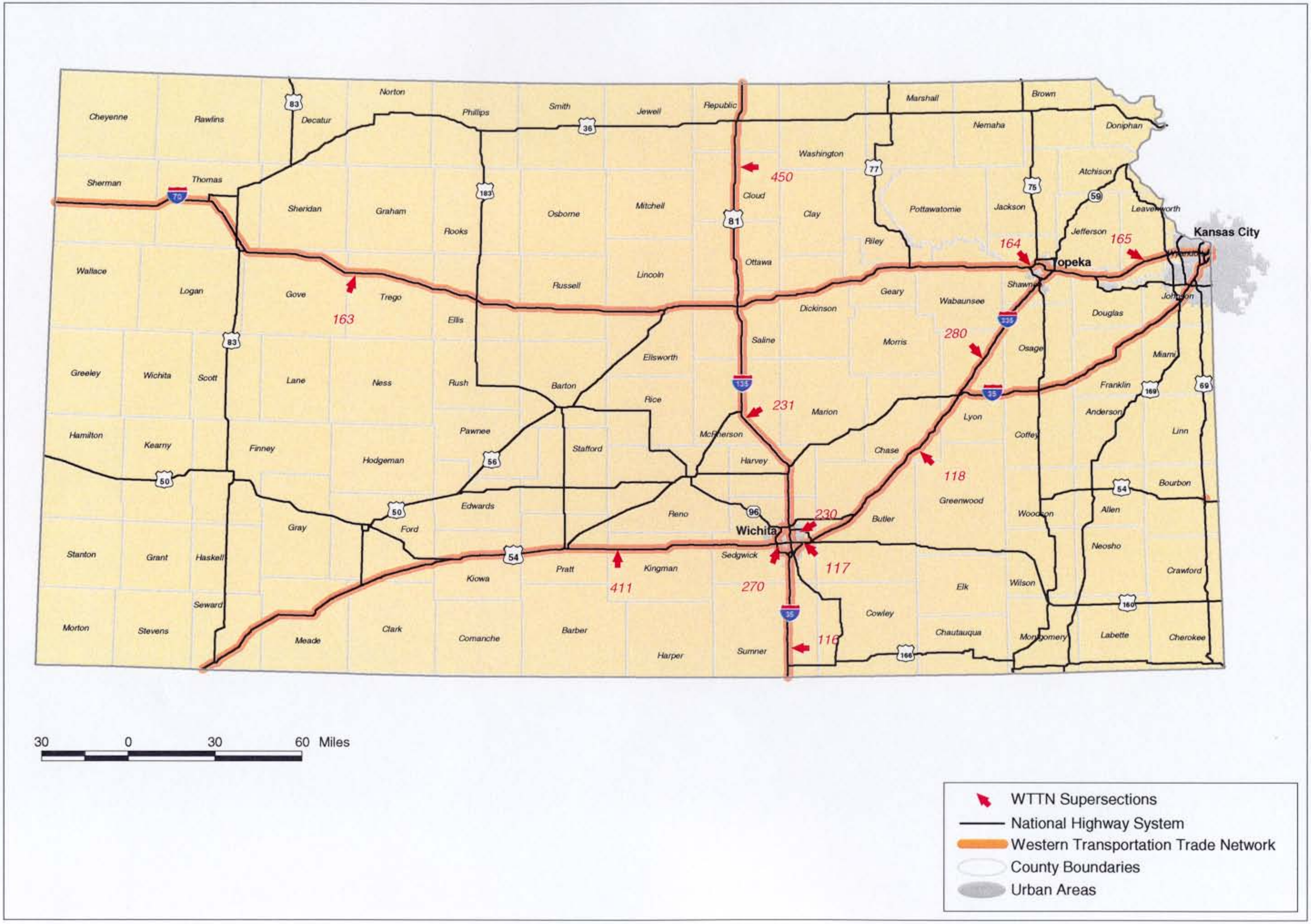
Idaho

WTTN Supersections
National Highway System
Western Transportation Trade Network
County Boundaries
Urban Areas
Boundary
Bonner
Kootenai
Coeur d'Alene
Benewah
Shoshone
Latah
Clearwater
Nez Perce
Lewis
Idaho
Adams
Washington
Valley
Lemhi
Custer
Payette
Gem
Boise
Canyon
Ada
Elmore
Camas
Blaine
Butte
Clark
Fremont
Jefferson
Madison
Teton
Idaho Falls
Bonneville
Bingham
Pocatello
Bannock
Caribou
Power
Gooding
Lincoln
Jerome
Minidoka
Owyhee
Twin Falls
Cassia
Oneida
Franklin
Bear Lake
352
492
351
213
491
214
370
490
192
193
194
200
718
719
720
380
40
0
40
80 Miles

Idaho: Urban Areas

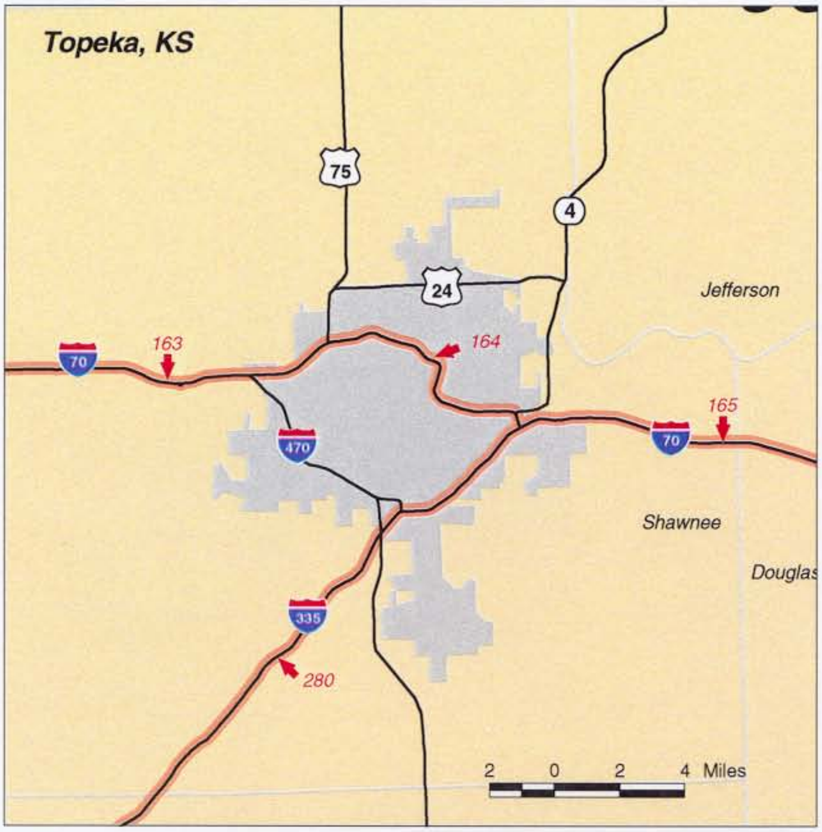


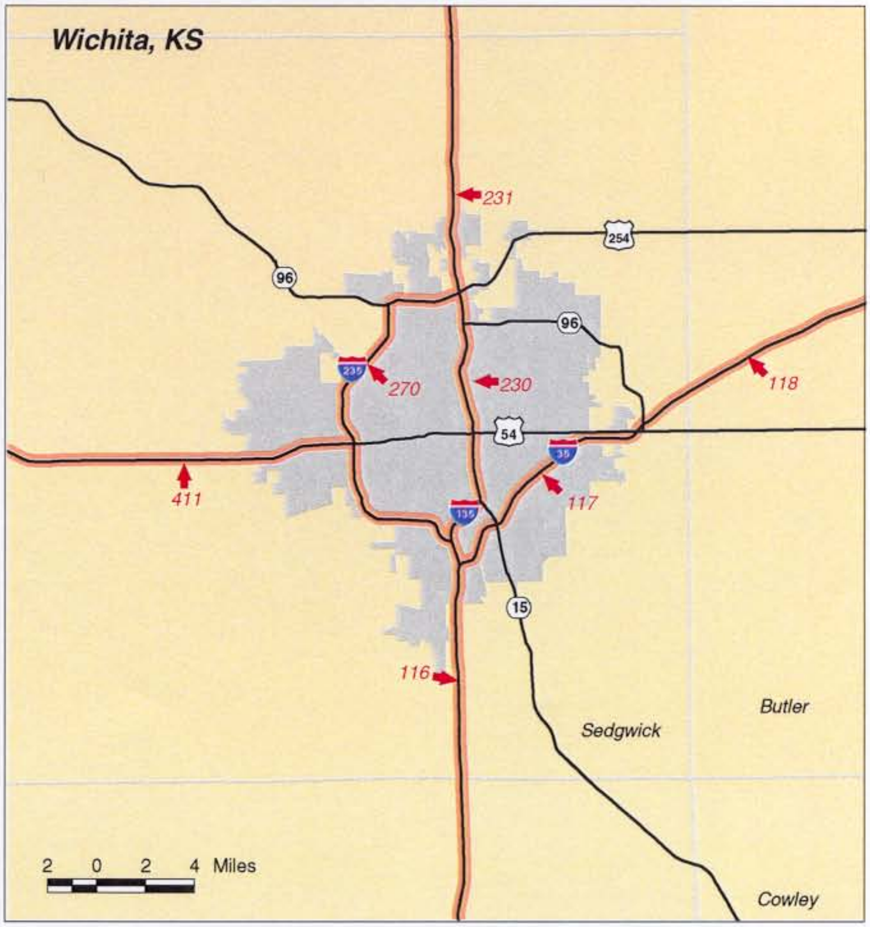
Kansas

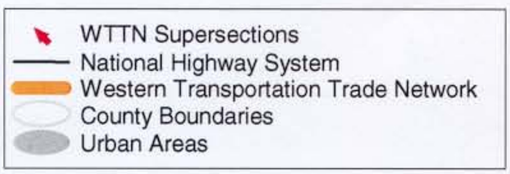


Kansas City
Topeka
Wichita
450
163
164
165
280
231
118
230
117
270
411
116
Cheyenne
Rawlins
Decatur
Norton
Phillips
Smith
Jewell
Republic
Washington
Marshall
Nemaha
Brown
Doniphan
Sherman
Thomas
Sheridan
Graham
Rooks
Osborne
Mitchell
Cloud
Clay
Riley
Pottawatomie
Jackson
Atchison
Jefferson
Leavenworth
Wallace
Logan
Gove
Trego
Ellis
Russell
Lincoln
Ottawa
Dickinson
Geary
Wabaunsee
Shawnee
Douglas
Johnson
Saline
Morris
Osage
Miami
Greeley
Wichita
Scott
Lane
Ness
Rush
Barton
Ellsworth
Rice
McPherson
Marion
Chase
Lyon
Coffey
Franklin
Anderson
Linn
Hamilton
Kearny
Finney
Hodgeman
Pawnee
Stafford
Harvey
Edwards
Reno
Greenwood
Woodson
Allen
Bourbon
Gray
Ford
Butler
Neosho
Stanton
Grant
Haskell
Kiowa
Pratt
Kingman
Sedgwick
Elk
Wilson
Crawford
Seward
Morton
Stevens
Meade
Clark
Comanche
Barber
Harper
Sumner
Cowley
Chautauqua
Montgomery
Labette
Cherokee
30 0 30 60 Miles
WTTN Supersections
National Highway System
Western Transportation Trade Network
County Boundaries
Urban Areas

Kansas: Urban Areas



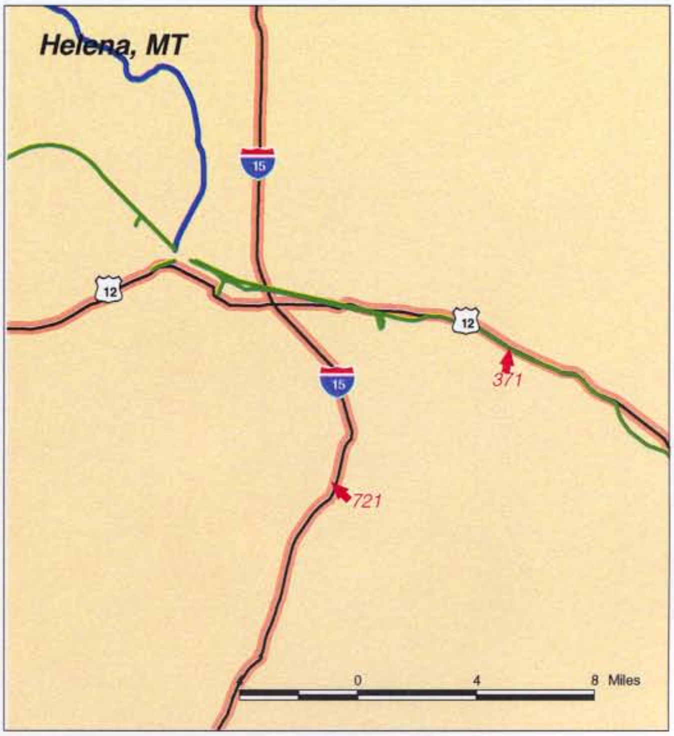


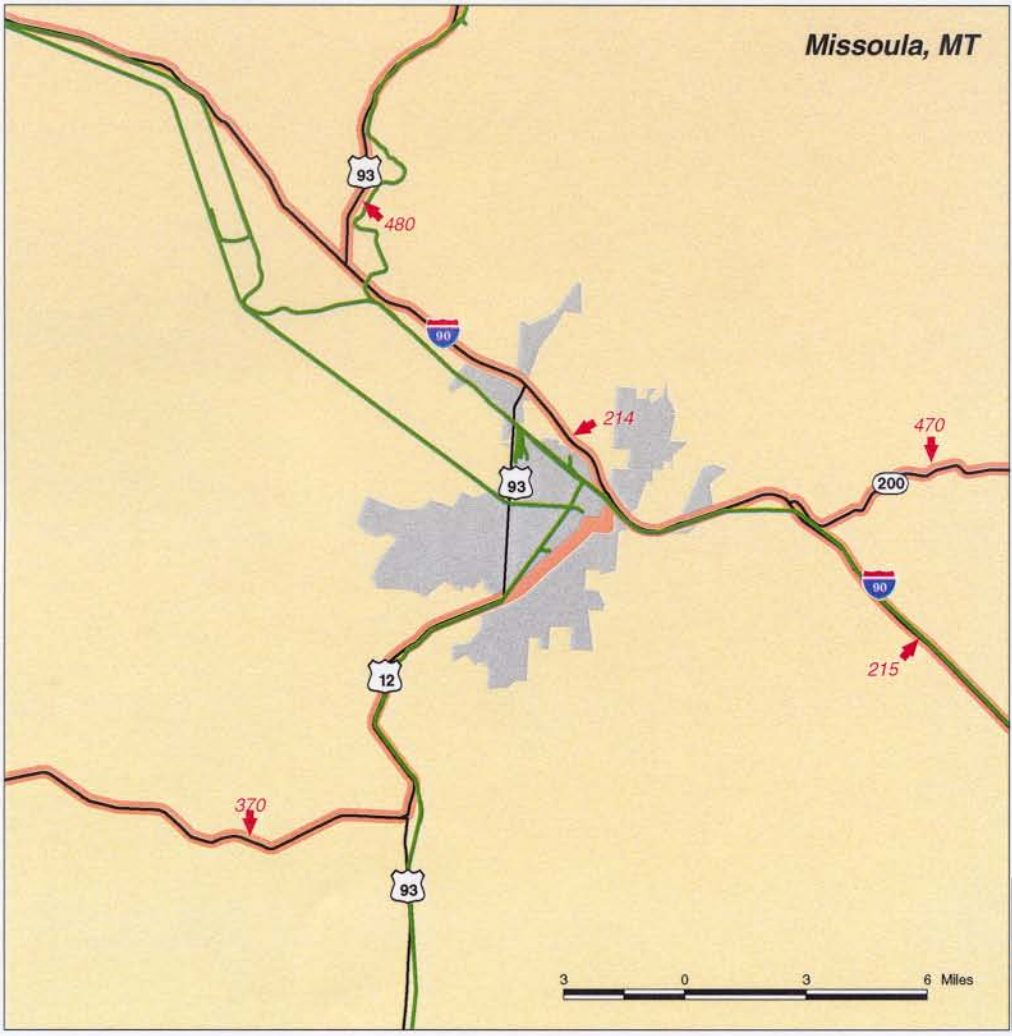


Montana

Lincoln
Kalispell
Glacier
Toole
Liberty
Hill
Havre
Valley
Daniels
Sheridan
Roosevelt
Flathead
Pondera
Chouteau
Blaine
Phillips
Richland
Sanders
Lake
Teton
Great Falls
Fergus
McCone
Garfield
Dawson
Lewis & Clark
Cascade
Petroleum
Missoula
Mineral
Missoula
Powell
Meagher
Judith Basin
Prairie
Wibaux
Helena
Broadwater
Wheatland
Golden Valley
Musselshell
Custer
Fallon
Granite
Jefferson
Butte
Deer Lodge
Silver Bow
Sweet Grass
Yellowstone
Treasure
Rosebud
Ravalli
Billings
Stillwater
Park
Gallatin
Beaverhead
Madison
Big Horn
Carbon
Powder River
Carter
Yellowstone National Park (Part)
352
353
722
471
480
214
470
590
460
353
721
370
215
371
371
371
750
590
216
380
720
217
60
0
60
120 Miles
WTTN Supersections
National Highway System
Western Transportation Trade Network
County Boundaries
Urban Areas

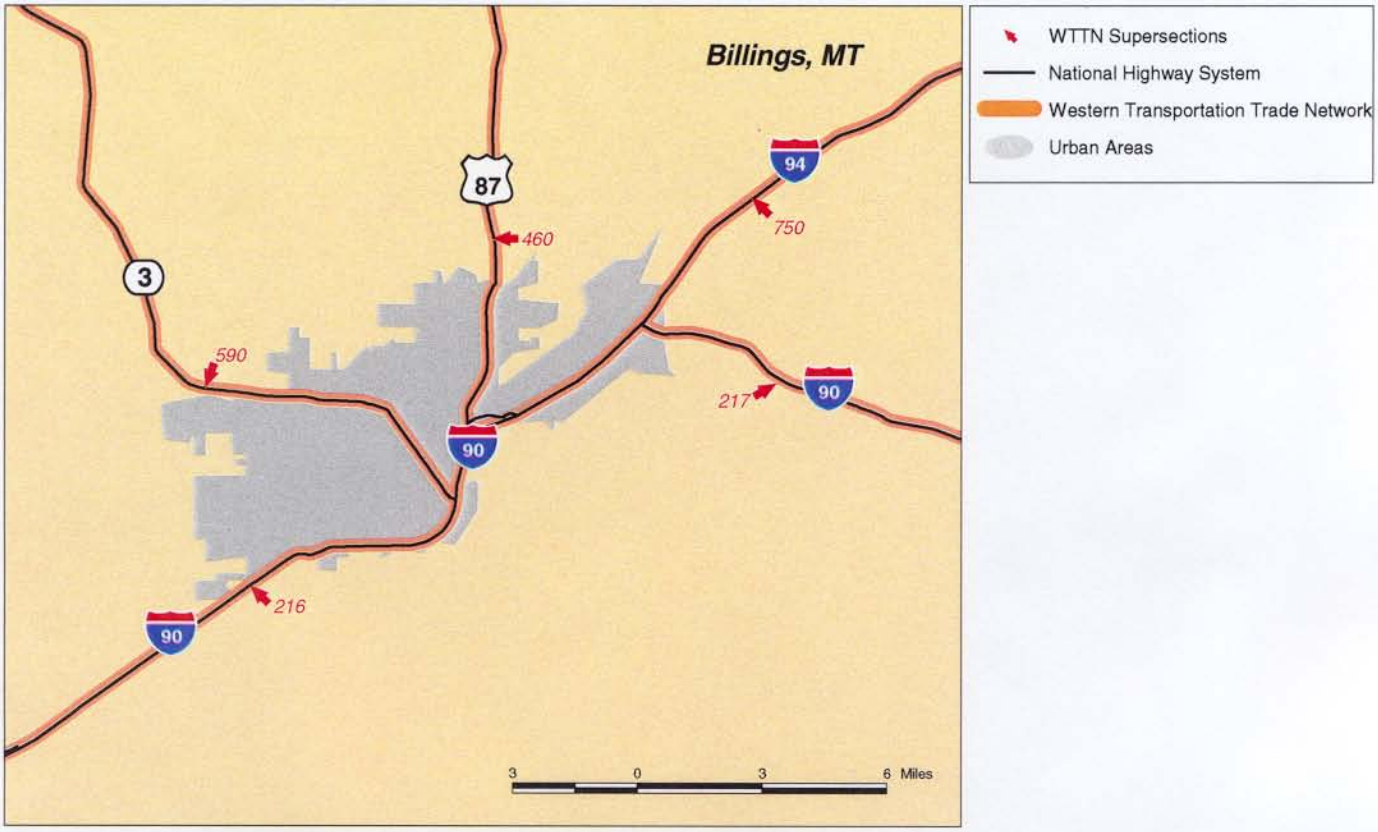
Montana: Urban Areas

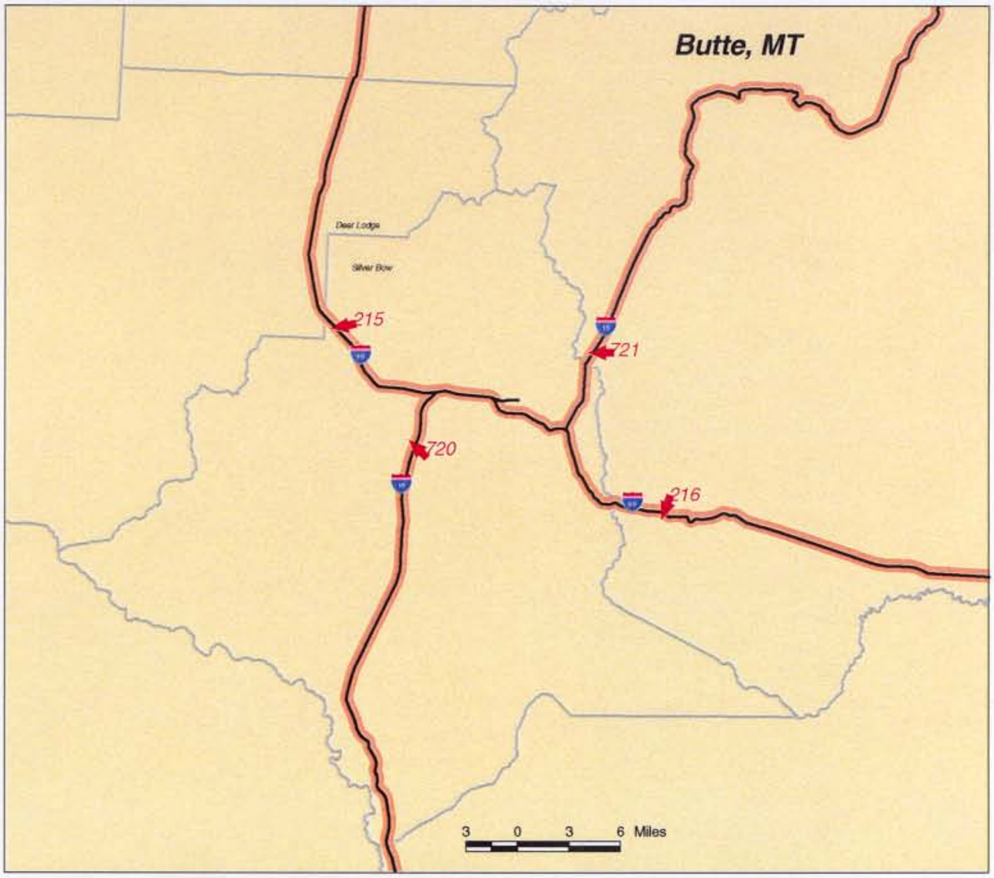




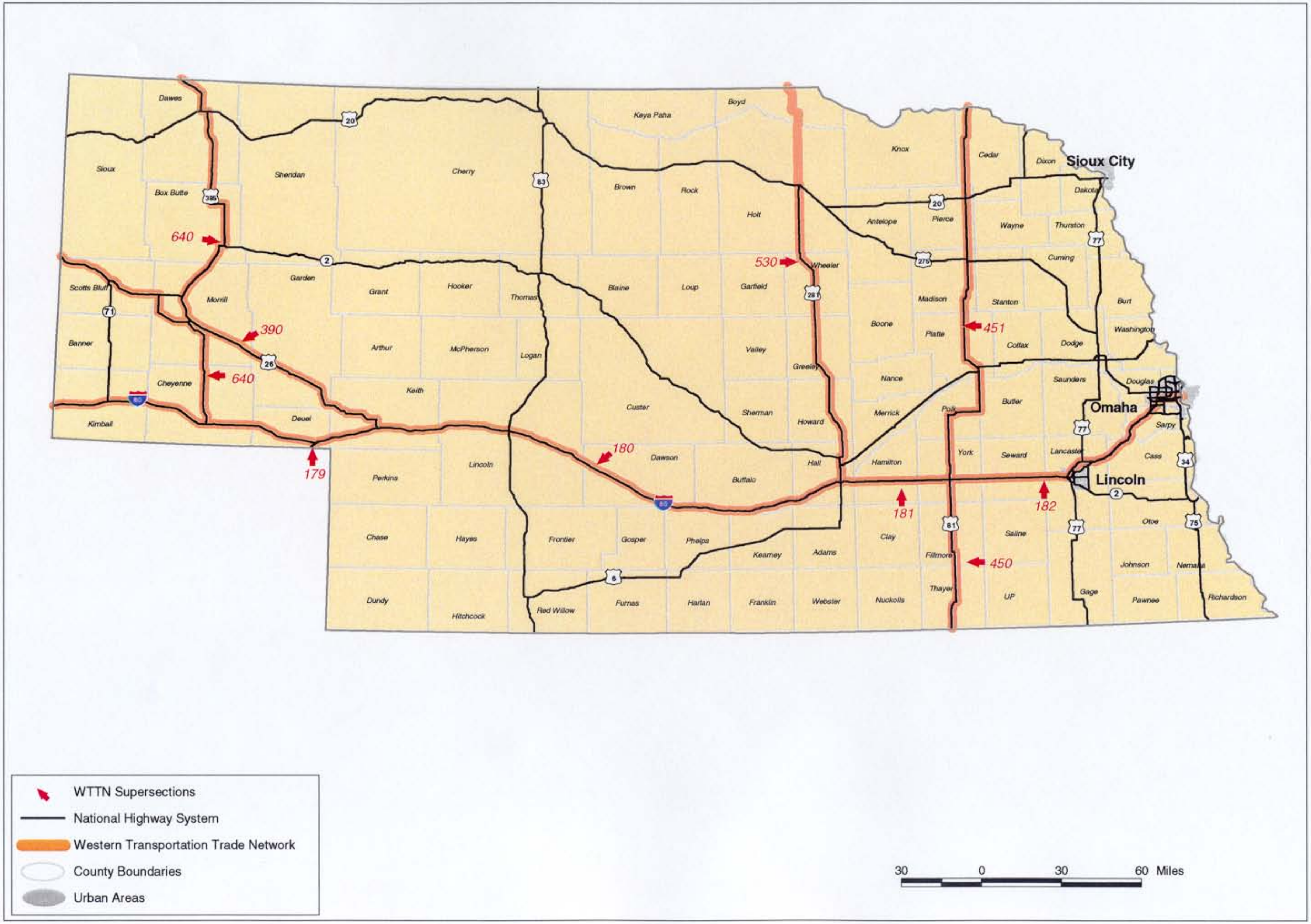
WTTN Supersections
National Highway System
Western Transportation Trade Network
Urban Areas

Montana: Urban Areas



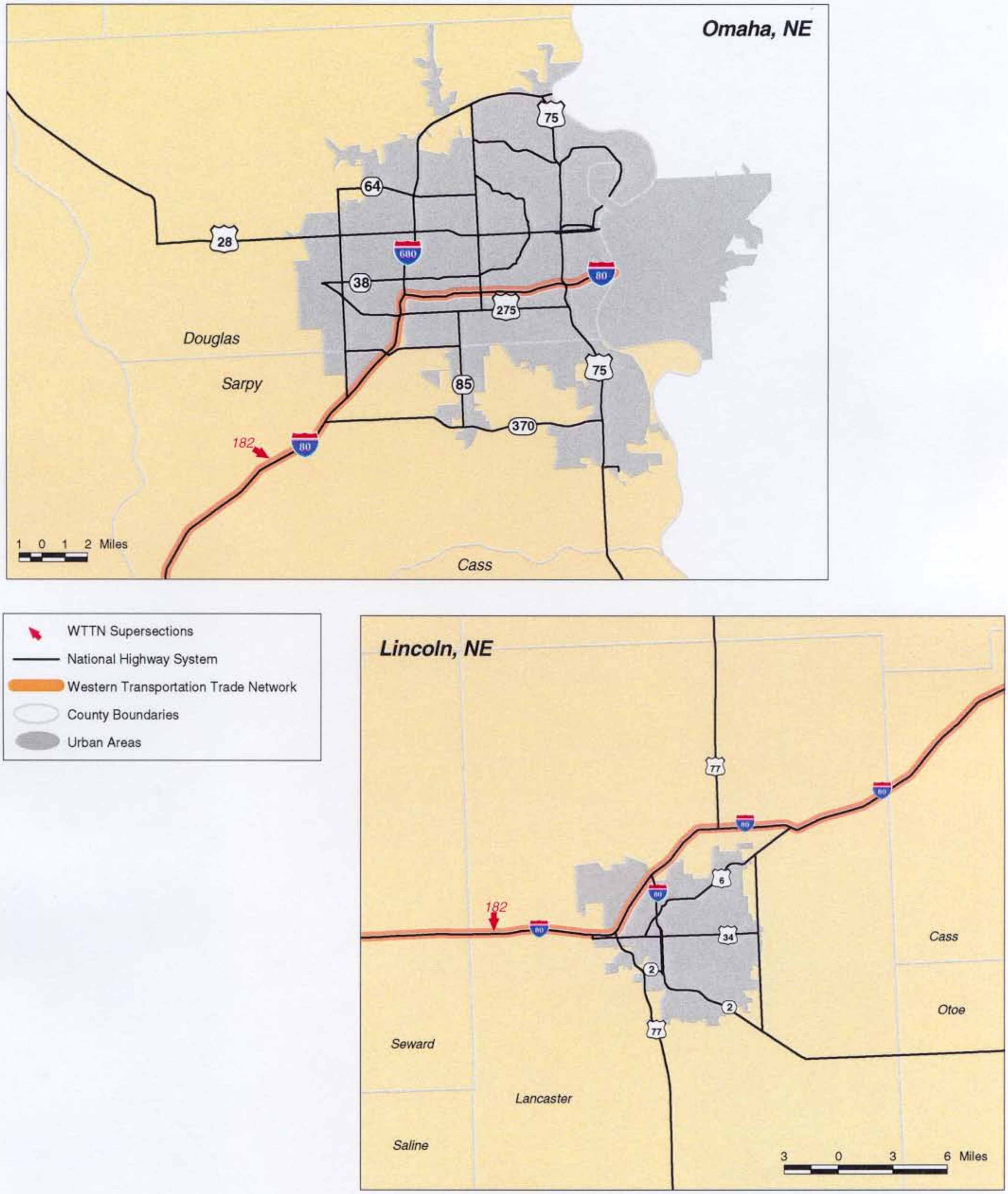


Nebraska

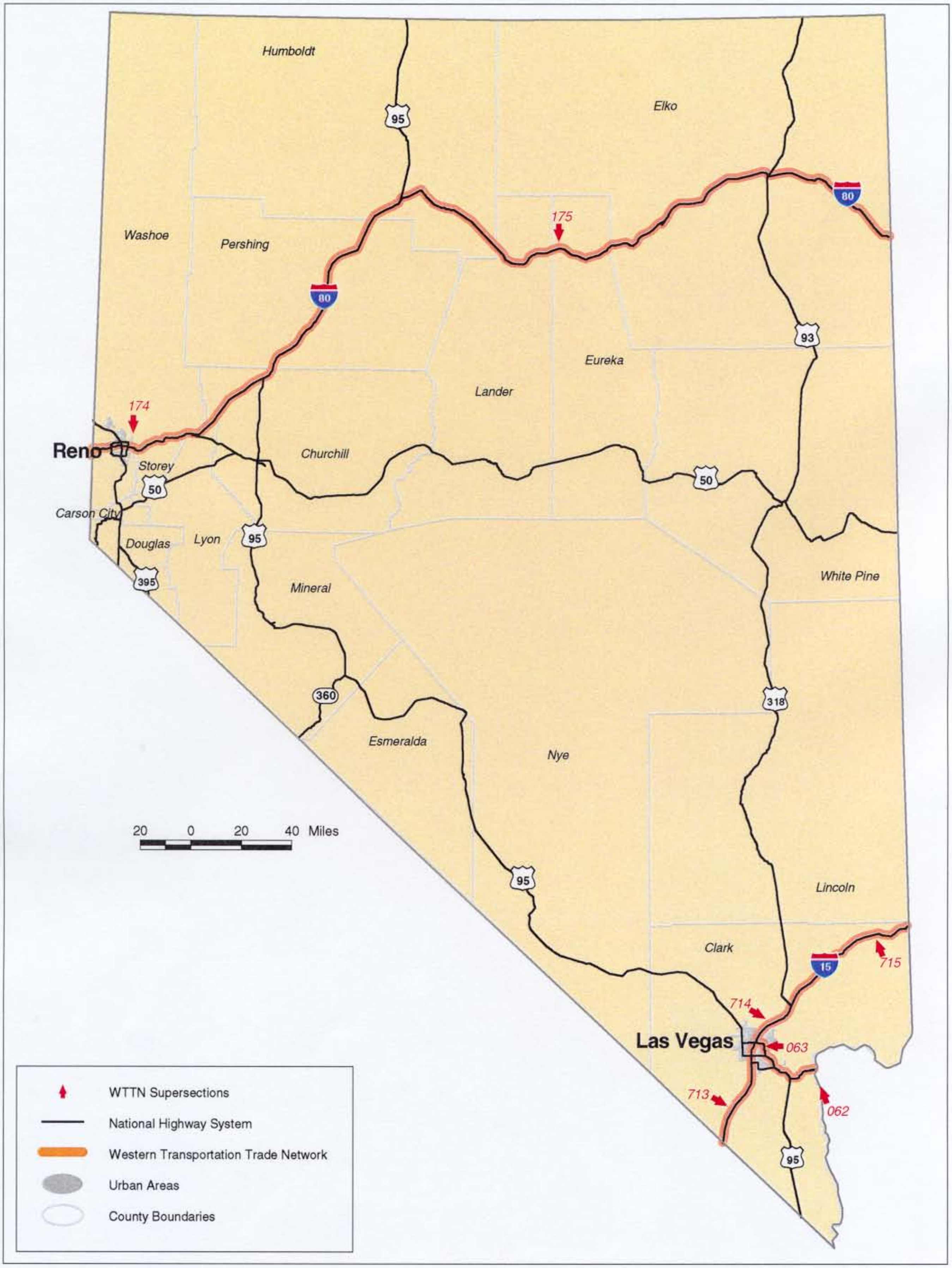


Sioux City
Omaha
Lincoln
640
390
640
179
180
530
451
181
182
450
WTTN Supersections
National Highway System
Western Transportation Trade Network
County Boundaries
Urban Areas
30 0 30 60 Miles

Nebraska: Urban Areas

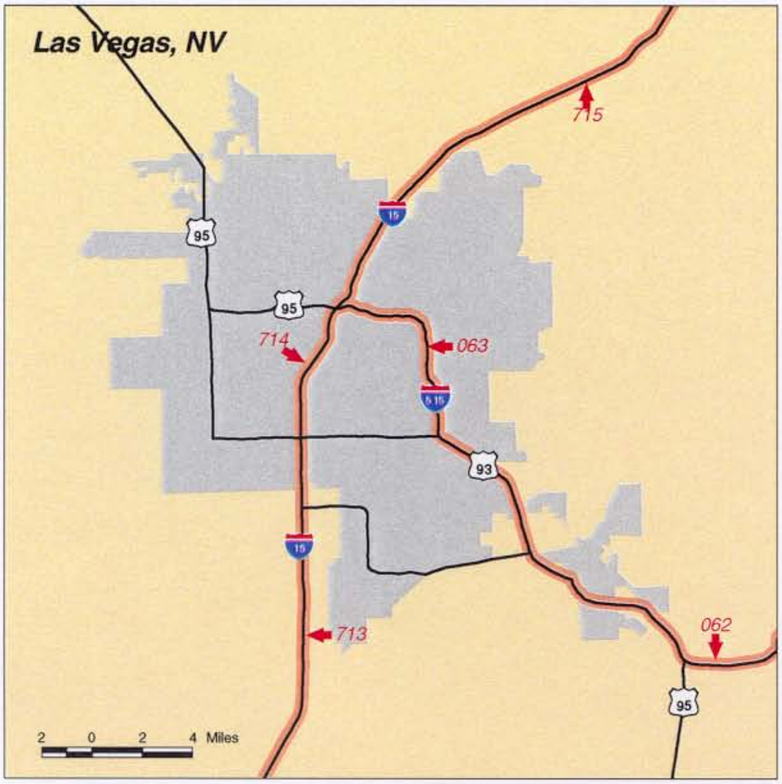


Nevada



Humboldt
Elko
Washoe
Pershing
175
174
Reno
Eureka
Lander
Churchill
Storey
Carson City
Douglas
Lyon
Mineral
White Pine
Esmeralda
Nye
Lincoln
Clark
Las Vegas
713
714
715
063
062
95
80
93
50
395
360
318
15
20 0 20 40 Miles
WTTN Supersections
National Highway System
Western Transportation Trade Network
Urban Areas
County Boundaries

Nevada: Urban Areas



WTTN Supersections

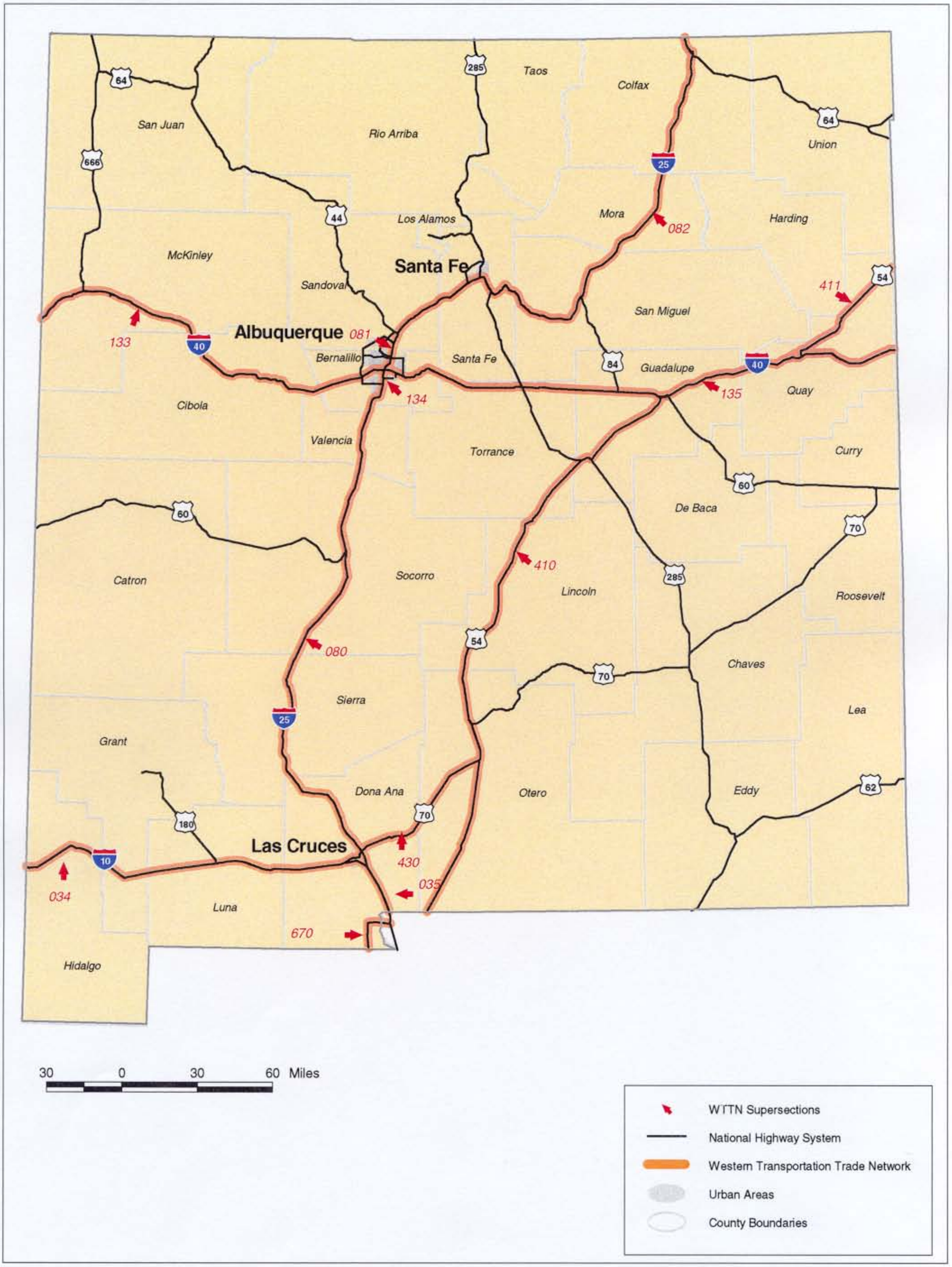
National Highway System

Western Transportation Trade Network

Urban Areas

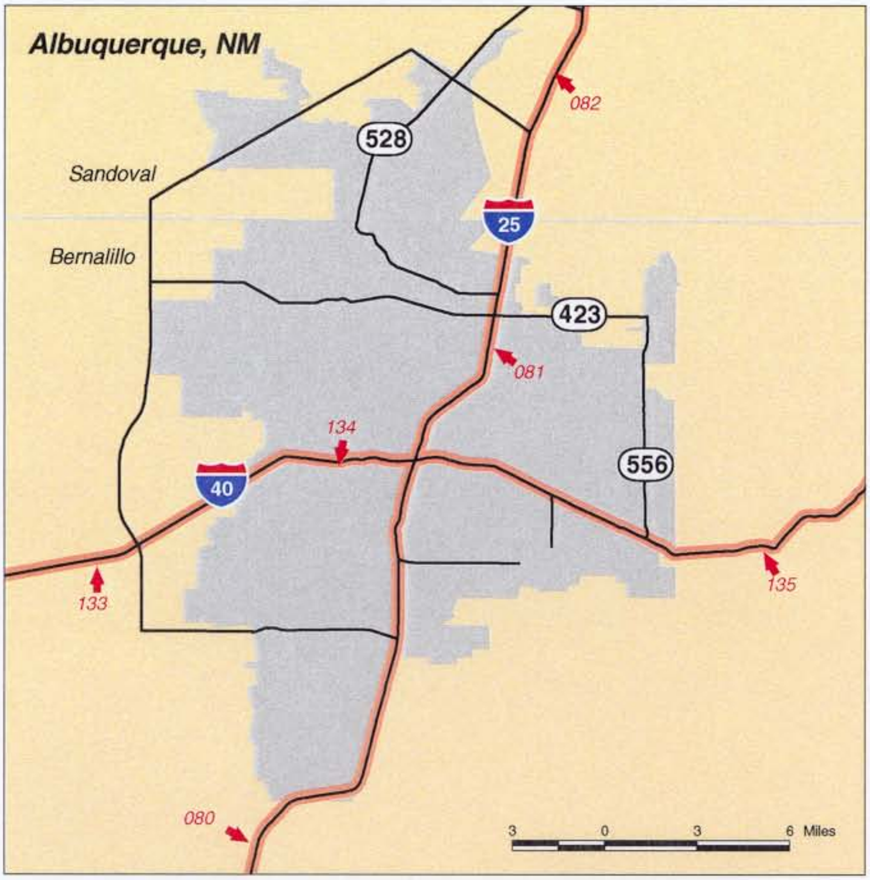
County Boundaries

New Mexico



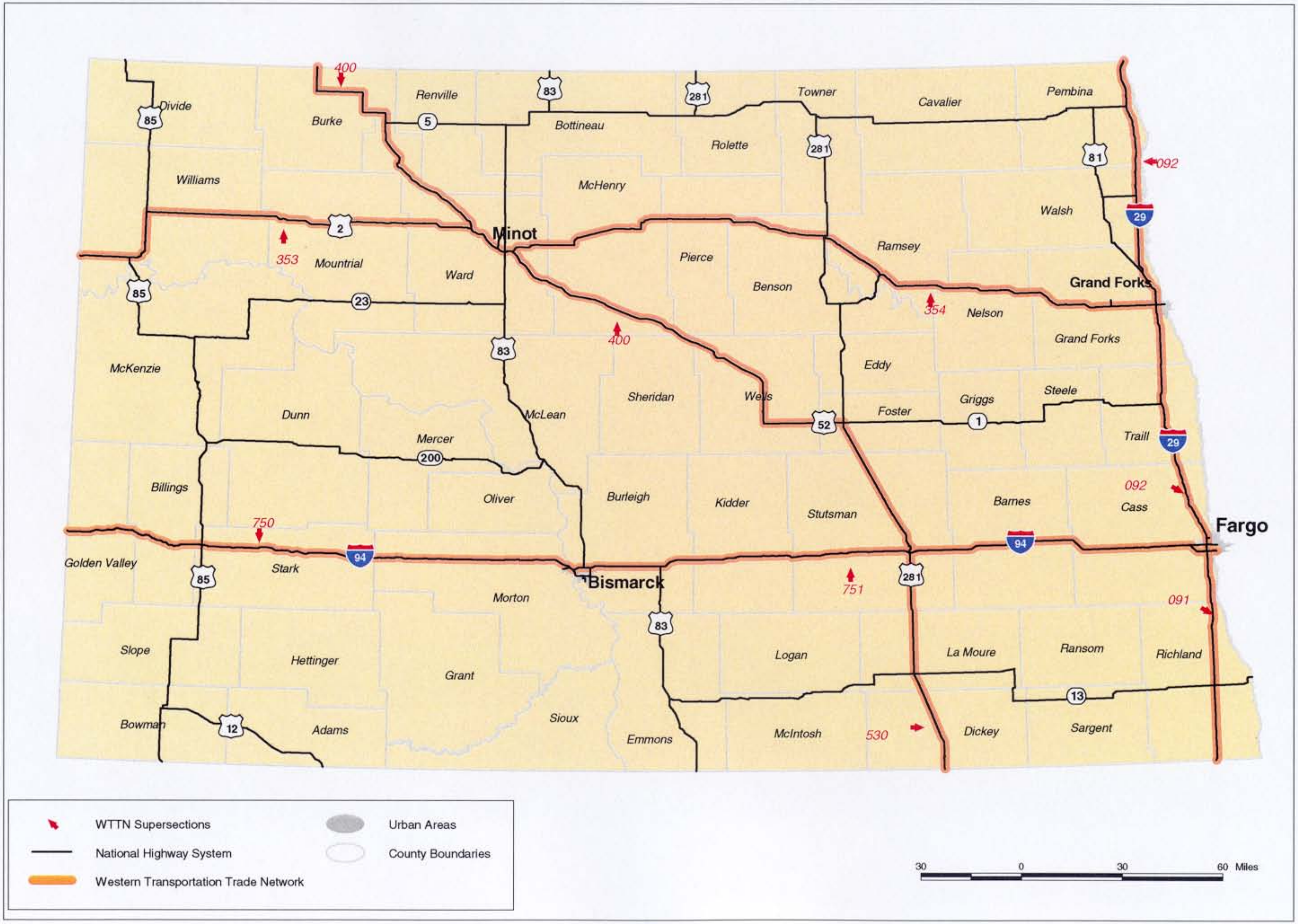
San Juan
Rio Arriba
Taos
Colfax
Union
McKinley
Sandoval
Los Alamos
Santa Fe
Mora
Harding
San Miguel
Albuquerque
Bernalillo
Santa Fe
Guadalupe
Quay
Cibola
Valencia
Torrance
Curry
De Baca
Catron
Socorro
Lincoln
Roosevelt
Chaves
Sierra
Lea
Grant
Dona Ana
Otero
Eddy
Las Cruces
Luna
Hidalgo
082
411
133
081
134
135
410
080
430
035
034
670
30 0 30 60 Miles
WTTN Supersections
National Highway System
Western Transportation Trade Network
Urban Areas
County Boundaries

New Mexico: Urban Areas

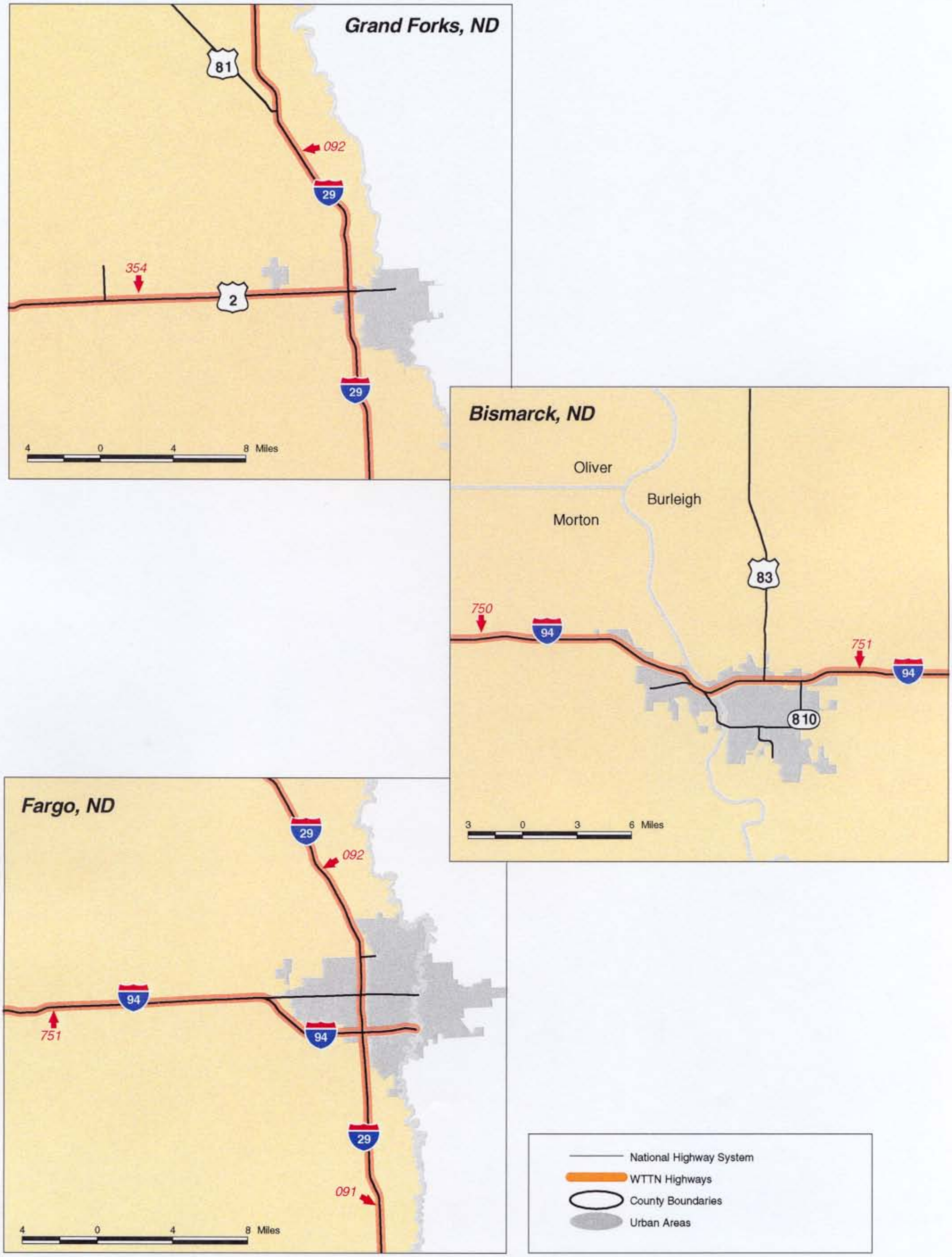


WTTN Supersections
National Highway System
Western Transportation Trade Network
Urban Areas
County Boundaries

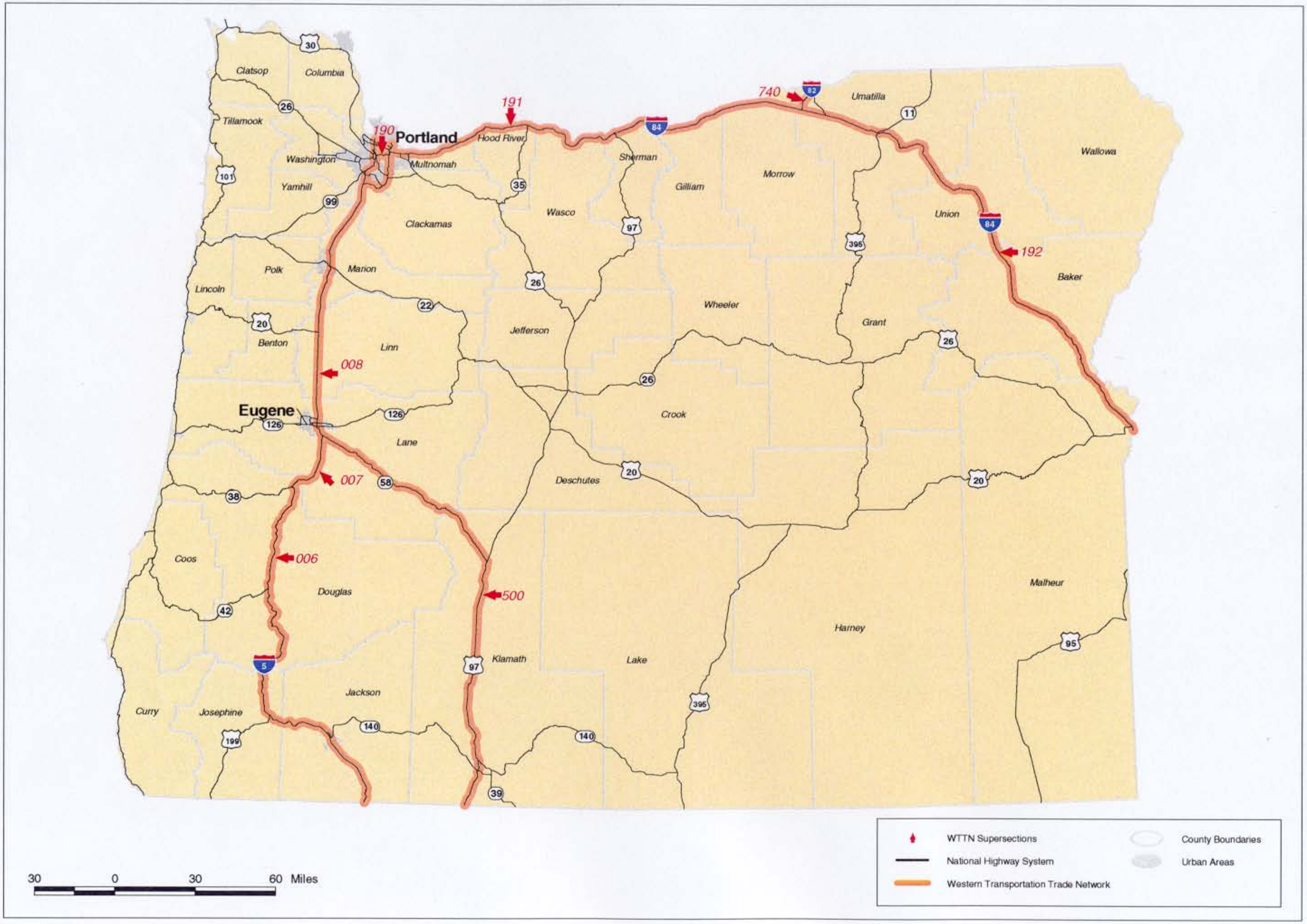
North Dakota



North Dakota: Urban Areas

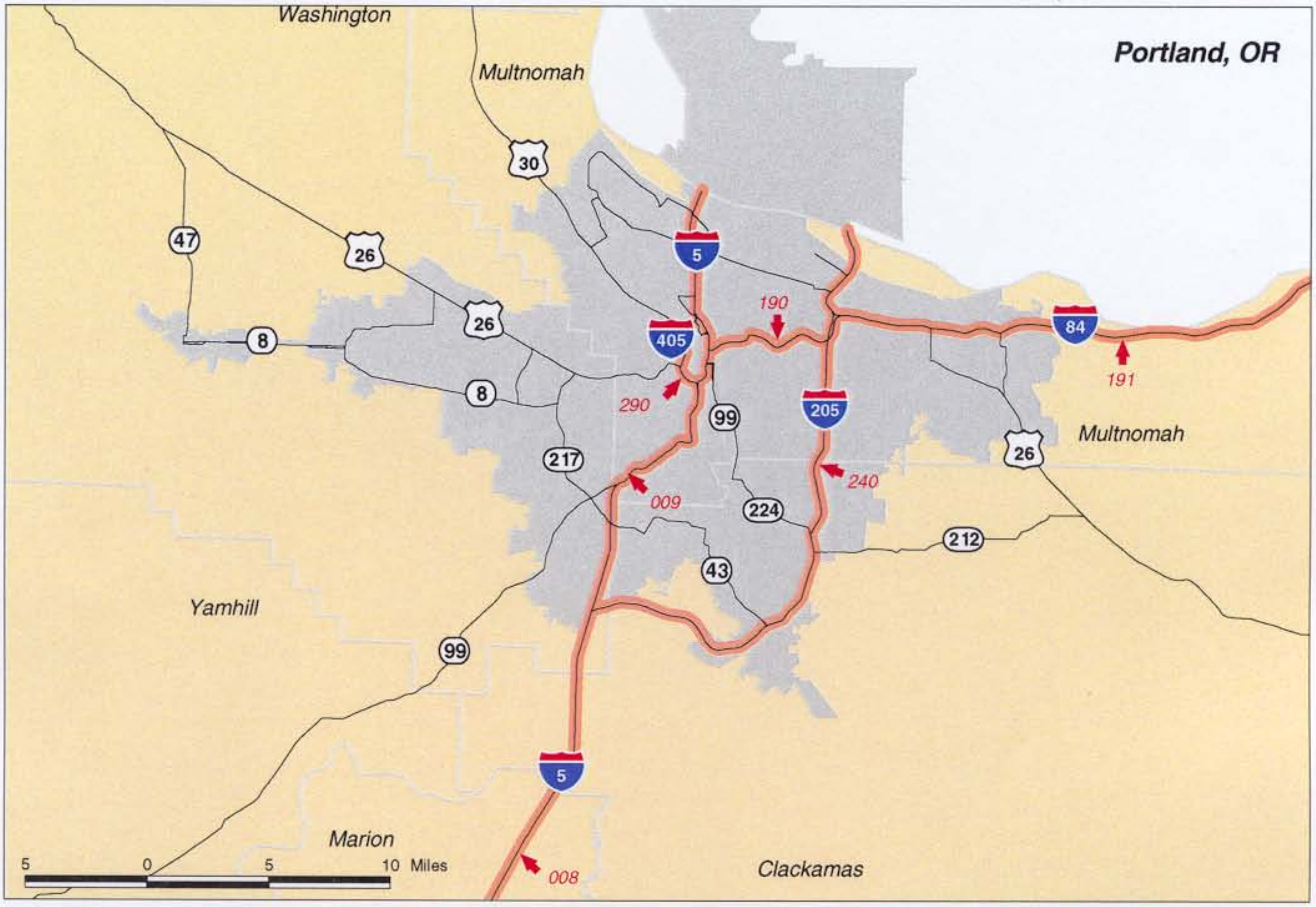


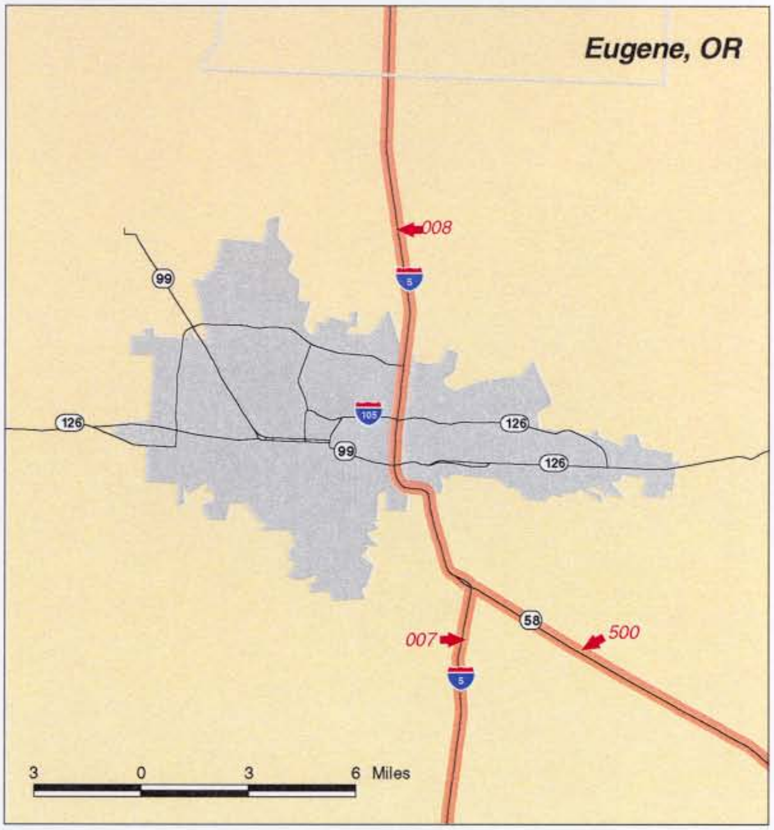
Oregon



Portland
Eugene
190
191
740
192
008
007
006
500
Clatsop
Columbia
Tillamook
Washington
Yamhill
Multnomah
Hood River
Clackamas
Wasco
Sherman
Gilliam
Morrow
Umatilla
Union
Wallowa
Baker
Grant
Wheeler
Jefferson
Marion
Polk
Lincoln
Benton
Linn
Lane
Crook
Deschutes
Coos
Douglas
Curry
Josephine
Jackson
Klamath
Lake
Harney
Malheur
30
26
101
99
35
84
82
11
97
395
22
20
126
58
38
42
5
199
140
39
95
30 0 30 60 Miles
WTTN Supersections
National Highway System
Western Transportation Trade Network
County Boundaries
Urban Areas

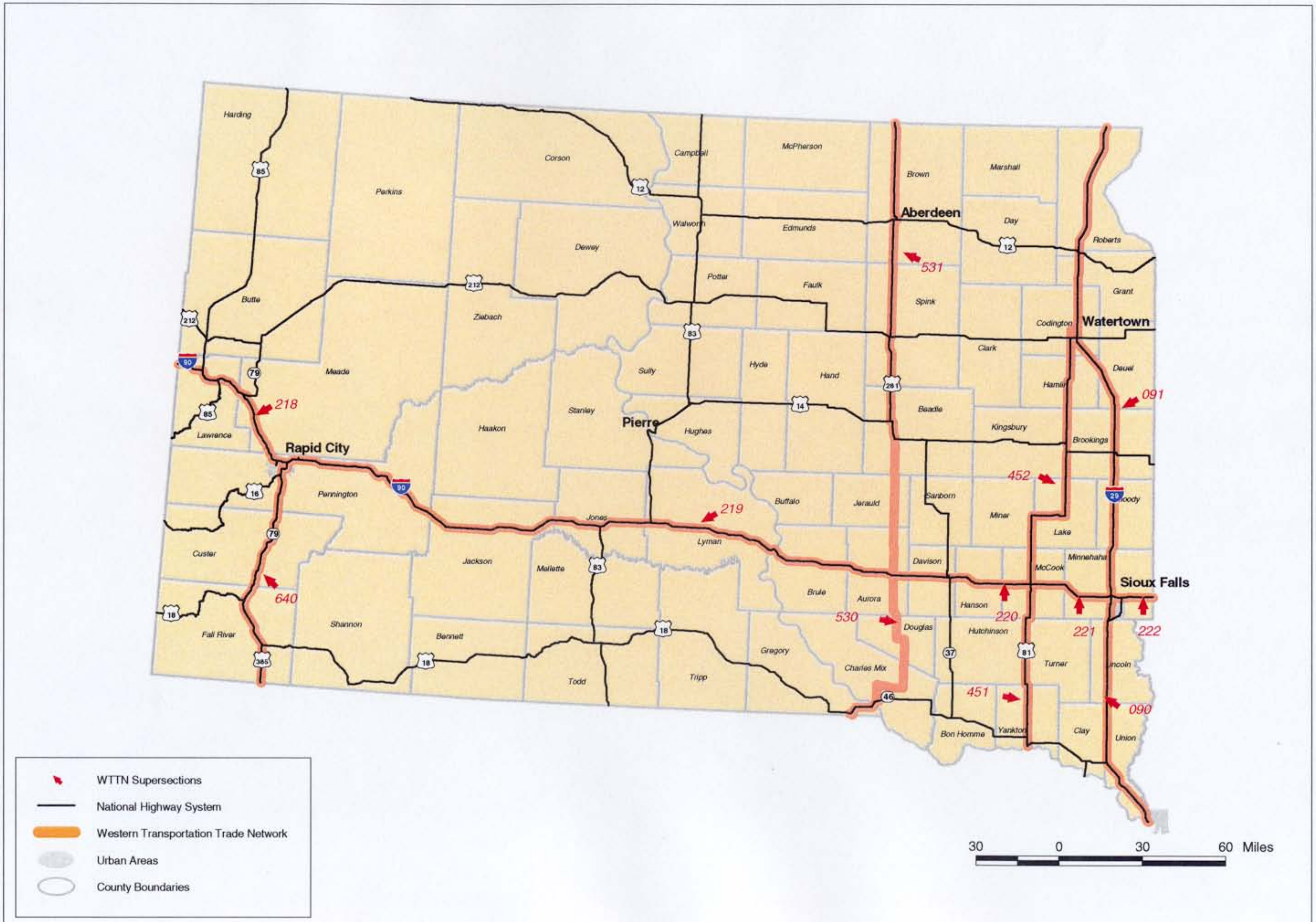
Oregon: Urban Areas



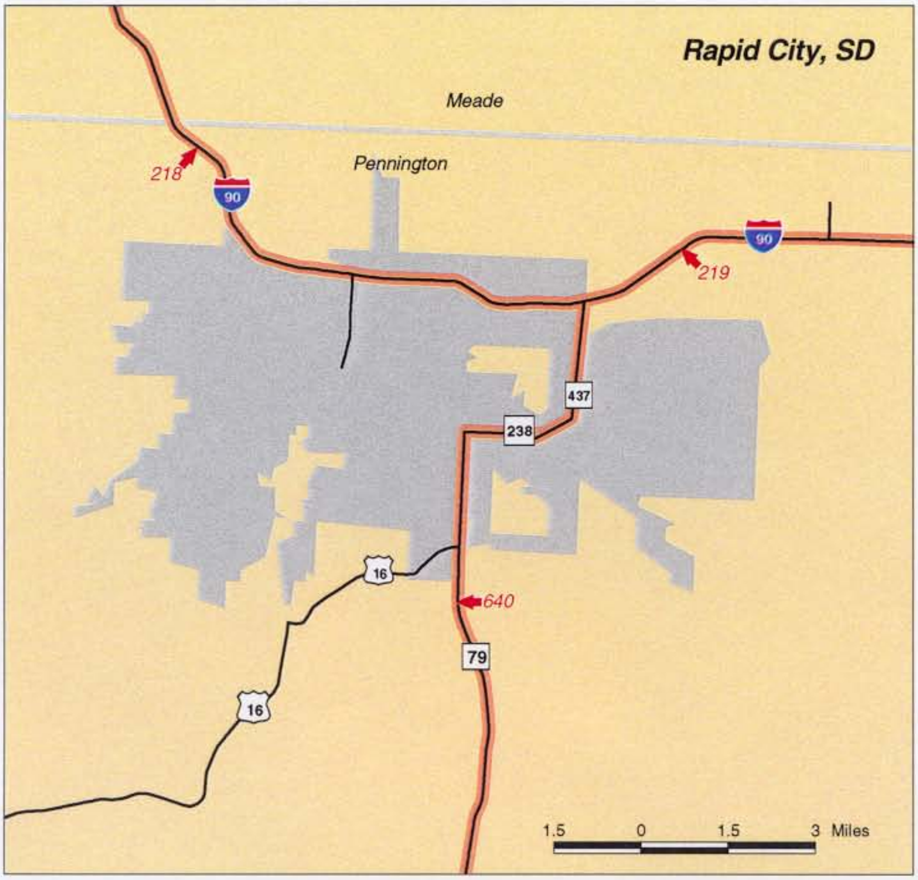


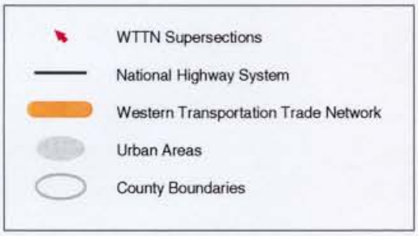
- WTTN Supersections
- National Highway System
- Western Transportation Trade Network
- County Boundaries
- Urban Areas

South Dakota

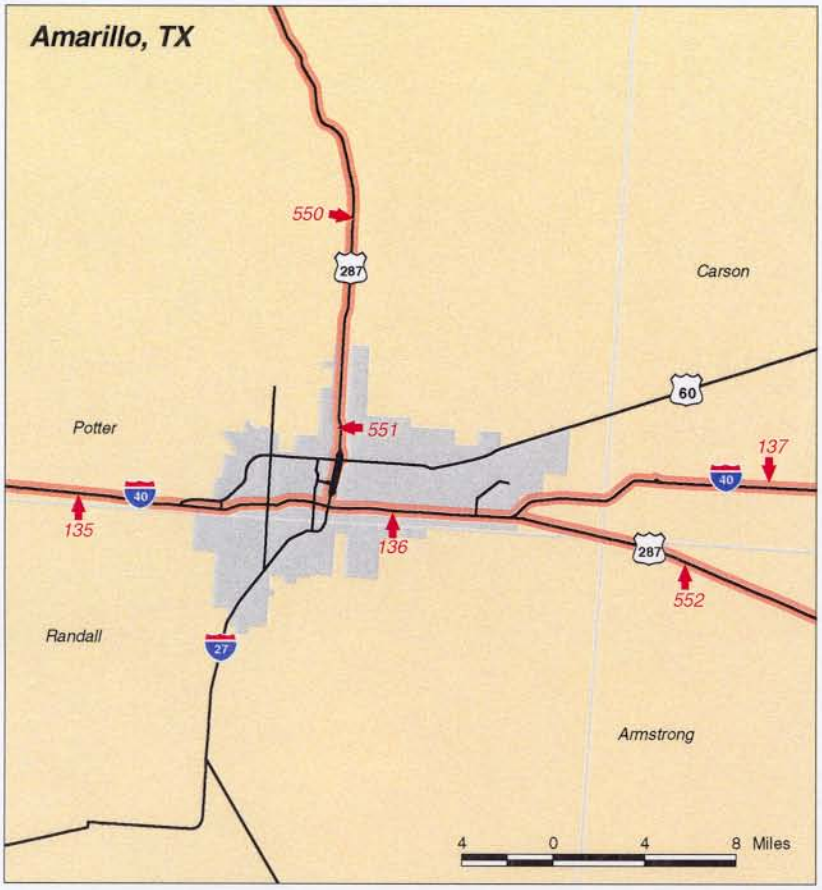


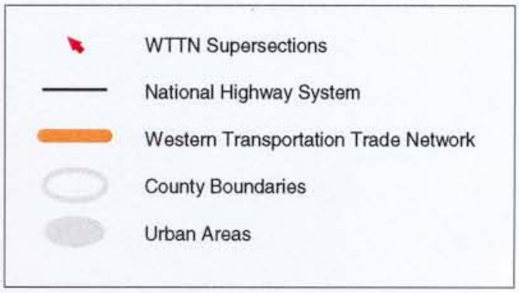
South Dakota: Urban Areas

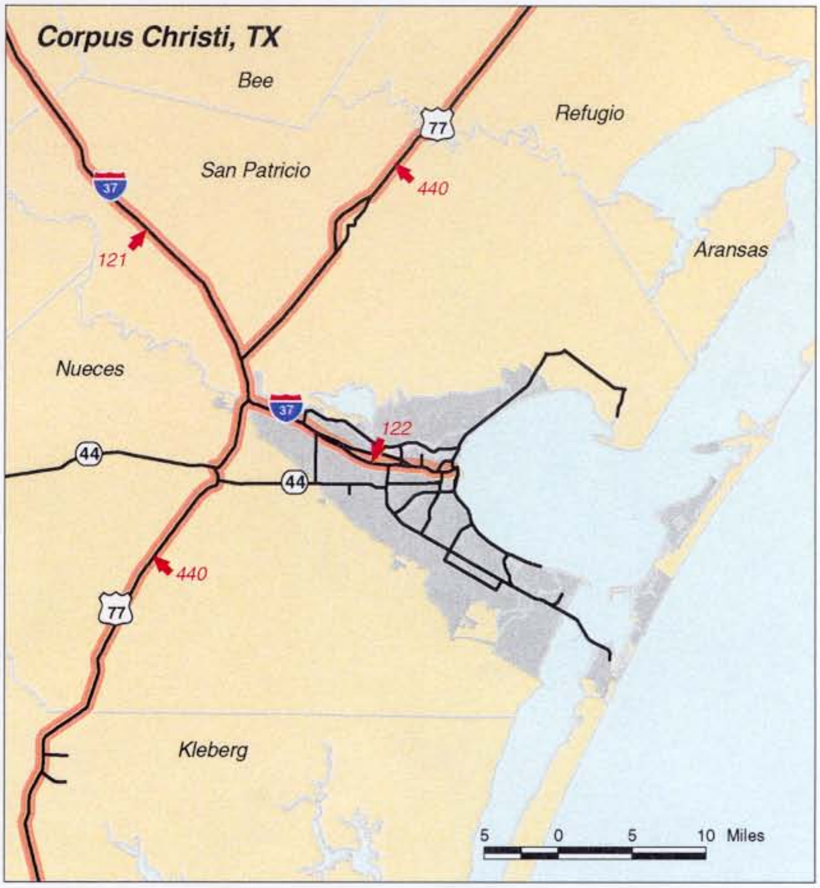




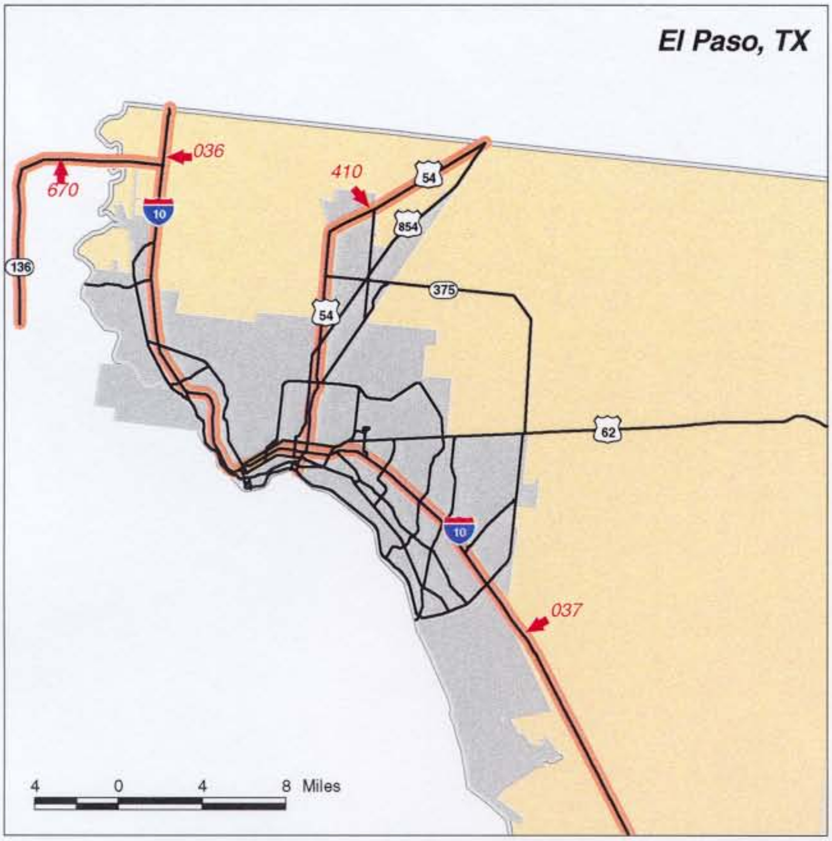
Texas: Urban Areas

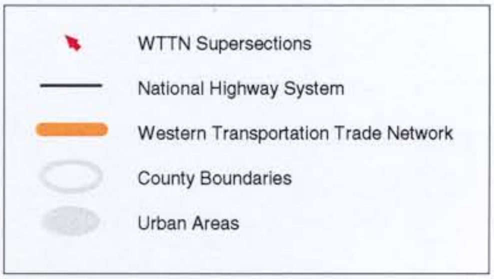


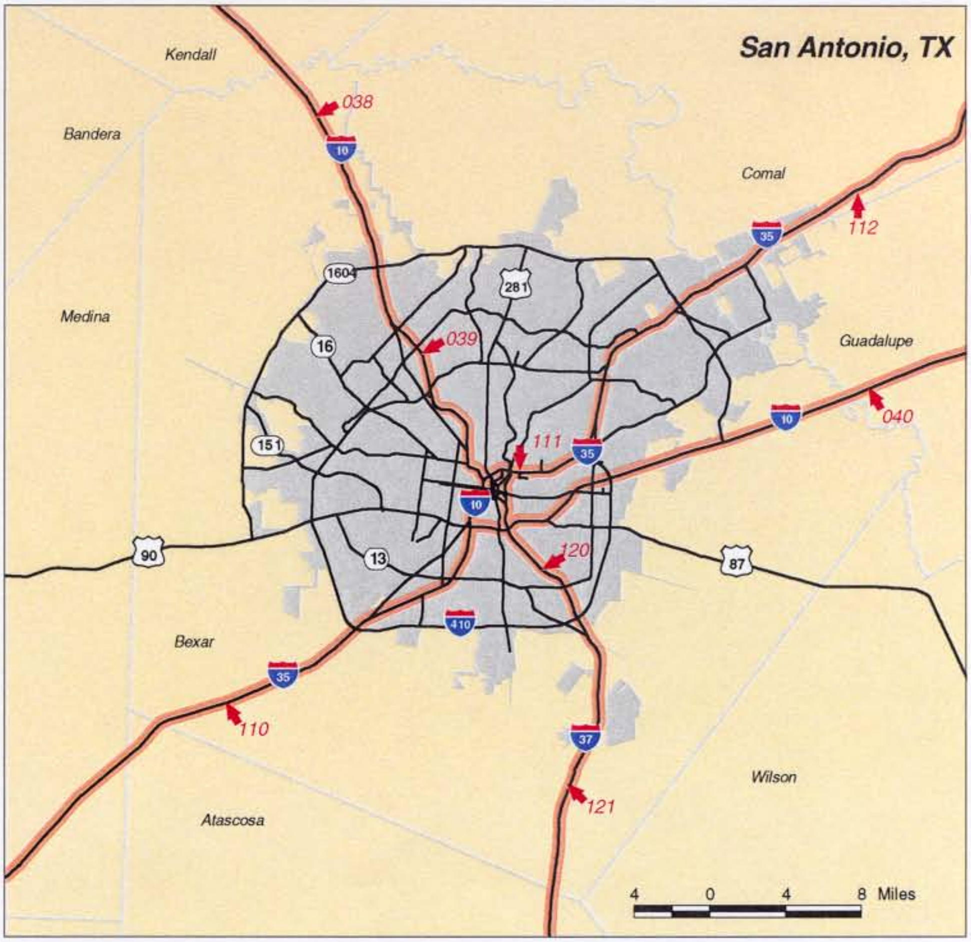




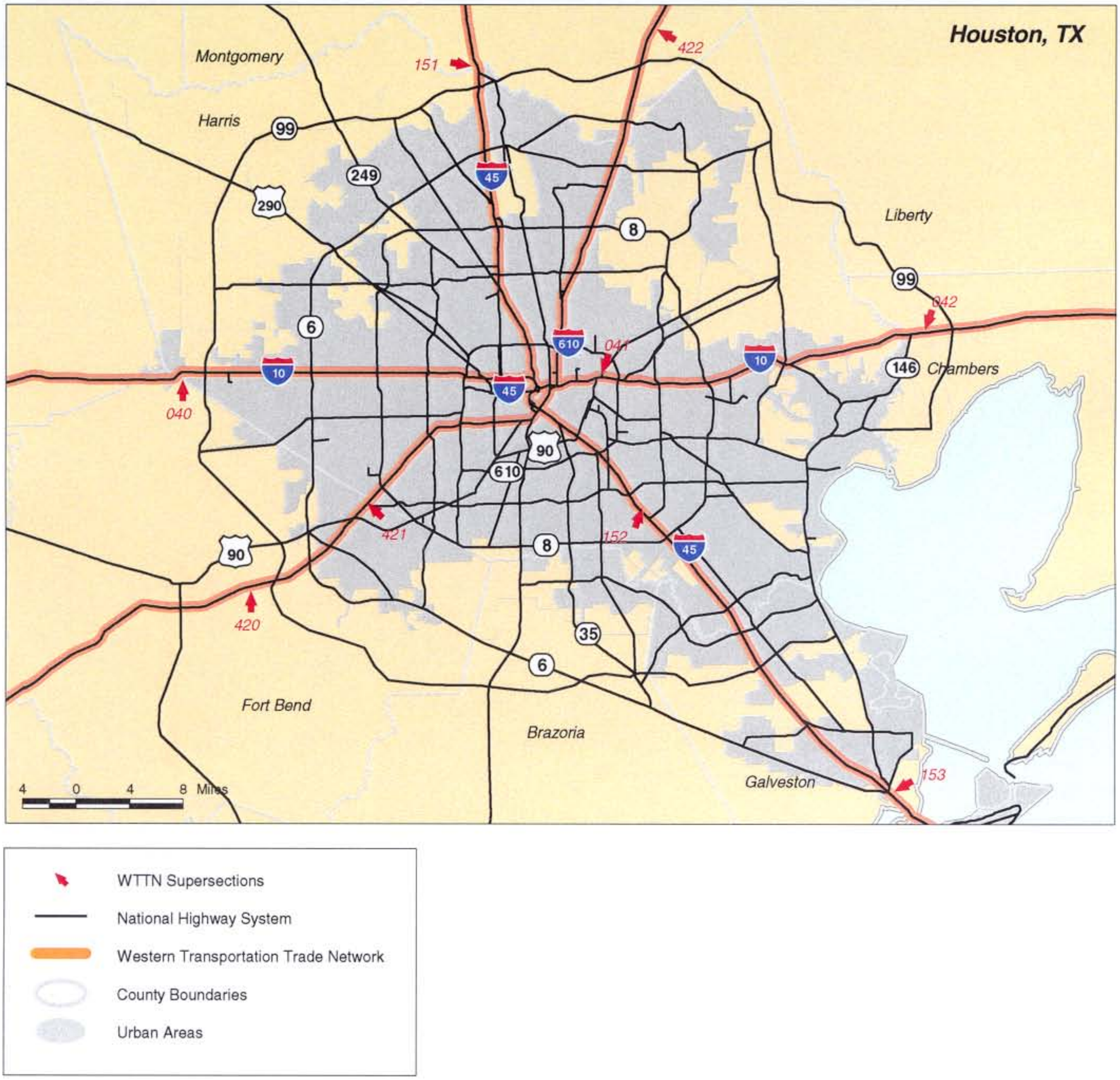
Texas: Urban Areas



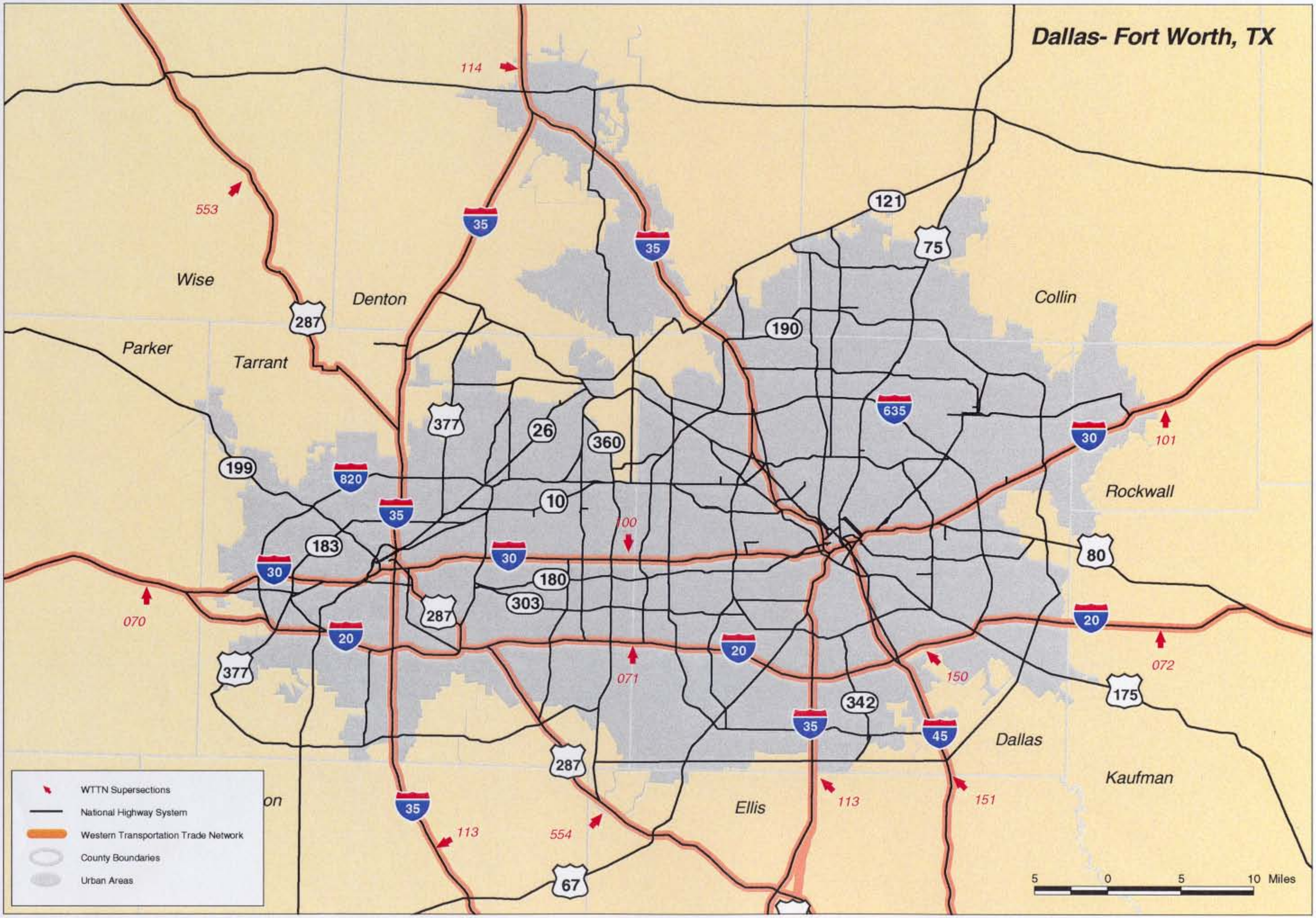




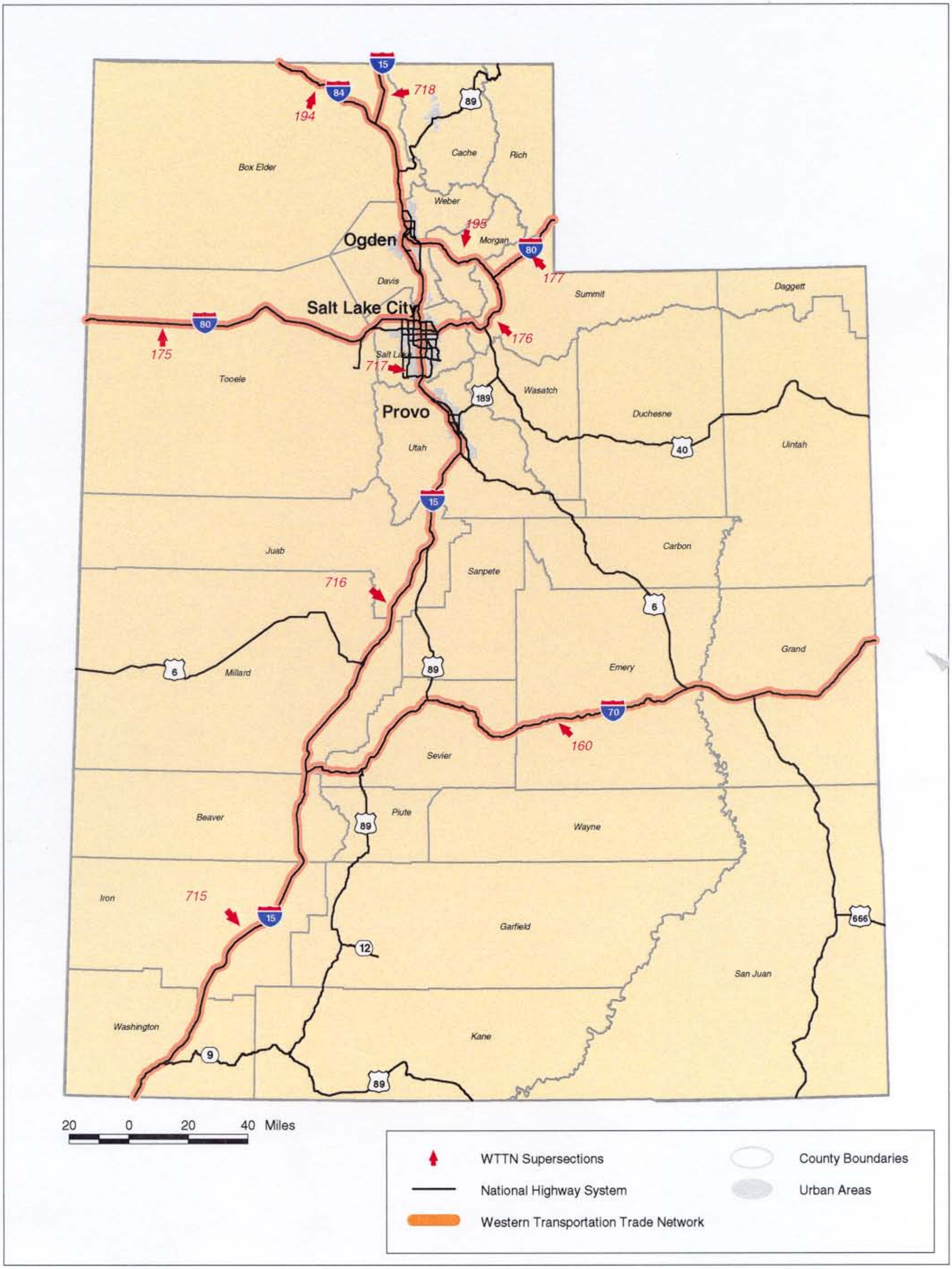
Texas: Urban Areas



Texas: Urban Areas

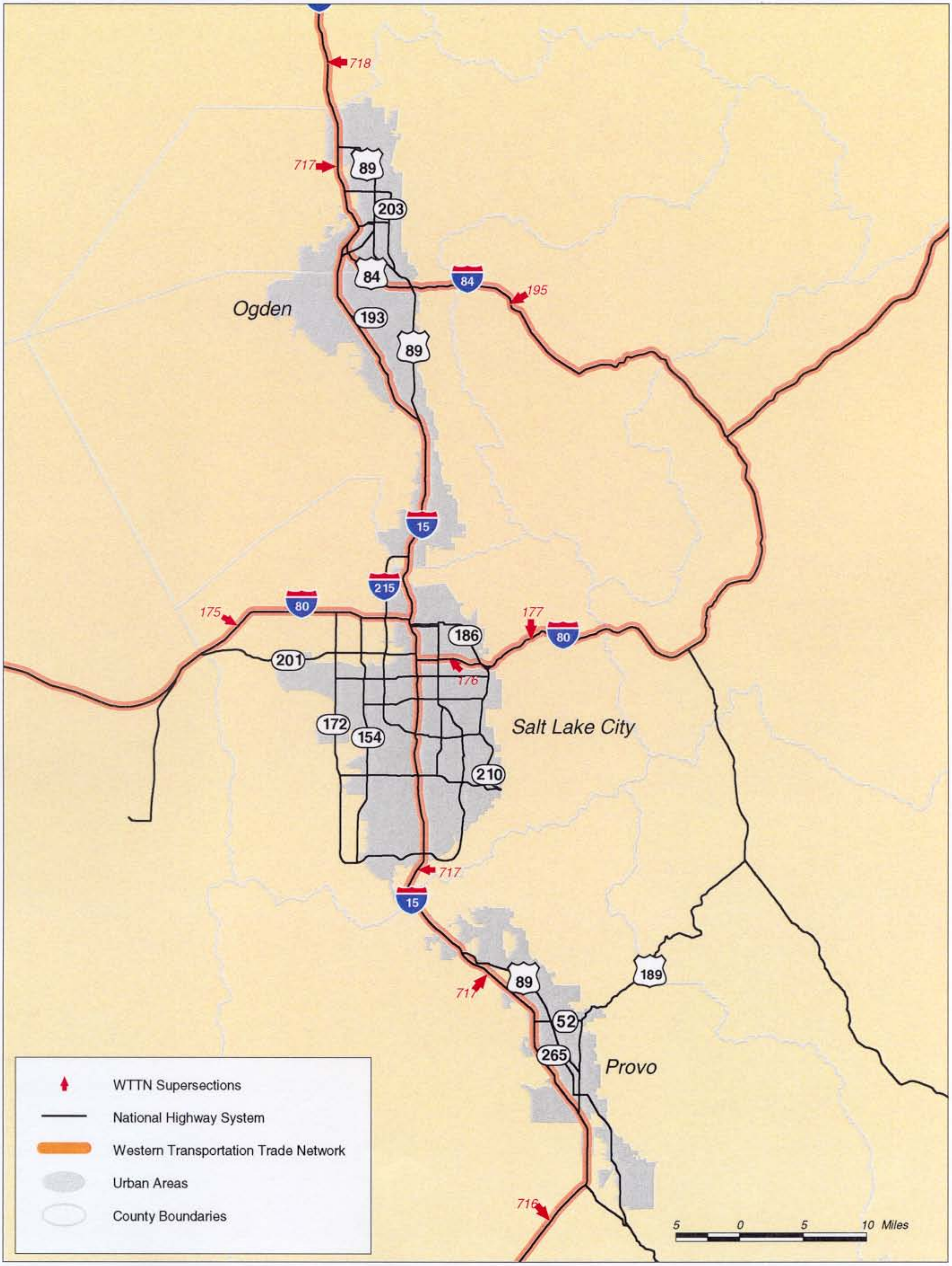


Utah

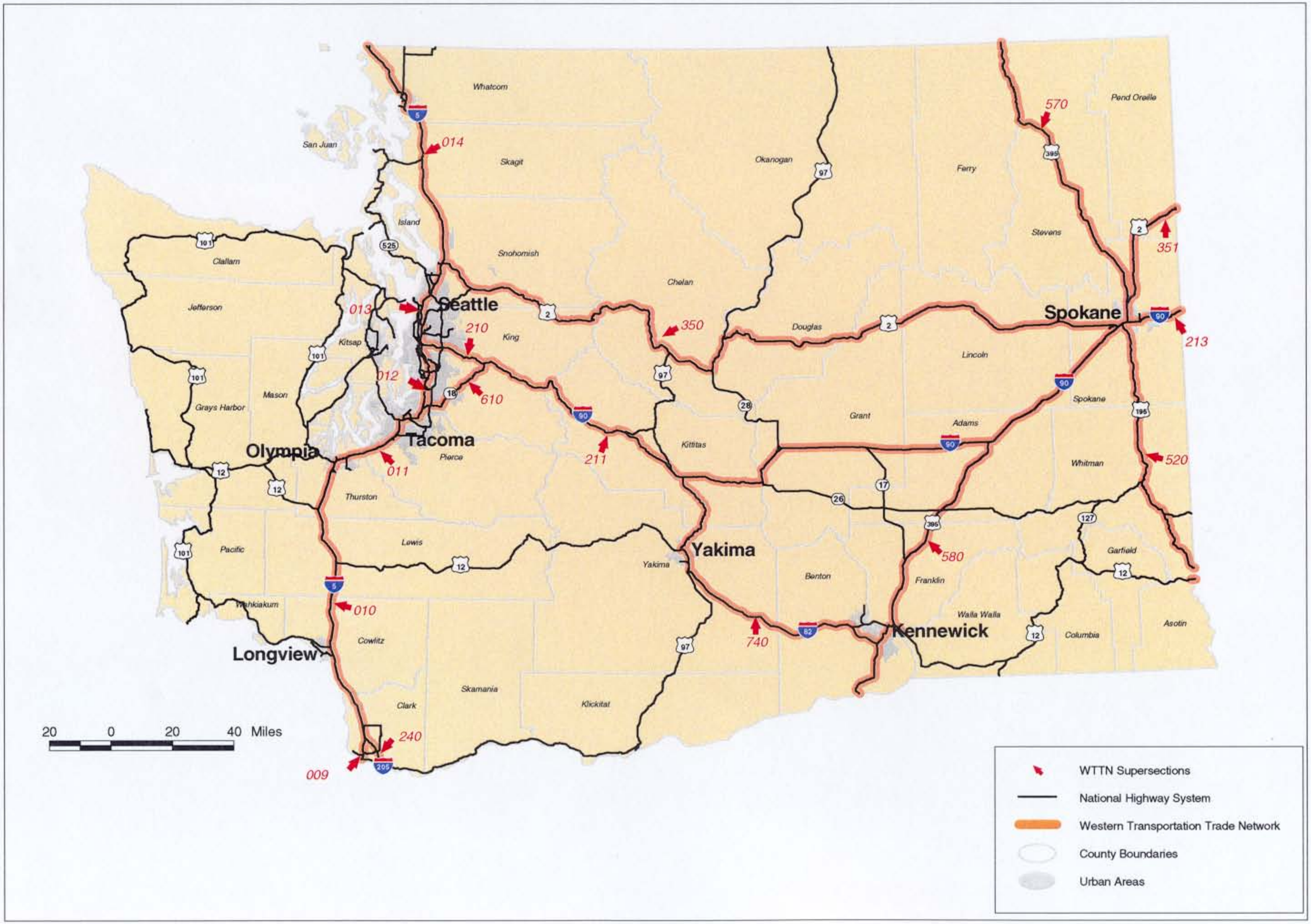


Box Elder
Cache
Rich
Weber
Morgan
Davis
Summit
Daggett
Ogden
Salt Lake City
Salt Lake
Tooele
Wasatch
Duchesne
Uintah
Provo
Utah
Juab
Carbon
Sanpete
Millard
Emery
Grand
Sevier
Beaver
Piute
Wayne
Iron
Garfield
San Juan
Washington
Kane
15
84
89
80
189
40
6
70
12
9
666
194
718
195
177
175
176
717
716
160
715
20 0 20 40 Miles
WTTN Supersections
National Highway System
Western Transportation Trade Network
County Boundaries
Urban Areas

Utah: Urban Areas

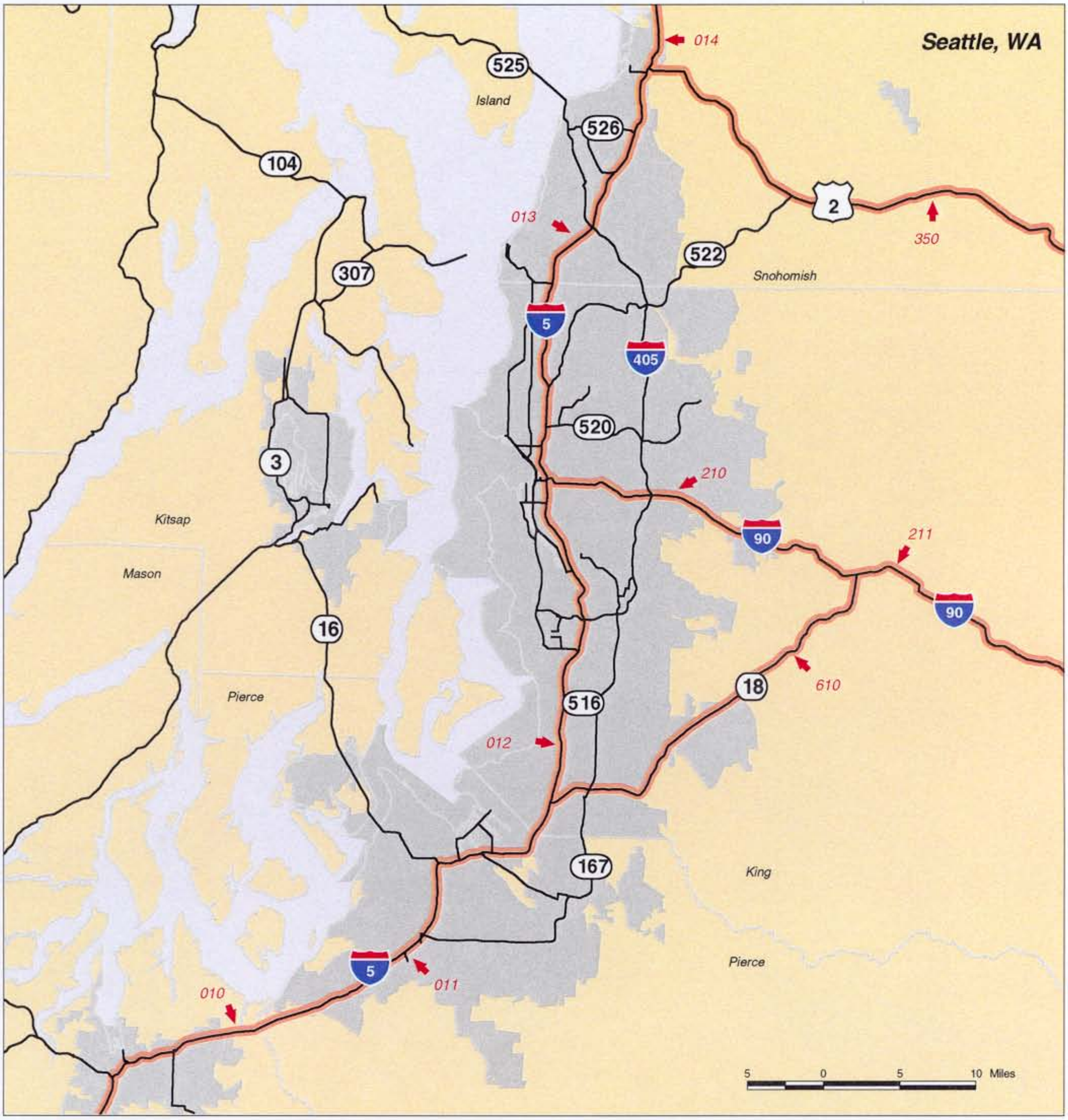


Washington



Seattle
Spokane
Tacoma
Olympia
Yakima
Kennewick
Longview
Whatcom
San Juan
Skagit
Island
Snohomish
Okanogan
Ferry
Stevens
Pend Oreille
Clallam
Jefferson
Kitsap
Mason
Grays Harbor
King
Chelan
Douglas
Lincoln
Spokane
Grant
Adams
Kittitas
Pierce
Thurston
Whitman
Lewis
Pacific
Yakima
Benton
Franklin
Walla Walla
Garfield
Columbia
Asotin
Wahkiakum
Cowlitz
Skamania
Clark
Klickitat
570
014
351
013
210
350
213
012
610
011
211
520
580
010
740
240
009
20 0 20 40 Miles
WTTN Supersections
National Highway System
Western Transportation Trade Network
County Boundaries
Urban Areas

Washington: Urban Areas



WTTN Supersections

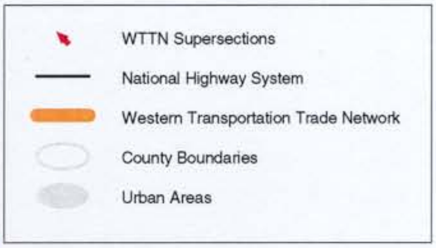
National Highway System

Western Transportation Trade Network

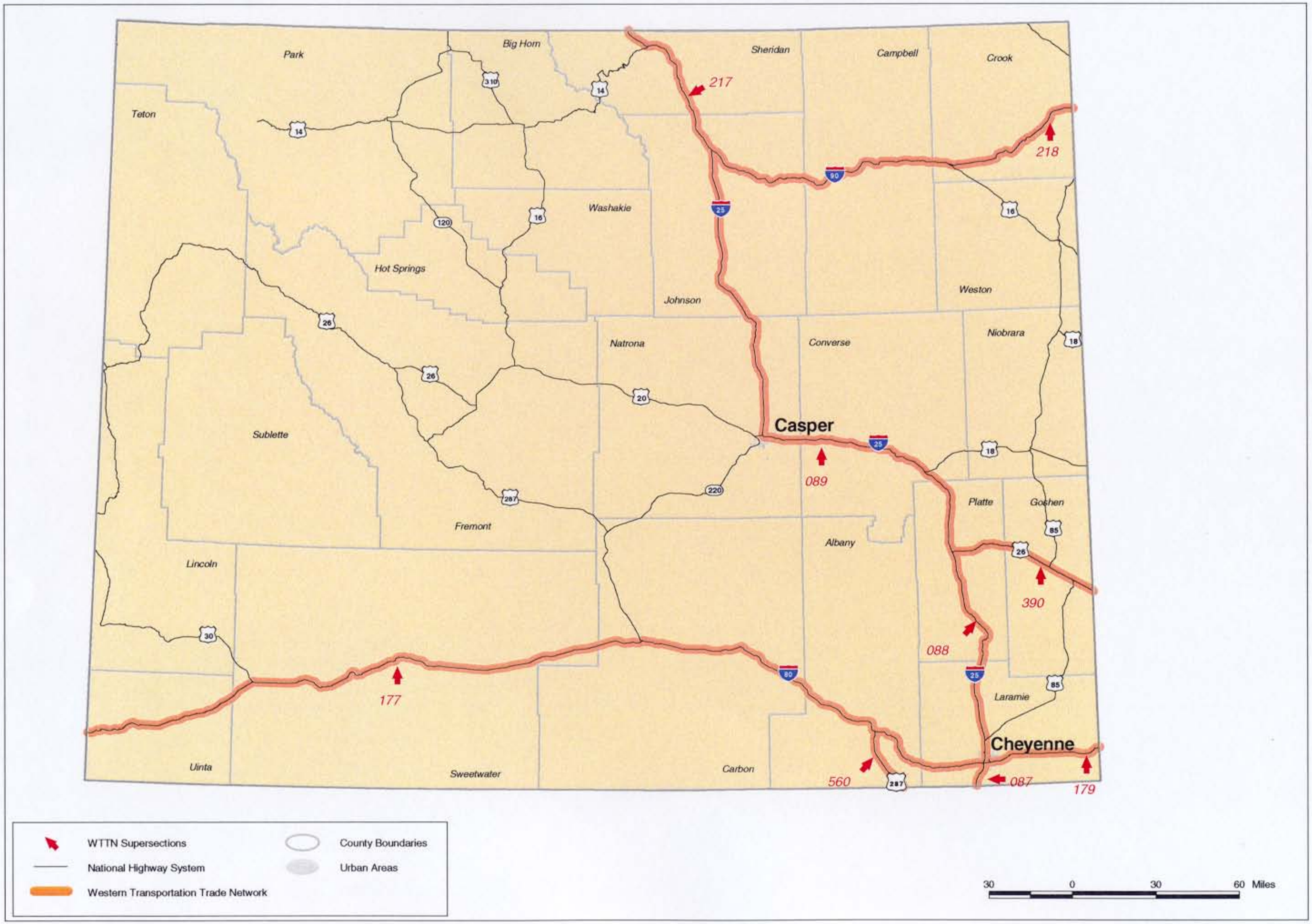
County Boundaries

Urban Areas

Washington: Urban Areas

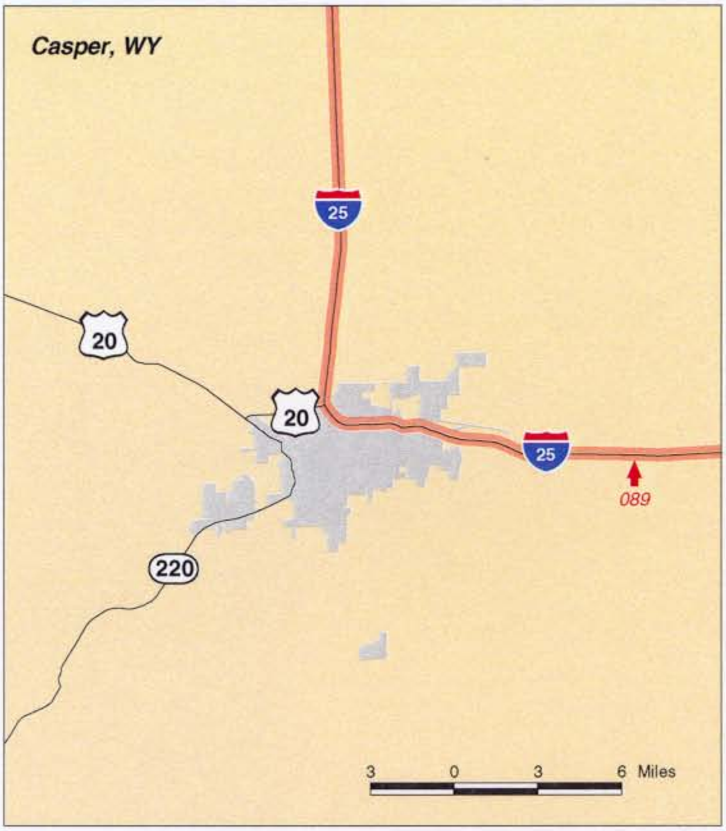


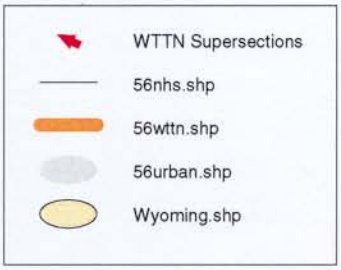
Wyoming

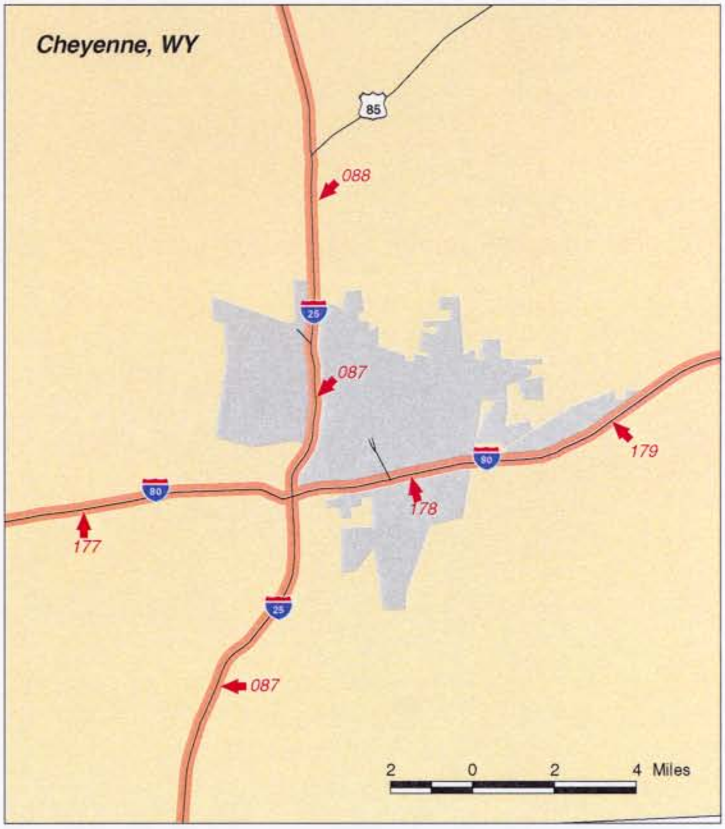


Park
Big Horn
Sheridan
Campbell
Crook
Teton
Washakie
Hot Springs
Johnson
Weston
Natrona
Converse
Niobrara
Sublette
Fremont
Albany
Platte
Goshen
Lincoln
Laramie
Uinta
Sweetwater
Carbon
Casper
Cheyenne
217
218
089
390
088
177
560
087
179
WTTN Supersections
National Highway System
Western Transportation Trade Network
County Boundaries
Urban Areas
30 0 30 60 Miles

Wyoming: Urban Areas







Appendix B
WTTN HIGHWAY SUPERSEGMENT REPORTS: DATA & SAMPLE ADEQUACY

Appendix B contains two separate listings of WTTN Highways by supersegment. Each WTTN Highway is subdivided into supersegments for analysis purposes.

The first report lists WTTN Highways in **bold**, in marked route order, with Interstate Highways first, followed by U.S. Highways, the State (S) Highways. The **bold** line identifies the entire highway, followed down the page by supersegments for that WTTN Highway. If a **bold** listing has no supersegments listed beneath, the entire highway is one supersegment, and is so-numbered.

- Under each highway, the termini of supersegments are listed (vertically) in the second column ("termini").
- The third column identifies the supersegment number.
- In the fourth vertical column, the state is listed in which the supersegment is contained. For WTTN Highways (**bold**), all states with mileage of a particular WTTN Highway are listed.
- The fifth column ("GIS Length") shows the length of each supersegment in miles from the consultant's GIS database. Some GIS lengths were adjusted based upon comments from the states.
- Column 6 lists all WTTN Trade Corridors served by a WTTN Highway and individual supersegments. From the listing it can be seen that many highway segments are contained in more than one WTTN Trade Corridor.
- The final column lists the significant deficiencies identified from the deficiency analysis explained in Chapter 3. The list uses the following abbreviations:

P	=	pavement condition
SH	=	Shoulders
SL	=	speed limit
H	=	horizontal alignment
V	=	vertical alignment

C96	=	1996 capacity
C16	=	2016 capacity
LN	=	lane width

The second report lists WTTN Highways and associated supersegments for six "HPMS-only" States. As explained in Chapter 3, data is available only from the HPMS database for highways in these states, raising a question concerning the adequacy of the sample when expanded. The first six vertical columns in this report contain the same identifier information as in the first Appendix B report. The next four columns, however, show:

- The "sample length," which is the mileage within a supersegment for which the consultant team has HPMS data.

- "Percent sampled" is the calculation of Sample Length / GIS Length, expressed as a percent.

- The "Number of HPMS Records" column represents the number of smaller, individual HPMS sample sections in a supersegment for which the consultant has HPMS data.

- The "Rating" in the final column refers to the consultant team's assessment of the sample adequacy relative to its ability to represent the supersegment when expanded. An "A" rating means the sample is clearly adequate and representative of the supersegment, a "B" means the sample is of marginal size, while a "C" rating means the sample size for this supersegment is considered inadequate.

ROUTES IN WTTN CORRIDORS

hwycorridors.xls 05-19-99

Route	Termini	State	SS# Old	SS#	States	GIS Length (Mi)	Corridor No.	Significant Deficiencies
I-5	**S. San Diego to Canada**				**CA, OR, WA**	**1380**		
	In San Diego	06	001	001	CA	56	7	P, C16
	San Diego - Los Angeles	06	002	002	CA	16	7	P, C16
	Through Los Angeles (San Clemente - Santa Clarita)	06	003	003	CA	104	7	P, C16, C96
	Los Angeles - Sacramento	06	004	004	CA	334	7	P, C16
	Through Sacramento	06	005	005	CA	16	7	P, C16
	Sacramento - Oregon SL	06	006	006	CA	271	7	P, C16
	California SL - Douglas/Lane CL	41	006	006	OR	168	7	P, H
	Douglas/Lane CL - S 58 @ Eugene	41	006	007	OR	21	7	P
	S 58 @ Eugene - Portland	41	006	008	OR	98	7	C16
	Through Portland (OR)	41	007	009	OR	21	7	P, SL, C96, C16
	Through Portland (WA)	53	007	009	WA	14	7	C96, C16
	Portland - Seattle/Tacoma UL	53	008	010	WA	108	7	C16
	Tacoma UL - S18	53	009	011	WA	21	7	C16
	S18 - I-90	53	009	012	WA	22	7	P, C96, C16
	I-90 - Seattle UL	53	009	013	WA	33	7	C16
	Seattle UL - Canada	53	010	014	WA	77	7	C16
I-8	**I-5 to I-10 S. Phoenix**				**CA, AZ**	**349**		
	In San Diego	06	020	020	CA	27	5	P, C96, C16
	San Diego UL - Arizona SL	06	021	021	CA	144	5	P
	California SL - I-10 S. Phoenix	04	021	021	AZ	178	5	
I-10	**I-5 to E. Beaumont, TX**				**CA, AZ, NM, TX**	**1676**		
	Through Los Angeles (Santa Monica - Palm Springs)	06	030	030	CA	86	5	P, C96, C16
	Palm Springs - Arizona SL	06	031	031	CA	156	5	P, C16
	California SL - Phoenix	04	031	031	AZ	132	5	
	Through Phoenix	04	032	032	AZ	30	5, 10, 15	
	Phoenix UL - I-19 @ Tucson	04	033	033	AZ	98	5, 10, 15	
	I-19 @ Tucson - New Mexico SL	04	033	034	AZ	132	5	
	Arizona SL - I-25 @ Las Cruces	35	033	034	NM	145	5	
	I-25 @ Las Cruces - Texas SL (El Paso)	35	033	035	NM	20	5	
	Through El Paso (NM SL - El Paso UL)	48	034	036	TX	37	5	C96, C16
	El Paso UL - I-20	48	035	037	TX	149	5	
	I-20 - San Antonio UL	48	035	038	TX	364	5	
	Through San Antonio	48	036	039	TX	37	5	C16
	San Antonio UL - Houston UL	48	037	040	TX	164	5	C16
	Through Houston	48	038	041	TX	37	5	C16
	Houston UL - Louisiana SL	48	039	042	TX	89	5	C16
I-15	**I-5 @ San Diego to Canada**				**CA, NV, AZ, UT, ID, MT**	**1449**		
	In San Diego	06	040	700	CA	37	10	P, C96, C16
	San Diego UL - Los Angeles (Temecula)	06	041	710	CA	55	10	P, C16
	Through LA UZA (Temecula - San Bernadino)	06	042	711	CA	28	10	P, C16
	N. San Bernadino (Los Angeles UZA) - I-40	06	043	712	CA	63	10	P, C96, C16
	I-40 - Nevada SL	06	043	713	CA	110	10	C16
	California SL - Las Vegas UL	32	043	713	NV	27	10	C96, C16
	Through Las Vegas	32	044	714	NV	31	10	P, C96, C16
	Las Vegas UL - Arizona SL	32	045	715	NV	66	10	

ROUTES IN WTTN CORRIDORS

hwycorridors.xls **05-19-99**

Route	Termini	State	SS# Old	SS#	States	GIS Length (Mi)	Corridor No.	Significant Deficiencies
	Nevada SL - Utah SL (through AZ)	04	045	715	AZ	29	10	SL
	Arizona SL - I-70	49	045	715	UT	132	10	SH, C16
	I-70 - Salt Lake City UL (Provo)	49	045	716	UT	122	10	SH
	Through Salt Lake City (Provo - N. Ogden)	49	046	717	UT	97	10	P, SH, C16
	Salt Lake City UL (N. Ogden) - Idaho SL	49	047	718	UT	49	10	SH
	Utah SL - I-86 @ Pocatello	16	047	718	ID	72	10	P
	I-86 - US 20 @ Idaho Falls	16	047	719	ID	47	10	
	US 20 @ Idaho Falls - Montana SL	16	047	720	ID	76	10	H
	Idaho SL - I-90 @ Butte	30	047	720	MT	138	10	
	Butte (I-90) - Great Falls (I-15B)	30	048	721	MT	151	10	P, H
	Great Falls - Canada	30	048	722	MT	119	10, 20	
I-17	**I-40 @ Flagstaff to I-10 @ Phoenix**	**04**	**050**	**730**	**AZ**	**146**	**15**	
I-19/US 93/US 60	**Mexico to I-15 @ Las Vegas**				**AZ, NV**	**325**		
I-19	Mexico - I-10 @ Tucson	04	060	060	AZ	63	10, 15	SL
US 60	I-17 @ Phoenix - US 93 @ Wickenburg, AZ	04	061	061	AZ	49	10	C96, C16
US 93	US 60 - I-40	04	061	061	AZ	112	10	SH, SL
US 93	I-40 - Nevada SL	04	061	062	AZ	70	10	C96,C16, SL
US 93	Arizona SL - Las Vegas UL	32	061	062	NV	12	10	SH, SL, C96, C16
US 93 (and I-515)	Las Vegas UL - I-15	32	062	063	NV	19	10	P, C96, C16
I-20	**I-10 to W. Shreveport, LA**				**TX**	**636**		
	I-10 - Dallas/Ft. Worth UL	48	070	070	TX	420	5, 6	
	Through Dallas/Ft. Worth	48	071	071	TX	79	5, 6	C16
	Dallas/Ft. Worth UL - Louisiana SL (Shreveport)	48	072	072	TX	137	5, 6	C16
I-25	**I-10 @ Las Cruces to I-90 N. Casper**				**NM, CO, WY**	**1063**		
	I-10 - Albuquerque UL	35	080	080	NM	215	16	P
	Through Albuquerque	35	081	081	NM	21	16	P, C16
	Albuquerque UL - Colorado SL	35	082	082	NM	227	16	P
	New Mexico SL - Colorado Springs UL	08	082	082	CO	132	16	P
	Through Colorado Springs	08	083	083	CO	19	16	P, C96, C16
	Colorado Springs UL - Denver UL	08	084	084	CO	44	16	P, H, C96, C16
	Through Denver	08	085	085	CO	31	16, 14	P, C96. C16
	Denver UL - Wyoming SL (Cheyenne)	08	086	086	CO	73	16, 14	P, H, C96, C16
	Through Cheyenne	56	087	087	WY	16	16, 11, 14	P, SL
	Cheyenne UL - US 26	56	088	088	WY	76	16, 11, 14	P
	US 26 - I-90	56	088	089	WY	209	16, 11, 14	
I-29	**Sioux City to Canada**				**SD, ND**	**469**		
	Iowa SL (Sioux City) - I-90 (Sioux Falls)	46	090	090	SD	84	17	P
	I-90 @ Sioux Falls - North Dakota SL	46	091	091	SD	168	17	P
	South Dakota SL - I-94 (Fargo)	38	091	091	ND	63	17	P
	Fargo (I-94) - Canada	38	092	092	ND	154	17	P
I-30	**Dallas (I-20) to Texarkana**				**TX**	**221**		
	In Dallas/Ft. Worth	48	100	100	TX	70	6	C16
	Dallas/Ft. Worth UL - Texarkana (Arkansas SL)	48	101	101	TX	151	6	

ROUTES IN WTTN CORRIDORS

hwycorridors.xls — **05-19-99**

Route	Termini	State	SS# Old	SS#	States	GIS Length (Mi)	Corridor No.	Significant Deficiencies
I-35	**Laredo to Kansas City**				**TX, OK, KS**	**1068**		
	Laredo - San Antonio UL	48	110	110	TX	140	17	
	Through San Antonio	48	111	111	TX	35	17	C16
	San Antonio UL - Dallas/Ft. Worth UL	48	112	112	TX	253	17	C96, C16
I-35 E/W	Through Dallas/Ft. Worth	48	113	113	TX	130	17	C16
	Dallas/Ft. Worth UL - Oklahoma SL	48	114	114	TX	39	17	H, C16
	Texas SL - Oklahoma City UL	40	114	114	OK	109	17	C16
	Through Oklahoma City	40	115	115	OK	37	17, 19	C96, C16
	Oklahoma City UL - Kansas SL	40	116	116	OK	89	17, 19	
	Oklahoma SL - Wichita UL	20	116	116	KS	33	17, 19	
	Through Wichita	20	117	117	KS	24	17, 19	
	Wichita UL - Missouri SL (Kansas City)	20	118	118	KS	179	17, 19	
I-37	**I-35 @ San Antonio to Corpus Christi (US 181)**				**TX**	**142**		
	Through San Antonio (I-35 - UL)	48	120	120	TX	17	17	C16
	San Antonio UL - Corpus Christi UL	48	121	121	TX	119	17	
	Through Corpus Christi (UL - US 181)	48	122	122	TX	6	17	C96, C16
I-40	**I-15 to Ft. Smith, AR**				**CA, AZ, NM, TX, OK**	**1392**		
	I-15 - Arizona SL	06	130	130	CA	157	4	
	California SL - US 93 @ Kingman	04	130	130	AZ	48	4	
	US 93 @ Kingman - US 93	04	130	131	AZ	24	4	
	US 93 - I-17 @ Flagstaff	04	130	132	AZ	123	4	
	I-17 @ Flagstaff - New Mexico SL	04	131	133	AZ	164	4	
	Arizona SL - Albuquerque UL	35	131	133	NM	152	4	P
	Through Albuquerque	35	132	134	NM	23	4, 19	P, C96, C16
	Albuquerque UL - Texas SL	35	133	135	NM	193	4, 19	P
	New Mexico SL - Amarillo UL	48	133	135	TX	62	4, 19	
	Through Amarillo	48	134	136	TX	16	4, 19	
	Amarillo UL- Oklahoma SL	48	135	137	TX	99	4, 19	
	Texas SL - Oklahoma City UL	40	135	137	OK	136	4, 19	
	Through Oklahoma City	40	136	138	OK	30	4, 19	C96, C16
	Oklahoma City UL - Arkansas SL (Ft. Smith)	40	137	139	OK	165	4, 19	
I-44	**US 287 to Joplin**				**TX, OK**	**339**		
	US 287 - Oklahoma SL	48	140	140	TX	14	17	P
	Texas SL - Oklahoma City UL	40	140	140	OK	107	17	
	Through Oklahoma City	40	141	141	OK	23	17, 19	P, C96, C16
	Oklahoma City UL - Tulsa UL	40	142	142	OK	80	17, 19	
	Through Tulsa	40	143	143	OK	26	17, 19	C16
	Tulsa UL - Missouri SL (Joplin)	40	144	144	OK	89	17, 19	
I-45	**I-30 @ Dallas to Galveston**				**TX**	**284**		
	In Dallas/Ft. Worth	48	150	150	TX	18	14, 17	C16
	Dallas/Ft. Worth UL - Houston UL	48	151	151	TX	200	14, 17	H, C96, C16
	Through Houston	48	152	152	TX	34	14, 17	C96, C16
	Houston UL - Galveston	48	153	153	TX	32	14, 17	SL, C16

ROUTES IN WTTN CORRIDORS

hwycorridors.xls **05-19-99**

Route	Termini	State	SS# Old	SS#	States	GIS Length (Mi)	Corridor No.	Significant Deficiencies
I-70	**I-15 to Kansas City**				**UT, CO, KS**	**1105**		
	I-15 - Colorado SL	49	160	160	UT	232	3	SH
	Utah SL - Denver UL	08	160	160	CO	260	3	SL, C96, C16
	Through Denver	08	161	161	CO	30	3, 14	P, H, C16
	Denver UL - US 40/287 @ Limon	08	162	162	CO	69	3, 14	P. C16
	US 40/287 @ Limon - Kansas SL	08	162	163	CO	91	3	
	Colorado SL - Topeka UL	20	162	163	KS	353	3	
	Through Topeka	20	163	164	KS	12	3	C16
	Topeka UL - Kansas City (MO SL)	20	164	165	KS	58	3	
I-80	**US 101 @ San Francisco to Omaha**				**CA, NV, UT, WY, NE**	**1665**		
	In San Francisco	06	170	170	CA	32	2	P, LN, SH, C96, C16
	San Francisco UL - Sacramento UL	06	171	171	CA	37	2	P, C96, C16
	Through Sacramento	06	171	172	CA	37	2	P, C96, C16
	Sacramento UL - Nevada SL (Reno)	06	171	173	CA	94	2	SH, V, C96, C16
	Through Reno	32	172	174	NV	23	2	P, C96, C16
	Reno UL - Utah SL	32	173	175	NV	388	2	P
	Nevada SL - Salt Lake City UL	49	173	175	UT	117	2	SH
	Through Salt Lake City	49	174	176	UT	15	2	P, SH, C16
	Salt Lake City UL - Wyoming SL	49	175	177	UT	63	2	P, SH, C16
	Utah SL - Cheyenne UL	56	175	177	WY	357	2	
	Through Cheyenne	56	176	178	WY	14	11, 2	P
	Cheyenne UL - Nebraska SL	56	177	179	WY	32	11, 2	
	Wyoming SL - US 26	31	177	179	NE	126	11, 2	
	US 26 - US 281	31	177	180	NE	186	11, 2	
	US 281 - US 81	31	177	181	NE	41	11, 2	
	US 81 - Iowa SL	31	177	182	NE	103	11, 2	C16
I-82	**I-90 to I-84**				**WA, OR**	**144**		
	I-90 - Oregon SL	53	180	740	WA	133	1, 11	
	Washington SL - I-84	41	180	740	OR	11	1, 11	
I-84	**I-5 @ Portland to I-80 E. Salt Lake City**				**OR, ID, UT**	**734**		
	In Portland (I-5 - Portland UL)	41	190	190	OR	15	1, 8, 11	P, C96, C16
	Portland UL - I-82	41	191	191	OR	160	1, 8, 11	
	I-82 - Idaho SL	41	192	192	OR	200	8	H
	Oregon SL - Boise (I-184)	16	192	192	ID	49	8	
	Boise (I-184) - I-86	16	193	193	ID	173	8	
	I-86 - Utah SL	16	193	194	ID	54	8	P
	Idaho SL - N. Salt Lake City (I-15)	49	193	194	UT	43	8	SH
	I-15 - I-80	49	194	195	UT	40	8	SH
I-86	**I-84 to I-15 @ Pocatello**	**16**	**200**	**200**	**ID**	**63**	**11**	**P**
I-90	**I-5 @ Seattle to Sioux Falls**				**WA, ID, MT, WY, SD**	**1538**		
	In Seattle	53	210	210	WA	16	1, 11	C16
	Seattle UL - Spokane UL	53	211	211	WA	258	1, 11	C96
	Through Spokane	53	212	212	WA	18	1, 11	C16

ROUTES IN WTTN CORRIDORS

hwycorridors.xls **05-19-99**

Route	Termini	State	SS# Old	SS#	States	GIS Length (Mi)	Corridor No.	Significant Deficiencies
	Spokane UL - Idaho SL	53	213	213	WA	6	1, 11	C96, C16
	Washington SL - US 95 @ Coeur d'Alene	16	213	213	ID	14	1, 11	P, C16
	US 95 - Montana SL	16	213	214	ID	60	1, 11	H, SL
	Idaho SL - US 93 W. Missoula	30	213	214	MT	96	1, 11	P, SL
	US 93 W. Missoula - I-15 W. Butte	30	213	215	MT	123	1, 11, 20	P
	I-15 E. Butte - I-94 @ Billings	30	213	216	MT	232	1, 11, 20	P
	Billings (I-94) - Wyoming SL	30	214	217	MT	95	1, 11	P
	Montana SL - I-25	56	214	217	WY	59	1, 11	P
	I-25 - South Dakota SL	56	215	218	WY	149	1	
	Wyoming SL - Rapid City (S 473)	46	215	218	SD	62	1	
	Rapid City (S 473) - US 281	46	216	219	SD	249	1	P
	US 281 - US 81	46	216	220	SD	53	1	P
	US 81 - I-29 @ Sioux Falls	46	216	221	SD	32	1	P
	I-29 - Minnesota SL	46	216	222	SD	16	1	P
I-94	**I-90 @ Billings to Fargo**				**MT,ND**	**602**		
	I-90 @ Billings - North Dakota SL	30	220	750	MT	250	1	
	Montana SL - Bismarck (I-194)	38	220	750	ND	156	1	P
	Bismarck (I-194) - Minnesota SL (Fargo)	38	221	751	ND	196	1, 13	
I-135	**I-35 to I-70 @ Salina**				**KS**	**95**		
	Through Wichita (I-35 - Wichita UL)	20	230	230	KS	17	17	C16
	Wichita UL - I-70	20	231	231	KS	78	17	P
I-205	**around Portland**				**OR, WA**	**37**		
	I-5 N. Portland - Oregon SL	53	240	240	WA	11	7	C16
	Washington SL - I-5 S. Portland	41	240	240	OR	26	7	P, C96, C16
I-205	**I-5 to I-580 E. of San Francisco**	**06**	**250**	**250**	**CA**	**13**	**2**	**P, C96, C16**
I-215	**I-15 @ Temecula to I-15 N. San Bernadino**	**06**	**260**	**260**	**CA**	**49**	**10**	**C16**
I-235	**I-135 N. to I-135 S. of Wichita**	**20**	**270**	**270**	**KS**	**17**	**19**	**H**
I-238	**I-580 to I-880 in SF**	**06**	**680**	**680**	**CA**	**2**	**2**	**P, C16**
I-335	**I-35 to I-70 @ Topeka**	**20**	**280**	**280**	**KS**	**50**	**17**	**H**
I-405	**in Portland**	**41**	**290**	**290**	**OR**	**3**	**7**	**P, SL**
I-405	**I-5 in Los Angeles to I-5 @ Irvine**	**06**	**300**	**300**	**CA**	**72**	**7**	**P, C96, C16**
I-580	**I-5 to S 238 in San Francisco**	**06**	**310**	**310**	**CA**	**56**	**2**	**P, C96, C16**
I-710	**Long Beach to I-10**	**06**	**320**	**320**	**CA**	**20**	**7**	**P, C96, C16**
I-805	**I-5 to I-15 in San Diego**	**06**	**330**	**330**	**CA**	**14**	**7**	**P**
I-880	**I-80 to S 238 in San Francisco**	**06**	**340**	**340**	**CA**	**17**	**2**	**P, C96, C16**

ROUTES IN WTTN CORRIDORS

hwycorridors.xls 05-19-99

Route	Termini	State	SS# Old	SS#	States	GIS Length (Mi)	Corridor No.	Significant Deficiencies
US 2	**I-5 N. Seattle to Grand Forks**				**WA, ID, MT, ND**	**1396**		
	I-5 - I-90 @ Spokane	53	350	350	WA	284	1	LN, SH, H, SL, C16
	I-90 @ Spokane - Idaho SL	53	351	351	WA	50	1	SL, C96, C16
	Washington SL - US 95 @ Sandpoint	16	351	351	ID	26	1	P, LN, SH, H, C96, C16
	US 95 @ Bonners Ferry - Montana SL	16	351	352	ID	16	1	SH, H
	Idaho SL - US 93 @ Kalispell	30	351	352	MT	120	1	P, LN, SH, H, V
	US 93 @ Kalispell - North Dakota SL	30	352	353	MT	546	1	SH,H
	Montana SL - US 83 @ Minot	38	352	353	ND	145	1	
	US 83 @ Minot - Minnesota SL (Grand Forks)	38	353	354	ND	209	1	
US 6	**Loveland Pass**	**08**	**360**	**360**	**CO**	**20**	**3**	**LN, SL, C96, C16**
US 12	**US 95 @ Lewiston to I-94 @ Forsyth**				**ID, MT**	**548**		
	US 95 - Montana SL	16	370	370	ID	169	1	SH, SL, C96, C16
	Idaho SL - I-90 @ Missoula	30	370	370	MT	45	1	SH, H, SL, C96, C16
	I-90 NW of Butte to I-94 @ Forsyth	30	371	371	MT	334	1	SH, SL
US 20/191	**I-15 @ Idaho Falls to I-90 W. Bozeman**				**ID, MT**	**199**		
US 20	I-15 @ Idaho Falls - Montana SL	16	380	380	ID	98	10	C96, C16
US 20	Idaho SL - US 191/287	30	380	380	MT	10	10	SH, H, V, C96, C16
US 191/287	US 20 - I-90	30	380	380	MT	91	10	
US 26	**I-25 to I-80**				**WY, NE**	**206**		
	I-25 - Nebraska SL	56	390	390	WY	56	11	SL
	Wyoming SL - I-80	31	390	390	NE	150	11	LN
US 52	**Canada to I-94 @ Jamestown, ND**	**38**	**400**	**400**	**ND**	**246**	**13**	
US 54	**El Paso to I-235 @ Wichita**				**TX, NM, OK, KS**	**685**		
	I-10 @ El Paso - New Mexico SL	48	410	410	TX	20	19	P, LN, SL
	Texas SL - I-40	35	410	410	NM	243	19	P, LN, SH
	I-40 - Texas SL	35	411	411	NM	53	19	
	New Mexico SL - Oklahoma SL (through Texas)	48	411	411	TX	92	19	
	Texas SL - Kansas SL (through Oklahoma)	40	411	411	OK	57	19	SL, C96, C16
	Oklahoma SL - I-235 @ Wichita	20	411	411	KS	220	19	SL
US 59	**Laredo to I-30 @ Texarkana**				**TX**	**608**	**18**	
	Laredo - Houston UL	48	420	420	TX	290	18	C96, C16
	Through Houston	48	421	421	TX	43	18	P, LN, C96, C16
	Houston UL - I-30	48	422	422	TX	275	18	LN, SL
US 70	**I-10 to US 54**	**35**	**430**	**430**	**NM**	**71**	**19**	**SL, C96**
US 77	**Brownsville to US 59**	**48**	**440**	**440**	**TX**	**234**	**18**	**SL**
US 81	**I-70 @ Salina to I-29 @ Watertown, SD**				**KS, NE, SD**	**453**		
	I-70 - Nebraska SL	20	450	450	KS	79	17	

hwycorridors.xls 05-19-99

Route	Termini	State	SS# Old	SS#	States	GIS Length (Mi)	Corridor No.	Significant Deficiencies
	Kansas SL - I-80	31	450	450	NE	60	17	P
	I-80 - South Dakota SL	31	450	451	NE	158	17	C16
	Nebraska SL - I-90	46	450	451	SD	58	17	H, C16
	I-90 - I-29 @ Watertown	46	450	452	SD	98	17	LN, H
US 87/S 19/US 191	**I-94 @ Billings to Canada**				**MT**	**260**		
US 87	I-94 - S 19	30	460	460	MT	93	12	
S 19	US 87 - US 191	30	460	460	MT	22	12	
US 191	S 19 - Canada	30	460	460	MT	145	12	SH, SL
US 87/S 200	**I-90 @ Missoula to US 2 @ Havre**				**MT**	**269**		
S 200/US 89	I-90 @ Missoula - I-15 @ Great Falls	30	470	470	MT	157	1	SH, V, H
US 87	I-15 @ Great Falls - US 2 @ Havre	30	471	471	MT	112	1	SH, H
US 93	**I-90 - Canada**	**30**	**480**	**480**	**MT**	**188**	**20**	**SH, SL, C96, C16**
US 95	**I-84 W. Boise to Canada**				**ID**	**469**		
	I-84 - Lewiston (US 12)	16	490	490	ID	244	9	LN, SH, H, C96, C16
	US 12 @ Lewiston - I-90 @ Coeur d'Alene	16	491	491	ID	116	9	SH, H, V, C96, C16
	I-90 @ Coeur d'Alene - Canada	16	491	492	ID	109	9	SH, V, H, SL, C96, C16
US 97/S 58	**I-5 @ Weed, CA to I-5 @ Eugene**				**CA, OR**	**237**		
US 97	I-5 - Oregon SL	06	500	500	CA	54	7	SL, C16
US 97	California SL to S 58	41	500	500	OR	97	7	P, SH, H, V, C96, C16
S 58	US 97 to I-5	41	500	500	OR	86	7	
US 101	**I-80 to I-280 in San Francisco**	**06**	**510**	**510**	**CA**	**2**	**2**	**P**
US 195	**US 95 (Idaho SL) to I-90 @ Spokane**	**53**	**520**	**520**	**WA**	**97**	**9**	**SH, C16**
US 281	**I-80 @ Grand Island to I-94 @ Jamestown, ND**				**NE, SD, ND**	**456**		
	I-80 - South Dakota SL	31	530	530	NE	161	17	
	Nebraska SL - I-90	46	530	530	SD	67	17	SH
	I-90 - North Dakota SL	46	530	531	SD	159	17	P, LN, SH, H, C16
	South Dakota SL - I-94	38	530	531	ND	69	17	SH
US 281	**Mexico to I-37**	**48**	**540**	**540**	**TX**	**171**	**18**	**H**
US 287	**I-70 @ Limon to Port Arthur**				**CO, OK, TX**	**950**		
US 287/40/50	I-70 @ Limon - Oklahoma SL	08	550	550	CO	194	14	P, SL
	Colorado SL - Texas SL	40	550	550	OK	41	14	SL
	Oklahoma SL - Amarillo UL	48	550	550	TX	90	14	
	Through Amarillo	48	551	551	TX	7	14	
	Amarillo UL - I-44 @ Wichita Falls	48	552	552	TX	198	14	LN
	I-44 @ Wichita Falls - Dallas/Ft. Worth UL	48	552	553	TX	105	14, 17	LN, SL
	Through Dallas/Ft. Worth (North UL - I-45 @ Ennis)	48	553	554	TX	61	14	SL, C96, C16
	I-45 @ Ennis - Port Arthur	48	554	555	TX	254	14	
US 287/S 14	**I-25 @ Ft. Collins to I-80 @ Laramie**				**CO, WY**	**68**		

ROUTES IN WTTN CORRIDORS

hwycorridors.xls **05-19-99**

Route	Termini	State	SS# Old	SS#	States	GIS Length (Mi)	Corridor No.	Significant Deficiencies
S 14	I-25 - US 287	08	560	560	CO	4	16	SL
US 287	S 14 - Wyoming SL	08	560	560	CO	40	16	
US 287	Colorado SL - I-80	56	560	560	WY	24	16	C16
US 395	**Spokane to Canada**	**53**	**570**	**570**	**WA**	**106**	**9**	**LN, SH, V, H, C96, C16**
US 395	**I-82 to I-90**	**53**	**580**	**580**	**WA**	**81**	**1**	
S 3	**Billings to Great Falls**	**30**	**590**	**590**	**MT**	**192**	**20**	**LN, SH, H, SL**
S 7/86/78	**Mexico to I-10**	**06**	**600**	**600**	**CA**	**90**	**7**	**P, SL**
S 18	**I-5 to I-90 @ Seattle**	**53**	**610**	**610**	**WA**	**26**	**1**	**LN, C96, C16**
S 58	**S 99 to Barstow**	**06**	**620**	**620**	**CA**	**145**	**4**	**SL, C96, C16**
S 60	**I-10 in Los Angeles to I-10 near Beaumont, CA**	**06**	**630**	**630**	**CA**	**71**	**5**	**P, C96, C16**
S 79/US 385	**I-90 to I-80 @ Sidney**				**SD, NE**	**239**		
S79/U16B/S238/S437	I-90 @ Rapid City - US 385	46	640	640	SD	54	16	H, C96, C16
US 385	S 79 - Nebraska SL	46	640	640	SD	31	16	
US 385	South Dakota SL - I-80	31	640	640	NE	154	16	SH, H
S 94/125	**San Diego (I-5 to I-8)**	**06**	**650**	**650**	**CA**	**14**	**5**	**P, C16**
S 99	**I-5 S. Bakersfield to I-5 @ Sacramento**	**06**	**660**	**660**	**CA**	**298**	**7**	**P, C16**
S 136	**Santa Teresa Border to I-10**				**NM, TX**	**11**		
	Mexico - Texas SL	35	670	670	NM	9	16	
	New Mexico SL - I-10	48	670	670	TX	2	16	
S 905	**I-5 to Mexico**	**06**	**690**	**690**	**CA**	**5**	**7**	**P**

Super Segment Sample Size and Rating for HPMS-only States (CA, NE, NM, NV, OK, TX)

Route	Termini	SS# Old	SS#	States	Corridor #	GIS Length (Miles)	Sample Length (Miles)	Percent Sampled	Number of HPMS Records	Rating
I-5	**S. San Diego to Canada**									
	In San Diego	001	001	CA	7	56	16	29%	10	B
	San Diego - Los Angeles	002	002	CA	7	16	10	63%	2	A
	Through Los Angeles (San Clemente - Santa Clarita)	003	003	CA	7	104	44	42%	18	B
	Los Angeles - Sacramento	004	004	CA	7	334	199	60%	43	A
	Through Sacramento	005	005	CA	7	16	12	75%	6	A
	Sacramento - Oregon SL	006	006	CA	7	271	172	63%	46	A
	Total in "HPMS only" states			**CA**	**7**	**797**	**453**			
	TOTAL (All States)			**CA, OR,WA**	**7**	**1381**	**1037**	**75%**		**A**
I-8	**I-5 to I-10 S. Phoenix**									
	In San Diego	020	020	CA	5	27	17	63%	9	A
	San Diego UL - Arizona SL	021	021	CA	5	144	130	90%	23	A
	Total in "HPMS only" states			**CA**	**5**	**171**	**147**			
	TOTAL (All States)			**CA, AZ**	**5**	**349**	**325**	**93%**		**A**
I-10	**I-5 to E. Beaumont, TX**									
	Through Los Angeles (Santa Monica - Palm Springs)	030	030	CA	5	86	48	56%	15	A
	Palm Springs - Arizona SL	031	031	CA	5	156	133	85%	28	A
	Arizona SL - I-25 @ Las Cruces	033	034	NM	5	144	106	74%	98	A
	I-25 @ Las Cruces - Texas SL (El Paso)	033	035	NM	5	20	20	100%	8	A
	Through El Paso (NM SL - El Paso UL)	034	036	TX	5	37	26	70%	19	A
	El Paso UL - I-20	035	037	TX	5	149	109	73%	16	A
	I-20 - San Antonio UL	035	038	TX	5	364	206	57%	40	A
	Through San Antonio	036	039	TX	5	37	28	76%	10	A
	San Antonio UL - Houston UL	037	040	TX	5	164	79	48%	15	B
	Through Houston	038	041	TX	5	37	31	84%	13	A
	Houston UL - Louisiana SL	039	042	TX	5	89	80	90%	23	A
	Total in "HPMS only" states			**CA, NM, TX**	**5**	**1283**	**866**			
	TOTAL (All States)			**CA, AZ,NM,TX**	**5**	**1676**	**1259**	**75%**		**A**
I-15	**I-5 @ San Diego to Canada**									
	In San Diego	040	700	CA	10	37	21	57%	10	A
	San Diego UL - Los Angeles (Temecula)	041	710	CA	10	55	35	64%	8	A
	Through LA UZA (Temecula - San Bernadino)	042	711	CA	10	28	24	86%	11	A
	N. San Bernadino (Los Angeles UZA) - I-40	043	712	CA	10	63	56	89%	14	A
	I-40 - Nevada SL	043	713	CA	10	110	16	15%	2	C
	California SL - Las Vegas UL	043	713	NV	10	27	19	70%	9	A
	Through Las Vegas	044	714	NV	10	31	20	65%	40	A
	Las Vegas UL - Arizona SL	045	715	NV	10	66	29	44%	19	B
	Total in "HPMS only" states			**CA, NV**	**10**	**417**	**220**			
	TOTAL (All States)			**CA, NV, AZ, UT, ID, MT**	**10**	**1440**	**1243**	**86%**		**A**

Super Segment Sample Size and Rating for HPMS-only States (CA, NE, NM, NV, OK, TX)

Route	Termini	SS# Old	SS#	States	Corridor #	GIS Length (Miles)	Sample Length (Miles)	Percent Sampled	Number of HPMS Records	Rating
I-19/US 93/US 60	**Mexico to I-15 @ Las Vegas**									
US 93	Arizona SL - Las Vegas UL	061	062	NV	10	12	5	42%	10	B
US 93 (and I-515)	Las Vegas UL - I-15	062	063	NV	10	19	11	58%	8	A
	Total in "HPMS only" states			**NV**	**10**	**31**	**16**			
	TOTAL (All States)			**AZ, NV**	**10**	**320**	**305**	**95%**		**A**
I-20	**I-10 to W. Shreveport, LA**									
	I-10 - Dallas/Ft. Worth UL	070	070	TX	5, 6	420	233	55%	59	A
	Through Dallas/Ft. Worth	071	071	TX	5, 6	79	46	58%	16	A
	Dallas/Ft. Worth UL - Louisiana SL (Shreveport)	072	072	TX	5, 6	137	49	36%	13	B
	Total in "HPMS only" states			**TX**	**5, 6**	**636**	**328**			
	TOTAL (All States)			**TX**	**5, 6**	**636**	**328**	**52%**		**A**
I-25	**I-10 @ Las Cruces to I-90 N. Casper**									
	I-10 - Albuquerque UL	80	80	NM	16	213	160	75%	160	A
	Through Albuquerque	81	81	NM	16	29	20	69%	55	A
	Albuquerque UL - Colorado SL	82	82	NM	16	218	201	92%	204	A
	Total in "HPMS only" states			**NM**	**16**	**460**	**381**			
	TOTAL (All States)			**NM, CO, WY**	**16**	**1063**	**984**	**93%**		**A**
I-30	**Dallas (I-20) to Texarkana**									
	In Dallas/Ft. Worth	100	100	TX	6	70	54	77%	19	A
	Dallas/Ft. Worth UL - Texarkana (Arkansas SL)	101	101	TX	6	151	81	54%	19	A
	Total in "HPMS only" states			**TX**	**6**	**221**	**135**			
	TOTAL (All States)			**TX**	**6**	**221**	**135**	**61%**		**A**
I-35	**Laredo to Kansas City**					**1068**				
	Laredo - San Antonio UL	110	110	TX	17	140	103	74%	14	A
	Through San Antonio	111	111	TX	17	35	11	31%	6	B
	San Antonio UL - Dallas/Ft. Worth UL	112	112	TX	17	253	140	55%	64	A
I-35 E/W	Through Dallas/Ft. Worth	113	113	TX	17	130	110	85%	47	A
	Dallas/Ft. Worth UL - Oklahoma SL	114	114	TX	17	39	19	49%	5	B
	Texas SL - Oklahoma City UL	114	114	OK	17	109	107	98%	49	A
	Through Oklahoma City	115	115	OK	17, 19	37	26	70%	30	A
	Oklahoma City UL - Kansas SL	116	116	OK	17, 19	89	89	100%	31	A
	Oklahoma SL - Wichita UL	116	116	KS	17, 19	33	24	73%	3	A
	Through Wichita	117	117	KS	17, 19	24	8	33%	7	B
	Wichita UL - Missouri SL (Kansas City)	118	118	KS	17, 19	179	117	65%	52	A
	Total in "HPMS only" states			**TX, OK, KS**	**17, 19**	**1068**	**754**			
	TOTAL (All States)			**TX, OK, KS**	**17, 19**	**1068**	**754**	**71%**		**A**

Super Segment Sample Size and Rating for HPMS-only States (CA, NE, NM, NV, OK, TX)

Route	Termini	SS# Old	SS#	States	Corridor #	GIS Length (Miles)	Sample Length (Miles)	Percent Sampled	Number of HPMS Records	Rating
I-37	**I-35 @ San Antonio to Corpus Christi (US 181)**					**148**				
	Through San Antonio (I-35 - UL)	120	120	TX	17	17	11	65%	4	A
	San Antonio UL - Corpus Christi UL	121	121	TX	17	115	59	51%	12	A
	Through Corpus Christi (UL - US 181)	122	122	TX	17	16	16	100%	5	A
	Total in "HPMS only" states			**TX**	**17**	**148**	**86**			
	TOTAL (All States)			**TX**	**17**	**148**	**86**	**58%**		**A**
I-40	**I-15 to Ft. Smith, AR**					**1031**				
	I-15 - Arizona SL	130	130	CA	4	155	155	100%	20	A
	Arizona SL - Albuquerque UL	131	133	NM	4	152	119	78%	137	A
	Through Albuquerque	132	134	NM	4, 19	23	19	83%	83	A
	Albuquerque UL - Texas SL	133	135	NM	4, 19	193	145	75%	171	A
	New Mexico SL - Amarillo UL	133	135	TX	4, 19	62	35	56%	6	A
	Through Amarillo	134	136	TX	4, 19	16	16	100%	5	A
	Amarillo UL- Oklahoma SL	135	137	TX	4, 19	99	61	62%	13	A
	Texas SL - Oklahoma City UL	135	137	OK	4, 19	136	105	77%	45	A
	Through Oklahoma City	136	138	OK	4, 19	30	26	87%	23	A
	Oklahoma City UL - Arkansas SL (Ft. Smith)	137	139	OK	4, 19	165	149	90%	68	A
	Total in "HPMS only" states			**CA, NM, TX, OK**	**4, 19**	**1031**	**830**			
	TOTAL (All States)			**CA, AZ, NM, TX, OK**	**4, 19**	**1390**	**1189**	**86%**		**A**
I-44	**US 287 to Joplin**									
	US 287 - Oklahoma SL	140	140	TX	17	15	15	100%	6	A
	Texas SL - Oklahoma City UL	140	140	OK	17	107	75	70%	33	A
	Through Oklahoma City	141	141	OK	17, 19	23	9	39%	13	B
	Oklahoma City UL - Tulsa UL	142	142	OK	17, 19	80	70	88%	19	A
	Through Tulsa	143	143	OK	17, 19	26	18	69%	22	A
	Tulsa UL - Missouri SL (Joplin)	144	144	OK	17, 19	89	88	99%	29	A
	Total in "HPMS only" states			**TX, OK**	**17, 19**	**339**	**275**			
	TOTAL (All States)			**TX, OK**	**17, 19**	**339**	**275**	**81%**		**A**
I-45	**I-30 @ Dallas to Galveston**									
	In Dallas/Ft. Worth	150	150	TX	14, 17	18	12	67%	2	A
	Dallas/Ft. Worth UL - Houston UL	151	151	TX	14, 17	200	81	41%	24	B
	Through Houston	152	152	TX	14, 17	34	27	79%	13	A
	Houston UL - Galveston	153	153	TX	14, 17	32	25	78%	4	A
	Total in "HPMS only" states			**TX**	**14, 17**	**284**	**145**			
	TOTAL (All States)			**TX**	**14,17**	**284**	**145**	**51%**		**A**

Super Segment Sample Size and Rating for HPMS-only States (CA, NE, NM, NV, OK, TX)

Route	Termini	SS# Old	SS#	States	Corridor #	GIS Length (Miles)	Sample Length (Miles)	Percent Sampled	Number of HPMS Records	Rating
I-70	**I-15 to Kansas City**									
	Colorado SL - Topeka UL	162	163	KS	3	353	209	59%	61	A
	Through Topeka	163	164	KS	3	12	9	75%	14	A
	Topeka UL - Kansas City (MO SL)	164	165	KS	3	58	26	45%	25	B
	Total in "HPMS only" states			**KS**	**3**	**423**	**244**			
	TOTAL (All States)			**UT, CO, KS**	**3, 14**	**1105**	**926**	**84%**		**A**
I-80	**US 101 @ San Francisco to Omaha**									
	In San Francisco	170	170	CA	2	32	22	69%	13	A
	San Francisco UL - Sacramento UL	171	171	CA	2	37	35	95%	16	A
	Through Sacramento	171	172	CA	2	37	26	70%	18	A
	Sacramento UL - Nevada SL (Reno)	171	173	CA	2	94	60	64%	16	A
	Through Reno	172	174	NV	2	23	15	65%	22	A
	Reno UL - Utah SL	173	175	NV	2	388	128	33%	68	B
	Wyoming SL - US 26	177	179	NE	11, 2	126	95	75%	18	A
	US 26 - US 281	177	180	NE	11, 2	186	162	87%	33	A
	US 281 - US 81	177	181	NE	11, 2	41	21	51%	5	A
	US 81 - Iowa SL	177	182	NE	11, 2	103	64	62%	32	A
	Total in "HPMS only" states			**CA, NV, NE**	**11, 2**	**1067**	**628**			
	TOTAL (All States)			**CA, NV, UT, WY, NE**	**11, 2**	**1664**	**1225**	**74%**		**A**
I-135	**I-35 to I-70 @ Salina**									
	Through Wichita (I-35 - Wichita UL)	230	230	KS	17	17	13	76%	14	A
	Wichita UL - I-70	231	231	KS	17	78	18	23%	15	C
	Total in "HPMS only" states			**KS**	**17**	**95**	**31**			
	TOTAL (All States)			**KS**	**17**	**95**	**31**	**33%**		**B**
I-205	**I-5 to I-580 E. of San Francisco**	**250**	**250**	**CA**	**2**	**13**	**1**	**8%**	**2**	**C**
I-215	**I-15 @ Temecula to I-15 N. San Bernadino**	**260**	**260**	**CA**	**10**	**49**	**46**	**94%**	**17**	**A**
I-235	**I-135 N. to I-135 S. of Wichita**	**270**	**270**	**KS**	**19**	**17**	**10**	**59%**	**5**	**A**
I-238	**I-580 to I-880 in SF**	**680**	**680**	**CA**	**2**	**2**	**2**	**100%**	**1**	**A**
I-335	**I-35 to I-70 @ Topeka**	**280**	**280**	**KS**	**17**	**55**	**50**	**91%**	**15**	**A**
I-405	**I-5 in Los Angeles to I-5 @ Irvine**	**300**	**300**	**CA**	**7**	**72**	**72**	**100%**	**34**	**A**
I-580	**I-5 to S 238 in San Francisco**	**310**	**310**	**CA**	**2**	**56**	**25**	**45%**	**15**	**B**
I-710	**Long Beach to I-5**	**320**	**320**	**CA**	**7**	**26**	**21**	**81%**	**12**	**A**
I-805	**I-5 to I-15 in San Diego**	**330**	**330**	**CA**	**7**	**14**	**7**	**50%**	**6**	**A**

Super Segment Sample Size and Rating for HPMS-only States (CA, NE, NM, NV, OK, TX)

Route	Termini	SS# Old	SS#	States	Corridor #	GIS Length (Miles)	Sample Length (Miles)	Percent Sampled	Number of HPMS Records	Rating
I-880	**I-80 to S 238 in San Francisco**	**340**	**340**	**CA**	**2**	**17**	**17**	**100%**	**5**	**A**
US 26	**I-25 to I-80**									
	Wyoming SL - I-80	390	390	NE	11	150	84	56%	21	A
	Total in "HPMS only" states			**NE**	**11**	**150**	**84**			
	TOTAL (All States)			**WY, NE**	**11**	**206**	**140**	**68%**		**A**
US 54	**El Paso to I-235 @ Wichita**									
	I-10 @ El Paso - New Mexico SL	410	410	TX	19	20	13	65%	7	A
	Texas SL - I-40	410	410	NM	19	243	172	71%	145	A
	I-40 - Texas SL	411	411	NM	19	53	31	58%	27	A
	New Mexico SL - Oklahoma SL (through Texas)	411	411	TX	19	92	91	99%	9	A
	Texas SL - Kansas SL (through Oklahoma)	411	411	OK	19	57	10	18%	16	C
	Oklahoma SL - I-235 @ Wichita	411	411	KS	19	220	87	40%	49	B
	Total in "HPMS only" states			**TX, NM, OK, KS**	**19**	**685**	**404**			
	TOTAL (All States)			**TX, NM, OK, KS**	**19**	**685**	**404**	**59%**		**A**
US 59	**Laredo to I-30 @ Texarkana**									
	Laredo - Houston UL	420	420	TX	18	290	127	44%	34	B
	Through Houston	421	421	TX	18	43	32	74%	20	A
	Houston UL - I-30	422	422	TX	18	275	145	53%	66	A
	Total in "HPMS only" states			**TX**	**18**	**608**	**304**			
	TOTAL (All States)			**TX**	**18**	**608**	**304**	**50%**		**A**
US 70	**I-10 to US 54**	**430**	**430**	**NM**	**19**	**71**	**60**	**85%**	**94**	**A**
US 77	**Brownsville to US 59**	**440**	**440**	**TX**	**18**	**234**	**143**	**61%**	**59**	**A**
US 81	**I-70 @ Salina to I-29 @ Watertown, SD**									
	I-70 - Nebraska SL	450	450	KS	17	79	9	11%	2	C
	Kansas SL - I-80	450	450	NE	17	60	7	12%	6	C
	I-80 - South Dakota SL	450	451	NE	17	158	69	44%	18	B
	Total in "HPMS only" states			**KS, NE**	**17**	**297**	**85**			
	TOTAL (All States)			**KS, NE, SD**	**17**	**453**	**241**	**53%**		**A**
US 97/S 58	**I-5 @ Weed, CA to I-5 @ Eugene**									
US 97	I-5 - Oregon SL	500	500	CA	7	54	36	67%	11	A
	Total in "HPMS only" states			**CA**	**7**	**54**	**36**			
	TOTAL (All States)			**CA, OR**	**7**	**236**	**218**	**92%**		**A**
US 101	**I-80 to I-280 in San Francisco**	**510**	**510**	**CA**	**2**	**2**	**0**	**0%**	**0**	**C**

Super Segment Sample Size and Rating for HPMS-only States (CA, NE, NM, NV, OK, TX)

Route	Termini	SS# Old	SS#	States	Corridor #	GIS Length (Miles)	Sample Length (Miles)	Percent Sampled	Number of HPMS Records	Rating
US 281	**I-80 @ Grand Island to I-94 @ Jamestown, ND**									
	I-80 - South Dakota SL	530	530	NE	17	161	49	30%	13	B
	Total in "HPMS only" states			**NE**	**17**	**161**	**49**			
	TOTAL (All States)			**NE, SD, ND**	**17**	**459**	**347**	**76%**		**A**
US 281	**Mexico to I-37**	**540**	**540**	**TX**	**18**	**171**	**108**	**63%**	**30**	**A**
US 287	**I-70 @ Limon to Port Arthur**									
	Colorado SL - Texas SL	550	550	OK	14	41	10	24%	3	C
	Oklahoma SL - Amarillo UL	550	550	TX	14	90	37	41%	6	B
	Through Amarillo	551	551	TX	14	7	7	100%	3	A
	Amarillo UL - I-44 @ Wichita Falls	552	552	TX	14	198	60	30%	25	B
	I-44 @ Wichita Falls - Dallas/Ft. Worth UL	552	553	TX	14, 17	105	12	11%	4	C
	Through Dallas/Ft. Worth (North UL - I-45 @ Ennis)	553	554	TX	14	61	45	74%	26	A
	I-45 @ Ennis - Port Arthur	554	555	TX	14	254	51	20%	12	C
	Total in "HPMS only" states			**OK, TX**	**14, 17**	**756**	**222**			
	TOTAL (All States)			**CO, OK, TX**	**14, 17**	**950**	**416**	**44%**		**B**
S 7/86/78	**Mexico to I-10**	**600**	**600**	**CA**	**7**	**90**	**43**	**48%**	**18**	**B**
S 58	**S 99 to Barstow**	**620**	**620**	**CA**	**4**	**145**	**36**	**25%**	**12**	**B**
S 60	**I-10 in Los Angeles to I-10 near Beaumont, CA**	**630**	**630**	**CA**	**5**	**71**	**45**	**63%**	**15**	**A**
S 79/US 385	**I-90 to I-80 @ Sidney**									
US 385	South Dakota SL - I-80	640	640	NE	16	158	61	39%	20	B
	Total in "HPMS only" states			**NE**	**16**	**158**	**61**			
	TOTAL (All States)			**SD, NE**	**16**	**242**	**145**	**60%**		**A**
S 94/125	**San Diego (I-5 to I-8)**	**650**	**650**	**CA**	**5**	**14**	**9**	**64%**	**3**	**A**
S 99	**I-5 S. Bakersfield to I-5 @ Sacramento**	**660**	**660**	**CA**	**7**	**298**	**188**	**63%**	**79**	**A**
S 136	**Santa Teresa Border to I-10**									
	Mexico - Texas SL	670	670	NM	16	9	0	0%	0	C
	New Mexico SL - I-10	670	670	TX	16	2	0	0%	0	C
	Total in "HPMS only" states			**NM, TX**	**16**	**11**				
	TOTAL (All States)			**NM, TX**	**16**	**11**	**0**	**0%**		**C**
S 905	**I-5 to Mexico**	**690**	**690**	**CA**	**7**	**5**	**3**	**60%**	**2**	**A**

Ratings: A - Sample more than 50% of length - Adequate for super segment analysis, can be expanded.
B - Sample between 30 and 50 % - Border line, will be expanded but will need to review results at the super segment level.
C - Sample less than 30 % - Cannot rely on sample to give an adequate picture of super segment but sample (if any) will be used for route analysis.

Appendix C
WTTN HIGHWAY DEFICIENCY RESULTS

Appendix C contains deficiency analysis results for individual supersegments. Each of the 206 supersegments is listed on a separate page. The lists are ordered alphabetically by state, then numerically within each state.

At the top of each page is identifier information, including supersegment number, location, termini, rural length, urban length, and number of sections (HPMS sample sections). Vertically, the page lists deficiency information for rural sections within the supersegment, followed by urban section data, and then all sections (total data) at the bottom.

For each grouping (**rural, urban, all**), data is presented for each of eight deficiency categories, as defined in Chapter 3:

- Pavement condition
- Lane width
- Shouler width
- Vertical alignment
- Horizontal alignment
- Speed limit
- Current capacity (1996)
- Future capacity (2016)

Deficiency data is presented for the highway supersegment in terms of miles and percent of length, as measured against the Minimum Tolerable Conditions (Chapter 3).

The first set of four vertical columns following deficiency type show "adequate" and "deficient" mileage in **expanded** terms. Thus, if the highway data was less than complete and the sample is considered representative, the percent adequate/deficient is expanded to represent 100% of the supersegment's length. The numbers in parenthesis under the **expanded length** columns are the number of HPMS sample sections in each category. The **sample length** column shows the length of sample mileage that could be evaluated for each deficiency. This number can change from one deficiency category to another, epending upon the completeness of data availble for analysis. The next two columns (**% of expanded length)** show the adequate and deficient mileage as a percent of expanded sample length.

The final vertical column (**sample rate**) expresses the **sample length** mileage as a percentage.

ARIZONA

Super-Segment NO 21 in ARIZONA : I-8 Termini: California SL - I-10 S. Phoenix

RURAL LENGTH 164.359(57 SECTIONS COVERING 164.359 MILES)
URBAN LENGTH 13.968(7 SECTIONS COVERING 13.968 MILES)
TOTAL LENGTH 178.327(64 SECTIONS COVERING 178.327 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	150.411(55)	13.948(2)	164.359	91.51	8.49	100.00
LANE WIDTH DEFICIENCY	164.359(57)	.000(0)	164.359	100.00	.00	100.00
SHOULDER W. DEFICIENCY	164.359(57)	.000(0)	164.359	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	164.359(57)	.000(0)	164.359	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	164.359(57)	.000(0)	164.359	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	164.359(57)	.000(0)	164.359	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	164.359(57)	.000(0)	164.359	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	164.359(57)	.000(0)	164.359	100.00	.00	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	13.968(7)	.000(0)	13.968	100.00	.00	100.00
LANE WIDTH DEFICIENCY	13.968(7)	.000(0)	13.968	100.00	.00	100.00
SHOULDER W. DEFICIENCY	13.968(7)	.000(0)	13.968	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	00
HORIZ. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	00
SPEED LIMIT DEFICIENCY	13.968(7)	.000(0)	13.968	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	13.968(7)	.000(0)	13.968	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	13.968(7)	.000(0)	13.968	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	164.379(62)	13.948(2)	178.327	92.18	7.82	100.00
LANE WIDTH DEFICIENCY	178.327(64)	.000(0)	178.327	100.00	.00	100.00
SHOULDER W. DEFICIENCY	178.327(64)	.000(0)	178.327	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	164.359(57)	.000(0)	164.359	92.17	.00	92.17
HORIZ. ALIGN. DEFICIENCY	164.359(57)	.000(0)	164.359	92.17	.00	92.17
SPEED LIMIT DEFICIENCY	178.327(64)	.000(0)	178.327	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	178.327(64)	.000(0)	178.327	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	178.327(64)	.000(0)	178.327	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

Super-Segment NO 31 in ARIZONA : I-10 Termini: California SL - Phoenix

RURAL LENGTH 105.459(32 SECTIONS COVERING 105.459 MILES)
URBAN LENGTH 26.674(15 SECTIONS COVERING 26.674 MILES)
TOTAL LENGTH 132.133(47 SECTIONS COVERING 132.133 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	103.395(31)	2.064(1)	105.459	98.04	1.96	100.00
LANE WIDTH DEFICIENCY	105.459(32)	.000(0)	105.459	100.00	.00	100.00
SHOULDER W. DEFICIENCY	105.459(32)	.000(0)	105.459	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	105.459(32)	.000(0)	105.459	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	105.459(32)	.000(0)	105.459	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	99.367(31)	6.092(1)	105.459	94.22	5.78	100.00
CAPACITY DEFICIENCY 1996	105.459(32)	.000(0)	105.459	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	105.459(32)	.000(0)	105.459	100.00	.00	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	26.177(14)	.497(1)	26.674	98.14	1.86	100.00
LANE WIDTH DEFICIENCY	26.674(15)	.000(0)	26.674	100.00	.00	100.00
SHOULDER W. DEFICIENCY	26.674(15)	.000(0)	26.674	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
HORIZ. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
SPEED LIMIT DEFICIENCY	26.674(15)	.000(0)	26.674	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	26.674(15)	.000(0)	26.674	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	26.674(15)	.000(0)	26.674	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	129.572(45)	2.561(2)	132.133	98.06	1.94	100.00
LANE WIDTH DEFICIENCY	132.133(47)	.000(0)	132.133	100.00	.00	100.00
SHOULDER W. DEFICIENCY	132.133(47)	.000(0)	132.133	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	105.459(32)	.000(0)	105.459	79.81	.00	79.81
HORIZ. ALIGN. DEFICIENCY	105.459(32)	.000(0)	105.459	79.81	.00	79.81
SPEED LIMIT DEFICIENCY	126.041(46)	6.092(1)	132.133	95.39	4.61	100.00
CAPACITY DEFICIENCY 1996	132.133(47)	.000(0)	132.133	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	132.133(47)	.000(0)	132.133	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

Super-Segment NO 32 in ARIZONA : I-10 Termini: Through Phoenix

RURAL LENGTH	.000(0 SECTIONS COVERING	.000 MILES)	
URBAN LENGTH	29.839(53 SECTIONS COVERING	29.839 MILES)	
TOTAL LENGTH	29.839(53 SECTIONS COVERING	29.839 MILES)	

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	29.839(53)	.000(0)	29.839	100.00	.00	100.00
LANE WIDTH DEFICIENCY	29.839(53)	.000(0)	29.839	100.00	.00	100.00
SHOULDER W. DEFICIENCY	29.839(53)	.000(0)	29.839	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
HORIZ. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
SPEED LIMIT DEFICIENCY	29.839(53)	.000(0)	29.839	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	28.905(51)	.934(2)	29.839	96.87	3.13	100.00
CAPACITY DEFICIENCY 2016	26.983(48)	2.856(5)	29.839	90.43	9.57	100.00

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

Super-Segment NO 33 in ARIZONA : I-10 Termini: Phoenix UL - I-19 @ Tucson

RURAL LENGTH 76.508(41 SECTIONS COVERING 76.508 MILES)
URBAN LENGTH 21.958(23 SECTIONS COVERING 21.958 MILES)
TOTAL LENGTH 98.466(64 SECTIONS COVERING 98.466 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	76.508(41)	.000(0)	76.508	100.00	.00	100.00
LANE WIDTH DEFICIENCY	76.508(41)	.000(0)	76.508	100.00	.00	100.00
SHOULDER W. DEFICIENCY	76.508(41)	.000(0)	76.508	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	76.508(41)	.000(0)	76.508	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	76.508(41)	.000(0)	76.508	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	67.401(32)	9.107(9)	76.508	88.10	11.90	100.00
CAPACITY DEFICIENCY 1996	76.508(41)	.000(0)	76.508	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	67.641(31)	8.867(10)	76.508	88.41	11.59	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	21.958(23)	.000(0)	21.958	100.00	.00	100.00
LANE WIDTH DEFICIENCY	21.958(23)	.000(0)	21.958	100.00	.00	100.00
SHOULDER W. DEFICIENCY	21.958(23)	.000(0)	21.958	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
HORIZ. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
SPEED LIMIT DEFICIENCY	21.958(23)	.000(0)	21.958	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	21.958(23)	.000(0)	21.958	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	17.080(14)	4.878(9)	21.958	77.78	22.22	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	98.466(64)	.000(0)	98.466	100.00	.00	100.00
LANE WIDTH DEFICIENCY	98.466(64)	.000(0)	98.466	100.00	.00	100.00
SHOULDER W. DEFICIENCY	98.466(64)	.000(0)	98.466	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	76.508(41)	.000(0)	76.508	77.70	.00	77.70
HORIZ. ALIGN. DEFICIENCY	76.508(41)	.000(0)	76.508	77.70	.00	77.70
SPEED LIMIT DEFICIENCY	89.359(55)	9.107(9)	98.466	90.75	9.25	100.00
CAPACITY DEFICIENCY 1996	98.466(64)	.000(0)	98.466	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	84.721(45)	13.745(19)	98.466	86.04	13.96	100.00

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

Super-Segment NO 34 in ARIZONA : I-10 Termini: I-19 @ Tucson - New Mexico SL

RURAL LENGTH 126.785(68 SECTIONS COVERING 126.785 MILES)
URBAN LENGTH 5.102(13 SECTIONS COVERING 5.102 MILES)
TOTAL LENGTH 131.887(81 SECTIONS COVERING 131.887 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	123.501(63)	3.284(5)	126.785	97.41	2.59	100.00
LANE WIDTH DEFICIENCY	126.785(68)	.000(0)	126.785	100.00	.00	100.00
SHOULDER W. DEFICIENCY	126.785(68)	.000(0)	126.785	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	126.785(68)	.000(0)	126.785	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	126.785(68)	.000(0)	126.785	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	123.501(63)	3.284(5)	126.785	97.41	2.59	100.00
CAPACITY DEFICIENCY 1996	126.785(68)	.000(0)	126.785	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	122.265(62)	4.520(6)	126.785	96.43	3.57	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	4.829(12)	.273(1)	5.102	94.65	5.35	100.00
LANE WIDTH DEFICIENCY	5.102(13)	.000(0)	5.102	100.00	.00	100.00
SHOULDER W. DEFICIENCY	5.102(13)	.000(0)	5.102	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
HORIZ. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
SPEED LIMIT DEFICIENCY	5.102(13)	.000(0)	5.102	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	5.102(13)	.000(0)	5.102	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	5.102(13)	.000(0)	5.102	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	128.330(75)	3.557(6)	131.887	97.30	2.70	100.00
LANE WIDTH DEFICIENCY	131.887(81)	.000(0)	131.887	100.00	.00	100.00
SHOULDER W. DEFICIENCY	131.887(81)	.000(0)	131.887	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	126.785(68)	.000(0)	126.785	96.13	.00	96.13
HORIZ. ALIGN. DEFICIENCY	126.785(68)	.000(0)	126.785	96.13	.00	96.13
SPEED LIMIT DEFICIENCY	128.603(76)	3.284(5)	131.887	97.51	2.49	100.00
CAPACITY DEFICIENCY 1996	131.887(81)	.000(0)	131.887	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	127.367(75)	4.520(6)	131.887	96.57	3.43	100.00

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

Super-Segment NO 60 in ARIZONA : I-19 Termini: Mexico - I-10 @ Tucson

RURAL LENGTH 46.026(27 SECTIONS COVERING 46.026 MILES)
URBAN LENGTH 17.323(17 SECTIONS COVERING 17.323 MILES)
TOTAL LENGTH 63.349(44 SECTIONS COVERING 63.349 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	42.649(25)	3.377(2)	46.026	92.66	7.34	100.00
LANE WIDTH DEFICIENCY	46.026(27)	.000(0)	46.026	100.00	.00	100.00
SHOULDER W. DEFICIENCY	46.026(27)	.000(0)	46.026	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	46.026(27)	.000(0)	46.026	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	46.026(27)	.000(0)	46.026	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	38.284(23)	7.742(4)	46.026	83.18	16.82	100.00
CAPACITY DEFICIENCY 1996	46.026(27)	.000(0)	46.026	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	46.026(27)	.000(0)	46.026	100.00	.00	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	17.323(17)	.000(0)	17.323	100.00	.00	100.00
LANE WIDTH DEFICIENCY	17.323(17)	.000(0)	17.323	100.00	.00	100.00
SHOULDER W. DEFICIENCY	17.323(17)	.000(0)	17.323	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	17.323(2)	.000(0)	2.915	100.00	.00	16.83
HORIZ. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
SPEED LIMIT DEFICIENCY	17.323(17)	.000(0)	17.323	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	17.323(17)	.000(0)	17.323	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	11.997(10)	5.326(7)	17.323	69.25	30.75	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	59.972(42)	3.377(2)	63.349	94.67	5.33	100.00
LANE WIDTH DEFICIENCY	63.349(44)	.000(0)	63.349	100.00	.00	100.00
SHOULDER W. DEFICIENCY	63.349(44)	.000(0)	63.349	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	63.349(29)	.000(0)	48.941	100.00	.00	77.26
HORIZ. ALIGN. DEFICIENCY	46.026(27)	.000(0)	46.026	72.65	.00	72.65
SPEED LIMIT DEFICIENCY	55.607(40)	7.742(4)	63.349	87.78	12.22	100.00
CAPACITY DEFICIENCY 1996	63.349(44)	.000(0)	63.349	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	58.023(37)	5.326(7)	63.349	91.59	8.41	100.00

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

Super-Segment NO 61 in ARIZONA : US 60/US 93 Termini: I-17 @ Phoenix - I40

RURAL LENGTH	148.700(59 SECTIONS COVERING	131.092 MILES)
URBAN LENGTH	12.301(15 SECTIONS COVERING	10.844 MILES)
TOTAL LENGTH	161.000(74 SECTIONS COVERING	141.936 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	147.471(57)	1.228(2)	131.092	99.17	.83	88.16
LANE WIDTH DEFICIENCY	148.700(59)	.000(0)	131.092	100.00	.00	88.16
SHOULDER W. DEFICIENCY	97.005(46)	51.694(13)	131.092	65.24	34.76	88.16
VERT. ALIGN. DEFICIENCY	148.700(59)	.000(0)	131.092	100.00	.00	88.16
HORIZ. ALIGN. DEFICIENCY	148.700(59)	.000(0)	131.092	100.00	.00	88.16
SPEED LIMIT DEFICIENCY	74.727(24)	73.972(35)	131.092	50.25	49.75	88.16
CAPACITY DEFICIENCY 1996	88.678(40)	60.021(19)	131.092	59.64	40.36	88.16
CAPACITY DEFICIENCY 2016	40.143(18)	108.556(41)	131.092	27.00	73.00	88.16

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	12.301(15)	.000(0)	10.844	100.00	.00	88.16
LANE WIDTH DEFICIENCY	12.301(15)	.000(0)	10.844	100.00	.00	88.16
SHOULDER W. DEFICIENCY	12.301(15)	.000(0)	10.844	100.00	.00	88.16
VERT. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
HORIZ. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
SPEED LIMIT DEFICIENCY	.973(2)	11.327(13)	10.844	7.91	92.09	88.16
CAPACITY DEFICIENCY 1996	11.367(14)	.934(1)	10.844	92.41	7.59	88.16
CAPACITY DEFICIENCY 2016	10.480(11)	1.821(4)	10.844	85.20	14.80	88.16

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	159.772(72)	1.228(2)	141.936	99.24	.76	88.16
LANE WIDTH DEFICIENCY	161.000(74)	.000(0)	141.936	100.00	.00	88.16
SHOULDER W. DEFICIENCY	109.306(61)	51.694(13)	141.936	67.89	32.11	88.16
VERT. ALIGN. DEFICIENCY	148.700(59)	.000(0)	131.092	92.36	.00	81.42
HORIZ. ALIGN. DEFICIENCY	148.700(59)	.000(0)	131.092	92.36	.00	81.42
SPEED LIMIT DEFICIENCY	75.701(26)	85.299(48)	141.936	47.02	52.98	88.16
CAPACITY DEFICIENCY 1996	100.045(54)	60.955(20)	141.936	62.14	37.86	88.16
CAPACITY DEFICIENCY 2016	50.623(29)	110.377(45)	141.936	31.44	68.56	88.16

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

Super-Segment NO 62 in ARIZONA : US 93 Termini: I-40 - Nevada SL

RURAL LENGTH	68.514(	24 SECTIONS COVERING	68.514	MILES)
URBAN LENGTH	1.882(	4 SECTIONS COVERING	1.882	MILES)
TOTAL LENGTH	70.396(	28 SECTIONS COVERING	70.396	MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	67.538(23)	.976(1)	68.514	98.58	1.42	100.00
LANE WIDTH DEFICIENCY	68.514(24)	.000(0)	68.514	100.00	.00	100.00
SHOULDER W. DEFICIENCY	65.530(19)	2.984(5)	68.514	95.64	4.36	100.00
VERT. ALIGN. DEFICIENCY	68.514(24)	.000(0)	68.514	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	68.514(24)	.000(0)	68.514	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	51.935(18)	16.579(6)	68.514	75.80	24.20	100.00
CAPACITY DEFICIENCY 1996	51.088(17)	17.426(7)	68.514	74.57	25.43	100.00
CAPACITY DEFICIENCY 2016	50.307(15)	18.207(9)	68.514	73.43	26.57	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	1.882(4)	.000(0)	1.882	100.00	.00	100.00
LANE WIDTH DEFICIENCY	1.882(4)	.000(0)	1.882	100.00	.00	100.00
SHOULDER W. DEFICIENCY	.723(2)	1.159(2)	1.882	38.42	61.58	100.00
VERT. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
HORIZ. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
SPEED LIMIT DEFICIENCY	1.159(2)	.723(2)	1.882	61.58	38.42	100.00
CAPACITY DEFICIENCY 1996	1.882(4)	.000(0)	1.882	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	1.882(4)	.000(0)	1.882	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	69.420(27)	.976(1)	70.396	98.61	1.39	100.00
LANE WIDTH DEFICIENCY	70.396(28)	.000(0)	70.396	100.00	.00	100.00
SHOULDER W. DEFICIENCY	66.253(21)	4.143(7)	70.396	94.11	5.89	100.00
VERT. ALIGN. DEFICIENCY	68.514(24)	.000(0)	68.514	97.33	.00	97.33
HORIZ. ALIGN. DEFICIENCY	68.514(24)	.000(0)	68.514	97.33	.00	97.33
SPEED LIMIT DEFICIENCY	53.094(20)	17.302(8)	70.396	75.42	24.58	100.00
CAPACITY DEFICIENCY 1996	52.970(21)	17.426(7)	70.396	75.25	24.75	100.00
CAPACITY DEFICIENCY 2016	52.189(19)	18.207(9)	70.396	74.14	25.86	100.00

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

Super-Segment NO 130 in ARIZONA : I-40 Termini: California SL - US 93 @ Kingman

RURAL LENGTH	47.889(21 SECTIONS COVERING	47.889 MILES)
URBAN LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	47.889(21 SECTIONS COVERING	47.889 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	45.549(19)	2.340(2)	47.889	95.11	4.89	100.00
LANE WIDTH DEFICIENCY	47.889(21)	.000(0)	47.889	100.00	.00	100.00
SHOULDER W. DEFICIENCY	47.889(21)	.000(0)	47.889	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	47.889(21)	.000(0)	47.889	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	47.889(21)	.000(0)	47.889	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	47.889(21)	.000(0)	47.889	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	47.889(21)	.000(0)	47.889	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	47.889(21)	.000(0)	47.889	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 131 in ARIZONA : I-40 Termini: US 93 @ Kingman - US 93

RURAL LENGTH	16.192(	4 SECTIONS COVERING 16.192 MILES)
URBAN LENGTH	7.433(	5 SECTIONS COVERING 7.433 MILES)
TOTAL LENGTH	23.625(	9 SECTIONS COVERING 23.625 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE		DEFICIENT		SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	16.192(	4)	.000(	0)	16.192	100.00	.00	100.00
LANE WIDTH DEFICIENCY	16.192(	4)	.000(	0)	16.192	100.00	.00	100.00
SHOULDER W. DEFICIENCY	16.192(	4)	.000(	0)	16.192	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	16.192(	4)	.000(	0)	16.192	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	16.192(	4)	.000(	0)	16.192	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	16.192(	4)	.000(	0)	16.192	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	16.192(	4)	.000(	0)	16.192	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	16.192(	4)	.000(	0)	16.192	100.00	.00	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE		DEFICIENT		SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	7.433(	5)	.000(	0)	7.433	100.00	.00	100.00
LANE WIDTH DEFICIENCY	7.433(	5)	.000(	0)	7.433	100.00	.00	100.00
SHOULDER W. DEFICIENCY	7.433(	5)	.000(	0)	7.433	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	.000(	0)	.000(	0)	.000	.00	.00	.00
HORIZ. ALIGN. DEFICIENCY	.000(	0)	.000(	0)	.000	.00	.00	.00
SPEED LIMIT DEFICIENCY	7.433(	5)	.000(	0)	7.433	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	7.433(	5)	.000(	0)	7.433	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	7.433(	5)	.000(	0)	7.433	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE		DEFICIENT		SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	23.625(	9)	.000(	0)	23.625	100.00	.00	100.00
LANE WIDTH DEFICIENCY	23.625(	9)	.000(	0)	23.625	100.00	.00	100.00
SHOULDER W. DEFICIENCY	23.625(	9)	.000(	0)	23.625	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	16.192(	4)	.000(	0)	16.192	68.54	.00	68.54
HORIZ. ALIGN. DEFICIENCY	16.192(	4)	.000(	0)	16.192	68.54	.00	68.54
SPEED LIMIT DEFICIENCY	23.625(	9)	.000(	0)	23.625	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	23.625(	9)	.000(	0)	23.625	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	23.625(	9)	.000(	0)	23.625	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

Super-Segment NO 132 in ARIZONA : I-40 Termini: US 93 - I-17 @ Flagstaff

RURAL LENGTH 120.605(42 SECTIONS COVERING 120.605 MILES)
URBAN LENGTH 2.874(2 SECTIONS COVERING 2.874 MILES)
TOTAL LENGTH 123.479(44 SECTIONS COVERING 123.479 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	120.605(42)	.000(0)	120.605	100.00	.00	100.00
LANE WIDTH DEFICIENCY	120.605(42)	.000(0)	120.605	100.00	.00	100.00
SHOULDER W. DEFICIENCY	120.605(42)	.000(0)	120.605	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	120.605(42)	.000(0)	120.605	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	120.605(42)	.000(0)	120.605	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	120.605(42)	.000(0)	120.605	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	120.605(42)	.000(0)	120.605	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	120.605(42)	.000(0)	120.605	100.00	.00	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	2.874(2)	.000(0)	2.874	100.00	.00	100.00
LANE WIDTH DEFICIENCY	2.874(2)	.000(0)	2.874	100.00	.00	100.00
SHOULDER W. DEFICIENCY	2.874(2)	.000(0)	2.874	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
HORIZ. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
SPEED LIMIT DEFICIENCY	2.874(2)	.000(0)	2.874	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	2.874(2)	.000(0)	2.874	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	2.874(2)	.000(0)	2.874	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	123.479(44)	.000(0)	123.479	100.00	.00	100.00
LANE WIDTH DEFICIENCY	123.479(44)	.000(0)	123.479	100.00	.00	100.00
SHOULDER W. DEFICIENCY	123.479(44)	.000(0)	123.479	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	120.605(42)	.000(0)	120.605	97.67	.00	97.67
HORIZ. ALIGN. DEFICIENCY	120.605(42)	.000(0)	120.605	97.67	.00	97.67
SPEED LIMIT DEFICIENCY	123.479(44)	.000(0)	123.479	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	123.479(44)	.000(0)	123.479	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	123.479(44)	.000(0)	123.479	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

Super-Segment NO 133 in ARIZONA : I-40 Termini: I-17 @ Flagstaff - New Mexico SL

RURAL LENGTH 148.689(58 SECTIONS COVERING 148.689 MILES)
URBAN LENGTH 15.801(13 SECTIONS COVERING 15.801 MILES)
TOTAL LENGTH 164.490(71 SECTIONS COVERING 164.490 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	142.069(57)	6.620(1)	148.689	95.55	4.45	100.00
LANE WIDTH DEFICIENCY	148.689(58)	.000(0)	148.689	100.00	.00	100.00
SHOULDER W. DEFICIENCY	148.689(58)	.000(0)	148.689	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	148.689(58)	.000(0)	148.689	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	148.689(58)	.000(0)	148.689	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	148.689(58)	.000(0)	148.689	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	148.689(58)	.000(0)	148.689	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	148.689(58)	.000(0)	148.689	100.00	.00	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	15.801(13)	.000(0)	15.801	100.00	.00	100.00
LANE WIDTH DEFICIENCY	15.801(13)	.000(0)	15.801	100.00	.00	100.00
SHOULDER W. DEFICIENCY	15.801(13)	.000(0)	15.801	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
HORIZ. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
SPEED LIMIT DEFICIENCY	15.801(13)	.000(0)	15.801	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	15.801(13)	.000(0)	15.801	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	15.801(13)	.000(0)	15.801	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	157.870(70)	6.620(1)	164.490	95.98	4.02	100.00
LANE WIDTH DEFICIENCY	164.490(71)	.000(0)	164.490	100.00	.00	100.00
SHOULDER W. DEFICIENCY	164.490(71)	.000(0)	164.490	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	148.689(58)	.000(0)	148.689	90.39	.00	90.39
HORIZ. ALIGN. DEFICIENCY	148.689(58)	.000(0)	148.689	90.39	.00	90.39
SPEED LIMIT DEFICIENCY	164.490(71)	.000(0)	164.490	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	164.490(71)	.000(0)	164.490	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	164.490(71)	.000(0)	164.490	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

Super-Segment NO 715 in ARIZONA : I-15 Termini: Nevada SL - Utah SL (through AZ)

RURAL LENGTH	29.385(	8 SECTIONS COVERING	29.385 MILES)
URBAN LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	29.385(	8 SECTIONS COVERING	29.385 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)				SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE		DEFICIENT		LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	29.385(	8)	.000(	0)	29.385	100.00	.00	100.00
LANE WIDTH DEFICIENCY	29.385(	8)	.000(	0)	29.385	100.00	.00	100.00
SHOULDER W. DEFICIENCY	29.385(	8)	.000(	0)	29.385	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	29.385(	8)	.000(	0)	29.385	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	29.385(	8)	.000(	0)	29.385	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	14.418(	5)	14.967(	3)	29.385	49.07	50.93	100.00
CAPACITY DEFICIENCY 1996	29.385(	8)	.000(	0)	29.385	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	29.385(	8)	.000(	0)	29.385	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 730 in ARIZONA : I-17 Termini: I-40 @ Flagstaff to I-10 @ Phoenix

RURAL LENGTH	114.289(42 SECTIONS COVERING	114.289 MILES)
URBAN LENGTH	31.470(51 SECTIONS COVERING	31.470 MILES)
TOTAL LENGTH	145.759(93 SECTIONS COVERING	145.759 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	114.289(42)	.000(0)	114.289	100.00	.00	100.00
LANE WIDTH DEFICIENCY	114.289(42)	.000(0)	114.289	100.00	.00	100.00
SHOULDER W. DEFICIENCY	114.289(42)	.000(0)	114.289	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	114.289(42)	.000(0)	114.289	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	114.289(42)	.000(0)	114.289	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	114.289(42)	.000(0)	114.289	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	114.289(42)	.000(0)	114.289	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	114.289(42)	.000(0)	114.289	100.00	.00	00.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	29.691(47)	1.779(4)	31.470	94.35	5.65	100.00
LANE WIDTH DEFICIENCY	30.347(47)	1.123(4)	31.470	96.43	3.57	100.00
SHOULDER W. DEFICIENCY	30.941(50)	.529(1)	31.470	98.32	1.68	100.00
VERT. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
HORIZ. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
SPEED LIMIT DEFICIENCY	31.470(51)	.000(0)	31.470	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	23.223(40)	8.247(11)	31.470	73.79	26.21	100.00
CAPACITY DEFICIENCY 2016	25.435(43)	6.035(8)	31.470	80.82	19.18	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	143.980(89)	1.779(4)	145.759	98.78	1.22	100.00
LANE WIDTH DEFICIENCY	144.636(89)	1.123(4)	145.759	99.23	.77	100.00
SHOULDER W. DEFICIENCY	145.230(92)	.529(1)	145.759	99.64	.36	100.00
VERT. ALIGN. DEFICIENCY	114.289(42)	.000(0)	114.289	78.41	.00	78.41
HORIZ. ALIGN. DEFICIENCY	114.289(42)	.000(0)	114.289	78.41	.00	78.41
SPEED LIMIT DEFICIENCY	145.759(93)	.000(0)	145.759	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	137.512(82)	8.247(11)	145.759	94.34	5.66	100.00
CAPACITY DEFICIENCY 2016	139.724(85)	6.035(8)	145.759	95.86	4.14	100.00

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

CALIFORNIA

Super-Segment NO 1 in CALIFORNIA : I-5 Termini: In San Diego

RURAL LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	56.317(21 SECTIONS COVERING	56.317 MILES)
TOTAL LENGTH	56.317(21 SECTIONS COVERING	56.317 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	12.241(7)	44.076(14)	56.317	21.74	78.26	100.00
LANE WIDTH DEFICIENCY	56.317(10)	.000(0)	16.266	100.00	.00	28.88
SHOULDER W. DEFICIENCY	56.317(10)	.000(0)	16.266	100.00	.00	28.88
VERT. ALIGN. DEFICIENCY	56.317(10)	.000(0)	16.266	100.00	.00	28.88
HORIZ. ALIGN. DEFICIENCY	56.317(10)	.000(0)	16.266	100.00	.00	28.88
SPEED LIMIT DEFICIENCY	56.317(10)	.000(0)	16.266	100.00	.00	28.88
CAPACITY DEFICIENCY 1996	52.543(8)	3.774(2)	16.266	93.30	6.70	28.88
CAPACITY DEFICIENCY 2016	22.584(3)	33.733(7)	16.266	40.10	59.90	28.88

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 2 in CALIFORNIA : I-5 Termini: San Diego - Los Angeles

RURAL LENGTH	15.941(3 SECTIONS COVERING	15.941 MILES)
URBAN LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	15.941(3 SECTIONS COVERING	15.941 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	9.299(1)	6.642(2)	15.941	58.33	41.67	100.00
LANE WIDTH DEFICIENCY	15.941(2)	.000(0)	10.289	100.00	.00	64.54
SHOULDER W. DEFICIENCY	15.941(2)	.000(0)	10.289	100.00	.00	64.54
VERT. ALIGN. DEFICIENCY	15.941(2)	.000(0)	10.289	100.00	.00	64.54
HORIZ. ALIGN. DEFICIENCY	15.941(2)	.000(0)	10.289	100.00	.00	64.54
SPEED LIMIT DEFICIENCY	15.941(2)	.000(0)	10.289	100.00	.00	64.54
CAPACITY DEFICIENCY 1996	15.941(2)	.000(0)	10.289	100.00	.00	64.54
CAPACITY DEFICIENCY 2016	1.534(1)	14.407(1)	10.289	9.62	90.38	64.54

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 3 in CALIFORNIA : I-5 Termini: Thru Los Angeles (San Clemente - Santa Clarita)

RURAL LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	103.644(40 SECTIONS COVERING	103.644 MILES)
TOTAL LENGTH	103.644(40 SECTIONS COVERING	103.644 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	12.855(5)	90.789(35)	103.644	12.40	87.60	100.00
LANE WIDTH DEFICIENCY	103.644(18)	.000(0)	43.893	100.00	.00	42.35
SHOULDER W. DEFICIENCY	103.644(18)	.000(0)	43.893	100.00	.00	42.35
VERT. ALIGN. DEFICIENCY	103.644(18)	.000(0)	43.893	100.00	.00	42.35
HORIZ. ALIGN. DEFICIENCY	103.644(18)	.000(0)	43.893	100.00	.00	42.35
SPEED LIMIT DEFICIENCY	103.644(18)	.000(0)	43.893	100.00	.00	42.35
CAPACITY DEFICIENCY 1996	49.016(8)	54.628(10)	43.893	47.29	52.71	42.35
CAPACITY DEFICIENCY 2016	10.945(2)	92.699(16)	43.893	10.56	89.44	42.35

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 4 in CALIFORNIA : I-5 Termini: Los Angeles - Sacramento

RURAL LENGTH 311.292(55 SECTIONS COVERING 311.292 MILES)
URBAN LENGTH 22.407(11 SECTIONS COVERING 22.407 MILES)
TOTAL LENGTH 333.699(66 SECTIONS COVERING 333.699 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	203.085(34)	108.207(21)	311.292	65.24	34.76	100.00
LANE WIDTH DEFICIENCY	311.292(34)	.000(0)	179.777	100.00	.00	57.75
SHOULDER W. DEFICIENCY	311.292(34)	.000(0)	179.777	100.00	.00	57.75
VERT. ALIGN. DEFICIENCY	311.292(34)	.000(0)	179.777	100.00	.00	57.75
HORIZ. ALIGN. DEFICIENCY	311.292(34)	.000(0)	179.777	100.00	.00	57.75
SPEED LIMIT DEFICIENCY	311.292(34)	.000(0)	179.777	100.00	.00	57.75
CAPACITY DEFICIENCY 1996	311.292(34)	.000(0)	179.777	100.00	.00	57.75
CAPACITY DEFICIENCY 2016	18.529(2)	292.763(32)	179.777	5.95	94.05	57.75

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	9.402(3)	13.005(8)	22.407	41.96	58.04	100.00
LANE WIDTH DEFICIENCY	22.407(9)	.000(0)	19.131	100.00	.00	85.38
SHOULDER W. DEFICIENCY	22.407(9)	.000(0)	19.131	100.00	.00	85.38
VERT. ALIGN. DEFICIENCY	22.407(9)	.000(0)	19.131	100.00	.00	85.38
HORIZ. ALIGN. DEFICIENCY	22.407(9)	.000(0)	19.131	100.00	.00	85.38
SPEED LIMIT DEFICIENCY	22.407(9)	.000(0)	19.131	100.00	.00	85.38
CAPACITY DEFICIENCY 1996	22.407(9)	.000(0)	19.131	100.00	.00	85.38
CAPACITY DEFICIENCY 2016	3.342(2)	19.065(7)	19.131	14.91	85.09	85.38

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	212.487(37)	121.212(29)	333.699	63.68	36.32	100.00
LANE WIDTH DEFICIENCY	333.699(43)	.000(0)	198.908	100.00	.00	59.61
SHOULDER W. DEFICIENCY	333.699(43)	.000(0)	198.908	100.00	.00	59.61
VERT. ALIGN. DEFICIENCY	333.699(43)	.000(0)	198.908	100.00	.00	59.61
HORIZ. ALIGN. DEFICIENCY	333.699(43)	.000(0)	198.908	100.00	.00	59.61
SPEED LIMIT DEFICIENCY	333.699(43)	.000(0)	198.908	100.00	.00	59.61
CAPACITY DEFICIENCY 1996	333.699(43)	.000(0)	198.908	100.00	.00	59.61
CAPACITY DEFICIENCY 2016	21.871(4)	311.828(39)	198.908	6.55	93.45	59.61

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 5 in CALIFORNIA : I-5 Termini: Through Sacramento

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)	
URBAN LENGTH	16.112(	7 SECTIONS COVERING	16.112 MILES)	
TOTAL LENGTH	16.112(	7 SECTIONS COVERING	16.112 MILES)	

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	1.551(2)	14.561(5)	16.112	9.63	90.37	100.00
LANE WIDTH DEFICIENCY	16.112(6)	.000(0)	11.955	100.00	.00	74.20
SHOULDER W. DEFICIENCY	16.112(6)	.000(0)	11.955	100.00	.00	74.20
VERT. ALIGN. DEFICIENCY	16.112(6)	.000(0)	11.955	100.00	.00	74.20
HORIZ. ALIGN. DEFICIENCY	16.112(6)	.000(0)	11.955	100.00	.00	74.20
SPEED LIMIT DEFICIENCY	16.112(6)	.000(0)	11.955	100.00	.00	74.20
CAPACITY DEFICIENCY 1996	16.112(6)	.000(0)	11.955	100.00	.00	74.20
CAPACITY DEFICIENCY 2016	.000(0)	16.112(6)	11.955	.00	100.00	74.20

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 6 in CALIFORNIA : I-5 Termini: Sacramento - Oregon SL

RURAL LENGTH	232.420(	50 SECTIONS COVERING	232.420 MILES)	
URBAN LENGTH	38.397(	15 SECTIONS COVERING	38.397 MILES)	
TOTAL LENGTH	270.817(	65 SECTIONS COVERING	270.817 MILES)	

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	121.165(30)	111.255(20)	232.420	52.13	47.87	100.00
LANE WIDTH DEFICIENCY	232.420(36)	.000(0)	159.755	100.00	.00	68.74
SHOULDER W. DEFICIENCY	232.420(36)	.000(0)	159.755	100.00	.00	68.74
VERT. ALIGN. DEFICIENCY	232.420(33)	.000(0)	134.390	100.00	.00	57.82
HORIZ. ALIGN. DEFICIENCY	232.420(33)	.000(0)	134.390	100.00	.00	57.82
SPEED LIMIT DEFICIENCY	232.420(33)	.000(0)	134.390	100.00	.00	57.82
CAPACITY DEFICIENCY 1996	232.420(33)	.000(0)	134.390	100.00	.00	57.82
CAPACITY DEFICIENCY 2016	132.854(18)	99.566(15)	134.390	57.16	42.84	57.82

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	33.654(11)	4.743(4)	38.397	87.65	12.35	100.00
LANE WIDTH DEFICIENCY	38.397(13)	.000(0)	37.915	100.00	.00	98.74
SHOULDER W. DEFICIENCY	38.397(13)	.000(0)	37.915	100.00	.00	98.74
VERT. ALIGN. DEFICIENCY	38.397(13)	.000(0)	37.915	100.00	.00	98.74
HORIZ. ALIGN. DEFICIENCY	38.397(13)	.000(0)	37.915	100.00	.00	98.74
SPEED LIMIT DEFICIENCY	38.397(13)	.000(0)	37.915	100.00	.00	98.74
CAPACITY DEFICIENCY 1996	38.397(13)	.000(0)	37.915	100.00	.00	98.74
CAPACITY DEFICIENCY 2016	21.491(9)	16.906(4)	37.915	55.97	44.03	98.74

A L L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	154.819(41)	115.998(24)	270.817	57.17	42.83	100.00
LANE WIDTH DEFICIENCY	270.817(49)	.000(0)	197.670	100.00	.00	72.99
SHOULDER W. DEFICIENCY	270.817(49)	.000(0)	197.670	100.00	.00	72.99
VERT. ALIGN. DEFICIENCY	270.817(46)	.000(0)	172.305	100.00	.00	63.62
HORIZ. ALIGN. DEFICIENCY	270.817(46)	.000(0)	172.305	100.00	.00	63.62
SPEED LIMIT DEFICIENCY	270.817(46)	.000(0)	172.305	100.00	.00	63.62
CAPACITY DEFICIENCY 1996	270.817(46)	.000(0)	172.305	100.00	.00	63.62
CAPACITY DEFICIENCY 2016	154.345(27)	116.472(19)	172.305	56.99	43.01	63.62

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 20 in CALIFORNIA : I-8 Termini: In San Diego

RURAL LENGTH	1.755(1 SECTIONS COVERING	1.755 MILES)
URBAN LENGTH	25.657(14 SECTIONS COVERING	25.657 MILES)
TOTAL LENGTH	27.412(15 SECTIONS COVERING	27.412 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	1.755(1)	.000(0)	1.755	100.00	.00	100.00
LANE WIDTH DEFICIENCY	1.755(1)	.000(0)	1.755	100.00	.00	100.00
SHOULDER W. DEFICIENCY	1.755(1)	.000(0)	1.755	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	1.755(1)	.000(0)	1.755	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	1.755(1)	.000(0)	1.755	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	1.755(1)	.000(0)	1.755	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	1.755(1)	.000(0)	1.755	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	1.755(1)	.000(0)	1.755	100.00	.00	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	8.734(5)	16.923(9)	25.657	34.04	65.96	100.00
LANE WIDTH DEFICIENCY	25.657(8)	.000(0)	15.688	100.00	.00	61.15
SHOULDER W. DEFICIENCY	25.657(8)	.000(0)	15.688	100.00	.00	61.15
VERT. ALIGN. DEFICIENCY	25.657(8)	.000(0)	15.688	100.00	.00	61.15
HORIZ. ALIGN. DEFICIENCY	25.657(8)	.000(0)	15.688	100.00	.00	61.15
SPEED LIMIT DEFICIENCY	25.657(8)	.000(0)	15.688	100.00	.00	61.15
CAPACITY DEFICIENCY 1996	16.541(6)	9.116(2)	15.688	64.47	35.53	61.15
CAPACITY DEFICIENCY 2016	16.541(6)	9.116(2)	15.688	64.47	35.53	61.15

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	10.489(6)	16.923(9)	27.412	38.26	61.74	100.00
LANE WIDTH DEFICIENCY	27.412(9)	.000(0)	17.443	100.00	.00	63.63
SHOULDER W. DEFICIENCY	27.412(9)	.000(0)	17.443	100.00	.00	63.63
VERT. ALIGN. DEFICIENCY	27.412(9)	.000(0)	17.443	100.00	.00	63.63
HORIZ. ALIGN. DEFICIENCY	27.412(9)	.000(0)	17.443	100.00	.00	63.63
SPEED LIMIT DEFICIENCY	27.412(9)	.000(0)	17.443	100.00	.00	63.63
CAPACITY DEFICIENCY 1996	18.296(7)	9.116(2)	17.443	66.74	33.26	63.63
CAPACITY DEFICIENCY 2016	18.296(7)	9.116(2)	17.443	66.74	33.26	63.63

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 21 in CALIFORNIA : I-8 Termini: San Diego UL - Arizona SL

RURAL LENGTH 133.282(21 SECTIONS COVERING 133.282 MILES)
URBAN LENGTH 10.683(6 SECTIONS COVERING 10.683 MILES)
TOTAL LENGTH 143.965(27 SECTIONS COVERING 143.965 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	87.478(14)	45.804(7)	133.282	65.63	34.37	100.00
LANE WIDTH DEFICIENCY	133.282(19)	.000(0)	124.840	100.00	.00	93.67
SHOULDER W. DEFICIENCY	133.282(19)	.000(0)	124.840	100.00	.00	93.67
VERT. ALIGN. DEFICIENCY	133.282(19)	.000(0)	124.840	100.00	.00	93.67
HORIZ. ALIGN. DEFICIENCY	133.282(19)	.000(0)	124.840	100.00	.00	93.67
SPEED LIMIT DEFICIENCY	125.981(18)	7.301(1)	124.840	94.52	5.48	93.67
CAPACITY DEFICIENCY 1996	133.282(19)	.000(0)	124.840	100.00	.00	93.67
CAPACITY DEFICIENCY 2016	133.282(19)	.000(0)	124.840	100.00	.00	93.67

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	9.705(4)	.978(1)	10.276	90.84	9.16	96.19
LANE WIDTH DEFICIENCY	10.683(4)	.000(0)	4.886	100.00	.00	45.74
SHOULDER W. DEFICIENCY	10.683(4)	.000(0)	4.886	100.00	.00	45.74
VERT. ALIGN. DEFICIENCY	10.683(4)	.000(0)	4.886	100.00	.00	45.74
HORIZ. ALIGN. DEFICIENCY	10.683(4)	.000(0)	4.886	100.00	.00	45.74
SPEED LIMIT DEFICIENCY	10.683(4)	.000(0)	4.886	100.00	.00	45.74
CAPACITY DEFICIENCY 1996	10.683(4)	.000(0)	4.886	100.00	.00	45.74
CAPACITY DEFICIENCY 2016	10.683(4)	.000(0)	4.886	100.00	.00	45.74

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	97.183(18)	46.782(8)	143.558	67.50	32.50	99.72
LANE WIDTH DEFICIENCY	143.965(23)	.000(0)	129.726	100.00	.00	90.11
SHOULDER W. DEFICIENCY	143.965(23)	.000(0)	129.726	100.00	.00	90.11
VERT. ALIGN. DEFICIENCY	143.965(23)	.000(0)	129.726	100.00	.00	90.11
HORIZ. ALIGN. DEFICIENCY	143.965(23)	.000(0)	129.726	100.00	.00	90.11
SPEED LIMIT DEFICIENCY	136.664(22)	7.301(1)	129.726	94.93	5.07	90.11
CAPACITY DEFICIENCY 1996	143.965(23)	.000(0)	129.726	100.00	.00	90.11
CAPACITY DEFICIENCY 2016	143.965(23)	.000(0)	129.726	100.00	.00	90.11

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 30 in CALIFORNIA: I-10 Termini: Through Los Angeles (Santa Monica - Palm Springs)

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	85.921(	29 SECTIONS COVERING	85.921 MILES)
TOTAL LENGTH	85.921(	29 SECTIONS COVERING	85.921 MILES)

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	10.696(3)	75.225(26)	85.921	12.45	87.55	100.00
LANE WIDTH DEFICIENCY	79.794(14)	6.127(1)	48.308	92.87	7.13	56.22
SHOULDER W. DEFICIENCY	85.921(14)	.000(0)	44.750	100.00	.00	52.08
VERT. ALIGN. DEFICIENCY	85.921(15)	.000(0)	48.308	100.00	.00	56.22
HORIZ. ALIGN. DEFICIENCY	85.921(15)	.000(0)	48.308	100.00	.00	56.22
SPEED LIMIT DEFICIENCY	85.921(15)	.000(0)	48.308	100.00	.00	56.22
CAPACITY DEFICIENCY 1996	44.108(10)	41.813(5)	48.308	51.34	48.66	56.22
CAPACITY DEFICIENCY 2016	.000(0)	85.921(15)	48.308	.00	100.00	56.22

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 31 in CALIFORNIA : I-10 Termini: Palm Springs - Arizona SL

RURAL LENGTH 133.738(21 SECTIONS COVERING 133.738 MILES)
URBAN LENGTH 21.936(10 SECTIONS COVERING 21.936 MILES)
TOTAL LENGTH 155.674(31 SECTIONS COVERING 155.674 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	118.924(20)	14.814(1)	133.738	88.92	11.08	100.00
LANE WIDTH DEFICIENCY	133.738(18)	.000(0)	111.445	100.00	.00	83.33
SHOULDER W. DEFICIENCY	133.738(18)	.000(0)	111.445	100.00	.00	83.33
VERT. ALIGN. DEFICIENCY	133.738(18)	.000(0)	111.445	100.00	.00	83.33
HORIZ. ALIGN. DEFICIENCY	133.738(18)	.000(0)	111.445	100.00	.00	83.33
SPEED LIMIT DEFICIENCY	133.738(18)	.000(0)	111.445	100.00	.00	83.33
CAPACITY DEFICIENCY 1996	133.738(18)	.000(0)	111.445	100.00	.00	83.33
CAPACITY DEFICIENCY 2016	57.461(9)	76.277(9)	111.445	42.97	57.03	83.33

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	5.793(4)	16.143(6)	21.936	26.41	73.59	100.00
LANE WIDTH DEFICIENCY	21.936(10)	.000(0)	21.936	100.00	.00	100.00
SHOULDER W. DEFICIENCY	21.936(10)	.000(0)	21.936	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	21.936(10)	.000(0)	21.936	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	21.936(10)	.000(0)	21.936	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	21.936(10)	.000(0)	21.936	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	21.936(10)	.000(0)	21.936	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	10.453(6)	11.483(4)	21.936	47.65	52.35	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	124.717(24)	30.957(7)	155.674	80.11	19.89	100.00
LANE WIDTH DEFICIENCY	155.674(28)	.000(0)	133.381	100.00	.00	85.68
SHOULDER W. DEFICIENCY	155.674(28)	.000(0)	133.381	100.00	.00	85.68
VERT. ALIGN. DEFICIENCY	155.674(28)	.000(0)	133.381	100.00	.00	85.68
HORIZ. ALIGN. DEFICIENCY	155.674(28)	.000(0)	133.381	100.00	.00	85.68
SPEED LIMIT DEFICIENCY	155.674(28)	.000(0)	133.381	100.00	.00	85.68
CAPACITY DEFICIENCY 1996	155.674(28)	.000(0)	133.381	100.00	.00	85.68
CAPACITY DEFICIENCY 2016	67.914(15)	87.760(13)	133.381	43.63	56.37	85.68

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 130 in CALIFORNIA : I-40 Termini: I-15 - Arizona SL

RURAL LENGTH 144.192(15 SECTIONS COVERING 141.996 MILES)
URBAN LENGTH 12.808(5 SECTIONS COVERING 12.613 MILES)
TOTAL LENGTH 157.000(20 SECTIONS COVERING 154.609 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	136.431(14)	7.761(1)	141.996	94.62	5.38	98.48
LANE WIDTH DEFICIENCY	144.192(15)	.000(0)	141.996	100.00	.00	98.48
SHOULDER W. DEFICIENCY	144.192(15)	.000(0)	141.996	100.00	.00	98.48
VERT. ALIGN. DEFICIENCY	144.192(15)	.000(0)	141.996	100.00	.00	98.48
HORIZ. ALIGN. DEFICIENCY	144.192(15)	.000(0)	141.996	100.00	.00	98.48
SPEED LIMIT DEFICIENCY	144.192(15)	.000(0)	141.996	100.00	.00	98.48
CAPACITY DEFICIENCY 1996	144.192(15)	.000(0)	141.996	100.00	.00	98.48
CAPACITY DEFICIENCY 2016	144.192(15)	.000(0)	141.996	100.00	.00	98.48

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	6.788(2)	6.020(3)	12.613	53.00	47.00	98.48
LANE WIDTH DEFICIENCY	12.808(5)	.000(0)	12.613	100.00	.00	98.48
SHOULDER W. DEFICIENCY	12.808(5)	.000(0)	12.613	100.00	.00	98.48
VERT. ALIGN. DEFICIENCY	12.808(5)	.000(0)	12.613	100.00	.00	98.48
HORIZ. ALIGN. DEFICIENCY	12.808(5)	.000(0)	12.613	100.00	.00	98.48
SPEED LIMIT DEFICIENCY	12.808(5)	.000(0)	12.613	100.00	.00	98.48
CAPACITY DEFICIENCY 1996	12.808(5)	.000(0)	12.613	100.00	.00	98.48
CAPACITY DEFICIENCY 2016	12.808(5)	.000(0)	12.613	100.00	.00	98.48

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	143.219(16)	13.781(4)	154.609	91.22	8.78	98.48
LANE WIDTH DEFICIENCY	157.000(20)	.000(0)	154.609	100.00	.00	98.48
SHOULDER W. DEFICIENCY	157.000(20)	.000(0)	154.609	100.00	.00	98.48
VERT. ALIGN. DEFICIENCY	157.000(20)	.000(0)	154.609	100.00	.00	98.48
HORIZ. ALIGN. DEFICIENCY	157.000(20)	.000(0)	154.609	100.00	.00	98.48
SPEED LIMIT DEFICIENCY	157.000(20)	.000(0)	154.609	100.00	.00	98.48
CAPACITY DEFICIENCY 1996	157.000(20)	.000(0)	154.609	100.00	.00	98.48
CAPACITY DEFICIENCY 2016	157.000(20)	.000(0)	154.609	100.00	.00	98.48

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 170 in CALIFORNIA : I-80 Termini: In San Francisco

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	32.385(	16 SECTIONS COVERING	32.385 MILES)
TOTAL LENGTH	32.385(	16 SECTIONS COVERING	32.385 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	20.838(8)	11.547(8)	32.385	64.34	35.66	100.00
LANE WIDTH DEFICIENCY	25.494(11)	6.891(2)	21.928	78.72	21.28	67.71
SHOULDER W. DEFICIENCY	25.494(11)	6.891(2)	21.928	78.72	21.28	67.71
VERT. ALIGN. DEFICIENCY	32.385(13)	.000(0)	21.928	100.00	.00	67.71
HORIZ. ALIGN. DEFICIENCY	32.385(13)	.000(0)	21.928	100.00	.00	67.71
SPEED LIMIT DEFICIENCY	32.385(13)	.000(0)	21.928	100.00	.00	67.71
CAPACITY DEFICIENCY 1996	21.164(8)	11.221(5)	21.928	65.35	34.65	67.71
CAPACITY DEFICIENCY 2016	.000(0)	32.385(13)	21.928	.00	100.00	67.71

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 171 in CALIFORNIA : I-80 Termini: San Francisco UL - Sacramento UL

RURAL LENGTH	15.554(8 SECTIONS COVERING	15.554 MILES)
URBAN LENGTH	21.157(9 SECTIONS COVERING	21.157 MILES)
TOTAL LENGTH	36.711(17 SECTIONS COVERING	36.711 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	15.554(8)	.000(0)	15.554	100.00	.00	100.00
LANE WIDTH DEFICIENCY	15.554(7)	.000(0)	13.654	100.00	.00	87.78
SHOULDER W. DEFICIENCY	15.554(7)	.000(0)	13.654	100.00	.00	87.78
VERT. ALIGN. DEFICIENCY	15.554(7)	.000(0)	13.654	100.00	.00	87.78
HORIZ. ALIGN. DEFICIENCY	15.554(7)	.000(0)	13.654	100.00	.00	87.78
SPEED LIMIT DEFICIENCY	15.554(7)	.000(0)	13.654	100.00	.00	87.78
CAPACITY DEFICIENCY 1996	2.291(1)	13.263(6)	13.654	14.73	85.27	87.78
CAPACITY DEFICIENCY 2016	.000(0)	15.554(7)	13.654	.00	100.00	87.78

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	8.414(3)	12.743(6)	21.157	39.77	60.23	100.00
LANE WIDTH DEFICIENCY	21.157(9)	.000(0)	21.157	100.00	.00	100.00
SHOULDER W. DEFICIENCY	21.157(9)	.000(0)	21.157	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	21.157(9)	.000(0)	21.157	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	21.157(9)	.000(0)	21.157	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	21.157(9)	.000(0)	21.157	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	15.956(6)	5.201(3)	21.157	75.42	24.58	100.00
CAPACITY DEFICIENCY 2016	.000(0)	21.157(9)	21.157	.00	100.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	23.968(11)	12.743(6)	36.711	65.29	34.71	100.00
LANE WIDTH DEFICIENCY	36.711(16)	.000(0)	34.811	100.00	.00	94.82
SHOULDER W. DEFICIENCY	36.711(16)	.000(0)	34.811	100.00	.00	94.82
VERT. ALIGN. DEFICIENCY	36.711(16)	.000(0)	34.811	100.00	.00	94.82
HORIZ. ALIGN. DEFICIENCY	36.711(16)	.000(0)	34.811	100.00	.00	94.82
SPEED LIMIT DEFICIENCY	36.711(16)	.000(0)	34.811	100.00	.00	94.82
CAPACITY DEFICIENCY 1996	18.247(7)	18.464(9)	34.811	49.70	50.30	94.82
CAPACITY DEFICIENCY 2016	.000(0)	36.711(16)	34.811	.00	100.00	94.82

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 172 in CALIFORNIA : I-80 Termini: Through Sacramento

RURAL LENGTH	12.490(5 SECTIONS COVERING	12.490 MILES)
URBAN LENGTH	24.125(17 SECTIONS COVERING	24.125 MILES)
TOTAL LENGTH	36.615(22 SECTIONS COVERING	36.615 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	6.067(2)	6.423(3)	12.490	48.57	51.43	100.00
LANE WIDTH DEFICIENCY	12.490(5)	.000(0)	12.490	100.00	.00	100.00
SHOULDER W. DEFICIENCY	10.897(4)	1.593(1)	12.490	87.25	12.75	100.00
VERT. ALIGN. DEFICIENCY	12.490(5)	.000(0)	12.490	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	12.490(5)	.000(0)	12.490	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	12.490(5)	.000(0)	12.490	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	6.423(3)	6.067(2)	12.490	51.43	48.57	100.00
CAPACITY DEFICIENCY 2016	1.001(1)	11.489(4)	12.490	8.01	91.99	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	15.316(10)	8.809(7)	24.125	63.49	36.51	100.00
LANE WIDTH DEFICIENCY	24.125(13)	.000(0)	13.706	100.00	.00	56.81
SHOULDER W. DEFICIENCY	24.125(12)	.000(0)	13.618	100.00	.00	56.45
VERT. ALIGN. DEFICIENCY	24.125(13)	.000(0)	13.706	100.00	.00	56.81
HORIZ. ALIGN. DEFICIENCY	24.125(13)	.000(0)	13.706	100.00	.00	56.81
SPEED LIMIT DEFICIENCY	24.125(13)	.000(0)	13.706	100.00	.00	56.81
CAPACITY DEFICIENCY 1996	18.485(11)	5.640(2)	13.706	76.62	23.38	56.81
CAPACITY DEFICIENCY 2016	1.429(2)	22.696(11)	13.706	5.92	94.08	56.81

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	21.383(12)	15.232(10)	36.615	58.40	41.60	100.00
LANE WIDTH DEFICIENCY	36.615(18)	.000(0)	26.196	100.00	.00	71.54
SHOULDER W. DEFICIENCY	35.022(16)	1.593(1)	26.108	95.65	4.35	71.30
VERT. ALIGN. DEFICIENCY	36.615(18)	.000(0)	26.196	100.00	.00	71.54
HORIZ. ALIGN. DEFICIENCY	36.615(18)	.000(0)	26.196	100.00	.00	71.54
SPEED LIMIT DEFICIENCY	36.615(18)	.000(0)	26.196	100.00	.00	71.54
CAPACITY DEFICIENCY 1996	24.908(14)	11.707(4)	26.196	68.03	31.97	71.54
CAPACITY DEFICIENCY 2016	2.430(3)	34.185(15)	26.196	6.64	93.36	71.54

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 173 in CALIFORNIA : I-80 Termini: Sacramento UL - Nevada SL (Reno)

RURAL LENGTH	85.112(18 SECTIONS COVERING	85.112 MILES)	
URBAN LENGTH	9.241(5 SECTIONS COVERING	9.241 MILES)	
TOTAL LENGTH	94.353(23 SECTIONS COVERING	94.353 MILES)	

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	20.012(5)	65.100(13)	85.112	23.51	76.49	100.00
LANE WIDTH DEFICIENCY	85.112(11)	.000(0)	50.725	100.00	.00	59.60
SHOULDER W. DEFICIENCY	71.288(9)	13.824(2)	50.725	83.76	16.24	59.60
VERT. ALIGN. DEFICIENCY	39.731(6)	45.381(5)	50.725	46.68	53.32	59.60
HORIZ. ALIGN. DEFICIENCY	85.112(11)	.000(0)	50.725	100.00	.00	59.60
SPEED LIMIT DEFICIENCY	83.788(10)	1.324(1)	50.725	98.44	1.56	59.60
CAPACITY DEFICIENCY 1996	65.735(9)	19.377(2)	50.725	77.23	22.77	59.60
CAPACITY DEFICIENCY 2016	5.383(1)	79.729(10)	50.725	6.32	93.68	59.60

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	5.217(3)	4.024(2)	9.241	56.45	43.55	100.00
LANE WIDTH DEFICIENCY	9.241(5)	.000(0)	9.241	100.00	.00	100.00
SHOULDER W. DEFICIENCY	9.241(5)	.000(0)	9.241	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	9.241(5)	.000(0)	9.241	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	9.241(5)	.000(0)	9.241	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	9.241(5)	.000(0)	9.241	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	7.350(4)	1.891(1)	9.241	79.54	20.46	100.00
CAPACITY DEFICIENCY 2016	1.221(1)	8.020(4)	9.241	13.21	86.79	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	25.229(8)	69.124(15)	94.353	26.74	73.26	100.00
LANE WIDTH DEFICIENCY	94.353(16)	.000(0)	59.966	100.00	.00	63.55
SHOULDER W. DEFICIENCY	80.529(14)	13.824(2)	59.966	85.35	14.65	63.55
VERT. ALIGN. DEFICIENCY	48.972(11)	45.381(5)	59.966	51.90	48.10	63.55
HORIZ. ALIGN. DEFICIENCY	94.353(16)	.000(0)	59.966	100.00	.00	63.55
SPEED LIMIT DEFICIENCY	93.029(15)	1.324(1)	59.966	98.60	1.40	63.55
CAPACITY DEFICIENCY 1996	73.085(13)	21.268(3)	59.966	77.46	22.54	63.55
CAPACITY DEFICIENCY 2016	6.604(2)	87.749(14)	59.966	7.00	93.00	63.55

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 250 in CALIFORNIA : I-205 Termini: I-5 to I-580 E. of San Francisco

RURAL LENGTH 8.372(3 SECTIONS COVERING 8.372 MILES)
URBAN LENGTH 4.601(4 SECTIONS COVERING 4.601 MILES)
TOTAL LENGTH 12.973(7 SECTIONS COVERING 12.973 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	.000(0)	8.372(3)	8.372	.00	100.00	100.00
LANE WIDTH DEFICIENCY	8.372(1)	.000(0)	.234	100.00	.00	2.80
SHOULDER W. DEFICIENCY	8.372(1)	.000(0)	.234	100.00	.00	2.80
VERT. ALIGN. DEFICIENCY	8.372(1)	.000(0)	.234	100.00	.00	2.80
HORIZ. ALIGN. DEFICIENCY	8.372(1)	.000(0)	.234	100.00	.00	2.80
SPEED LIMIT DEFICIENCY	8.372(1)	.000(0)	.234	100.00	.00	2.80
CAPACITY DEFICIENCY 1996	.000(0)	8.372(1)	.234	.00	100.00	2.80
CAPACITY DEFICIENCY 2016	.000(0)	8.372(1)	.234	.00	100.00	2.80

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	1.777(1)	2.824(3)	4.601	38.62	61.38	100.00
LANE WIDTH DEFICIENCY	4.601(1)	.000(0)	1.251	100.00	.00	27.19
SHOULDER W. DEFICIENCY	4.601(1)	.000(0)	1.251	100.00	.00	27.19
VERT. ALIGN. DEFICIENCY	4.601(1)	.000(0)	1.251	100.00	.00	27.19
HORIZ. ALIGN. DEFICIENCY	4.601(1)	.000(0)	1.251	100.00	.00	27.19
SPEED LIMIT DEFICIENCY	4.601(1)	.000(0)	1.251	100.00	.00	27.19
CAPACITY DEFICIENCY 1996	.000(0)	4.601(1)	1.251	.00	100.00	27.19
CAPACITY DEFICIENCY 2016	.000(0)	4.601(1)	1.251	.00	100.00	27.19

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	1.777(1)	11.196(6)	12.973	13.70	86.30	100.00
LANE WIDTH DEFICIENCY	12.973(2)	.000(0)	1.485	100.00	.00	11.45
SHOULDER W. DEFICIENCY	12.973(2)	.000(0)	1.485	100.00	.00	11.45
VERT. ALIGN. DEFICIENCY	12.973(2)	.000(0)	1.485	100.00	.00	11.45
HORIZ. ALIGN. DEFICIENCY	12.973(2)	.000(0)	1.485	100.00	.00	11.45
SPEED LIMIT DEFICIENCY	12.973(2)	.000(0)	1.485	100.00	.00	11.45
CAPACITY DEFICIENCY 1996	.000(0)	12.973(2)	1.485	.00	100.00	11.45
CAPACITY DEFICIENCY 2016	.000(0)	12.973(2)	1.485	.00	100.00	11.45

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 260 in CALIFORNIA: I-215 Termini: I-15 @ Temecula to I-15 N. San Bernadino

RURAL LENGTH	.603(1 SECTIONS COVERING	.603 MILES)
URBAN LENGTH	48.864(17 SECTIONS COVERING	48.864 MILES)
TOTAL LENGTH	49.467(18 SECTIONS COVERING	49.467 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	.603(1)	.000(0)	.603	100.00	.00	100.00
LANE WIDTH DEFICIENCY	.603(1)	.000(0)	.603	100.00	.00	100.00
SHOULDER W. DEFICIENCY	.603(1)	.000(0)	.603	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	.603(1)	.000(0)	.603	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	.603(1)	.000(0)	.603	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	.603(1)	.000(0)	.603	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	.603(1)	.000(0)	.603	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	.000(0)	.603(1)	.603	.00	100.00	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	42.179(15)	6.685(2)	48.864	86.32	13.68	100.00
LANE WIDTH DEFICIENCY	48.864(16)	.000(0)	45.838	100.00	.00	93.81
SHOULDER W. DEFICIENCY	48.864(16)	.000(0)	45.838	100.00	.00	93.81
VERT. ALIGN. DEFICIENCY	48.864(16)	.000(0)	45.838	100.00	.00	93.81
HORIZ. ALIGN. DEFICIENCY	48.864(16)	.000(0)	45.838	100.00	.00	93.81
SPEED LIMIT DEFICIENCY	48.864(16)	.000(0)	45.838	100.00	.00	93.81
CAPACITY DEFICIENCY 1996	36.784(13)	12.080(3)	45.838	75.28	24.72	93.81
CAPACITY DEFICIENCY 2016	1.567(1)	47.297(15)	45.838	3.21	96.79	93.81

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	42.782(16)	6.685(2)	49.467	86.49	13.51	100.00
LANE WIDTH DEFICIENCY	49.467(17)	.000(0)	46.441	100.00	.00	93.88
SHOULDER W. DEFICIENCY	49.467(17)	.000(0)	46.441	100.00	.00	93.88
VERT. ALIGN. DEFICIENCY	49.467(17)	.000(0)	46.441	100.00	.00	93.88
HORIZ. ALIGN. DEFICIENCY	49.467(17)	.000(0)	46.441	100.00	.00	93.88
SPEED LIMIT DEFICIENCY	49.467(17)	.000(0)	46.441	100.00	.00	93.88
CAPACITY DEFICIENCY 1996	37.387(14)	12.080(3)	46.441	75.58	24.42	93.88
CAPACITY DEFICIENCY 2016	1.567(1)	47.900(16)	46.441	3.17	96.83	93.88

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 300 in CALIFORNIA : I-405 Termini: I-5 in Los Angeles to I-5 @ Irvine

RURAL LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	72.149(34 SECTIONS COVERING	72.149 MILES)
TOTAL LENGTH	72.149(34 SECTIONS COVERING	72.149 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	42.177(19)	29.972(15)	72.149	58.46	41.54	100.00
LANE WIDTH DEFICIENCY	58.994(30)	13.155(4)	72.149	81.77	18.23	100.00
SHOULDER W. DEFICIENCY	72.149(34)	.000(0)	72.149	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	72.149(34)	.000(0)	72.149	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	72.149(34)	.000(0)	72.149	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	72.149(34)	.000(0)	72.149	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	38.114(18)	34.035(16)	72.149	52.83	47.17	100.00
CAPACITY DEFICIENCY 2016	10.248(6)	61.901(28)	72.149	14.20	85.80	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 310 in CALIFORNIA : I-580 Termini: I-5 to S 238 in San Francisco

RURAL LENGTH	11.790(	4 SECTIONS COVERING	11.790 MILES)
URBAN LENGTH	43.719(	24 SECTIONS COVERING	43.719 MILES)
TOTAL LENGTH	55.509(	28 SECTIONS COVERING	55.509 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	7.457(1)	4.333(3)	11.790	63.25	36.75	100.00
LANE WIDTH DEFICIENCY	11.790(2)	.000(0)	3.324	100.00	.00	28.19
SHOULDER W. DEFICIENCY	11.790(2)	.000(0)	3.324	100.00	.00	28.19
VERT. ALIGN. DEFICIENCY	11.790(2)	.000(0)	3.324	100.00	.00	28.19
HORIZ. ALIGN. DEFICIENCY	11.790(2)	.000(0)	3.324	100.00	.00	28.19
SPEED LIMIT DEFICIENCY	11.790(2)	.000(0)	3.324	100.00	.00	28.19
CAPACITY DEFICIENCY 1996	.000(0)	11.790(2)	3.324	.00	100.00	28.19
CAPACITY DEFICIENCY 2016	.000(0)	11.790(2)	3.324	.00	100.00	28.19

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	8.245(5)	35.474(19)	43.719	18.86	81.14	100.00
LANE WIDTH DEFICIENCY	43.719(14)	.000(0)	23.580	100.00	.00	53.94
SHOULDER W. DEFICIENCY	43.719(13)	.000(0)	21.953	100.00	.00	50.21
VERT. ALIGN. DEFICIENCY	43.719(13)	.000(0)	21.953	100.00	.00	50.21
HORIZ. ALIGN. DEFICIENCY	43.719(13)	.000(0)	21.953	100.00	.00	50.21
SPEED LIMIT DEFICIENCY	43.719(13)	.000(0)	21.953	100.00	.00	50.21
CAPACITY DEFICIENCY 1996	16.555(5)	27.164(8)	21.953	37.87	62.13	50.21
CAPACITY DEFICIENCY 2016	4.204(1)	39.515(12)	21.953	9.62	90.38	50.21

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	15.702(6)	39.807(22)	55.509	28.29	71.71	100.00
LANE WIDTH DEFICIENCY	55.509(16)	.000(0)	26.904	100.00	.00	48.47
SHOULDER W. DEFICIENCY	55.509(15)	.000(0)	25.277	100.00	.00	45.54
VERT. ALIGN. DEFICIENCY	55.509(15)	.000(0)	25.277	100.00	.00	45.54
HORIZ. ALIGN. DEFICIENCY	55.509(15)	.000(0)	25.277	100.00	.00	45.54
SPEED LIMIT DEFICIENCY	55.509(15)	.000(0)	25.277	100.00	.00	45.54
CAPACITY DEFICIENCY 1996	16.555(5)	38.954(10)	25.277	29.82	70.18	45.54
CAPACITY DEFICIENCY 2016	4.204(1)	51.305(14)	25.277	7.57	92.43	45.54

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 320 in CALIFORNIA : I-710 Termini: Long Beach to I-5

RURAL LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	25.620(16 SECTIONS COVERING	25.620 MILES)
TOTAL LENGTH	25.620(16 SECTIONS COVERING	25.620 MILES)

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	3.788(3)	21.832(9)	20.642	14.79	85.21	80.57
LANE WIDTH DEFICIENCY	25.620(12)	.000(0)	20.642	100.00	.00	80.57
SHOULDER W. DEFICIENCY	25.620(12)	.000(0)	20.642	100.00	.00	80.57
VERT. ALIGN. DEFICIENCY	25.620(12)	.000(0)	20.642	100.00	.00	80.57
HORIZ. ALIGN. DEFICIENCY	25.620(12)	.000(0)	20.642	100.00	.00	80.57
SPEED LIMIT DEFICIENCY	25.620(12)	.000(0)	20.642	100.00	.00	80.57
CAPACITY DEFICIENCY 1996	7.549(5)	18.071(7)	20.642	29.46	70.54	80.57
CAPACITY DEFICIENCY 2016	2.345(2)	23.275(10)	20.642	9.15	90.85	80.57

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 330 in CALIFORNIA : I-805 Termini: I-5 to I-15 in San Diego

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	14.287(	13 SECTIONS COVERING	14.287 MILES)
TOTAL LENGTH	14.287(	13 SECTIONS COVERING	14.287 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	.762(1)	13.525(12)	14.287	5.33	94.67	100.00
LANE WIDTH DEFICIENCY	14.287(6)	.000(0)	6.632	100.00	.00	46.42
SHOULDER W. DEFICIENCY	14.287(6)	.000(0)	6.632	100.00	.00	46.42
VERT. ALIGN. DEFICIENCY	14.287(6)	.000(0)	6.632	100.00	.00	46.42
HORIZ. ALIGN. DEFICIENCY	14.287(6)	.000(0)	6.632	100.00	.00	46.42
SPEED LIMIT DEFICIENCY	14.287(6)	.000(0)	6.632	100.00	.00	46.42
CAPACITY DEFICIENCY 1996	14.287(6)	.000(0)	6.632	100.00	.00	46.42
CAPACITY DEFICIENCY 2016	12.523(5)	1.764(1)	6.632	87.65	12.35	46.42

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 340 in CALIFORNIA : I-880 Termini: I-80 to S 238 in San Francisco

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	16.992(	5 SECTIONS COVERING	16.992 MILES)
TOTAL LENGTH	16.992(	5 SECTIONS COVERING	16.992 MILES)

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	12.717(4)	4.275(1)	16.992	74.84	25.16	100.00
LANE WIDTH DEFICIENCY	16.992(5)	.000(0)	16.992	100.00	.00	100.00
SHOULDER W. DEFICIENCY	16.992(5)	.000(0)	16.992	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	16.992(5)	.000(0)	16.992	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	16.992(5)	.000(0)	16.992	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	16.992(5)	.000(0)	16.992	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	2.517(1)	14.475(4)	16.992	14.81	85.19	100.00
CAPACITY DEFICIENCY 2016	2.517(1)	14.475(4)	16.992	14.81	85.19	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 500 in CALIFORNIA : US 97 Termini: I-5 @ Weed, CA - Oregon SL

RURAL LENGTH	54.364(16 SECTIONS COVERING	54.364 MILES)
URBAN LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	54.364(16 SECTIONS COVERING	54.364 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	54.364(16)	.000(0)	54.364	100.00	.00	100.00
LANE WIDTH DEFICIENCY	54.364(11)	.000(0)	36.285	100.00	.00	66.74
SHOULDER W. DEFICIENCY	52.644(10)	1.720(1)	36.285	96.84	3.16	66.74
VERT. ALIGN. DEFICIENCY	54.364(11)	.000(0)	36.285	100.00	.00	66.74
HORIZ. ALIGN. DEFICIENCY	54.364(11)	.000(0)	36.285	100.00	.00	66.74
SPEED LIMIT DEFICIENCY	47.542(10)	6.822(1)	36.285	87.45	12.55	66.74
CAPACITY DEFICIENCY 1996	52.644(10)	1.720(1)	36.285	96.84	3.16	66.74
CAPACITY DEFICIENCY 2016	24.553(4)	29.811(7)	36.285	45.16	54.84	66.74

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 510 in CALIFORNIA : US 101 Termini: I-80 to I-280 in San Francisco

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	1.782(	1 SECTIONS COVERING	1.782 MILES)
TOTAL LENGTH	1.782(	1 SECTIONS COVERING	1.782 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	.000(0)	1.782(1)	1.782	.00	100.00	100.00
LANE WIDTH DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
SHOULDER W. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
VERT. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
HORIZ. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
SPEED LIMIT DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
CAPACITY DEFICIENCY 1996	.000(0)	.000(0)	.000	.00	.00	.00
CAPACITY DEFICIENCY 2016	.000(0)	.000(0)	.000	.00	.00	.00

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

Super-Segment NO 600 in CALIFORNIA : S 7/86/78 Termini: Mexico to I-10

RURAL LENGTH	82.057(17 SECTIONS COVERING	82.057 MILES)
URBAN LENGTH	8.270(11 SECTIONS COVERING	8.270 MILES)
TOTAL LENGTH	90.327(28 SECTIONS COVERING	90.327 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	69.256(14)	12.801(2)	75.257	84.40	15.60	91.71
LANE WIDTH DEFICIENCY	82.057(9)	.000(0)	36.263	100.00	.00	44.19
SHOULDER W. DEFICIENCY	82.057(9)	.000(0)	36.263	100.00	.00	44.19
VERT. ALIGN. DEFICIENCY	82.057(9)	.000(0)	36.263	100.00	.00	44.19
HORIZ. ALIGN. DEFICIENCY	82.057(9)	.000(0)	36.263	100.00	.00	44.19
SPEED LIMIT DEFICIENCY	77.511(8)	4.546(1)	36.263	94.46	5.54	44.19
CAPACITY DEFICIENCY 1996	82.057(9)	.000(0)	36.263	100.00	.00	44.19
CAPACITY DEFICIENCY 2016	82.057(9)	.000(0)	36.263	100.00	.00	44.19

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	5.326(7)	2.944(4)	8.270	64.40	35.60	100.00
LANE WIDTH DEFICIENCY	8.270(9)	.000(0)	7.468	100.00	.00	90.30
SHOULDER W. DEFICIENCY	8.270(8)	.000(0)	6.874	100.00	.00	83.12
VERT. ALIGN. DEFICIENCY	8.270(8)	.000(0)	6.874	100.00	.00	83.12
HORIZ. ALIGN. DEFICIENCY	8.270(8)	.000(0)	6.874	100.00	.00	83.12
SPEED LIMIT DEFICIENCY	1.898(2)	6.372(7)	7.468	22.95	77.05	90.30
CAPACITY DEFICIENCY 1996	8.270(9)	.000(0)	7.468	100.00	.00	90.30
CAPACITY DEFICIENCY 2016	7.612(8)	.658(1)	7.468	92.05	7.95	90.30

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	74.582(21)	15.745(6)	83.527	82.57	17.43	92.47
LANE WIDTH DEFICIENCY	90.327(18)	.000(0)	43.731	100.00	.00	48.41
SHOULDER W. DEFICIENCY	90.327(17)	.000(0)	43.137	100.00	.00	47.76
VERT. ALIGN. DEFICIENCY	90.327(17)	.000(0)	43.137	100.00	.00	47.76
HORIZ. ALIGN. DEFICIENCY	90.327(17)	.000(0)	43.137	100.00	.00	47.76
SPEED LIMIT DEFICIENCY	79.409(10)	10.918(8)	43.731	87.91	12.09	48.41
CAPACITY DEFICIENCY 1996	90.327(18)	.000(0)	43.731	100.00	.00	48.41
CAPACITY DEFICIENCY 2016	89.669(17)	.658(1)	43.731	99.27	.73	48.41

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 620 in CALIFORNIA : S 58 Termini: S 99 to Barstow

RURAL LENGTH 119.610(22 SECTIONS COVERING 119.610 MILES)
URBAN LENGTH 25.444(11 SECTIONS COVERING 25.444 MILES)
TOTAL LENGTH 145.054(33 SECTIONS COVERING 145.054 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	106.153(19)	13.457(2)	112.814	88.75	11.25	94.32
LANE WIDTH DEFICIENCY	119.610(6)	.000(0)	23.536	100.00	.00	19.68
SHOULDER W. DEFICIENCY	119.610(6)	.000(0)	23.536	100.00	.00	19.68
VERT. ALIGN. DEFICIENCY	119.610(6)	.000(0)	23.536	100.00	.00	19.68
HORIZ. ALIGN. DEFICIENCY	119.610(6)	.000(0)	23.536	100.00	.00	19.68
SPEED LIMIT DEFICIENCY	85.301(4)	34.309(2)	23.536	71.32	28.68	19.68
CAPACITY DEFICIENCY 1996	91.095(5)	28.515(1)	23.536	76.16	23.84	19.68
CAPACITY DEFICIENCY 2016	91.095(5)	28.515(1)	23.536	76.16	23.84	19.68

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	25.444(10)	.000(0)	24.254	100.00	.00	95.32
LANE WIDTH DEFICIENCY	25.444(6)	.000(0)	12.843	100.00	.00	50.48
SHOULDER W. DEFICIENCY	25.444(5)	.000(0)	10.233	100.00	.00	40.22
VERT. ALIGN. DEFICIENCY	25.444(6)	.000(0)	12.843	100.00	.00	50.48
HORIZ. ALIGN. DEFICIENCY	25.444(6)	.000(0)	12.843	100.00	.00	50.48
SPEED LIMIT DEFICIENCY	16.469(4)	8.975(2)	12.843	64.73	35.27	50.48
CAPACITY DEFICIENCY 1996	20.273(5)	5.171(1)	12.843	79.68	20.32	50.48
CAPACITY DEFICIENCY 2016	9.997(2)	15.447(4)	12.843	39.29	60.71	50.48

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	131.597(29)	13.457(2)	137.068	90.72	9.28	94.49
LANE WIDTH DEFICIENCY	145.054(12)	.000(0)	36.379	100.00	.00	25.08
SHOULDER W. DEFICIENCY	145.054(11)	.000(0)	33.769	100.00	.00	23.28
VERT. ALIGN. DEFICIENCY	145.054(12)	.000(0)	36.379	100.00	.00	25.08
HORIZ. ALIGN. DEFICIENCY	145.054(12)	.000(0)	36.379	100.00	.00	25.08
SPEED LIMIT DEFICIENCY	101.771(8)	43.283(4)	36.379	70.16	29.84	25.08
CAPACITY DEFICIENCY 1996	111.368(10)	33.686(2)	36.379	76.78	23.22	25.08
CAPACITY DEFICIENCY 2016	101.092(7)	43.962(5)	36.379	69.69	30.31	25.08

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 630 in CALIFORNIA: S 60 Termini: I-10 in Los Angeles to I-10 near Beaumont, CA

RURAL LENGTH	7.567(2 SECTIONS COVERING	7.567 MILES)
URBAN LENGTH	63.035(23 SECTIONS COVERING	63.035 MILES)
TOTAL LENGTH	70.602(25 SECTIONS COVERING	70.602 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	7.567(2)	.000(0)	7.567	100.00	.00	100.00
LANE WIDTH DEFICIENCY	7.567(2)	.000(0)	7.567	100.00	.00	100.00
SHOULDER W. DEFICIENCY	7.567(2)	.000(0)	7.567	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	7.567(2)	.000(0)	7.567	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	7.567(2)	.000(0)	7.567	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	7.567(2)	.000(0)	7.567	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	7.567(2)	.000(0)	7.567	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	.000(0)	7.567(2)	7.567	.00	100.00	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	23.534(7)	39.501(16)	63.035	37.33	62.67	100.00
LANE WIDTH DEFICIENCY	63.035(13)	.000(0)	37.208	100.00	.00	59.03
SHOULDER W. DEFICIENCY	63.035(13)	.000(0)	37.208	100.00	.00	59.03
VERT. ALIGN. DEFICIENCY	63.035(13)	.000(0)	37.208	100.00	.00	59.03
HORIZ. ALIGN. DEFICIENCY	63.035(13)	.000(0)	37.208	100.00	.00	59.03
SPEED LIMIT DEFICIENCY	63.035(13)	.000(0)	37.208	100.00	.00	59.03
CAPACITY DEFICIENCY 1996	39.880(9)	23.155(4)	37.208	63.27	36.73	59.03
CAPACITY DEFICIENCY 2016	.000(0)	63.035(13)	37.208	.00	100.00	59.03

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	31.101(9)	39.501(16)	70.602	44.05	55.95	100.00
LANE WIDTH DEFICIENCY	70.602(15)	.000(0)	44.775	100.00	.00	63.42
SHOULDER W. DEFICIENCY	70.602(15)	.000(0)	44.775	100.00	.00	63.42
VERT. ALIGN. DEFICIENCY	70.602(15)	.000(0)	44.775	100.00	.00	63.42
HORIZ. ALIGN. DEFICIENCY	70.602(15)	.000(0)	44.775	100.00	.00	63.42
SPEED LIMIT DEFICIENCY	70.602(15)	.000(0)	44.775	100.00	.00	63.42
CAPACITY DEFICIENCY 1996	47.447(11)	23.155(4)	44.775	67.20	32.80	63.42
CAPACITY DEFICIENCY 2016	.000(0)	70.602(15)	44.775	.00	100.00	63.42

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 650 in CALIFORNIA : S 94/125 Termini: San Diego (I-5 to I-8)

RURAL LENGTH	4.529(	1 SECTIONS COVERING	4.529 MILES)
URBAN LENGTH	9.574(	4 SECTIONS COVERING	9.574 MILES)
TOTAL LENGTH	14.103(	5 SECTIONS COVERING	14.103 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	4.529(1)	.000(0)	4.529	100.00	.00	100.00
LANE WIDTH DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
SHOULDER W. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
VERT. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
HORIZ. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
SPEED LIMIT DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
CAPACITY DEFICIENCY 1996	.000(0)	.000(0)	.000	.00	.00	.00
CAPACITY DEFICIENCY 2016	.000(0)	.000(0)	.000	.00	.00	.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	6.228(1)	3.346(3)	9.574	65.05	34.95	100.00
LANE WIDTH DEFICIENCY	9.574(3)	.000(0)	8.584	100.00	.00	89.66
SHOULDER W. DEFICIENCY	9.574(3)	.000(0)	8.584	100.00	.00	89.66
VERT. ALIGN. DEFICIENCY	9.574(3)	.000(0)	8.584	100.00	.00	89.66
HORIZ. ALIGN. DEFICIENCY	9.574(3)	.000(0)	8.584	100.00	.00	89.66
SPEED LIMIT DEFICIENCY	9.574(3)	.000(0)	8.584	100.00	.00	89.66
CAPACITY DEFICIENCY 1996	7.615(2)	1.959(1)	8.584	79.54	20.46	89.66
CAPACITY DEFICIENCY 2016	.000(0)	9.574(3)	8.584	.00	100.00	89.66

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	10.757(2)	3.346(3)	14.103	76.27	23.73	100.00
LANE WIDTH DEFICIENCY	9.574(3)	.000(0)	8.584	67.89	.00	60.87
SHOULDER W. DEFICIENCY	9.574(3)	.000(0)	8.584	67.89	.00	60.87
VERT. ALIGN. DEFICIENCY	9.574(3)	.000(0)	8.584	67.89	.00	60.87
HORIZ. ALIGN. DEFICIENCY	9.574(3)	.000(0)	8.584	67.89	.00	60.87
SPEED LIMIT DEFICIENCY	9.574(3)	.000(0)	8.584	67.89	.00	60.87
CAPACITY DEFICIENCY 1996	7.615(2)	1.959(1)	8.584	54.00	13.89	60.87
CAPACITY DEFICIENCY 2016	.000(0)	9.574(3)	8.584	.00	67.89	60.87

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

Super-Segment NO 660 in CALIFORNIA : S 99 Termini: I-5 S. Bakersfield to I-5 @ Sacramento

RURAL LENGTH	156.786(49 SECTIONS COVERING	156.786 MILES)		
URBAN LENGTH	140.923(75 SECTIONS COVERING	140.923 MILES)		
TOTAL LENGTH	297.709(124 SECTIONS COVERING	297.709 MILES)		

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	98.417(32)	58.369(17)	156.786	62.77	37.23	100.00
LANE WIDTH DEFICIENCY	156.786(28)	.000(0)	86.860	100.00	.00	55.40
SHOULDER W. DEFICIENCY	156.786(28)	.000(0)	86.860	100.00	.00	55.40
VERT. ALIGN. DEFICIENCY	156.786(28)	.000(0)	86.860	100.00	.00	55.40
HORIZ. ALIGN. DEFICIENCY	156.786(28)	.000(0)	86.860	100.00	.00	55.40
SPEED LIMIT DEFICIENCY	156.786(28)	.000(0)	86.860	100.00	.00	55.40
CAPACITY DEFICIENCY 1996	151.405(25)	5.381(3)	86.860	96.57	3.43	55.40
CAPACITY DEFICIENCY 2016	19.993(3)	136.793(25)	86.860	12.75	87.25	55.40

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	79.391(45)	61.532(30)	140.923	56.34	43.66	100.00
LANE WIDTH DEFICIENCY	140.923(51)	.000(0)	101.454	100.00	.00	71.99
SHOULDER W. DEFICIENCY	135.204(48)	5.719(2)	101.035	95.94	4.06	71.70
VERT. ALIGN. DEFICIENCY	140.923(51)	.000(0)	101.454	100.00	.00	71.99
HORIZ. ALIGN. DEFICIENCY	140.923(51)	.000(0)	101.454	100.00	.00	71.99
SPEED LIMIT DEFICIENCY	140.923(51)	.000(0)	101.454	100.00	.00	71.99
CAPACITY DEFICIENCY 1996	119.533(41)	21.390(10)	101.454	84.82	15.18	71.99
CAPACITY DEFICIENCY 2016	29.629(12)	111.294(39)	101.454	21.03	78.97	71.99

A L L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	177.808(77)	119.901(47)	297.709	59.73	40.27	100.00
LANE WIDTH DEFICIENCY	297.709(79)	.000(0)	188.314	100.00	.00	63.25
SHOULDER W. DEFICIENCY	291.990(76)	5.719(2)	187.895	98.08	1.92	63.11
VERT. ALIGN. DEFICIENCY	297.709(79)	.000(0)	188.314	100.00	.00	63.25
HORIZ. ALIGN. DEFICIENCY	297.709(79)	.000(0)	188.314	100.00	.00	63.25
SPEED LIMIT DEFICIENCY	297.709(79)	.000(0)	188.314	100.00	.00	63.25
CAPACITY DEFICIENCY 1996	270.938(66)	26.771(13)	188.314	91.01	8.99	63.25
CAPACITY DEFICIENCY 2016	49.622(15)	248.087(64)	188.314	16.67	83.33	63.25

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 680 in CALIFORNIA : I-238 Termini: I-580 to I-880 in SF

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)	
URBAN LENGTH	2.227(	1 SECTIONS COVERING	2.227 MILES)	
TOTAL LENGTH	2.227(	1 SECTIONS COVERING	2.227 MILES)	

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	.000(0)	2.227(1)	2.227	.00	100.00	100.00
LANE WIDTH DEFICIENCY	2.227(1)	.000(0)	2.227	100.00	.00	100.00
SHOULDER W. DEFICIENCY	2.227(1)	.000(0)	2.227	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	2.227(1)	.000(0)	2.227	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	2.227(1)	.000(0)	2.227	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	2.227(1)	.000(0)	2.227	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	2.227(1)	.000(0)	2.227	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	.000(0)	2.227(1)	2.227	.00	100.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 690 in CALIFORNIA : S 905 Termini: I-5 to Mexico

RURAL LENGTH	1.471(	2 SECTIONS COVERING	1.471 MILES)
URBAN LENGTH	3.709(	3 SECTIONS COVERING	3.709 MILES)
TOTAL LENGTH	5.180(	5 SECTIONS COVERING	5.180 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	1.471(2)	.000(0)	1.471	100.00	.00	100.00
LANE WIDTH DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
SHOULDER W. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
VERT. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
HORIZ. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
SPEED LIMIT DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
CAPACITY DEFICIENCY 1996	.000(0)	.000(0)	.000	.00	.00	.00
CAPACITY DEFICIENCY 2016	.000(0)	.000(0)	.000	.00	.00	.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	.341(1)	3.368(2)	3.709	9.19	90.81	100.00
LANE WIDTH DEFICIENCY	3.709(2)	.000(0)	3.368	100.00	.00	90.81
SHOULDER W. DEFICIENCY	3.709(2)	.000(0)	3.368	100.00	.00	90.81
VERT. ALIGN. DEFICIENCY	3.709(2)	.000(0)	3.368	100.00	.00	90.81
HORIZ. ALIGN. DEFICIENCY	3.709(2)	.000(0)	3.368	100.00	.00	90.81
SPEED LIMIT DEFICIENCY	3.709(2)	.000(0)	3.368	100.00	.00	90.81
CAPACITY DEFICIENCY 1996	3.709(2)	.000(0)	3.368	100.00	.00	90.81
CAPACITY DEFICIENCY 2016	2.275(1)	1.434(1)	3.368	61.34	38.66	90.81

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	1.812(3)	3.368(2)	5.180	34.98	65.02	100.00
LANE WIDTH DEFICIENCY	3.709(2)	.000(0)	3.368	71.60	.00	65.02
SHOULDER W. DEFICIENCY	3.709(2)	.000(0)	3.368	71.60	.00	65.02
VERT. ALIGN. DEFICIENCY	3.709(2)	.000(0)	3.368	71.60	.00	65.02
HORIZ. ALIGN. DEFICIENCY	3.709(2)	.000(0)	3.368	71.60	.00	65.02
SPEED LIMIT DEFICIENCY	3.709(2)	.000(0)	3.368	71.60	.00	65.02
CAPACITY DEFICIENCY 1996	3.709(2)	.000(0)	3.368	71.60	.00	65.02
CAPACITY DEFICIENCY 2016	2.275(1)	1.434(1)	3.368	43.92	27.68	65.02

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

Super-Segment NO 700 in CALIFORNIA : I-15 Termini: In San Diego

RURAL LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	36.760(18 SECTIONS COVERING	36.760 MILES)
TOTAL LENGTH	36.760(18 SECTIONS COVERING	36.760 MILES)

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	13.902(4)	22.858(14)	36.760	37.82	62.18	100.00
LANE WIDTH DEFICIENCY	36.760(10)	.000(0)	20.969	100.00	.00	57.04
SHOULDER W. DEFICIENCY	36.760(10)	.000(0)	20.969	100.00	.00	57.04
VERT. ALIGN. DEFICIENCY	36.760(10)	.000(0)	20.969	100.00	.00	57.04
HORIZ. ALIGN. DEFICIENCY	36.760(10)	.000(0)	20.969	100.00	.00	57.04
SPEED LIMIT DEFICIENCY	35.042(8)	1.718(2)	20.969	95.33	4.67	57.04
CAPACITY DEFICIENCY 1996	21.286(7)	15.474(3)	20.969	57.90	42.10	57.04
CAPACITY DEFICIENCY 2016	8.974(1)	27.786(9)	20.969	24.41	75.59	57.04

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 710 in CALIFORNIA: I-15 Termini: San Diego UL - Los Angeles (Temecula)

RURAL LENGTH	31.999(10 SECTIONS COVERING	31.999 MILES)	
URBAN LENGTH	22.871(3 SECTIONS COVERING	22.871 MILES)	
TOTAL LENGTH	54.870(13 SECTIONS COVERING	54.870 MILES)	

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	10.177(3)	21.822(7)	31.999	31.80	68.20	100.00
LANE WIDTH DEFICIENCY	31.999(5)	.000(0)	12.038	100.00	.00	37.62
SHOULDER W. DEFICIENCY	31.999(5)	.000(0)	12.038	100.00	.00	37.62
VERT. ALIGN. DEFICIENCY	31.999(5)	.000(0)	12.038	100.00	.00	37.62
HORIZ. ALIGN. DEFICIENCY	31.999(5)	.000(0)	12.038	100.00	.00	37.62
SPEED LIMIT DEFICIENCY	31.999(5)	.000(0)	12.038	100.00	.00	37.62
CAPACITY DEFICIENCY 1996	31.999(5)	.000(0)	12.038	100.00	.00	37.62
CAPACITY DEFICIENCY 2016	5.250(1)	26.749(4)	12.038	16.41	83.59	37.62

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	10.775(1)	12.096(2)	22.871	47.11	52.89	100.00
LANE WIDTH DEFICIENCY	22.871(3)	.000(0)	22.871	100.00	.00	100.00
SHOULDER W. DEFICIENCY	22.871(3)	.000(0)	22.871	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	22.871(3)	.000(0)	22.871	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	22.871(3)	.000(0)	22.871	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	22.871(3)	.000(0)	22.871	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	22.871(3)	.000(0)	22.871	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	.000(0)	22.871(3)	22.871	.00	100.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	20.952(4)	33.918(9)	54.870	38.18	61.82	100.00
LANE WIDTH DEFICIENCY	54.870(8)	.000(0)	34.909	100.00	.00	63.62
SHOULDER W. DEFICIENCY	54.870(8)	.000(0)	34.909	100.00	.00	63.62
VERT. ALIGN. DEFICIENCY	54.870(8)	.000(0)	34.909	100.00	.00	63.62
HORIZ. ALIGN. DEFICIENCY	54.870(8)	.000(0)	34.909	100.00	.00	63.62
SPEED LIMIT DEFICIENCY	54.870(8)	.000(0)	34.909	100.00	.00	63.62
CAPACITY DEFICIENCY 1996	54.870(8)	.000(0)	34.909	100.00	.00	63.62
CAPACITY DEFICIENCY 2016	5.250(1)	49.620(7)	34.909	9.57	90.43	63.62

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 711 in CALIFORNIA : I-15 Termini: Through LA UZA (Temecula - San Bernadino)

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)	
URBAN LENGTH	28.061(	13 SECTIONS COVERING	28.061 MILES)	
TOTAL LENGTH	28.061(	13 SECTIONS COVERING	28.061 MILES)	

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	8.554(5)	19.507(8)	28.061	30.48	69.52	100.00
LANE WIDTH DEFICIENCY	28.061(11)	.000(0)	23.882	100.00	.00	85.11
SHOULDER W. DEFICIENCY	28.061(11)	.000(0)	23.882	100.00	.00	85.11
VERT. ALIGN. DEFICIENCY	28.061(11)	.000(0)	23.882	100.00	.00	85.11
HORIZ. ALIGN. DEFICIENCY	28.061(11)	.000(0)	23.882	100.00	.00	85.11
SPEED LIMIT DEFICIENCY	28.061(11)	.000(0)	23.882	100.00	.00	85.11
CAPACITY DEFICIENCY 1996	25.827(10)	2.234(1)	23.882	92.04	7.96	85.11
CAPACITY DEFICIENCY 2016	3.336(1)	24.725(10)	23.882	11.89	88.11	85.11

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 712 in CALIFORNIA : I-15 Termini: N. San Bernadino (Los Angeles UZA) - I-40

RURAL LENGTH	40.562(8 SECTIONS COVERING	40.562 MILES)
URBAN LENGTH	22.784(7 SECTIONS COVERING	22.784 MILES)
TOTAL LENGTH	63.346(15 SECTIONS COVERING	63.346 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	20.039(3)	20.523(5)	40.562	49.40	50.60	100.00
LANE WIDTH DEFICIENCY	40.562(7)	.000(0)	33.291	100.00	.00	82.07
SHOULDER W. DEFICIENCY	40.562(7)	.000(0)	33.291	100.00	.00	82.07
VERT. ALIGN. DEFICIENCY	40.562(7)	.000(0)	33.291	100.00	.00	82.07
HORIZ. ALIGN. DEFICIENCY	40.562(7)	.000(0)	33.291	100.00	.00	82.07
SPEED LIMIT DEFICIENCY	40.562(7)	.000(0)	33.291	100.00	.00	82.07
CAPACITY DEFICIENCY 1996	11.847(2)	28.715(5)	33.291	29.21	70.79	82.07
CAPACITY DEFICIENCY 2016	.000(0)	40.562(7)	33.291	.00	100.00	82.07

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	21.564(6)	1.220(1)	22.784	94.65	5.35	100.00
LANE WIDTH DEFICIENCY	22.784(7)	.000(0)	22.784	100.00	.00	100.00
SHOULDER W. DEFICIENCY	22.784(7)	.000(0)	22.784	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	22.784(7)	.000(0)	22.784	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	22.784(7)	.000(0)	22.784	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	22.784(7)	.000(0)	22.784	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	22.784(7)	.000(0)	22.784	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	.000(0)	22.784(7)	22.784	.00	100.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	41.603(9)	21.743(6)	63.346	65.68	34.32	100.00
LANE WIDTH DEFICIENCY	63.346(14)	.000(0)	56.075	100.00	.00	88.52
SHOULDER W. DEFICIENCY	63.346(14)	.000(0)	56.075	100.00	.00	88.52
VERT. ALIGN. DEFICIENCY	63.346(14)	.000(0)	56.075	100.00	.00	88.52
HORIZ. ALIGN. DEFICIENCY	63.346(14)	.000(0)	56.075	100.00	.00	88.52
SPEED LIMIT DEFICIENCY	63.346(14)	.000(0)	56.075	100.00	.00	88.52
CAPACITY DEFICIENCY 1996	34.631(9)	28.715(5)	56.075	54.67	45.33	88.52
CAPACITY DEFICIENCY 2016	.000(0)	63.346(14)	56.075	.00	100.00	88.52

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 713 in CALIFORNIA : I-15 Termini: I-40 - Nevada SL

RURAL LENGTH	110.399(15 SECTIONS COVERING	110.399 MILES)		
URBAN LENGTH	.000(0 SECTIONS COVERING	.000 MILES)		
TOTAL LENGTH	110.399(15 SECTIONS COVERING	110.399 MILES)		

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	110.399(15)	.000(0)	110.399	100.00	.00	100.00
LANE WIDTH DEFICIENCY	110.399(2)	.000(0)	15.886	100.00	.00	14.39
SHOULDER W. DEFICIENCY	110.399(2)	.000(0)	15.886	100.00	.00	14.39
VERT. ALIGN. DEFICIENCY	110.399(2)	.000(0)	15.886	100.00	.00	14.39
HORIZ. ALIGN. DEFICIENCY	110.399(2)	.000(0)	15.886	100.00	.00	14.39
SPEED LIMIT DEFICIENCY	110.399(2)	.000(0)	15.886	100.00	.00	14.39
CAPACITY DEFICIENCY 1996	110.399(2)	.000(0)	15.886	100.00	.00	14.39
CAPACITY DEFICIENCY 2016	.000(0)	110.399(2)	15.886	.00	100.00	14.39

Note: The numbers in ( ) indicate the number of sample sections

COLORADO

Super-Segment NO 82 in COLORADO : I-25 Termini: New Mexico SL - Colorado Springs UL

RURAL LENGTH 113.455(36 SECTIONS COVERING 113.455 MILES)
URBAN LENGTH 18.368(29 SECTIONS COVERING 18.368 MILES)
TOTAL LENGTH 131.823(65 SECTIONS COVERING 131.823 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	89.933(32)	23.522(4)	113.455	79.27	20.73	100.00
LANE WIDTH DEFICIENCY	113.455(36)	.000(0)	113.455	100.00	.00	100.00
SHOULDER W. DEFICIENCY	102.309(26)	11.146(1)	30.752	90.18	9.82	27.11
VERT. ALIGN. DEFICIENCY	113.455(36)	.000(0)	113.455	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	111.974(34)	1.481(1)	95.177	98.70	1.30	83.89
SPEED LIMIT DEFICIENCY	113.455(36)	.000(0)	113.455	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	113.455(36)	.000(0)	113.455	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	113.455(27)	.000(0)	30.752	100.00	.00	27.11

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	15.034(22)	3.334(7)	18.368	81.85	18.15	100.00
LANE WIDTH DEFICIENCY	18.368(29)	.000(0)	18.368	100.00	.00	100.00
SHOULDER W. DEFICIENCY	18.136(25)	.232(1)	16.704	98.74	1.26	90.94
VERT. ALIGN. DEFICIENCY	18.368(29)	.000(0)	18.368	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	18.368(29)	.000(0)	18.368	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	14.680(20)	3.688(9)	18.368	79.92	20.08	100.00
CAPACITY DEFICIENCY 1996	18.368(29)	.000(0)	18.368	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	16.493(23)	1.875(3)	16.704	89.79	10.21	90.94

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	104.967(54)	26.856(11)	131.823	79.63	20.37	100.00
LANE WIDTH DEFICIENCY	131.823(65)	.000(0)	131.823	100.00	.00	100.00
SHOULDER W. DEFICIENCY	120.445(51)	11.378(2)	47.456	91.37	8.63	36.00
VERT. ALIGN. DEFICIENCY	131.823(65)	.000(0)	131.823	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	130.342(63)	1.481(1)	113.545	98.88	1.12	86.13
SPEED LIMIT DEFICIENCY	128.135(56)	3.688(9)	131.823	97.20	2.80	100.00
CAPACITY DEFICIENCY 1996	131.823(65)	.000(0)	131.823	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	129.948(50)	1.875(3)	47.456	98.58	1.42	36.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 83 in COLORADO : I-25 Termini: Through Colorado Springs

RURAL LENGTH .000(0 SECTIONS COVERING .000 MILES)
URBAN LENGTH 18.780(20 SECTIONS COVERING 18.780 MILES)
TOTAL LENGTH 18.780(20 SECTIONS COVERING 18.780 MILES)

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	10.343(14)	8.437(6)	18.780	55.07	44.93	100.00
LANE WIDTH DEFICIENCY	18.780(20)	.000(0)	18.780	100.00	.00	100.00
SHOULDER W. DEFICIENCY	18.780(16)	.000(0)	13.655	100.00	.00	72.71
VERT. ALIGN. DEFICIENCY	18.780(20)	.000(0)	18.780	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	17.806(19)	.974(1)	18.780	94.81	5.19	100.00
SPEED LIMIT DEFICIENCY	18.780(20)	.000(0)	18.780	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	9.170(10)	9.610(10)	18.780	48.83	51.17	100.00
CAPACITY DEFICIENCY 2016	5.223(2)	13.557(14)	13.655	27.81	72.19	72.71

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 84 in COLORADO : I-25 Termini: Colorado Springs UL - Denver UL

RURAL LENGTH 37.241(17 SECTIONS COVERING 37.241 MILES)
URBAN LENGTH 7.204(8 SECTIONS COVERING 7.204 MILES)
TOTAL LENGTH 44.445(25 SECTIONS COVERING 44.445 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	32.059(16)	5.182(1)	37.241	86.09	13.91	100.00
LANE WIDTH DEFICIENCY	37.241(17)	.000(0)	37.241	100.00	.00	100.00
SHOULDER W. DEFICIENCY	37.241(13)	.000(0)	18.639	100.00	.00	50.05
VERT. ALIGN. DEFICIENCY	37.241(17)	.000(0)	37.241	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	28.959(14)	8.282(3)	37.241	77.76	22.24	100.00
SPEED LIMIT DEFICIENCY	35.584(13)	1.657(4)	37.241	95.55	4.45	100.00
CAPACITY DEFICIENCY 1996	16.634(6)	20.607(11)	37.241	44.67	55.33	100.00
CAPACITY DEFICIENCY 2016	.000(0)	37.241(13)	18.639	.00	100.00	50.05

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	2.920(4)	4.284(4)	7.204	40.53	59.47	100.00
LANE WIDTH DEFICIENCY	7.204(8)	.000(0)	7.204	100.00	.00	100.00
SHOULDER W. DEFICIENCY	7.204(7)	.000(0)	6.190	100.00	.00	85.92
VERT. ALIGN. DEFICIENCY	7.204(8)	.000(0)	7.204	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	5.781(7)	1.423(1)	7.204	80.25	19.75	100.00
SPEED LIMIT DEFICIENCY	7.204(8)	.000(0)	7.204	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	7.204(8)	.000(0)	7.204	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	2.109(1)	5.095(6)	6.190	29.27	70.73	85.92

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	34.979(20)	9.466(5)	44.445	78.70	21.30	100.00
LANE WIDTH DEFICIENCY	44.445(25)	.000(0)	44.445	100.00	.00	100.00
SHOULDER W. DEFICIENCY	44.445(20)	.000(0)	24.829	100.00	.00	55.86
VERT. ALIGN. DEFICIENCY	44.445(25)	.000(0)	44.445	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	34.740(21)	9.705(4)	44.445	78.16	21.84	100.00
SPEED LIMIT DEFICIENCY	42.788(21)	1.657(4)	44.445	96.27	3.73	100.00
CAPACITY DEFICIENCY 1996	23.838(14)	20.607(11)	44.445	53.63	46.37	100.00
CAPACITY DEFICIENCY 2016	2.109(1)	42.336(19)	24.829	4.74	95.26	55.86

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 85 in COLORADO : I-25 Termini: Through Denver

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	31.365(	41 SECTIONS COVERING	31.365 MILES)
TOTAL LENGTH	31.365(	41 SECTIONS COVERING	31.365 MILES)

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	23.032(31)	8.333(10)	31.365	73.43	26.57	100.00
LANE WIDTH DEFICIENCY	31.365(41)	.000(0)	31.365	100.00	.00	100.00
SHOULDER W. DEFICIENCY	30.277(26)	1.088(2)	15.682	96.53	3.47	50.00
VERT. ALIGN. DEFICIENCY	31.365(41)	.000(0)	31.365	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	31.365(40)	.000(0)	31.235	100.00	.00	99.59
SPEED LIMIT DEFICIENCY	31.365(41)	.000(0)	31.365	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	4.083(3)	27.282(38)	31.365	13.02	86.98	100.00
CAPACITY DEFICIENCY 2016	6.054(1)	25.311(27)	15.682	19.30	80.70	50.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 86 in COLORADO : I-25 Termini: Denver UL - Wyoming SL (Cheyenne)

RURAL LENGTH 59.695(27 SECTIONS COVERING 59.695 MILES)
URBAN LENGTH 12.925(11 SECTIONS COVERING 12.925 MILES)
TOTAL LENGTH 72.620(38 SECTIONS COVERING 72.620 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	42.471(21)	17.224(6)	59.695	71.15	28.85	100.00
LANE WIDTH DEFICIENCY	59.695(27)	.000(0)	59.695	100.00	.00	100.00
SHOULDER W. DEFICIENCY	59.695(16)	.000(0)	31.681	100.00	.00	53.07
VERT. ALIGN. DEFICIENCY	59.695(27)	.000(0)	59.695	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	56.688(26)	3.007(1)	59.695	94.96	5.04	100.00
SPEED LIMIT DEFICIENCY	59.695(27)	.000(0)	59.695	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	38.879(18)	20.816(9)	59.695	65.13	34.87	100.00
CAPACITY DEFICIENCY 2016	25.980(6)	33.715(10)	31.681	43.52	56.48	53.07

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	5.337(2)	7.588(9)	12.925	41.29	58.71	100.00
LANE WIDTH DEFICIENCY	12.925(11)	.000(0)	12.925	100.00	.00	100.00
SHOULDER W. DEFICIENCY	12.925(10)	.000(0)	10.231	100.00	.00	79.16
VERT. ALIGN. DEFICIENCY	12.925(11)	.000(0)	12.925	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	10.231(10)	2.694(1)	12.925	79.16	20.84	100.00
SPEED LIMIT DEFICIENCY	12.925(11)	.000(0)	12.925	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	12.925(11)	.000(0)	12.925	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	12.925(10)	.000(0)	10.231	100.00	.00	79.16

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	47.808(23)	24.812(15)	72.620	65.83	34.17	100.00
LANE WIDTH DEFICIENCY	72.620(38)	.000(0)	72.620	100.00	.00	100.00
SHOULDER W. DEFICIENCY	72.620(26)	.000(0)	41.912	100.00	.00	57.71
VERT. ALIGN. DEFICIENCY	72.620(38)	.000(0)	72.620	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	66.919(36)	5.701(2)	72.620	92.15	7.85	100.00
SPEED LIMIT DEFICIENCY	72.620(38)	.000(0)	72.620	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	51.804(29)	20.816(9)	72.620	71.34	28.66	100.00
CAPACITY DEFICIENCY 2016	38.905(16)	33.715(10)	41.912	53.57	46.43	57.71

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 160 in COLORADO : I-70 Termini: Utah SL - Denver UL

RURAL LENGTH 241.417(106 SECTIONS COVERING 241.417 MILES)
URBAN LENGTH 18.673(12 SECTIONS COVERING 18.673 MILES)
TOTAL LENGTH 260.090(118 SECTIONS COVERING 260.090 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	227.104(90)	14.313(16)	241.417	94.07	5.93	100.00
LANE WIDTH DEFICIENCY	241.417(106)	.000(0)	241.417	100.00	.00	100.00
SHOULDER W. DEFICIENCY	222.851(62)	18.566(4)	67.605	92.31	7.69	28.00
VERT. ALIGN. DEFICIENCY	241.417(106)	.000(0)	241.417	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	236.989(103)	4.428(3)	241.417	98.17	1.83	100.00
SPEED LIMIT DEFICIENCY	203.998(87)	37.419(19)	241.417	84.50	15.50	100.00
CAPACITY DEFICIENCY 1996	184.685(68)	56.732(38)	241.417	76.50	23.50	100.00
CAPACITY DEFICIENCY 2016	102.891(17)	138.526(49)	67.605	42.62	57.38	28.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	16.572(10)	2.101(2)	18.673	88.75	11.25	100.00
LANE WIDTH DEFICIENCY	18.673(12)	.000(0)	18.673	100.00	.00	100.00
SHOULDER W. DEFICIENCY	16.377(9)	2.296(3)	18.673	87.70	12.30	100.00
VERT. ALIGN. DEFICIENCY	18.673(12)	.000(0)	18.673	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	18.673(12)	.000(0)	18.673	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	13.026(8)	5.647(4)	18.673	69.76	30.24	100.00
CAPACITY DEFICIENCY 1996	18.673(12)	.000(0)	18.673	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	18.673(12)	.000(0)	18.673	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	243.676(100)	16.414(18)	260.090	93.69	6.31	100.00
LANE WIDTH DEFICIENCY	260.090(118)	.000(0)	260.090	100.00	.00	100.00
SHOULDER W. DEFICIENCY	239.228(71)	20.862(7)	86.278	91.98	8.02	33.17
VERT. ALIGN. DEFICIENCY	260.090(118)	.000(0)	260.090	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	255.662(115)	4.428(3)	260.090	98.30	1.70	100.00
SPEED LIMIT DEFICIENCY	217.024(95)	43.066(23)	260.090	83.44	16.56	100.00
CAPACITY DEFICIENCY 1996	203.358(80)	56.732(38)	260.090	78.19	21.81	100.00
CAPACITY DEFICIENCY 2016	121.564(29)	138.526(49)	86.278	46.74	53.26	33.17

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 161 in COLORADO : I-70 Termini: Through Denver

RURAL LENGTH .000(0 SECTIONS COVERING .000 MILES)
URBAN LENGTH 30.051(34 SECTIONS COVERING 30.051 MILES)
TOTAL LENGTH 30.051(34 SECTIONS COVERING 30.051 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	11.495(10)	18.556(24)	30.051	38.25	61.75	100.00
LANE WIDTH DEFICIENCY	30.051(34)	.000(0)	30.051	100.00	.00	100.00
SHOULDER W. DEFICIENCY	29.163(23)	.888(2)	14.931	97.05	2.95	49.69
VERT. ALIGN. DEFICIENCY	30.051(34)	.000(0)	30.051	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	26.851(32)	3.200(2)	30.051	89.35	10.65	100.00
SPEED LIMIT DEFICIENCY	30.051(34)	.000(0)	30.051	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	19.048(21)	11.003(13)	30.051	63.39	36.61	100.00
CAPACITY DEFICIENCY 2016	14.130(10)	15.921(16)	15.332	47.02	52.98	51.02

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 162 in COLORADO : I-70 Termini: Denver UL - US 40/287 @ Limon

RURAL LENGTH	69.264(19 SECTIONS COVERING	69.264 MILES)	
URBAN LENGTH	.000(0 SECTIONS COVERING	.000 MILES)	
TOTAL LENGTH	69.264(19 SECTIONS COVERING	69.264 MILES)	

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	34.443(5)	34.821(14)	69.264	49.73	50.27	100.00
LANE WIDTH DEFICIENCY	69.264(19)	.000(0)	69.264	100.00	.00	100.00
SHOULDER W. DEFICIENCY	69.264(13)	.000(0)	29.340	100.00	.00	42.36
VERT. ALIGN. DEFICIENCY	69.264(19)	.000(0)	69.264	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	69.264(19)	.000(0)	69.264	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	69.264(19)	.000(0)	69.264	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	69.264(19)	.000(0)	69.264	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	42.597(10)	26.667(3)	29.340	61.50	38.50	42.36

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 163 in COLORADO : I-70 Termini: US 40/287 @ Limon - Kansas SL

RURAL LENGTH	90.755(	7 SECTIONS COVERING	90.755 MILES)
URBAN LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	90.755(	7 SECTIONS COVERING	90.755 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	89.324(6)	1.431(1)	90.755	98.42	1.58	100.00
LANE WIDTH DEFICIENCY	90.755(7)	.000(0)	90.755	100.00	.00	100.00
SHOULDER W. DEFICIENCY	90.755(3)	.000(0)	12.960	100.00	.00	14.28
VERT. ALIGN. DEFICIENCY	90.755(7)	.000(0)	90.755	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	90.755(7)	.000(0)	90.755	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	90.755(7)	.000(0)	90.755	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	90.755(7)	.000(0)	90.755	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	90.755(3)	.000(0)	12.960	100.00	.00	14.28

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 360 in COLORADO : US 6 Termini: Loveland Pass

RURAL LENGTH	20.427(	11 SECTIONS COVERING	20.427 MILES)
URBAN LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	20.427(	11 SECTIONS COVERING	20.427 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	20.427(11)	.000(0)	20.427	100.00	.00	100.00
LANE WIDTH DEFICIENCY	8.223(7)	12.204(4)	20.427	40.26	59.74	100.00
SHOULDER W. DEFICIENCY	20.427(3)	.000(0)	4.458	100.00	.00	21.82
VERT. ALIGN. DEFICIENCY	20.427(11)	.000(0)	20.427	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	20.427(11)	.000(0)	20.427	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	2.899(1)	17.528(10)	20.427	14.19	85.81	100.00
CAPACITY DEFICIENCY 1996	3.459(4)	16.968(7)	20.427	16.93	83.07	100.00
CAPACITY DEFICIENCY 2016	2.404(1)	18.023(3)	4.749	11.77	88.23	23.25

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 550 in COLORADO : US 287/40/50 Termini: I-70 @ Limon - Oklahoma SL

RURAL LENGTH 190.434(48 SECTIONS COVERING 190.434 MILES)
URBAN LENGTH 3.434(9 SECTIONS COVERING 3.434 MILES)
TOTAL LENGTH 193.868(57 SECTIONS COVERING 193.868 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	EXPANDED LENGTH (MI) DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	% OF EXPANDED LENGTH DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	125.755(33)	64.679(15)	190.434	66.04	33.96	100.00
LANE WIDTH DEFICIENCY	190.434(48)	.000(0)	190.434	100.00	.00	100.00
SHOULDER W. DEFICIENCY	190.434(19)	.000(0)	28.952	100.00	.00	15.20
VERT. ALIGN. DEFICIENCY	190.434(48)	.000(0)	190.434	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	190.434(48)	.000(0)	190.434	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	147.161(32)	43.273(16)	190.434	77.28	22.72	100.00
CAPACITY DEFICIENCY 1996	190.434(48)	.000(0)	190.434	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	190.434(19)	.000(0)	28.952	100.00	.00	15.20

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	EXPANDED LENGTH (MI) DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	% OF EXPANDED LENGTH DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	1.660(4)	1.774(5)	3.434	48.34	51.66	100.00
LANE WIDTH DEFICIENCY	3.434(9)	.000(0)	3.434	100.00	.00	100.00
SHOULDER W. DEFICIENCY	3.434(4)	.000(0)	1.101	100.00	.00	32.06
VERT. ALIGN. DEFICIENCY	3.434(9)	.000(0)	3.434	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	3.434(9)	.000(0)	3.434	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	.000(0)	3.434(9)	3.434	.00	100.00	100.00
CAPACITY DEFICIENCY 1996	3.434(9)	.000(0)	3.434	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	3.434(6)	.000(0)	1.699	100.00	.00	49.48

A L L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	EXPANDED LENGTH (MI) DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	% OF EXPANDED LENGTH DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	127.415(37)	66.453(20)	193.868	65.72	34.28	100.00
LANE WIDTH DEFICIENCY	193.868(57)	.000(0)	193.868	100.00	.00	100.00
SHOULDER W. DEFICIENCY	193.868(23)	.000(0)	30.053	100.00	.00	15.50
VERT. ALIGN. DEFICIENCY	193.868(57)	.000(0)	193.868	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	193.868(57)	.000(0)	193.868	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	147.161(32)	46.707(25)	193.868	75.91	24.09	100.00
CAPACITY DEFICIENCY 1996	193.868(57)	.000(0)	193.868	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	193.868(25)	.000(0)	30.651	100.00	.00	15.81

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 560 in COLORADO : S 14/US 287 Termini: I-25 @ Ft. Collins - Wyoming SL

RURAL LENGTH	34.613(33 SECTIONS COVERING	34.613 MILES)
URBAN LENGTH	9.424(10 SECTIONS COVERING	9.424 MILES)
TOTAL LENGTH	44.037(43 SECTIONS COVERING	44.037 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	34.613(33)	.000(0)	34.613	100.00	.00	100.00
LANE WIDTH DEFICIENCY	34.613(33)	.000(0)	34.613	100.00	.00	100.00
SHOULDER W. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
VERT. ALIGN. DEFICIENCY	32.784(29)	1.829(4)	34.613	94.72	5.28	100.00
HORIZ. ALIGN. DEFICIENCY	34.613(33)	.000(0)	34.613	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	34.613(33)	.000(0)	34.613	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	34.613(33)	.000(0)	34.613	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	.000(0)	.000(0)	.000	.00	.00	.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	9.034(5)	.390(2)	8.355	95.86	4.14	88.66
LANE WIDTH DEFICIENCY	8.009(5)	1.415(5)	9.424	84.99	15.01	100.00
SHOULDER W. DEFICIENCY	9.424(2)	.000(0)	2.938	100.00	.00	31.18
VERT. ALIGN. DEFICIENCY	9.424(10)	.000(0)	9.424	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	9.083(8)	.341(1)	9.233	96.38	3.62	97.97
SPEED LIMIT DEFICIENCY	1.380(1)	8.044(9)	9.424	14.64	85.36	100.00
CAPACITY DEFICIENCY 1996	9.424(10)	.000(0)	9.424	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	9.424(4)	.000(0)	3.284	100.00	.00	34.85

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	43.647(38)	.390(2)	42.968	99.11	.89	97.57
LANE WIDTH DEFICIENCY	42.622(38)	1.415(5)	44.037	96.79	3.21	100.00
SHOULDER W. DEFICIENCY	9.424(2)	.000(0)	2.938	21.40	.00	6.67
VERT. ALIGN. DEFICIENCY	42.208(39)	1.829(4)	44.037	95.85	4.15	100.00
HORIZ. ALIGN. DEFICIENCY	43.696(41)	.341(1)	43.846	99.23	.77	99.57
SPEED LIMIT DEFICIENCY	35.993(34)	8.044(9)	44.037	81.73	18.27	100.00
CAPACITY DEFICIENCY 1996	44.037(43)	.000(0)	44.037	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	9.424(4)	.000(0)	3.284	21.40	.00	7.46

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

IDAHO

Super-Segment NO 192 in IDAHO : I-84 Termini: Oregon SL - Boise (I-184)

RURAL LENGTH 30.473(9 SECTIONS COVERING 30.473 MILES)
URBAN LENGTH 18.878(21 SECTIONS COVERING 18.878 MILES)
TOTAL LENGTH 49.351(30 SECTIONS COVERING 49.351 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	17.863(7)	12.610(2)	30.473	58.62	41.38	100.00
LANE WIDTH DEFICIENCY	30.473(9)	.000(0)	30.473	100.00	.00	100.00
SHOULDER W. DEFICIENCY	30.473(9)	.000(0)	30.473	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	30.473(9)	.000(0)	30.473	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	30.473(9)	.000(0)	30.473	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	30.473(9)	.000(0)	30.473	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	25.991(6)	4.482(3)	30.473	85.29	14.71	100.00
CAPACITY DEFICIENCY 2016	25.991(6)	4.482(3)	30.473	85.29	14.71	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	18.878(21)	.000(0)	18.878	100.00	.00	100.00
LANE WIDTH DEFICIENCY	18.878(21)	.000(0)	18.878	100.00	.00	100.00
SHOULDER W. DEFICIENCY	18.878(21)	.000(0)	18.878	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	18.878(21)	.000(0)	18.878	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	18.878(21)	.000(0)	18.878	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	18.878(21)	.000(0)	18.878	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	18.878(21)	.000(0)	18.878	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	9.983(14)	8.895(7)	18.878	52.88	47.12	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	36.741(28)	12.610(2)	49.351	74.45	25.55	100.00
LANE WIDTH DEFICIENCY	49.351(30)	.000(0)	49.351	100.00	.00	100.00
SHOULDER W. DEFICIENCY	49.351(30)	.000(0)	49.351	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	49.351(30)	.000(0)	49.351	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	49.351(30)	.000(0)	49.351	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	49.351(30)	.000(0)	49.351	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	44.869(27)	4.482(3)	49.351	90.92	9.08	100.00
CAPACITY DEFICIENCY 2016	35.974(20)	13.377(10)	49.351	72.89	27.11	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 193 in IDAHO : I-84 Termini: Boise (I-184) - I-86

RURAL LENGTH 157.522(36 SECTIONS COVERING 157.522 MILES)
URBAN LENGTH 15.057(13 SECTIONS COVERING 15.057 MILES)
TOTAL LENGTH 172.579(49 SECTIONS COVERING 172.579 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	140.989(32)	16.533(4)	157.522	89.50	10.50	100.00
LANE WIDTH DEFICIENCY	157.522(36)	.000(0)	157.522	100.00	.00	100.00
SHOULDER W. DEFICIENCY	157.522(36)	.000(0)	157.522	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	157.522(36)	.000(0)	157.522	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	157.522(36)	.000(0)	157.522	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	157.522(36)	.000(0)	157.522	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	157.522(36)	.000(0)	157.522	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	157.522(36)	.000(0)	157.522	100.00	.00	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	15.057(13)	.000(0)	15.057	100.00	.00	100.00
LANE WIDTH DEFICIENCY	15.057(13)	.000(0)	15.057	100.00	.00	100.00
SHOULDER W. DEFICIENCY	15.057(13)	.000(0)	15.057	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	15.057(13)	.000(0)	15.057	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	15.057(13)	.000(0)	15.057	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	15.057(13)	.000(0)	15.057	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	13.548(12)	1.509(1)	15.057	89.98	10.02	100.00
CAPACITY DEFICIENCY 2016	11.592(9)	3.465(4)	15.057	76.99	23.01	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	156.046(45)	16.533(4)	172.579	90.42	9.58	100.00
LANE WIDTH DEFICIENCY	172.579(49)	.000(0)	172.579	100.00	.00	100.00
SHOULDER W. DEFICIENCY	172.579(49)	.000(0)	172.579	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	172.579(49)	.000(0)	172.579	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	172.579(49)	.000(0)	172.579	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	172.579(49)	.000(0)	172.579	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	171.070(48)	1.509(1)	172.579	99.13	.87	100.00
CAPACITY DEFICIENCY 2016	169.114(45)	3.465(4)	172.579	97.99	2.01	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 194 in IDAHO : I-84 Termini: I-86 - Utah SL

RURAL LENGTH	53.812(10 SECTIONS COVERING	53.812 MILES)
URBAN LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	53.812(10 SECTIONS COVERING	53.812 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	33.178(7)	20.634(3)	53.812	61.66	38.34	100.00
LANE WIDTH DEFICIENCY	53.812(10)	.000(0)	53.812	100.00	.00	100.00
SHOULDER W. DEFICIENCY	53.812(10)	.000(0)	53.812	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	53.812(10)	.000(0)	53.812	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	53.812(10)	.000(0)	53.812	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	53.812(10)	.000(0)	53.812	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	53.812(10)	.000(0)	53.812	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	53.812(10)	.000(0)	53.812	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 200 in IDAHO : I-86 Termini: I-84 to I-15 @ Pocatello

RURAL LENGTH	58.509(16 SECTIONS COVERING	58.509 MILES)
URBAN LENGTH	4.341(5 SECTIONS COVERING	4.341 MILES)
TOTAL LENGTH	62.850(21 SECTIONS COVERING	62.850 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	43.691(14)	14.818(2)	58.509	74.67	25.33	100.00
LANE WIDTH DEFICIENCY	58.509(16)	.000(0)	58.509	100.00	.00	100.00
SHOULDER W. DEFICIENCY	58.509(16)	.000(0)	58.509	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	58.509(16)	.000(0)	58.509	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	58.509(16)	.000(0)	58.509	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	58.509(16)	.000(0)	58.509	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	58.509(16)	.000(0)	58.509	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	58.509(16)	.000(0)	58.509	100.00	.00	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	.000(0)	4.341(5)	4.341	.00	100.00	100.00
LANE WIDTH DEFICIENCY	4.341(5)	.000(0)	4.341	100.00	.00	100.00
SHOULDER W. DEFICIENCY	4.341(5)	.000(0)	4.341	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	4.341(5)	.000(0)	4.341	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	4.341(5)	.000(0)	4.341	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	4.341(5)	.000(0)	4.341	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	4.341(5)	.000(0)	4.341	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	4.341(5)	.000(0)	4.341	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	43.691(14)	19.159(7)	62.850	69.52	30.48	100.00
LANE WIDTH DEFICIENCY	62.850(21)	.000(0)	62.850	100.00	.00	100.00
SHOULDER W. DEFICIENCY	62.850(21)	.000(0)	62.850	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	62.850(21)	.000(0)	62.850	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	62.850(21)	.000(0)	62.850	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	62.850(21)	.000(0)	62.850	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	62.850(21)	.000(0)	62.850	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	62.850(21)	.000(0)	62.850	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 213 in IDAHO : I-90 Termini: Washington SL - US 95 @ Coeur d'Alene

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	13.569(	13 SECTIONS COVERING	13.569 MILES)
TOTAL LENGTH	13.569(	13 SECTIONS COVERING	13.569 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	5.450(5)	8.119(8)	13.569	40.17	59.83	100.00
LANE WIDTH DEFICIENCY	13.569(13)	.000(0)	13.569	100.00	.00	100.00
SHOULDER W. DEFICIENCY	13.569(13)	.000(0)	13.569	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	13.569(13)	.000(0)	13.569	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	13.569(13)	.000(0)	13.569	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	13.569(13)	.000(0)	13.569	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	13.569(13)	.000(0)	13.569	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	.000(0)	13.569(13)	13.569	.00	100.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 214 in IDAHO : I-90 Termini: US 95 - Montana SL

RURAL LENGTH 56.965(28 SECTIONS COVERING 56.965 MILES)
URBAN LENGTH 3.019(3 SECTIONS COVERING 3.019 MILES)
TOTAL LENGTH 59.984(31 SECTIONS COVERING 59.984 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	49.898(24)	7.067(4)	56.965	87.59	12.41	100.00
LANE WIDTH DEFICIENCY	56.965(28)	.000(0)	56.965	100.00	.00	100.00
SHOULDER W. DEFICIENCY	56.965(28)	.000(0)	56.965	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	56.965(28)	.000(0)	56.965	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	50.041(24)	6.924(4)	56.965	87.85	12.15	100.00
SPEED LIMIT DEFICIENCY	51.062(25)	5.903(3)	56.965	89.64	10.36	100.00
CAPACITY DEFICIENCY 1996	56.965(28)	.000(0)	56.965	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	43.642(22)	13.323(6)	56.965	76.61	23.39	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	1.807(2)	1.212(1)	3.019	59.85	40.15	100.00
LANE WIDTH DEFICIENCY	3.019(3)	.000(0)	3.019	100.00	.00	100.00
SHOULDER W. DEFICIENCY	3.019(3)	.000(0)	3.019	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	3.019(3)	.000(0)	3.019	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	3.019(3)	.000(0)	3.019	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	3.019(3)	.000(0)	3.019	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	3.019(3)	.000(0)	3.019	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	3.019(3)	.000(0)	3.019	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	51.705(26)	8.279(5)	59.984	86.20	13.80	100.00
LANE WIDTH DEFICIENCY	59.984(31)	.000(0)	59.984	100.00	.00	100.00
SHOULDER W. DEFICIENCY	59.984(31)	.000(0)	59.984	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	59.984(31)	.000(0)	59.984	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	53.060(27)	6.924(4)	59.984	88.46	11.54	100.00
SPEED LIMIT DEFICIENCY	54.081(28)	5.903(3)	59.984	90.16	9.84	100.00
CAPACITY DEFICIENCY 1996	59.984(31)	.000(0)	59.984	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	46.661(25)	13.323(6)	59.984	77.79	22.21	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 351 in IDAHO : US 2 Termini: Washington SL - US 95 @ Sandpoint

RURAL LENGTH 24.795(12 SECTIONS COVERING 24.795 MILES)
URBAN LENGTH 1.440(3 SECTIONS COVERING 1.440 MILES)
TOTAL LENGTH 26.235(15 SECTIONS COVERING 26.235 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	17.110(7)	7.685(5)	24.795	69.01	30.99	100.00
LANE WIDTH DEFICIENCY	17.381(8)	7.414(4)	24.795	70.10	29.90	100.00
SHOULDER W. DEFICIENCY	16.620(6)	8.175(5)	23.309	67.03	32.97	94.01
VERT. ALIGN. DEFICIENCY	24.482(11)	.313(1)	24.795	98.74	1.26	100.00
HORIZ. ALIGN. DEFICIENCY	9.859(7)	14.936(5)	24.795	39.76	60.24	100.00
SPEED LIMIT DEFICIENCY	24.482(11)	.313(1)	24.795	98.74	1.26	100.00
CAPACITY DEFICIENCY 1996	6.845(7)	17.950(5)	24.795	27.61	72.39	100.00
CAPACITY DEFICIENCY 2016	1.000(1)	23.795(11)	24.795	4.03	95.97	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	.000(0)	1.440(3)	1.440	.00	100.00	100.00
LANE WIDTH DEFICIENCY	1.440(3)	.000(0)	1.440	100.00	.00	100.00
SHOULDER W. DEFICIENCY	.000(0)	1.440(3)	1.440	.00	100.00	100.00
VERT. ALIGN. DEFICIENCY	1.440(3)	.000(0)	1.440	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	1.440(3)	.000(0)	1.440	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	.000(0)	1.440(3)	1.440	.00	100.00	100.00
CAPACITY DEFICIENCY 1996	.859(2)	.581(1)	1.440	59.65	40.35	100.00
CAPACITY DEFICIENCY 2016	.859(2)	.581(1)	1.440	59.65	40.35	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	17.110(7)	9.125(8)	26.235	65.22	34.78	100.00
LANE WIDTH DEFICIENCY	18.821(11)	7.414(4)	26.235	71.74	28.26	100.00
SHOULDER W. DEFICIENCY	16.620(6)	9.615(8)	24.749	63.35	36.65	94.34
VERT. ALIGN. DEFICIENCY	25.922(14)	.313(1)	26.235	98.81	1.19	100.00
HORIZ. ALIGN. DEFICIENCY	11.299(10)	14.936(5)	26.235	43.07	56.93	100.00
SPEED LIMIT DEFICIENCY	24.482(11)	1.753(4)	26.235	93.32	6.68	100.00
CAPACITY DEFICIENCY 1996	7.704(9)	18.531(6)	26.235	29.37	70.63	100.00
CAPACITY DEFICIENCY 2016	1.859(3)	24.376(12)	26.235	7.09	92.91	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 352 in IDAHO : US 2 Termini: US 95 @ Bonners Ferry - Montana SL

RURAL LENGTH	15.834(	6 SECTIONS COVERING	15.834 MILES)
URBAN LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	15.834(	6 SECTIONS COVERING	15.834 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	15.834(6)	.000(0)	15.834	100.00	.00	100.00
LANE WIDTH DEFICIENCY	15.834(6)	.000(0)	15.834	100.00	.00	100.00
SHOULDER W. DEFICIENCY	6.901(4)	8.933(2)	15.834	43.58	56.42	100.00
VERT. ALIGN. DEFICIENCY	15.834(6)	.000(0)	15.834	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	12.300(5)	3.534(1)	15.834	77.68	22.32	100.00
SPEED LIMIT DEFICIENCY	15.834(6)	.000(0)	15.834	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	15.834(6)	.000(0)	15.834	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	15.834(6)	.000(0)	15.834	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 370 in IDAHO : US 12 Termini: US 95 - Montana SL

RURAL LENGTH 164.214(44 SECTIONS COVERING 164.214 MILES)
URBAN LENGTH 4.488(9 SECTIONS COVERING 4.488 MILES)
TOTAL LENGTH 168.702(53 SECTIONS COVERING 168.702 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	164.214(44)	.000(0)	164.214	100.00	.00	100.00
LANE WIDTH DEFICIENCY	164.214(44)	.000(0)	164.214	100.00	.00	100.00
SHOULDER W. DEFICIENCY	10.963(7)	153.251(35)	161.444	6.68	93.32	98.31
VERT. ALIGN. DEFICIENCY	164.214(44)	.000(0)	164.214	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	164.214(44)	.000(0)	164.214	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	81.518(26)	82.696(18)	164.214	49.64	50.36	100.00
CAPACITY DEFICIENCY 1996	107.045(24)	57.169(20)	164.214	65.19	34.81	100.00
CAPACITY DEFICIENCY 2016	99.533(20)	64.681(24)	164.214	60.61	39.39	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	4.488(9)	.000(0)	4.488	100.00	.00	100.00
LANE WIDTH DEFICIENCY	4.488(9)	.000(0)	4.488	100.00	.00	100.00
SHOULDER W. DEFICIENCY	4.193(4)	.295(1)	2.962	93.42	6.58	66.00
VERT. ALIGN. DEFICIENCY	4.488(9)	.000(0)	4.488	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	4.488(9)	.000(0)	4.488	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	.000(0)	4.488(9)	4.488	.00	100.00	100.00
CAPACITY DEFICIENCY 1996	4.488(9)	.000(0)	4.488	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	4.293(8)	.195(1)	4.488	95.66	4.34	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	168.702(53)	.000(0)	168.702	100.00	.00	100.00
LANE WIDTH DEFICIENCY	168.702(53)	.000(0)	168.702	100.00	.00	100.00
SHOULDER W. DEFICIENCY	15.155(11)	153.547(36)	164.406	8.98	91.02	97.45
VERT. ALIGN. DEFICIENCY	168.702(53)	.000(0)	168.702	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	168.702(53)	.000(0)	168.702	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	81.518(26)	87.184(27)	168.702	48.32	51.68	100.00
CAPACITY DEFICIENCY 1996	111.533(33)	57.169(20)	168.702	66.11	33.89	100.00
CAPACITY DEFICIENCY 2016	103.826(28)	64.876(25)	168.702	61.54	38.46	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 380 in IDAHO : US 20 Termini: I-15 @ Idaho Falls - Montana SL

RURAL LENGTH	92.488(45 SECTIONS COVERING	92.488 MILES)		
URBAN LENGTH	5.444(7 SECTIONS COVERING	5.444 MILES)		
TOTAL LENGTH	97.932(52 SECTIONS COVERING	97.932 MILES)		

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	92.488(45)	.000(0)	92.488	100.00	.00	100.00
LANE WIDTH DEFICIENCY	92.488(45)	.000(0)	92.488	100.00	.00	100.00
SHOULDER W. DEFICIENCY	92.488(45)	.000(0)	92.488	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	92.488(45)	.000(0)	92.488	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	92.488(45)	.000(0)	92.488	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	91.216(42)	1.272(3)	92.488	98.62	1.38	100.00
CAPACITY DEFICIENCY 1996	53.929(29)	38.559(16)	92.488	58.31	41.69	100.00
CAPACITY DEFICIENCY 2016	39.355(22)	53.133(23)	92.488	42.55	57.45	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	5.444(7)	.000(0)	5.444	100.00	.00	100.00
LANE WIDTH DEFICIENCY	5.444(7)	.000(0)	5.444	100.00	.00	100.00
SHOULDER W. DEFICIENCY	5.444(6)	.000(0)	5.199	100.00	.00	95.50
VERT. ALIGN. DEFICIENCY	5.444(7)	.000(0)	5.444	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	5.444(7)	.000(0)	5.444	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	4.452(5)	.992(2)	5.444	81.78	18.22	100.00
CAPACITY DEFICIENCY 1996	5.444(7)	.000(0)	5.444	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	3.436(6)	2.008(1)	5.444	63.12	36.88	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	97.932(52)	.000(0)	97.932	100.00	.00	100.00
LANE WIDTH DEFICIENCY	97.932(52)	.000(0)	97.932	100.00	.00	100.00
SHOULDER W. DEFICIENCY	97.932(51)	.000(0)	97.687	100.00	.00	99.75
VERT. ALIGN. DEFICIENCY	97.932(52)	.000(0)	97.932	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	97.932(52)	.000(0)	97.932	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	95.668(47)	2.264(5)	97.932	97.69	2.31	100.00
CAPACITY DEFICIENCY 1996	59.373(36)	38.559(16)	97.932	60.63	39.37	100.00
CAPACITY DEFICIENCY 2016	42.791(28)	55.141(24)	97.932	43.69	56.31	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 490 in IDAHO : US 95 Termini: I-84 - Lewiston (US 12)

RURAL LENGTH	237.991(86 SECTIONS COVERING	227.823 MILES)
URBAN LENGTH	6.009(10 SECTIONS COVERING	5.752 MILES)
TOTAL LENGTH	244.000(96 SECTIONS COVERING	233.575 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	214.598(73)	23.393(13)	227.823	90.17	9.83	95.73
LANE WIDTH DEFICIENCY	222.711(78)	15.280(8)	227.823	93.58	6.42	95.73
SHOULDER W. DEFICIENCY	159.721(51)	78.270(28)	222.113	67.11	32.89	93.33
VERT. ALIGN. DEFICIENCY	234.251(84)	3.740(2)	227.823	98.43	1.57	95.73
HORIZ. ALIGN. DEFICIENCY	183.663(69)	54.328(17)	227.823	77.17	22.83	95.73
SPEED LIMIT DEFICIENCY	225.731(67)	12.260(19)	227.823	94.85	5.15	95.73
CAPACITY DEFICIENCY 1996	140.039(51)	97.952(35)	227.823	58.84	41.16	95.73
CAPACITY DEFICIENCY 2016	45.562(23)	192.430(63)	227.823	19.14	80.86	95.73

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	6.009(10)	.000(0)	5.752	100.00	.00	95.73
LANE WIDTH DEFICIENCY	6.009(10)	.000(0)	5.752	100.00	.00	95.73
SHOULDER W. DEFICIENCY	6.009(8)	.000(0)	5.371	100.00	.00	89.39
VERT. ALIGN. DEFICIENCY	6.009(10)	.000(0)	5.752	100.00	.00	95.73
HORIZ. ALIGN. DEFICIENCY	6.009(10)	.000(0)	5.752	100.00	.00	95.73
SPEED LIMIT DEFICIENCY	3.956(5)	2.053(5)	5.752	65.84	34.16	95.73
CAPACITY DEFICIENCY 1996	5.611(8)	.398(2)	5.752	93.38	6.62	95.73
CAPACITY DEFICIENCY 2016	2.736(4)	3.273(6)	5.752	45.53	54.47	95.73

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	220.607(83)	23.393(13)	233.575	90.41	9.59	95.73
LANE WIDTH DEFICIENCY	228.720(88)	15.280(8)	233.575	93.74	6.26	95.73
SHOULDER W. DEFICIENCY	165.730(59)	78.270(28)	227.484	67.92	32.08	93.23
VERT. ALIGN. DEFICIENCY	240.260(94)	3.740(2)	233.575	98.47	1.53	95.73
HORIZ. ALIGN. DEFICIENCY	189.672(79)	54.328(17)	233.575	77.73	22.27	95.73
SPEED LIMIT DEFICIENCY	229.687(72)	14.313(24)	233.575	94.13	5.87	95.73
CAPACITY DEFICIENCY 1996	145.650(59)	98.350(37)	233.575	59.69	40.31	95.73
CAPACITY DEFICIENCY 2016	48.298(27)	195.702(69)	233.575	19.79	80.21	95.73

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 491 in IDAHO : US 95 Termini: US 12 @ Lewiston - I-90 @ Coeur d'Alene

RURAL LENGTH	112.278(41 SECTIONS COVERING	107.870 MILES)
URBAN LENGTH	3.722(8 SECTIONS COVERING	3.576 MILES)
TOTAL LENGTH	116.000(49 SECTIONS COVERING	111.446 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	98.945(33)	13.332(8)	107.870	88.13	11.87	96.07
LANE WIDTH DEFICIENCY	112.278(41)	.000(0)	107.870	100.00	.00	96.07
SHOULDER W. DEFICIENCY	38.076(16)	74.202(25)	107.870	33.91	66.09	96.07
VERT. ALIGN. DEFICIENCY	105.246(39)	7.032(2)	107.870	93.74	6.26	96.07
HORIZ. ALIGN. DEFICIENCY	82.243(33)	30.035(8)	107.870	73.25	26.75	96.07
SPEED LIMIT DEFICIENCY	109.648(36)	2.630(5)	107.870	97.66	2.34	96.07
CAPACITY DEFICIENCY 1996	49.339(21)	62.939(20)	107.870	43.94	56.06	96.07
CAPACITY DEFICIENCY 2016	38.990(15)	73.288(26)	107.870	34.73	65.27	96.07

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	3.091(6)	.631(2)	3.576	83.05	16.95	96.07
LANE WIDTH DEFICIENCY	3.722(8)	.000(0)	3.576	100.00	.00	96.07
SHOULDER W. DEFICIENCY	1.477(2)	2.245(3)	2.687	39.67	60.33	72.19
VERT. ALIGN. DEFICIENCY	3.722(8)	.000(0)	3.576	100.00	.00	96.07
HORIZ. ALIGN. DEFICIENCY	3.722(8)	.000(0)	3.576	100.00	.00	96.07
SPEED LIMIT DEFICIENCY	.681(1)	3.041(7)	3.576	18.29	81.71	96.07
CAPACITY DEFICIENCY 1996	3.286(6)	.436(2)	3.576	88.28	11.72	96.07
CAPACITY DEFICIENCY 2016	2.273(4)	1.449(4)	3.576	61.07	38.93	96.07

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	102.037(39)	13.963(10)	111.446	87.96	12.04	96.07
LANE WIDTH DEFICIENCY	116.000(49)	.000(0)	111.446	100.00	.00	96.07
SHOULDER W. DEFICIENCY	39.552(18)	76.448(28)	110.557	34.10	65.90	95.31
VERT. ALIGN. DEFICIENCY	108.968(47)	7.032(2)	111.446	93.94	6.06	96.07
HORIZ. ALIGN. DEFICIENCY	85.965(41)	30.035(8)	111.446	74.11	25.89	96.07
SPEED LIMIT DEFICIENCY	110.328(37)	5.672(12)	111.446	95.11	4.89	96.07
CAPACITY DEFICIENCY 1996	52.625(27)	63.375(22)	111.446	45.37	54.63	96.07
CAPACITY DEFICIENCY 2016	41.263(19)	74.737(30)	111.446	35.57	64.43	96.07

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 492 in IDAHO : US 95 Termini: I-90 @ Coeur d'Alene - Canada

RURAL LENGTH 100.387(41 SECTIONS COVERING 97.715 MILES)
URBAN LENGTH 8.613(14 SECTIONS COVERING 8.384 MILES)
TOTAL LENGTH 109.000(55 SECTIONS COVERING 106.099 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	85.756(35)	14.630(6)	97.715	85.43	14.57	97.34
LANE WIDTH DEFICIENCY	100.387(41)	.000(0)	97.715	100.00	.00	97.34
SHOULDER W. DEFICIENCY	57.954(26)	42.432(13)	96.201	57.73	42.27	95.83
VERT. ALIGN. DEFICIENCY	90.054(38)	10.333(3)	97.715	89.71	10.29	97.34
HORIZ. ALIGN. DEFICIENCY	87.559(37)	12.827(4)	97.715	87.22	12.78	97.34
SPEED LIMIT DEFICIENCY	93.300(31)	7.087(10)	97.715	92.94	7.06	97.34
CAPACITY DEFICIENCY 1996	47.831(16)	52.556(25)	97.715	47.65	52.35	97.34
CAPACITY DEFICIENCY 2016	24.240(10)	76.147(31)	97.715	24.15	75.85	97.34

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	8.613(14)	.000(0)	8.384	100.00	.00	97.34
LANE WIDTH DEFICIENCY	8.613(14)	.000(0)	8.384	100.00	.00	97.34
SHOULDER W. DEFICIENCY	8.613(11)	.000(0)	7.385	100.00	.00	85.74
VERT. ALIGN. DEFICIENCY	8.613(14)	.000(0)	8.384	100.00	.00	97.34
HORIZ. ALIGN. DEFICIENCY	8.613(14)	.000(0)	8.384	100.00	.00	97.34
SPEED LIMIT DEFICIENCY	1.038(2)	7.576(12)	8.384	12.05	87.95	97.34
CAPACITY DEFICIENCY 1996	6.246(7)	2.367(7)	8.384	72.52	27.48	97.34
CAPACITY DEFICIENCY 2016	3.102(4)	5.512(10)	8.384	36.01	63.99	97.34

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	94.370(49)	14.630(6)	106.099	86.58	13.42	97.34
LANE WIDTH DEFICIENCY	109.000(55)	.000(0)	106.099	100.00	.00	97.34
SHOULDER W. DEFICIENCY	66.568(37)	42.432(13)	103.586	61.07	38.93	95.03
VERT. ALIGN. DEFICIENCY	98.667(52)	10.333(3)	106.099	90.52	9.48	97.34
HORIZ. ALIGN. DEFICIENCY	96.173(51)	12.827(4)	106.099	88.23	11.77	97.34
SPEED LIMIT DEFICIENCY	94.338(33)	14.662(22)	106.099	86.55	13.45	97.34
CAPACITY DEFICIENCY 1996	54.077(23)	54.923(32)	106.099	49.61	50.39	97.34
CAPACITY DEFICIENCY 2016	27.342(14)	81.658(41)	106.099	25.08	74.92	97.34

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 718 in IDAHO : I-15 Termini: Utah SL - I-86 @ Pocatello

RURAL LENGTH 64.247(23 SECTIONS COVERING 64.247 MILES)
URBAN LENGTH 7.615(7 SECTIONS COVERING 7.615 MILES)
TOTAL LENGTH 71.862(30 SECTIONS COVERING 71.862 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	64.247(23)	.000(0)	64.247	100.00	.00	100.00
LANE WIDTH DEFICIENCY	64.247(23)	.000(0)	64.247	100.00	.00	100.00
SHOULDER W. DEFICIENCY	64.247(23)	.000(0)	64.247	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	64.247(23)	.000(0)	64.247	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	64.247(23)	.000(0)	64.247	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	64.247(23)	.000(0)	64.247	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	64.247(23)	.000(0)	64.247	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	64.247(23)	.000(0)	64.247	100.00	.00	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	7.615(7)	.000(0)	7.615	100.00	.00	100.00
LANE WIDTH DEFICIENCY	7.615(7)	.000(0)	7.615	100.00	.00	100.00
SHOULDER W. DEFICIENCY	7.615(7)	.000(0)	7.615	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	7.615(7)	.000(0)	7.615	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	7.615(7)	.000(0)	7.615	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	7.615(7)	.000(0)	7.615	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	7.615(7)	.000(0)	7.615	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	7.615(7)	.000(0)	7.615	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	71.862(30)	.000(0)	71.862	100.00	.00	100.00
LANE WIDTH DEFICIENCY	71.862(30)	.000(0)	71.862	100.00	.00	100.00
SHOULDER W. DEFICIENCY	71.862(30)	.000(0)	71.862	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	71.862(30)	.000(0)	71.862	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	71.862(30)	.000(0)	71.862	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	71.862(30)	.000(0)	71.862	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	71.862(30)	.000(0)	71.862	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	71.862(30)	.000(0)	71.862	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 719 in IDAHO : I-15 Termini: I-86 - US 20 @ Idaho Falls

RURAL LENGTH	35.718(	9 SECTIONS COVERING	35.718 MILES)	
URBAN LENGTH	11.518(	10 SECTIONS COVERING	11.518 MILES)	
TOTAL LENGTH	47.236(	19 SECTIONS COVERING	47.236 MILES)	

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	29.985(8)	5.733(1)	35.718	83.95	16.05	100.00
LANE WIDTH DEFICIENCY	35.718(9)	.000(0)	35.718	100.00	.00	100.00
SHOULDER W. DEFICIENCY	35.718(9)	.000(0)	35.718	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	35.718(9)	.000(0)	35.718	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	35.718(9)	.000(0)	35.718	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	35.718(9)	.000(0)	35.718	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	35.718(9)	.000(0)	35.718	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	35.718(9)	.000(0)	35.718	100.00	.00	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	11.518(10)	.000(0)	11.518	100.00	.00	100.00
LANE WIDTH DEFICIENCY	11.518(10)	.000(0)	11.518	100.00	.00	100.00
SHOULDER W. DEFICIENCY	11.518(10)	.000(0)	11.518	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	11.518(10)	.000(0)	11.518	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	11.518(10)	.000(0)	11.518	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	11.518(10)	.000(0)	11.518	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	11.518(10)	.000(0)	11.518	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	11.518(10)	.000(0)	11.518	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	41.503(18)	5.733(1)	47.236	87.86	12.14	100.00
LANE WIDTH DEFICIENCY	47.236(19)	.000(0)	47.236	100.00	.00	100.00
SHOULDER W. DEFICIENCY	47.236(19)	.000(0)	47.236	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	47.236(19)	.000(0)	47.236	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	47.236(19)	.000(0)	47.236	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	47.236(19)	.000(0)	47.236	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	47.236(19)	.000(0)	47.236	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	47.236(19)	.000(0)	47.236	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 720 in IDAHO : I-15 Termini: US 20 @ Idaho Falls - Montana SL

RURAL LENGTH 74.908(24 SECTIONS COVERING 74.908 MILES)
URBAN LENGTH 1.994(2 SECTIONS COVERING 1.994 MILES)
TOTAL LENGTH 76.902(26 SECTIONS COVERING 76.902 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	68.022(23)	6.886(1)	74.908	90.81	9.19	100.00
LANE WIDTH DEFICIENCY	74.908(24)	.000(0)	74.908	100.00	.00	100.00
SHOULDER W. DEFICIENCY	74.908(24)	.000(0)	74.908	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	74.908(24)	.000(0)	74.908	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	52.292(20)	22.616(4)	74.908	69.81	30.19	100.00
SPEED LIMIT DEFICIENCY	74.908(24)	.000(0)	74.908	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	74.908(24)	.000(0)	74.908	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	74.908(24)	.000(0)	74.908	100.00	.00	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	1.994(2)	.000(0)	1.994	100.00	.00	100.00
LANE WIDTH DEFICIENCY	1.994(2)	.000(0)	1.994	100.00	.00	100.00
SHOULDER W. DEFICIENCY	1.994(2)	.000(0)	1.994	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	1.994(2)	.000(0)	1.994	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	1.994(2)	.000(0)	1.994	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	1.994(2)	.000(0)	1.994	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	1.994(2)	.000(0)	1.994	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	1.994(2)	.000(0)	1.994	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	70.016(25)	6.886(1)	76.902	91.05	8.95	100.00
LANE WIDTH DEFICIENCY	76.902(26)	.000(0)	76.902	100.00	.00	100.00
SHOULDER W. DEFICIENCY	76.902(26)	.000(0)	76.902	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	76.902(26)	.000(0)	76.902	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	54.286(22)	22.616(4)	76.902	70.59	29.41	100.00
SPEED LIMIT DEFICIENCY	76.902(26)	.000(0)	76.902	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	76.902(26)	.000(0)	76.902	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	76.902(26)	.000(0)	76.902	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

MONTANA

Super-Segment NO 214 in MONTANA : I-90 Termini: Idaho SL - US 93 W. Missoula

RURAL LENGTH	96.473(27 SECTIONS COVERING	96.473 MILES)	
URBAN LENGTH	.000(0 SECTIONS COVERING	.000 MILES)	
TOTAL LENGTH	96.473(27 SECTIONS COVERING	96.473 MILES)	

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	41.543(16)	54.930(11)	96.473	43.06	56.94	100.00
LANE WIDTH DEFICIENCY	96.473(17)	.000(0)	45.491	100.00	.00	47.15
SHOULDER W. DEFICIENCY	96.473(27)	.000(0)	96.473	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	96.473(17)	.000(0)	45.491	100.00	.00	47.15
HORIZ. ALIGN. DEFICIENCY	96.473(17)	.000(0)	45.491	100.00	.00	47.15
SPEED LIMIT DEFICIENCY	77.601(21)	18.872(6)	96.473	80.44	19.56	100.00
CAPACITY DEFICIENCY 1996	96.473(17)	.000(0)	45.491	100.00	.00	47.15
CAPACITY DEFICIENCY 2016	96.473(17)	.000(0)	45.491	100.00	.00	47.15

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 215 in MONTANA: I-90 Termini: US 93 W. Missoula - I-15 W. Butte

RURAL LENGTH	114.958(30 SECTIONS COVERING	114.958 MILES)	
URBAN LENGTH	8.039(8 SECTIONS COVERING	8.039 MILES)	
TOTAL LENGTH	122.997(38 SECTIONS COVERING	122.997 MILES)	

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	90.199(20)	24.759(10)	114.958	78.46	21.54	100.00
LANE WIDTH DEFICIENCY	114.958(19)	.000(0)	70.404	100.00	.00	61.24
SHOULDER W. DEFICIENCY	114.958(30)	.000(0)	114.958	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	114.958(19)	.000(0)	70.404	100.00	.00	61.24
HORIZ. ALIGN. DEFICIENCY	114.958(19)	.000(0)	70.404	100.00	.00	61.24
SPEED LIMIT DEFICIENCY	114.958(30)	.000(0)	114.958	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	114.958(19)	.000(0)	70.404	100.00	.00	61.24
CAPACITY DEFICIENCY 2016	114.958(19)	.000(0)	70.404	100.00	.00	61.24

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	8.039(8)	.000(0)	8.039	100.00	.00	100.00
LANE WIDTH DEFICIENCY	8.039(6)	.000(0)	4.248	100.00	.00	52.84
SHOULDER W. DEFICIENCY	8.039(8)	.000(0)	8.039	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	8.039(6)	.000(0)	4.248	100.00	.00	52.84
HORIZ. ALIGN. DEFICIENCY	8.039(6)	.000(0)	4.248	100.00	.00	52.84
SPEED LIMIT DEFICIENCY	8.039(8)	.000(0)	8.039	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	8.039(6)	.000(0)	4.248	100.00	.00	52.84
CAPACITY DEFICIENCY 2016	8.039(6)	.000(0)	4.248	100.00	.00	52.84

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	98.238(28)	24.759(10)	122.997	79.87	20.13	100.00
LANE WIDTH DEFICIENCY	122.997(25)	.000(0)	74.652	100.00	.00	60.69
SHOULDER W. DEFICIENCY	122.997(38)	.000(0)	122.997	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	122.997(25)	.000(0)	74.652	100.00	.00	60.69
HORIZ. ALIGN. DEFICIENCY	122.997(25)	.000(0)	74.652	100.00	.00	60.69
SPEED LIMIT DEFICIENCY	122.997(38)	.000(0)	122.997	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	122.997(25)	.000(0)	74.652	100.00	.00	60.69
CAPACITY DEFICIENCY 2016	122.997(25)	.000(0)	74.652	100.00	.00	60.69

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 216 in MONTANA: I-90 Termini: I-15 W. Butte - I-94 @ Billings

RURAL LENGTH 205.406(40 SECTIONS COVERING 205.406 MILES)
URBAN LENGTH 26.830(30 SECTIONS COVERING 26.830 MILES)
TOTAL LENGTH 232.236(70 SECTIONS COVERING 232.236 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	153.684(34)	51.722(6)	205.406	74.82	25.18	100.00
LANE WIDTH DEFICIENCY	205.406(28)	.000(0)	96.163	100.00	.00	46.82
SHOULDER W. DEFICIENCY	203.725(38)	1.681(2)	205.406	99.18	.82	100.00
VERT. ALIGN. DEFICIENCY	205.406(28)	.000(0)	96.163	100.00	.00	46.82
HORIZ. ALIGN. DEFICIENCY	203.131(27)	2.275(1)	96.163	98.89	1.11	46.82
SPEED LIMIT DEFICIENCY	205.406(40)	.000(0)	205.406	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	205.406(28)	.000(0)	96.163	100.00	.00	46.82
CAPACITY DEFICIENCY 2016	205.406(28)	.000(0)	96.163	100.00	.00	46.82

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	18.663(24)	8.167(6)	26.830	69.56	30.44	100.00
LANE WIDTH DEFICIENCY	26.830(29)	.000(0)	23.700	100.00	.00	88.33
SHOULDER W. DEFICIENCY	26.830(30)	.000(0)	26.830	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	26.830(29)	.000(0)	23.700	100.00	.00	88.33
HORIZ. ALIGN. DEFICIENCY	26.830(29)	.000(0)	23.700	100.00	.00	88.33
SPEED LIMIT DEFICIENCY	26.830(30)	.000(0)	26.830	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	26.830(29)	.000(0)	23.700	100.00	.00	88.33
CAPACITY DEFICIENCY 2016	26.830(29)	.000(0)	23.700	100.00	.00	88.33

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	172.347(58)	59.889(12)	232.236	74.21	25.79	100.00
LANE WIDTH DEFICIENCY	232.236(57)	.000(0)	119.863	100.00	.00	51.61
SHOULDER W. DEFICIENCY	230.555(68)	1.681(2)	232.236	99.28	.72	100.00
VERT. ALIGN. DEFICIENCY	232.236(57)	.000(0)	119.863	100.00	.00	51.61
HORIZ. ALIGN. DEFICIENCY	229.961(56)	2.275(1)	119.863	99.02	.98	51.61
SPEED LIMIT DEFICIENCY	232.236(70)	.000(0)	232.236	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	232.236(57)	.000(0)	119.863	100.00	.00	51.61
CAPACITY DEFICIENCY 2016	232.236(57)	.000(0)	119.863	100.00	.00	51.61

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 217 in MONTANA : I-90 Termini: Billings (I-94) - Wyoming SL

RURAL LENGTH	94.736(	8 SECTIONS COVERING	94.736 MILES)	
URBAN LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)	
TOTAL LENGTH	94.736(	8 SECTIONS COVERING	94.736 MILES)	

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	15.515(5)	79.221(3)	94.736	16.38	83.62	100.00
LANE WIDTH DEFICIENCY	94.736(5)	.000(0)	15.515	100.00	.00	16.38
SHOULDER W. DEFICIENCY	94.736(8)	.000(0)	94.736	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	94.736(5)	.000(0)	15.515	100.00	.00	16.38
HORIZ. ALIGN. DEFICIENCY	94.736(5)	.000(0)	15.515	100.00	.00	16.38
SPEED LIMIT DEFICIENCY	94.736(8)	.000(0)	94.736	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	94.736(5)	.000(0)	15.515	100.00	.00	16.38
CAPACITY DEFICIENCY 2016	94.736(5)	.000(0)	15.515	100.00	.00	16.38

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 352 in MONTANA : US 2 Termini: Idaho SL - US 93 @ Kalispell

RURAL LENGTH	119.592(44 SECTIONS COVERING	119.592 MILES)	
URBAN LENGTH	.449(1 SECTIONS COVERING	.449 MILES)	
TOTAL LENGTH	120.041(45 SECTIONS COVERING	120.041 MILES)	

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	100.118(36)	19.474(8)	119.592	83.72	16.28	100.00
LANE WIDTH DEFICIENCY	107.885(23)	11.707(3)	59.555	90.21	9.79	49.80
SHOULDER W. DEFICIENCY	47.604(20)	71.988(20)	112.944	39.81	60.19	94.44
VERT. ALIGN. DEFICIENCY	111.148(24)	8.444(2)	59.555	92.94	7.06	49.80
HORIZ. ALIGN. DEFICIENCY	96.545(23)	23.047(3)	59.555	80.73	19.27	49.80
SPEED LIMIT DEFICIENCY	112.690(38)	6.902(5)	119.252	94.23	5.77	99.72
CAPACITY DEFICIENCY 1996	118.737(25)	.855(1)	59.555	99.28	.72	49.80
CAPACITY DEFICIENCY 2016	102.650(22)	16.942(4)	59.555	85.83	14.17	49.80

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	.449(1)	.000(0)	.449	100.00	.00	100.00
LANE WIDTH DEFICIENCY	.449(1)	.000(0)	.449	100.00	.00	100.00
SHOULDER W. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
VERT. ALIGN. DEFICIENCY	.449(1)	.000(0)	.449	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	.449(1)	.000(0)	.449	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	.000(0)	.449(1)	.449	.00	100.00	100.00
CAPACITY DEFICIENCY 1996	.449(1)	.000(0)	.449	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	.449(1)	.000(0)	.449	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	100.567(37)	19.474(8)	120.041	83.78	16.22	100.00
LANE WIDTH DEFICIENCY	108.334(24)	11.707(3)	60.004	90.25	9.75	49.99
SHOULDER W. DEFICIENCY	47.604(20)	71.988(20)	112.944	39.66	59.97	94.09
VERT. ALIGN. DEFICIENCY	111.597(25)	8.444(2)	60.004	92.97	7.03	49.99
HORIZ. ALIGN. DEFICIENCY	96.994(24)	23.047(3)	60.004	80.80	19.20	49.99
SPEED LIMIT DEFICIENCY	112.690(38)	7.351(6)	119.701	93.88	6.12	99.72
CAPACITY DEFICIENCY 1996	119.186(26)	.855(1)	60.004	99.29	.71	49.99
CAPACITY DEFICIENCY 2016	103.099(23)	16.942(4)	60.004	85.89	14.11	49.99

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

Super-Segment NO 353 in MONTANA : US 2 Termini: US 93 @ Kalispell - North Dakota SL

RURAL LENGTH 537.193(126 SECTIONS COVERING 537.193 MILES)
URBAN LENGTH 9.706(15 SECTIONS COVERING 9.706 MILES)
TOTAL LENGTH 546.899(141 SECTIONS COVERING 546.899 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	497.270(115)	39.923(10)	528.641	92.57	7.43	98.41
LANE WIDTH DEFICIENCY	537.193(76)	.000(0)	257.935	100.00	.00	48.02
SHOULDER W. DEFICIENCY	345.288(82)	191.905(40)	525.587	64.28	35.72	97.84
VERT. ALIGN. DEFICIENCY	529.418(74)	7.775(2)	257.935	98.55	1.45	48.02
HORIZ. ALIGN. DEFICIENCY	507.044(72)	30.149(4)	257.935	94.39	5.61	48.02
SPEED LIMIT DEFICIENCY	520.864(103)	16.329(10)	481.701	96.96	3.04	89.67
CAPACITY DEFICIENCY 1996	535.598(75)	1.595(1)	257.935	99.70	.30	48.02
CAPACITY DEFICIENCY 2016	493.334(67)	43.859(9)	257.935	91.84	8.16	48.02

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	6.302(12)	3.404(3)	9.706	64.93	35.07	100.00
LANE WIDTH DEFICIENCY	9.706(8)	.000(0)	3.314	100.00	.00	34.14
SHOULDER W. DEFICIENCY	5.522(4)	4.184(4)	6.932	56.90	43.10	71.42
VERT. ALIGN. DEFICIENCY	9.706(8)	.000(0)	3.314	100.00	.00	34.14
HORIZ. ALIGN. DEFICIENCY	9.706(8)	.000(0)	3.314	100.00	.00	34.14
SPEED LIMIT DEFICIENCY	3.929(2)	5.777(7)	4.661	40.48	59.52	48.02
CAPACITY DEFICIENCY 1996	9.706(8)	.000(0)	3.314	100.00	.00	34.14
CAPACITY DEFICIENCY 2016	9.097(7)	.609(1)	3.314	93.72	6.28	34.14

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	503.572(127)	43.327(13)	538.347	92.08	7.92	98.44
LANE WIDTH DEFICIENCY	546.899(84)	.000(0)	261.249	100.00	.00	47.77
SHOULDER W. DEFICIENCY	350.810(86)	196.089(44)	532.519	64.15	35.85	97.37
VERT. ALIGN. DEFICIENCY	539.124(82)	7.775(2)	261.249	98.58	1.42	47.77
HORIZ. ALIGN. DEFICIENCY	516.750(80)	30.149(4)	261.249	94.49	5.51	47.77
SPEED LIMIT DEFICIENCY	524.794(105)	22.105(17)	486.362	95.96	4.04	88.93
CAPACITY DEFICIENCY 1996	545.304(83)	1.595(1)	261.249	99.71	.29	47.77
CAPACITY DEFICIENCY 2016	502.431(74)	44.468(10)	261.249	91.87	8.13	47.77

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 370 in MONTANA : US 12 Termini: Idaho SL - I-90 @ Missoula

RURAL LENGTH	39.281(13 SECTIONS COVERING	39.281 MILES)
URBAN LENGTH	5.607(11 SECTIONS COVERING	5.607 MILES)
TOTAL LENGTH	44.888(24 SECTIONS COVERING	44.888 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	35.251(11)	4.030(2)	39.281	89.74	10.26	100.00
LANE WIDTH DEFICIENCY	39.281(11)	.000(0)	26.024	100.00	.00	66.25
SHOULDER W. DEFICIENCY	33.024(12)	6.257(1)	39.281	84.07	15.93	100.00
VERT. ALIGN. DEFICIENCY	39.281(11)	.000(0)	26.024	100.00	.00	66.25
HORIZ. ALIGN. DEFICIENCY	20.380(9)	18.901(2)	26.024	51.88	48.12	66.25
SPEED LIMIT DEFICIENCY	39.281(13)	.000(0)	39.281	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	25.726(10)	13.555(1)	26.024	65.49	34.51	66.25
CAPACITY DEFICIENCY 2016	14.946(7)	24.335(4)	26.024	38.05	61.95	66.25

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	4.537(7)	1.070(4)	5.607	80.92	19.08	100.00
LANE WIDTH DEFICIENCY	5.607(6)	.000(0)	1.608	100.00	.00	28.68
SHOULDER W. DEFICIENCY	5.607(5)	.000(0)	3.999	100.00	.00	71.32
VERT. ALIGN. DEFICIENCY	5.607(6)	.000(0)	1.608	100.00	.00	28.68
HORIZ. ALIGN. DEFICIENCY	5.607(6)	.000(0)	1.608	100.00	.00	28.68
SPEED LIMIT DEFICIENCY	.000(0)	5.607(6)	1.608	.00	100.00	28.68
CAPACITY DEFICIENCY 1996	4.254(5)	1.353(1)	1.608	75.87	24.13	28.68
CAPACITY DEFICIENCY 2016	3.159(4)	2.448(2)	1.608	56.34	43.66	28.68

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	39.788(18)	5.100(6)	44.888	88.64	11.36	100.00
LANE WIDTH DEFICIENCY	44.888(17)	.000(0)	27.632	100.00	.00	61.56
SHOULDER W. DEFICIENCY	38.631(17)	6.257(1)	43.280	86.06	13.94	96.42
VERT. ALIGN. DEFICIENCY	44.888(17)	.000(0)	27.632	100.00	.00	61.56
HORIZ. ALIGN. DEFICIENCY	25.987(15)	18.901(2)	27.632	57.89	42.11	61.56
SPEED LIMIT DEFICIENCY	39.281(13)	5.607(6)	40.889	87.51	12.49	91.09
CAPACITY DEFICIENCY 1996	29.981(15)	14.907(2)	27.632	66.79	33.21	61.56
CAPACITY DEFICIENCY 2016	18.105(11)	26.783(6)	27.632	40.33	59.67	61.56

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 371 in MONTANA : US 12 Termini: I-90 NW of Butte to I-94 @ Forsyth

RURAL LENGTH 326.307(33 SECTIONS COVERING 326.307 MILES)
URBAN LENGTH 7.726(15 SECTIONS COVERING 7.726 MILES)
TOTAL LENGTH 334.033(48 SECTIONS COVERING 334.033 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	275.169(32)	51.138(1)	326.307	84.33	15.67	100.00
LANE WIDTH DEFICIENCY	326.307(20)	.000(0)	78.706	100.00	.00	24.12
SHOULDER W. DEFICIENCY	216.647(20)	109.660(6)	223.241	66.39	33.61	68.41
VERT. ALIGN. DEFICIENCY	326.307(20)	.000(0)	78.706	100.00	.00	24.12
HORIZ. ALIGN. DEFICIENCY	321.585(19)	4.722(1)	78.706	98.55	1.45	24.12
SPEED LIMIT DEFICIENCY	281.756(26)	44.551(4)	312.598	86.35	13.65	95.80
CAPACITY DEFICIENCY 1996	326.307(20)	.000(0)	78.706	100.00	.00	24.12
CAPACITY DEFICIENCY 2016	314.665(18)	11.642(2)	78.706	96.43	3.57	24.12

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	7.296(14)	.430(1)	7.726	94.43	5.57	100.00
LANE WIDTH DEFICIENCY	7.726(12)	.000(0)	5.604	100.00	.00	72.53
SHOULDER W. DEFICIENCY	7.726(5)	.000(0)	3.438	100.00	.00	44.50
VERT. ALIGN. DEFICIENCY	7.726(12)	.000(0)	5.604	100.00	.00	72.53
HORIZ. ALIGN. DEFICIENCY	7.726(12)	.000(0)	5.604	100.00	.00	72.53
SPEED LIMIT DEFICIENCY	1.991(2)	5.735(10)	5.604	25.77	74.23	72.53
CAPACITY DEFICIENCY 1996	7.726(12)	.000(0)	5.604	100.00	.00	72.53
CAPACITY DEFICIENCY 2016	7.038(10)	.688(2)	5.604	91.10	8.90	72.53

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	282.465(46)	51.568(2)	334.033	84.56	15.44	100.00
LANE WIDTH DEFICIENCY	334.033(32)	.000(0)	84.310	100.00	.00	25.24
SHOULDER W. DEFICIENCY	224.373(25)	109.660(6)	226.679	67.17	32.83	67.86
VERT. ALIGN. DEFICIENCY	334.033(32)	.000(0)	84.310	100.00	.00	25.24
HORIZ. ALIGN. DEFICIENCY	329.311(31)	4.722(1)	84.310	98.59	1.41	25.24
SPEED LIMIT DEFICIENCY	283.747(28)	50.286(14)	318.202	84.95	15.05	95.26
CAPACITY DEFICIENCY 1996	334.033(32)	.000(0)	84.310	100.00	.00	25.24
CAPACITY DEFICIENCY 2016	321.703(28)	12.330(4)	84.310	96.31	3.69	25.24

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 380 in MONTANA : US 20/191/28 Termini: Idaho SL - I-90

RURAL LENGTH	97.223(18 SECTIONS COVERING	95.510 MILES)
URBAN LENGTH	3.777(7 SECTIONS COVERING	3.710 MILES)
TOTAL LENGTH	101.000(25 SECTIONS COVERING	99.220 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	93.789(16)	3.435(2)	95.510	96.47	3.53	98.24
LANE WIDTH DEFICIENCY	97.223(11)	.000(0)	39.927	100.00	.00	41.07
SHOULDER W. DEFICIENCY	59.775(12)	37.448(6)	95.510	61.48	38.52	98.24
VERT. ALIGN. DEFICIENCY	77.987(9)	19.237(2)	39.927	80.21	19.79	41.07
HORIZ. ALIGN. DEFICIENCY	77.987(9)	19.237(2)	39.927	80.21	19.79	41.07
SPEED LIMIT DEFICIENCY	97.223(17)	.000(0)	94.835	100.00	.00	97.54
CAPACITY DEFICIENCY 1996	42.871(6)	54.352(5)	39.927	44.10	55.90	41.07
CAPACITY DEFICIENCY 2016	13.283(1)	83.940(10)	39.927	13.66	86.34	41.07

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	2.500(6)	1.276(1)	3.710	66.20	33.80	98.24
LANE WIDTH DEFICIENCY	3.777(4)	.000(0)	1.018	100.00	.00	26.96
SHOULDER W. DEFICIENCY	3.777(6)	.000(0)	3.346	100.00	.00	88.60
VERT. ALIGN. DEFICIENCY	3.777(4)	.000(0)	1.018	100.00	.00	26.96
HORIZ. ALIGN. DEFICIENCY	3.777(4)	.000(0)	1.018	100.00	.00	26.96
SPEED LIMIT DEFICIENCY	1.762(2)	2.014(2)	1.018	46.66	53.34	26.96
CAPACITY DEFICIENCY 1996	3.777(4)	.000(0)	1.018	100.00	.00	26.96
CAPACITY DEFICIENCY 2016	3.777(4)	.000(0)	1.018	100.00	.00	26.96

A L L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	96.289(22)	4.711(3)	99.220	95.34	4.66	98.24
LANE WIDTH DEFICIENCY	101.000(15)	.000(0)	40.945	100.00	.00	40.54
SHOULDER W. DEFICIENCY	63.552(18)	37.448(6)	98.856	62.92	37.08	97.88
VERT. ALIGN. DEFICIENCY	81.763(13)	19.237(2)	40.945	80.95	19.05	40.54
HORIZ. ALIGN. DEFICIENCY	81.763(13)	19.237(2)	40.945	80.95	19.05	40.54
SPEED LIMIT DEFICIENCY	98.986(19)	2.014(2)	95.853	98.01	1.99	94.90
CAPACITY DEFICIENCY 1996	46.648(10)	54.352(5)	40.945	46.19	53.81	40.54
CAPACITY DEFICIENCY 2016	17.060(5)	83.940(10)	40.945	16.89	83.11	40.54

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 460 in MONTANA : US87/191/S19 Termini: I-94 @ Billings to Canada

RURAL LENGTH 247.716(29 SECTIONS COVERING 247.716 MILES)
URBAN LENGTH 11.854(8 SECTIONS COVERING 11.854 MILES)
TOTAL LENGTH 259.570(37 SECTIONS COVERING 259.570 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	238.058(28)	9.658(1)	247.716	96.10	3.90	100.00
LANE WIDTH DEFICIENCY	241.124(14)	6.592(1)	67.682	97.34	2.66	27.32
SHOULDER W. DEFICIENCY	48.679(9)	199.037(15)	214.988	19.65	80.35	86.79
VERT. ALIGN. DEFICIENCY	247.716(15)	.000(0)	67.682	100.00	.00	27.32
HORIZ. ALIGN. DEFICIENCY	247.716(15)	.000(0)	67.682	100.00	.00	27.32
SPEED LIMIT DEFICIENCY	223.981(24)	23.735(3)	240.455	90.42	9.58	97.07
CAPACITY DEFICIENCY 1996	247.716(15)	.000(0)	67.682	100.00	.00	27.32
CAPACITY DEFICIENCY 2016	247.716(15)	.000(0)	67.682	100.00	.00	27.32

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	11.854(8)	.000(0)	11.854	100.00	.00	100.00
LANE WIDTH DEFICIENCY	11.854(6)	.000(0)	2.378	100.00	.00	20.06
SHOULDER W. DEFICIENCY	11.854(2)	.000(0)	9.476	100.00	.00	79.94
VERT. ALIGN. DEFICIENCY	11.854(6)	.000(0)	2.378	100.00	.00	20.06
HORIZ. ALIGN. DEFICIENCY	11.854(6)	.000(0)	2.378	100.00	.00	20.06
SPEED LIMIT DEFICIENCY	.000(0)	11.854(6)	2.378	.00	100.00	20.06
CAPACITY DEFICIENCY 1996	10.418(5)	1.436(1)	2.378	87.89	12.11	20.06
CAPACITY DEFICIENCY 2016	5.424(3)	6.430(3)	2.378	45.75	54.25	20.06

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	249.912(36)	9.658(1)	259.570	96.28	3.72	100.00
LANE WIDTH DEFICIENCY	252.978(20)	6.592(1)	70.060	97.46	2.54	26.99
SHOULDER W. DEFICIENCY	60.533(11)	199.037(15)	224.464	23.32	76.68	86.48
VERT. ALIGN. DEFICIENCY	259.570(21)	.000(0)	70.060	100.00	.00	26.99
HORIZ. ALIGN. DEFICIENCY	259.570(21)	.000(0)	70.060	100.00	.00	26.99
SPEED LIMIT DEFICIENCY	223.981(24)	35.589(9)	242.833	86.29	13.71	93.55
CAPACITY DEFICIENCY 1996	258.134(20)	1.436(1)	70.060	99.45	.55	26.99
CAPACITY DEFICIENCY 2016	253.140(18)	6.430(3)	70.060	97.52	2.48	26.99

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 470 in MONTANA : S 200/US 89 Termini: I-90 @ Missoula - I-15 @ Great Falls

RURAL LENGTH	157.000(	25 SECTIONS COVERING	154.866 MILES)		
URBAN LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)		
TOTAL LENGTH	157.000(	25 SECTIONS COVERING	154.866 MILES)		

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	155.108(24)	1.892(1)	154.866	98.80	1.20	98.64
LANE WIDTH DEFICIENCY	157.000(16)	.000(0)	71.052	100.00	.00	45.26
SHOULDER W. DEFICIENCY	122.359(21)	34.641(3)	154.509	77.94	22.06	98.41
VERT. ALIGN. DEFICIENCY	142.615(15)	14.385(1)	71.052	90.84	9.16	45.26
HORIZ. ALIGN. DEFICIENCY	136.631(15)	20.369(1)	71.052	87.03	12.97	45.26
SPEED LIMIT DEFICIENCY	156.638(24)	.362(1)	154.866	99.77	.23	98.64
CAPACITY DEFICIENCY 1996	151.695(14)	5.305(2)	71.052	96.62	3.38	45.26
CAPACITY DEFICIENCY 2016	115.474(11)	41.526(5)	71.052	73.55	26.45	45.26

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 471 in MONTANA : US 87 Termini: I-15 @ Great Falls - US 2 @ Havre

RURAL LENGTH 108.627(30 SECTIONS COVERING 108.627 MILES)
URBAN LENGTH 3.854(8 SECTIONS COVERING 3.854 MILES)
TOTAL LENGTH 112.481(38 SECTIONS COVERING 112.481 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	107.711(29)	.916(1)	108.627	99.16	.84	100.00
LANE WIDTH DEFICIENCY	102.234(17)	6.393(1)	60.528	94.12	5.88	55.72
SHOULDER W. DEFICIENCY	54.842(18)	53.785(12)	108.627	50.49	49.51	100.00
VERT. ALIGN. DEFICIENCY	108.627(18)	.000(0)	60.528	100.00	.00	55.72
HORIZ. ALIGN. DEFICIENCY	91.294(17)	17.333(1)	60.528	84.04	15.96	55.72
SPEED LIMIT DEFICIENCY	108.627(29)	.000(0)	107.711	100.00	.00	99.16
CAPACITY DEFICIENCY 1996	108.627(18)	.000(0)	60.528	100.00	.00	55.72
CAPACITY DEFICIENCY 2016	108.627(18)	.000(0)	60.528	100.00	.00	55.72

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	1.559(7)	2.295(1)	3.854	40.45	59.55	100.00
LANE WIDTH DEFICIENCY	3.854(6)	.000(0)	1.390	100.00	.00	36.07
SHOULDER W. DEFICIENCY	3.646(4)	.208(1)	3.129	94.60	5.40	81.19
VERT. ALIGN. DEFICIENCY	3.854(6)	.000(0)	1.390	100.00	.00	36.07
HORIZ. ALIGN. DEFICIENCY	3.854(6)	.000(0)	1.390	100.00	.00	36.07
SPEED LIMIT DEFICIENCY	.000(0)	3.854(6)	1.390	.00	100.00	36.07
CAPACITY DEFICIENCY 1996	3.854(6)	.000(0)	1.390	100.00	.00	36.07
CAPACITY DEFICIENCY 2016	3.854(6)	.000(0)	1.390	100.00	.00	36.07

A L L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	109.270(36)	3.211(2)	112.481	97.15	2.85	100.00
LANE WIDTH DEFICIENCY	106.088(23)	6.393(1)	61.918	94.32	5.68	55.05
SHOULDER W. DEFICIENCY	58.488(22)	53.993(13)	111.756	52.00	48.00	99.36
VERT. ALIGN. DEFICIENCY	112.481(24)	.000(0)	61.918	100.00	.00	55.05
HORIZ. ALIGN. DEFICIENCY	95.148(23)	17.333(1)	61.918	84.59	15.41	55.05
SPEED LIMIT DEFICIENCY	108.627(29)	3.854(6)	109.101	96.57	3.43	97.00
CAPACITY DEFICIENCY 1996	112.481(24)	.000(0)	61.918	100.00	.00	55.05
CAPACITY DEFICIENCY 2016	112.481(24)	.000(0)	61.918	100.00	.00	55.05

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 480 in MONTANA : US 93 Termini: I-90 - Canada

RURAL LENGTH	182.325(46 SECTIONS COVERING	182.325 MILES)
URBAN LENGTH	5.464(4 SECTIONS COVERING	5.464 MILES)
TOTAL LENGTH	187.789(50 SECTIONS COVERING	187.789 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	178.743(44)	3.582(2)	182.325	98.04	1.96	100.00
LANE WIDTH DEFICIENCY	179.152(28)	3.173(2)	70.275	98.26	1.74	38.54
SHOULDER W. DEFICIENCY	85.554(26)	96.771(15)	181.295	46.92	53.08	99.44
VERT. ALIGN. DEFICIENCY	174.884(25)	7.441(5)	70.275	95.92	4.08	38.54
HORIZ. ALIGN. DEFICIENCY	182.325(30)	.000(0)	70.275	100.00	.00	38.54
SPEED LIMIT DEFICIENCY	129.437(32)	52.888(10)	177.007	70.99	29.01	97.08
CAPACITY DEFICIENCY 1996	97.640(13)	84.685(17)	70.275	53.55	46.45	38.54
CAPACITY DEFICIENCY 2016	42.985(4)	139.340(26)	70.275	23.58	76.42	38.54

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	3.054(2)	2.410(2)	5.464	55.89	44.11	100.00
LANE WIDTH DEFICIENCY	5.464(2)	.000(0)	1.088	100.00	.00	19.91
SHOULDER W. DEFICIENCY	3.195(2)	2.269(1)	5.250	58.48	41.52	96.08
VERT. ALIGN. DEFICIENCY	5.464(2)	.000(0)	1.088	100.00	.00	19.91
HORIZ. ALIGN. DEFICIENCY	5.464(2)	.000(0)	1.088	100.00	.00	19.91
SPEED LIMIT DEFICIENCY	.000(0)	5.464(2)	1.088	.00	100.00	19.91
CAPACITY DEFICIENCY 1996	5.464(2)	.000(0)	1.088	100.00	.00	19.91
CAPACITY DEFICIENCY 2016	.000(0)	5.464(2)	1.088	.00	100.00	19.91

A L L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	181.797(46)	5.992(4)	187.789	96.81	3.19	100.00
LANE WIDTH DEFICIENCY	184.616(30)	3.173(2)	71.363	98.31	1.69	38.00
SHOULDER W. DEFICIENCY	88.749(28)	99.040(16)	186.545	47.26	52.74	99.34
VERT. ALIGN. DEFICIENCY	180.348(27)	7.441(5)	71.363	96.04	3.96	38.00
HORIZ. ALIGN. DEFICIENCY	187.789(32)	.000(0)	71.363	100.00	.00	38.00
SPEED LIMIT DEFICIENCY	129.437(32)	58.352(12)	178.095	68.93	31.07	94.84
CAPACITY DEFICIENCY 1996	103.104(15)	84.685(17)	71.363	54.90	45.10	38.00
CAPACITY DEFICIENCY 2016	42.985(4)	144.804(28)	71.363	22.89	77.11	38.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 590 in MONTANA : S 3 Termini: Billings to Great Falls

RURAL LENGTH	179.489(44 SECTIONS COVERING	179.489 MILES)
URBAN LENGTH	12.689(19 SECTIONS COVERING	12.689 MILES)
TOTAL LENGTH	192.178(63 SECTIONS COVERING	192.178 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	177.325(43)	2.164(1)	179.489	98.79	1.21	100.00
LANE WIDTH DEFICIENCY	163.499(26)	15.990(2)	90.158	91.09	8.91	50.23
SHOULDER W. DEFICIENCY	116.451(26)	63.038(16)	178.332	64.88	35.12	99.36
VERT. ALIGN. DEFICIENCY	179.037(27)	.452(1)	90.158	99.75	.25	50.23
HORIZ. ALIGN. DEFICIENCY	170.733(27)	8.756(1)	90.158	95.12	4.88	50.23
SPEED LIMIT DEFICIENCY	173.111(39)	6.378(4)	178.511	96.45	3.55	99.46
CAPACITY DEFICIENCY 1996	179.489(28)	.000(0)	90.158	100.00	.00	50.23
CAPACITY DEFICIENCY 2016	154.506(23)	24.983(5)	90.158	86.08	13.92	50.23

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	11.547(15)	1.142(4)	12.689	91.00	9.00	100.00
LANE WIDTH DEFICIENCY	12.689(14)	.000(0)	3.936	100.00	.00	31.02
SHOULDER W. DEFICIENCY	12.689(8)	.000(0)	9.353	100.00	.00	73.71
VERT. ALIGN. DEFICIENCY	12.689(14)	.000(0)	3.936	100.00	.00	31.02
HORIZ. ALIGN. DEFICIENCY	12.689(14)	.000(0)	3.936	100.00	.00	31.02
SPEED LIMIT DEFICIENCY	.000(0)	12.689(14)	3.936	.00	100.00	31.02
CAPACITY DEFICIENCY 1996	12.689(14)	.000(0)	3.936	100.00	.00	31.02
CAPACITY DEFICIENCY 2016	12.425(13)	.264(1)	3.936	97.92	2.08	31.02

A L L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	188.872(58)	3.306(5)	192.178	98.28	1.72	100.00
LANE WIDTH DEFICIENCY	176.188(40)	15.990(2)	94.094	91.68	8.32	48.96
SHOULDER W. DEFICIENCY	129.140(34)	63.038(16)	187.685	67.20	32.80	97.66
VERT. ALIGN. DEFICIENCY	191.726(41)	.452(1)	94.094	99.76	.24	48.96
HORIZ. ALIGN. DEFICIENCY	183.422(41)	8.756(1)	94.094	95.44	4.56	48.96
SPEED LIMIT DEFICIENCY	173.111(39)	19.067(18)	182.447	90.08	9.92	94.94
CAPACITY DEFICIENCY 1996	192.178(42)	.000(0)	94.094	100.00	.00	48.96
CAPACITY DEFICIENCY 2016	166.931(36)	25.247(6)	94.094	86.86	13.14	48.96

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 720 in MONTANA : I-15 Termini: Idaho SL - I-90 @ Butte

RURAL LENGTH 134.859(29 SECTIONS COVERING 134.859 MILES)
URBAN LENGTH 2.825(7 SECTIONS COVERING 2.825 MILES)
TOTAL LENGTH 137.684(36 SECTIONS COVERING 137.684 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	123.539(24)	11.320(5)	134.859	91.61	8.39	100.00
LANE WIDTH DEFICIENCY	134.859(17)	.000(0)	69.902	100.00	.00	51.83
SHOULDER W. DEFICIENCY	134.859(29)	.000(0)	134.859	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	134.859(17)	.000(0)	69.902	100.00	.00	51.83
HORIZ. ALIGN. DEFICIENCY	134.859(17)	.000(0)	69.902	100.00	.00	51.83
SPEED LIMIT DEFICIENCY	134.859(29)	.000(0)	134.859	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	134.859(17)	.000(0)	69.902	100.00	.00	51.83
CAPACITY DEFICIENCY 2016	134.859(17)	.000(0)	69.902	100.00	.00	51.83

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	2.626(6)	.199(1)	2.825	92.96	7.04	100.00
LANE WIDTH DEFICIENCY	2.825(6)	.000(0)	2.626	100.00	.00	92.96
SHOULDER W. DEFICIENCY	2.825(7)	.000(0)	2.825	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	2.825(6)	.000(0)	2.626	100.00	.00	92.96
HORIZ. ALIGN. DEFICIENCY	2.825(6)	.000(0)	2.626	100.00	.00	92.96
SPEED LIMIT DEFICIENCY	2.825(7)	.000(0)	2.825	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	2.825(6)	.000(0)	2.626	100.00	.00	92.96
CAPACITY DEFICIENCY 2016	2.825(6)	.000(0)	2.626	100.00	.00	92.96

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	126.165(30)	11.519(6)	137.684	91.63	8.37	100.00
LANE WIDTH DEFICIENCY	137.684(23)	.000(0)	72.528	100.00	.00	52.68
SHOULDER W. DEFICIENCY	137.684(36)	.000(0)	137.684	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	137.684(23)	.000(0)	72.528	100.00	.00	52.68
HORIZ. ALIGN. DEFICIENCY	137.684(23)	.000(0)	72.528	100.00	.00	52.68
SPEED LIMIT DEFICIENCY	137.684(36)	.000(0)	137.684	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	137.684(23)	.000(0)	72.528	100.00	.00	52.68
CAPACITY DEFICIENCY 2016	137.684(23)	.000(0)	72.528	100.00	.00	52.68

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 721 in MONTANA : I-15 Termini: Butte (I-90) - Great Falls (I-15B)

RURAL LENGTH 135.946(50 SECTIONS COVERING 137.518 MILES)
URBAN LENGTH 15.054(16 SECTIONS COVERING 15.228 MILES)
TOTAL LENGTH 151.000(66 SECTIONS COVERING 152.746 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	106.622(41)	29.324(9)	137.518	78.43	21.57	101.16
LANE WIDTH DEFICIENCY	135.946(32)	.000(0)	86.296	100.00	.00	63.48
SHOULDER W. DEFICIENCY	130.172(49)	5.774(1)	137.518	95.75	4.25	101.16
VERT. ALIGN. DEFICIENCY	135.946(32)	.000(0)	86.296	100.00	.00	63.48
HORIZ. ALIGN. DEFICIENCY	106.432(25)	29.514(7)	86.296	78.29	21.71	63.48
SPEED LIMIT DEFICIENCY	135.946(50)	.000(0)	137.518	100.00	.00	101.16
CAPACITY DEFICIENCY 1996	135.946(32)	.000(0)	86.296	100.00	.00	63.48
CAPACITY DEFICIENCY 2016	135.946(32)	.000(0)	86.296	100.00	.00	63.48

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	7.740(11)	7.314(5)	15.228	51.41	48.59	101.16
LANE WIDTH DEFICIENCY	15.054(15)	.000(0)	11.711	100.00	.00	77.79
SHOULDER W. DEFICIENCY	15.054(16)	.000(0)	15.228	100.00	.00	101.16
VERT. ALIGN. DEFICIENCY	15.054(15)	.000(0)	11.711	100.00	.00	77.79
HORIZ. ALIGN. DEFICIENCY	15.054(15)	.000(0)	11.711	100.00	.00	77.79
SPEED LIMIT DEFICIENCY	15.054(16)	.000(0)	15.228	100.00	.00	101.16
CAPACITY DEFICIENCY 1996	15.054(15)	.000(0)	11.711	100.00	.00	77.79
CAPACITY DEFICIENCY 2016	15.054(15)	.000(0)	11.711	100.00	.00	77.79

A L L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	114.362(52)	36.638(14)	152.746	75.74	24.26	101.16
LANE WIDTH DEFICIENCY	151.000(47)	.000(0)	98.007	100.00	.00	64.91
SHOULDER W. DEFICIENCY	145.226(65)	5.774(1)	152.746	96.18	3.82	101.16
VERT. ALIGN. DEFICIENCY	151.000(47)	.000(0)	98.007	100.00	.00	64.91
HORIZ. ALIGN. DEFICIENCY	121.486(40)	29.514(7)	98.007	80.45	19.55	64.91
SPEED LIMIT DEFICIENCY	151.000(66)	.000(0)	152.746	100.00	.00	101.16
CAPACITY DEFICIENCY 1996	151.000(47)	.000(0)	98.007	100.00	.00	64.91
CAPACITY DEFICIENCY 2016	151.000(47)	.000(0)	98.007	100.00	.00	64.91

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 722 in MONTANA : I-15 Termini: Great Falls - Canada

RURAL LENGTH	107.484(26 SECTIONS COVERING	107.484 MILES)
URBAN LENGTH	11.092(6 SECTIONS COVERING	11.092 MILES)
TOTAL LENGTH	118.576(32 SECTIONS COVERING	118.576 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	103.149(24)	4.335(2)	107.484	95.97	4.03	100.00
LANE WIDTH DEFICIENCY	107.484(15)	.000(0)	45.969	100.00	.00	42.77
SHOULDER W. DEFICIENCY	107.484(26)	.000(0)	107.484	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	107.484(15)	.000(0)	45.969	100.00	.00	42.77
HORIZ. ALIGN. DEFICIENCY	107.484(15)	.000(0)	45.969	100.00	.00	42.77
SPEED LIMIT DEFICIENCY	107.484(26)	.000(0)	107.484	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	107.484(15)	.000(0)	45.969	100.00	.00	42.77
CAPACITY DEFICIENCY 2016	107.484(15)	.000(0)	45.969	100.00	.00	42.77

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	8.145(2)	2.947(4)	11.092	73.43	26.57	100.00
LANE WIDTH DEFICIENCY	11.092(5)	.000(0)	3.246	100.00	.00	29.26
SHOULDER W. DEFICIENCY	10.744(5)	.348(1)	11.092	96.86	3.14	100.00
VERT. ALIGN. DEFICIENCY	11.092(5)	.000(0)	3.246	100.00	.00	29.26
HORIZ. ALIGN. DEFICIENCY	11.092(5)	.000(0)	3.246	100.00	.00	29.26
SPEED LIMIT DEFICIENCY	11.092(6)	.000(0)	11.092	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	11.092(5)	.000(0)	3.246	100.00	.00	29.26
CAPACITY DEFICIENCY 2016	11.092(5)	.000(0)	3.246	100.00	.00	29.26

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	111.294(26)	7.282(6)	118.576	93.86	6.14	100.00
LANE WIDTH DEFICIENCY	118.576(20)	.000(0)	49.215	100.00	.00	41.51
SHOULDER W. DEFICIENCY	118.228(31)	.348(1)	118.576	99.71	.29	100.00
VERT. ALIGN. DEFICIENCY	118.576(20)	.000(0)	49.215	100.00	.00	41.51
HORIZ. ALIGN. DEFICIENCY	118.576(20)	.000(0)	49.215	100.00	.00	41.51
SPEED LIMIT DEFICIENCY	118.576(32)	.000(0)	118.576	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	118.576(20)	.000(0)	49.215	100.00	.00	41.51
CAPACITY DEFICIENCY 2016	118.576(20)	.000(0)	49.215	100.00	.00	41.51

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 750 in MONTANA : I-94 Termini: I-90 @ Billings - North Dakota SL

RURAL LENGTH 240.998(61 SECTIONS COVERING 239.557 MILES)
URBAN LENGTH 9.002(6 SECTIONS COVERING 8.948 MILES)
TOTAL LENGTH 250.000(67 SECTIONS COVERING 248.505 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	230.448(58)	10.550(3)	239.557	95.62	4.38	99.40
LANE WIDTH DEFICIENCY	240.998(44)	.000(0)	141.713	100.00	.00	58.80
SHOULDER W. DEFICIENCY	240.998(61)	.000(0)	239.557	100.00	.00	99.40
VERT. ALIGN. DEFICIENCY	240.998(44)	.000(0)	141.713	100.00	.00	58.80
HORIZ. ALIGN. DEFICIENCY	240.998(44)	.000(0)	141.713	100.00	.00	58.80
SPEED LIMIT DEFICIENCY	240.998(61)	.000(0)	239.557	100.00	.00	99.40
CAPACITY DEFICIENCY 1996	240.998(44)	.000(0)	141.713	100.00	.00	58.80
CAPACITY DEFICIENCY 2016	240.998(44)	.000(0)	141.713	100.00	.00	58.80

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	9.002(6)	.000(0)	8.948	100.00	.00	99.40
LANE WIDTH DEFICIENCY	9.002(4)	.000(0)	1.919	100.00	.00	21.32
SHOULDER W. DEFICIENCY	9.002(6)	.000(0)	8.948	100.00	.00	99.40
VERT. ALIGN. DEFICIENCY	9.002(4)	.000(0)	1.919	100.00	.00	21.32
HORIZ. ALIGN. DEFICIENCY	9.002(4)	.000(0)	1.919	100.00	.00	21.32
SPEED LIMIT DEFICIENCY	9.002(6)	.000(0)	8.948	100.00	.00	99.40
CAPACITY DEFICIENCY 1996	9.002(4)	.000(0)	1.919	100.00	.00	21.32
CAPACITY DEFICIENCY 2016	9.002(4)	.000(0)	1.919	100.00	.00	21.32

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	239.450(64)	10.550(3)	248.505	95.78	4.22	99.40
LANE WIDTH DEFICIENCY	250.000(48)	.000(0)	143.632	100.00	.00	57.45
SHOULDER W. DEFICIENCY	250.000(67)	.000(0)	248.505	100.00	.00	99.40
VERT. ALIGN. DEFICIENCY	250.000(48)	.000(0)	143.632	100.00	.00	57.45
HORIZ. ALIGN. DEFICIENCY	250.000(48)	.000(0)	143.632	100.00	.00	57.45
SPEED LIMIT DEFICIENCY	250.000(67)	.000(0)	248.505	100.00	.00	99.40
CAPACITY DEFICIENCY 1996	250.000(48)	.000(0)	143.632	100.00	.00	57.45
CAPACITY DEFICIENCY 2016	250.000(48)	.000(0)	143.632	100.00	.00	57.45

Note: The numbers in ( ) indicate the number of sample sections

NEW MEXICO

Super-Segment NO 34 in NEW MEXICO : I-10 Termini: Arizona SL - I-25 @ Las Cruces

RURAL LENGTH 136.530(78 SECTIONS COVERING 136.530 MILES)
URBAN LENGTH 8.122(20 SECTIONS COVERING 8.122 MILES)
TOTAL LENGTH 144.652(98 SECTIONS COVERING 144.652 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	110.850(57)	25.680(21)	136.530	81.19	18.81	100.00
LANE WIDTH DEFICIENCY	136.530(78)	.000(0)	136.530	100.00	.00	100.00
SHOULDER W. DEFICIENCY	136.530(78)	.000(0)	136.530	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	136.530(55)	.000(0)	100.561	100.00	.00	73.65
HORIZ. ALIGN. DEFICIENCY	136.530(55)	.000(0)	100.561	100.00	.00	73.65
SPEED LIMIT DEFICIENCY	136.530(78)	.000(0)	136.530	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	136.530(78)	.000(0)	136.530	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	116.830(71)	19.700(7)	136.530	85.57	14.43	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	6.745(16)	1.377(4)	8.122	83.05	16.95	100.00
LANE WIDTH DEFICIENCY	8.122(20)	.000(0)	8.122	100.00	.00	100.00
SHOULDER W. DEFICIENCY	8.122(20)	.000(0)	8.122	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	8.122(20)	.000(0)	8.122	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	8.122(20)	.000(0)	8.122	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	8.122(20)	.000(0)	8.122	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	8.122(20)	.000(0)	8.122	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	8.122(20)	.000(0)	8.122	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	117.595(73)	27.057(25)	144.652	81.30	18.70	100.00
LANE WIDTH DEFICIENCY	144.652(98)	.000(0)	144.652	100.00	.00	100.00
SHOULDER W. DEFICIENCY	144.652(98)	.000(0)	144.652	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	144.652(75)	.000(0)	108.683	100.00	.00	75.13
HORIZ. ALIGN. DEFICIENCY	144.652(75)	.000(0)	108.683	100.00	.00	75.13
SPEED LIMIT DEFICIENCY	144.652(98)	.000(0)	144.652	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	144.652(98)	.000(0)	144.652	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	124.952(91)	19.700(7)	144.652	86.38	13.62	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 35 in NEW MEXICO : I-10 Termini: I-25 @ Las Cruces - Texas SL (El Paso)

RURAL LENGTH	19.612(	8 SECTIONS COVERING	19.612 MILES)
URBAN LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	19.612(	8 SECTIONS COVERING	19.612 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	19.612(8)	.000(0)	19.612	100.00	.00	100.00
LANE WIDTH DEFICIENCY	19.612(8)	.000(0)	19.612	100.00	.00	100.00
SHOULDER W. DEFICIENCY	19.612(8)	.000(0)	19.612	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	19.612(8)	.000(0)	19.612	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	19.612(8)	.000(0)	19.612	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	19.612(8)	.000(0)	19.612	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	19.612(8)	.000(0)	19.612	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	15.748(7)	3.864(1)	19.612	80.30	19.70	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 80 in NEW MEXICO : I-25 Termini: I-10 @ Las Cruces - Albuquerque UL

RURAL LENGTH 197.100(132 SECTIONS COVERING 197.100 MILES)
URBAN LENGTH 17.431(28 SECTIONS COVERING 17.431 MILES)
TOTAL LENGTH 214.531(160 SECTIONS COVERING 214.531 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	147.369(102)	49.731(30)	197.100	74.77	25.23	100.00
LANE WIDTH DEFICIENCY	197.100(132)	.000(0)	197.100	100.00	.00	100.00
SHOULDER W. DEFICIENCY	197.100(132)	.000(0)	197.100	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	197.100(88)	.000(0)	143.168	100.00	.00	72.64
HORIZ. ALIGN. DEFICIENCY	197.100(88)	.000(0)	143.168	100.00	.00	72.64
SPEED LIMIT DEFICIENCY	197.100(132)	.000(0)	197.100	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	197.100(132)	.000(0)	197.100	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	197.100(132)	.000(0)	197.100	100.00	.00	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	12.286(24)	5.145(4)	17.431	70.48	29.52	100.00
LANE WIDTH DEFICIENCY	17.431(28)	.000(0)	17.431	100.00	.00	100.00
SHOULDER W. DEFICIENCY	17.431(28)	.000(0)	17.431	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	17.431(24)	.000(0)	17.225	100.00	.00	98.82
HORIZ. ALIGN. DEFICIENCY	17.431(24)	.000(0)	17.225	100.00	.00	98.82
SPEED LIMIT DEFICIENCY	17.431(28)	.000(0)	17.431	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	17.431(28)	.000(0)	17.431	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	17.431(28)	.000(0)	17.431	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	159.655(126)	54.876(34)	214.531	74.42	25.58	100.00
LANE WIDTH DEFICIENCY	214.531(160)	.000(0)	214.531	100.00	.00	100.00
SHOULDER W. DEFICIENCY	214.531(160)	.000(0)	214.531	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	214.531(112)	.000(0)	160.393	100.00	.00	74.76
HORIZ. ALIGN. DEFICIENCY	214.531(112)	.000(0)	160.393	100.00	.00	74.76
SPEED LIMIT DEFICIENCY	214.531(160)	.000(0)	214.531	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	214.531(160)	.000(0)	214.531	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	214.531(160)	.000(0)	214.531	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 81 in NEW MEXICO : I-25 Termini: Through Albuquerque

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	20.803(	55 SECTIONS COVERING	20.803 MILES)
TOTAL LENGTH	20.803(	55 SECTIONS COVERING	20.803 MILES)

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	12.861(33)	7.942(22)	20.803	61.82	38.18	100.00
LANE WIDTH DEFICIENCY	20.803(55)	.000(0)	20.803	100.00	.00	100.00
SHOULDER W. DEFICIENCY	20.803(55)	.000(0)	20.803	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	20.803(50)	.000(0)	19.991	100.00	.00	96.10
HORIZ. ALIGN. DEFICIENCY	20.803(50)	.000(0)	19.991	100.00	.00	96.10
SPEED LIMIT DEFICIENCY	20.803(55)	.000(0)	20.803	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	18.662(48)	2.141(7)	20.803	89.71	10.29	100.00
CAPACITY DEFICIENCY 2016	10.234(20)	10.569(35)	20.803	49.19	50.81	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 82 in NEW MEXICO : I-25 Termini: Albuquerque UL - Colorado SL

RURAL LENGTH 207.653(163 SECTIONS COVERING 207.653 MILES)
URBAN LENGTH 19.137(41 SECTIONS COVERING 19.137 MILES)
TOTAL LENGTH 226.790(204 SECTIONS COVERING 226.790 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	171.043(127)	36.610(36)	207.653	82.37	17.63	100.00
LANE WIDTH DEFICIENCY	207.653(163)	.000(0)	207.653	100.00	.00	100.00
SHOULDER W. DEFICIENCY	207.653(163)	.000(0)	207.653	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	207.653(124)	.000(0)	182.122	100.00	.00	87.70
HORIZ. ALIGN. DEFICIENCY	207.653(124)	.000(0)	182.122	100.00	.00	87.70
SPEED LIMIT DEFICIENCY	207.653(163)	.000(0)	207.653	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	207.653(163)	.000(0)	207.653	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	196.747(156)	10.906(7)	207.653	94.75	5.25	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	13.862(25)	5.275(16)	19.137	72.44	27.56	100.00
LANE WIDTH DEFICIENCY	19.137(41)	.000(0)	19.137	100.00	.00	100.00
SHOULDER W. DEFICIENCY	19.137(41)	.000(0)	19.137	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	19.137(39)	.000(0)	18.843	100.00	.00	98.46
HORIZ. ALIGN. DEFICIENCY	19.137(39)	.000(0)	18.843	100.00	.00	98.46
SPEED LIMIT DEFICIENCY	19.137(41)	.000(0)	19.137	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	19.137(41)	.000(0)	19.137	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	19.137(41)	.000(0)	19.137	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	184.905(152)	41.885(52)	226.790	81.53	18.47	100.00
LANE WIDTH DEFICIENCY	226.790(204)	.000(0)	226.790	100.00	.00	100.00
SHOULDER W. DEFICIENCY	226.790(204)	.000(0)	226.790	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	226.790(163)	.000(0)	200.965	100.00	.00	88.61
HORIZ. ALIGN. DEFICIENCY	226.790(163)	.000(0)	200.965	100.00	.00	88.61
SPEED LIMIT DEFICIENCY	226.790(204)	.000(0)	226.790	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	226.790(204)	.000(0)	226.790	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	215.884(197)	10.906(7)	226.790	95.19	4.81	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 133 in NEW MEXICO : I-40 Termini: Arizona SL - Albuquerque UL

RURAL LENGTH 134.151(93 SECTIONS COVERING 131.076 MILES)
URBAN LENGTH 17.849(25 SECTIONS COVERING 17.440 MILES)
TOTAL LENGTH 152.000(118 SECTIONS COVERING 148.516 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	111.490(65)	22.660(28)	131.076	83.11	16.89	97.71
LANE WIDTH DEFICIENCY	134.151(93)	.000(0)	131.076	100.00	.00	97.71
SHOULDER W. DEFICIENCY	134.151(93)	.000(0)	131.076	100.00	.00	97.71
VERT. ALIGN. DEFICIENCY	134.151(82)	.000(0)	105.756	100.00	.00	78.83
HORIZ. ALIGN. DEFICIENCY	134.151(82)	.000(0)	105.756	100.00	.00	78.83
SPEED LIMIT DEFICIENCY	134.151(93)	.000(0)	131.076	100.00	.00	97.71
CAPACITY DEFICIENCY 1996	134.151(93)	.000(0)	131.076	100.00	.00	97.71
CAPACITY DEFICIENCY 2016	130.629(89)	3.522(4)	131.076	97.37	2.63	97.71

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	8.724(12)	9.125(13)	17.440	48.88	51.12	97.71
LANE WIDTH DEFICIENCY	17.849(25)	.000(0)	17.440	100.00	.00	97.71
SHOULDER W. DEFICIENCY	17.849(25)	.000(0)	17.440	100.00	.00	97.71
VERT. ALIGN. DEFICIENCY	17.849(22)	.000(0)	13.447	100.00	.00	75.34
HORIZ. ALIGN. DEFICIENCY	17.849(22)	.000(0)	13.447	100.00	.00	75.34
SPEED LIMIT DEFICIENCY	17.849(25)	.000(0)	17.440	100.00	.00	97.71
CAPACITY DEFICIENCY 1996	17.849(25)	.000(0)	17.440	100.00	.00	97.71
CAPACITY DEFICIENCY 2016	17.849(25)	.000(0)	17.440	100.00	.00	97.71

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	120.214(77)	31.786(41)	148.516	79.09	20.91	97.71
LANE WIDTH DEFICIENCY	152.000(118)	.000(0)	148.516	100.00	.00	97.71
SHOULDER W. DEFICIENCY	152.000(118)	.000(0)	148.516	100.00	.00	97.71
VERT. ALIGN. DEFICIENCY	152.000(104)	.000(0)	119.203	100.00	.00	78.42
HORIZ. ALIGN. DEFICIENCY	152.000(104)	.000(0)	119.203	100.00	.00	78.42
SPEED LIMIT DEFICIENCY	152.000(118)	.000(0)	148.516	100.00	.00	97.71
CAPACITY DEFICIENCY 1996	152.000(118)	.000(0)	148.516	100.00	.00	97.71
CAPACITY DEFICIENCY 2016	148.478(114)	3.522(4)	148.516	97.68	2.32	97.71

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 134 in NEW MEXICO : I-40 Termini: Through Albuquerque

RURAL LENGTH	6.350(	9 SECTIONS COVERING	6.350 MILES)
URBAN LENGTH	19.754(	74 SECTIONS COVERING	19.754 MILES)
TOTAL LENGTH	26.104(	83 SECTIONS COVERING	26.104 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	3.747(3)	2.603(6)	6.350	59.01	40.99	100.00
LANE WIDTH DEFICIENCY	6.350(9)	.000(0)	6.350	100.00	.00	100.00
SHOULDER W. DEFICIENCY	6.350(9)	.000(0)	6.350	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	6.350(9)	.000(0)	6.350	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	6.350(9)	.000(0)	6.350	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	6.350(9)	.000(0)	6.350	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	6.350(9)	.000(0)	6.350	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	3.223(4)	3.127(5)	6.350	50.76	49.24	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	11.410(47)	8.344(27)	19.754	57.76	42.24	100.00
LANE WIDTH DEFICIENCY	19.754(74)	.000(0)	19.754	100.00	.00	100.00
SHOULDER W. DEFICIENCY	19.754(72)	.000(0)	19.478	100.00	.00	98.60
VERT. ALIGN. DEFICIENCY	19.754(63)	.000(0)	18.869	100.00	.00	95.52
HORIZ. ALIGN. DEFICIENCY	19.754(63)	.000(0)	18.869	100.00	.00	95.52
SPEED LIMIT DEFICIENCY	19.754(74)	.000(0)	19.754	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	12.839(52)	6.915(22)	19.754	64.99	35.01	100.00
CAPACITY DEFICIENCY 2016	5.946(26)	13.808(48)	19.754	30.10	69.90	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	15.157(50)	10.947(33)	26.104	58.06	41.94	100.00
LANE WIDTH DEFICIENCY	26.104(83)	.000(0)	26.104	100.00	.00	100.00
SHOULDER W. DEFICIENCY	26.104(81)	.000(0)	25.828	100.00	.00	98.94
VERT. ALIGN. DEFICIENCY	26.104(72)	.000(0)	25.219	100.00	.00	96.61
HORIZ. ALIGN. DEFICIENCY	26.104(72)	.000(0)	25.219	100.00	.00	96.61
SPEED LIMIT DEFICIENCY	26.104(83)	.000(0)	26.104	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	19.189(61)	6.915(22)	26.104	73.51	26.49	100.00
CAPACITY DEFICIENCY 2016	9.169(30)	16.935(53)	26.104	35.12	64.88	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 135 in NEW MEXICO : I-40 Termini: Albuquerque UL - Texas SL

RURAL LENGTH 193.614(159 SECTIONS COVERING 193.614 MILES)
URBAN LENGTH 5.276(12 SECTIONS COVERING 5.276 MILES)
TOTAL LENGTH 198.890(171 SECTIONS COVERING 198.890 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	155.561(125)	38.053(34)	193.614	80.35	19.65	100.00
LANE WIDTH DEFICIENCY	193.614(159)	.000(0)	193.614	100.00	.00	100.00
SHOULDER W. DEFICIENCY	193.614(159)	.000(0)	193.614	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	193.614(93)	.000(0)	133.069	100.00	.00	68.73
HORIZ. ALIGN. DEFICIENCY	193.614(93)	.000(0)	133.069	100.00	.00	68.73
SPEED LIMIT DEFICIENCY	193.614(159)	.000(0)	193.614	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	193.614(159)	.000(0)	193.614	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	185.495(153)	8.119(6)	193.614	95.81	4.19	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	4.543(9)	.733(3)	5.276	86.11	13.89	100.00
LANE WIDTH DEFICIENCY	5.276(12)	.000(0)	5.276	100.00	.00	100.00
SHOULDER W. DEFICIENCY	5.276(12)	.000(0)	5.276	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	5.276(12)	.000(0)	5.276	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	5.276(12)	.000(0)	5.276	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	5.276(12)	.000(0)	5.276	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	5.276(12)	.000(0)	5.276	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	5.276(12)	.000(0)	5.276	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	160.104(134)	38.786(37)	198.890	80.50	19.50	100.00
LANE WIDTH DEFICIENCY	198.890(171)	.000(0)	198.890	100.00	.00	100.00
SHOULDER W. DEFICIENCY	198.890(171)	.000(0)	198.890	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	198.890(105)	.000(0)	138.345	100.00	.00	69.56
HORIZ. ALIGN. DEFICIENCY	198.890(105)	.000(0)	138.345	100.00	.00	69.56
SPEED LIMIT DEFICIENCY	198.890(171)	.000(0)	198.890	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	198.890(171)	.000(0)	198.890	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	190.771(165)	8.119(6)	198.890	95.92	4.08	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 410 in NEW MEXICO : US 54 Termini: Texas SL - I-40

RURAL LENGTH	235.765(125 SECTIONS COVERING	235.765 MILES)
URBAN LENGTH	7.423(20 SECTIONS COVERING	7.423 MILES)
TOTAL LENGTH	243.188(145 SECTIONS COVERING	243.188 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	178.447(97)	57.318(28)	235.765	75.69	24.31	100.00
LANE WIDTH DEFICIENCY	197.879(108)	37.886(17)	235.765	83.93	16.07	100.00
SHOULDER W. DEFICIENCY	164.803(86)	70.962(27)	223.971	69.90	30.10	95.00
VERT. ALIGN. DEFICIENCY	235.765(81)	.000(0)	173.817	100.00	.00	73.72
HORIZ. ALIGN. DEFICIENCY	235.765(81)	.000(0)	173.817	100.00	.00	73.72
SPEED LIMIT DEFICIENCY	223.053(109)	12.712(16)	235.765	94.61	5.39	100.00
CAPACITY DEFICIENCY 1996	224.141(114)	11.624(11)	235.765	95.07	4.93	100.00
CAPACITY DEFICIENCY 2016	213.041(110)	22.724(15)	235.765	90.36	9.64	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	5.417(13)	2.006(7)	7.423	72.98	27.02	100.00
LANE WIDTH DEFICIENCY	7.423(20)	.000(0)	7.423	100.00	.00	100.00
SHOULDER W. DEFICIENCY	7.423(19)	.000(0)	7.390	100.00	.00	99.56
VERT. ALIGN. DEFICIENCY	7.423(17)	.000(0)	7.258	100.00	.00	97.78
HORIZ. ALIGN. DEFICIENCY	7.423(16)	.000(0)	7.164	100.00	.00	96.51
SPEED LIMIT DEFICIENCY	2.213(3)	5.210(17)	7.423	29.81	70.19	100.00
CAPACITY DEFICIENCY 1996	7.423(20)	.000(0)	7.423	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	7.423(20)	.000(0)	7.423	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	183.864(110)	59.324(35)	243.188	75.61	24.39	100.00
LANE WIDTH DEFICIENCY	205.302(128)	37.886(17)	243.188	84.42	15.58	100.00
SHOULDER W. DEFICIENCY	172.226(105)	70.962(27)	231.361	70.82	29.18	95.14
VERT. ALIGN. DEFICIENCY	243.188(98)	.000(0)	181.075	100.00	.00	74.46
HORIZ. ALIGN. DEFICIENCY	243.188(97)	.000(0)	180.981	100.00	.00	74.42
SPEED LIMIT DEFICIENCY	225.266(112)	17.922(33)	243.188	92.63	7.37	100.00
CAPACITY DEFICIENCY 1996	231.564(134)	11.624(11)	243.188	95.22	4.78	100.00
CAPACITY DEFICIENCY 2016	220.464(130)	22.724(15)	243.188	90.66	9.34	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 411 in NEW MEXICO : US 54 Termini: I-40 - Texas SL

RURAL LENGTH	51.609(41 SECTIONS COVERING	51.609 MILES)
URBAN LENGTH	1.468(5 SECTIONS COVERING	1.468 MILES)
TOTAL LENGTH	53.077(46 SECTIONS COVERING	53.077 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	51.609(41)	.000(0)	51.609	100.00	.00	100.00
LANE WIDTH DEFICIENCY	51.049(40)	.560(1)	51.609	98.91	1.09	100.00
SHOULDER W. DEFICIENCY	51.609(39)	.000(0)	51.092	100.00	.00	99.00
VERT. ALIGN. DEFICIENCY	51.609(28)	.000(0)	31.121	100.00	.00	60.30
HORIZ. ALIGN. DEFICIENCY	51.609(28)	.000(0)	31.121	100.00	.00	60.30
SPEED LIMIT DEFICIENCY	48.416(27)	3.193(13)	51.460	93.81	6.19	99.71
CAPACITY DEFICIENCY 1996	51.279(39)	.330(2)	51.609	99.36	.64	100.00
CAPACITY DEFICIENCY 2016	50.429(34)	1.180(7)	51.609	97.71	2.29	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	1.255(3)	.213(2)	1.468	85.49	14.51	100.00
LANE WIDTH DEFICIENCY	1.468(5)	.000(0)	1.468	100.00	.00	100.00
SHOULDER W. DEFICIENCY	1.388(4)	.080(1)	1.468	94.55	5.45	100.00
VERT. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
HORIZ. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
SPEED LIMIT DEFICIENCY	.000(0)	1.468(5)	1.468	.00	100.00	100.00
CAPACITY DEFICIENCY 1996	1.468(5)	.000(0)	1.468	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	1.468(5)	.000(0)	1.468	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	52.864(44)	.213(2)	53.077	99.60	.40	100.00
LANE WIDTH DEFICIENCY	52.517(45)	.560(1)	53.077	98.94	1.06	100.00
SHOULDER W. DEFICIENCY	52.997(43)	.080(1)	52.560	99.85	.15	99.03
VERT. ALIGN. DEFICIENCY	51.609(28)	.000(0)	31.121	97.23	.00	58.63
HORIZ. ALIGN. DEFICIENCY	51.609(28)	.000(0)	31.121	97.23	.00	58.63
SPEED LIMIT DEFICIENCY	48.416(27)	4.661(18)	52.928	91.22	8.78	99.72
CAPACITY DEFICIENCY 1996	52.747(44)	.330(2)	53.077	99.38	.62	100.00
CAPACITY DEFICIENCY 2016	51.897(39)	1.180(7)	53.077	97.78	2.22	100.00

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

Super-Segment NO 430 in NEW MEXICO : US 70 Termini: I-10 to US 54

RURAL LENGTH	57.159(39 SECTIONS COVERING	57.159 MILES)
URBAN LENGTH	14.301(36 SECTIONS COVERING	14.301 MILES)
TOTAL LENGTH	71.460(75 SECTIONS COVERING	71.460 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	56.283(33)	.876(6)	57.159	98.47	1.53	100.00
LANE WIDTH DEFICIENCY	57.159(39)	.000(0)	57.159	100.00	.00	100.00
SHOULDER W. DEFICIENCY	57.159(39)	.000(0)	57.159	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	57.159(37)	.000(0)	49.204	100.00	.00	86.08
HORIZ. ALIGN. DEFICIENCY	57.159(37)	.000(0)	49.204	100.00	.00	86.08
SPEED LIMIT DEFICIENCY	53.001(33)	4.158(6)	57.159	92.73	7.27	100.00
CAPACITY DEFICIENCY 1996	43.142(35)	14.017(4)	57.159	75.48	24.52	100.00
CAPACITY DEFICIENCY 2016	43.142(35)	14.017(4)	57.159	75.48	24.52	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	11.308(25)	2.993(11)	14.301	79.07	20.93	100.00
LANE WIDTH DEFICIENCY	14.301(36)	.000(0)	14.301	100.00	.00	100.00
SHOULDER W. DEFICIENCY	14.301(25)	.000(0)	10.580	100.00	.00	73.98
VERT. ALIGN. DEFICIENCY	14.301(23)	.000(0)	10.419	100.00	.00	72.86
HORIZ. ALIGN. DEFICIENCY	14.301(23)	.000(0)	10.419	100.00	.00	72.86
SPEED LIMIT DEFICIENCY	3.349(8)	10.952(28)	14.301	23.42	76.58	100.00
CAPACITY DEFICIENCY 1996	14.301(36)	.000(0)	14.301	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	14.301(36)	.000(0)	14.301	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	67.591(58)	3.869(17)	71.460	94.59	5.41	100.00
LANE WIDTH DEFICIENCY	71.460(75)	.000(0)	71.460	100.00	.00	100.00
SHOULDER W. DEFICIENCY	71.460(64)	.000(0)	67.739	100.00	.00	94.79
VERT. ALIGN. DEFICIENCY	71.460(60)	.000(0)	59.623	100.00	.00	83.44
HORIZ. ALIGN. DEFICIENCY	71.460(60)	.000(0)	59.623	100.00	.00	83.44
SPEED LIMIT DEFICIENCY	56.350(41)	15.110(34)	71.460	78.86	21.14	100.00
CAPACITY DEFICIENCY 1996	57.443(71)	14.017(4)	71.460	80.38	19.62	100.00
CAPACITY DEFICIENCY 2016	57.443(71)	14.017(4)	71.460	80.38	19.62	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 670 in NEW MEXICO : S 136 Termini: Mexico - Texas SL

RURAL LENGTH	8.800(2 SECTIONS COVERING	8.800 MILES)
URBAN LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	8.800(2 SECTIONS COVERING	8.800 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	8.800(2)	.000(0)	8.800	100.00	.00	100.00
LANE WIDTH DEFICIENCY	8.800(2)	.000(0)	8.800	100.00	.00	100.00
SHOULDER W. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
VERT. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
HORIZ. ALIGN. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
SPEED LIMIT DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
CAPACITY DEFICIENCY 1996	8.800(2)	.000(0)	8.800	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	8.800(2)	.000(0)	8.800	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

NORTH DAKOTA

Super-Segment NO 91 in NORTH DAKOTA: I-29 Termini: South Dakota SL - I-94 (Fargo)

RURAL LENGTH	61.131(15 SECTIONS COVERING	51.252 MILES)	
URBAN LENGTH	1.869(2 SECTIONS COVERING	1.567 MILES)	
TOTAL LENGTH	63.000(17 SECTIONS COVERING	52.819 MILES)	

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	40.661(10)	20.470(5)	51.252	66.51	33.49	83.84
LANE WIDTH DEFICIENCY	61.131(15)	.000(0)	51.252	100.00	.00	83.84
SHOULDER W. DEFICIENCY	61.131(15)	.000(0)	51.252	100.00	.00	83.84
VERT. ALIGN. DEFICIENCY	61.131(15)	.000(0)	51.252	100.00	.00	83.84
HORIZ. ALIGN. DEFICIENCY	61.131(15)	.000(0)	51.252	100.00	.00	83.84
SPEED LIMIT DEFICIENCY	61.131(15)	.000(0)	51.252	100.00	.00	83.84
CAPACITY DEFICIENCY 1996	61.131(15)	.000(0)	51.252	100.00	.00	83.84
CAPACITY DEFICIENCY 2016	61.131(15)	.000(0)	51.252	100.00	.00	83.84

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	1.869(2)	.000(0)	1.567	100.00	.00	83.84
LANE WIDTH DEFICIENCY	1.869(2)	.000(0)	1.567	100.00	.00	83.84
SHOULDER W. DEFICIENCY	1.869(2)	.000(0)	1.567	100.00	.00	83.84
VERT. ALIGN. DEFICIENCY	1.869(2)	.000(0)	1.567	100.00	.00	83.84
HORIZ. ALIGN. DEFICIENCY	1.869(2)	.000(0)	1.567	100.00	.00	83.84
SPEED LIMIT DEFICIENCY	1.869(2)	.000(0)	1.567	100.00	.00	83.84
CAPACITY DEFICIENCY 1996	1.869(2)	.000(0)	1.567	100.00	.00	83.84
CAPACITY DEFICIENCY 2016	1.869(2)	.000(0)	1.567	100.00	.00	83.84

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	42.530(12)	20.470(5)	52.819	67.51	32.49	83.84
LANE WIDTH DEFICIENCY	63.000(17)	.000(0)	52.819	100.00	.00	83.84
SHOULDER W. DEFICIENCY	63.000(17)	.000(0)	52.819	100.00	.00	83.84
VERT. ALIGN. DEFICIENCY	63.000(17)	.000(0)	52.819	100.00	.00	83.84
HORIZ. ALIGN. DEFICIENCY	63.000(17)	.000(0)	52.819	100.00	.00	83.84
SPEED LIMIT DEFICIENCY	63.000(17)	.000(0)	52.819	100.00	.00	83.84
CAPACITY DEFICIENCY 1996	63.000(17)	.000(0)	52.819	100.00	.00	83.84
CAPACITY DEFICIENCY 2016	63.000(17)	.000(0)	52.819	100.00	.00	83.84

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 92 in NORTH DAKOTA: I-29 Termini: Fargo (I-94) - Canada

RURAL LENGTH 142.889(26 SECTIONS COVERING 90.356 MILES)
URBAN LENGTH 11.111(7 SECTIONS COVERING 7.026 MILES)
TOTAL LENGTH 154.000(33 SECTIONS COVERING 97.382 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	94.924(20)	47.965(6)	90.356	66.43	33.57	63.24
LANE WIDTH DEFICIENCY	142.889(26)	.000(0)	90.356	100.00	.00	63.24
SHOULDER W. DEFICIENCY	142.889(26)	.000(0)	90.356	100.00	.00	63.24
VERT. ALIGN. DEFICIENCY	142.889(26)	.000(0)	90.356	100.00	.00	63.24
HORIZ. ALIGN. DEFICIENCY	142.889(26)	.000(0)	90.356	100.00	.00	63.24
SPEED LIMIT DEFICIENCY	142.889(26)	.000(0)	90.356	100.00	.00	63.24
CAPACITY DEFICIENCY 1996	142.889(26)	.000(0)	90.356	100.00	.00	63.24
CAPACITY DEFICIENCY 2016	142.889(26)	.000(0)	90.356	100.00	.00	63.24

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	9.553(6)	1.558(1)	7.026	85.98	14.02	63.24
LANE WIDTH DEFICIENCY	11.111(7)	.000(0)	7.026	100.00	.00	63.24
SHOULDER W. DEFICIENCY	11.111(7)	.000(0)	7.026	100.00	.00	63.24
VERT. ALIGN. DEFICIENCY	11.111(7)	.000(0)	7.026	100.00	.00	63.24
HORIZ. ALIGN. DEFICIENCY	11.111(7)	.000(0)	7.026	100.00	.00	63.24
SPEED LIMIT DEFICIENCY	11.111(7)	.000(0)	7.026	100.00	.00	63.24
CAPACITY DEFICIENCY 1996	11.111(7)	.000(0)	7.026	100.00	.00	63.24
CAPACITY DEFICIENCY 2016	11.111(7)	.000(0)	7.026	100.00	.00	63.24

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	104.477(26)	49.523(7)	97.382	67.84	32.16	63.24
LANE WIDTH DEFICIENCY	154.000(33)	.000(0)	97.382	100.00	.00	63.24
SHOULDER W. DEFICIENCY	154.000(33)	.000(0)	97.382	100.00	.00	63.24
VERT. ALIGN. DEFICIENCY	154.000(33)	.000(0)	97.382	100.00	.00	63.24
HORIZ. ALIGN. DEFICIENCY	154.000(33)	.000(0)	97.382	100.00	.00	63.24
SPEED LIMIT DEFICIENCY	154.000(33)	.000(0)	97.382	100.00	.00	63.24
CAPACITY DEFICIENCY 1996	154.000(33)	.000(0)	97.382	100.00	.00	63.24
CAPACITY DEFICIENCY 2016	154.000(33)	.000(0)	97.382	100.00	.00	63.24

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 353 in NORTH DAKOTA: US 2 Termini: Montana SL - US 83 @ Minot

RURAL LENGTH	138.913(23 SECTIONS COVERING	90.996 MILES)	
URBAN LENGTH	6.087(4 SECTIONS COVERING	3.987 MILES)	
TOTAL LENGTH	145.000(27 SECTIONS COVERING	94.983 MILES)	

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	138.913(23)	.000(0)	90.996	100.00	.00	65.51
LANE WIDTH DEFICIENCY	138.913(23)	.000(0)	90.996	100.00	.00	65.51
SHOULDER W. DEFICIENCY	138.913(23)	.000(0)	90.996	100.00	.00	65.51
VERT. ALIGN. DEFICIENCY	138.913(23)	.000(0)	90.996	100.00	.00	65.51
HORIZ. ALIGN. DEFICIENCY	138.913(23)	.000(0)	90.996	100.00	.00	65.51
SPEED LIMIT DEFICIENCY	138.913(23)	.000(0)	90.996	100.00	.00	65.51
CAPACITY DEFICIENCY 1996	138.913(23)	.000(0)	90.996	100.00	.00	65.51
CAPACITY DEFICIENCY 2016	138.913(23)	.000(0)	90.996	100.00	.00	65.51

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	6.087(4)	.000(0)	3.987	100.00	.00	65.51
LANE WIDTH DEFICIENCY	6.087(4)	.000(0)	3.987	100.00	.00	65.51
SHOULDER W. DEFICIENCY	6.087(4)	.000(0)	3.987	100.00	.00	65.51
VERT. ALIGN. DEFICIENCY	6.087(4)	.000(0)	3.987	100.00	.00	65.51
HORIZ. ALIGN. DEFICIENCY	6.087(4)	.000(0)	3.987	100.00	.00	65.51
SPEED LIMIT DEFICIENCY	.000(0)	6.087(4)	3.987	.00	100.00	65.51
CAPACITY DEFICIENCY 1996	6.087(4)	.000(0)	3.987	100.00	.00	65.51
CAPACITY DEFICIENCY 2016	5.320(3)	.766(1)	3.987	87.41	12.59	65.51

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	145.000(27)	.000(0)	94.983	100.00	.00	65.51
LANE WIDTH DEFICIENCY	145.000(27)	.000(0)	94.983	100.00	.00	65.51
SHOULDER W. DEFICIENCY	145.000(27)	.000(0)	94.983	100.00	.00	65.51
VERT. ALIGN. DEFICIENCY	145.000(27)	.000(0)	94.983	100.00	.00	65.51
HORIZ. ALIGN. DEFICIENCY	145.000(27)	.000(0)	94.983	100.00	.00	65.51
SPEED LIMIT DEFICIENCY	138.913(23)	6.087(4)	94.983	95.80	4.20	65.51
CAPACITY DEFICIENCY 1996	145.000(27)	.000(0)	94.983	100.00	.00	65.51
CAPACITY DEFICIENCY 2016	144.234(26)	.766(1)	94.983	99.47	.53	65.51

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 354 in NORTH DAKOTA: US 2 Termini: US 83 @ Minot - Minnesota SL (Grand Forks)

RURAL LENGTH	201.756(22 SECTIONS COVERING	113.020 MILES)		
URBAN LENGTH	7.244(9 SECTIONS COVERING	4.058 MILES)		
TOTAL LENGTH	209.000(31 SECTIONS COVERING	117.078 MILES)		

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	201.756(22)	.000(0)	113.020	100.00	.00	56.02
LANE WIDTH DEFICIENCY	201.756(22)	.000(0)	113.020	100.00	.00	56.02
SHOULDER W. DEFICIENCY	201.756(22)	.000(0)	113.020	100.00	.00	56.02
VERT. ALIGN. DEFICIENCY	201.756(22)	.000(0)	113.020	100.00	.00	56.02
HORIZ. ALIGN. DEFICIENCY	201.756(22)	.000(0)	113.020	100.00	.00	56.02
SPEED LIMIT DEFICIENCY	201.756(22)	.000(0)	113.020	100.00	.00	56.02
CAPACITY DEFICIENCY 1996	201.756(22)	.000(0)	113.020	100.00	.00	56.02
CAPACITY DEFICIENCY 2016	201.756(22)	.000(0)	113.020	100.00	.00	56.02

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	6.102(6)	1.142(3)	4.058	84.23	15.77	56.02
LANE WIDTH DEFICIENCY	7.244(9)	.000(0)	4.058	100.00	.00	56.02
SHOULDER W. DEFICIENCY	7.244(4)	.000(0)	2.268	100.00	.00	31.31
VERT. ALIGN. DEFICIENCY	7.244(9)	.000(0)	4.058	100.00	.00	56.02
HORIZ. ALIGN. DEFICIENCY	7.244(9)	.000(0)	4.058	100.00	.00	56.02
SPEED LIMIT DEFICIENCY	2.669(2)	4.575(7)	4.058	36.84	63.16	56.02
CAPACITY DEFICIENCY 1996	7.066(8)	.179(1)	4.058	97.54	2.46	56.02
CAPACITY DEFICIENCY 2016	4.941(5)	2.303(4)	4.058	68.21	31.79	56.02

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	207.858(28)	1.142(3)	117.078	99.45	.55	56.02
LANE WIDTH DEFICIENCY	209.000(31)	.000(0)	117.078	100.00	.00	56.02
SHOULDER W. DEFICIENCY	209.000(26)	.000(0)	115.288	100.00	.00	55.16
VERT. ALIGN. DEFICIENCY	209.000(31)	.000(0)	117.078	100.00	.00	56.02
HORIZ. ALIGN. DEFICIENCY	209.000(31)	.000(0)	117.078	100.00	.00	56.02
SPEED LIMIT DEFICIENCY	204.425(24)	4.575(7)	117.078	97.81	2.19	56.02
CAPACITY DEFICIENCY 1996	208.821(30)	.179(1)	117.078	99.91	.09	56.02
CAPACITY DEFICIENCY 2016	206.697(27)	2.303(4)	117.078	98.90	1.10	56.02

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 400 in NORTH DAKOTA: US 52 Termini: Canada to I-94 @ Jamestown, ND

RURAL LENGTH	239.398(22 SECTIONS COVERING	119.516 MILES)		
URBAN LENGTH	6.602(9 SECTIONS COVERING	3.296 MILES)		
TOTAL LENGTH	246.000(31 SECTIONS COVERING	122.812 MILES)		

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	239.398(22)	.000(0)	119.516	100.00	.00	49.92
LANE WIDTH DEFICIENCY	239.398(22)	.000(0)	119.516	100.00	.00	49.92
SHOULDER W. DEFICIENCY	239.398(22)	.000(0)	119.516	100.00	.00	49.92
VERT. ALIGN. DEFICIENCY	239.398(22)	.000(0)	119.516	100.00	.00	49.92
HORIZ. ALIGN. DEFICIENCY	239.398(22)	.000(0)	119.516	100.00	.00	49.92
SPEED LIMIT DEFICIENCY	239.398(22)	.000(0)	119.516	100.00	.00	49.92
CAPACITY DEFICIENCY 1996	239.398(22)	.000(0)	119.516	100.00	.00	49.92
CAPACITY DEFICIENCY 2016	239.398(22)	.000(0)	119.516	100.00	.00	49.92

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	6.602(9)	.000(0)	3.296	100.00	.00	49.92
LANE WIDTH DEFICIENCY	6.602(9)	.000(0)	3.296	100.00	.00	49.92
SHOULDER W. DEFICIENCY	6.602(1)	.000(0)	1.209	100.00	.00	18.31
VERT. ALIGN. DEFICIENCY	6.602(9)	.000(0)	3.296	100.00	.00	49.92
HORIZ. ALIGN. DEFICIENCY	6.602(9)	.000(0)	3.296	100.00	.00	49.92
SPEED LIMIT DEFICIENCY	.000(0)	6.602(9)	3.296	.00	100.00	49.92
CAPACITY DEFICIENCY 1996	6.602(9)	.000(0)	3.296	100.00	.00	49.92
CAPACITY DEFICIENCY 2016	6.602(9)	.000(0)	3.296	100.00	.00	49.92

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	246.000(31)	.000(0)	122.812	100.00	.00	49.92
LANE WIDTH DEFICIENCY	246.000(31)	.000(0)	122.812	100.00	.00	49.92
SHOULDER W. DEFICIENCY	246.000(23)	.000(0)	120.725	100.00	.00	49.08
VERT. ALIGN. DEFICIENCY	246.000(31)	.000(0)	122.812	100.00	.00	49.92
HORIZ. ALIGN. DEFICIENCY	246.000(31)	.000(0)	122.812	100.00	.00	49.92
SPEED LIMIT DEFICIENCY	239.398(22)	6.602(9)	122.812	97.32	2.68	49.92
CAPACITY DEFICIENCY 1996	246.000(31)	.000(0)	122.812	100.00	.00	49.92
CAPACITY DEFICIENCY 2016	246.000(31)	.000(0)	122.812	100.00	.00	49.92

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 531 in NORTH DAKOTA: US 281 Termini: South Dakota SL - I-94

RURAL LENGTH	67.022(	7 SECTIONS COVERING	44.397 MILES)
URBAN LENGTH	1.978(	3 SECTIONS COVERING	1.310 MILES)
TOTAL LENGTH	69.000(	10 SECTIONS COVERING	45.707 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	67.022(7)	.000(0)	44.397	100.00	.00	66.24
LANE WIDTH DEFICIENCY	67.022(7)	.000(0)	44.397	100.00	.00	66.24
SHOULDER W. DEFICIENCY	39.815(4)	27.208(3)	44.397	59.40	40.60	66.24
VERT. ALIGN. DEFICIENCY	67.022(7)	.000(0)	44.397	100.00	.00	66.24
HORIZ. ALIGN. DEFICIENCY	67.022(7)	.000(0)	44.397	100.00	.00	66.24
SPEED LIMIT DEFICIENCY	67.022(7)	.000(0)	44.397	100.00	.00	66.24
CAPACITY DEFICIENCY 1996	67.022(7)	.000(0)	44.397	100.00	.00	66.24
CAPACITY DEFICIENCY 2016	67.022(7)	.000(0)	44.397	100.00	.00	66.24

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	1.978(3)	.000(0)	1.310	100.00	.00	66.24
LANE WIDTH DEFICIENCY	1.978(3)	.000(0)	1.310	100.00	.00	66.24
SHOULDER W. DEFICIENCY	1.978(3)	.000(0)	1.310	100.00	.00	66.24
VERT. ALIGN. DEFICIENCY	1.978(3)	.000(0)	1.310	100.00	.00	66.24
HORIZ. ALIGN. DEFICIENCY	1.978(3)	.000(0)	1.310	100.00	.00	66.24
SPEED LIMIT DEFICIENCY	.000(0)	1.978(3)	1.310	.00	100.00	66.24
CAPACITY DEFICIENCY 1996	1.978(3)	.000(0)	1.310	100.00	.00	66.24
CAPACITY DEFICIENCY 2016	1.313(2)	.664(1)	1.310	66.41	33.59	66.24

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	69.000(10)	.000(0)	45.707	100.00	.00	66.24
LANE WIDTH DEFICIENCY	69.000(10)	.000(0)	45.707	100.00	.00	66.24
SHOULDER W. DEFICIENCY	41.792(7)	27.208(3)	45.707	60.57	39.43	66.24
VERT. ALIGN. DEFICIENCY	69.000(10)	.000(0)	45.707	100.00	.00	66.24
HORIZ. ALIGN. DEFICIENCY	69.000(10)	.000(0)	45.707	100.00	.00	66.24
SPEED LIMIT DEFICIENCY	67.022(7)	1.978(3)	45.707	97.13	2.87	66.24
CAPACITY DEFICIENCY 1996	69.000(10)	.000(0)	45.707	100.00	.00	66.24
CAPACITY DEFICIENCY 2016	68.336(9)	.664(1)	45.707	99.04	.96	66.24

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 750 in NORTH DAKOTA: I-94 Termini: Montana SL - Bismarck (I-194)

RURAL LENGTH	143.937(25 SECTIONS COVERING	97.974 MILES)
URBAN LENGTH	12.063(8 SECTIONS COVERING	8.211 MILES)
TOTAL LENGTH	156.000(33 SECTIONS COVERING	106.185 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	104.023(18)	39.913(7)	97.974	72.27	27.73	68.07
LANE WIDTH DEFICIENCY	143.937(25)	.000(0)	97.974	100.00	.00	68.07
SHOULDER W. DEFICIENCY	143.937(25)	.000(0)	97.974	100.00	.00	68.07
VERT. ALIGN. DEFICIENCY	143.937(25)	.000(0)	97.974	100.00	.00	68.07
HORIZ. ALIGN. DEFICIENCY	143.937(25)	.000(0)	97.974	100.00	.00	68.07
SPEED LIMIT DEFICIENCY	143.937(25)	.000(0)	97.974	100.00	.00	68.07
CAPACITY DEFICIENCY 1996	143.937(25)	.000(0)	97.974	100.00	.00	68.07
CAPACITY DEFICIENCY 2016	143.937(25)	.000(0)	97.974	100.00	.00	68.07

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	10.531(7)	1.532(1)	8.211	87.30	12.70	68.07
LANE WIDTH DEFICIENCY	12.063(8)	.000(0)	8.211	100.00	.00	68.07
SHOULDER W. DEFICIENCY	12.063(8)	.000(0)	8.211	100.00	.00	68.07
VERT. ALIGN. DEFICIENCY	12.063(8)	.000(0)	8.211	100.00	.00	68.07
HORIZ. ALIGN. DEFICIENCY	12.063(8)	.000(0)	8.211	100.00	.00	68.07
SPEED LIMIT DEFICIENCY	12.063(8)	.000(0)	8.211	100.00	.00	68.07
CAPACITY DEFICIENCY 1996	12.063(8)	.000(0)	8.211	100.00	.00	68.07
CAPACITY DEFICIENCY 2016	12.063(8)	.000(0)	8.211	100.00	.00	68.07

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	114.554(25)	41.446(8)	106.185	73.43	26.57	68.07
LANE WIDTH DEFICIENCY	156.000(33)	.000(0)	106.185	100.00	.00	68.07
SHOULDER W. DEFICIENCY	156.000(33)	.000(0)	106.185	100.00	.00	68.07
VERT. ALIGN. DEFICIENCY	156.000(33)	.000(0)	106.185	100.00	.00	68.07
HORIZ. ALIGN. DEFICIENCY	156.000(33)	.000(0)	106.185	100.00	.00	68.07
SPEED LIMIT DEFICIENCY	156.000(33)	.000(0)	106.185	100.00	.00	68.07
CAPACITY DEFICIENCY 1996	156.000(33)	.000(0)	106.185	100.00	.00	68.07
CAPACITY DEFICIENCY 2016	156.000(33)	.000(0)	106.185	100.00	.00	68.07

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 751 in NORTH DAKOTA: I-94 Termini: Bismarck (I-194) - Minnesota SL (Fargo)

RURAL LENGTH	171.600(26 SECTIONS COVERING	115.459 MILES)
URBAN LENGTH	24.400(14 SECTIONS COVERING	16.417 MILES)
TOTAL LENGTH	196.000(40 SECTIONS COVERING	131.876 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	158.399(22)	13.201(4)	115.459	92.31	7.69	67.28
LANE WIDTH DEFICIENCY	171.600(26)	.000(0)	115.459	100.00	.00	67.28
SHOULDER W. DEFICIENCY	171.600(26)	.000(0)	115.459	100.00	.00	67.28
VERT. ALIGN. DEFICIENCY	171.600(26)	.000(0)	115.459	100.00	.00	67.28
HORIZ. ALIGN. DEFICIENCY	171.600(26)	.000(0)	115.459	100.00	.00	67.28
SPEED LIMIT DEFICIENCY	171.600(26)	.000(0)	115.459	100.00	.00	67.28
CAPACITY DEFICIENCY 1996	171.600(26)	.000(0)	115.459	100.00	.00	67.28
CAPACITY DEFICIENCY 2016	171.600(26)	.000(0)	115.459	100.00	.00	67.28

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	15.534(8)	8.865(6)	16.417	63.67	36.33	67.28
LANE WIDTH DEFICIENCY	24.400(14)	.000(0)	16.417	100.00	.00	67.28
SHOULDER W. DEFICIENCY	24.400(14)	.000(0)	16.417	100.00	.00	67.28
VERT. ALIGN. DEFICIENCY	24.400(14)	.000(0)	16.417	100.00	.00	67.28
HORIZ. ALIGN. DEFICIENCY	24.400(14)	.000(0)	16.417	100.00	.00	67.28
SPEED LIMIT DEFICIENCY	24.400(14)	.000(0)	16.417	100.00	.00	67.28
CAPACITY DEFICIENCY 1996	24.400(14)	.000(0)	16.417	100.00	.00	67.28
CAPACITY DEFICIENCY 2016	24.400(14)	.000(0)	16.417	100.00	.00	67.28

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	173.934(30)	22.066(10)	131.876	88.74	11.26	67.28
LANE WIDTH DEFICIENCY	196.000(40)	.000(0)	131.876	100.00	.00	67.28
SHOULDER W. DEFICIENCY	196.000(40)	.000(0)	131.876	100.00	.00	67.28
VERT. ALIGN. DEFICIENCY	196.000(40)	.000(0)	131.876	100.00	.00	67.28
HORIZ. ALIGN. DEFICIENCY	196.000(40)	.000(0)	131.876	100.00	.00	67.28
SPEED LIMIT DEFICIENCY	196.000(40)	.000(0)	131.876	100.00	.00	67.28
CAPACITY DEFICIENCY 1996	196.000(40)	.000(0)	131.876	100.00	.00	67.28
CAPACITY DEFICIENCY 2016	196.000(40)	.000(0)	131.876	100.00	.00	67.28

Note: The numbers in ( ) indicate the number of sample sections

OREGON

Super-Segment NO 6 in OREGON : I-5 Termini: California SL - Douglas/Lane CL

RURAL LENGTH 143.620(88 SECTIONS COVERING 143.620 MILES)
URBAN LENGTH 24.380(31 SECTIONS COVERING 24.380 MILES)
TOTAL LENGTH 168.000(119 SECTIONS COVERING 168.000 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	116.040(64)	27.580(24)	143.620	80.80	19.20	100.00
LANE WIDTH DEFICIENCY	143.620(88)	.000(0)	143.620	100.00	.00	100.00
SHOULDER W. DEFICIENCY	143.320(87)	.300(1)	143.620	99.79	.21	100.00
VERT. ALIGN. DEFICIENCY	143.620(88)	.000(0)	143.620	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	106.190(72)	37.430(16)	143.620	73.94	26.06	100.00
SPEED LIMIT DEFICIENCY	131.740(83)	11.880(5)	143.620	91.73	8.27	100.00
CAPACITY DEFICIENCY 1996	143.620(88)	.000(0)	143.620	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	119.330(70)	24.290(18)	143.620	83.09	16.91	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	17.660(24)	6.720(7)	24.380	72.44	27.56	100.00
LANE WIDTH DEFICIENCY	24.380(31)	.000(0)	24.380	100.00	.00	100.00
SHOULDER W. DEFICIENCY	23.770(30)	.610(1)	24.380	97.50	2.50	100.00
VERT. ALIGN. DEFICIENCY	24.380(31)	.000(0)	24.380	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	23.270(30)	1.110(1)	24.380	95.45	4.55	100.00
SPEED LIMIT DEFICIENCY	24.380(31)	.000(0)	24.380	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	24.380(31)	.000(0)	24.380	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	21.610(25)	2.770(6)	24.380	88.64	11.36	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	133.700(88)	34.300(31)	168.000	79.58	20.42	100.00
LANE WIDTH DEFICIENCY	168.000(119)	.000(0)	168.000	100.00	.00	100.00
SHOULDER W. DEFICIENCY	167.090(117)	.910(2)	168.000	99.46	.54	100.00
VERT. ALIGN. DEFICIENCY	168.000(119)	.000(0)	168.000	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	129.460(102)	38.540(17)	168.000	77.06	22.94	100.00
SPEED LIMIT DEFICIENCY	156.120(114)	11.880(5)	168.000	92.93	7.07	100.00
CAPACITY DEFICIENCY 1996	168.000(119)	.000(0)	168.000	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	140.940(95)	27.060(24)	168.000	83.89	16.11	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 7 in OREGON : I-5 Termini: Douglas/Lane CL - S 58 @ Eugene

RURAL LENGTH	18.000(9 SECTIONS COVERING	18.000 MILES)
URBAN LENGTH	2.690(2 SECTIONS COVERING	2.690 MILES)
TOTAL LENGTH	20.690(11 SECTIONS COVERING	20.690 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	11.930(8)	6.070(1)	18.000	66.28	33.72	100.00
LANE WIDTH DEFICIENCY	18.000(9)	.000(0)	18.000	100.00	.00	100.00
SHOULDER W. DEFICIENCY	18.000(9)	.000(0)	18.000	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	18.000(9)	.000(0)	18.000	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	18.000(9)	.000(0)	18.000	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	18.000(9)	.000(0)	18.000	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	18.000(9)	.000(0)	18.000	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	12.130(5)	5.870(4)	18.000	67.39	32.61	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	2.690(2)	.000(0)	2.690	100.00	.00	100.00
LANE WIDTH DEFICIENCY	2.690(2)	.000(0)	2.690	100.00	.00	100.00
SHOULDER W. DEFICIENCY	2.690(2)	.000(0)	2.690	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	2.690(2)	.000(0)	2.690	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	2.690(2)	.000(0)	2.690	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	2.690(2)	.000(0)	2.690	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	2.690(2)	.000(0)	2.690	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	2.690(2)	.000(0)	2.690	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	14.620(10)	6.070(1)	20.690	70.66	29.34	100.00
LANE WIDTH DEFICIENCY	20.690(11)	.000(0)	20.690	100.00	.00	100.00
SHOULDER W. DEFICIENCY	20.690(11)	.000(0)	20.690	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	20.690(11)	.000(0)	20.690	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	20.690(11)	.000(0)	20.690	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	20.690(11)	.000(0)	20.690	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	20.690(11)	.000(0)	20.690	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	14.820(7)	5.870(4)	20.690	71.63	28.37	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 8 in OREGON : I-5 Termini: S 58 @ Eugene - Portland

RURAL LENGTH 70.800(36 SECTIONS COVERING 70.800 MILES)
URBAN LENGTH 27.661(29 SECTIONS COVERING 27.661 MILES)
TOTAL LENGTH 98.461(65 SECTIONS COVERING 98.461 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	69.670(33)	1.130(3)	70.800	98.40	1.60	100.00
LANE WIDTH DEFICIENCY	70.800(36)	.000(0)	70.800	100.00	.00	100.00
SHOULDER W. DEFICIENCY	70.800(36)	.000(0)	70.800	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	70.800(36)	.000(0)	70.800	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	70.800(36)	.000(0)	70.800	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	70.800(36)	.000(0)	70.800	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	55.410(19)	15.390(17)	70.800	78.26	21.74	100.00
CAPACITY DEFICIENCY 2016	.000(0)	70.800(36)	70.800	.00	100.00	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	18.831(21)	8.830(8)	27.661	68.08	31.92	100.00
LANE WIDTH DEFICIENCY	27.661(29)	.000(0)	27.661	100.00	.00	100.00
SHOULDER W. DEFICIENCY	27.321(28)	.340(1)	27.661	98.77	1.23	100.00
VERT. ALIGN. DEFICIENCY	27.661(29)	.000(0)	27.661	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	27.661(29)	.000(0)	27.661	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	27.661(29)	.000(0)	27.661	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	25.111(27)	2.550(2)	27.661	90.78	9.22	100.00
CAPACITY DEFICIENCY 2016	8.750(8)	18.911(21)	27.661	31.63	68.37	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	88.501(54)	9.960(11)	98.461	89.88	10.12	100.00
LANE WIDTH DEFICIENCY	98.461(65)	.000(0)	98.461	100.00	.00	100.00
SHOULDER W. DEFICIENCY	98.121(64)	.340(1)	98.461	99.65	.35	100.00
VERT. ALIGN. DEFICIENCY	98.461(65)	.000(0)	98.461	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	98.461(65)	.000(0)	98.461	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	98.461(65)	.000(0)	98.461	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	80.521(46)	17.940(19)	98.461	81.78	18.22	100.00
CAPACITY DEFICIENCY 2016	8.750(8)	89.711(57)	98.461	8.89	91.11	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 9 in OREGON : I-5 Termini: Through Portland (OR)

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)	
URBAN LENGTH	20.960(	43 SECTIONS COVERING	20.960 MILES)	
TOTAL LENGTH	20.960(	43 SECTIONS COVERING	20.960 MILES)	

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	9.640(22)	11.320(21)	20.960	45.99	54.01	100.00
LANE WIDTH DEFICIENCY	20.960(43)	.000(0)	20.960	100.00	.00	100.00
SHOULDER W. DEFICIENCY	20.240(42)	.720(1)	20.960	96.56	3.44	100.00
VERT. ALIGN. DEFICIENCY	20.960(43)	.000(0)	20.960	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	20.960(43)	.000(0)	20.960	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	15.710(28)	5.250(15)	20.960	74.95	25.05	100.00
CAPACITY DEFICIENCY 1996	6.870(21)	14.090(22)	20.960	32.78	67.22	100.00
CAPACITY DEFICIENCY 2016	2.510(7)	18.450(36)	20.960	11.98	88.02	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 190 in OREGON : I-84 Termini: In Portland (I-5 - Portland UL)

RURAL LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	15.174(28 SECTIONS COVERING	15.174 MILES)
TOTAL LENGTH	15.174(28 SECTIONS COVERING	15.174 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	10.105(17)	5.069(11)	15.174	66.59	33.41	100.00
LANE WIDTH DEFICIENCY	15.174(28)	.000(0)	15.174	100.00	.00	100.00
SHOULDER W. DEFICIENCY	15.174(20)	.000(0)	10.604	100.00	.00	69.88
VERT. ALIGN. DEFICIENCY	15.174(28)	.000(0)	15.174	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	15.174(28)	.000(0)	15.174	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	15.174(28)	.000(0)	15.174	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	4.210(10)	10.964(18)	15.174	27.74	72.26	100.00
CAPACITY DEFICIENCY 2016	2.770(7)	12.404(21)	15.174	18.25	81.75	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 191 in OREGON : I-84 Termini: Portland UL - I-82

RURAL LENGTH 152.435(74 SECTIONS COVERING 152.435 MILES)
URBAN LENGTH 7.760(8 SECTIONS COVERING 7.760 MILES)
TOTAL LENGTH 160.195(82 SECTIONS COVERING 160.195 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	138.388(65)	14.047(9)	152.435	90.78	9.22	100.00
LANE WIDTH DEFICIENCY	152.435(74)	.000(0)	152.435	100.00	.00	100.00
SHOULDER W. DEFICIENCY	152.435(74)	.000(0)	152.435	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	152.435(74)	.000(0)	152.435	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	152.435(74)	.000(0)	152.435	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	152.435(74)	.000(0)	152.435	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	152.435(74)	.000(0)	152.435	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	140.535(65)	11.900(9)	152.435	92.19	7.81	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	4.900(5)	2.860(3)	7.760	63.14	36.86	100.00
LANE WIDTH DEFICIENCY	7.760(8)	.000(0)	7.760	100.00	.00	100.00
SHOULDER W. DEFICIENCY	7.760(8)	.000(0)	7.760	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	7.760(8)	.000(0)	7.760	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	7.760(8)	.000(0)	7.760	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	7.760(8)	.000(0)	7.760	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	7.760(8)	.000(0)	7.760	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	7.760(8)	.000(0)	7.760	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	143.288(70)	16.907(12)	160.195	89.45	10.55	100.00
LANE WIDTH DEFICIENCY	160.195(82)	.000(0)	160.195	100.00	.00	100.00
SHOULDER W. DEFICIENCY	160.195(82)	.000(0)	160.195	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	160.195(82)	.000(0)	160.195	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	160.195(82)	.000(0)	160.195	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	160.195(82)	.000(0)	160.195	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	160.195(82)	.000(0)	160.195	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	148.295(73)	11.900(9)	160.195	92.57	7.43	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 192 in OREGON : I-84 Termini: I-82 - Idaho SL

RURAL LENGTH 185.403(81 SECTIONS COVERING 185.403 MILES)
URBAN LENGTH 14.300(12 SECTIONS COVERING 14.300 MILES)
TOTAL LENGTH 199.703(93 SECTIONS COVERING 199.703 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	175.572(71)	9.831(10)	185.403	94.70	5.30	100.00
LANE WIDTH DEFICIENCY	185.403(81)	.000(0)	185.403	100.00	.00	100.00
SHOULDER W. DEFICIENCY	185.313(80)	.090(1)	185.403	99.95	.05	100.00
VERT. ALIGN. DEFICIENCY	185.403(81)	.000(0)	185.403	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	158.472(71)	26.931(10)	185.403	85.47	14.53	100.00
SPEED LIMIT DEFICIENCY	185.403(81)	.000(0)	185.403	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	185.403(81)	.000(0)	185.403	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	185.403(81)	.000(0)	185.403	100.00	.00	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	14.300(12)	.000(0)	14.300	100.00	.00	100.00
LANE WIDTH DEFICIENCY	14.300(12)	.000(0)	14.300	100.00	.00	100.00
SHOULDER W. DEFICIENCY	14.300(12)	.000(0)	14.300	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	14.300(12)	.000(0)	14.300	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	14.300(12)	.000(0)	14.300	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	14.300(12)	.000(0)	14.300	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	14.300(12)	.000(0)	14.300	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	14.300(12)	.000(0)	14.300	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	189.872(83)	9.831(10)	199.703	95.08	4.92	100.00
LANE WIDTH DEFICIENCY	199.703(93)	.000(0)	199.703	100.00	.00	100.00
SHOULDER W. DEFICIENCY	199.613(92)	.090(1)	199.703	99.95	.05	100.00
VERT. ALIGN. DEFICIENCY	199.703(93)	.000(0)	199.703	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	172.772(83)	26.931(10)	199.703	86.51	13.49	100.00
SPEED LIMIT DEFICIENCY	199.703(93)	.000(0)	199.703	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	199.703(93)	.000(0)	199.703	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	199.703(93)	.000(0)	199.703	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 240 in OREGON : I-205 Termini: Washington SL - I-5 S. Portland

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	26.070(	26 SECTIONS COVERING	26.070 MILES)
TOTAL LENGTH	26.070(	26 SECTIONS COVERING	26.070 MILES)

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	13.080(9)	12.990(17)	26.070	50.17	49.83	100.00
LANE WIDTH DEFICIENCY	26.070(26)	.000(0)	26.070	100.00	.00	100.00
SHOULDER W. DEFICIENCY	25.525(23)	.545(1)	24.380	97.91	2.09	93.52
VERT. ALIGN. DEFICIENCY	26.070(26)	.000(0)	26.070	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	26.070(26)	.000(0)	26.070	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	26.070(26)	.000(0)	26.070	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	13.030(14)	13.040(12)	26.070	49.98	50.02	100.00
CAPACITY DEFICIENCY 2016	2.330(3)	23.740(23)	26.070	8.94	91.06	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 290 in OREGON : I-405 Termini: in Portland

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	3.532(	10 SECTIONS COVERING	3.532 MILES)
TOTAL LENGTH	3.532(	10 SECTIONS COVERING	3.532 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	1.716(4)	1.816(6)	3.532	48.58	51.42	100.00
LANE WIDTH DEFICIENCY	3.532(10)	.000(0)	3.532	100.00	.00	100.00
SHOULDER W. DEFICIENCY	3.532(9)	.000(0)	3.132	100.00	.00	88.67
VERT. ALIGN. DEFICIENCY	3.532(10)	.000(0)	3.532	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	3.532(10)	.000(0)	3.532	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	.000(0)	3.532(10)	3.532	.00	100.00	100.00
CAPACITY DEFICIENCY 1996	3.532(10)	.000(0)	3.532	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	3.532(10)	.000(0)	3.532	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 500 in OREGON : US 97/S 58 Termini: California SL to I-5 @ Eugene

RURAL LENGTH 175.660(228 SECTIONS COVERING 175.660 MILES)
URBAN LENGTH 6.940(37 SECTIONS COVERING 6.940 MILES)
TOTAL LENGTH 182.600(265 SECTIONS COVERING 182.600 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	122.990(134)	52.670(94)	175.660	70.02	29.98	100.00
LANE WIDTH DEFICIENCY	175.660(228)	.000(0)	175.660	100.00	.00	100.00
SHOULDER W. DEFICIENCY	148.163(172)	27.497(54)	175.360	84.35	15.65	99.83
VERT. ALIGN. DEFICIENCY	149.570(207)	26.090(21)	175.660	85.15	14.85	100.00
HORIZ. ALIGN. DEFICIENCY	157.010(220)	18.650(8)	175.660	89.38	10.62	100.00
SPEED LIMIT DEFICIENCY	170.540(190)	5.120(38)	175.660	97.09	2.91	100.00
CAPACITY DEFICIENCY 1996	94.910(104)	80.750(124)	175.660	54.03	45.97	100.00
CAPACITY DEFICIENCY 2016	80.320(85)	95.340(143)	175.660	45.72	54.28	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	2.630(18)	4.310(19)	6.940	37.90	62.10	100.00
LANE WIDTH DEFICIENCY	6.940(37)	.000(0)	6.940	100.00	.00	100.00
SHOULDER W. DEFICIENCY	6.940(37)	.000(0)	6.940	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	6.940(37)	.000(0)	6.940	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	6.940(37)	.000(0)	6.940	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	6.940(37)	.000(0)	6.940	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	6.940(37)	.000(0)	6.940	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	6.940(37)	.000(0)	6.940	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	125.620(152)	56.980(113)	182.600	68.80	31.20	100.00
LANE WIDTH DEFICIENCY	182.600(265)	.000(0)	182.600	100.00	.00	100.00
SHOULDER W. DEFICIENCY	155.103(209)	27.497(54)	182.300	84.94	15.06	99.84
VERT. ALIGN. DEFICIENCY	156.510(244)	26.090(21)	182.600	85.71	14.29	100.00
HORIZ. ALIGN. DEFICIENCY	163.950(257)	18.650(8)	182.600	89.79	10.21	100.00
SPEED LIMIT DEFICIENCY	177.480(227)	5.120(38)	182.600	97.20	2.80	100.00
CAPACITY DEFICIENCY 1996	101.850(141)	80.750(124)	182.600	55.78	44.22	100.00
CAPACITY DEFICIENCY 2016	87.260(122)	95.340(143)	182.600	47.79	52.21	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 740 in OREGON : I-82 Termini: Washington SL - I-84

RURAL LENGTH	11.007(10 SECTIONS COVERING	11.007 MILES)
URBAN LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	11.007(10 SECTIONS COVERING	11.007 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	9.807(6)	1.200(4)	11.007	89.10	10.90	100.00
LANE WIDTH DEFICIENCY	11.007(10)	.000(0)	11.007	100.00	.00	100.00
SHOULDER W. DEFICIENCY	11.007(10)	.000(0)	11.007	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	11.007(10)	.000(0)	11.007	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	9.780(9)	1.227(1)	11.007	88.85	11.15	100.00
SPEED LIMIT DEFICIENCY	11.007(10)	.000(0)	11.007	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	11.007(10)	.000(0)	11.007	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	11.007(10)	.000(0)	11.007	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

SOUTH DAKOTA

Super-Segment NO 90 in SOUTH DAKOTA: I-29 Termini: Iowa SL (Sioux City) - I-90 (Sioux Falls)

RURAL LENGTH	71.734(20 SECTIONS COVERING	71.734 MILES)
URBAN LENGTH	12.490(12 SECTIONS COVERING	12.490 MILES)
TOTAL LENGTH	84.224(32 SECTIONS COVERING	84.224 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	66.591(16)	5.143(4)	71.734	92.83	7.17	100.00
LANE WIDTH DEFICIENCY	71.734(20)	.000(0)	71.734	100.00	.00	100.00
SHOULDER W. DEFICIENCY	71.734(20)	.000(0)	71.734	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	71.734(20)	.000(0)	71.734	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	71.734(20)	.000(0)	71.734	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	71.734(20)	.000(0)	71.734	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	71.734(20)	.000(0)	71.734	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	71.734(20)	.000(0)	71.734	100.00	.00	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	5.894(3)	6.596(9)	12.490	47.19	52.81	100.00
LANE WIDTH DEFICIENCY	12.490(12)	.000(0)	12.490	100.00	.00	100.00
SHOULDER W. DEFICIENCY	12.490(12)	.000(0)	12.490	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	12.490(12)	.000(0)	12.490	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	12.490(12)	.000(0)	12.490	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	12.490(12)	.000(0)	12.490	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	12.490(12)	.000(0)	12.490	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	12.490(12)	.000(0)	12.490	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	72.485(19)	11.739(13)	84.224	86.06	13.94	100.00
LANE WIDTH DEFICIENCY	84.224(32)	.000(0)	84.224	100.00	.00	100.00
SHOULDER W. DEFICIENCY	84.224(32)	.000(0)	84.224	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	84.224(32)	.000(0)	84.224	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	84.224(32)	.000(0)	84.224	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	84.224(32)	.000(0)	84.224	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	84.224(32)	.000(0)	84.224	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	84.224(32)	.000(0)	84.224	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 91 in SOUTH DAKOTA: I-29 Termini: I-90 @ Sioux Falls - North Dakota SL

RURAL LENGTH	166.184(31 SECTIONS COVERING	166.184 MILES)
URBAN LENGTH	2.090(4 SECTIONS COVERING	2.090 MILES)
TOTAL LENGTH	168.274(35 SECTIONS COVERING	168.274 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	133.878(24)	32.306(7)	166.184	80.56	19.44	100.00
LANE WIDTH DEFICIENCY	166.184(31)	.000(0)	166.184	100.00	.00	100.00
SHOULDER W. DEFICIENCY	166.184(31)	.000(0)	166.184	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	166.184(31)	.000(0)	166.184	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	166.184(31)	.000(0)	166.184	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	166.184(31)	.000(0)	166.184	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	166.184(31)	.000(0)	166.184	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	166.184(31)	.000(0)	166.184	100.00	.00	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	2.090(4)	.000(0)	2.090	100.00	.00	100.00
LANE WIDTH DEFICIENCY	2.090(4)	.000(0)	2.090	100.00	.00	100.00
SHOULDER W. DEFICIENCY	2.090(4)	.000(0)	2.090	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	2.090(4)	.000(0)	2.090	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	2.090(4)	.000(0)	2.090	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	2.090(4)	.000(0)	2.090	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	2.090(4)	.000(0)	2.090	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	2.090(4)	.000(0)	2.090	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	135.968(28)	32.306(7)	168.274	80.80	19.20	100.00
LANE WIDTH DEFICIENCY	168.274(35)	.000(0)	168.274	100.00	.00	100.00
SHOULDER W. DEFICIENCY	168.274(35)	.000(0)	168.274	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	168.274(35)	.000(0)	168.274	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	168.274(35)	.000(0)	168.274	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	168.274(35)	.000(0)	168.274	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	168.274(35)	.000(0)	168.274	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	168.274(35)	.000(0)	168.274	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 218 in SOUTH DAKOTA: I-90 Termini: Wyoming SL - Rapid City (S 473)

RURAL LENGTH 50.255(19 SECTIONS COVERING 50.255 MILES)
URBAN LENGTH 11.678(11 SECTIONS COVERING 11.678 MILES)
TOTAL LENGTH 61.933(30 SECTIONS COVERING 61.933 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	48.449(18)	1.806(1)	50.255	96.41	3.59	100.00
LANE WIDTH DEFICIENCY	50.255(19)	.000(0)	50.255	100.00	.00	100.00
SHOULDER W. DEFICIENCY	50.255(19)	.000(0)	50.255	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	50.255(19)	.000(0)	50.255	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	47.360(18)	2.895(1)	50.255	94.24	5.76	100.00
SPEED LIMIT DEFICIENCY	50.255(19)	.000(0)	50.255	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	50.255(19)	.000(0)	50.255	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	50.255(19)	.000(0)	50.255	100.00	.00	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	11.678(11)	.000(0)	11.678	100.00	.00	100.00
LANE WIDTH DEFICIENCY	11.678(11)	.000(0)	11.678	100.00	.00	100.00
SHOULDER W. DEFICIENCY	11.678(11)	.000(0)	11.678	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	11.678(11)	.000(0)	11.678	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	11.678(11)	.000(0)	11.678	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	11.678(11)	.000(0)	11.678	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	11.678(11)	.000(0)	11.678	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	11.678(11)	.000(0)	11.678	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	60.127(29)	1.806(1)	61.933	97.08	2.92	100.00
LANE WIDTH DEFICIENCY	61.933(30)	.000(0)	61.933	100.00	.00	100.00
SHOULDER W. DEFICIENCY	61.933(30)	.000(0)	61.933	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	61.933(30)	.000(0)	61.933	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	59.038(29)	2.895(1)	61.933	95.33	4.67	100.00
SPEED LIMIT DEFICIENCY	61.933(30)	.000(0)	61.933	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	61.933(30)	.000(0)	61.933	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	61.933(30)	.000(0)	61.933	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 219 in SOUTH DAKOTA: I-90 Termini: Rapid City (S 473) - US 281

RURAL LENGTH	248.882(	56 SECTIONS COVERING	248.882	MILES)
URBAN LENGTH	.000(	0 SECTIONS COVERING	.000	MILES)
TOTAL LENGTH	248.882(	56 SECTIONS COVERING	248.882	MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	207.264(45)	41.618(11)	248.882	83.28	16.72	100.00
LANE WIDTH DEFICIENCY	248.882(56)	.000(0)	248.882	100.00	.00	100.00
SHOULDER W. DEFICIENCY	248.882(56)	.000(0)	248.882	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	248.882(56)	.000(0)	248.882	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	248.882(56)	.000(0)	248.882	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	248.882(56)	.000(0)	248.882	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	248.882(56)	.000(0)	248.882	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	248.882(56)	.000(0)	248.882	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 220 in SOUTH DAKOTA: I-90 Termini: US 281 - US 81

RURAL LENGTH	50.420(12 SECTIONS COVERING	50.420 MILES)
URBAN LENGTH	3.043(3 SECTIONS COVERING	3.043 MILES)
TOTAL LENGTH	53.463(15 SECTIONS COVERING	53.463 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	39.491(9)	10.929(3)	50.420	78.32	21.68	100.00
LANE WIDTH DEFICIENCY	50.420(12)	.000(0)	50.420	100.00	.00	100.00
SHOULDER W. DEFICIENCY	50.420(12)	.000(0)	50.420	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	50.420(12)	.000(0)	50.420	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	50.420(12)	.000(0)	50.420	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	50.420(12)	.000(0)	50.420	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	50.420(12)	.000(0)	50.420	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	50.420(12)	.000(0)	50.420	100.00	.00	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	3.043(3)	.000(0)	3.043	100.00	.00	100.00
LANE WIDTH DEFICIENCY	3.043(3)	.000(0)	3.043	100.00	.00	100.00
SHOULDER W. DEFICIENCY	3.043(3)	.000(0)	3.043	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	3.043(3)	.000(0)	3.043	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	3.043(3)	.000(0)	3.043	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	3.043(3)	.000(0)	3.043	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	3.043(3)	.000(0)	3.043	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	3.043(3)	.000(0)	3.043	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	42.534(12)	10.929(3)	53.463	79.56	20.44	100.00
LANE WIDTH DEFICIENCY	53.463(15)	.000(0)	53.463	100.00	.00	100.00
SHOULDER W. DEFICIENCY	53.463(15)	.000(0)	53.463	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	53.463(15)	.000(0)	53.463	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	53.463(15)	.000(0)	53.463	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	53.463(15)	.000(0)	53.463	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	53.463(15)	.000(0)	53.463	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	53.463(15)	.000(0)	53.463	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 221 in SOUTH DAKOTA: I-90 Termini: US 81 - I-29 @ Sioux Falls

RURAL LENGTH	31.443(7 SECTIONS COVERING	31.443 MILES)
URBAN LENGTH	1.037(1 SECTIONS COVERING	1.037 MILES)
TOTAL LENGTH	32.480(8 SECTIONS COVERING	32.480 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	18.246(4)	13.197(3)	31.443	58.03	41.97	100.00
LANE WIDTH DEFICIENCY	31.443(7)	.000(0)	31.443	100.00	.00	100.00
SHOULDER W. DEFICIENCY	31.443(7)	.000(0)	31.443	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	31.443(7)	.000(0)	31.443	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	31.443(7)	.000(0)	31.443	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	31.443(7)	.000(0)	31.443	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	31.443(7)	.000(0)	31.443	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	31.443(7)	.000(0)	31.443	100.00	.00	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	1.037(1)	.000(0)	1.037	100.00	.00	100.00
LANE WIDTH DEFICIENCY	1.037(1)	.000(0)	1.037	100.00	.00	100.00
SHOULDER W. DEFICIENCY	1.037(1)	.000(0)	1.037	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	1.037(1)	.000(0)	1.037	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	1.037(1)	.000(0)	1.037	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	1.037(1)	.000(0)	1.037	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	1.037(1)	.000(0)	1.037	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	1.037(1)	.000(0)	1.037	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	19.283(5)	13.197(3)	32.480	59.37	40.63	100.00
LANE WIDTH DEFICIENCY	32.480(8)	.000(0)	32.480	100.00	.00	100.00
SHOULDER W. DEFICIENCY	32.480(8)	.000(0)	32.480	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	32.480(8)	.000(0)	32.480	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	32.480(8)	.000(0)	32.480	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	32.480(8)	.000(0)	32.480	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	32.480(8)	.000(0)	32.480	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	32.480(8)	.000(0)	32.480	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 222 in SOUTH DAKOTA: I-90 Termini: I-29 - Minnesota SL

RURAL LENGTH	10.007(	3 SECTIONS COVERING	10.007 MILES)
URBAN LENGTH	5.991(	3 SECTIONS COVERING	5.991 MILES)
TOTAL LENGTH	15.998(	6 SECTIONS COVERING	15.998 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	.000(0)	10.007(3)	10.007	.00	100.00	100.00
LANE WIDTH DEFICIENCY	10.007(3)	.000(0)	10.007	100.00	.00	100.00
SHOULDER W. DEFICIENCY	10.007(3)	.000(0)	10.007	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	10.007(3)	.000(0)	10.007	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	10.007(3)	.000(0)	10.007	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	10.007(3)	.000(0)	10.007	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	10.007(3)	.000(0)	10.007	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	10.007(3)	.000(0)	10.007	100.00	.00	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	3.017(1)	2.974(2)	5.991	50.36	49.64	100.00
LANE WIDTH DEFICIENCY	5.991(3)	.000(0)	5.991	100.00	.00	100.00
SHOULDER W. DEFICIENCY	5.991(3)	.000(0)	5.991	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	5.991(3)	.000(0)	5.991	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	5.991(3)	.000(0)	5.991	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	5.991(3)	.000(0)	5.991	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	5.991(3)	.000(0)	5.991	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	5.991(3)	.000(0)	5.991	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	3.017(1)	12.981(5)	15.998	18.86	81.14	100.00
LANE WIDTH DEFICIENCY	15.998(6)	.000(0)	15.998	100.00	.00	100.00
SHOULDER W. DEFICIENCY	15.998(6)	.000(0)	15.998	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	15.998(6)	.000(0)	15.998	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	15.998(6)	.000(0)	15.998	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	15.998(6)	.000(0)	15.998	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	15.998(6)	.000(0)	15.998	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	15.998(6)	.000(0)	15.998	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 451 in SOUTH DAKOTA: US 81 Termini: Nebraska SL - I-90

RURAL LENGTH	54.607(13	SECTIONS COVERING	54.607	MILES)
URBAN LENGTH	3.109(6	SECTIONS COVERING	3.109	MILES)
TOTAL LENGTH	57.716(19	SECTIONS COVERING	57.716	MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	49.244(10)	5.363(3)	54.607	90.18	9.82	100.00
LANE WIDTH DEFICIENCY	54.607(13)	.000(0)	54.607	100.00	.00	100.00
SHOULDER W. DEFICIENCY	54.607(12)	.000(0)	53.910	100.00	.00	98.72
VERT. ALIGN. DEFICIENCY	54.607(13)	.000(0)	54.607	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	47.443(11)	7.164(2)	54.607	86.88	13.12	100.00
SPEED LIMIT DEFICIENCY	54.456(12)	.151(1)	54.607	99.72	.28	100.00
CAPACITY DEFICIENCY 1996	54.456(12)	.151(1)	54.607	99.72	.28	100.00
CAPACITY DEFICIENCY 2016	21.645(6)	32.962(7)	54.607	39.64	60.36	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	2.420(3)	.689(3)	3.109	77.84	22.16	100.00
LANE WIDTH DEFICIENCY	3.109(6)	.000(0)	3.109	100.00	.00	100.00
SHOULDER W. DEFICIENCY	3.109(4)	.000(0)	2.064	100.00	.00	66.39
VERT. ALIGN. DEFICIENCY	3.109(6)	.000(0)	3.109	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	3.109(6)	.000(0)	3.109	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	.700(1)	2.409(5)	3.109	22.52	77.48	100.00
CAPACITY DEFICIENCY 1996	2.946(5)	.163(1)	3.109	94.76	5.24	100.00
CAPACITY DEFICIENCY 2016	2.783(4)	.326(2)	3.109	89.51	10.49	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	51.664(13)	6.052(6)	57.716	89.51	10.49	100.00
LANE WIDTH DEFICIENCY	57.716(19)	.000(0)	57.716	100.00	.00	100.00
SHOULDER W. DEFICIENCY	57.716(16)	.000(0)	55.974	100.00	.00	96.98
VERT. ALIGN. DEFICIENCY	57.716(19)	.000(0)	57.716	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	50.552(17)	7.164(2)	57.716	87.59	12.41	100.00
SPEED LIMIT DEFICIENCY	55.156(13)	2.560(6)	57.716	95.56	4.44	100.00
CAPACITY DEFICIENCY 1996	57.402(17)	.314(2)	57.716	99.46	.54	100.00
CAPACITY DEFICIENCY 2016	24.428(10)	33.288(9)	57.716	42.32	57.68	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 452 in SOUTH DAKOTA: US 81 Termini: I-90 - I-29 @ Watertown

RURAL LENGTH	94.200(21 SECTIONS COVERING	94.200 MILES)	
URBAN LENGTH	4.179(9 SECTIONS COVERING	4.179 MILES)	
TOTAL LENGTH	98.379(30 SECTIONS COVERING	98.379 MILES)	

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	83.487(19)	10.713(2)	94.200	88.63	11.37	100.00
LANE WIDTH DEFICIENCY	83.438(19)	10.762(2)	94.200	88.58	11.42	100.00
SHOULDER W. DEFICIENCY	94.200(20)	.000(0)	84.351	100.00	.00	89.54
VERT. ALIGN. DEFICIENCY	94.200(21)	.000(0)	94.200	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	69.407(17)	24.793(4)	94.200	73.68	26.32	100.00
SPEED LIMIT DEFICIENCY	89.566(18)	4.634(3)	94.200	95.08	4.92	100.00
CAPACITY DEFICIENCY 1996	94.200(21)	.000(0)	94.200	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	75.352(14)	18.848(7)	94.200	79.99	20.01	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	3.238(8)	.941(1)	4.179	77.48	22.52	100.00
LANE WIDTH DEFICIENCY	4.179(9)	.000(0)	4.179	100.00	.00	100.00
SHOULDER W. DEFICIENCY	4.179(6)	.000(0)	2.975	100.00	.00	71.19
VERT. ALIGN. DEFICIENCY	4.179(9)	.000(0)	4.179	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	3.606(8)	.573(1)	4.179	86.29	13.71	100.00
SPEED LIMIT DEFICIENCY	1.566(3)	2.613(6)	4.179	37.47	62.53	100.00
CAPACITY DEFICIENCY 1996	4.179(9)	.000(0)	4.179	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	4.179(9)	.000(0)	4.179	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	86.725(27)	11.654(3)	98.379	88.15	11.85	100.00
LANE WIDTH DEFICIENCY	87.617(28)	10.762(2)	98.379	89.06	10.94	100.00
SHOULDER W. DEFICIENCY	98.379(26)	.000(0)	87.326	100.00	.00	88.76
VERT. ALIGN. DEFICIENCY	98.379(30)	.000(0)	98.379	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	73.013(25)	25.366(5)	98.379	74.22	25.78	100.00
SPEED LIMIT DEFICIENCY	91.132(21)	7.247(9)	98.379	92.63	7.37	100.00
CAPACITY DEFICIENCY 1996	98.379(30)	.000(0)	98.379	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	79.531(23)	18.848(7)	98.379	80.84	19.16	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 530 in SOUTH DAKOTA: US 281 Termini: Nebraska SL - I-90

RURAL LENGTH	67.121(14 SECTIONS COVERING	67.121 MILES)
URBAN LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	67.121(14 SECTIONS COVERING	67.121 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	67.121(14)	.000(0)	67.121	100.00	.00	100.00
LANE WIDTH DEFICIENCY	67.121(14)	.000(0)	67.121	100.00	.00	100.00
SHOULDER W. DEFICIENCY	50.959(9)	16.162(3)	48.931	75.92	24.08	72.90
VERT. ALIGN. DEFICIENCY	67.121(14)	.000(0)	67.121	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	64.656(11)	2.465(3)	67.121	96.33	3.67	100.00
SPEED LIMIT DEFICIENCY	66.297(13)	.824(1)	67.121	98.77	1.23	100.00
CAPACITY DEFICIENCY 1996	67.121(14)	.000(0)	67.121	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	60.010(12)	7.111(2)	67.121	89.41	10.59	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 531 in SOUTH DAKOTA: US 281 Termini: I-90 - North Dakota SL

RURAL LENGTH 156.085(33 SECTIONS COVERING 150.850 MILES)
URBAN LENGTH 2.915(7 SECTIONS COVERING 2.817 MILES)
TOTAL LENGTH 159.000(40 SECTIONS COVERING 153.667 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	123.113(25)	32.972(8)	150.850	78.88	21.12	96.65
LANE WIDTH DEFICIENCY	143.716(31)	12.369(2)	150.850	92.08	7.92	96.65
SHOULDER W. DEFICIENCY	149.402(25)	6.683(2)	131.812	95.72	4.28	84.45
VERT. ALIGN. DEFICIENCY	156.085(33)	.000(0)	150.850	100.00	.00	96.65
HORIZ. ALIGN. DEFICIENCY	133.727(29)	22.358(4)	150.850	85.68	14.32	96.65
SPEED LIMIT DEFICIENCY	154.995(31)	1.091(2)	150.850	99.30	.70	96.65
CAPACITY DEFICIENCY 1996	156.085(33)	.000(0)	150.850	100.00	.00	96.65
CAPACITY DEFICIENCY 2016	85.127(22)	70.958(11)	150.850	54.54	45.46	96.65

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	2.484(5)	.430(2)	2.817	85.23	14.77	96.65
LANE WIDTH DEFICIENCY	2.915(7)	.000(0)	2.817	100.00	.00	96.65
SHOULDER W. DEFICIENCY	2.915(7)	.000(0)	2.817	100.00	.00	96.65
VERT. ALIGN. DEFICIENCY	2.915(7)	.000(0)	2.817	100.00	.00	96.65
HORIZ. ALIGN. DEFICIENCY	2.915(7)	.000(0)	2.817	100.00	.00	96.65
SPEED LIMIT DEFICIENCY	.584(3)	2.331(4)	2.817	20.02	79.98	96.65
CAPACITY DEFICIENCY 1996	2.915(7)	.000(0)	2.817	100.00	.00	96.65
CAPACITY DEFICIENCY 2016	2.915(7)	.000(0)	2.817	100.00	.00	96.65

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	125.598(30)	33.402(10)	153.667	78.99	21.01	96.65
LANE WIDTH DEFICIENCY	146.631(38)	12.369(2)	153.667	92.22	7.78	96.65
SHOULDER W. DEFICIENCY	152.317(32)	6.683(2)	134.629	95.80	4.20	84.67
VERT. ALIGN. DEFICIENCY	159.000(40)	.000(0)	153.667	100.00	.00	96.65
HORIZ. ALIGN. DEFICIENCY	136.642(36)	22.358(4)	153.667	85.94	14.06	96.65
SPEED LIMIT DEFICIENCY	155.578(34)	3.422(6)	153.667	97.85	2.15	96.65
CAPACITY DEFICIENCY 1996	159.000(40)	.000(0)	153.667	100.00	.00	96.65
CAPACITY DEFICIENCY 2016	88.042(29)	70.958(11)	153.667	55.37	44.63	96.65

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 640 in SOUTH DAKOTA: S 79/US 385 Termini: I-90 @ Rapid City - Nebraska SL (U16B,S238,S437)

RURAL LENGTH	78.409(17 SECTIONS COVERING	78.409 MILES)
URBAN LENGTH	6.114(8 SECTIONS COVERING	6.114 MILES)
TOTAL LENGTH	84.523(25 SECTIONS COVERING	84.523 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	78.409(17)	.000(0)	78.409	100.00	.00	100.00
LANE WIDTH DEFICIENCY	78.409(17)	.000(0)	78.409	100.00	.00	100.00
SHOULDER W. DEFICIENCY	78.409(17)	.000(0)	78.409	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	78.409(17)	.000(0)	78.409	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	69.405(16)	9.004(1)	78.409	88.52	11.48	100.00
SPEED LIMIT DEFICIENCY	78.409(17)	.000(0)	78.409	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	34.479(11)	43.930(6)	78.409	43.97	56.03	100.00
CAPACITY DEFICIENCY 2016	56.520(12)	21.889(5)	78.409	72.08	27.92	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	5.360(6)	.754(2)	6.114	87.67	12.33	100.00
LANE WIDTH DEFICIENCY	6.114(8)	.000(0)	6.114	100.00	.00	100.00
SHOULDER W. DEFICIENCY	6.114(5)	.000(0)	3.744	100.00	.00	61.24
VERT. ALIGN. DEFICIENCY	6.114(8)	.000(0)	6.114	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	6.114(8)	.000(0)	6.114	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	.839(1)	5.275(7)	6.114	13.72	86.28	100.00
CAPACITY DEFICIENCY 1996	4.572(7)	1.542(1)	6.114	74.78	25.22	100.00
CAPACITY DEFICIENCY 2016	3.405(5)	2.709(3)	6.114	55.69	44.31	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	83.769(23)	.754(2)	84.523	99.11	.89	100.00
LANE WIDTH DEFICIENCY	84.523(25)	.000(0)	84.523	100.00	.00	100.00
SHOULDER W. DEFICIENCY	84.523(22)	.000(0)	82.153	100.00	.00	97.20
VERT. ALIGN. DEFICIENCY	84.523(25)	.000(0)	84.523	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	75.519(24)	9.004(1)	84.523	89.35	10.65	100.00
SPEED LIMIT DEFICIENCY	79.248(18)	5.275(7)	84.523	93.76	6.24	100.00
CAPACITY DEFICIENCY 1996	39.051(18)	45.472(7)	84.523	46.20	53.80	100.00
CAPACITY DEFICIENCY 2016	59.925(17)	24.598(8)	84.523	70.90	29.10	100.00

Note: The numbers in ( ) indicate the number of sample sections

TEXAS

Super-Segment NO 36 in TEXAS : I-10 Termini: Through El Paso (NM SL - El Paso UL)

RURAL LENGTH 6.925(3 SECTIONS COVERING 5.233 MILES)
URBAN LENGTH 30.075(16 SECTIONS COVERING 22.725 MILES)
TOTAL LENGTH 37.000(19 SECTIONS COVERING 27.958 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	6.925(3)	.000(0)	5.233	100.00	.00	75.56
LANE WIDTH DEFICIENCY	6.925(3)	.000(0)	5.233	100.00	.00	75.56
SHOULDER W. DEFICIENCY	6.925(3)	.000(0)	5.233	100.00	.00	75.56
VERT. ALIGN. DEFICIENCY	6.925(3)	.000(0)	5.233	100.00	.00	75.56
HORIZ. ALIGN. DEFICIENCY	6.925(3)	.000(0)	5.233	100.00	.00	75.56
SPEED LIMIT DEFICIENCY	6.925(3)	.000(0)	5.233	100.00	.00	75.56
CAPACITY DEFICIENCY 1996	6.925(3)	.000(0)	5.233	100.00	.00	75.56
CAPACITY DEFICIENCY 2016	6.925(3)	.000(0)	5.233	100.00	.00	75.56

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	27.830(14)	2.245(2)	22.725	92.54	7.46	75.56
LANE WIDTH DEFICIENCY	30.075(16)	.000(0)	22.725	100.00	.00	75.56
SHOULDER W. DEFICIENCY	30.075(16)	.000(0)	22.725	100.00	.00	75.56
VERT. ALIGN. DEFICIENCY	30.075(16)	.000(0)	22.725	100.00	.00	75.56
HORIZ. ALIGN. DEFICIENCY	30.075(16)	.000(0)	22.725	100.00	.00	75.56
SPEED LIMIT DEFICIENCY	30.075(16)	.000(0)	22.725	100.00	.00	75.56
CAPACITY DEFICIENCY 1996	23.438(11)	6.637(5)	22.725	77.93	22.07	75.56
CAPACITY DEFICIENCY 2016	10.053(5)	20.022(11)	22.725	33.43	66.57	75.56

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	34.755(17)	2.245(2)	27.958	93.93	6.07	75.56
LANE WIDTH DEFICIENCY	37.000(19)	.000(0)	27.958	100.00	.00	75.56
SHOULDER W. DEFICIENCY	37.000(19)	.000(0)	27.958	100.00	.00	75.56
VERT. ALIGN. DEFICIENCY	37.000(19)	.000(0)	27.958	100.00	.00	75.56
HORIZ. ALIGN. DEFICIENCY	37.000(19)	.000(0)	27.958	100.00	.00	75.56
SPEED LIMIT DEFICIENCY	37.000(19)	.000(0)	27.958	100.00	.00	75.56
CAPACITY DEFICIENCY 1996	30.363(14)	6.637(5)	27.958	82.06	17.94	75.56
CAPACITY DEFICIENCY 2016	16.978(8)	20.022(11)	27.958	45.89	54.11	75.56

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 37 in TEXAS : I-10 Termini: El Paso UL - I-20

RURAL LENGTH 149.000(16 SECTIONS COVERING 109.226 MILES)
URBAN LENGTH .000(0 SECTIONS COVERING .000 MILES)
TOTAL LENGTH 149.000(16 SECTIONS COVERING 109.226 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	149.000(16)	.000(0)	109.226	100.00	.00	73.31
LANE WIDTH DEFICIENCY	149.000(16)	.000(0)	109.226	100.00	.00	73.31
SHOULDER W. DEFICIENCY	149.000(16)	.000(0)	109.226	100.00	.00	73.31
VERT. ALIGN. DEFICIENCY	149.000(16)	.000(0)	109.226	100.00	.00	73.31
HORIZ. ALIGN. DEFICIENCY	149.000(16)	.000(0)	109.226	100.00	.00	73.31
SPEED LIMIT DEFICIENCY	149.000(16)	.000(0)	109.226	100.00	.00	73.31
CAPACITY DEFICIENCY 1996	149.000(16)	.000(0)	109.226	100.00	.00	73.31
CAPACITY DEFICIENCY 2016	149.000(16)	.000(0)	109.226	100.00	.00	73.31

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 38 in TEXAS : I-10 Termini: I-20 - San Antonio UL

RURAL LENGTH 358.555(37 SECTIONS COVERING 203.282 MILES)
URBAN LENGTH 5.445(3 SECTIONS COVERING 3.087 MILES)
TOTAL LENGTH 364.000(40 SECTIONS COVERING 206.369 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	EXPANDED LENGTH (MI) DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	% OF EXPANDED LENGTH DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	358.555(37)	.000(0)	203.282	100.00	.00	56.69
LANE WIDTH DEFICIENCY	358.555(37)	.000(0)	203.282	100.00	.00	56.69
SHOULDER W. DEFICIENCY	358.555(37)	.000(0)	203.282	100.00	.00	56.69
VERT. ALIGN. DEFICIENCY	358.555(37)	.000(0)	203.282	100.00	.00	56.69
HORIZ. ALIGN. DEFICIENCY	358.555(37)	.000(0)	203.282	100.00	.00	56.69
SPEED LIMIT DEFICIENCY	358.555(37)	.000(0)	203.282	100.00	.00	56.69
CAPACITY DEFICIENCY 1996	358.555(37)	.000(0)	203.282	100.00	.00	56.69
CAPACITY DEFICIENCY 2016	344.638(35)	13.917(2)	203.282	96.12	3.88	56.69

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	EXPANDED LENGTH (MI) DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	% OF EXPANDED LENGTH DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	5.445(3)	.000(0)	3.087	100.00	.00	56.69
LANE WIDTH DEFICIENCY	5.445(3)	.000(0)	3.087	100.00	.00	56.69
SHOULDER W. DEFICIENCY	5.445(3)	.000(0)	3.087	100.00	.00	56.69
VERT. ALIGN. DEFICIENCY	5.445(3)	.000(0)	3.087	100.00	.00	56.69
HORIZ. ALIGN. DEFICIENCY	5.445(3)	.000(0)	3.087	100.00	.00	56.69
SPEED LIMIT DEFICIENCY	5.445(3)	.000(0)	3.087	100.00	.00	56.69
CAPACITY DEFICIENCY 1996	5.445(3)	.000(0)	3.087	100.00	.00	56.69
CAPACITY DEFICIENCY 2016	5.445(3)	.000(0)	3.087	100.00	.00	56.69

A L L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	EXPANDED LENGTH (MI) DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	% OF EXPANDED LENGTH DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	364.000(40)	.000(0)	206.369	100.00	.00	56.69
LANE WIDTH DEFICIENCY	364.000(40)	.000(0)	206.369	100.00	.00	56.69
SHOULDER W. DEFICIENCY	364.000(40)	.000(0)	206.369	100.00	.00	56.69
VERT. ALIGN. DEFICIENCY	364.000(40)	.000(0)	206.369	100.00	.00	56.69
HORIZ. ALIGN. DEFICIENCY	364.000(40)	.000(0)	206.369	100.00	.00	56.69
SPEED LIMIT DEFICIENCY	364.000(40)	.000(0)	206.369	100.00	.00	56.69
CAPACITY DEFICIENCY 1996	364.000(40)	.000(0)	206.369	100.00	.00	56.69
CAPACITY DEFICIENCY 2016	350.083(38)	13.917(2)	206.369	96.18	3.82	56.69

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 39 in TEXAS : I-10 Termini: Through San Antonio

RURAL LENGTH .000(0 SECTIONS COVERING .000 MILES)
URBAN LENGTH 37.000(10 SECTIONS COVERING 28.157 MILES)
TOTAL LENGTH 37.000(10 SECTIONS COVERING 28.157 MILES)

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	37.000(10)	.000(0)	28.157	100.00	.00	76.10
LANE WIDTH DEFICIENCY	37.000(10)	.000(0)	28.157	100.00	.00	76.10
SHOULDER W. DEFICIENCY	37.000(10)	.000(0)	28.157	100.00	.00	76.10
VERT. ALIGN. DEFICIENCY	37.000(10)	.000(0)	28.157	100.00	.00	76.10
HORIZ. ALIGN. DEFICIENCY	37.000(10)	.000(0)	28.157	100.00	.00	76.10
SPEED LIMIT DEFICIENCY	37.000(10)	.000(0)	28.157	100.00	.00	76.10
CAPACITY DEFICIENCY 1996	36.121(9)	.879(1)	28.157	97.62	2.38	76.10
CAPACITY DEFICIENCY 2016	11.225(3)	25.775(7)	28.157	30.34	69.66	76.10

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 40 in TEXAS : I-10 Termini: San Antonio UL - Houston UL

RURAL LENGTH 157.421(14 SECTIONS COVERING 75.856 MILES)
URBAN LENGTH 6.579(1 SECTIONS COVERING 3.170 MILES)
TOTAL LENGTH 164.000(15 SECTIONS COVERING 79.026 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	EXPANDED LENGTH (MI) DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	% OF EXPANDED LENGTH DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	157.421(14)	.000(0)	75.856	100.00	.00	48.19
LANE WIDTH DEFICIENCY	157.421(14)	.000(0)	75.856	100.00	.00	48.19
SHOULDER W. DEFICIENCY	157.421(14)	.000(0)	75.856	100.00	.00	48.19
VERT. ALIGN. DEFICIENCY	157.421(14)	.000(0)	75.856	100.00	.00	48.19
HORIZ. ALIGN. DEFICIENCY	157.421(14)	.000(0)	75.856	100.00	.00	48.19
SPEED LIMIT DEFICIENCY	157.421(14)	.000(0)	75.856	100.00	.00	48.19
CAPACITY DEFICIENCY 1996	152.111(13)	5.311(1)	75.856	96.63	3.37	48.19
CAPACITY DEFICIENCY 2016	16.083(1)	141.338(13)	75.856	10.22	89.78	48.19

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	EXPANDED LENGTH (MI) DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	% OF EXPANDED LENGTH DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	6.579(1)	.000(0)	3.170	100.00	.00	48.19
LANE WIDTH DEFICIENCY	6.579(1)	.000(0)	3.170	100.00	.00	48.19
SHOULDER W. DEFICIENCY	6.579(1)	.000(0)	3.170	100.00	.00	48.19
VERT. ALIGN. DEFICIENCY	6.579(1)	.000(0)	3.170	100.00	.00	48.19
HORIZ. ALIGN. DEFICIENCY	6.579(1)	.000(0)	3.170	100.00	.00	48.19
SPEED LIMIT DEFICIENCY	6.579(1)	.000(0)	3.170	100.00	.00	48.19
CAPACITY DEFICIENCY 1996	6.579(1)	.000(0)	3.170	100.00	.00	48.19
CAPACITY DEFICIENCY 2016	.000(0)	6.579(1)	3.170	.00	100.00	48.19

A L L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	EXPANDED LENGTH (MI) DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	% OF EXPANDED LENGTH DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	164.000(15)	.000(0)	79.026	100.00	.00	48.19
LANE WIDTH DEFICIENCY	164.000(15)	.000(0)	79.026	100.00	.00	48.19
SHOULDER W. DEFICIENCY	164.000(15)	.000(0)	79.026	100.00	.00	48.19
VERT. ALIGN. DEFICIENCY	164.000(15)	.000(0)	79.026	100.00	.00	48.19
HORIZ. ALIGN. DEFICIENCY	164.000(15)	.000(0)	79.026	100.00	.00	48.19
SPEED LIMIT DEFICIENCY	164.000(15)	.000(0)	79.026	100.00	.00	48.19
CAPACITY DEFICIENCY 1996	158.689(14)	5.311(1)	79.026	96.76	3.24	48.19
CAPACITY DEFICIENCY 2016	16.083(1)	147.917(14)	79.026	9.81	90.19	48.19

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 41 in TEXAS : I-10 Termini: Through Houston

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	37.000(	13 SECTIONS COVERING	31.268 MILES)
TOTAL LENGTH	37.000(	13 SECTIONS COVERING	31.268 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	37.000(13)	.000(0)	31.268	100.00	.00	84.51
LANE WIDTH DEFICIENCY	37.000(13)	.000(0)	31.268	100.00	.00	84.51
SHOULDER W. DEFICIENCY	37.000(13)	.000(0)	31.268	100.00	.00	84.51
VERT. ALIGN. DEFICIENCY	37.000(13)	.000(0)	31.268	100.00	.00	84.51
HORIZ. ALIGN. DEFICIENCY	37.000(13)	.000(0)	31.268	100.00	.00	84.51
SPEED LIMIT DEFICIENCY	37.000(13)	.000(0)	31.268	100.00	.00	84.51
CAPACITY DEFICIENCY 1996	33.758(12)	3.242(1)	31.268	91.24	8.76	84.51
CAPACITY DEFICIENCY 2016	4.925(2)	32.075(11)	31.268	13.31	86.69	84.51

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 42 in TEXAS : I-10 Termini: Houston UL - Louisiana SL

RURAL LENGTH 68.638(12 SECTIONS COVERING 61.901 MILES)
URBAN LENGTH 20.362(11 SECTIONS COVERING 18.363 MILES)
TOTAL LENGTH 89.000(23 SECTIONS COVERING 80.264 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	68.638(12)	.000(0)	61.901	100.00	.00	90.18
LANE WIDTH DEFICIENCY	68.638(12)	.000(0)	61.901	100.00	.00	90.18
SHOULDER W. DEFICIENCY	68.638(12)	.000(0)	61.901	100.00	.00	90.18
VERT. ALIGN. DEFICIENCY	68.638(12)	.000(0)	61.901	100.00	.00	90.18
HORIZ. ALIGN. DEFICIENCY	68.638(12)	.000(0)	61.901	100.00	.00	90.18
SPEED LIMIT DEFICIENCY	68.638(12)	.000(0)	61.901	100.00	.00	90.18
CAPACITY DEFICIENCY 1996	64.297(11)	4.341(1)	61.901	93.68	6.32	90.18
CAPACITY DEFICIENCY 2016	43.378(6)	25.260(6)	61.901	63.20	36.80	90.18

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	18.642(10)	1.720(1)	18.363	91.55	8.45	90.18
LANE WIDTH DEFICIENCY	20.362(11)	.000(0)	18.363	100.00	.00	90.18
SHOULDER W. DEFICIENCY	20.362(11)	.000(0)	18.363	100.00	.00	90.18
VERT. ALIGN. DEFICIENCY	20.362(11)	.000(0)	18.363	100.00	.00	90.18
HORIZ. ALIGN. DEFICIENCY	20.362(11)	.000(0)	18.363	100.00	.00	90.18
SPEED LIMIT DEFICIENCY	20.362(11)	.000(0)	18.363	100.00	.00	90.18
CAPACITY DEFICIENCY 1996	20.362(11)	.000(0)	18.363	100.00	.00	90.18
CAPACITY DEFICIENCY 2016	14.616(6)	5.746(5)	18.363	71.78	28.22	90.18

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	87.280(22)	1.720(1)	80.264	98.07	1.93	90.18
LANE WIDTH DEFICIENCY	89.000(23)	.000(0)	80.264	100.00	.00	90.18
SHOULDER W. DEFICIENCY	89.000(23)	.000(0)	80.264	100.00	.00	90.18
VERT. ALIGN. DEFICIENCY	89.000(23)	.000(0)	80.264	100.00	.00	90.18
HORIZ. ALIGN. DEFICIENCY	89.000(23)	.000(0)	80.264	100.00	.00	90.18
SPEED LIMIT DEFICIENCY	89.000(23)	.000(0)	80.264	100.00	.00	90.18
CAPACITY DEFICIENCY 1996	84.659(22)	4.341(1)	80.264	95.12	4.88	90.18
CAPACITY DEFICIENCY 2016	57.993(12)	31.007(11)	80.264	65.16	34.84	90.18

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 100 in TEXAS : I-30 Termini: In Dallas/Ft. Worth

RURAL LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	70.000(19 SECTIONS COVERING	54.213 MILES)
TOTAL LENGTH	70.000(19 SECTIONS COVERING	54.213 MILES)

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	65.330(16)	4.670(3)	54.213	93.33	6.67	77.45
LANE WIDTH DEFICIENCY	70.000(19)	.000(0)	54.213	100.00	.00	77.45
SHOULDER W. DEFICIENCY	70.000(18)	.000(0)	53.648	100.00	.00	76.64
VERT. ALIGN. DEFICIENCY	70.000(19)	.000(0)	54.213	100.00	.00	77.45
HORIZ. ALIGN. DEFICIENCY	70.000(19)	.000(0)	54.213	100.00	.00	77.45
SPEED LIMIT DEFICIENCY	68.465(18)	1.535(1)	54.213	97.81	2.19	77.45
CAPACITY DEFICIENCY 1996	61.642(16)	8.358(3)	54.213	88.06	11.94	77.45
CAPACITY DEFICIENCY 2016	8.411(3)	61.589(16)	54.213	12.02	87.98	77.45

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 101 in TEXAS : I-30 Termini: Dallas/Ft. Worth UL -Texarkana (Arkansas SL)

RURAL LENGTH 98.694(10 SECTIONS COVERING 56.379 MILES)
URBAN LENGTH 52.306(9 SECTIONS COVERING 29.880 MILES)
TOTAL LENGTH 151.000(19 SECTIONS COVERING 86.259 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	98.694(10)	.000(0)	56.379	100.00	.00	57.13
LANE WIDTH DEFICIENCY	98.694(10)	.000(0)	56.379	100.00	.00	57.13
SHOULDER W. DEFICIENCY	98.694(10)	.000(0)	56.379	100.00	.00	57.13
VERT. ALIGN. DEFICIENCY	98.694(10)	.000(0)	56.379	100.00	.00	57.13
HORIZ. ALIGN. DEFICIENCY	98.694(10)	.000(0)	56.379	100.00	.00	57.13
SPEED LIMIT DEFICIENCY	98.694(10)	.000(0)	56.379	100.00	.00	57.13
CAPACITY DEFICIENCY 1996	98.694(10)	.000(0)	56.379	100.00	.00	57.13
CAPACITY DEFICIENCY 2016	88.651(8)	10.043(2)	56.379	89.82	10.18	57.13

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	52.306(9)	.000(0)	29.880	100.00	.00	57.13
LANE WIDTH DEFICIENCY	52.306(9)	.000(0)	29.880	100.00	.00	57.13
SHOULDER W. DEFICIENCY	52.306(9)	.000(0)	29.880	100.00	.00	57.13
VERT. ALIGN. DEFICIENCY	52.306(9)	.000(0)	29.880	100.00	.00	57.13
HORIZ. ALIGN. DEFICIENCY	52.306(9)	.000(0)	29.880	100.00	.00	57.13
SPEED LIMIT DEFICIENCY	52.306(9)	.000(0)	29.880	100.00	.00	57.13
CAPACITY DEFICIENCY 1996	52.306(9)	.000(0)	29.880	100.00	.00	57.13
CAPACITY DEFICIENCY 2016	47.860(8)	4.446(1)	29.880	91.50	8.50	57.13

A L L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	151.000(19)	.000(0)	86.259	100.00	.00	57.13
LANE WIDTH DEFICIENCY	151.000(19)	.000(0)	86.259	100.00	.00	57.13
SHOULDER W. DEFICIENCY	151.000(19)	.000(0)	86.259	100.00	.00	57.13
VERT. ALIGN. DEFICIENCY	151.000(19)	.000(0)	86.259	100.00	.00	57.13
HORIZ. ALIGN. DEFICIENCY	151.000(19)	.000(0)	86.259	100.00	.00	57.13
SPEED LIMIT DEFICIENCY	151.000(19)	.000(0)	86.259	100.00	.00	57.13
CAPACITY DEFICIENCY 1996	151.000(19)	.000(0)	86.259	100.00	.00	57.13
CAPACITY DEFICIENCY 2016	136.511(16)	14.489(3)	86.259	90.40	9.60	57.13

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 110 in TEXAS : I-35 Termini: Laredo - San Antonio UL

RURAL LENGTH 125.122(12 SECTIONS COVERING 92.439 MILES)
URBAN LENGTH 14.878(2 SECTIONS COVERING 10.992 MILES)
TOTAL LENGTH 140.000(14 SECTIONS COVERING 103.431 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	112.398(11)	12.723(1)	92.439	89.83	10.17	73.88
LANE WIDTH DEFICIENCY	125.122(12)	.000(0)	92.439	100.00	.00	73.88
SHOULDER W. DEFICIENCY	125.122(12)	.000(0)	92.439	100.00	.00	73.88
VERT. ALIGN. DEFICIENCY	125.122(12)	.000(0)	92.439	100.00	.00	73.88
HORIZ. ALIGN. DEFICIENCY	125.122(12)	.000(0)	92.439	100.00	.00	73.88
SPEED LIMIT DEFICIENCY	125.122(12)	.000(0)	92.439	100.00	.00	73.88
CAPACITY DEFICIENCY 1996	125.122(12)	.000(0)	92.439	100.00	.00	73.88
CAPACITY DEFICIENCY 2016	125.122(12)	.000(0)	92.439	100.00	.00	73.88

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	14.878(2)	.000(0)	10.992	100.00	.00	73.88
LANE WIDTH DEFICIENCY	14.878(2)	.000(0)	10.992	100.00	.00	73.88
SHOULDER W. DEFICIENCY	14.878(2)	.000(0)	10.992	100.00	.00	73.88
VERT. ALIGN. DEFICIENCY	14.878(2)	.000(0)	10.992	100.00	.00	73.88
HORIZ. ALIGN. DEFICIENCY	14.878(2)	.000(0)	10.992	100.00	.00	73.88
SPEED LIMIT DEFICIENCY	14.878(2)	.000(0)	10.992	100.00	.00	73.88
CAPACITY DEFICIENCY 1996	14.878(2)	.000(0)	10.992	100.00	.00	73.88
CAPACITY DEFICIENCY 2016	8.415(1)	6.463(1)	10.992	56.56	43.44	73.88

A L L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	127.277(13)	12.723(1)	103.431	90.91	9.09	73.88
LANE WIDTH DEFICIENCY	140.000(14)	.000(0)	103.431	100.00	.00	73.88
SHOULDER W. DEFICIENCY	140.000(14)	.000(0)	103.431	100.00	.00	73.88
VERT. ALIGN. DEFICIENCY	140.000(14)	.000(0)	103.431	100.00	.00	73.88
HORIZ. ALIGN. DEFICIENCY	140.000(14)	.000(0)	103.431	100.00	.00	73.88
SPEED LIMIT DEFICIENCY	140.000(14)	.000(0)	103.431	100.00	.00	73.88
CAPACITY DEFICIENCY 1996	140.000(14)	.000(0)	103.431	100.00	.00	73.88
CAPACITY DEFICIENCY 2016	133.537(13)	6.463(1)	103.431	95.38	4.62	73.88

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 111 in TEXAS : I-35 Termini: Through San Antonio

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	35.000(	6 SECTIONS COVERING	11.170 MILES)
TOTAL LENGTH	35.000(	6 SECTIONS COVERING	11.170 MILES)

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	35.000(6)	.000(0)	11.170	100.00	.00	31.91
LANE WIDTH DEFICIENCY	35.000(6)	.000(0)	11.170	100.00	.00	31.91
SHOULDER W. DEFICIENCY	35.000(6)	.000(0)	11.170	100.00	.00	31.91
VERT. ALIGN. DEFICIENCY	35.000(6)	.000(0)	11.170	100.00	.00	31.91
HORIZ. ALIGN. DEFICIENCY	35.000(6)	.000(0)	11.170	100.00	.00	31.91
SPEED LIMIT DEFICIENCY	35.000(6)	.000(0)	11.170	100.00	.00	31.91
CAPACITY DEFICIENCY 1996	31.719(4)	3.281(2)	11.170	90.63	9.37	31.91
CAPACITY DEFICIENCY 2016	10.469(2)	24.531(4)	11.170	29.91	70.09	31.91

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 112 in TEXAS : I-35 Termini: San Antonio UL - Dallas/Ft. Worth UL

RURAL LENGTH 102.235(17 SECTIONS COVERING 56.389 MILES)
URBAN LENGTH 150.765(47 SECTIONS COVERING 83.156 MILES)
TOTAL LENGTH 253.000(64 SECTIONS COVERING 139.545 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	102.235(17)	.000(0)	56.389	100.00	.00	55.16
LANE WIDTH DEFICIENCY	102.235(17)	.000(0)	56.389	100.00	.00	55.16
SHOULDER W. DEFICIENCY	100.167(16)	2.069(1)	56.389	97.98	2.02	55.16
VERT. ALIGN. DEFICIENCY	102.235(17)	.000(0)	56.389	100.00	.00	55.16
HORIZ. ALIGN. DEFICIENCY	102.235(17)	.000(0)	56.389	100.00	.00	55.16
SPEED LIMIT DEFICIENCY	102.235(17)	.000(0)	56.389	100.00	.00	55.16
CAPACITY DEFICIENCY 1996	52.864(10)	49.371(7)	56.389	51.71	48.29	55.16
CAPACITY DEFICIENCY 2016	5.651(2)	96.584(15)	56.389	5.53	94.47	55.16

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	150.765(47)	.000(0)	83.156	100.00	.00	55.16
LANE WIDTH DEFICIENCY	150.765(47)	.000(0)	83.156	100.00	.00	55.16
SHOULDER W. DEFICIENCY	150.765(46)	.000(0)	80.180	100.00	.00	53.18
VERT. ALIGN. DEFICIENCY	150.765(47)	.000(0)	83.156	100.00	.00	55.16
HORIZ. ALIGN. DEFICIENCY	150.765(47)	.000(0)	83.156	100.00	.00	55.16
SPEED LIMIT DEFICIENCY	150.765(47)	.000(0)	83.156	100.00	.00	55.16
CAPACITY DEFICIENCY 1996	124.688(43)	26.077(4)	83.156	82.70	17.30	55.16
CAPACITY DEFICIENCY 2016	25.609(8)	125.156(39)	83.156	16.99	83.01	55.16

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	253.000(64)	.000(0)	139.545	100.00	.00	55.16
LANE WIDTH DEFICIENCY	253.000(64)	.000(0)	139.545	100.00	.00	55.16
SHOULDER W. DEFICIENCY	250.931(62)	2.069(1)	136.569	99.18	.82	53.98
VERT. ALIGN. DEFICIENCY	253.000(64)	.000(0)	139.545	100.00	.00	55.16
HORIZ. ALIGN. DEFICIENCY	253.000(64)	.000(0)	139.545	100.00	.00	55.16
SPEED LIMIT DEFICIENCY	253.000(64)	.000(0)	139.545	100.00	.00	55.16
CAPACITY DEFICIENCY 1996	177.552(53)	75.448(11)	139.545	70.18	29.82	55.16
CAPACITY DEFICIENCY 2016	31.260(10)	221.740(54)	139.545	12.36	87.64	55.16

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 113 in TEXAS : I-35 E/W Termini: Through Dallas/Ft. Worth

RURAL LENGTH 48.094(13 SECTIONS COVERING 40.781 MILES)
URBAN LENGTH 81.906(34 SECTIONS COVERING 69.452 MILES)
TOTAL LENGTH 130.000(47 SECTIONS COVERING 110.233 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	48.094(13)	.000(0)	40.781	100.00	.00	84.79
LANE WIDTH DEFICIENCY	48.094(13)	.000(0)	40.781	100.00	.00	84.79
SHOULDER W. DEFICIENCY	48.094(13)	.000(0)	40.781	100.00	.00	84.79
VERT. ALIGN. DEFICIENCY	48.094(13)	.000(0)	40.781	100.00	.00	84.79
HORIZ. ALIGN. DEFICIENCY	48.094(13)	.000(0)	40.781	100.00	.00	84.79
SPEED LIMIT DEFICIENCY	48.094(13)	.000(0)	40.781	100.00	.00	84.79
CAPACITY DEFICIENCY 1996	46.971(12)	1.123(1)	40.781	97.67	2.33	84.79
CAPACITY DEFICIENCY 2016	44.299(10)	3.795(3)	40.781	92.11	7.89	84.79

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	77.082(33)	4.825(1)	69.452	94.11	5.89	84.79
LANE WIDTH DEFICIENCY	81.906(34)	.000(0)	69.452	100.00	.00	84.79
SHOULDER W. DEFICIENCY	81.906(34)	.000(0)	69.452	100.00	.00	84.79
VERT. ALIGN. DEFICIENCY	81.906(34)	.000(0)	69.452	100.00	.00	84.79
HORIZ. ALIGN. DEFICIENCY	79.579(32)	2.327(2)	69.452	97.16	2.84	84.79
SPEED LIMIT DEFICIENCY	81.906(34)	.000(0)	69.452	100.00	.00	84.79
CAPACITY DEFICIENCY 1996	69.329(27)	12.577(7)	69.452	84.64	15.36	84.79
CAPACITY DEFICIENCY 2016	21.523(8)	60.384(26)	69.452	26.28	73.72	84.79

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	125.175(46)	4.825(1)	110.233	96.29	3.71	84.79
LANE WIDTH DEFICIENCY	130.000(47)	.000(0)	110.233	100.00	.00	84.79
SHOULDER W. DEFICIENCY	130.000(47)	.000(0)	110.233	100.00	.00	84.79
VERT. ALIGN. DEFICIENCY	130.000(47)	.000(0)	110.233	100.00	.00	84.79
HORIZ. ALIGN. DEFICIENCY	127.673(45)	2.327(2)	110.233	98.21	1.79	84.79
SPEED LIMIT DEFICIENCY	130.000(47)	.000(0)	110.233	100.00	.00	84.79
CAPACITY DEFICIENCY 1996	116.300(39)	13.700(8)	110.233	89.46	10.54	84.79
CAPACITY DEFICIENCY 2016	65.821(18)	64.179(29)	110.233	50.63	49.37	84.79

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 114 in TEXAS : I-35 Termini: Dallas/Ft. Worth UL - Oklahoma SL

RURAL LENGTH	32.148(	3 SECTIONS COVERING	15.581 MILES)
URBAN LENGTH	6.852(	2 SECTIONS COVERING	3.321 MILES)
TOTAL LENGTH	39.000(	5 SECTIONS COVERING	18.902 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	32.148(3)	.000(0)	15.581	100.00	.00	48.47
LANE WIDTH DEFICIENCY	32.148(3)	.000(0)	15.581	100.00	.00	48.47
SHOULDER W. DEFICIENCY	32.148(3)	.000(0)	15.581	100.00	.00	48.47
VERT. ALIGN. DEFICIENCY	32.148(3)	.000(0)	15.581	100.00	.00	48.47
HORIZ. ALIGN. DEFICIENCY	25.362(2)	6.786(1)	15.581	78.89	21.11	48.47
SPEED LIMIT DEFICIENCY	32.148(3)	.000(0)	15.581	100.00	.00	48.47
CAPACITY DEFICIENCY 1996	32.148(3)	.000(0)	15.581	100.00	.00	48.47
CAPACITY DEFICIENCY 2016	21.008(2)	11.140(1)	15.581	65.35	34.65	48.47

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	6.852(2)	.000(0)	3.321	100.00	.00	48.47
LANE WIDTH DEFICIENCY	6.852(2)	.000(0)	3.321	100.00	.00	48.47
SHOULDER W. DEFICIENCY	6.852(2)	.000(0)	3.321	100.00	.00	48.47
VERT. ALIGN. DEFICIENCY	6.852(2)	.000(0)	3.321	100.00	.00	48.47
HORIZ. ALIGN. DEFICIENCY	6.852(2)	.000(0)	3.321	100.00	.00	48.47
SPEED LIMIT DEFICIENCY	6.852(2)	.000(0)	3.321	100.00	.00	48.47
CAPACITY DEFICIENCY 1996	6.852(2)	.000(0)	3.321	100.00	.00	48.47
CAPACITY DEFICIENCY 2016	6.852(2)	.000(0)	3.321	100.00	.00	48.47

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	39.000(5)	.000(0)	18.902	100.00	.00	48.47
LANE WIDTH DEFICIENCY	39.000(5)	.000(0)	18.902	100.00	.00	48.47
SHOULDER W. DEFICIENCY	39.000(5)	.000(0)	18.902	100.00	.00	48.47
VERT. ALIGN. DEFICIENCY	39.000(5)	.000(0)	18.902	100.00	.00	48.47
HORIZ. ALIGN. DEFICIENCY	32.214(4)	6.786(1)	18.902	82.60	17.40	48.47
SPEED LIMIT DEFICIENCY	39.000(5)	.000(0)	18.902	100.00	.00	48.47
CAPACITY DEFICIENCY 1996	39.000(5)	.000(0)	18.902	100.00	.00	48.47
CAPACITY DEFICIENCY 2016	27.860(4)	11.140(1)	18.902	71.44	28.56	48.47

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 120 in TEXAS : I-37 Termini: Through San Antonio (I-35 - UL)

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)	
URBAN LENGTH	17.000(	4 SECTIONS COVERING	10.940 MILES)	
TOTAL LENGTH	17.000(	4 SECTIONS COVERING	10.940 MILES)	

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	17.000(4)	.000(0)	10.940	100.00	.00	64.35
LANE WIDTH DEFICIENCY	17.000(4)	.000(0)	10.940	100.00	.00	64.35
SHOULDER W. DEFICIENCY	17.000(4)	.000(0)	10.940	100.00	.00	64.35
VERT. ALIGN. DEFICIENCY	17.000(4)	.000(0)	10.940	100.00	.00	64.35
HORIZ. ALIGN. DEFICIENCY	17.000(4)	.000(0)	10.940	100.00	.00	64.35
SPEED LIMIT DEFICIENCY	17.000(4)	.000(0)	10.940	100.00	.00	64.35
CAPACITY DEFICIENCY 1996	17.000(4)	.000(0)	10.940	100.00	.00	64.35
CAPACITY DEFICIENCY 2016	4.862(1)	12.138(3)	10.940	28.60	71.40	64.35

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 121 in TEXAS : I-37 Termini: San Antonio UL - Corpus Christi UL

RURAL LENGTH	119.000(12 SECTIONS COVERING	58.520 MILES)
URBAN LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	119.000(12 SECTIONS COVERING	58.520 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	119.000(12)	.000(0)	58.520	100.00	.00	49.18
LANE WIDTH DEFICIENCY	119.000(12)	.000(0)	58.520	100.00	.00	49.18
SHOULDER W. DEFICIENCY	119.000(12)	.000(0)	58.520	100.00	.00	49.18
VERT. ALIGN. DEFICIENCY	119.000(12)	.000(0)	58.520	100.00	.00	49.18
HORIZ. ALIGN. DEFICIENCY	119.000(12)	.000(0)	58.520	100.00	.00	49.18
SPEED LIMIT DEFICIENCY	119.000(12)	.000(0)	58.520	100.00	.00	49.18
CAPACITY DEFICIENCY 1996	119.000(12)	.000(0)	58.520	100.00	.00	49.18
CAPACITY DEFICIENCY 2016	113.774(11)	5.226(1)	58.520	95.61	4.39	49.18

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 122 in TEXAS : I-37 Termini: Through Corpus Christi (UL - US 181)

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	15.820(	5 SECTIONS COVERING	15.820 MILES)
TOTAL LENGTH	15.820(	5 SECTIONS COVERING	15.820 MILES)

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	15.820(5)	.000(0)	15.820	100.00	.00	100.00
LANE WIDTH DEFICIENCY	15.820(5)	.000(0)	15.820	100.00	.00	100.00
SHOULDER W. DEFICIENCY	15.820(5)	.000(0)	15.820	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	15.820(5)	.000(0)	15.820	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	15.820(5)	.000(0)	15.820	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	15.820(5)	.000(0)	15.820	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	12.025(4)	3.795(1)	15.820	76.01	23.99	100.00
CAPACITY DEFICIENCY 2016	2.474(3)	13.346(2)	15.820	15.64	84.36	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 135 in TEXAS : I-40 Termini: New Mexico SL - Amarillo UL

RURAL LENGTH	62.000(	6 SECTIONS COVERING	34.680 MILES)
URBAN LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	62.000(	6 SECTIONS COVERING	34.680 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	62.000(6)	.000(0)	34.680	100.00	.00	55.94
LANE WIDTH DEFICIENCY	62.000(6)	.000(0)	34.680	100.00	.00	55.94
SHOULDER W. DEFICIENCY	62.000(6)	.000(0)	34.680	100.00	.00	55.94
VERT. ALIGN. DEFICIENCY	62.000(6)	.000(0)	34.680	100.00	.00	55.94
HORIZ. ALIGN. DEFICIENCY	62.000(6)	.000(0)	34.680	100.00	.00	55.94
SPEED LIMIT DEFICIENCY	62.000(6)	.000(0)	34.680	100.00	.00	55.94
CAPACITY DEFICIENCY 1996	62.000(6)	.000(0)	34.680	100.00	.00	55.94
CAPACITY DEFICIENCY 2016	62.000(6)	.000(0)	34.680	100.00	.00	55.94

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 136 in TEXAS : I-40 Termini: Through Amarillo

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	15.692(	5 SECTIONS COVERING	15.692 MILES)
TOTAL LENGTH	15.692(	5 SECTIONS COVERING	15.692 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	15.692(5)	.000(0)	15.692	100.00	.00	100.00
LANE WIDTH DEFICIENCY	15.692(5)	.000(0)	15.692	100.00	.00	100.00
SHOULDER W. DEFICIENCY	15.692(5)	.000(0)	15.692	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	15.692(5)	.000(0)	15.692	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	15.692(5)	.000(0)	15.692	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	15.692(5)	.000(0)	15.692	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	15.692(5)	.000(0)	15.692	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	14.687(4)	1.005(1)	15.692	93.60	6.40	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 137 in TEXAS : I-40 Termini: Amarillo UL- Oklahoma SL

RURAL LENGTH	99.000(13 SECTIONS COVERING	60.669 MILES)
URBAN LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	99.000(13 SECTIONS COVERING	60.669 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	99.000(13)	.000(0)	60.669	100.00	.00	61.28
LANE WIDTH DEFICIENCY	99.000(13)	.000(0)	60.669	100.00	.00	61.28
SHOULDER W. DEFICIENCY	99.000(13)	.000(0)	60.669	100.00	.00	61.28
VERT. ALIGN. DEFICIENCY	99.000(13)	.000(0)	60.669	100.00	.00	61.28
HORIZ. ALIGN. DEFICIENCY	99.000(13)	.000(0)	60.669	100.00	.00	61.28
SPEED LIMIT DEFICIENCY	99.000(13)	.000(0)	60.669	100.00	.00	61.28
CAPACITY DEFICIENCY 1996	99.000(13)	.000(0)	60.669	100.00	.00	61.28
CAPACITY DEFICIENCY 2016	99.000(13)	.000(0)	60.669	100.00	.00	61.28

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 140 in TEXAS : I-44 Termini: US 287 - Oklahoma SL

RURAL LENGTH	2.567(	1 SECTIONS COVERING	2.567 MILES)
URBAN LENGTH	11.997(	5 SECTIONS COVERING	11.997 MILES)
TOTAL LENGTH	14.564(	6 SECTIONS COVERING	14.564 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	2.567(1)	.000(0)	2.567	100.00	.00	100.00
LANE WIDTH DEFICIENCY	2.567(1)	.000(0)	2.567	100.00	.00	100.00
SHOULDER W. DEFICIENCY	2.567(1)	.000(0)	2.567	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	2.567(1)	.000(0)	2.567	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	2.567(1)	.000(0)	2.567	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	2.567(1)	.000(0)	2.567	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	2.567(1)	.000(0)	2.567	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	2.567(1)	.000(0)	2.567	100.00	.00	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	9.364(4)	2.633(1)	11.997	78.05	21.95	100.00
LANE WIDTH DEFICIENCY	11.997(5)	.000(0)	11.997	100.00	.00	100.00
SHOULDER W. DEFICIENCY	11.997(5)	.000(0)	11.997	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	11.997(5)	.000(0)	11.997	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	11.997(5)	.000(0)	11.997	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	11.997(5)	.000(0)	11.997	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	11.997(5)	.000(0)	11.997	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	11.997(5)	.000(0)	11.997	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	11.931(5)	2.633(1)	14.564	81.92	18.08	100.00
LANE WIDTH DEFICIENCY	14.564(6)	.000(0)	14.564	100.00	.00	100.00
SHOULDER W. DEFICIENCY	14.564(6)	.000(0)	14.564	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	14.564(6)	.000(0)	14.564	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	14.564(6)	.000(0)	14.564	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	14.564(6)	.000(0)	14.564	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	14.564(6)	.000(0)	14.564	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	14.564(6)	.000(0)	14.564	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 150 in TEXAS : I-45 Termini: In Dallas/Ft. Worth

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	18.000(	2 SECTIONS COVERING	12.278 MILES)
TOTAL LENGTH	18.000(	2 SECTIONS COVERING	12.278 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	18.000(2)	.000(0)	12.278	100.00	.00	68.21
LANE WIDTH DEFICIENCY	18.000(2)	.000(0)	12.278	100.00	.00	68.21
SHOULDER W. DEFICIENCY	18.000(2)	.000(0)	12.278	100.00	.00	68.21
VERT. ALIGN. DEFICIENCY	18.000(2)	.000(0)	12.278	100.00	.00	68.21
HORIZ. ALIGN. DEFICIENCY	18.000(2)	.000(0)	12.278	100.00	.00	68.21
SPEED LIMIT DEFICIENCY	18.000(2)	.000(0)	12.278	100.00	.00	68.21
CAPACITY DEFICIENCY 1996	18.000(2)	.000(0)	12.278	100.00	.00	68.21
CAPACITY DEFICIENCY 2016	.000(0)	18.000(2)	12.278	.00	100.00	68.21

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 151 in TEXAS : I-45 Termini: Dallas/Ft. Worth UL - Houston UL

RURAL LENGTH 151.503(14 SECTIONS COVERING 61.474 MILES)
URBAN LENGTH 48.497(10 SECTIONS COVERING 19.678 MILES)
TOTAL LENGTH 200.000(24 SECTIONS COVERING 81.152 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	151.503(14)	.000(0)	61.474	100.00	.00	40.58
LANE WIDTH DEFICIENCY	151.503(14)	.000(0)	61.474	100.00	.00	40.58
SHOULDER W. DEFICIENCY	151.503(14)	.000(0)	61.474	100.00	.00	40.58
VERT. ALIGN. DEFICIENCY	151.503(14)	.000(0)	61.474	100.00	.00	40.58
HORIZ. ALIGN. DEFICIENCY	135.260(13)	16.244(1)	61.474	89.28	10.72	40.58
SPEED LIMIT DEFICIENCY	151.503(14)	.000(0)	61.474	100.00	.00	40.58
CAPACITY DEFICIENCY 1996	125.877(10)	25.626(4)	61.474	83.09	16.91	40.58
CAPACITY DEFICIENCY 2016	72.094(5)	79.409(9)	61.474	47.59	52.41	40.58

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	48.497(10)	.000(0)	19.678	100.00	.00	40.58
LANE WIDTH DEFICIENCY	48.497(10)	.000(0)	19.678	100.00	.00	40.58
SHOULDER W. DEFICIENCY	48.497(10)	.000(0)	19.678	100.00	.00	40.58
VERT. ALIGN. DEFICIENCY	48.497(10)	.000(0)	19.678	100.00	.00	40.58
HORIZ. ALIGN. DEFICIENCY	48.497(10)	.000(0)	19.678	100.00	.00	40.58
SPEED LIMIT DEFICIENCY	48.497(10)	.000(0)	19.678	100.00	.00	40.58
CAPACITY DEFICIENCY 1996	36.623(8)	11.874(2)	19.678	75.52	24.48	40.58
CAPACITY DEFICIENCY 2016	23.129(6)	25.367(4)	19.678	47.69	52.31	40.58

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	200.000(24)	.000(0)	81.152	100.00	.00	40.58
LANE WIDTH DEFICIENCY	200.000(24)	.000(0)	81.152	100.00	.00	40.58
SHOULDER W. DEFICIENCY	200.000(24)	.000(0)	81.152	100.00	.00	40.58
VERT. ALIGN. DEFICIENCY	200.000(24)	.000(0)	81.152	100.00	.00	40.58
HORIZ. ALIGN. DEFICIENCY	183.756(23)	16.244(1)	81.152	91.88	8.12	40.58
SPEED LIMIT DEFICIENCY	200.000(24)	.000(0)	81.152	100.00	.00	40.58
CAPACITY DEFICIENCY 1996	162.500(18)	37.500(6)	81.152	81.25	18.75	40.58
CAPACITY DEFICIENCY 2016	95.224(11)	104.776(13)	81.152	47.61	52.39	40.58

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 152 in TEXAS : I-45 Termini: Through Houston

RURAL LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	34.000(13 SECTIONS COVERING	26.834 MILES)
TOTAL LENGTH	34.000(13 SECTIONS COVERING	26.834 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	32.245(12)	1.755(1)	26.834	94.84	5.16	78.92
LANE WIDTH DEFICIENCY	34.000(13)	.000(0)	26.834	100.00	.00	78.92
SHOULDER W. DEFICIENCY	34.000(13)	.000(0)	26.834	100.00	.00	78.92
VERT. ALIGN. DEFICIENCY	34.000(13)	.000(0)	26.834	100.00	.00	78.92
HORIZ. ALIGN. DEFICIENCY	34.000(13)	.000(0)	26.834	100.00	.00	78.92
SPEED LIMIT DEFICIENCY	34.000(13)	.000(0)	26.834	100.00	.00	78.92
CAPACITY DEFICIENCY 1996	17.443(7)	16.557(6)	26.834	51.30	48.70	78.92
CAPACITY DEFICIENCY 2016	2.292(2)	31.708(11)	26.834	6.74	93.26	78.92

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 153 in TEXAS : I-45 Termini: Houston UL - Galveston

RURAL LENGTH	6.121(2 SECTIONS COVERING	4.802 MILES)
URBAN LENGTH	25.879(2 SECTIONS COVERING	20.303 MILES)
TOTAL LENGTH	32.000(4 SECTIONS COVERING	25.105 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	6.121(2)	.000(0)	4.802	100.00	.00	78.45
LANE WIDTH DEFICIENCY	6.121(2)	.000(0)	4.802	100.00	.00	78.45
SHOULDER W. DEFICIENCY	6.121(2)	.000(0)	4.802	100.00	.00	78.45
VERT. ALIGN. DEFICIENCY	6.121(2)	.000(0)	4.802	100.00	.00	78.45
HORIZ. ALIGN. DEFICIENCY	6.121(2)	.000(0)	4.802	100.00	.00	78.45
SPEED LIMIT DEFICIENCY	3.150(1)	2.971(1)	4.802	51.46	48.54	78.45
CAPACITY DEFICIENCY 1996	2.971(1)	3.150(1)	4.802	48.54	51.46	78.45
CAPACITY DEFICIENCY 2016	.000(0)	6.121(2)	4.802	.00	100.00	78.45

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	25.879(2)	.000(0)	20.303	100.00	.00	78.45
LANE WIDTH DEFICIENCY	25.879(2)	.000(0)	20.303	100.00	.00	78.45
SHOULDER W. DEFICIENCY	25.879(2)	.000(0)	20.303	100.00	.00	78.45
VERT. ALIGN. DEFICIENCY	25.879(2)	.000(0)	20.303	100.00	.00	78.45
HORIZ. ALIGN. DEFICIENCY	25.879(2)	.000(0)	20.303	100.00	.00	78.45
SPEED LIMIT DEFICIENCY	25.879(2)	.000(0)	20.303	100.00	.00	78.45
CAPACITY DEFICIENCY 1996	25.879(2)	.000(0)	20.303	100.00	.00	78.45
CAPACITY DEFICIENCY 2016	4.349(1)	21.530(1)	20.303	16.81	83.19	78.45

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	32.000(4)	.000(0)	25.105	100.00	.00	78.45
LANE WIDTH DEFICIENCY	32.000(4)	.000(0)	25.105	100.00	.00	78.45
SHOULDER W. DEFICIENCY	32.000(4)	.000(0)	25.105	100.00	.00	78.45
VERT. ALIGN. DEFICIENCY	32.000(4)	.000(0)	25.105	100.00	.00	78.45
HORIZ. ALIGN. DEFICIENCY	32.000(4)	.000(0)	25.105	100.00	.00	78.45
SPEED LIMIT DEFICIENCY	29.029(3)	2.971(1)	25.105	90.71	9.29	78.45
CAPACITY DEFICIENCY 1996	28.850(3)	3.150(1)	25.105	90.16	9.84	78.45
CAPACITY DEFICIENCY 2016	4.349(1)	27.651(3)	25.105	13.59	86.41	78.45

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 410 in TEXAS : US 54 Termini: I-10 @ El Paso - New Mexico SL

RURAL LENGTH	1.676(	1 SECTIONS COVERING	1.101	MILES)
URBAN LENGTH	18.324(	6 SECTIONS COVERING	12.036	MILES)
TOTAL LENGTH	20.000(	7 SECTIONS COVERING	13.137	MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	1.676(1)	.000(0)	1.101	100.00	.00	65.68
LANE WIDTH DEFICIENCY	1.676(1)	.000(0)	1.101	100.00	.00	65.68
SHOULDER W. DEFICIENCY	1.676(1)	.000(0)	1.101	100.00	.00	65.68
VERT. ALIGN. DEFICIENCY	1.676(1)	.000(0)	1.101	100.00	.00	65.68
HORIZ. ALIGN. DEFICIENCY	1.676(1)	.000(0)	1.101	100.00	.00	65.68
SPEED LIMIT DEFICIENCY	1.676(1)	.000(0)	1.101	100.00	.00	65.68
CAPACITY DEFICIENCY 1996	1.676(1)	.000(0)	1.101	100.00	.00	65.68
CAPACITY DEFICIENCY 2016	1.676(1)	.000(0)	1.101	100.00	.00	65.68

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	13.228(5)	5.096(1)	12.036	72.19	27.81	65.69
LANE WIDTH DEFICIENCY	13.757(5)	4.567(1)	12.036	75.07	24.93	65.69
SHOULDER W. DEFICIENCY	18.324(6)	.000(0)	12.036	100.00	.00	65.69
VERT. ALIGN. DEFICIENCY	18.324(6)	.000(0)	12.036	100.00	.00	65.69
HORIZ. ALIGN. DEFICIENCY	18.324(6)	.000(0)	12.036	100.00	.00	65.69
SPEED LIMIT DEFICIENCY	13.757(5)	4.567(1)	12.036	75.07	24.93	65.69
CAPACITY DEFICIENCY 1996	18.324(6)	.000(0)	12.036	100.00	.00	65.69
CAPACITY DEFICIENCY 2016	17.407(5)	.916(1)	12.036	95.00	5.00	65.69

A L L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	14.904(6)	5.096(1)	13.137	74.52	25.48	65.68
LANE WIDTH DEFICIENCY	15.433(6)	4.567(1)	13.137	77.16	22.84	65.68
SHOULDER W. DEFICIENCY	20.000(7)	.000(0)	13.137	100.00	.00	65.68
VERT. ALIGN. DEFICIENCY	20.000(7)	.000(0)	13.137	100.00	.00	65.68
HORIZ. ALIGN. DEFICIENCY	20.000(7)	.000(0)	13.137	100.00	.00	65.68
SPEED LIMIT DEFICIENCY	15.433(6)	4.567(1)	13.137	77.16	22.84	65.68
CAPACITY DEFICIENCY 1996	20.000(7)	.000(0)	13.137	100.00	.00	65.68
CAPACITY DEFICIENCY 2016	19.084(6)	.916(1)	13.137	95.42	4.58	65.68

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 411 in TEXAS : US 54 Termini: New Mexico SL - Oklahoma SL (through Texas)

RURAL LENGTH	90.715(	8 SECTIONS COVERING	89.312 MILES)
URBAN LENGTH	1.285(	1 SECTIONS COVERING	1.265 MILES)
TOTAL LENGTH	92.000(	9 SECTIONS COVERING	90.577 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	90.715(8)	.000(0)	89.312	100.00	.00	98.45
LANE WIDTH DEFICIENCY	90.715(8)	.000(0)	89.312	100.00	.00	98.45
SHOULDER W. DEFICIENCY	90.715(8)	.000(0)	89.312	100.00	.00	98.45
VERT. ALIGN. DEFICIENCY	90.715(8)	.000(0)	89.312	100.00	.00	98.45
HORIZ. ALIGN. DEFICIENCY	90.715(8)	.000(0)	89.312	100.00	.00	98.45
SPEED LIMIT DEFICIENCY	89.175(7)	1.540(1)	89.312	98.30	1.70	98.45
CAPACITY DEFICIENCY 1996	90.715(8)	.000(0)	89.312	100.00	.00	98.45
CAPACITY DEFICIENCY 2016	90.715(8)	.000(0)	89.312	100.00	.00	98.45

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	.000(0)	1.285(1)	1.265	.00	100.00	98.45
LANE WIDTH DEFICIENCY	1.285(1)	.000(0)	1.265	100.00	.00	98.45
SHOULDER W. DEFICIENCY	1.285(1)	.000(0)	1.265	100.00	.00	98.45
VERT. ALIGN. DEFICIENCY	1.285(1)	.000(0)	1.265	100.00	.00	98.45
HORIZ. ALIGN. DEFICIENCY	1.285(1)	.000(0)	1.265	100.00	.00	98.45
SPEED LIMIT DEFICIENCY	.000(0)	1.285(1)	1.265	.00	100.00	98.45
CAPACITY DEFICIENCY 1996	1.285(1)	.000(0)	1.265	100.00	.00	98.45
CAPACITY DEFICIENCY 2016	1.285(1)	.000(0)	1.265	100.00	.00	98.45

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	90.715(8)	1.285(1)	90.577	98.60	1.40	98.45
LANE WIDTH DEFICIENCY	92.000(9)	.000(0)	90.577	100.00	.00	98.45
SHOULDER W. DEFICIENCY	92.000(9)	.000(0)	90.577	100.00	.00	98.45
VERT. ALIGN. DEFICIENCY	92.000(9)	.000(0)	90.577	100.00	.00	98.45
HORIZ. ALIGN. DEFICIENCY	92.000(9)	.000(0)	90.577	100.00	.00	98.45
SPEED LIMIT DEFICIENCY	89.175(7)	2.825(2)	90.577	96.93	3.07	98.45
CAPACITY DEFICIENCY 1996	92.000(9)	.000(0)	90.577	100.00	.00	98.45
CAPACITY DEFICIENCY 2016	92.000(9)	.000(0)	90.577	100.00	.00	98.45

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 420 in TEXAS : US 59 Termini: Laredo - Houston UL

RURAL LENGTH 248.704(25 SECTIONS COVERING 108.929 MILES)
URBAN LENGTH 41.296(9 SECTIONS COVERING 18.087 MILES)
TOTAL LENGTH 290.000(34 SECTIONS COVERING 127.016 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	248.704(25)	.000(0)	108.929	100.00	.00	43.80
LANE WIDTH DEFICIENCY	246.880(24)	1.824(1)	108.929	99.27	.73	43.80
SHOULDER W. DEFICIENCY	248.704(25)	.000(0)	108.929	100.00	.00	43.80
VERT. ALIGN. DEFICIENCY	248.704(25)	.000(0)	108.929	100.00	.00	43.80
HORIZ. ALIGN. DEFICIENCY	248.704(25)	.000(0)	108.929	100.00	.00	43.80
SPEED LIMIT DEFICIENCY	244.094(23)	4.610(2)	108.929	98.15	1.85	43.80
CAPACITY DEFICIENCY 1996	163.708(21)	84.996(4)	108.929	65.82	34.18	43.80
CAPACITY DEFICIENCY 2016	138.235(19)	110.469(6)	108.929	55.58	44.42	43.80

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	41.296(9)	.000(0)	18.087	100.00	.00	43.80
LANE WIDTH DEFICIENCY	38.823(8)	2.473(1)	18.087	94.01	5.99	43.80
SHOULDER W. DEFICIENCY	41.296(9)	.000(0)	18.087	100.00	.00	43.80
VERT. ALIGN. DEFICIENCY	41.296(9)	.000(0)	18.087	100.00	.00	43.80
HORIZ. ALIGN. DEFICIENCY	41.296(9)	.000(0)	18.087	100.00	.00	43.80
SPEED LIMIT DEFICIENCY	29.880(5)	11.416(4)	18.087	72.36	27.64	43.80
CAPACITY DEFICIENCY 1996	35.741(8)	5.555(1)	18.087	86.55	13.45	43.80
CAPACITY DEFICIENCY 2016	29.677(6)	11.619(3)	18.087	71.86	28.14	43.80

A L L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	290.000(34)	.000(0)	127.016	100.00	.00	43.80
LANE WIDTH DEFICIENCY	285.703(32)	4.297(2)	127.016	98.52	1.48	43.80
SHOULDER W. DEFICIENCY	290.000(34)	.000(0)	127.016	100.00	.00	43.80
VERT. ALIGN. DEFICIENCY	290.000(34)	.000(0)	127.016	100.00	.00	43.80
HORIZ. ALIGN. DEFICIENCY	290.000(34)	.000(0)	127.016	100.00	.00	43.80
SPEED LIMIT DEFICIENCY	273.974(28)	16.026(6)	127.016	94.47	5.53	43.80
CAPACITY DEFICIENCY 1996	199.449(29)	90.551(5)	127.016	68.78	31.22	43.80
CAPACITY DEFICIENCY 2016	167.912(25)	122.088(9)	127.016	57.90	42.10	43.80

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 421 in TEXAS : US 59 Termini: Through Houston

RURAL LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	43.000(20 SECTIONS COVERING	31.620 MILES)
TOTAL LENGTH	43.000(20 SECTIONS COVERING	31.620 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	31.828(14)	11.172(6)	31.620	74.02	25.98	73.53
LANE WIDTH DEFICIENCY	28.230(16)	14.770(4)	31.620	65.65	34.35	73.53
SHOULDER W. DEFICIENCY	42.913(18)	.087(1)	30.794	99.80	.20	71.61
VERT. ALIGN. DEFICIENCY	43.000(20)	.000(0)	31.620	100.00	.00	73.53
HORIZ. ALIGN. DEFICIENCY	43.000(20)	.000(0)	31.620	100.00	.00	73.53
SPEED LIMIT DEFICIENCY	43.000(20)	.000(0)	31.620	100.00	.00	73.53
CAPACITY DEFICIENCY 1996	19.494(10)	23.506(10)	31.620	45.34	54.66	73.53
CAPACITY DEFICIENCY 2016	.000(0)	43.000(20)	31.620	.00	100.00	73.53

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 422 in TEXAS : US 59 Termini: Houston UL - I-30

RURAL LENGTH	192.223(38 SECTIONS COVERING	101.186 MILES)
URBAN LENGTH	82.777(28 SECTIONS COVERING	43.574 MILES)
TOTAL LENGTH	275.000(66 SECTIONS COVERING	144.760 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	182.775(36)	9.447(2)	101.186	95.09	4.91	52.64
LANE WIDTH DEFICIENCY	169.483(34)	22.739(4)	101.186	88.17	11.83	52.64
SHOULDER W. DEFICIENCY	192.223(35)	.000(0)	84.388	100.00	.00	43.90
VERT. ALIGN. DEFICIENCY	183.727(37)	8.495(1)	101.186	95.58	4.42	52.64
HORIZ. ALIGN. DEFICIENCY	188.007(37)	4.215(1)	101.186	97.81	2.19	52.64
SPEED LIMIT DEFICIENCY	163.687(27)	28.535(11)	101.186	85.16	14.84	52.64
CAPACITY DEFICIENCY 1996	181.056(36)	11.166(2)	101.186	94.19	5.81	52.64
CAPACITY DEFICIENCY 2016	143.448(33)	48.775(5)	101.186	74.63	25.37	52.64

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	78.809(26)	3.968(2)	43.574	95.21	4.79	52.64
LANE WIDTH DEFICIENCY	80.085(27)	2.692(1)	43.574	96.75	3.25	52.64
SHOULDER W. DEFICIENCY	82.777(27)	.000(0)	43.235	100.00	.00	52.23
VERT. ALIGN. DEFICIENCY	82.777(28)	.000(0)	43.574	100.00	.00	52.64
HORIZ. ALIGN. DEFICIENCY	82.777(28)	.000(0)	43.574	100.00	.00	52.64
SPEED LIMIT DEFICIENCY	63.423(15)	19.354(13)	43.574	76.62	23.38	52.64
CAPACITY DEFICIENCY 1996	78.809(26)	3.968(2)	43.574	95.21	4.79	52.64
CAPACITY DEFICIENCY 2016	72.682(22)	10.095(6)	43.574	87.80	12.20	52.64

A L L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	261.584(62)	13.416(4)	144.760	95.12	4.88	52.64
LANE WIDTH DEFICIENCY	249.569(61)	25.431(5)	144.760	90.75	9.25	52.64
SHOULDER W. DEFICIENCY	275.000(62)	.000(0)	127.623	100.00	.00	46.41
VERT. ALIGN. DEFICIENCY	266.505(65)	8.495(1)	144.760	96.91	3.09	52.64
HORIZ. ALIGN. DEFICIENCY	270.785(65)	4.215(1)	144.760	98.47	1.53	52.64
SPEED LIMIT DEFICIENCY	227.111(42)	47.889(24)	144.760	82.59	17.41	52.64
CAPACITY DEFICIENCY 1996	259.865(62)	15.135(4)	144.760	94.50	5.50	52.64
CAPACITY DEFICIENCY 2016	216.130(55)	58.870(11)	144.760	78.59	21.41	52.64

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 440 in TEXAS : US 77 Termini: Brownsville to US 59

RURAL LENGTH 150.731(22 SECTIONS COVERING 92.216 MILES)
URBAN LENGTH 83.269(37 SECTIONS COVERING 50.943 MILES)
TOTAL LENGTH 234.000(59 SECTIONS COVERING 143.159 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	150.731(22)	.000(0)	92.216	100.00	.00	61.18
LANE WIDTH DEFICIENCY	150.731(22)	.000(0)	92.216	100.00	.00	61.18
SHOULDER W. DEFICIENCY	150.731(21)	.000(0)	91.307	100.00	.00	60.58
VERT. ALIGN. DEFICIENCY	150.731(22)	.000(0)	92.216	100.00	.00	61.18
HORIZ. ALIGN. DEFICIENCY	150.731(22)	.000(0)	92.216	100.00	.00	61.18
SPEED LIMIT DEFICIENCY	145.455(19)	5.276(3)	92.216	96.50	3.50	61.18
CAPACITY DEFICIENCY 1996	131.947(19)	18.784(3)	92.216	87.54	12.46	61.18
CAPACITY DEFICIENCY 2016	124.889(16)	25.842(6)	92.216	82.86	17.14	61.18

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	79.411(34)	3.858(3)	50.943	95.37	4.63	61.18
LANE WIDTH DEFICIENCY	79.952(34)	3.316(3)	50.943	96.02	3.98	61.18
SHOULDER W. DEFICIENCY	83.269(36)	.000(0)	50.419	100.00	.00	60.55
VERT. ALIGN. DEFICIENCY	83.269(37)	.000(0)	50.943	100.00	.00	61.18
HORIZ. ALIGN. DEFICIENCY	83.269(37)	.000(0)	50.943	100.00	.00	61.18
SPEED LIMIT DEFICIENCY	47.853(15)	35.416(22)	50.943	57.47	42.53	61.18
CAPACITY DEFICIENCY 1996	83.269(37)	.000(0)	50.943	100.00	.00	61.18
CAPACITY DEFICIENCY 2016	51.748(26)	31.521(11)	50.943	62.15	37.85	61.18

A L L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	230.142(56)	3.858(3)	143.159	98.35	1.65	61.18
LANE WIDTH DEFICIENCY	230.684(56)	3.316(3)	143.159	98.58	1.42	61.18
SHOULDER W. DEFICIENCY	234.000(57)	.000(0)	141.726	100.00	.00	60.57
VERT. ALIGN. DEFICIENCY	234.000(59)	.000(0)	143.159	100.00	.00	61.18
HORIZ. ALIGN. DEFICIENCY	234.000(59)	.000(0)	143.159	100.00	.00	61.18
SPEED LIMIT DEFICIENCY	193.308(34)	40.692(25)	143.159	82.61	17.39	61.18
CAPACITY DEFICIENCY 1996	215.216(56)	18.784(3)	143.159	91.97	8.03	61.18
CAPACITY DEFICIENCY 2016	176.637(42)	57.363(17)	143.159	75.49	24.51	61.18

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 540 in TEXAS : US 281 Termini: Mexico to I-37

RURAL LENGTH 141.270(20 SECTIONS COVERING 88.992 MILES)
URBAN LENGTH 29.730(11 SECTIONS COVERING 18.728 MILES)
TOTAL LENGTH 171.000(31 SECTIONS COVERING 107.720 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	EXPANDED LENGTH (MI) DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	% OF EXPANDED LENGTH DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	140.099(19)	1.172(1)	88.992	99.17	.83	62.99
LANE WIDTH DEFICIENCY	141.270(20)	.000(0)	88.992	100.00	.00	62.99
SHOULDER W. DEFICIENCY	141.270(19)	.000(0)	87.765	100.00	.00	62.13
VERT. ALIGN. DEFICIENCY	141.270(20)	.000(0)	88.992	100.00	.00	62.99
HORIZ. ALIGN. DEFICIENCY	109.466(16)	31.805(4)	88.992	77.49	22.51	62.99
SPEED LIMIT DEFICIENCY	138.559(17)	2.711(3)	88.992	98.08	1.92	62.99
CAPACITY DEFICIENCY 1996	140.356(19)	.914(1)	88.992	99.35	.65	62.99
CAPACITY DEFICIENCY 2016	139.184(18)	2.086(2)	88.992	98.52	1.48	62.99

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	EXPANDED LENGTH (MI) DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	% OF EXPANDED LENGTH DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	29.730(11)	.000(0)	18.728	100.00	.00	62.99
LANE WIDTH DEFICIENCY	29.730(11)	.000(0)	18.728	100.00	.00	62.99
SHOULDER W. DEFICIENCY	29.730(11)	.000(0)	18.728	100.00	.00	62.99
VERT. ALIGN. DEFICIENCY	29.730(11)	.000(0)	18.728	100.00	.00	62.99
HORIZ. ALIGN. DEFICIENCY	29.730(11)	.000(0)	18.728	100.00	.00	62.99
SPEED LIMIT DEFICIENCY	20.170(6)	9.560(5)	18.728	67.84	32.16	62.99
CAPACITY DEFICIENCY 1996	29.730(11)	.000(0)	18.728	100.00	.00	62.99
CAPACITY DEFICIENCY 2016	16.225(5)	13.504(6)	18.728	54.58	45.42	62.99

A L L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	EXPANDED LENGTH (MI) DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	% OF EXPANDED LENGTH DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	169.828(30)	1.172(1)	107.720	99.31	.69	62.99
LANE WIDTH DEFICIENCY	171.000(31)	.000(0)	107.720	100.00	.00	62.99
SHOULDER W. DEFICIENCY	171.000(30)	.000(0)	106.493	100.00	.00	62.28
VERT. ALIGN. DEFICIENCY	171.000(31)	.000(0)	107.720	100.00	.00	62.99
HORIZ. ALIGN. DEFICIENCY	139.195(27)	31.805(4)	107.720	81.40	18.60	62.99
SPEED LIMIT DEFICIENCY	158.729(23)	12.271(8)	107.720	92.82	7.18	62.99
CAPACITY DEFICIENCY 1996	170.086(30)	.914(1)	107.720	99.47	.53	62.99
CAPACITY DEFICIENCY 2016	155.410(23)	15.590(8)	107.720	90.88	9.12	62.99

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 550 in TEXAS : US 287 Termini: Oklahoma SL - Amarillo UL

RURAL LENGTH	87.534(	5 SECTIONS COVERING	35.747 MILES)
URBAN LENGTH	2.466(	1 SECTIONS COVERING	1.007 MILES)
TOTAL LENGTH	90.000(	6 SECTIONS COVERING	36.754 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	87.534(5)	.000(0)	35.747	100.00	.00	40.84
LANE WIDTH DEFICIENCY	87.534(5)	.000(0)	35.747	100.00	.00	40.84
SHOULDER W. DEFICIENCY	87.534(5)	.000(0)	35.747	100.00	.00	40.84
VERT. ALIGN. DEFICIENCY	87.534(5)	.000(0)	35.747	100.00	.00	40.84
HORIZ. ALIGN. DEFICIENCY	87.534(5)	.000(0)	35.747	100.00	.00	40.84
SPEED LIMIT DEFICIENCY	87.534(5)	.000(0)	35.747	100.00	.00	40.84
CAPACITY DEFICIENCY 1996	87.534(5)	.000(0)	35.747	100.00	.00	40.84
CAPACITY DEFICIENCY 2016	87.534(5)	.000(0)	35.747	100.00	.00	40.84

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	2.466(1)	.000(0)	1.007	100.00	.00	40.84
LANE WIDTH DEFICIENCY	2.466(1)	.000(0)	1.007	100.00	.00	40.84
SHOULDER W. DEFICIENCY	2.466(1)	.000(0)	1.007	100.00	.00	40.84
VERT. ALIGN. DEFICIENCY	2.466(1)	.000(0)	1.007	100.00	.00	40.84
HORIZ. ALIGN. DEFICIENCY	2.466(1)	.000(0)	1.007	100.00	.00	40.84
SPEED LIMIT DEFICIENCY	.000(0)	2.466(1)	1.007	.00	100.00	40.84
CAPACITY DEFICIENCY 1996	2.466(1)	.000(0)	1.007	100.00	.00	40.84
CAPACITY DEFICIENCY 2016	2.466(1)	.000(0)	1.007	100.00	.00	40.84

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	90.000(6)	.000(0)	36.754	100.00	.00	40.84
LANE WIDTH DEFICIENCY	90.000(6)	.000(0)	36.754	100.00	.00	40.84
SHOULDER W. DEFICIENCY	90.000(6)	.000(0)	36.754	100.00	.00	40.84
VERT. ALIGN. DEFICIENCY	90.000(6)	.000(0)	36.754	100.00	.00	40.84
HORIZ. ALIGN. DEFICIENCY	90.000(6)	.000(0)	36.754	100.00	.00	40.84
SPEED LIMIT DEFICIENCY	87.534(5)	2.466(1)	36.754	97.26	2.74	40.84
CAPACITY DEFICIENCY 1996	90.000(6)	.000(0)	36.754	100.00	.00	40.84
CAPACITY DEFICIENCY 2016	90.000(6)	.000(0)	36.754	100.00	.00	40.84

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 551 in TEXAS : US 287 Termini: Through Amarillo

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	6.841(	3 SECTIONS COVERING	6.841 MILES)
TOTAL LENGTH	6.841(	3 SECTIONS COVERING	6.841 MILES)

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	6.841(3)	.000(0)	6.841	100.00	.00	100.00
LANE WIDTH DEFICIENCY	6.841(3)	.000(0)	6.841	100.00	.00	100.00
SHOULDER W. DEFICIENCY	6.841(3)	.000(0)	6.841	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	6.841(3)	.000(0)	6.841	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	6.841(3)	.000(0)	6.841	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	6.841(3)	.000(0)	6.841	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	6.841(3)	.000(0)	6.841	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	6.841(3)	.000(0)	6.841	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 552 in TEXAS : US 287 Termini: Amarillo UL - I-44 @ Wichita Falls

RURAL LENGTH 162.113(17 SECTIONS COVERING 48.968 MILES)
URBAN LENGTH 35.887(8 SECTIONS COVERING 10.840 MILES)
TOTAL LENGTH 198.000(25 SECTIONS COVERING 59.808 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	159.594(16)	2.519(1)	48.968	98.45	1.55	30.21
LANE WIDTH DEFICIENCY	147.391(15)	14.722(2)	48.968	90.92	9.08	30.21
SHOULDER W. DEFICIENCY	162.113(17)	.000(0)	48.968	100.00	.00	30.21
VERT. ALIGN. DEFICIENCY	162.113(17)	.000(0)	48.968	100.00	.00	30.21
HORIZ. ALIGN. DEFICIENCY	162.113(17)	.000(0)	48.968	100.00	.00	30.21
SPEED LIMIT DEFICIENCY	152.903(14)	9.210(3)	48.968	94.32	5.68	30.21
CAPACITY DEFICIENCY 1996	162.113(17)	.000(0)	48.968	100.00	.00	30.21
CAPACITY DEFICIENCY 2016	162.113(17)	.000(0)	48.968	100.00	.00	30.21

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	31.401(6)	4.486(2)	10.840	87.50	12.50	30.21
LANE WIDTH DEFICIENCY	23.906(6)	11.981(2)	10.840	66.61	33.39	30.21
SHOULDER W. DEFICIENCY	35.887(8)	.000(0)	10.840	100.00	.00	30.21
VERT. ALIGN. DEFICIENCY	35.887(8)	.000(0)	10.840	100.00	.00	30.21
HORIZ. ALIGN. DEFICIENCY	35.887(8)	.000(0)	10.840	100.00	.00	30.21
SPEED LIMIT DEFICIENCY	26.491(4)	9.395(4)	10.840	73.82	26.18	30.21
CAPACITY DEFICIENCY 1996	35.887(8)	.000(0)	10.840	100.00	.00	30.21
CAPACITY DEFICIENCY 2016	35.887(8)	.000(0)	10.840	100.00	.00	30.21

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	190.995(22)	7.005(3)	59.808	96.46	3.54	30.21
LANE WIDTH DEFICIENCY	171.297(21)	26.703(4)	59.808	86.51	13.49	30.21
SHOULDER W. DEFICIENCY	198.000(25)	.000(0)	59.808	100.00	.00	30.21
VERT. ALIGN. DEFICIENCY	198.000(25)	.000(0)	59.808	100.00	.00	30.21
HORIZ. ALIGN. DEFICIENCY	198.000(25)	.000(0)	59.808	100.00	.00	30.21
SPEED LIMIT DEFICIENCY	179.394(18)	18.606(7)	59.808	90.60	9.40	30.21
CAPACITY DEFICIENCY 1996	198.000(25)	.000(0)	59.808	100.00	.00	30.21
CAPACITY DEFICIENCY 2016	198.000(25)	.000(0)	59.808	100.00	.00	30.21

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 553 in TEXAS : US 287 Termini: I-44 @ Wichita Falls - Dallas/Ft. Worth UL

RURAL LENGTH	78.671(	2 SECTIONS COVERING	10.237 MILES)
URBAN LENGTH	26.329(	2 SECTIONS COVERING	3.426 MILES)
TOTAL LENGTH	105.000(	4 SECTIONS COVERING	13.663 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	78.671(2)	.000(0)	10.237	100.00	.00	13.01
LANE WIDTH DEFICIENCY	78.671(2)	.000(0)	10.237	100.00	.00	13.01
SHOULDER W. DEFICIENCY	78.671(2)	.000(0)	10.237	100.00	.00	13.01
VERT. ALIGN. DEFICIENCY	78.671(2)	.000(0)	10.237	100.00	.00	13.01
HORIZ. ALIGN. DEFICIENCY	78.671(2)	.000(0)	10.237	100.00	.00	13.01
SPEED LIMIT DEFICIENCY	78.671(2)	.000(0)	10.237	100.00	.00	13.01
CAPACITY DEFICIENCY 1996	78.671(2)	.000(0)	10.237	100.00	.00	13.01
CAPACITY DEFICIENCY 2016	78.671(2)	.000(0)	10.237	100.00	.00	13.01

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	14.794(1)	11.535(1)	3.426	56.19	43.81	13.01
LANE WIDTH DEFICIENCY	14.794(1)	11.535(1)	3.426	56.19	43.81	13.01
SHOULDER W. DEFICIENCY	26.329(2)	.000(0)	3.426	100.00	.00	13.01
VERT. ALIGN. DEFICIENCY	26.329(2)	.000(0)	3.426	100.00	.00	13.01
HORIZ. ALIGN. DEFICIENCY	26.329(2)	.000(0)	3.426	100.00	.00	13.01
SPEED LIMIT DEFICIENCY	.000(0)	26.329(2)	3.426	.00	100.00	13.01
CAPACITY DEFICIENCY 1996	26.329(2)	.000(0)	3.426	100.00	.00	13.01
CAPACITY DEFICIENCY 2016	26.329(2)	.000(0)	3.426	100.00	.00	13.01

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	93.465(3)	11.535(1)	13.663	89.01	10.99	13.01
LANE WIDTH DEFICIENCY	93.465(3)	11.535(1)	13.663	89.01	10.99	13.01
SHOULDER W. DEFICIENCY	105.000(4)	.000(0)	13.663	100.00	.00	13.01
VERT. ALIGN. DEFICIENCY	105.000(4)	.000(0)	13.663	100.00	.00	13.01
HORIZ. ALIGN. DEFICIENCY	105.000(4)	.000(0)	13.663	100.00	.00	13.01
SPEED LIMIT DEFICIENCY	78.671(2)	26.329(2)	13.663	74.92	25.08	13.01
CAPACITY DEFICIENCY 1996	105.000(4)	.000(0)	13.663	100.00	.00	13.01
CAPACITY DEFICIENCY 2016	105.000(4)	.000(0)	13.663	100.00	.00	13.01

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 554 in TEXAS : US 287 Termini: through Dallas/Ft. Worth (North UL - I-45 @nnis)

RURAL LENGTH	17.413(5 SECTIONS COVERING	12.978 MILES)	
URBAN LENGTH	43.587(21 SECTIONS COVERING	32.485 MILES)	
TOTAL LENGTH	61.000(26 SECTIONS COVERING	45.463 MILES)	

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	17.413(5)	.000(0)	12.978	100.00	.00	74.53
LANE WIDTH DEFICIENCY	17.413(5)	.000(0)	12.978	100.00	.00	74.53
SHOULDER W. DEFICIENCY	17.413(5)	.000(0)	12.978	100.00	.00	74.53
VERT. ALIGN. DEFICIENCY	17.413(5)	.000(0)	12.978	100.00	.00	74.53
HORIZ. ALIGN. DEFICIENCY	17.413(5)	.000(0)	12.978	100.00	.00	74.53
SPEED LIMIT DEFICIENCY	17.413(5)	.000(0)	12.978	100.00	.00	74.53
CAPACITY DEFICIENCY 1996	5.413(2)	12.001(3)	12.978	31.08	68.92	74.53
CAPACITY DEFICIENCY 2016	5.413(2)	12.001(3)	12.978	31.08	68.92	74.53

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	43.131(20)	.456(1)	32.485	98.95	1.05	74.53
LANE WIDTH DEFICIENCY	43.587(21)	.000(0)	32.485	100.00	.00	74.53
SHOULDER W. DEFICIENCY	43.587(21)	.000(0)	32.485	100.00	.00	74.53
VERT. ALIGN. DEFICIENCY	43.587(21)	.000(0)	32.485	100.00	.00	74.53
HORIZ. ALIGN. DEFICIENCY	43.587(21)	.000(0)	32.485	100.00	.00	74.53
SPEED LIMIT DEFICIENCY	22.768(10)	20.819(11)	32.485	52.24	47.76	74.53
CAPACITY DEFICIENCY 1996	43.587(21)	.000(0)	32.485	100.00	.00	74.53
CAPACITY DEFICIENCY 2016	34.550(20)	9.037(1)	32.485	79.27	20.73	74.53

A L L S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	60.544(25)	.456(1)	45.463	99.25	.75	74.53
LANE WIDTH DEFICIENCY	61.000(26)	.000(0)	45.463	100.00	.00	74.53
SHOULDER W. DEFICIENCY	61.000(26)	.000(0)	45.463	100.00	.00	74.53
VERT. ALIGN. DEFICIENCY	61.000(26)	.000(0)	45.463	100.00	.00	74.53
HORIZ. ALIGN. DEFICIENCY	61.000(26)	.000(0)	45.463	100.00	.00	74.53
SPEED LIMIT DEFICIENCY	40.181(15)	20.819(11)	45.463	65.87	34.13	74.53
CAPACITY DEFICIENCY 1996	48.999(23)	12.001(3)	45.463	80.33	19.67	74.53
CAPACITY DEFICIENCY 2016	39.963(22)	21.037(4)	45.463	65.51	34.49	74.53

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 555 in TEXAS : US 287 Termini: I-45 @Ennis - Port Arthur

RURAL LENGTH 225.302(6 SECTIONS COVERING 45.504 MILES)
URBAN LENGTH 28.698(6 SECTIONS COVERING 5.796 MILES)
TOTAL LENGTH 254.000(12 SECTIONS COVERING 51.300 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	225.302(6)	.000(0)	45.504	100.00	.00	20.20
LANE WIDTH DEFICIENCY	225.302(6)	.000(0)	45.504	100.00	.00	20.20
SHOULDER W. DEFICIENCY	225.302(5)	.000(0)	36.295	100.00	.00	16.11
VERT. ALIGN. DEFICIENCY	225.302(6)	.000(0)	45.504	100.00	.00	20.20
HORIZ. ALIGN. DEFICIENCY	225.302(6)	.000(0)	45.504	100.00	.00	20.20
SPEED LIMIT DEFICIENCY	225.302(6)	.000(0)	45.504	100.00	.00	20.20
CAPACITY DEFICIENCY 1996	225.302(6)	.000(0)	45.504	100.00	.00	20.20
CAPACITY DEFICIENCY 2016	225.302(6)	.000(0)	45.504	100.00	.00	20.20

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	28.698(6)	.000(0)	5.796	100.00	.00	20.20
LANE WIDTH DEFICIENCY	28.698(6)	.000(0)	5.796	100.00	.00	20.20
SHOULDER W. DEFICIENCY	28.698(6)	.000(0)	5.796	100.00	.00	20.20
VERT. ALIGN. DEFICIENCY	28.698(6)	.000(0)	5.796	100.00	.00	20.20
HORIZ. ALIGN. DEFICIENCY	28.698(6)	.000(0)	5.796	100.00	.00	20.20
SPEED LIMIT DEFICIENCY	11.447(2)	17.250(4)	5.796	39.89	60.11	20.20
CAPACITY DEFICIENCY 1996	28.698(6)	.000(0)	5.796	100.00	.00	20.20
CAPACITY DEFICIENCY 2016	28.698(6)	.000(0)	5.796	100.00	.00	20.20

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	254.000(12)	.000(0)	51.300	100.00	.00	20.20
LANE WIDTH DEFICIENCY	254.000(12)	.000(0)	51.300	100.00	.00	20.20
SHOULDER W. DEFICIENCY	254.000(11)	.000(0)	42.091	100.00	.00	16.57
VERT. ALIGN. DEFICIENCY	254.000(12)	.000(0)	51.300	100.00	.00	20.20
HORIZ. ALIGN. DEFICIENCY	254.000(12)	.000(0)	51.300	100.00	.00	20.20
SPEED LIMIT DEFICIENCY	236.750(8)	17.250(4)	51.300	93.21	6.79	20.20
CAPACITY DEFICIENCY 1996	254.000(12)	.000(0)	51.300	100.00	.00	20.20
CAPACITY DEFICIENCY 2016	254.000(12)	.000(0)	51.300	100.00	.00	20.20

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 70 in TEXAS : I-20 Termini: I-10 - Dallas/Ft. Worth UL

RURAL LENGTH 325.418(37 SECTIONS COVERING 180.563 MILES)
URBAN LENGTH 94.582(22 SECTIONS COVERING 52.480 MILES)
TOTAL LENGTH 420.000(59 SECTIONS COVERING 233.043 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	321.697(35)	3.722(2)	180.563	98.86	1.14	55.49
LANE WIDTH DEFICIENCY	325.418(37)	.000(0)	180.563	100.00	.00	55.49
SHOULDER W. DEFICIENCY	321.614(36)	3.805(1)	180.563	98.83	1.17	55.49
VERT. ALIGN. DEFICIENCY	325.418(37)	.000(0)	180.563	100.00	.00	55.49
HORIZ. ALIGN. DEFICIENCY	306.196(35)	19.223(2)	180.563	94.09	5.91	55.49
SPEED LIMIT DEFICIENCY	325.418(37)	.000(0)	180.563	100.00	.00	55.49
CAPACITY DEFICIENCY 1996	325.418(37)	.000(0)	180.563	100.00	.00	55.49
CAPACITY DEFICIENCY 2016	312.995(34)	12.423(3)	180.563	96.18	3.82	55.49

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	94.582(22)	.000(0)	52.480	100.00	.00	55.49
LANE WIDTH DEFICIENCY	94.582(22)	.000(0)	52.480	100.00	.00	55.49
SHOULDER W. DEFICIENCY	94.582(22)	.000(0)	52.480	100.00	.00	55.49
VERT. ALIGN. DEFICIENCY	94.582(22)	.000(0)	52.480	100.00	.00	55.49
HORIZ. ALIGN. DEFICIENCY	94.582(22)	.000(0)	52.480	100.00	.00	55.49
SPEED LIMIT DEFICIENCY	94.582(22)	.000(0)	52.480	100.00	.00	55.49
CAPACITY DEFICIENCY 1996	94.582(22)	.000(0)	52.480	100.00	.00	55.49
CAPACITY DEFICIENCY 2016	94.582(22)	.000(0)	52.480	100.00	.00	55.49

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	416.278(57)	3.722(2)	233.043	99.11	.89	55.49
LANE WIDTH DEFICIENCY	420.000(59)	.000(0)	233.043	100.00	.00	55.49
SHOULDER W. DEFICIENCY	416.196(58)	3.805(1)	233.043	99.09	.91	55.49
VERT. ALIGN. DEFICIENCY	420.000(59)	.000(0)	233.043	100.00	.00	55.49
HORIZ. ALIGN. DEFICIENCY	400.777(57)	19.223(2)	233.043	95.42	4.58	55.49
SPEED LIMIT DEFICIENCY	420.000(59)	.000(0)	233.043	100.00	.00	55.49
CAPACITY DEFICIENCY 1996	420.000(59)	.000(0)	233.043	100.00	.00	55.49
CAPACITY DEFICIENCY 2016	407.577(56)	12.423(3)	233.043	97.04	2.96	55.49

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 71 in TEXAS : I-20 Termini: Through Dallas/Ft. Worth

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	79.000(	16 SECTIONS COVERING	46.040 MILES)
TOTAL LENGTH	79.000(	16 SECTIONS COVERING	46.040 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	68.684(14)	10.316(2)	46.040	86.94	13.06	58.28
LANE WIDTH DEFICIENCY	79.000(16)	.000(0)	46.040	100.00	.00	58.28
SHOULDER W. DEFICIENCY	79.000(16)	.000(0)	46.040	100.00	.00	58.28
VERT. ALIGN. DEFICIENCY	79.000(16)	.000(0)	46.040	100.00	.00	58.28
HORIZ. ALIGN. DEFICIENCY	79.000(16)	.000(0)	46.040	100.00	.00	58.28
SPEED LIMIT DEFICIENCY	79.000(16)	.000(0)	46.040	100.00	.00	58.28
CAPACITY DEFICIENCY 1996	77.264(15)	1.736(1)	46.040	97.80	2.20	58.28
CAPACITY DEFICIENCY 2016	21.269(5)	57.731(11)	46.040	26.92	73.08	58.28

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 72 in TEXAS : I-20 Termini: Dallas/Ft. Worth UL - Louisiana SL (Shreveport)

RURAL LENGTH 128.626(11 SECTIONS COVERING 48.643 MILES)
URBAN LENGTH 8.374(2 SECTIONS COVERING 3.167 MILES)
TOTAL LENGTH 137.000(13 SECTIONS COVERING 51.810 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	128.626(11)	.000(0)	48.643	100.00	.00	37.82
LANE WIDTH DEFICIENCY	128.626(11)	.000(0)	48.643	100.00	.00	37.82
SHOULDER W. DEFICIENCY	128.626(11)	.000(0)	48.643	100.00	.00	37.82
VERT. ALIGN. DEFICIENCY	128.626(11)	.000(0)	48.643	100.00	.00	37.82
HORIZ. ALIGN. DEFICIENCY	128.626(11)	.000(0)	48.643	100.00	.00	37.82
SPEED LIMIT DEFICIENCY	128.626(11)	.000(0)	48.643	100.00	.00	37.82
CAPACITY DEFICIENCY 1996	128.626(11)	.000(0)	48.643	100.00	.00	37.82
CAPACITY DEFICIENCY 2016	76.311(6)	52.314(5)	48.643	59.33	40.67	37.82

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	8.374(2)	.000(0)	3.167	100.00	.00	37.82
LANE WIDTH DEFICIENCY	8.374(2)	.000(0)	3.167	100.00	.00	37.82
SHOULDER W. DEFICIENCY	8.374(2)	.000(0)	3.167	100.00	.00	37.82
VERT. ALIGN. DEFICIENCY	8.374(2)	.000(0)	3.167	100.00	.00	37.82
HORIZ. ALIGN. DEFICIENCY	8.374(2)	.000(0)	3.167	100.00	.00	37.82
SPEED LIMIT DEFICIENCY	8.374(2)	.000(0)	3.167	100.00	.00	37.82
CAPACITY DEFICIENCY 1996	8.374(2)	.000(0)	3.167	100.00	.00	37.82
CAPACITY DEFICIENCY 2016	8.374(2)	.000(0)	3.167	100.00	.00	37.82

A L L   S E C T I O N S

	EXPANDED LENGTH (MI) ADEQUATE	DEFICIENT	SAMPLE LENGTH	% OF EXPANDED LENGTH ADEQUATE	DEFICIENT	SAMPLE RATE
PAVEMENT DEFICIENCY	137.000(13)	.000(0)	51.810	100.00	.00	37.82
LANE WIDTH DEFICIENCY	137.000(13)	.000(0)	51.810	100.00	.00	37.82
SHOULDER W. DEFICIENCY	137.000(13)	.000(0)	51.810	100.00	.00	37.82
VERT. ALIGN. DEFICIENCY	137.000(13)	.000(0)	51.810	100.00	.00	37.82
HORIZ. ALIGN. DEFICIENCY	137.000(13)	.000(0)	51.810	100.00	.00	37.82
SPEED LIMIT DEFICIENCY	137.000(13)	.000(0)	51.810	100.00	.00	37.82
CAPACITY DEFICIENCY 1996	137.000(13)	.000(0)	51.810	100.00	.00	37.82
CAPACITY DEFICIENCY 2016	84.686(8)	52.314(5)	51.810	61.81	38.19	37.82

Note: The numbers in ( ) indicate the number of sample sections

UTAH

Super-Segment NO 160 in UTAH : I-70 Termini: I-15 - Colorado SL

RURAL LENGTH 227.110(115 SECTIONS COVERING 227.110 MILES)
URBAN LENGTH 5.040(4 SECTIONS COVERING 5.040 MILES)
TOTAL LENGTH 232.150(119 SECTIONS COVERING 232.150 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	210.700(111)	16.410(4)	227.110	92.77	7.23	100.00
LANE WIDTH DEFICIENCY	227.110(115)	.000(0)	227.110	100.00	.00	100.00
SHOULDER W. DEFICIENCY	91.590(59)	135.520(56)	227.110	40.33	59.67	100.00
VERT. ALIGN. DEFICIENCY	227.110(111)	.000(0)	207.060	100.00	.00	91.17
HORIZ. ALIGN. DEFICIENCY	220.496(107)	6.614(4)	207.060	97.09	2.91	91.17
SPEED LIMIT DEFICIENCY	227.110(115)	.000(0)	227.110	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	227.110(115)	.000(0)	227.110	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	227.110(115)	.000(0)	227.110	100.00	.00	100.00

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	5.040(4)	.000(0)	5.040	100.00	.00	100.00
LANE WIDTH DEFICIENCY	5.040(4)	.000(0)	5.040	100.00	.00	100.00
SHOULDER W. DEFICIENCY	4.390(3)	.650(1)	5.040	87.10	12.90	100.00
VERT. ALIGN. DEFICIENCY	5.040(3)	.000(0)	4.390	100.00	.00	87.10
HORIZ. ALIGN. DEFICIENCY	5.040(3)	.000(0)	4.390	100.00	.00	87.10
SPEED LIMIT DEFICIENCY	5.040(4)	.000(0)	5.040	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	5.040(4)	.000(0)	5.040	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	5.040(4)	.000(0)	5.040	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	215.740(115)	16.410(4)	232.150	92.93	7.07	100.00
LANE WIDTH DEFICIENCY	232.150(119)	.000(0)	232.150	100.00	.00	100.00
SHOULDER W. DEFICIENCY	95.980(62)	136.170(57)	232.150	41.34	58.66	100.00
VERT. ALIGN. DEFICIENCY	232.150(114)	.000(0)	211.450	100.00	.00	91.08
HORIZ. ALIGN. DEFICIENCY	225.536(110)	6.614(4)	211.450	97.15	2.85	91.08
SPEED LIMIT DEFICIENCY	232.150(119)	.000(0)	232.150	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	232.150(119)	.000(0)	232.150	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	232.150(119)	.000(0)	232.150	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 175 in UTAH : I-80 Termini: Nevada SL - Salt Lake City UL

RURAL LENGTH 117.070(60 SECTIONS COVERING 117.070 MILES)
URBAN LENGTH .000(0 SECTIONS COVERING .000 MILES)
TOTAL LENGTH 117.070(60 SECTIONS COVERING 117.070 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	117.020(59)	.050(1)	117.070	99.96	.04	100.00
LANE WIDTH DEFICIENCY	117.070(60)	.000(0)	117.070	100.00	.00	100.00
SHOULDER W. DEFICIENCY	78.110(40)	38.960(20)	117.070	66.72	33.28	100.00
VERT. ALIGN. DEFICIENCY	117.070(53)	.000(0)	105.470	100.00	.00	90.09
HORIZ. ALIGN. DEFICIENCY	117.070(53)	.000(0)	105.470	100.00	.00	90.09
SPEED LIMIT DEFICIENCY	117.070(60)	.000(0)	117.070	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	117.070(60)	.000(0)	117.070	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	113.410(56)	3.660(4)	117.070	96.87	3.13	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 176 in UTAH : I-80 Termini: Through Salt Lake City

RURAL LENGTH	2.000(	3 SECTIONS COVERING	2.000 MILES)
URBAN LENGTH	12.520(	33 SECTIONS COVERING	12.520 MILES)
TOTAL LENGTH	14.520(	36 SECTIONS COVERING	14.520 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	2.000(3)	.000(0)	2.000	100.00	.00	100.00
LANE WIDTH DEFICIENCY	2.000(3)	.000(0)	2.000	100.00	.00	100.00
SHOULDER W. DEFICIENCY	2.000(3)	.000(0)	2.000	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	2.000(3)	.000(0)	2.000	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	2.000(3)	.000(0)	2.000	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	2.000(3)	.000(0)	2.000	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	2.000(3)	.000(0)	2.000	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	.000(0)	2.000(3)	2.000	.00	100.00	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	5.590(12)	6.930(21)	12.520	44.65	55.35	100.00
LANE WIDTH DEFICIENCY	12.520(33)	.000(0)	12.520	100.00	.00	100.00
SHOULDER W. DEFICIENCY	4.150(15)	8.370(18)	12.520	33.15	66.85	100.00
VERT. ALIGN. DEFICIENCY	12.520(16)	.000(0)	6.250	100.00	.00	49.92
HORIZ. ALIGN. DEFICIENCY	12.520(16)	.000(0)	6.250	100.00	.00	49.92
SPEED LIMIT DEFICIENCY	12.520(33)	.000(0)	12.520	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	11.450(31)	1.070(2)	12.520	91.45	8.55	100.00
CAPACITY DEFICIENCY 2016	2.400(8)	10.120(25)	12.520	19.17	80.83	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	7.590(15)	6.930(21)	14.520	52.27	47.73	100.00
LANE WIDTH DEFICIENCY	14.520(36)	.000(0)	14.520	100.00	.00	100.00
SHOULDER W. DEFICIENCY	6.150(18)	8.370(18)	14.520	42.36	57.64	100.00
VERT. ALIGN. DEFICIENCY	14.520(19)	.000(0)	8.250	100.00	.00	56.82
HORIZ. ALIGN. DEFICIENCY	14.520(19)	.000(0)	8.250	100.00	.00	56.82
SPEED LIMIT DEFICIENCY	14.520(36)	.000(0)	14.520	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	13.450(34)	1.070(2)	14.520	92.63	7.37	100.00
CAPACITY DEFICIENCY 2016	2.400(8)	12.120(28)	14.520	16.53	83.47	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 177 in UTAH : I-80 Termini: Salt Lake City UL - Wyoming SL

RURAL LENGTH	63.400(37 SECTIONS COVERING	63.400 MILES)
URBAN LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	63.400(37 SECTIONS COVERING	63.400 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	45.320(28)	18.080(9)	63.400	71.48	28.52	100.00
LANE WIDTH DEFICIENCY	63.400(37)	.000(0)	63.400	100.00	.00	100.00
SHOULDER W. DEFICIENCY	29.330(20)	34.070(17)	63.400	46.26	53.74	100.00
VERT. ALIGN. DEFICIENCY	63.400(37)	.000(0)	63.400	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	63.400(37)	.000(0)	63.400	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	63.400(37)	.000(0)	63.400	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	63.400(37)	.000(0)	63.400	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	40.070(23)	23.330(14)	63.400	63.20	36.80	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 194 in UTAH : I-84 Termini: Idaho SL - N. Salt Lake City (I-15)

RURAL LENGTH 43.200(21 SECTIONS COVERING 43.200 MILES)
URBAN LENGTH .000(0 SECTIONS COVERING .000 MILES)
TOTAL LENGTH 43.200(21 SECTIONS COVERING 43.200 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	37.610(19)	5.590(2)	43.200	87.06	12.94	100.00
LANE WIDTH DEFICIENCY	43.200(21)	.000(0)	43.200	100.00	.00	100.00
SHOULDER W. DEFICIENCY	18.140(11)	25.060(10)	43.200	41.99	58.01	100.00
VERT. ALIGN. DEFICIENCY	43.200(19)	.000(0)	37.650	100.00	.00	87.15
HORIZ. ALIGN. DEFICIENCY	43.200(19)	.000(0)	37.650	100.00	.00	87.15
SPEED LIMIT DEFICIENCY	43.200(21)	.000(0)	43.200	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	43.200(21)	.000(0)	43.200	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	43.200(21)	.000(0)	43.200	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 195 in UTAH : I-84 Termini: I-15 - I-80

RURAL LENGTH	31.630(19 SECTIONS COVERING	31.630 MILES)
URBAN LENGTH	7.900(10 SECTIONS COVERING	7.900 MILES)
TOTAL LENGTH	39.530(29 SECTIONS COVERING	39.530 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	31.630(19)	.000(0)	31.630	100.00	.00	100.00
LANE WIDTH DEFICIENCY	31.630(19)	.000(0)	31.630	100.00	.00	100.00
SHOULDER W. DEFICIENCY	12.120(9)	19.510(10)	31.630	38.32	61.68	100.00
VERT. ALIGN. DEFICIENCY	31.630(19)	.000(0)	31.630	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	31.630(19)	.000(0)	31.630	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	31.630(19)	.000(0)	31.630	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	31.630(19)	.000(0)	31.630	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	31.630(19)	.000(0)	31.630	100.00	.00	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	3.530(7)	4.370(3)	7.900	44.68	55.32	100.00
LANE WIDTH DEFICIENCY	7.900(10)	.000(0)	7.900	100.00	.00	100.00
SHOULDER W. DEFICIENCY	1.880(4)	6.020(6)	7.900	23.80	76.20	100.00
VERT. ALIGN. DEFICIENCY	7.900(7)	.000(0)	3.530	100.00	.00	44.68
HORIZ. ALIGN. DEFICIENCY	7.900(7)	.000(0)	3.530	100.00	.00	44.68
SPEED LIMIT DEFICIENCY	7.900(10)	.000(0)	7.900	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	7.900(10)	.000(0)	7.900	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	7.900(10)	.000(0)	7.900	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	35.160(26)	4.370(3)	39.530	88.95	11.05	100.00
LANE WIDTH DEFICIENCY	39.530(29)	.000(0)	39.530	100.00	.00	100.00
SHOULDER W. DEFICIENCY	14.000(13)	25.530(16)	39.530	35.42	64.58	100.00
VERT. ALIGN. DEFICIENCY	39.530(26)	.000(0)	35.160	100.00	.00	88.95
HORIZ. ALIGN. DEFICIENCY	39.530(26)	.000(0)	35.160	100.00	.00	88.95
SPEED LIMIT DEFICIENCY	39.530(29)	.000(0)	39.530	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	39.530(29)	.000(0)	39.530	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	39.530(29)	.000(0)	39.530	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 715 in UTAH : I-15 Termini: Arizona SL - I-70

RURAL LENGTH 115.100(83 SECTIONS COVERING 115.100 MILES)
URBAN LENGTH 17.220(30 SECTIONS COVERING 17.220 MILES)
TOTAL LENGTH 132.320(113 SECTIONS COVERING 132.320 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	105.610(80)	9.490(3)	115.100	91.75	8.25	100.00
LANE WIDTH DEFICIENCY	115.100(83)	.000(0)	115.100	100.00	.00	100.00
SHOULDER W. DEFICIENCY	54.240(51)	60.860(32)	115.100	47.12	52.88	100.00
VERT. ALIGN. DEFICIENCY	115.100(83)	.000(0)	115.100	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	114.110(82)	.990(1)	115.100	99.14	.86	100.00
SPEED LIMIT DEFICIENCY	115.100(83)	.000(0)	115.100	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	115.100(83)	.000(0)	115.100	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	30.080(25)	85.020(58)	115.100	26.13	73.87	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	17.220(30)	.000(0)	17.220	100.00	.00	100.00
LANE WIDTH DEFICIENCY	17.220(30)	.000(0)	17.220	100.00	.00	100.00
SHOULDER W. DEFICIENCY	8.470(25)	8.750(5)	17.220	49.19	50.81	100.00
VERT. ALIGN. DEFICIENCY	17.220(28)	.000(0)	11.990	100.00	.00	69.63
HORIZ. ALIGN. DEFICIENCY	17.220(28)	.000(0)	11.990	100.00	.00	69.63
SPEED LIMIT DEFICIENCY	17.220(30)	.000(0)	17.220	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	17.220(30)	.000(0)	17.220	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	6.480(13)	10.740(17)	17.220	37.63	62.37	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	122.830(110)	9.490(3)	132.320	92.83	7.17	100.00
LANE WIDTH DEFICIENCY	132.320(113)	.000(0)	132.320	100.00	.00	100.00
SHOULDER W. DEFICIENCY	62.710(76)	69.610(37)	132.320	47.39	52.61	100.00
VERT. ALIGN. DEFICIENCY	132.320(111)	.000(0)	127.090	100.00	.00	96.05
HORIZ. ALIGN. DEFICIENCY	131.330(110)	.990(1)	127.090	99.25	.75	96.05
SPEED LIMIT DEFICIENCY	132.320(113)	.000(0)	132.320	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	132.320(113)	.000(0)	132.320	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	36.560(38)	95.760(75)	132.320	27.63	72.37	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 716 in UTAH : I-15 Termini: I-70 - Salt Lake City UL (Provo)

RURAL LENGTH 116.920(56 SECTIONS COVERING 116.920 MILES)
URBAN LENGTH 5.110(8 SECTIONS COVERING 5.110 MILES)
TOTAL LENGTH 122.030(64 SECTIONS COVERING 122.030 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	95.460(50)	21.460(6)	116.920	81.65	18.35	100.00
LANE WIDTH DEFICIENCY	116.920(56)	.000(0)	116.920	100.00	.00	100.00
SHOULDER W. DEFICIENCY	42.910(22)	74.010(34)	116.920	36.70	63.30	100.00
VERT. ALIGN. DEFICIENCY	116.920(54)	.000(0)	115.500	100.00	.00	98.79
HORIZ. ALIGN. DEFICIENCY	116.920(54)	.000(0)	115.500	100.00	.00	98.79
SPEED LIMIT DEFICIENCY	116.920(56)	.000(0)	116.920	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	116.920(56)	.000(0)	116.920	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	112.600(51)	4.320(5)	116.920	96.31	3.69	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	5.110(8)	.000(0)	5.110	100.00	.00	100.00
LANE WIDTH DEFICIENCY	5.110(8)	.000(0)	5.110	100.00	.00	100.00
SHOULDER W. DEFICIENCY	4.760(7)	.350(1)	5.110	93.15	6.85	100.00
VERT. ALIGN. DEFICIENCY	5.110(7)	.000(0)	4.760	100.00	.00	93.15
HORIZ. ALIGN. DEFICIENCY	5.110(7)	.000(0)	4.760	100.00	.00	93.15
SPEED LIMIT DEFICIENCY	5.110(8)	.000(0)	5.110	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	5.110(8)	.000(0)	5.110	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	3.510(6)	1.600(2)	5.110	68.69	31.31	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	100.570(58)	21.460(6)	122.030	82.41	17.59	100.00
LANE WIDTH DEFICIENCY	122.030(64)	.000(0)	122.030	100.00	.00	100.00
SHOULDER W. DEFICIENCY	47.670(29)	74.360(35)	122.030	39.06	60.94	100.00
VERT. ALIGN. DEFICIENCY	122.030(61)	.000(0)	120.260	100.00	.00	98.55
HORIZ. ALIGN. DEFICIENCY	122.030(61)	.000(0)	120.260	100.00	.00	98.55
SPEED LIMIT DEFICIENCY	122.030(64)	.000(0)	122.030	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	122.030(64)	.000(0)	122.030	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	116.110(57)	5.920(7)	122.030	95.15	4.85	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 717 in UTAH : I-15 Termini: Through Salt Lake City (Provo - N. Ogden)

RURAL LENGTH	2.400(5 SECTIONS COVERING	2.400 MILES)
URBAN LENGTH	95.000(146 SECTIONS COVERING	95.000 MILES)
TOTAL LENGTH	97.400(151 SECTIONS COVERING	97.400 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	2.300(4)	.100(1)	2.400	95.83	4.17	100.00
LANE WIDTH DEFICIENCY	2.400(5)	.000(0)	2.400	100.00	.00	100.00
SHOULDER W. DEFICIENCY	2.300(4)	.100(1)	2.400	95.83	4.17	100.00
VERT. ALIGN. DEFICIENCY	2.400(4)	.000(0)	2.300	100.00	.00	95.83
HORIZ. ALIGN. DEFICIENCY	2.400(4)	.000(0)	2.300	100.00	.00	95.83
SPEED LIMIT DEFICIENCY	2.400(5)	.000(0)	2.400	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	1.440(4)	.960(1)	2.400	60.00	40.00	100.00
CAPACITY DEFICIENCY 2016	.000(0)	2.400(5)	2.400	.00	100.00	100.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	72.020(112)	22.980(34)	95.000	75.81	24.19	100.00
LANE WIDTH DEFICIENCY	95.000(146)	.000(0)	95.000	100.00	.00	100.00
SHOULDER W. DEFICIENCY	39.650(82)	55.350(64)	95.000	41.74	58.26	100.00
VERT. ALIGN. DEFICIENCY	95.000(87)	.000(0)	43.770	100.00	.00	46.07
HORIZ. ALIGN. DEFICIENCY	95.000(88)	.000(0)	44.050	100.00	.00	46.37
SPEED LIMIT DEFICIENCY	95.000(146)	.000(0)	95.000	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	83.120(129)	11.880(17)	95.000	87.49	12.51	100.00
CAPACITY DEFICIENCY 2016	.000(0)	95.000(146)	95.000	.00	100.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	74.320(116)	23.080(35)	97.400	76.30	23.70	100.00
LANE WIDTH DEFICIENCY	97.400(151)	.000(0)	97.400	100.00	.00	100.00
SHOULDER W. DEFICIENCY	41.950(86)	55.450(65)	97.400	43.07	56.93	100.00
VERT. ALIGN. DEFICIENCY	97.400(91)	.000(0)	46.070	100.00	.00	47.30
HORIZ. ALIGN. DEFICIENCY	97.400(92)	.000(0)	46.350	100.00	.00	47.59
SPEED LIMIT DEFICIENCY	97.400(151)	.000(0)	97.400	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	84.560(133)	12.840(18)	97.400	86.82	13.18	100.00
CAPACITY DEFICIENCY 2016	.000(0)	97.400(151)	97.400	.00	100.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 718 in UTAH : I-15 Termini: Salt Lake City UL (N. Ogden) - Idaho SL

RURAL LENGTH	49.320(31 SECTIONS COVERING	49.320 MILES)
URBAN LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	49.320(31 SECTIONS COVERING	49.320 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	45.240(27)	4.080(4)	49.320	91.73	8.27	100.00
LANE WIDTH DEFICIENCY	49.320(31)	.000(0)	49.320	100.00	.00	100.00
SHOULDER W. DEFICIENCY	18.710(11)	30.610(20)	49.320	37.94	62.06	100.00
VERT. ALIGN. DEFICIENCY	49.320(25)	.000(0)	44.790	100.00	.00	90.82
HORIZ. ALIGN. DEFICIENCY	49.320(25)	.000(0)	44.790	100.00	.00	90.82
SPEED LIMIT DEFICIENCY	49.320(31)	.000(0)	49.320	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	49.320(31)	.000(0)	49.320	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	38.680(23)	10.640(8)	49.320	78.43	21.57	100.00

Note: The numbers in ( ) indicate the number of sample sections

WASHINGTON

Super-Segment NO 9 in WASHINGTON : I-5 Termini: Through Portland (WA)

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	14.000(	6 SECTIONS COVERING	6.930 MILES)
TOTAL LENGTH	14.000(	6 SECTIONS COVERING	6.930 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	14.000(6)	.000(0)	6.930	100.00	.00	49.50
LANE WIDTH DEFICIENCY	14.000(6)	.000(0)	6.930	100.00	.00	49.50
SHOULDER W. DEFICIENCY	14.000(6)	.000(0)	6.930	100.00	.00	49.50
VERT. ALIGN. DEFICIENCY	14.000(6)	.000(0)	6.930	100.00	.00	49.50
HORIZ. ALIGN. DEFICIENCY	14.000(6)	.000(0)	6.930	100.00	.00	49.50
SPEED LIMIT DEFICIENCY	14.000(6)	.000(0)	6.930	100.00	.00	49.50
CAPACITY DEFICIENCY 1996	11.818(4)	2.182(2)	6.930	84.42	15.58	49.50
CAPACITY DEFICIENCY 2016	2.586(1)	11.414(5)	6.930	18.47	81.53	49.50

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 10 in WASHINGTON : I-5 Termini: Portland - Seattle/Tacoma UL

RURAL LENGTH	51.618(10 SECTIONS COVERING	22.860 MILES)
URBAN LENGTH	56.382(16 SECTIONS COVERING	24.970 MILES)
TOTAL LENGTH	108.000(26 SECTIONS COVERING	47.830 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	51.618(10)	.000(0)	22.860	100.00	.00	44.29
LANE WIDTH DEFICIENCY	51.618(10)	.000(0)	22.860	100.00	.00	44.29
SHOULDER W. DEFICIENCY	51.618(10)	.000(0)	22.860	100.00	.00	44.29
VERT. ALIGN. DEFICIENCY	51.618(10)	.000(0)	22.860	100.00	.00	44.29
HORIZ. ALIGN. DEFICIENCY	51.618(10)	.000(0)	22.860	100.00	.00	44.29
SPEED LIMIT DEFICIENCY	40.125(5)	11.493(5)	22.860	77.73	22.27	44.29
CAPACITY DEFICIENCY 1996	42.405(5)	9.213(5)	22.860	82.15	17.85	44.29
CAPACITY DEFICIENCY 2016	24.364(3)	27.254(7)	22.860	47.20	52.80	44.29

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	56.382(16)	.000(0)	24.970	100.00	.00	44.29
LANE WIDTH DEFICIENCY	56.382(16)	.000(0)	24.970	100.00	.00	44.29
SHOULDER W. DEFICIENCY	56.382(16)	.000(0)	24.970	100.00	.00	44.29
VERT. ALIGN. DEFICIENCY	56.382(16)	.000(0)	24.970	100.00	.00	44.29
HORIZ. ALIGN. DEFICIENCY	56.382(16)	.000(0)	24.970	100.00	.00	44.29
SPEED LIMIT DEFICIENCY	56.382(16)	.000(0)	24.970	100.00	.00	44.29
CAPACITY DEFICIENCY 1996	52.815(15)	3.568(1)	24.970	93.67	6.33	44.29
CAPACITY DEFICIENCY 2016	9.167(5)	47.215(11)	24.970	16.26	83.74	44.29

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	108.000(26)	.000(0)	47.830	100.00	.00	44.29
LANE WIDTH DEFICIENCY	108.000(26)	.000(0)	47.830	100.00	.00	44.29
SHOULDER W. DEFICIENCY	108.000(26)	.000(0)	47.830	100.00	.00	44.29
VERT. ALIGN. DEFICIENCY	108.000(26)	.000(0)	47.830	100.00	.00	44.29
HORIZ. ALIGN. DEFICIENCY	108.000(26)	.000(0)	47.830	100.00	.00	44.29
SPEED LIMIT DEFICIENCY	96.507(21)	11.493(5)	47.830	89.36	10.64	44.29
CAPACITY DEFICIENCY 1996	95.220(20)	12.780(6)	47.830	88.17	11.83	44.29
CAPACITY DEFICIENCY 2016	33.531(8)	74.469(18)	47.830	31.05	68.95	44.29

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 11 in WASHINGTON : I-5 Termini: Tacoma UL - S18

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	21.000(	9 SECTIONS COVERING	10.870 MILES)
TOTAL LENGTH	21.000(	9 SECTIONS COVERING	10.870 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	17.542(8)	3.458(1)	10.870	83.53	16.47	51.76
LANE WIDTH DEFICIENCY	21.000(9)	.000(0)	10.870	100.00	.00	51.76
SHOULDER W. DEFICIENCY	21.000(9)	.000(0)	10.870	100.00	.00	51.76
VERT. ALIGN. DEFICIENCY	21.000(9)	.000(0)	10.870	100.00	.00	51.76
HORIZ. ALIGN. DEFICIENCY	21.000(9)	.000(0)	10.870	100.00	.00	51.76
SPEED LIMIT DEFICIENCY	21.000(9)	.000(0)	10.870	100.00	.00	51.76
CAPACITY DEFICIENCY 1996	18.740(8)	2.260(1)	10.870	89.24	10.76	51.76
CAPACITY DEFICIENCY 2016	.000(0)	21.000(9)	10.870	.00	100.00	51.76

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 12 in WASHINGTON : I-5 Termini: S18 - I-90

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	22.000(	7 SECTIONS COVERING	11.540 MILES)
TOTAL LENGTH	22.000(	7 SECTIONS COVERING	11.540 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	11.724(5)	10.276(2)	11.540	53.29	46.71	52.45
LANE WIDTH DEFICIENCY	20.570(6)	1.430(1)	11.540	93.50	6.50	52.45
SHOULDER W. DEFICIENCY	22.000(5)	.000(0)	10.630	100.00	.00	48.32
VERT. ALIGN. DEFICIENCY	22.000(7)	.000(0)	11.540	100.00	.00	52.45
HORIZ. ALIGN. DEFICIENCY	22.000(7)	.000(0)	11.540	100.00	.00	52.45
SPEED LIMIT DEFICIENCY	22.000(7)	.000(0)	11.540	100.00	.00	52.45
CAPACITY DEFICIENCY 1996	15.347(5)	6.653(2)	11.540	69.76	30.24	52.45
CAPACITY DEFICIENCY 2016	1.735(2)	20.265(5)	11.540	7.89	92.11	52.45

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 13 in WASHINGTON : I-5 Termini: I-90 - Seattle UL

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	33.000(	9 SECTIONS COVERING	12.100 MILES)
TOTAL LENGTH	33.000(	9 SECTIONS COVERING	12.100 MILES)

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	33.000(9)	.000(0)	12.100	100.00	.00	36.67
LANE WIDTH DEFICIENCY	33.000(9)	.000(0)	12.100	100.00	.00	36.67
SHOULDER W. DEFICIENCY	31.773(8)	1.227(1)	12.100	96.28	3.72	36.67
VERT. ALIGN. DEFICIENCY	33.000(9)	.000(0)	12.100	100.00	.00	36.67
HORIZ. ALIGN. DEFICIENCY	33.000(9)	.000(0)	12.100	100.00	.00	36.67
SPEED LIMIT DEFICIENCY	33.000(9)	.000(0)	12.100	100.00	.00	36.67
CAPACITY DEFICIENCY 1996	30.055(8)	2.945(1)	12.100	91.07	8.93	36.67
CAPACITY DEFICIENCY 2016	15.709(5)	17.291(4)	12.100	47.60	52.40	36.67

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 14 in WASHINGTON : I-5 Termini: Seattle UL - Canada

RURAL LENGTH 46.088(10 SECTIONS COVERING 18.980 MILES)
URBAN LENGTH 30.912(11 SECTIONS COVERING 12.730 MILES)
TOTAL LENGTH 77.000(21 SECTIONS COVERING 31.710 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	44.267(9)	1.821(1)	18.980	96.05	3.95	41.18
LANE WIDTH DEFICIENCY	46.088(10)	.000(0)	18.980	100.00	.00	41.18
SHOULDER W. DEFICIENCY	46.088(10)	.000(0)	18.980	100.00	.00	41.18
VERT. ALIGN. DEFICIENCY	46.088(10)	.000(0)	18.980	100.00	.00	41.18
HORIZ. ALIGN. DEFICIENCY	46.088(10)	.000(0)	18.980	100.00	.00	41.18
SPEED LIMIT DEFICIENCY	45.287(9)	.801(1)	18.980	98.26	1.74	41.18
CAPACITY DEFICIENCY 1996	46.088(10)	.000(0)	18.980	100.00	.00	41.18
CAPACITY DEFICIENCY 2016	26.419(6)	19.669(4)	18.980	57.32	42.68	41.18

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	23.190(8)	7.722(3)	12.730	75.02	24.98	41.18
LANE WIDTH DEFICIENCY	30.912(11)	.000(0)	12.730	100.00	.00	41.18
SHOULDER W. DEFICIENCY	30.912(11)	.000(0)	12.730	100.00	.00	41.18
VERT. ALIGN. DEFICIENCY	30.912(11)	.000(0)	12.730	100.00	.00	41.18
HORIZ. ALIGN. DEFICIENCY	30.912(11)	.000(0)	12.730	100.00	.00	41.18
SPEED LIMIT DEFICIENCY	30.912(11)	.000(0)	12.730	100.00	.00	41.18
CAPACITY DEFICIENCY 1996	30.912(11)	.000(0)	12.730	100.00	.00	41.18
CAPACITY DEFICIENCY 2016	17.872(6)	13.040(5)	12.730	57.82	42.18	41.18

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	67.457(17)	9.543(4)	31.710	87.61	12.39	41.18
LANE WIDTH DEFICIENCY	77.000(21)	.000(0)	31.710	100.00	.00	41.18
SHOULDER W. DEFICIENCY	77.000(21)	.000(0)	31.710	100.00	.00	41.18
VERT. ALIGN. DEFICIENCY	77.000(21)	.000(0)	31.710	100.00	.00	41.18
HORIZ. ALIGN. DEFICIENCY	77.000(21)	.000(0)	31.710	100.00	.00	41.18
SPEED LIMIT DEFICIENCY	76.199(20)	.801(1)	31.710	98.96	1.04	41.18
CAPACITY DEFICIENCY 1996	77.000(21)	.000(0)	31.710	100.00	.00	41.18
CAPACITY DEFICIENCY 2016	44.291(12)	32.709(9)	31.710	57.52	42.48	41.18

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 210 in WASHINGTON : I-90 Termini: In Seattle

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	16.000(	4 SECTIONS COVERING	5.290 MILES)
TOTAL LENGTH	16.000(	4 SECTIONS COVERING	5.290 MILES)

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	16.000(4)	.000(0)	5.290	100.00	.00	33.06
LANE WIDTH DEFICIENCY	16.000(4)	.000(0)	5.290	100.00	.00	33.06
SHOULDER W. DEFICIENCY	16.000(4)	.000(0)	5.290	100.00	.00	33.06
VERT. ALIGN. DEFICIENCY	16.000(4)	.000(0)	5.290	100.00	.00	33.06
HORIZ. ALIGN. DEFICIENCY	16.000(4)	.000(0)	5.290	100.00	.00	33.06
SPEED LIMIT DEFICIENCY	16.000(4)	.000(0)	5.290	100.00	.00	33.06
CAPACITY DEFICIENCY 1996	16.000(4)	.000(0)	5.290	100.00	.00	33.06
CAPACITY DEFICIENCY 2016	9.346(3)	6.654(1)	5.290	58.41	41.59	33.06

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 211 in WASHINGTON : I-90 Termini: Seattle UL - Spokane UL

RURAL LENGTH 243.484(45 SECTIONS COVERING 180.980 MILES)
URBAN LENGTH 14.516(7 SECTIONS COVERING 10.790 MILES)
TOTAL LENGTH 258.000(52 SECTIONS COVERING 191.770 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	243.484(45)	.000(0)	180.980	100.00	.00	74.33
LANE WIDTH DEFICIENCY	243.484(45)	.000(0)	180.980	100.00	.00	74.33
SHOULDER W. DEFICIENCY	243.484(45)	.000(0)	180.980	100.00	.00	74.33
VERT. ALIGN. DEFICIENCY	243.484(45)	.000(0)	180.980	100.00	.00	74.33
HORIZ. ALIGN. DEFICIENCY	243.484(45)	.000(0)	180.980	100.00	.00	74.33
SPEED LIMIT DEFICIENCY	243.484(45)	.000(0)	180.980	100.00	.00	74.33
CAPACITY DEFICIENCY 1996	185.081(34)	58.402(11)	180.980	76.01	23.99	74.33
CAPACITY DEFICIENCY 2016	166.435(28)	77.049(17)	180.980	68.36	31.64	74.33

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	14.516(7)	.000(0)	10.790	100.00	.00	74.33
LANE WIDTH DEFICIENCY	14.516(7)	.000(0)	10.790	100.00	.00	74.33
SHOULDER W. DEFICIENCY	14.516(7)	.000(0)	10.790	100.00	.00	74.33
VERT. ALIGN. DEFICIENCY	14.516(7)	.000(0)	10.790	100.00	.00	74.33
HORIZ. ALIGN. DEFICIENCY	14.516(7)	.000(0)	10.790	100.00	.00	74.33
SPEED LIMIT DEFICIENCY	14.516(7)	.000(0)	10.790	100.00	.00	74.33
CAPACITY DEFICIENCY 1996	14.516(7)	.000(0)	10.790	100.00	.00	74.33
CAPACITY DEFICIENCY 2016	13.763(6)	.753(1)	10.790	94.81	5.19	74.33

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	258.000(52)	.000(0)	191.770	100.00	.00	74.33
LANE WIDTH DEFICIENCY	258.000(52)	.000(0)	191.770	100.00	.00	74.33
SHOULDER W. DEFICIENCY	258.000(52)	.000(0)	191.770	100.00	.00	74.33
VERT. ALIGN. DEFICIENCY	258.000(52)	.000(0)	191.770	100.00	.00	74.33
HORIZ. ALIGN. DEFICIENCY	258.000(52)	.000(0)	191.770	100.00	.00	74.33
SPEED LIMIT DEFICIENCY	258.000(52)	.000(0)	191.770	100.00	.00	74.33
CAPACITY DEFICIENCY 1996	199.598(41)	58.402(11)	191.770	77.36	22.64	74.33
CAPACITY DEFICIENCY 2016	180.198(34)	77.802(18)	191.770	69.84	30.16	74.33

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 212 in WASHINGTON : I-90 Termini: Through Spokane

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	18.000(	7 SECTIONS COVERING	8.030 MILES)
TOTAL LENGTH	18.000(	7 SECTIONS COVERING	8.030 MILES)

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	18.000(7)	.000(0)	8.030	100.00	.00	44.61
LANE WIDTH DEFICIENCY	18.000(7)	.000(0)	8.030	100.00	.00	44.61
SHOULDER W. DEFICIENCY	16.610(6)	1.390(1)	8.030	92.28	7.72	44.61
VERT. ALIGN. DEFICIENCY	18.000(7)	.000(0)	8.030	100.00	.00	44.61
HORIZ. ALIGN. DEFICIENCY	18.000(7)	.000(0)	8.030	100.00	.00	44.61
SPEED LIMIT DEFICIENCY	18.000(7)	.000(0)	8.030	100.00	.00	44.61
CAPACITY DEFICIENCY 1996	16.610(6)	1.390(1)	8.030	92.28	7.72	44.61
CAPACITY DEFICIENCY 2016	4.057(1)	13.943(6)	8.030	22.54	77.46	44.61

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 213 in WASHINGTON : I-90 Termini: Spokane UL - Idaho SL

RURAL LENGTH	6.000(	1 SECTIONS COVERING	1.260 MILES)
URBAN LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	6.000(	1 SECTIONS COVERING	1.260 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	6.000(1)	.000(0)	1.260	100.00	.00	21.00
LANE WIDTH DEFICIENCY	6.000(1)	.000(0)	1.260	100.00	.00	21.00
SHOULDER W. DEFICIENCY	6.000(1)	.000(0)	1.260	100.00	.00	21.00
VERT. ALIGN. DEFICIENCY	6.000(1)	.000(0)	1.260	100.00	.00	21.00
HORIZ. ALIGN. DEFICIENCY	6.000(1)	.000(0)	1.260	100.00	.00	21.00
SPEED LIMIT DEFICIENCY	6.000(1)	.000(0)	1.260	100.00	.00	21.00
CAPACITY DEFICIENCY 1996	.000(0)	6.000(1)	1.260	.00	100.00	21.00
CAPACITY DEFICIENCY 2016	.000(0)	6.000(1)	1.260	.00	100.00	21.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 240 in WASHINGTON : I-205 Termini: I-5 N. Portland - Oregon SL

RURAL LENGTH	.000(	0 SECTIONS COVERING	.000	MILES)
URBAN LENGTH	11.000(	4 SECTIONS COVERING	8.830	MILES)
TOTAL LENGTH	11.000(	4 SECTIONS COVERING	8.830	MILES)

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)				SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE		DEFICIENT		LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	11.000(	4)	.000(	0)	8.830	100.00	.00	80.27
LANE WIDTH DEFICIENCY	11.000(	4)	.000(	0)	8.830	100.00	.00	80.27
SHOULDER W. DEFICIENCY	11.000(	4)	.000(	0)	8.830	100.00	.00	80.27
VERT. ALIGN. DEFICIENCY	11.000(	4)	.000(	0)	8.830	100.00	.00	80.27
HORIZ. ALIGN. DEFICIENCY	11.000(	4)	.000(	0)	8.830	100.00	.00	80.27
SPEED LIMIT DEFICIENCY	11.000(	4)	.000(	0)	8.830	100.00	.00	80.27
CAPACITY DEFICIENCY 1996	11.000(	4)	.000(	0)	8.830	100.00	.00	80.27
CAPACITY DEFICIENCY 2016	5.120(	2)	5.880(	2)	8.830	46.55	53.45	80.27

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 350 in WASHINGTON : US 2   Termini: I-5 - I-90 @ Spokane

RURAL LENGTH 266.455(58 SECTIONS COVERING 155.970 MILES)
URBAN LENGTH 17.545(13 SECTIONS COVERING 10.270 MILES)
TOTAL LENGTH 284.000(71 SECTIONS COVERING 166.240 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	266.455(58)	.000(0)	155.970	100.00	.00	58.54
LANE WIDTH DEFICIENCY	176.031(43)	90.424(15)	155.970	66.06	33.94	58.54
SHOULDER W. DEFICIENCY	232.999(46)	33.456(9)	153.870	87.44	12.56	57.75
VERT. ALIGN. DEFICIENCY	259.365(57)	7.090(1)	155.970	97.34	2.66	58.54
HORIZ. ALIGN. DEFICIENCY	250.653(56)	15.802(2)	155.970	94.07	5.93	58.54
SPEED LIMIT DEFICIENCY	242.247(50)	24.208(8)	155.970	90.91	9.09	58.54
CAPACITY DEFICIENCY 1996	224.139(46)	42.316(12)	155.970	84.12	15.88	58.54
CAPACITY DEFICIENCY 2016	156.179(28)	110.275(30)	155.970	58.61	41.39	58.54

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	17.306(12)	.239(1)	10.270	98.64	1.36	58.54
LANE WIDTH DEFICIENCY	17.545(13)	.000(0)	10.270	100.00	.00	58.54
SHOULDER W. DEFICIENCY	17.239(10)	.306(1)	8.600	98.26	1.74	49.02
VERT. ALIGN. DEFICIENCY	17.545(13)	.000(0)	10.270	100.00	.00	58.54
HORIZ. ALIGN. DEFICIENCY	17.545(13)	.000(0)	10.270	100.00	.00	58.54
SPEED LIMIT DEFICIENCY	15.307(9)	2.238(4)	10.270	87.24	12.76	58.54
CAPACITY DEFICIENCY 1996	17.545(13)	.000(0)	10.270	100.00	.00	58.54
CAPACITY DEFICIENCY 2016	14.931(12)	2.614(1)	10.270	85.10	14.90	58.54

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	283.761(70)	.239(1)	166.240	99.92	.08	58.54
LANE WIDTH DEFICIENCY	193.576(56)	90.424(15)	166.240	68.16	31.84	58.54
SHOULDER W. DEFICIENCY	250.238(56)	33.762(10)	162.470	88.11	11.89	57.21
VERT. ALIGN. DEFICIENCY	276.910(70)	7.090(1)	166.240	97.50	2.50	58.54
HORIZ. ALIGN. DEFICIENCY	268.198(69)	15.802(2)	166.240	94.44	5.56	58.54
SPEED LIMIT DEFICIENCY	257.554(59)	26.446(12)	166.240	90.69	9.31	58.54
CAPACITY DEFICIENCY 1996	241.684(59)	42.316(12)	166.240	85.10	14.90	58.54
CAPACITY DEFICIENCY 2016	171.111(40)	112.889(31)	166.240	60.25	39.75	58.54

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 351 in WASHINGTON : US 2 Termini: I-90 @ Spokane - Idaho SL

RURAL LENGTH	42.232(8 SECTIONS COVERING	18.810 MILES)
URBAN LENGTH	7.768(7 SECTIONS COVERING	3.460 MILES)
TOTAL LENGTH	50.000(15 SECTIONS COVERING	22.270 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	42.232(8)	.000(0)	18.810	100.00	.00	44.54
LANE WIDTH DEFICIENCY	42.232(8)	.000(0)	18.810	100.00	.00	44.54
SHOULDER W. DEFICIENCY	38.146(6)	4.085(1)	18.400	90.33	9.67	43.57
VERT. ALIGN. DEFICIENCY	42.232(8)	.000(0)	18.810	100.00	.00	44.54
HORIZ. ALIGN. DEFICIENCY	42.232(8)	.000(0)	18.810	100.00	.00	44.54
SPEED LIMIT DEFICIENCY	41.311(7)	.921(1)	18.810	97.82	2.18	44.54
CAPACITY DEFICIENCY 1996	32.937(6)	9.295(2)	18.810	77.99	22.01	44.54
CAPACITY DEFICIENCY 2016	26.650(4)	15.581(4)	18.810	63.10	36.90	44.54

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	4.737(6)	3.031(1)	3.460	60.98	39.02	44.54
LANE WIDTH DEFICIENCY	7.768(7)	.000(0)	3.460	100.00	.00	44.54
SHOULDER W. DEFICIENCY	.000(0)	.000(0)	.000	.00	.00	.00
VERT. ALIGN. DEFICIENCY	7.768(7)	.000(0)	3.460	100.00	.00	44.54
HORIZ. ALIGN. DEFICIENCY	7.768(7)	.000(0)	3.460	100.00	.00	44.54
SPEED LIMIT DEFICIENCY	.000(0)	7.768(7)	3.460	.00	100.00	44.54
CAPACITY DEFICIENCY 1996	7.768(7)	.000(0)	3.460	100.00	.00	44.54
CAPACITY DEFICIENCY 2016	4.962(5)	2.806(2)	3.460	63.87	36.13	44.54

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	46.969(14)	3.031(1)	22.270	93.94	6.06	44.54
LANE WIDTH DEFICIENCY	50.000(15)	.000(0)	22.270	100.00	.00	44.54
SHOULDER W. DEFICIENCY	38.146(6)	4.085(1)	18.400	76.29	8.17	36.80
VERT. ALIGN. DEFICIENCY	50.000(15)	.000(0)	22.270	100.00	.00	44.54
HORIZ. ALIGN. DEFICIENCY	50.000(15)	.000(0)	22.270	100.00	.00	44.54
SPEED LIMIT DEFICIENCY	41.311(7)	8.689(8)	22.270	82.62	17.38	44.54
CAPACITY DEFICIENCY 1996	40.705(13)	9.295(2)	22.270	81.41	18.59	44.54
CAPACITY DEFICIENCY 2016	31.612(9)	18.388(6)	22.270	63.22	36.78	44.54

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

Super-Segment NO 520 in WASHINGTON : US 195 Termini: US 95 (Idaho SL) to I-90 @ Spokane

RURAL LENGTH	88.464(11 SECTIONS COVERING	42.490 MILES)
URBAN LENGTH	8.536(4 SECTIONS COVERING	4.100 MILES)
TOTAL LENGTH	97.000(15 SECTIONS COVERING	46.590 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	88.464(11)	.000(0)	42.490	100.00	.00	48.03
LANE WIDTH DEFICIENCY	84.487(9)	3.977(2)	42.490	95.50	4.50	48.03
SHOULDER W. DEFICIENCY	88.464(11)	.000(0)	42.490	100.00	.00	48.03
VERT. ALIGN. DEFICIENCY	88.464(11)	.000(0)	42.490	100.00	.00	48.03
HORIZ. ALIGN. DEFICIENCY	88.464(11)	.000(0)	42.490	100.00	.00	48.03
SPEED LIMIT DEFICIENCY	87.464(10)	.999(1)	42.490	98.87	1.13	48.03
CAPACITY DEFICIENCY 1996	86.507(10)	1.957(1)	42.490	97.79	2.21	48.03
CAPACITY DEFICIENCY 2016	56.776(6)	31.688(5)	42.490	64.18	35.82	48.03

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	8.536(4)	.000(0)	4.100	100.00	.00	48.03
LANE WIDTH DEFICIENCY	8.536(4)	.000(0)	4.100	100.00	.00	48.03
SHOULDER W. DEFICIENCY	8.536(4)	.000(0)	4.100	100.00	.00	48.03
VERT. ALIGN. DEFICIENCY	8.536(4)	.000(0)	4.100	100.00	.00	48.03
HORIZ. ALIGN. DEFICIENCY	8.536(4)	.000(0)	4.100	100.00	.00	48.03
SPEED LIMIT DEFICIENCY	8.536(4)	.000(0)	4.100	100.00	.00	48.03
CAPACITY DEFICIENCY 1996	8.536(4)	.000(0)	4.100	100.00	.00	48.03
CAPACITY DEFICIENCY 2016	8.536(4)	.000(0)	4.100	100.00	.00	48.03

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	97.000(15)	.000(0)	46.590	100.00	.00	48.03
LANE WIDTH DEFICIENCY	93.023(13)	3.977(2)	46.590	95.90	4.10	48.03
SHOULDER W. DEFICIENCY	97.000(15)	.000(0)	46.590	100.00	.00	48.03
VERT. ALIGN. DEFICIENCY	97.000(15)	.000(0)	46.590	100.00	.00	48.03
HORIZ. ALIGN. DEFICIENCY	97.000(15)	.000(0)	46.590	100.00	.00	48.03
SPEED LIMIT DEFICIENCY	96.001(14)	.999(1)	46.590	98.97	1.03	48.03
CAPACITY DEFICIENCY 1996	95.043(14)	1.957(1)	46.590	97.98	2.02	48.03
CAPACITY DEFICIENCY 2016	65.312(10)	31.688(5)	46.590	67.33	32.67	48.03

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 570 in WASHINGTON : US 395 Termini: Spokane to Canada

RURAL LENGTH	106.000(	12 SECTIONS COVERING	47.540 MILES)
URBAN LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	106.000(	12 SECTIONS COVERING	47.540 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	106.000(12)	.000(0)	47.540	100.00	.00	44.85
LANE WIDTH DEFICIENCY	50.882(7)	55.118(5)	47.540	48.00	52.00	44.85
SHOULDER W. DEFICIENCY	75.520(10)	30.480(2)	47.540	71.25	28.75	44.85
VERT. ALIGN. DEFICIENCY	90.637(11)	15.363(1)	47.540	85.51	14.49	44.85
HORIZ. ALIGN. DEFICIENCY	81.696(10)	24.304(2)	47.540	77.07	22.93	44.85
SPEED LIMIT DEFICIENCY	102.232(10)	3.768(2)	47.540	96.45	3.55	44.85
CAPACITY DEFICIENCY 1996	54.316(5)	51.684(7)	47.540	51.24	48.76	44.85
CAPACITY DEFICIENCY 2016	48.184(3)	57.816(9)	47.540	45.46	54.54	44.85

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 580 in WASHINGTON : US 395 Termini: I-82 to I-90

RURAL LENGTH	69.197(5 SECTIONS COVERING	42.680 MILES)
URBAN LENGTH	11.803(13 SECTIONS COVERING	7.280 MILES)
TOTAL LENGTH	81.000(18 SECTIONS COVERING	49.960 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	69.197(5)	.000(0)	42.680	100.00	.00	61.68
LANE WIDTH DEFICIENCY	69.197(5)	.000(0)	42.680	100.00	.00	61.68
SHOULDER W. DEFICIENCY	69.197(5)	.000(0)	42.680	100.00	.00	61.68
VERT. ALIGN. DEFICIENCY	69.197(5)	.000(0)	42.680	100.00	.00	61.68
HORIZ. ALIGN. DEFICIENCY	69.197(5)	.000(0)	42.680	100.00	.00	61.68
SPEED LIMIT DEFICIENCY	69.197(5)	.000(0)	42.680	100.00	.00	61.68
CAPACITY DEFICIENCY 1996	69.197(5)	.000(0)	42.680	100.00	.00	61.68
CAPACITY DEFICIENCY 2016	69.197(5)	.000(0)	42.680	100.00	.00	61.68

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	10.052(11)	1.751(2)	7.280	85.16	14.84	61.68
LANE WIDTH DEFICIENCY	11.803(13)	.000(0)	7.280	100.00	.00	61.68
SHOULDER W. DEFICIENCY	11.803(11)	.000(0)	5.850	100.00	.00	49.56
VERT. ALIGN. DEFICIENCY	11.803(13)	.000(0)	7.280	100.00	.00	61.68
HORIZ. ALIGN. DEFICIENCY	11.803(13)	.000(0)	7.280	100.00	.00	61.68
SPEED LIMIT DEFICIENCY	6.161(7)	5.642(6)	7.280	52.20	47.80	61.68
CAPACITY DEFICIENCY 1996	11.414(12)	.389(1)	7.280	96.70	3.30	61.68
CAPACITY DEFICIENCY 2016	11.414(12)	.389(1)	7.280	96.70	3.30	61.68

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	79.249(16)	1.751(2)	49.960	97.84	2.16	61.68
LANE WIDTH DEFICIENCY	81.000(18)	.000(0)	49.960	100.00	.00	61.68
SHOULDER W. DEFICIENCY	81.000(16)	.000(0)	48.530	100.00	.00	59.91
VERT. ALIGN. DEFICIENCY	81.000(18)	.000(0)	49.960	100.00	.00	61.68
HORIZ. ALIGN. DEFICIENCY	81.000(18)	.000(0)	49.960	100.00	.00	61.68
SPEED LIMIT DEFICIENCY	75.358(12)	5.642(6)	49.960	93.03	6.97	61.68
CAPACITY DEFICIENCY 1996	80.611(17)	.389(1)	49.960	99.52	.48	61.68
CAPACITY DEFICIENCY 2016	80.611(17)	.389(1)	49.960	99.52	.48	61.68

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 610 in WASHINGTON : S 18 Termini: I-5 to I-90 @ Seattle

RURAL LENGTH	10.276(	2 SECTIONS COVERING	4.300 MILES)
URBAN LENGTH	15.724(	6 SECTIONS COVERING	6.580 MILES)
TOTAL LENGTH	26.000(	8 SECTIONS COVERING	10.880 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	10.276(2)	.000(0)	4.300	100.00	.00	41.85
LANE WIDTH DEFICIENCY	10.276(2)	.000(0)	4.300	100.00	.00	41.85
SHOULDER W. DEFICIENCY	10.276(2)	.000(0)	4.300	100.00	.00	41.85
VERT. ALIGN. DEFICIENCY	10.276(2)	.000(0)	4.300	100.00	.00	41.85
HORIZ. ALIGN. DEFICIENCY	10.276(2)	.000(0)	4.300	100.00	.00	41.85
SPEED LIMIT DEFICIENCY	10.276(2)	.000(0)	4.300	100.00	.00	41.85
CAPACITY DEFICIENCY 1996	.000(0)	10.276(2)	4.300	.00	100.00	41.85
CAPACITY DEFICIENCY 2016	.000(0)	10.276(2)	4.300	.00	100.00	41.85

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	15.724(6)	.000(0)	6.580	100.00	.00	41.85
LANE WIDTH DEFICIENCY	10.849(5)	4.875(1)	6.580	69.00	31.00	41.85
SHOULDER W. DEFICIENCY	14.338(5)	1.386(1)	6.580	91.19	8.81	41.85
VERT. ALIGN. DEFICIENCY	15.724(6)	.000(0)	6.580	100.00	.00	41.85
HORIZ. ALIGN. DEFICIENCY	15.724(6)	.000(0)	6.580	100.00	.00	41.85
SPEED LIMIT DEFICIENCY	15.724(6)	.000(0)	6.580	100.00	.00	41.85
CAPACITY DEFICIENCY 1996	11.375(5)	4.349(1)	6.580	72.34	27.66	41.85
CAPACITY DEFICIENCY 2016	8.173(3)	7.551(3)	6.580	51.98	48.02	41.85

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	26.000(8)	.000(0)	10.880	100.00	.00	41.85
LANE WIDTH DEFICIENCY	21.125(7)	4.875(1)	10.880	81.25	18.75	41.85
SHOULDER W. DEFICIENCY	24.614(7)	1.386(1)	10.880	94.67	5.33	41.85
VERT. ALIGN. DEFICIENCY	26.000(8)	.000(0)	10.880	100.00	.00	41.85
HORIZ. ALIGN. DEFICIENCY	26.000(8)	.000(0)	10.880	100.00	.00	41.85
SPEED LIMIT DEFICIENCY	26.000(8)	.000(0)	10.880	100.00	.00	41.85
CAPACITY DEFICIENCY 1996	11.375(5)	14.625(3)	10.880	43.75	56.25	41.85
CAPACITY DEFICIENCY 2016	8.173(3)	17.827(5)	10.880	31.43	68.57	41.85

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 740 in WASHINGTON : I-82 Termini: I-90 - Oregon SL

RURAL LENGTH 114.157(11 SECTIONS COVERING 45.680 MILES)
URBAN LENGTH 18.843(5 SECTIONS COVERING 7.540 MILES)
TOTAL LENGTH 133.000(16 SECTIONS COVERING 53.220 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	114.157(11)	.000(0)	45.680	100.00	.00	40.02
LANE WIDTH DEFICIENCY	114.157(11)	.000(0)	45.680	100.00	.00	40.02
SHOULDER W. DEFICIENCY	114.157(11)	.000(0)	45.680	100.00	.00	40.02
VERT. ALIGN. DEFICIENCY	114.157(11)	.000(0)	45.680	100.00	.00	40.02
HORIZ. ALIGN. DEFICIENCY	114.157(11)	.000(0)	45.680	100.00	.00	40.02
SPEED LIMIT DEFICIENCY	114.157(11)	.000(0)	45.680	100.00	.00	40.02
CAPACITY DEFICIENCY 1996	114.157(11)	.000(0)	45.680	100.00	.00	40.02
CAPACITY DEFICIENCY 2016	114.157(11)	.000(0)	45.680	100.00	.00	40.02

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	18.843(5)	.000(0)	7.540	100.00	.00	40.02
LANE WIDTH DEFICIENCY	18.843(5)	.000(0)	7.540	100.00	.00	40.02
SHOULDER W. DEFICIENCY	17.518(4)	1.325(1)	7.540	92.97	7.03	40.02
VERT. ALIGN. DEFICIENCY	18.843(5)	.000(0)	7.540	100.00	.00	40.02
HORIZ. ALIGN. DEFICIENCY	18.843(5)	.000(0)	7.540	100.00	.00	40.02
SPEED LIMIT DEFICIENCY	18.843(5)	.000(0)	7.540	100.00	.00	40.02
CAPACITY DEFICIENCY 1996	18.843(5)	.000(0)	7.540	100.00	.00	40.02
CAPACITY DEFICIENCY 2016	18.843(5)	.000(0)	7.540	100.00	.00	40.02

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	133.000(16)	.000(0)	53.220	100.00	.00	40.02
LANE WIDTH DEFICIENCY	133.000(16)	.000(0)	53.220	100.00	.00	40.02
SHOULDER W. DEFICIENCY	131.675(15)	1.325(1)	53.220	99.00	1.00	40.02
VERT. ALIGN. DEFICIENCY	133.000(16)	.000(0)	53.220	100.00	.00	40.02
HORIZ. ALIGN. DEFICIENCY	133.000(16)	.000(0)	53.220	100.00	.00	40.02
SPEED LIMIT DEFICIENCY	133.000(16)	.000(0)	53.220	100.00	.00	40.02
CAPACITY DEFICIENCY 1996	133.000(16)	.000(0)	53.220	100.00	.00	40.02
CAPACITY DEFICIENCY 2016	133.000(16)	.000(0)	53.220	100.00	.00	40.02

Note: The numbers in ( ) indicate the number of sample sections

WYOMING

Super-Segment NO 87 in WYOMING : I-25 Termini: Through Cheyenne

RURAL LENGTH	7.030(	1 SECTIONS COVERING	7.030 MILES)
URBAN LENGTH	9.200(	8 SECTIONS COVERING	9.200 MILES)
TOTAL LENGTH	16.230(	9 SECTIONS COVERING	16.230 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	7.030(1)	.000(0)	7.030	100.00	.00	100.00
LANE WIDTH DEFICIENCY	7.030(1)	.000(0)	7.030	100.00	.00	100.00
SHOULDER W. DEFICIENCY	7.030(1)	.000(0)	7.030	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	7.030(1)	.000(0)	7.030	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	7.030(1)	.000(0)	7.030	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	.000(0)	7.030(1)	7.030	.00	100.00	100.00
CAPACITY DEFICIENCY 1996	.000(0)	.000(0)	.000	.00	.00	.00
CAPACITY DEFICIENCY 2016	.000(0)	.000(0)	.000	.00	.00	.00

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	6.145(6)	3.055(2)	9.200	66.79	33.21	100.00
LANE WIDTH DEFICIENCY	9.200(8)	.000(0)	9.200	100.00	.00	100.00
SHOULDER W. DEFICIENCY	9.200(8)	.000(0)	9.200	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	9.200(8)	.000(0)	9.200	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	9.200(8)	.000(0)	9.200	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	9.200(8)	.000(0)	9.200	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	9.200(8)	.000(0)	9.200	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	9.200(8)	.000(0)	9.200	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	13.175(7)	3.055(2)	16.230	81.18	18.82	100.00
LANE WIDTH DEFICIENCY	16.230(9)	.000(0)	16.230	100.00	.00	100.00
SHOULDER W. DEFICIENCY	16.230(9)	.000(0)	16.230	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	16.230(9)	.000(0)	16.230	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	16.230(9)	.000(0)	16.230	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	9.200(8)	7.030(1)	16.230	56.69	43.31	100.00
CAPACITY DEFICIENCY 1996	9.200(8)	.000(0)	9.200	56.69	.00	56.69
CAPACITY DEFICIENCY 2016	9.200(8)	.000(0)	9.200	56.69	.00	56.69

Note: The numbers in ( ) indicate the number of sample sections
Some % of expanded length do not add to 100%
because of complete lack of sample section with the data item

Super-Segment NO 88 in WYOMING : I-25 Termini: Cheyenne UL - US 26

RURAL LENGTH	76.066(	30 SECTIONS COVERING	76.066 MILES)
URBAN LENGTH	.000(	0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	76.066(	30 SECTIONS COVERING	76.066 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	53.094(25)	22.972(5)	76.066	69.80	30.20	100.00
LANE WIDTH DEFICIENCY	76.066(30)	.000(0)	76.066	100.00	.00	100.00
SHOULDER W. DEFICIENCY	76.066(30)	.000(0)	76.066	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	76.066(30)	.000(0)	76.066	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	76.066(30)	.000(0)	76.066	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	76.066(30)	.000(0)	76.066	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	76.066(18)	.000(0)	36.748	100.00	.00	48.31
CAPACITY DEFICIENCY 2016	76.066(18)	.000(0)	36.748	100.00	.00	48.31

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 89 in WYOMING : I-25 Termini: US 26 - I-90 N. Casper

RURAL LENGTH 191.695(48 SECTIONS COVERING 191.695 MILES)
URBAN LENGTH 16.961(15 SECTIONS COVERING 16.961 MILES)
TOTAL LENGTH 208.656(63 SECTIONS COVERING 208.656 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	189.160(46)	2.535(2)	191.695	98.68	1.32	100.00
LANE WIDTH DEFICIENCY	191.695(48)	.000(0)	191.695	100.00	.00	100.00
SHOULDER W. DEFICIENCY	191.695(48)	.000(0)	191.695	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	191.695(48)	.000(0)	191.695	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	191.695(48)	.000(0)	191.695	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	189.636(47)	2.059(1)	191.695	98.93	1.07	100.00
CAPACITY DEFICIENCY 1996	191.695(26)	.000(0)	75.004	100.00	.00	39.13
CAPACITY DEFICIENCY 2016	191.695(26)	.000(0)	75.004	100.00	.00	39.13

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	15.604(11)	1.357(4)	16.961	92.00	8.00	100.00
LANE WIDTH DEFICIENCY	16.961(15)	.000(0)	16.961	100.00	.00	100.00
SHOULDER W. DEFICIENCY	16.961(15)	.000(0)	16.961	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	16.961(15)	.000(0)	16.961	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	16.961(15)	.000(0)	16.961	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	16.961(15)	.000(0)	16.961	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	16.961(15)	.000(0)	16.961	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	16.961(15)	.000(0)	16.961	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	204.764(57)	3.892(6)	208.656	98.13	1.87	100.00
LANE WIDTH DEFICIENCY	208.656(63)	.000(0)	208.656	100.00	.00	100.00
SHOULDER W. DEFICIENCY	208.656(63)	.000(0)	208.656	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	208.656(63)	.000(0)	208.656	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	208.656(63)	.000(0)	208.656	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	206.597(62)	2.059(1)	208.656	99.01	.99	100.00
CAPACITY DEFICIENCY 1996	208.656(41)	.000(0)	91.965	100.00	.00	44.07
CAPACITY DEFICIENCY 2016	208.656(41)	.000(0)	91.965	100.00	.00	44.07

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 177 in WYOMING : I-80 Termini: Utah SL - Cheyenne UL

RURAL LENGTH 328.830(85 SECTIONS COVERING 328.830 MILES)
URBAN LENGTH 27.832(26 SECTIONS COVERING 27.832 MILES)
TOTAL LENGTH 356.662(111 SECTIONS COVERING 356.662 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	312.531(79)	16.299(5)	328.592	95.04	4.96	99.93
LANE WIDTH DEFICIENCY	328.830(81)	.000(0)	309.734	100.00	.00	94.19
SHOULDER W. DEFICIENCY	328.830(84)	.000(0)	323.830	100.00	.00	98.48
VERT. ALIGN. DEFICIENCY	328.830(85)	.000(0)	328.830	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	328.830(85)	.000(0)	328.830	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	328.830(85)	.000(0)	328.830	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	328.830(44)	.000(0)	136.724	100.00	.00	41.58
CAPACITY DEFICIENCY 2016	328.830(44)	.000(0)	136.724	100.00	.00	41.58

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	11.476(12)	16.356(14)	27.832	41.23	58.77	100.00
LANE WIDTH DEFICIENCY	27.832(26)	.000(0)	27.832	100.00	.00	100.00
SHOULDER W. DEFICIENCY	27.832(26)	.000(0)	27.832	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	27.832(26)	.000(0)	27.832	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	27.832(26)	.000(0)	27.832	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	27.832(26)	.000(0)	27.832	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	27.832(26)	.000(0)	27.832	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	27.832(26)	.000(0)	27.832	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	324.007(91)	32.655(19)	356.424	90.84	9.16	99.93
LANE WIDTH DEFICIENCY	356.662(107)	.000(0)	337.566	100.00	.00	94.65
SHOULDER W. DEFICIENCY	356.662(110)	.000(0)	351.662	100.00	.00	98.60
VERT. ALIGN. DEFICIENCY	356.662(111)	.000(0)	356.662	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	356.662(111)	.000(0)	356.662	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	356.662(111)	.000(0)	356.662	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	356.662(70)	.000(0)	164.556	100.00	.00	46.14
CAPACITY DEFICIENCY 2016	356.662(70)	.000(0)	164.556	100.00	.00	46.14

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 178 in WYOMING : I-80 Termini: Through Cheyenne

RURAL LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
URBAN LENGTH	13.707(12 SECTIONS COVERING	13.707 MILES)
TOTAL LENGTH	13.707(12 SECTIONS COVERING	13.707 MILES)

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	10.242(8)	3.465(4)	13.707	74.72	25.28	100.00
LANE WIDTH DEFICIENCY	13.707(12)	.000(0)	13.707	100.00	.00	100.00
SHOULDER W. DEFICIENCY	13.707(12)	.000(0)	13.707	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	13.707(12)	.000(0)	13.707	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	13.707(12)	.000(0)	13.707	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	13.707(12)	.000(0)	13.707	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	13.707(12)	.000(0)	13.707	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	13.707(12)	.000(0)	13.707	100.00	.00	100.00

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 179 in WYOMING : I-80 Termini: Cheyenne UL - Nebraska SL

RURAL LENGTH	32.385(11 SECTIONS COVERING	32.385 MILES)
URBAN LENGTH	.000(0 SECTIONS COVERING	.000 MILES)
TOTAL LENGTH	32.385(11 SECTIONS COVERING	32.385 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	28.006(10)	4.379(1)	32.385	86.48	13.52	100.00
LANE WIDTH DEFICIENCY	32.385(11)	.000(0)	32.385	100.00	.00	100.00
SHOULDER W. DEFICIENCY	32.385(11)	.000(0)	32.385	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	32.385(11)	.000(0)	32.385	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	32.385(11)	.000(0)	32.385	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	32.385(11)	.000(0)	32.385	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	32.385(5)	.000(0)	17.100	100.00	.00	52.80
CAPACITY DEFICIENCY 2016	32.385(5)	.000(0)	17.100	100.00	.00	52.80

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 217 in WYOMING : I-90 Termini: Montana SL - I-25

RURAL LENGTH 49.176(13 SECTIONS COVERING 49.176 MILES)
URBAN LENGTH 10.300(4 SECTIONS COVERING 10.300 MILES)
TOTAL LENGTH 59.476(17 SECTIONS COVERING 59.476 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	24.983(7)	24.193(6)	49.176	50.80	49.20	100.00
LANE WIDTH DEFICIENCY	49.176(13)	.000(0)	49.176	100.00	.00	100.00
SHOULDER W. DEFICIENCY	49.176(13)	.000(0)	49.176	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	49.176(13)	.000(0)	49.176	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	49.176(13)	.000(0)	49.176	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	49.176(13)	.000(0)	49.176	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	49.176(5)	.000(0)	14.510	100.00	.00	29.51
CAPACITY DEFICIENCY 2016	49.176(5)	.000(0)	14.510	100.00	.00	29.51

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	10.300(4)	.000(0)	10.300	100.00	.00	100.00
LANE WIDTH DEFICIENCY	10.300(4)	.000(0)	10.300	100.00	.00	100.00
SHOULDER W. DEFICIENCY	10.300(4)	.000(0)	10.300	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	10.300(4)	.000(0)	10.300	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	10.300(4)	.000(0)	10.300	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	10.300(4)	.000(0)	10.300	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	10.300(4)	.000(0)	10.300	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	10.300(4)	.000(0)	10.300	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	35.283(11)	24.193(6)	59.476	59.32	40.68	100.00
LANE WIDTH DEFICIENCY	59.476(17)	.000(0)	59.476	100.00	.00	100.00
SHOULDER W. DEFICIENCY	59.476(17)	.000(0)	59.476	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	59.476(17)	.000(0)	59.476	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	59.476(17)	.000(0)	59.476	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	59.476(17)	.000(0)	59.476	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	59.476(9)	.000(0)	24.810	100.00	.00	41.71
CAPACITY DEFICIENCY 2016	59.476(9)	.000(0)	24.810	100.00	.00	41.71

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 218 in WYOMING : I-90 Termini: I-25 - South Dakota SL

RURAL LENGTH 140.492(36 SECTIONS COVERING 140.492 MILES)
URBAN LENGTH 8.080(7 SECTIONS COVERING 8.080 MILES)
TOTAL LENGTH 148.572(43 SECTIONS COVERING 148.572 MILES)

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	135.621(32)	4.871(4)	140.492	96.53	3.47	100.00
LANE WIDTH DEFICIENCY	140.492(36)	.000(0)	140.492	100.00	.00	100.00
SHOULDER W. DEFICIENCY	140.492(36)	.000(0)	140.492	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	140.492(36)	.000(0)	140.492	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	140.492(36)	.000(0)	140.492	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	140.492(36)	.000(0)	140.492	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	140.492(15)	.000(0)	55.278	100.00	.00	39.35
CAPACITY DEFICIENCY 2016	140.492(15)	.000(0)	55.278	100.00	.00	39.35

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	4.478(4)	3.602(3)	8.080	55.42	44.58	100.00
LANE WIDTH DEFICIENCY	8.080(7)	.000(0)	8.080	100.00	.00	100.00
SHOULDER W. DEFICIENCY	8.080(7)	.000(0)	8.080	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	8.080(7)	.000(0)	8.080	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	8.080(7)	.000(0)	8.080	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	8.080(7)	.000(0)	8.080	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	8.080(7)	.000(0)	8.080	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	8.080(7)	.000(0)	8.080	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	140.099(36)	8.473(7)	148.572	94.30	5.70	100.00
LANE WIDTH DEFICIENCY	148.572(43)	.000(0)	148.572	100.00	.00	100.00
SHOULDER W. DEFICIENCY	148.572(43)	.000(0)	148.572	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	148.572(43)	.000(0)	148.572	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	148.572(43)	.000(0)	148.572	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	148.572(43)	.000(0)	148.572	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	148.572(22)	.000(0)	63.358	100.00	.00	42.64
CAPACITY DEFICIENCY 2016	148.572(22)	.000(0)	63.358	100.00	.00	42.64

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 390 in WYOMING : US 26 Termini: I-25 - Nebraska SL

RURAL LENGTH	51.649(23 SECTIONS COVERING	51.649 MILES)		
URBAN LENGTH	4.541(11 SECTIONS COVERING	4.541 MILES)		
TOTAL LENGTH	56.190(34 SECTIONS COVERING	56.190 MILES)		

R U R A L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	51.649(23)	.000(0)	51.649	100.00	.00	100.00
LANE WIDTH DEFICIENCY	51.649(23)	.000(0)	51.649	100.00	.00	100.00
SHOULDER W. DEFICIENCY	51.649(11)	.000(0)	37.518	100.00	.00	72.64
VERT. ALIGN. DEFICIENCY	51.649(23)	.000(0)	51.649	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	47.649(22)	4.000(1)	51.649	92.26	7.74	100.00
SPEED LIMIT DEFICIENCY	38.670(17)	12.979(6)	51.649	74.87	25.13	100.00
CAPACITY DEFICIENCY 1996	49.079(21)	2.570(1)	51.463	95.02	4.98	99.64
CAPACITY DEFICIENCY 2016	45.064(20)	6.585(2)	51.463	87.25	12.75	99.64

U R B A N S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	4.541(11)	.000(0)	4.541	100.00	.00	100.00
LANE WIDTH DEFICIENCY	4.541(11)	.000(0)	4.541	100.00	.00	100.00
SHOULDER W. DEFICIENCY	4.541(5)	.000(0)	2.165	100.00	.00	47.68
VERT. ALIGN. DEFICIENCY	4.541(11)	.000(0)	4.541	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	4.541(11)	.000(0)	4.541	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	3.459(6)	1.082(5)	4.541	76.17	23.83	100.00
CAPACITY DEFICIENCY 1996	4.223(10)	.318(1)	4.541	93.00	7.00	100.00
CAPACITY DEFICIENCY 2016	4.541(11)	.000(0)	4.541	100.00	.00	100.00

A L L S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	56.190(34)	.000(0)	56.190	100.00	.00	100.00
LANE WIDTH DEFICIENCY	56.190(34)	.000(0)	56.190	100.00	.00	100.00
SHOULDER W. DEFICIENCY	56.190(16)	.000(0)	39.683	100.00	.00	70.62
VERT. ALIGN. DEFICIENCY	56.190(34)	.000(0)	56.190	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	52.190(33)	4.000(1)	56.190	92.88	7.12	100.00
SPEED LIMIT DEFICIENCY	42.129(23)	14.061(11)	56.190	74.98	25.02	100.00
CAPACITY DEFICIENCY 1996	53.302(31)	2.888(2)	56.004	94.86	5.14	99.67
CAPACITY DEFICIENCY 2016	49.605(31)	6.585(2)	56.004	88.28	11.72	99.67

Note: The numbers in ( ) indicate the number of sample sections

Super-Segment NO 560 in WYOMING : US 287 Termini: Colorado SL - I-80

RURAL LENGTH 20.986(11 SECTIONS COVERING 20.986 MILES)
URBAN LENGTH 3.472(3 SECTIONS COVERING 3.472 MILES)
TOTAL LENGTH 24.458(14 SECTIONS COVERING 24.458 MILES)

R U R A L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	20.986(11)	.000(0)	20.986	100.00	.00	100.00
LANE WIDTH DEFICIENCY	20.986(11)	.000(0)	20.986	100.00	.00	100.00
SHOULDER W. DEFICIENCY	20.986(9)	.000(0)	20.936	100.00	.00	99.76
VERT. ALIGN. DEFICIENCY	20.986(11)	.000(0)	20.986	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	20.986(11)	.000(0)	20.986	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	20.986(11)	.000(0)	20.986	100.00	.00	100.00
CAPACITY DEFICIENCY 1996	20.986(8)	.000(0)	19.336	100.00	.00	92.14
CAPACITY DEFICIENCY 2016	12.872(4)	8.114(4)	19.336	61.34	38.66	92.14

U R B A N   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	3.472(3)	.000(0)	3.472	100.00	.00	100.00
LANE WIDTH DEFICIENCY	3.472(3)	.000(0)	3.472	100.00	.00	100.00
SHOULDER W. DEFICIENCY	3.472(3)	.000(0)	3.472	100.00	.00	100.00
VERT. ALIGN. DEFICIENCY	3.472(3)	.000(0)	3.472	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	3.472(3)	.000(0)	3.472	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	2.877(2)	.595(1)	3.472	82.86	17.14	100.00
CAPACITY DEFICIENCY 1996	3.472(3)	.000(0)	3.472	100.00	.00	100.00
CAPACITY DEFICIENCY 2016	3.472(3)	.000(0)	3.472	100.00	.00	100.00

A L L   S E C T I O N S

	EXPANDED LENGTH (MI)		SAMPLE	% OF EXPANDED LENGTH		SAMPLE
	ADEQUATE	DEFICIENT	LENGTH	ADEQUATE	DEFICIENT	RATE
PAVEMENT DEFICIENCY	24.458(14)	.000(0)	24.458	100.00	.00	100.00
LANE WIDTH DEFICIENCY	24.458(14)	.000(0)	24.458	100.00	.00	100.00
SHOULDER W. DEFICIENCY	24.458(12)	.000(0)	24.408	100.00	.00	99.80
VERT. ALIGN. DEFICIENCY	24.458(14)	.000(0)	24.458	100.00	.00	100.00
HORIZ. ALIGN. DEFICIENCY	24.458(14)	.000(0)	24.458	100.00	.00	100.00
SPEED LIMIT DEFICIENCY	23.863(13)	.595(1)	24.458	97.57	2.43	100.00
CAPACITY DEFICIENCY 1996	24.458(11)	.000(0)	22.808	100.00	.00	93.25
CAPACITY DEFICIENCY 2016	16.344(7)	8.114(4)	22.808	66.82	33.18	93.25

Note: The numbers in ( ) indicate the number of sample sections

Appendix D
PERFORMANCE RESULTS

Two listings are included in Appendix D, both of which depict performance results as explained in Chapter 3. The first report is WTTN Operating Speed under three different scenarios: **Existing Conditions, Performance Enhanced Average Daily**, and **Performance Enhanced Peak Hour**. Each is alphabetized by state and listed in supersegment order number by state, showing performance data by supersegment.

Within each supersegment, performance results are shown by functional classification as represented within the supersegment, using the following abbreviations:

R. Int	Rural Interstate
R. OPA	Rural Other Principal Arterial
R. MiA	Rural Minor Arterial
U Int	Urban Interstate
U OFE	Urban Other Freeway and Expressway
U. OPA	Urban Other Principal Arterial
U. MiA	Urban Minor Arterial
S. Truck	Single Truck
C. Truck	Combination Truck

Each supersegment's data is listed for the mileage sampled (**Total Sample**), the expanded total (**Total**), and travel time (**Time (HR)**).

Columns across the page list other supersegment attributes, some duplicated from other reports (**GIS Length (MI)**and **Sample Length (MI)**). Other column data includes:

- **Average No. Lane** is the weighted average number of lanes for all mileage in the supersegment.

- **Target Speed** is the weighted average Minimum Tolerable Speed for the supersegment, using the MTC truck speed from Exhibit 3-2.

- **Speed Limit** is the weighted average speed limit of the highway supersegment mileage, as contained in the HPMS data and/or data provided by the states.

- **Design Speed** is the average Weighted Design Speed, as contained in the HPMS data and/or data provided by the states.

- **Average AADT** is the weighted average 1996 average annual daily traffic as reported in the HPMS data base and/or data provided by the states.

- **Average Daily Speed** is expressed for both **S.Truck** (single unit trucks) and **C.Truck** (combination trucks), using the process explained in Chapter 3. This speed is the average of both peak and off-peak operating speeds on the supersegment over a 24-hour period.

- **Peak Hour Speed** of both types of vehicles is expressed for peak hour, as defined by the K-factor reported in the HPMS data base. This makes no attempt to define *when* the peak hour occurs, as this varies greatly by location. It is an expression of operating speed whenever the peak hour occurs on the section.

The **Performance Enhancement** listing is actually two reports showing potential improvements in operating speed under **average daily** and **peak hour** conditions. It lists information in the same order as the first report (alphabetically by state, then numerically by supersegment number within each state). This report details information described in Chapter 3 relative to enhanced operating speed <u>and</u> the impact on truck operating speed if improvements are made to pavement condition, alignment, congestion, and speed limit, *in that order*. Please see the explanation of this process beginning on page 3-41 of the report.

For each of the four deficiency categories mentioned above, revised truck operating speeds are reported for both single and combination trucks. The methodology shows the **cumulative** impact on operating speed of addressing these deficiencies. Thus, the column listing improved operating speed under **Curves and Grades** includes the benefit from improved **Pavement Condition**. Likewise, operating speeds listed under **Congestion** includes benefits from pavement and alignment iimprovements. The final set of columns (**Speed Limit**) includes benefits from each of the other three improvement categories.

The second report summarizes the exact same data by WTTN Trade Corridor.

WTTN-Operating Speeds
Arizona Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
21	**I-8**		**California SL - I-10 S. Phoenix**								
R.Int		164.4	4.0	65.0	69.8	70.0	7,125	65.2	65.2	65.2	65.2
U.Int		14.0	4.0	40.0	56.8	70.0	13,945	59.1	59.1	59.1	59.1
Total Sample		178.3									
TOTAL	**178.3**		**4.0**	**62.0**	**68.6**	**70.0**	**7,659**	**64.7**	**64.7**	**64.7**	**64.7**
Time (HR)								**2.8**	**2.8**	**2.8**	**2.8**
31	**I-10**		**California SL - Phoenix**								
R.Int		105.5	4.0	65.0	68.1	70.0	15,719	64.9	64.9	64.9	64.9
U.Int		26.7	4.1	40.0	69.3	70.0	25,325	64.4	64.4	63.7	63.7
Total Sample		132.1									
TOTAL	**132.1**		**4.0**	**57.7**	**68.4**	**70.0**	**17,658**	**64.8**	**64.8**	**64.6**	**64.6**
Time (HR)								**2.0**	**2.0**	**2.0**	**2.0**
32	**I-10**		**Through Phoenix**								
U.Int		29.8	8.3	40.0	55.1	70.0	148,487	51.8	51.8	21.5	21.5
Total Sample		29.8									
TOTAL	**29.8**		**8.3**	**40.0**	**55.1**	**70.0**	**148,487**	**51.8**	**51.8**	**21.5**	**21.5**
Time (HR)								**0.6**	**0.6**	**1.4**	**1.4**
33	**I-10**		**Phoenix UL - I-19 @ Tucson**								
R.Int		76.5	4.1	65.0	67.4	70.0	35,038	64.7	64.7	62.9	62.9
U.Int		22.0	4.8	40.0	63.2	70.0	55,593	61.5	61.5	35.6	35.6
Total Sample		98.5									
TOTAL	**98.5**		**4.2**	**57.0**	**66.4**	**70.0**	**39,622**	**64.0**	**64.0**	**53.8**	**53.8**
Time (HR)								**1.5**	**1.5**	**1.8**	**1.8**
34	**I-10**		**I-19 @ Tucson - New Mexico SL**								
R.Int		126.8	4.0	65.0	67.3	70.0	16,382	65.5	65.5	65.4	65.4
U.Int		5.1	5.2	40.0	55.0	70.0	53,518	57.4	57.4	35.7	35.6
Total Sample		131.9									
TOTAL	**131.9**		**4.0**	**63.5**	**66.7**	**70.0**	**17,818**	**65.1**	**65.1**	**63.3**	**63.3**
Time (HR)								**2.0**	**2.0**	**2.1**	**2.1**

WTTN-Operating Speeds
Arizona Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
60	**I-19**		**Mexico - I-10 @ Tucson**								
R.Int		46.0	4.0	65.0	61.5	70.0	17,242	62.1	62.1	62.1	62.1
U.Int		17.3	4.0	40.0	60.4	70.0	23,583	61.0	61.0	61.0	61.0
Total Sample		63.3									
TOTAL	**63.3**		**4.0**	**55.5**	**61.2**	**70.0**	**18,976**	**61.8**	**61.8**	**61.8**	**61.8**
Time (HR)								**1.0**	**1.0**	**1.0**	**1.0**
61	**US 60/US 93**		**I-17 @ Phoenix - I40**								
R.OPA		131.1	2.2	53.1	51.0	70.0	6,956	47.8	47.8	42.4	42.3
U.OPA		10.8	4.0	35.0	45.7	70.0	18,987	30.2	30.2	27.8	27.8
Total Sample		141.9									
TOTAL	**161.0**		**2.3**	**51.1**	**50.5**	**70.0**	**7,875**	**45.8**	**45.7**	**40.7**	**40.7**
Time (HR)								**3.5**	**3.5**	**4.0**	**4.0**
62	**US 93**		**I-40 - Nevada SL**								
R.OPA		52.7	3.9	54.6	54.6	70.0	9,043	53.8	53.8	53.2	53.1
U.OPA		1.9	3.4	35.0	45.1	70.0	21,129	25.3	25.3	25.0	25.0
Total Sample		70.4									
TOTAL	**70.4**		**3.9**	**53.8**	**54.3**	**70.0**	**9,366**	**52.2**	**52.2**	**51.6**	**51.6**
Time (HR)								**1.3**	**1.3**	**1.4**	**1.4**
130	**I-40**		**California SL - US 93 @ Kingman**								
R.Int		47.9	4.0	65.0	65.0	70.0	11,597	65.4	65.4	65.4	65.4
Total Sample		47.9									
TOTAL	**47.9**		**4.0**	**65.0**	**65.0**	**70.0**	**11,597**	**65.4**	**65.4**	**65.4**	**65.4**
Time (HR)								**0.7**	**0.7**	**0.7**	**0.7**
131	**I-40**		**US 93 @ Kingman - US 93**								
R.Int		16.2	4.0	65.0	65.0	70.0	21,452	65.7	65.7	64.3	64.3
U.Int		7.4	4.0	40.0	65.0	70.0	20,674	64.9	64.9	64.9	64.9
Total Sample		23.6									
TOTAL	**23.6**		**4.0**	**54.3**	**65.0**	**70.0**	**21,207**	**65.5**	**65.5**	**64.5**	**64.5**
Time (HR)								**0.4**	**0.4**	**0.4**	**0.4**

WTTN-Operating Speeds
Arizona Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
132	**I-40**		**US 93 - I-17 @ Flagstaff**								
R.Int		120.6	4.0	64.0	65.0	70.0	12,730	65.5	65.5	65.5	65.5
U.Int		2.9	4.0	40.0	65.0	70.0	14,407	64.9	64.9	64.9	64.9
Total Sample		123.5									
TOTAL	**123.5**		**4.0**	**63.2**	**65.0**	**70.0**	**12,769**	**65.5**	**65.5**	**65.5**	**65.5**
Time (HR)								**1.9**	**1.9**	**1.9**	**1.9**
133	**I-40**		**I-17 @ Flagstaff - New Mexico SL**								
R.Int		148.7	4.0	65.0	65.0	70.0	16,892	64.9	64.9	64.9	64.9
U.Int		15.8	4.0	40.0	65.0	70.0	16,026	64.3	64.3	64.3	64.3
Total Sample		164.5									
TOTAL	**164.5**		**4.0**	**61.3**	**65.0**	**70.0**	**16,809**	**64.9**	**64.9**	**64.9**	**64.9**
Time (HR)								**2.5**	**2.5**	**2.5**	**2.5**
715	**I-15**		**Nevada SL - Utah SL (through AZ)**								
R.Int		29.4	4.0	58.4	59.5	70.0	14,553	62.2	62.2	62.1	62.1
Total Sample		29.4									
TOTAL	**29.4**		**4.0**	**58.4**	**59.5**	**70.0**	**14,553**	**62.2**	**62.2**	**62.1**	**62.1**
Time (HR)								**0.5**	**0.5**	**0.5**	**0.5**
730	**I-17**		**I-40 @ Flagstaff to I-10 @ Phoenix**								
R.Int		114.3	4.0	57.7	65.5	70.0	22,424	65.2	65.2	64.5	64.5
U.Int		31.5	5.5	40.0	57.4	70.0	106,696	45.4	45.4	22.0	22.0
Total Sample		145.8									
TOTAL	**145.8**		**4.3**	**52.7**	**63.6**	**70.0**	**40,618**	**59.6**	**59.6**	**45.5**	**45.5**
Time (HR)								**2.4**	**2.4**	**3.2**	**3.2**

Arizona Results - Performance Enhancement
Average Daily Speed

						Existing Condition		Average Daily Speed for Cumulative Improvements							
	GIS	Sample	Average	Target	Average	Average Daily Speed		Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	Length (MI)	Length (MI)	No. Lane	Speed	AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
21	**I-8**		**California SL - I-10 S. Phoenix**												
R.Int		164.4	4.0	65.0	7,125	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2
U.Int		14.0	4.0	40.0	13,945	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.1
Total Sample		178.3													
TOTAL	**178.3**		**4.0**	**62.0**	**7,659**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**
Time (HR)						**2.8**	**2.8**	**2.8**	**2.8**	**2.8**	**2.8**	**2.8**	**2.8**	**2.8**	**2.8**
31	**I-10**		**California SL - Phoenix**												
R.Int		105.5	4.0	65.0	15,719	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	65.7	65.7
U.Int		26.7	4.1	40.0	25,325	64.4	64.4	64.4	64.4	64.4	64.4	64.4	64.4	64.4	64.4
Total Sample		132.1													
TOTAL	**132.1**		**4.0**	**57.7**	**17,658**	**64.8**	**64.8**	**64.8**	**64.8**	**64.8**	**64.8**	**64.8**	**64.8**	**65.4**	**65.4**
Time (HR)						**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
32	**I-10**		**Through Phoenix**												
U.Int		29.8	8.3	40.0	148,487	51.8	51.8	51.8	51.8	51.8	51.8	57.1	57.1	57.1	57.1
Total Sample		29.8													
TOTAL	**29.8**		**8.3**	**40.0**	**148,487**	**51.8**	**51.8**	**51.8**	**51.8**	**51.8**	**51.8**	**57.1**	**57.1**	**57.1**	**57.1**
Time (HR)						**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.5**	**0.5**	**0.5**	**0.5**
33	**I-10**		**Phoenix UL - I-19 @ Tucson**												
R.Int		76.5	4.1	65.0	35,038	64.7	64.7	64.7	64.7	64.7	64.7	64.7	64.7	65.5	65.5
U.Int		22.0	4.8	40.0	55,593	61.5	61.5	61.5	61.5	61.5	61.5	62.2	62.2	62.2	62.2
Total Sample		98.5													
TOTAL	**98.5**		**4.2**	**57.0**	**39,622**	**64.0**	**64.0**	**64.0**	**64.0**	**64.0**	**64.0**	**64.2**	**64.2**	**64.7**	**64.7**
Time (HR)						**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**
34	**I-10**		**I-19 @ Tucson - New Mexico SL**												
R.Int		126.8	4.0	65.0	16,382	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.7	65.7
U.Int		5.1	5.2	40.0	53,518	57.4	57.4	57.5	57.5	57.5	57.5	57.6	57.6	57.6	57.6
Total Sample		131.9													
TOTAL	**131.9**		**4.0**	**63.5**	**17,818**	**65.1**	**65.1**	**65.1**	**65.1**	**65.1**	**65.1**	**65.2**	**65.2**	**65.3**	**65.3**
Time (HR)						**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**

Arizona Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed		Average Daily Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
60	**I-19**		**Mexico - I-10 @ Tucson**												
R.Int		46.0	4.0	65.0	17,242	62.1	62.1	62.2	62.2	62.2	62.2	62.2	62.2	65.4	65.4
U.Int		17.3	4.0	40.0	23,583	61.0	61.0	61.0	61.0	61.0	61.0	61.0	61.0	61.0	61.0
Total Sample		63.3													
TOTAL	**63.3**		**4.0**	**55.5**	**18,976**	**61.8**	**61.8**	**61.8**	**61.8**	**61.8**	**61.8**	**61.8**	**61.8**	**64.2**	**64.2**
Time (HR)						**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
61	**US 60/US 93**		**I-17 @ Phoenix - I40**												
R.OPA		131.1	2.2	53.1	6,956	47.8	47.8	47.9	47.8	47.9	47.8	48.1	48.0	49.3	49.2
U.OPA		10.8	4.0	35.0	18,987	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2
Total Sample		141.9													
TOTAL	**161.0**		**2.3**	**51.1**	**7,875**	**45.8**	**45.7**	**45.8**	**45.8**	**45.8**	**45.8**	**46.0**	**46.0**	**47.0**	**47.0**
Time (HR)								**3.5**	**3.5**	**3.5**	**3.5**	**3.5**	**3.5**	**3.4**	**3.4**
62	**US 93**		**I-40 - Nevada SL**												
R.OPA		52.7	3.9	54.6	9,043	53.8	53.8	53.8	53.8	53.8	53.8	53.9	53.9	54.2	54.1
U.OPA		1.9	3.4	35.0	21,129	25.3	25.3	25.3	25.3	25.3	25.3	25.3	25.3	27.8	27.8
Total Sample		70.4													
TOTAL	**70.4**		**3.9**			**52.2**	**52.2**	**52.2**	**52.2**	**52.2**	**52.2**	**52.4**	**52.3**	**52.8**	**52.8**
Time (HR)						**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**
130	**I-40**		**California SL - US 93 @ Kingman**												
R.Int		47.9	4.0	65.0	11,597	65.4	65.4	65.4	65.4	65.4	65.4	65.4	65.4	65.4	65.4
Total Sample		47.9													
TOTAL	**47.9**		**4.0**			**65.4**	**65.4**	**65.4**	**65.4**	**65.4**	**65.4**	**65.4**	**65.4**	**65.4**	**65.4**
Time (HR)						**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**
131	**I-40**		**US 93 @ Kingman - US 93**												
R.Int		16.2	4.0	65.0	21,452	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7
U.Int		7.4	4.0	40.0	20,674	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9
Total Sample		23.6													
TOTAL	**23.6**		**4.0**	**54.3**	**21,207**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**
Time (HR)						**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**

Arizona Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed		Average Daily Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
132	**I-40**		**US 93 - I-17 @ Flagstaff**												
R.Int		120.6	4.0	64.0	12,730	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5
U.Int		2.9	4.0	40.0	14,407	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9
Total Sample		123.5													
TOTAL	**123.5**		**4.0**	**63.2**	**12,769**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**
Time (HR)						**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**
133	**I-40**		**I-17 @ Flagstaff - New Mexico SL**												
R.Int		148.7	4.0	65.0	16,892	64.9	64.9	65.1	65.1	65.1	65.1	65.1	65.1	65.1	65.1
U.Int		15.8	4.0	40.0	16,026	64.3	64.3	64.3	64.3	64.3	64.3	64.3	64.3	64.3	64.3
Total Sample		164.5													
TOTAL	**164.5**		**4.0**	**61.3**	**16,809**	**64.9**	**64.9**	**65.1**	**65.1**	**65.1**	**65.1**	**65.1**	**65.1**	**65.1**	**65.1**
Time (HR)						**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
715	**I-15**		**Nevada SL - Utah SL (through AZ)**												
R.Int		29.4	4.0	58.4	14,553	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	65.5	65.5
Total Sample		29.4													
TOTAL	**29.4**		**4.0**	**58.4**	**14,553**	**62.2**	**62.2**	**62.2**	**62.2**	**62.2**	**62.2**	**62.2**	**62.2**	**65.5**	**65.5**
Time (HR)						**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.4**	**0.4**
730	**I-17**		**I-40 @ Flagstaff to I-10 @ Phoenix**												
R.Int		114.3	4.0	57.7	22,424	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2
U.Int		31.5	5.5	40.0	106,696	45.4	45.4	45.4	45.4	45.4	45.4	58.7	58.7	58.7	58.7
Total Sample		145.8													
TOTAL	**145.8**		**4.3**	**52.7**	**40,618**	**59.6**	**59.6**	**59.6**	**59.6**	**59.6**	**59.6**	**63.7**	**63.7**	**63.7**	**63.7**
Time (HR)						**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.3**	**2.3**	**2.3**	**2.3**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
Arizona Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed		Peak Hour Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
21	I-8		California SL - I-10 S. Phoenix												
R.Int		164.4	4.0	65.0	7,125	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2
U.Int		14.0	4.0	40.0	13,945	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.1
Total Sample		178.3													
TOTAL	**178.3**		**4.0**	**62.0**	**7,659**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**
Time (HR)						**2.8**	**2.8**	**2.8**	**2.8**	**2.8**	**2.8**	**2.8**	**2.8**	**2.8**	**2.8**
31	I-10		California SL - Phoenix												
R.Int		105.5	4.0	65.0	15,719	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	65.7	65.7
U.Int		26.7	4.1	40.0	25,325	63.7	63.7	63.7	63.7	63.7	63.7	63.7	63.7	63.7	63.7
Total Sample		132.1													
TOTAL	**132.1**		**4.0**	**57.7**	**17,658**	**64.6**	**64.6**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**	**65.3**	**65.3**
Time (HR)						**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
32	I-10		Through Phoenix												
U.Int		29.8	8.3	40.0	148,487	21.5	21.5	21.5	21.5	21.5	21.5	55.8	55.8	55.8	55.8
Total Sample		29.8													
TOTAL	**29.8**		**8.3**	**40.0**	**148,487**	**21.5**	**21.5**	**21.5**	**21.5**	**21.5**	**21.5**	**55.8**	**55.8**	**55.8**	**55.8**
Time (HR)						**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**0.5**	**0.5**	**0.5**	**0.5**
33	I-10		Phoenix UL - I-19 @ Tucson												
R.Int		76.5	4.1	65.0	35,038	62.9	62.9	62.9	62.9	62.9	62.9	63.6	63.6	64.0	64.0
U.Int		22.0	4.8	40.0	55,593	35.6	35.6	35.6	35.6	35.6	35.6	61.4	61.4	61.4	61.4
Total Sample		98.5													
TOTAL	**98.5**		**4.2**	**57.0**	**39,622**	**53.8**	**53.8**	**53.8**	**53.8**	**53.8**	**53.8**	**63.1**	**63.1**	**63.4**	**63.4**
Time (HR)						**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.6**	**1.6**	**1.6**	**1.6**
34	I-10		I-19 @ Tucson - New Mexico SL												
R.Int		126.8	4.0	65.0	16,382	65.4	65.4	65.4	65.4	65.4	65.4	65.4	65.4	65.6	65.6
U.Int		5.1	5.2	40.0	53,518	35.7	35.6	35.7	35.6	35.7	35.6	56.8	56.8	56.8	56.8
Total Sample		131.9													
TOTAL	**131.9**		**4.0**	**63.5**	**17,818**	**63.3**	**63.3**	**63.4**	**63.4**	**63.4**	**63.4**	**65.1**	**65.1**	**65.2**	**65.2**
Time (HR)						**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.0**	**2.0**	**2.0**	**2.0**
60	I-19		Mexico - I-10 @ Tucson												
R.Int		46.0	4.0	65.0	17,242	62.1	62.1	62.2	62.2	62.2	62.2	62.2	62.2	65.4	65.4
U.Int		17.3	4.0	40.0	23,583	61.0	61.0	61.0	61.0	61.0	61.0	61.0	61.0	61.0	61.0
Total Sample		63.3													
TOTAL	**63.3**		**4.0**	**55.5**	**18,976**	**61.8**	**61.8**	**61.8**	**61.8**	**61.8**	**61.8**	**61.8**	**61.8**	**64.2**	**64.2**
Time (HR)						**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**

WTTN-Operating Speeds
Arizona Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed		Peak Hour Speed for Cumulative Improvements: Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
61	**US 60/US 93**		**I-17 @ Phoenix - I40**												
R.OPA		131.1	2.2	53.1	6,956	42.4	42.3	42.4	42.4	42.4	42.4	46.7	46.7	47.6	47.6
U.OPA		10.8	4.0	35.0	18,987	27.8	27.8	27.8	27.8	27.8	27.8	29.7	29.7	29.7	29.7
Total Sample		141.9													
TOTAL	**161.0**		**2.3**	**51.1**	**7,875**	**40.7**	**40.7**	**40.8**	**40.7**	**40.8**	**40.7**	**44.8**	**44.7**	**45.5**	**45.5**
Time (HR)						**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**3.6**	**3.6**	**3.5**	**3.5**
62	**US 93**		**I-40 - Nevada SL**												
R.OPA		52.7	3.9	54.6	9,043	53.2	53.1	53.2	53.1	53.2	53.1	53.7	53.6	53.9	53.8
U.OPA		1.9	3.4	35.0	21,129	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	27.4	27.4
Total Sample		70.4													
TOTAL	**70.4**		**3.9**	**53.8**	**9,366**	**51.6**	**51.6**	**51.6**	**51.6**	**51.6**	**51.6**	**52.1**	**52.0**	**52.5**	**52.5**
Time (HR)						**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.3**	**1.3**
130	**I-40**		**California SL - US 93 @ Kingman**												
R.Int		47.9	4.0	65.0	11,597	65.4	65.4	65.4	65.4	65.4	65.4	65.4	65.4	65.4	65.4
Total Sample		47.9													
TOTAL	**47.9**		**4.0**	**65.0**	**11,597**	**65.4**	**65.4**	**65.4**	**65.4**	**65.4**	**65.4**	**65.4**	**65.4**	**65.4**	**65.4**
Time (HR)						**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**
131	**I-40**		**US 93 @ Kingman - US 93**												
R.Int		16.2	4.0	65.0	21,452	64.3	64.3	64.3	64.3	64.3	64.3	64.3	64.3	64.3	64.3
U.Int		7.4	4.0	40.0	20,674	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9
Total Sample		23.6													
TOTAL	**23.6**		**4.0**	**54.3**	**21,207**	**64.5**	**64.5**	**64.5**	**64.5**	**64.5**	**64.5**	**64.5**	**64.5**	**64.5**	**64.5**
Time (HR)						**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**
132	**I-40**		**US 93 - I-17 @ Flagstaff**												
R.Int		120.6	4.0	64.0	12,730	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5
U.Int		2.9	4.0	40.0	14,407	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9
Total Sample		123.5													
TOTAL	**123.5**		**4.0**	**63.2**	**12,769**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**
Time (HR)						**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**
133	**I-40**		**I-17 @ Flagstaff - New Mexico SL**												
R.Int		148.7	4.0	65.0	16,892	64.9	64.9	65.1	65.1	65.1	65.1	65.1	65.1	65.1	65.1
U.Int		15.8	4.0	40.0	16,026	64.3	64.3	64.3	64.3	64.3	64.3	64.3	64.3	64.3	64.3
Total Sample		164.5													
TOTAL	**164.5**		**4.0**	**61.3**	**16,809**	**64.9**	**64.9**	**65.1**	**65.1**	**65.1**	**65.1**	**65.1**	**65.1**	**65.1**	**65.1**
Time (HR)						**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**

WTTN-Operating Speeds
Arizona Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed		Peak Hour Speed for Cumulative Improvements: Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
715	**I-15**		**Nevada SL - Utah SL (through AZ)**												
R.Int		29.4	4.0	58.4	14,553	62.1	62.1	62.1	62.1	62.1	62.1	62.1	62.1	65.4	65.4
Total Sample		29.4													
TOTAL	**29.4**		**4.0**	**58.4**	**14,553**	**62.1**	**62.1**	**62.1**	**62.1**	**62.1**	**62.1**	**62.1**	**62.1**	**65.4**	**65.4**
Time (HR)						**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.4**	**0.4**
730	**I-17**		**I-40 @ Flagstaff to I-10 @ Phoenix**												
R.Int		114.3	4.0	57.7	22,424	64.5	64.5	64.5	64.5	64.5	64.5	64.5	64.5	64.5	64.5
U.Int		31.5	5.5	40.0	106,696	22.0	22.0	22.0	22.0	22.0	22.0	58.0	58.0	58.0	58.0
Total Sample		145.8													
TOTAL	**145.8**		**4.3**	**52.7**	**40,618**	**45.5**	**45.5**	**45.5**	**45.5**	**45.5**	**45.5**	**63.0**	**63.0**	**63.0**	**63.0**
Time (HR)						**3.2**	**3.2**	**3.2**	**3.2**	**3.2**	**3.2**	**2.3**	**2.3**	**2.3**	**2.3**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
California Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
1	**I-5**		**In San Diego**								
U.Int		16.3	8.7	40.0	65.0	69.6	145,815	53.2	49.8	21.6	21.3
Total Sample		56.3									
TOTAL	**56.3**		**8.7**	**40.0**	**65.0**	**69.6**	**145,815**	**53.2**	**49.8**	**21.6**	**21.3**
Time (HR)								**1.1**	**1.1**	**2.6**	**2.6**
2	**I-5**		**San Diego - Los Angeles**								
R.Int		10.3	8.0	65.0	65.0	70.0	114,096	56.5	53.1	52.7	49.6
Total Sample		15.9									
TOTAL	**15.9**		**8.0**	**65.0**	**65.0**	**70.0**	**114,096**	**56.5**	**53.1**	**52.7**	**49.6**
Time (HR)								**0.3**	**0.3**	**0.3**	**0.3**
3	**I-5**		**Thru Los Angeles (San Clemente - Santa Clarita)**								
U.Int		43.9	8.1	40.0	64.7	70.0	170,405	41.1	39.4	16.3	16.3
Total Sample		103.6									
TOTAL	**103.6**		**8.1**	**40.0**	**64.7**	**70.0**	**170,405**	**41.1**	**39.4**	**16.3**	**16.3**
Time (HR)								**2.5**	**2.6**	**6.3**	**6.4**
4	**I-5**		**Los Angeles - Sacramento**								
R.Int		179.8	4.9	64.4	69.0	70.0	27,311	57.6	54.4	57.3	54.2
U.Int		19.1	6.2	40.0	67.2	70.0	75,599	57.4	56.0	38.3	37.5
Total Sample		333.7									
TOTAL	**333.7**		**5.0**	**61.9**	**68.9**	**70.0**	**30,554**	**57.6**	**54.5**	**55.5**	**52.6**
Time (HR)								**5.8**	**6.1**	**6.0**	**6.3**
5	**I-5**		**Through Sacramento**								
U.Int		12.0	6.8	40.0	65.0	70.0	91,292	56.4	54.2	43.4	41.7
Total Sample		16.1									
TOTAL	**16.1**		**6.8**	**40.0**	**65.0**	**70.0**	**91,292**	**56.4**	**54.2**	**43.4**	**41.7**
Time (HR)								**0.3**	**0.3**	**0.4**	**0.4**
6	**I-5**		**Sacramento - Oregon SL**								
R.Int		134.4	4.0	64.0	67.3	70.0	18,781	57.5	53.7	57.3	53.5
U.Int		37.9	4.2	40.0	65.9	70.0	30,305	59.0	56.6	58.6	56.2
Total Sample		270.8									
TOTAL	**270.8**		**4.0**	**59.0**	**67.1**	**70.0**	**20,415**	**57.8**	**54.1**	**57.5**	**53.8**
Time (HR)								**4.7**	**5.0**	**4.7**	**5.0**
20	**I-8**		**In San Diego**								
R.Int		1.8	4.0	50.0	65.0	70.0	5,400	50.2	38.4	50.2	38.4
U.Int		14.5	8.1	40.0	65.0	70.0	156,388	46.5	42.7	19.6	19.2
U.OFE		1.2	8.0	40.0	65.0	70.0	122,908	58.5	57.4	43.2	41.4
Total Sample		27.4									
TOTAL	**27.4**		**7.8**	**40.5**	**65.0**	**70.0**	**144,311**	**47.4**	**43.2**	**21.3**	**20.6**
Time (HR)								**0.6**	**0.6**	**1.3**	**1.3**

WTTN-Operating Speeds
California Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
21	**I-8**		**San Diego UL - Arizona SL**								
R.Int		124.8	4.0	63.9	69.0	70.0	10,228	56.9	52.8	56.9	52.8
U.Int		4.9	4.0	40.0	66.5	70.0	19,423	58.8	56.3	58.8	56.3
Total Sample		143.6									
TOTAL	**144**		**4.0**	**61.3**	**68.8**	**70.0**	**10,886**	**57.1**	**53.0**	**57.0**	**53.0**
Time (HR)								**2.5**	**2.7**	**2.5**	**2.7**
30	**I-10**		**Through Los Angeles (Santa Monica - Palm Springs)**								
U.Int		48.3	8.2	40.0	65.0	69.2	184,788	38.6	37.7	15.9	15.8
Total Sample		85.3									
TOTAL	**85.9**		**8.2**	**40.0**	**65.0**	**69.2**	**184,788**	**38.6**	**37.7**	**15.9**	**15.8**
Time (HR)								**2.2**	**2.3**	**5.4**	**5.4**
31	**I-10**		**Palm Springs - Arizona SL**								
R.Int		111.4	4.7	65.0	70.0	70.0	23,817	59.4	55.8	58.9	55.3
U.Int		21.9	6.4	40.0	69.1	70.0	48,797	55.9	53.3	53.0	50.5
Total Sample		155.7									
TOTAL	**155.7**		**4.9**	**59.7**	**69.9**	**70.0**	**27,337**	**58.9**	**55.4**	**58.0**	**54.6**
Time (HR)								**2.6**	**2.8**	**2.7**	**2.9**
130	**I-40**		**I-15 - Arizona SL**								
R.Int		142.0	4.0	65.0	70.0	70.0	10,888	59.3	55.3	59.3	55.3
U.Int		12.6	4.0	40.0	70.0	70.0	12,854	62.4	62.4	62.4	62.4
Total Sample		154.6									
TOTAL	**157**		**4.0**	**61.8**	**70.0**	**70.0**	**11,049**	**59.6**	**55.8**	**59.6**	**55.8**
Time (HR)								**2.6**	**2.8**	**2.6**	**2.8**
170	**I-80**		**In San Francisco**								
U.Int		21.9	8.3	40.0	61.1	69.8	155,027	45.6	42.1	17.4	17.1
Total Sample		32.4									
TOTAL	**32.4**		**8.3**	**40.0**	**61.1**	**69.8**	**155,027**	**45.6**	**42.1**	**17.4**	**17.1**
Time (HR)								**0.7**	**0.8**	**1.9**	**1.9**
171	**I-80**		**San Francisco UL - Sacramento UL**								
R.Int		13.7	6.9	65.0	65.0	70.0	99,819	61.1	59.3	49.4	48.2
U.Int		21.2	8.0	40.0	65.0	70.0	122,998	55.8	52.8	21.5	21.2
Total Sample		36.7									
TOTAL	**36.7**		**7.5**	**47.8**	**65.0**	**70.0**	**113,177**	**57.9**	**55.4**	**28.3**	**27.8**
Time (HR)								**0.6**	**0.7**	**1.3**	**1.3**

WTTN-Operating Speeds
California Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
172	**I-80**		**Through Sacramento**								
R.Int		11.5	5.0	64.7	65.0	70.0	68,823	56.6	54.6	34.8	34.0
U.Int		13.6	7.2	40.0	65.0	70.0	115,447	58.5	57.3	18.9	18.8
Total Sample		36.6									
TOTAL	**36.6**		**6.5**	**46.0**	**65.0**	**70.0**	**99,543**	**57.8**	**56.3**	**22.4**	**22.2**
Time (HR)								**0.6**	**0.7**	**1.6**	**1.7**
173	**I-80**		**Sacramento UL - Nevada SL (Reno)**								
R.Int		50.7	4.6	54.3	64.8	69.9	30,660	53.1	47.5	52.1	46.7
U.Int		9.2	6.6	40.0	65.0	70.0	81,789	55.8	52.9	32.7	31.7
Total Sample		94.4									
TOTAL	**94.4**		**4.8**	**52.4**	**64.8**	**69.9**	**35,668**	**53.4**	**48.0**	**49.2**	**44.6**
Time (HR)								**1.8**	**2.0**	**1.9**	**2.1**
250	**I-205**		**I-5 to I-580 E. of San Francisco**								
R.Int		0.2	4.0	65.0	65.0	70.0	78,000	53.5	51.7	25.9	25.9
U.Int		1.3	4.0	40.0	65.0	70.0	67,750	53.6	50.5	15.1	15.1
Total Sample		13.0									
TOTAL	**13**		**4.0**	**53.2**	**65.0**	**70.0**	**74,365**	**53.5**	**51.3**	**20.7**	**20.7**
Time (HR)								**0.2**	**0.3**	**0.6**	**0.6**
260	**I-215**		**I-15 @ Temecula to I-15 N. San Bernadino**								
R.Int		0.6	4.0	65.0	70.0	70.0	31,531	51.9	49.6	50.6	48.4
U.Int		24.5	5.3	40.0	65.2	70.0	108,741	46.0	43.2	20.7	20.2
U.OFE		21.4	5.1	40.0	67.7	70.0	49,461	60.6	58.8	43.0	42.1
Total Sample		49.5									
TOTAL	**49.5**		**5.2**	**40.2**	**66.4**	**70.0**	**78,544**	**52.3**	**49.8**	**28.1**	**27.5**
Time (HR)								**0.9**	**1.0**	**1.8**	**1.8**
300	**I-405**		**I-5 in Los Angeles to I-5 @ Irvine**								
U.Int		72.1	9.6	40.0	65.0	70.0	245,455	37.3	36.3	15.3	15.3
Total Sample		72.1									
TOTAL	**72.1**		**9.6**	**40.0**	**65.0**	**70.0**	**245,455**	**37.3**	**36.3**	**15.3**	**15.3**
Time (HR)								**1.9**	**2.0**	**4.7**	**4.7**
310	**I-580**		**I-5 to S 238 in San Francisco**								
R.Int		3.3	8.4	65.0	65.0	70.0	177,000	46.0	40.9	25.6	24.9
U.Int		22.0	7.9	40.0	64.0	70.0	144,765	49.8	47.6	18.1	18.0
Total Sample		55.5									
TOTAL	**55.5**		**8.0**	**43.6**	**64.2**	**70.0**	**151,612**	**49.0**	**46.0**	**19.3**	**19.1**
Time (HR)								**1.1**	**1.2**	**2.9**	**2.9**

WTTN-Operating Speeds
California Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed		Peak Hour Speed	
								S. Truck	C. Truck	S. Truck	C. Truck
320	**I-710**		**Long Beach to I-5**								
U.Int		19.7	7.8	40.0	65.0	70.0	184,871	41.3	40.4	14.9	14.9
U.OFE		1.0	6.0	40.0	55.0	70.0	42,025	46.7	42.8	45.8	41.7
Total Sample		25.6									
TOTAL	**25.6**		**7.4**	**40.0**	**62.4**	**70.0**	**151,663**	**42.5**	**40.9**	**17.7**	**17.5**
Time (HR)								**0.6**	**0.6**	**1.5**	**1.5**
330	**I-805**		**I-5 to I-15 in San Diego**								
U.Int		6.6	8.3	40.0	65.0	70.0	122,093	51.6	47.5	21.7	21.4
Total Sample		14.3									
TOTAL	**14.3**		**8.3**	**40.0**	**65.0**	**70.0**	**122,093**	**51.6**	**47.5**	**21.7**	**21.4**
Time (HR)								**0.3**	**0.3**	**0.7**	**0.7**
340	**I-880**		**I-80 to S 238 in San Francisco**								
U.Int		17.0	6.6	40.0	65.0	70.0	156,084	43.7	42.9	15.5	15.4
Total Sample		17.0									
TOTAL	**17**		**6.6**	**40.0**	**65.0**	**70.0**	**156,084**	**43.7**	**42.9**	**15.5**	**15.4**
Time (HR)								**0.4**	**0.4**	**1.1**	**1.1**
500	**US 97**		**I-5 @ Weed, CA - Oregon SL**								
R.OPA		36.3	2.1	54.6	51.3	69.9	3,272	45.2	41.0	42.2	38.4
Total Sample		54.4									
TOTAL	**54.4**		**2.1**	**54.6**	**51.3**	**69.9**	**3,272**	**45.2**	**41.0**	**42.2**	**38.4**
Time (HR)								**1.2**	**1.3**	**1.3**	**1.4**
600	**S 7/86/78**		**Mexico to I-10**								
R.OPA		27.7	3.6	55.0	61.2	70.0	7,471	54.5	52.8	53.5	51.9
R.MiA		8.6	4.0	55.0	60.7	68.8	13,713	60.7	60.7	60.7	60.7
U.OFE		1.1	4.0	40.0	55.0	70.0	12,759	57.8	57.8	57.8	57.8
U.OPA		5.8	4.0	35.0	41.1	61.6	17,976	29.5	29.4	29.5	29.4
U.Col		0.6	2.0	35.0	55.0	60.0	16,035	24.9	24.9	21.7	21.7
Total Sample		85.0									
TOTAL	**90.3**		**3.7**	**52.2**	**58.8**	**69.1**	**9,115**	**51.4**	**50.1**	**50.6**	**49.4**
Time (HR)								**1.8**	**1.8**	**1.8**	**1.8**
620	**S 58**		**S 99 to Barstow**								
R.OPA		23.5	3.5	50.6	58.9	68.3	15,821	49.2	43.7	47.5	42.6
U.OFE		8.3	5.0	40.0	65.0	68.6	45,726	58.5	55.3	53.9	50.9
U.OPA		4.5	2.8	35.0	40.0	60.0	18,403	24.9	24.8	23.2	23.2
Total Sample		145.1									
TOTAL	**145.1**		**3.7**	**47.9**	**57.9**	**67.7**	**19,442**	**47.3**	**42.8**	**45.3**	**41.4**
Time (HR)								**3.1**	**3.4**	**3.2**	**3.5**

WTTN-Operating Speeds
California Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
630	**S 60**		**I-10 in Los Angeles to I-10 near Beaumont, CA**								
R.OPA		7.6	4.0	55.0	65.0	70.0	31,114	64.4	64.4	63.1	63.1
U.OFE		37.2	5.4	40.0	65.0	70.0	107,735	45.6	44.3	19.7	19.6
Total Sample		70.6									
TOTAL	**70.6**		**5.2**	**41.2**	**65.0**	**70.0**	**99,523**	**47.1**	**45.8**	**21.2**	**21.1**
Time (HR)								**1.5**	**1.5**	**3.3**	**3.3**
650	**S 94/125**		**San Diego (I-5 to I-8)**								
U.OFE		8.6	8.0	40.0	65.0	70.0	127,413	54.7	51.2	18.9	18.9
Total Sample		9.6									
TOTAL	**14.1**		**8.0**	**40.0**	**65.0**	**70.0**	**127,413**	**54.7**	**51.2**	**18.9**	**18.9**
Time (HR)								**0.3**	**0.3**	**0.7**	**0.7**
660	**S 99**		**I-5 S. Bakersfield to I-5 @ Sacramento**								
R.OPA		86.9	4.8	55.0	67.7	70.0	40,484	62.0	61.7	57.6	57.3
U.OFE		97.2	5.1	40.0	65.5	70.0	64,456	58.3	56.8	36.7	35.9
Total Sample		297.7									
TOTAL	**297.7**		**4.9**	**46.7**	**66.6**	**70.0**	**51,831**	**60.2**	**59.3**	**45.3**	**44.7**
Time (HR)								**4.9**	**5.0**	**6.6**	**6.7**
680	**I-238**		**I-580 to I-880 in SF**								
U.Int		2.2	4.0	40.0	65.0	70.0	93,040	40.4	38.0	14.6	14.6
Total Sample		2.2									
TOTAL	**2.2**		**4.0**	**40.0**	**65.0**	**70.0**	**93,040**	**40.4**	**38.0**	**14.6**	**14.6**
Time (HR)								**0.1**	**0.1**	**0.2**	**0.2**
690	**S 905**		**I-5 to Mexico**								
U.OFE		3.4	4.0	40.0	60.7	70.0	31,153	47.7	41.5	47.7	41.5
Total Sample		3.4									
TOTAL	**5.2**		**4.0**	**40.0**	**60.7**	**70.0**	**31,153**	**47.7**	**41.5**	**47.7**	**41.5**
Time (HR)								**0.1**	**0.1**	**0.1**	**0.1**
700	**I-15**		**In San Diego**								
U.Int		18.0	9.3	40.0	65.0	70.0	155,096	42.6	41.2	19.6	19.5
U.OFE		2.0	6.0	40.0	65.0	70.0	46,499	49.2	45.9	46.2	43.0
U.OPA		1.0	4.0	35.0	35.0	52.2	39,090	20.7	20.7	11.1	11.1
Total Sample		36.8									
TOTAL	**36.8**		**8.7**	**39.8**	**63.5**	**69.4**	**136,642**	**42.3**	**40.7**	**20.9**	**20.7**
Time (HR)								**0.9**	**0.9**	**1.8**	**1.8**

WTTN-Operating Speeds
California Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
710	**I-15**		**San Diego UL - Los Angeles (Temecula)**								
R.Int		12.0	6.5	65.0	70.0	70.0	72,131	61.2	60.7	50.6	50.3
U.Int		22.9	6.9	40.0	67.6	70.0	73,886	58.3	56.1	47.4	45.7
Total Sample		54.9									
TOTAL	**54.9**		**6.7**	**51.6**	**69.0**	**70.0**	**72,862**	**59.9**	**58.7**	**49.2**	**48.3**
Time (HR)								**0.9**	**0.9**	**1.1**	**1.1**
711	**I-15**		**Through LA UZA (Temecula - San Bernadino)**								
U.Int		23.9	7.4	40.0	61.0	70.0	100,039	53.7	49.5	25.0	23.9
Total Sample		28.1									
TOTAL	**28.1**		**7.4**	**40.0**	**61.0**	**70.0**	**100,039**	**53.7**	**49.5**	**25.0**	**23.9**
Time (HR)								**0.5**	**0.6**	**1.1**	**1.2**
712	**I-15**		**N. San Bernadino (Los Angeles UZA) - I-40**								
R.Int		33.3	6.3	65.0	70.0	70.0	65,760	53.7	48.0	48.9	44.0
U.Int		22.8	4.9	40.0	70.0	70.0	51,744	57.1	52.7	52.1	48.6
Total Sample		63.3									
TOTAL	**63.3**		**5.8**	**53.1**	**70.0**	**70.0**	**60,719**	**54.9**	**49.6**	**50.0**	**45.6**
Time (HR)								**1.2**	**1.3**	**1.3**	**1.4**
713	**I-15**		**I-40 - Nevada SL**								
R.Int		15.9	4.5	65.0	70.0	70.0	25,608	65.0	65.0	65.0	65.0
Total Sample		110.4									
TOTAL	**110.4**		**4.5**	**65.0**	**70.0**	**70.0**	**25,608**	**65.0**	**65.0**	**65.0**	**65.0**
Time (HR)								**1.7**	**1.7**	**1.7**	**1.7**

WTTN-Operating Speeds
California Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed S. Truck	Existing Condition Average Daily Speed C. Truck	Average Daily Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
1	I-5		In San Diego												
U.Int		16.3	8.7	40.0	145,815	53.2	49.8	53.5	50.1	53.5	50.1	55.6	51.9	55.6	51.9
Total Sample		56.3													
TOTAL	**56.3**		**8.7**	**40.0**	**145,815**	**53.2**	**49.8**	**53.5**	**50.1**	**53.5**	**50.1**	**55.6**	**51.9**	**55.6**	**51.9**
Time (HR)						**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**1.0**	**1.1**	**1.0**	**1.1**
2	I-5		San Diego - Los Angeles												
R.Int		10.3	8.0	65.0	114,096	56.5	53.1	56.6	53.2	56.6	53.2	56.6	53.2	56.6	53.2
Total Sample		15.9													
TOTAL	**15.9**		**8.0**	**65.0**	**114,096**	**56.5**	**53.1**	**56.6**	**53.2**	**56.6**	**53.2**	**56.6**	**53.2**	**56.6**	**53.2**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
3	I-5		Thru Los Angeles (San Clemente - Santa Clarita)												
U.Int		43.9	8.1	40.0	170,405	41.1	39.4	43.7	41.7	43.7	41.7	55.3	52.0	55.3	52.0
Total Sample		103.6													
TOTAL	**103.6**		**8.1**	**40.0**	**170,405**	**41.1**	**39.4**	**43.7**	**41.7**	**43.7**	**41.7**	**55.3**	**52.0**	**55.3**	**52.0**
Time (HR)						**2.5**	**2.6**	**2.4**	**2.5**	**2.4**	**2.5**	**1.9**	**2.0**	**1.9**	**2.0**
4	I-5		Los Angeles - Sacramento												
R.Int		179.8	4.9	64.4	27,311	57.6	54.4	59.0	55.6	59.0	55.6	59.0	55.6	59.0	55.6
U.Int		19.1	6.2	40.0	75,599	57.4	56.0	59.5	58.0	59.5	58.0	59.6	58.0	59.6	58.0
Total Sample		333.7													
TOTAL	**333.7**		**5.0**	**61.9**	**30,554**	**57.6**	**54.5**	**59.1**	**55.8**	**59.1**	**55.8**	**59.1**	**55.8**	**59.1**	**55.8**
Time (HR)						**5.8**	**6.1**	**5.7**	**6.0**	**5.7**	**6.0**	**5.7**	**6.0**	**5.7**	**6.0**
5	I-5		Through Sacramento												
U.Int		12.0	6.8	40.0	91,292	56.4	54.2	57.6	55.3	57.6	55.3	57.6	55.3	57.6	55.3
Total Sample		16.1													
TOTAL	**16.1**		**6.8**	**40.0**	**91,292**	**56.4**	**54.2**	**57.6**	**55.3**	**57.6**	**55.3**	**57.6**	**55.3**	**57.6**	**55.3**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
6	I-5		Sacramento - Oregon SL												
R.Int		134.4	4.0	64.0	18,781	57.5	53.7	58.2	54.2	58.2	54.2	58.2	54.2	58.2	54.2
U.Int		37.9	4.2	40.0	30,305	59.0	56.6	59.4	56.8	59.4	56.8	59.4	56.8	59.4	56.8
Total Sample		270.8													
TOTAL	**270.8**		**4.0**	**59.0**	**20,415**	**57.8**	**54.1**	**58.4**	**54.6**	**58.4**	**54.6**	**58.4**	**54.6**	**58.4**	**54.6**
Time (HR)						**4.7**	**5.0**	**4.6**	**5.0**	**4.6**	**5.0**	**4.6**	**5.0**	**4.6**	**5.0**
20	I-8		In San Diego												
R.Int		1.8	4.0	50.0	5,400	50.2	38.4	50.2	38.4	50.2	38.4	50.2	38.4	50.2	38.4
U.Int		14.5	8.1	40.0	156,388	46.5	42.7	47.6	43.6	47.6	43.6	53.6	48.3	53.6	48.3
U.OFE		1.2	8.0	40.0	122,908	58.5	57.4	58.6	57.4	58.6	57.4	58.6	57.5	58.6	57.5
Total Sample		27.4													
TOTAL	**27.4**		**7.8**	**40.5**	**144,311**	**47.4**	**43.2**	**48.4**	**44.0**	**48.4**	**44.0**	**53.7**	**48.1**	**53.7**	**48.1**
Time (HR)						**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.5**	**0.6**	**0.5**	**0.6**
21	I-8		San Diego UL - Arizona SL												
R.Int		124.8	4.0	63.9	10,228	56.9	52.8	57.4	53.2	57.4	53.2	57.4	53.2	57.6	53.5
U.Int		4.9	4.0	40.0	19,423	58.8	56.3	59.0	56.4	59.0	56.4	59.0	56.4	59.0	56.4
Total Sample		143.6													
TOTAL	**144.0**		**4.0**	**61.3**	**10,886**	**57.1**	**53.0**	**57.5**	**53.5**	**57.5**	**53.5**	**57.5**	**53.5**	**57.7**	**53.7**
Time (HR)						**2.5**	**2.7**	**2.5**	**2.7**	**2.5**	**2.7**	**2.5**	**2.7**	**2.5**	**2.7**

WTTN-Operating Speeds
California Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed S. Truck	Existing Condition Average Daily Speed C. Truck	Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
30	I-10		Through Los Angeles (Santa Monica - Palm Springs)												
U.Int		48.3	8.2	40.0	184,788	38.6	37.7	39.5	38.5	39.5	38.5	55.1	53.1	55.1	53.1
Total Sample		85.3													
TOTAL	**85.9**		**8.2**	**40.0**	**184,788**	**38.6**	**37.7**	**39.5**	**38.5**	**39.5**	**38.5**	**55.1**	**53.1**	**55.1**	**53.1**
Time (HR)						**2.2**	**2.3**	**2.2**	**2.2**	**2.2**	**2.2**	**1.6**	**1.6**	**1.6**	**1.6**
31	I-10		Palm Springs - Arizona SL												
R.Int		111.4	4.7	65.0	23,817	59.4	55.8	59.4	55.8	59.4	55.8	59.4	55.8	59.4	55.8
U.Int		21.9	6.4	40.0	48,797	55.9	53.3	57.2	54.4	57.2	54.4	57.2	54.4	57.2	54.4
Total Sample		155.7													
TOTAL	**155.7**		**4.9**	**59.7**	**27,337**	**58.9**	**55.4**	**59.1**	**55.6**	**59.1**	**55.6**	**59.1**	**55.6**	**59.1**	**55.6**
Time (HR)						**2.6**	**2.8**	**2.6**	**2.8**	**2.6**	**2.8**	**2.6**	**2.8**	**2.6**	**2.8**
130	I-40		I-15 - Arizona SL												
R.Int		142.0	4.0	65.0	10,888	59.3	55.3	59.4	55.3	59.4	55.3	59.4	55.3	59.4	55.3
U.Int		12.6	4.0	40.0	12,854	62.4	62.4	62.7	62.7	62.7	62.7	62.7	62.7	62.7	62.7
Total Sample		154.6													
TOTAL	**157.0**		**4.0**	**61.8**	**11,049**	**59.6**	**55.8**	**59.6**	**55.9**	**59.6**	**55.9**	**59.6**	**55.9**	**59.6**	**55.9**
Time (HR)						**2.6**	**2.8**	**2.6**	**2.8**	**2.6**	**2.8**	**2.6**	**2.8**	**2.6**	**2.8**
170	I-80		In San Francisco												
U.Int		21.9	8.3	40.0	155,027	45.6	42.1	46.4	42.7	46.4	42.7	51.6	47.1	51.6	47.1
Total Sample		32.4													
TOTAL	**32.4**		**8.3**	**40.0**	**155,027**	**45.6**	**42.1**	**46.4**	**42.7**	**46.4**	**42.7**	**51.6**	**47.1**	**51.6**	**47.1**
Time (HR)						**0.7**	**0.8**	**0.7**	**0.8**	**0.7**	**0.8**	**0.6**	**0.7**	**0.6**	**0.7**
171	I-80		San Francisco UL - Sacramento UL												
R.Int		13.7	6.9	65.0	99,819	61.1	59.3	61.3	59.5	61.3	59.5	61.3	59.5	61.3	59.5
U.Int		21.2	8.0	40.0	122,998	55.8	52.8	57.1	53.9	57.1	53.9	57.5	54.3	57.5	54.3
Total Sample		36.7													
TOTAL	**36.7**		**7.5**	**47.8**	**113,177**	**57.9**	**55.4**	**58.8**	**56.1**	**58.8**	**56.1**	**59.1**	**56.4**	**59.1**	**56.4**
Time (HR)						**0.6**	**0.7**	**0.6**	**0.7**	**0.6**	**0.7**	**0.6**	**0.7**	**0.6**	**0.7**
172	I-80		Through Sacramento												
R.Int		11.5	5.0	64.7	68,823	56.6	54.6	57.8	55.6	57.8	55.6	58.2	56.0	58.2	56.0
U.Int		13.6	7.2	40.0	115,447	58.5	57.3	59.3	58.1	59.3	58.1	59.7	58.4	59.7	58.4
Total Sample		36.6													
TOTAL	**36.6**		**6.5**	**46.0**	**99,543**	**57.8**	**56.3**	**58.8**	**57.2**	**58.8**	**57.2**	**59.2**	**57.6**	**59.2**	**57.6**
Time (HR)						**0.6**	**0.7**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
173	I-80		Sacramento UL - Nevada SL (Reno)												
R.Int		50.7	4.6	54.3	30,660	53.1	47.5	55.0	48.9	55.0	48.9	55.0	48.9	55.0	48.9
U.Int		9.2	6.6	40.0	81,789	55.8	52.9	56.4	53.5	56.4	53.5	57.3	54.3	57.3	54.3
Total Sample		94.4													
TOTAL	**94.4**		**4.8**	**52.4**	**35,668**	**53.4**	**48.0**	**55.1**	**49.3**	**55.1**	**49.3**	**55.2**	**49.4**	**55.2**	**49.4**
Time (HR)						**1.8**	**2.0**	**1.7**	**1.9**	**1.7**	**1.9**	**1.7**	**1.9**	**1.7**	**1.9**
250	I-205		I-5 to I-580 E. of San Francisco												
R.Int		0.2	4.0	65.0	78,000	53.5	51.7	53.9	52.0	53.9	52.0	54.8	53.1	54.8	53.1
U.Int		1.3	4.0	40.0	67,750	53.6	50.5	55.2	51.9	55.2	51.9	55.5	52.2	55.5	52.2
Total Sample		13.0													
TOTAL	**13.0**		**4.0**	**53.2**	**74,365**	**53.5**	**51.3**	**54.3**	**51.9**	**54.3**	**51.9**	**55.1**	**52.8**	**55.1**	**52.8**
Time (HR)						**0.2**	**0.3**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**

WTTN-Operating Speeds
California Results - Performance Enhancement
Average Daily Speed

						Existing Condition		Average Daily Speed for Cumulative Improvements							
						Average Daily Speed		Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
260	I-215		I-15 @ Temecula to I-15 N. San Bernadino												
R.Int		0.6	4.0	65.0	31,531	51.9	49.6	51.9	49.6	51.9	49.6	51.9	49.6	51.9	49.6
U.Int		24.5	5.3	40.0	108,741	46.0	43.2	46.0	43.2	46.0	43.2	54.5	50.7	54.5	50.7
U.OFE		21.4	5.1	40.0	49,461	60.6	58.8	60.6	58.9	60.6	58.9	61.3	59.5	61.3	59.5
Total Sample		49.5													
TOTAL	**49.5**		**5.2**	**40.2**	**78,544**	**52.3**	**49.8**	**52.3**	**49.8**	**52.3**	**49.8**	**57.6**	**54.7**	**57.6**	**54.7**
Time (HR)						**0.9**	**1.0**	**0.9**	**1.0**	**0.9**	**1.0**	**0.9**	**0.9**	**0.9**	**0.9**
300	I-405		I-5 in Los Angeles to I-5 @ Irvine												
U.Int		72.1	9.6	40.0	245,455	37.3	36.3	38.0	37.0	38.0	37.0	55.2	52.4	55.2	52.4
Total Sample		72.1													
TOTAL	**72.1**		**9.6**	**40.0**	**245,455**	**37.3**	**36.3**	**38.0**	**37.0**	**38.0**	**37.0**	**55.2**	**52.4**	**55.2**	**52.4**
Time (HR)						**1.9**	**2.0**	**1.9**	**2.0**	**1.9**	**2.0**	**1.3**	**1.4**	**1.3**	**1.4**
310	I-580		I-5 to S 238 in San Francisco												
R.Int		3.3	8.4	65.0	177,000	46.0	40.9	46.8	41.6	46.8	41.6	49.9	44.0	49.9	44.0
U.Int		22.0	7.9	40.0	144,765	49.8	47.6	51.9	49.4	51.9	49.4	55.8	52.8	55.8	52.8
Total Sample		55.5													
TOTAL	**55.5**		**8.0**	**43.6**	**151,612**	**49.0**	**46.0**	**50.8**	**47.5**	**50.8**	**47.5**	**54.5**	**50.7**	**54.5**	**50.7**
Time (HR)						**1.1**	**1.2**	**1.1**	**1.2**	**1.1**	**1.2**	**1.0**	**1.1**	**1.0**	**1.1**
320	I-710		Long Beach to I-5												
U.Int		19.7	7.8	40.0	184,871	41.3	40.4	43.2	42.2	43.2	42.2	56.0	54.2	56.0	54.2
U.OFE		1.0	6.0	40.0	42,025	46.7	42.8	49.2	44.6	49.2	44.6	49.2	44.6	49.2	44.6
Total Sample		25.6													
TOTAL	**25.6**		**7.4**	**40.0**	**151,663**	**42.5**	**40.9**	**44.5**	**42.8**	**44.5**	**42.8**	**54.3**	**51.6**	**54.3**	**51.6**
Time (HR)						**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.5**	**0.5**	**0.5**	**0.5**
330	I-805		I-5 to I-15 in San Diego												
U.Int		6.6	8.3	40.0	122,093	51.6	47.5	53.9	49.3	53.9	49.3	54.8	50.1	54.8	50.1
Total Sample		14.3													
TOTAL	**14.3**		**8.3**	**40.0**	**122,093**	**51.6**	**47.5**	**53.9**	**49.3**	**53.9**	**49.3**	**54.8**	**50.1**	**54.8**	**50.1**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
340	I-880		I-80 to S 238 in San Francisco												
U.Int		17.0	6.6	40.0	156,084	43.7	42.9	43.9	43.1	43.9	43.1	57.3	55.9	57.3	55.9
Total Sample		17.0													
TOTAL	**17.0**		**6.6**	**40.0**	**156,084**	**43.7**	**42.9**	**43.9**	**43.1**	**43.9**	**43.1**	**57.3**	**55.9**	**57.3**	**55.9**
Time (HR)						**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**
500	US 97		I-5 @ Weed, CA - Oregon SL												
R.OPA		36.3	2.1	54.6	3,272	45.2	41.0	45.2	41.0	47.3	44.8	47.4	44.9	49.1	46.3
Total Sample		54.4													
TOTAL	**54.4**		**2.1**	**54.6**	**3,272**	**45.2**	**41.0**	**45.2**	**41.0**	**47.3**	**44.8**	**47.4**	**44.9**	**49.1**	**46.3**
Time (HR)						**1.2**	**1.3**	**1.2**	**1.3**	**1.1**	**1.2**	**1.1**	**1.2**	**1.1**	**1.2**
600	S 7/86/78		Mexico to I-10												
R.OPA		27.7	3.6	55.0	7,471	54.5	52.8	54.5	52.8	54.6	52.8	54.6	52.8	54.6	52.8
R.MiA		8.6	4.0	55.0	13,713	60.7	60.7	60.7	60.7	60.9	60.9	60.9	60.9	61.6	61.6
U.OFE		1.1	4.0	40.0	12,759	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8
U.OPA		5.8	4.0	35.0	17,976	29.5	29.4	30.1	30.1	30.1	30.1	30.1	30.1	34.5	34.5
U.Col		0.6	2.0	35.0	16,035	24.9	24.9	25.8	25.7	25.8	25.7	25.8	25.8	25.8	25.8
Total Sample		85.0													
TOTAL	**90.3**		**3.7**	**52.2**	**9,115**	**51.4**	**50.1**	**51.5**	**50.3**	**51.6**	**50.3**	**51.6**	**50.3**	**52.5**	**51.2**
Time (HR)						**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.7**	**1.8**

WTTN-Operating Speeds
California Results - Performance Enhancement
Average Daily Speed

						Existing Condition Average Daily Speed		Average Daily Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
620	**S 58**		**S 99 to Barstow**												
R.OPA		23.5	3.5	50.6	15,821	49.2	43.7	49.2	43.7	50.2	45.6	50.2	45.6	51.5	46.6
U.OFE		8.3	5.0	40.0	45,726	58.5	55.3	58.5	55.3	58.5	55.3	58.5	55.3	58.5	55.3
U.OPA		4.5	2.8	35.0	18,403	24.9	24.8	24.9	24.8	25.0	25.0	25.0	25.0	28.1	28.0
Total Sample		145.1													
TOTAL	**145.1**		**3.7**	**47.9**	**19,442**	**47.3**	**42.8**	**47.3**	**42.8**	**48.1**	**44.3**	**48.1**	**44.3**	**49.7**	**45.6**
Time (HR)						**3.1**	**3.4**	**3.1**	**3.4**	**3.0**	**3.3**	**3.0**	**3.3**	**2.9**	**3.2**
630	**S 60**		**I-10 in Los Angeles to I-10 near Beaumont, CA**												
R.OPA		7.6	4.0	55.0	31,114	64.4	64.4	64.4	64.4	64.4	64.4	64.4	64.4	64.4	64.4
U.OFE		37.2	5.4	40.0	107,735	45.6	44.3	46.6	45.1	46.6	45.1	57.3	55.1	57.3	55.1
Total Sample		70.6													
TOTAL	**70.6**		**5.2**	**41.2**	**99,523**	**47.1**	**45.8**	**48.0**	**46.6**	**48.0**	**46.6**	**58.0**	**56.0**	**58.0**	**56.0**
Time (HR)						**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.2**	**1.3**	**1.2**	**1.3**
650	**S 94/125**		**San Diego (I-5 to I-8)**												
U.OFE		8.6	8.0	40.0	127,413	54.7	51.2	55.0	51.5	55.0	51.5	55.2	51.7	55.2	51.7
Total Sample		9.6													
TOTAL	**14.1**		**8.0**	**40.0**	**127,413**	**54.7**	**51.2**	**55.0**	**51.5**	**55.0**	**51.5**	**55.2**	**51.7**	**55.2**	**51.7**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
660	**S 99**		**I-5 S. Bakersfield to I-5 @ Sacramento**												
R.OPA		86.9	4.8	55.0	40,484	62.0	61.7	62.2	61.9	62.2	61.9	62.2	61.9	62.2	61.9
U.OFE		97.2	5.1	40.0	64,456	58.3	56.8	59.0	57.5	59.0	57.5	59.3	57.7	59.3	57.7
Total Sample		297.7													
TOTAL	**297.7**		**4.9**	**46.7**	**51,831**	**60.2**	**59.3**	**60.6**	**59.7**	**60.6**	**59.7**	**60.8**	**59.9**	**60.8**	**59.9**
Time (HR)						**4.9**	**5.0**	**4.9**	**5.0**	**4.9**	**5.0**	**4.9**	**5.0**	**4.9**	**5.0**
680	**I-238**		**I-580 to I-880 in SF**												
U.Int		2.2	4.0	40.0	93,040	40.4	38.0	44.4	41.4	44.4	41.4	51.8	47.8	51.8	47.8
Total Sample		2.2													
TOTAL	**2.2**		**4.0**	**40.0**	**93,040**	**40.4**	**38.0**	**44.4**	**41.4**	**44.4**	**41.4**	**51.8**	**47.8**	**51.8**	**47.8**
Time (HR)						**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**
690	**S 905**		**I-5 to Mexico**												
U.OFE		3.4	4.0	40.0	31,153	47.7	41.5	50.0	43.2	50.0	43.2	50.0	43.2	50.0	43.2
Total Sample		3.4													
TOTAL	**5.2**		**4.0**	**40.0**	**31,153**	**47.7**	**41.5**	**50.0**	**43.2**	**50.0**	**43.2**	**50.0**	**43.2**	**50.0**	**43.2**
Time (HR)						**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
700	**I-15**		**In San Diego**												
U.Int		18.0	9.3	40.0	155,096	42.6	41.2	42.9	41.4	42.9	41.4	56.0	53.5	56.0	53.5
U.OFE		2.0	6.0	40.0	46,499	49.2	45.9	52.4	48.4	52.4	48.4	52.4	48.4	52.4	48.4
U.OPA		1.0	4.0	35.0	39,090	20.7	20.7	22.4	22.3	22.4	22.3	22.7	22.7	28.0	27.9
Total Sample		36.8													
TOTAL	**36.8**		**8.7**	**39.8**	**136,642**	**42.3**	**40.7**	**42.9**	**41.3**	**42.9**	**41.3**	**53.4**	**50.9**	**54.0**	**51.5**
Time (HR)						**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.7**	**0.7**	**0.7**	**0.7**
710	**I-15**		**San Diego UL - Los Angeles (Temecula)**												
R.Int		12.0	6.5	65.0	72,131	61.2	60.7	62.0	61.5	62.0	61.5	62.0	61.5	62.0	61.5
U.Int		22.9	6.9	40.0	73,886	58.3	56.1	58.8	56.6	58.8	56.6	58.8	56.6	58.8	56.6
Total Sample		54.9													
TOTAL	**54.9**		**6.7**	**51.6**	**72,862**	**59.9**	**58.7**	**60.6**	**59.3**	**60.6**	**59.3**	**60.6**	**59.4**	**60.6**	**59.4**
Time (HR)						**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**

WTTN-Operating Speeds
California Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed S. Truck	Existing Condition Average Daily Speed C. Truck	Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
								Average Daily Speed for Cumulative Improvements							
711	**I-15**		**Through LA UZA (Temecula - San Bernadino)**												
U.Int		23.9	7.4	40.0	100,039	53.7	49.5	54.4	50.2	54.4	50.2	55.1	50.7	55.1	50.7
Total Sample		28.1													
TOTAL	**28.1**		**7.4**	**40.0**	**100,039**	**53.7**	**49.5**	**54.4**	**50.2**	**54.4**	**50.2**	**55.1**	**50.7**	**55.1**	**50.7**
Time (HR)						**0.5**	**0.6**	**0.5**	**0.6**	**0.5**	**0.6**	**0.5**	**0.6**	**0.5**	**0.6**
712	**I-15**		**N. San Bernadino (Los Angeles UZA) - I-40**												
R.Int		33.3	6.3	65.0	65,760	53.7	48.0	55.1	49.1	55.1	49.1	55.1	49.1	55.1	49.1
U.Int		22.8	4.9	40.0	51,744	57.1	52.7	57.1	52.7	57.1	52.7	57.1	52.7	57.1	52.7
Total Sample		63.3													
TOTAL	**63.3**		**5.8**	**53.1**	**60,719**	**54.9**	**49.6**	**55.8**	**50.3**	**55.8**	**50.3**	**55.8**	**50.3**	**55.8**	**50.3**
Time (HR)						**1.2**	**1.3**	**1.1**	**1.3**	**1.1**	**1.3**	**1.1**	**1.3**	**1.1**	**1.3**
713	**I-15**		**I-40 - Nevada SL**												
R.Int		15.9	4.5	65.0	25,608	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0
Total Sample		110.4													
TOTAL	**110.4**		**4.5**	**65.0**	**25,608**	**65.0**	**65.0**	**65.0**	**65.0**	**65.0**	**65.0**	**65.0**	**65.0**	**65.0**	**65.0**
Time (HR)						**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
California Results - Performance Enhancement
Peak Hour Speed

						Existing Condition		Peak Hour Speed for Cumulative Improvements							
						Peak Hour Speed		Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
1	I-5		In San Diego												
U.Int		16.3	8.7	40.0	145,815	21.6	21.3	21.7	21.4	21.7	21.4	51.9	48.4	51.9	48.4
Total Sample		56.3													
TOTAL	**56.3**		**8.7**	**40.0**	**145,815**	**21.6**	**21.3**	**21.7**	**21.4**	**21.7**	**21.4**	**51.9**	**48.4**	**51.9**	**48.4**
Time (HR)						**2.6**	**2.6**	**2.6**	**2.6**	**2.6**	**2.6**	**1.1**	**1.2**	**1.1**	**1.2**
2	I-5		San Diego - Los Angeles												
R.Int		10.3	8.0	65.0	114,096	52.7	49.6	52.8	49.7	52.8	49.7	52.8	49.7	52.8	49.7
Total Sample		15.9													
TOTAL	**15.9**		**8.0**	**65.0**	**114,096**	**52.7**	**49.6**	**52.8**	**49.7**	**52.8**	**49.7**	**52.8**	**49.7**	**52.8**	**49.7**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
3	I-5		Thru Los Angeles (San Clemente - Santa Clarita)												
U.Int		43.9	8.1	40.0	170,405	16.3	16.3	17.2	17.1	17.2	17.1	52.3	49.1	52.3	49.1
Total Sample		103.6													
TOTAL	**103.6**		**8.1**	**40.0**	**170,405**	**16.3**	**16.3**	**17.2**	**17.1**	**17.2**	**17.1**	**52.3**	**49.1**	**52.3**	**49.1**
Time (HR)						**6.3**	**6.4**	**6.0**	**6.1**	**6.0**	**6.1**	**2.0**	**2.1**	**2.0**	**2.1**
4	I-5		Los Angeles - Sacramento												
R.Int		179.8	4.9	64.4	27,311	57.3	54.2	58.7	55.4	58.7	55.4	58.7	55.4	58.7	55.4
U.Int		19.1	6.2	40.0	75,599	38.3	37.5	39.8	39.0	39.8	39.0	54.0	52.6	54.0	52.6
Total Sample		333.7													
TOTAL	**333.7**		**5.0**	**61.9**	**30,554**	**55.5**	**52.6**	**56.9**	**53.8**	**56.9**	**53.8**	**58.4**	**55.2**	**58.4**	**55.2**
Time (HR)						**6.0**	**6.3**	**5.9**	**6.2**	**5.9**	**6.2**	**5.7**	**6.0**	**5.7**	**6.0**
5	I-5		Through Sacramento												
U.Int		12.0	6.8	40.0	91,292	43.4	41.7	44.1	42.5	44.1	42.5	52.9	50.8	52.9	50.8
Total Sample		16.1													
TOTAL	**16.1**		**6.8**	**40.0**	**91,292**	**43.4**	**41.7**	**44.1**	**42.5**	**44.1**	**42.5**	**52.9**	**50.8**	**52.9**	**50.8**
Time (HR)						**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**
6	I-5		Sacramento - Oregon SL												
R.Int		134.4	4.0	64.0	18,781	57.3	53.5	58.0	54.0	58.0	54.0	58.1	54.1	58.1	54.1
U.Int		37.9	4.2	40.0	30,305	58.6	56.2	59.0	56.5	59.0	56.5	59.0	56.5	59.0	56.5
Total Sample		270.8													
TOTAL	**270.8**		**4.0**	**59.0**	**20,415**	**57.5**	**53.8**	**58.1**	**54.3**	**58.1**	**54.3**	**58.2**	**54.4**	**58.2**	**54.4**
Time (HR)						**4.7**	**5.0**	**4.7**	**5.0**	**4.7**	**5.0**	**4.7**	**5.0**	**4.7**	**5.0**
20	I-8		In San Diego												
R.Int		1.8	4.0	50.0	5,400	50.2	38.4	50.2	38.4	50.2	38.4	50.2	38.4	50.2	38.4
U.Int		14.5	8.1	40.0	156,388	19.6	19.2	20.2	19.7	20.2	19.7	51.2	46.1	51.2	46.1
U.OFE		1.2	8.0	40.0	122,908	43.2	41.4	43.3	41.5	43.3	41.5	53.1	51.6	53.1	51.6
Total Sample		27.4													
TOTAL	**27.4**		**7.8**	**40.5**	**144,311**	**21.3**	**20.6**	**21.8**	**21.1**	**21.8**	**21.1**	**51.3**	**45.9**	**51.3**	**45.9**
Time (HR)						**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**0.5**	**0.6**	**0.5**	**0.6**
21	I-8		San Diego UL - Arizona SL												
R.Int		124.8	4.0	63.9	10,228	56.9	52.8	57.4	53.2	57.4	53.2	57.4	53.2	57.6	53.4
U.Int		4.9	4.0	40.0	19,423	58.8	56.3	59.0	56.4	59.0	56.4	59.0	56.4	59.0	56.4
Total Sample		143.6													

WTTN-Operating Speeds
California Results - Performance Enhancement
Peak Hour Speed

						Existing Condition		Peak Hour Speed for Cumulative Improvements							
	GIS	Sample	Average	Target	Average	Peak Hour Speed		Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	Length (MI)	Length (MI)	No. Lane	Speed	AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
TOTAL	**144.0**		**4.0**	**61.3**	**10,886**	**57.0**	**53.0**	**57.5**	**53.4**	**57.5**	**53.4**	**57.5**	**53.4**	**57.7**	**53.6**
Time (HR)						**2.5**	**2.7**	**2.5**	**2.7**	**2.5**	**2.7**	**2.5**	**2.7**	**2.5**	**2.7**
30	**I-10**		**Through Los Angeles (Santa Monica - Palm Springs)**												
U.Int		48.3	8.2	40.0	184,788	15.9	15.8	16.2	16.2	16.2	16.2	52.6	50.6	52.6	50.6
Total Sample		85.3													
TOTAL	**85.9**		**8.2**	**40.0**	**184,788**	**15.9**	**15.8**	**16.2**	**16.2**	**16.2**	**16.2**	**52.6**	**50.6**	**52.6**	**50.6**
Time (HR)						**5.4**	**5.4**	**5.3**	**5.3**	**5.3**	**5.3**	**1.6**	**1.7**	**1.6**	**1.7**
31	**I-10**		**Palm Springs - Arizona SL**												
R.Int		111.4	4.7	65.0	23,817	58.9	55.3	58.9	55.3	58.9	55.3	58.9	55.3	58.9	55.3
U.Int		21.9	6.4	40.0	48,797	53.0	50.5	54.2	51.6	54.2	51.6	54.7	52.0	54.7	52.0
Total Sample		155.7													
TOTAL	**155.7**		**4.9**	**59.7**	**27,337**	**58.0**	**54.6**	**58.2**	**54.8**	**58.2**	**54.8**	**58.3**	**54.8**	**58.3**	**54.8**
Time (HR)						**2.7**	**2.9**	**2.7**	**2.8**	**2.7**	**2.8**	**2.7**	**2.8**	**2.7**	**2.8**
130	**I-40**		**I-15 - Arizona SL**												
R.Int		142.0	4.0	65.0	10,888	59.3	55.3	59.4	55.3	59.4	55.3	59.4	55.3	59.4	55.3
U.Int		12.6	4.0	40.0	12,854	62.4	62.4	62.7	62.7	62.7	62.7	62.7	62.7	62.7	62.7
Total Sample		154.6													
TOTAL	**157.0**		**4.0**	**61.8**	**11,049**	**59.6**	**55.8**	**59.6**	**55.9**	**59.6**	**55.9**	**59.6**	**55.9**	**59.6**	**55.9**
Time (HR)						**2.6**	**2.8**	**2.6**	**2.8**	**2.6**	**2.8**	**2.6**	**2.8**	**2.6**	**2.8**
170	**I-80**		**In San Francisco**												
U.Int		21.9	8.3	40.0	155,027	17.4	17.1	17.8	17.5	17.8	17.5	49.5	45.2	49.5	45.2
Total Sample		32.4													
TOTAL	**32.4**		**8.3**	**40.0**	**155,027**	**17.4**	**17.1**	**17.8**	**17.5**	**17.8**	**17.5**	**49.5**	**45.2**	**49.5**	**45.2**
Time (HR)						**1.9**	**1.9**	**1.8**	**1.9**	**1.8**	**1.9**	**0.7**	**0.7**	**0.7**	**0.7**
171	**I-80**		**San Francisco UL - Sacramento UL**												
R.Int		13.7	6.9	65.0	99,819	49.4	48.2	49.5	48.3	49.5	48.3	55.6	54.1	55.6	54.1
U.Int		21.2	8.0	40.0	122,998	21.5	21.2	22.0	21.6	22.0	21.6	53.0	50.2	53.0	50.2
Total Sample		36.7													
TOTAL	**36.7**		**7.5**	**47.8**	**113,177**	**28.3**	**27.8**	**28.8**	**28.3**	**28.8**	**28.3**	**54.1**	**51.8**	**54.1**	**51.8**
Time (HR)						**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**0.7**	**0.7**	**0.7**	**0.7**
172	**I-80**		**Through Sacramento**												
R.Int		11.5	5.0	64.7	68,823	34.8	34.0	35.2	34.4	35.2	34.4	55.9	53.9	55.9	53.9
U.Int		13.6	7.2	40.0	115,447	18.9	18.8	19.0	19.0	19.0	19.0	54.5	53.4	54.5	53.4
Total Sample		36.6													
TOTAL	**36.6**		**6.5**	**46.0**	**99,543**	**22.4**	**22.2**	**22.6**	**22.4**	**22.6**	**22.4**	**54.9**	**53.5**	**54.9**	**53.5**
Time (HR)						**1.6**	**1.7**	**1.6**	**1.6**	**1.6**	**1.6**	**0.7**	**0.7**	**0.7**	**0.7**
173	**I-80**		**Sacramento UL - Nevada SL (Reno)**												
R.Int		50.7	4.6	54.3	30,660	52.1	46.7	53.9	48.0	53.9	48.0	53.9	48.0	53.9	48.0
U.Int		9.2	6.6	40.0	81,789	32.7	31.7	33.0	31.9	33.0	31.9	52.3	49.5	52.3	49.5
Total Sample		94.4													
TOTAL	**94.4**		**4.8**	**52.4**	**35,668**	**49.2**	**44.6**	**50.8**	**45.8**	**50.8**	**45.8**	**53.8**	**48.2**	**53.8**	**48.2**
Time (HR)						**1.9**	**2.1**	**1.9**	**2.1**	**1.9**	**2.1**	**1.8**	**2.0**	**1.8**	**2.0**

WTTN-Operating Speeds
California Results - Performance Enhancement
Peak Hour Speed

						Existing Condition		Peak Hour Speed for Cumulative Improvements							
						Peak Hour Speed		Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
250	**I-205**		**I-5 to I-580 E. of San Francisco**												
R.Int		0.2	4.0	65.0	78,000	25.9	25.9	26.0	26.0	26.0	26.0	54.1	52.3	54.1	52.3
U.Int		1.3	4.0	40.0	67,750	15.1	15.1	15.5	15.5	15.5	15.5	52.2	49.2	52.2	49.2
Total Sample		13.0													
TOTAL	**13.0**		**4.0**	**53.2**	**74,365**	**20.7**	**20.7**	**21.0**	**21.0**	**21.0**	**21.0**	**53.4**	**51.1**	**53.4**	**51.1**
Time (HR)						**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.2**	**0.3**	**0.2**	**0.3**
260	**I-215**		**I-15 @ Temecula to I-15 N. San Bernadino**												
R.Int		0.6	4.0	65.0	31,531	50.6	48.4	50.6	48.4	50.6	48.4	50.6	48.4	50.6	48.4
U.Int		24.5	5.3	40.0	108,741	20.7	20.2	20.8	20.2	20.8	20.2	52.5	48.9	52.5	48.9
U.OFE		21.4	5.1	40.0	49,461	43.0	42.1	43.0	42.1	43.0	42.1	57.9	56.3	57.9	56.3
Total Sample		49.5													
TOTAL	**49.5**		**5.2**	**40.2**	**78,544**	**28.1**	**27.5**	**28.1**	**27.5**	**28.1**	**27.5**	**55.0**	**52.3**	**55.0**	**52.3**
Time (HR)						**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**0.9**	**0.9**	**0.9**	**0.9**
300	**I-405**		**I-5 in Los Angeles to I-5 @ Irvine**												
U.Int		72.1	9.6	40.0	245,455	15.3	15.3	15.6	15.6	15.6	15.6	52.8	50.2	52.8	50.2
Total Sample		72.1													
TOTAL	**72.1**		**9.6**	**40.0**	**245,455**	**15.3**	**15.3**	**15.6**	**15.6**	**15.6**	**15.6**	**52.8**	**50.2**	**52.8**	**50.2**
Time (HR)						**4.7**	**4.7**	**4.6**	**4.6**	**4.6**	**4.6**	**1.4**	**1.4**	**1.4**	**1.4**
310	**I-580**		**I-5 to S 238 in San Francisco**												
R.Int		3.3	8.4	65.0	177,000	25.6	24.9	26.0	25.3	26.0	25.3	48.1	42.2	48.1	42.2
U.Int		22.0	7.9	40.0	144,765	18.1	18.0	18.7	18.6	18.7	18.6	52.3	49.4	52.3	49.4
Total Sample		55.5													
TOTAL	**55.5**		**8.0**	**43.6**	**151,612**	**19.3**	**19.1**	**19.9**	**19.7**	**19.9**	**19.7**	**51.3**	**47.7**	**51.3**	**47.7**
Time (HR)						**2.9**	**2.9**	**2.8**	**2.8**	**2.8**	**2.8**	**1.1**	**1.2**	**1.1**	**1.2**
320	**I-710**		**Long Beach to I-5**												
U.Int		19.7	7.8	40.0	184,871	14.9	14.9	15.5	15.5	15.5	15.5	53.3	51.4	53.3	51.4
U.OFE		1.0	6.0	40.0	42,025	45.8	41.7	48.4	43.6	48.4	43.6	48.4	43.6	48.4	43.6
Total Sample		25.6													
TOTAL	**25.6**		**7.4**	**40.0**	**151,663**	**17.7**	**17.5**	**18.4**	**18.2**	**18.4**	**18.2**	**52.1**	**49.4**	**52.1**	**49.4**
Time (HR)						**1.5**	**1.5**	**1.4**	**1.4**	**1.4**	**1.4**	**0.5**	**0.5**	**0.5**	**0.5**
330	**I-805**		**I-5 to I-15 in San Diego**												
U.Int		6.6	8.3	40.0	122,093	21.7	21.4	22.4	22.1	22.4	22.1	51.1	46.7	51.1	46.7
Total Sample		14.3													
TOTAL	**14.3**		**8.3**	**40.0**	**122,093**	**21.7**	**21.4**	**22.4**	**22.1**	**22.4**	**22.1**	**51.1**	**46.7**	**51.1**	**46.7**
Time (HR)						**0.7**	**0.7**	**0.6**	**0.6**	**0.6**	**0.6**	**0.3**	**0.3**	**0.3**	**0.3**
340	**I-880**		**I-80 to S 238 in San Francisco**												
U.Int		17.0	6.6	40.0	156,084	15.5	15.4	15.6	15.5	15.6	15.5	54.1	52.8	54.1	52.8
Total Sample		17.0													
TOTAL	**17.0**		**6.6**	**40.0**	**156,084**	**15.5**	**15.4**	**15.6**	**15.5**	**15.6**	**15.5**	**54.1**	**52.8**	**54.1**	**52.8**
Time (HR)						**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**0.3**	**0.3**	**0.3**	**0.3**
500	**US 97**		**I-5 @ Weed, CA - Oregon SL**												
R.OPA		36.3	2.1	54.6	3,272	42.2	38.4	42.2	38.4	43.9	41.6	45.6	43.2	46.3	43.8
Total Sample		54.4													
TOTAL	**54.4**		**2.1**	**54.6**	**3,272**	**42.2**	**38.4**	**42.2**	**38.4**	**43.9**	**41.6**	**45.6**	**43.2**	**46.3**	**43.8**
Time (HR)						**1.3**	**1.4**	**1.3**	**1.4**	**1.2**	**1.3**	**1.2**	**1.3**	**1.2**	**1.2**

WTTN-Operating Speeds
California Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed S. Truck	Existing Condition Peak Hour Speed C. Truck	Peak Hour Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
600	**S 7/86/78**		**Mexico to I-10**												
R.OPA		27.7	3.6	55.0	7,471	53.5	51.9	53.5	51.9	53.6	51.9	54.0	52.3	54.0	52.3
R.MiA		8.6	4.0	55.0	13,713	60.7	60.7	60.7	60.7	60.9	60.9	60.9	60.9	61.5	61.5
U.OFE		1.1	4.0	40.0	12,759	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8
U.OPA		5.8	4.0	35.0	17,976	29.5	29.4	30.1	30.1	30.1	30.1	30.1	30.1	34.3	34.3
U.Col		0.6	2.0	35.0	16,035	21.7	21.7	22.5	22.4	22.5	22.4	25.2	25.2	25.2	25.2
Total Sample		85.0													
TOTAL	**90.3**		**3.7**	**52.2**	**9,115**	**50.6**	**49.4**	**50.7**	**49.5**	**50.8**	**49.6**	**51.2**	**50.0**	**52.1**	**50.8**
Time (HR)						**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.7**	**1.8**
620	**S 58**		**S 99 to Barstow**												
R.OPA		23.5	3.5	50.6	15,821	47.5	42.6	47.5	42.6	48.4	44.4	48.4	44.4	49.6	45.4
U.OFE		8.3	5.0	40.0	45,726	53.9	50.9	53.9	50.9	53.9	50.9	53.9	50.9	53.9	50.9
U.OPA		4.5	2.8	35.0	18,403	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	25.9	25.9
Total Sample		145.1													
TOTAL	**145.1**		**3.7**	**47.9**	**19,442**	**45.3**	**41.4**	**45.3**	**41.4**	**46.0**	**42.7**	**46.0**	**42.7**	**47.4**	**44.0**
Time (HR)						**3.2**	**3.5**	**3.2**	**3.5**	**3.2**	**3.4**	**3.2**	**3.4**	**3.1**	**3.3**
630	**S 60**		**I-10 in Los Angeles to I-10 near Beaumont, CA**												
R.OPA		7.6	4.0	55.0	31,114	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1
U.OFE		37.2	5.4	40.0	107,735	19.7	19.6	20.0	19.9	20.0	19.9	54.5	52.4	54.5	52.4
Total Sample		70.6													
TOTAL	**70.6**		**5.2**	**41.2**	**99,523**	**21.2**	**21.1**	**21.6**	**21.5**	**21.6**	**21.5**	**55.3**	**53.4**	**55.3**	**53.4**
Time (HR)						**3.3**	**3.3**	**3.3**	**3.3**	**3.3**	**3.3**	**1.3**	**1.3**	**1.3**	**1.3**
650	**S 94/125**		**San Diego (I-5 to I-8)**												
U.OFE		8.6	8.0	40.0	127,413	18.9	18.9	18.9	18.9	18.9	18.9	51.2	47.6	51.2	47.6
Total Sample		9.6													
TOTAL	**14.1**		**8.0**	**40.0**	**127,413**	**18.9**	**18.9**	**18.9**	**18.9**	**18.9**	**18.9**	**51.2**	**47.6**	**51.2**	**47.6**
Time (HR)						**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.3**	**0.3**	**0.3**	**0.3**
660	**S 99**		**I-5 S. Bakersfield to I-5 @ Sacramento**												
R.OPA		86.9	4.8	55.0	40,484	57.6	57.3	57.7	57.4	57.7	57.4	60.2	59.9	60.2	59.9
U.OFE		97.2	5.1	40.0	64,456	36.7	35.9	37.0	36.3	37.0	36.3	55.7	54.1	55.7	54.1
Total Sample		297.7													
TOTAL	**297.7**		**4.9**	**46.7**	**51,831**	**45.3**	**44.7**	**45.7**	**45.0**	**45.7**	**45.0**	**58.0**	**57.0**	**58.0**	**57.0**
Time (HR)						**6.6**	**6.7**	**6.5**	**6.6**	**6.5**	**6.6**	**5.1**	**5.2**	**5.1**	**5.2**
680	**I-238**		**I-580 to I-880 in SF**												
U.Int		2.2	4.0	40.0	93,040	14.6	14.6	15.5	15.5	15.5	15.5	49.5	45.2	49.5	45.2
Total Sample		2.2													
TOTAL	**2.2**		**4.0**	**40.0**	**93,040**	**14.6**	**14.6**	**15.5**	**15.5**	**15.5**	**15.5**	**49.5**	**45.2**	**49.5**	**45.2**
Time (HR)						**0.2**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**
690	**S 905**		**I-5 to Mexico**												
U.OFE		3.4	4.0	40.0	31,153	47.7	41.5	50.0	43.2	50.0	43.2	50.0	43.2	50.0	43.2
Total Sample		3.4													
TOTAL	**5.2**		**4.0**	**40.0**	**31,153**	**47.7**	**41.5**	**50.0**	**43.2**	**50.0**	**43.2**	**50.0**	**43.2**	**50.0**	**43.2**
Time (HR)						**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**

WTTN-Operating Speeds
California Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed S. Truck	C. Truck	Peak Hour Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	C. Truck	Curves and Grades (2) S. Truck	C. Truck	Congestion (3) S. Truck	C. Truck	Speed Limit (4) S. Truck	C. Truck
700	I-15		In San Diego												
U.Int		18.0	9.3	40.0	155,096	19.6	19.5	19.7	19.5	19.7	19.5	52.8	50.4	52.8	50.4
U.OFE		2.0	6.0	40.0	46,499	46.2	43.0	49.0	45.2	49.0	45.2	49.0	45.2	49.0	45.2
U.OPA		1.0	4.0	35.0	39,090	11.1	11.1	11.8	11.8	11.8	11.8	22.7	22.7	23.6	23.6
Total Sample		36.8													
TOTAL	**36.8**		**8.7**	**39.8**	**136,642**	**20.9**	**20.7**	**21.1**	**20.8**	**21.1**	**20.8**	**50.5**	**48.1**	**50.6**	**48.2**
Time (HR)						**1.8**	**1.8**	**1.7**	**1.8**	**1.7**	**1.8**	**0.7**	**0.8**	**0.7**	**0.8**
710	I-15		San Diego UL - Los Angeles (Temecula)												
R.Int		12.0	6.5	65.0	72,131	50.6	50.3	51.1	50.8	51.1	50.8	56.9	56.5	56.9	56.5
U.Int		22.9	6.9	40.0	73,886	47.4	45.7	47.8	46.1	47.8	46.1	53.4	51.4	53.4	51.4
Total Sample		54.9													
TOTAL	**54.9**		**6.7**	**51.6**	**72,862**	**49.2**	**48.3**	**49.7**	**48.7**	**49.7**	**48.7**	**55.4**	**54.2**	**55.4**	**54.2**
Time (HR)						**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**1.0**	**1.0**	**1.0**	**1.0**
711	I-15		Through LA UZA (Temecula - San Bernadino)												
U.Int		23.9	7.4	40.0	100,039	25.0	23.9	25.2	24.2	25.2	24.2	52.1	48.0	52.1	48.0
Total Sample		28.1													
TOTAL	**28.1**		**7.4**	**40.0**	**100,039**	**25.0**	**23.9**	**25.2**	**24.2**	**25.2**	**24.2**	**52.1**	**48.0**	**52.1**	**48.0**
Time (HR)						**1.1**	**1.2**	**1.1**	**1.2**	**1.1**	**1.2**	**0.5**	**0.6**	**0.5**	**0.6**
712	I-15		N. San Bernadino (Los Angeles UZA) - I-40												
R.Int		33.3	6.3	65.0	65,760	48.9	44.0	50.2	45.1	50.2	45.1	53.2	47.4	53.2	47.4
U.Int		22.8	4.9	40.0	51,744	52.1	48.6	52.1	48.6	52.1	48.6	54.5	50.5	54.5	50.5
Total Sample		63.3													
TOTAL	**63.3**		**5.8**	**53.1**	**60,719**	**50.0**	**45.6**	**50.9**	**46.3**	**50.9**	**46.3**	**53.7**	**48.5**	**53.7**	**48.5**
Time (HR)						**1.3**	**1.4**	**1.2**	**1.4**	**1.2**	**1.4**	**1.2**	**1.3**	**1.2**	**1.3**
713	I-15		I-40 - Nevada SL												
R.Int		15.9	4.5	65.0	25,608	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0
Total Sample		110.4													
TOTAL	**110.4**		**4.5**	**65.0**	**25,608**	**65.0**	**65.0**	**65.0**	**65.0**	**65.0**	**65.0**	**65.0**	**65.0**	**65.0**	**65.0**
Time (HR)						**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
Colorado Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
82	**I-25**		**New Mexico SL - Colorado Springs UL**								
R.Int		113.5	4.0	64.5	68.6	70.0	12,520	56.7	50.4	56.7	50.4
U.Int		18.4	4.0	40.0	59.1	69.4	25,827	54.9	52.2	50.3	48.0
Total Sample		131.8									
TOTAL	**131.8**		**4.0**	**59.4**	**67.1**	**69.9**	**14,375**	**56.4**	**50.7**	**55.7**	**50.1**
Time (HR)								**2.3**	**2.6**	**2.4**	**2.6**
83	**I-25**		**Through Colorado Springs**								
U.Int		18.8	4.1	40.0	57.5	68.6	68,262	49.4	46.6	22.2	21.9
Total Sample		18.8									
TOTAL	**18.8**		**4.1**	**40.0**	**57.5**	**68.6**	**68,262**	**49.4**	**46.6**	**22.2**	**21.9**
Time (HR)								**0.4**	**0.4**	**0.8**	**0.9**
84	**I-25**		**Colorado Springs UL - Denver UL**								
R.Int		37.2	4.1	65.0	68.0	70.0	51,191	55.7	50.4	43.1	39.9
U.Int		7.2	4.3	40.0	65.0	67.8	56,515	53.7	50.1	39.4	37.8
Total Sample		44.4									
TOTAL	**44.4**		**4.1**	**59.0**	**67.5**	**69.6**	**52,054**	**55.4**	**50.4**	**42.4**	**39.6**
Time (HR)								**0.8**	**0.9**	**1.0**	**1.1**
85	**I-25**		**Through Denver**								
U.Int		31.4	6.6	40.0	56.2	69.8	158,026	44.3	41.5	17.0	16.8
Total Sample		31.4									
TOTAL	**31.4**		**6.6**	**40.0**	**56.2**	**69.8**	**158,026**	**44.3**	**41.5**	**17.0**	**16.8**
Time (HR)								**0.7**	**0.8**	**1.8**	**1.9**
86	**I-25**		**Denver UL - Wyoming SL (Cheyenne)**								
R.Int		59.7	4.1	65.0	70.0	70.0	33,332	57.2	54.2	51.2	48.8
U.Int		12.9	4.0	40.0	70.0	70.0	32,777	47.0	45.8	46.9	45.6
Total Sample		72.6									
TOTAL	**72.6**		**4.1**	**58.5**	**70.0**	**70.0**	**33,233**	**55.1**	**52.5**	**50.4**	**48.2**
Time (HR)								**1.3**	**1.4**	**1.4**	**1.5**
160	**I-70**		**Utah SL - Denver UL**								
R.Int		241.4	4.2	52.1	65.6	69.6	17,713	55.0	49.8	54.7	49.6
U.Int		18.7	4.0	40.0	62.4	69.9	12,413	58.5	57.4	58.5	57.4
Total Sample		260.1									
TOTAL	**260.1**		**4.2**	**51.0**	**65.4**	**69.7**	**17,332**	**55.3**	**50.3**	**55.0**	**50.1**
Time (HR)								**4.7**	**5.2**	**4.7**	**5.2**

WTTN-Operating Speeds
Colorado Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
161	**I-70**		**Through Denver**								
U.Int		30.1	5.6	40.0	56.4	68.8	84,359	50.2	47.4	24.6	24.1
Total Sample		30.1									
TOTAL	**30.1**		**5.6**	**40.0**	**56.4**	**68.8**	**84,359**	**50.2**	**47.4**	**24.6**	**24.1**
Time (HR)								**0.6**	**0.6**	**1.2**	**1.2**
162	**I-70**		**Denver UL - US 40/287 @ Limon**								
R.Int		69.3	4.0	65.0	70.0	70.0	9,472	53.2	49.1	53.2	49.1
Total Sample		69.3									
TOTAL	**69.3**		**4.0**	**65.0**	**70.0**	**70.0**	**9,472**	**53.2**	**49.1**	**53.2**	**49.1**
Time (HR)								**1.3**	**1.4**	**1.3**	**1.4**
163	**I-70**		**US 40/287 @ Limon - Kansas SL**								
R.Int		90.8	4.0	65.0	70.0	70.0	7,747	57.5	54.7	57.5	54.7
Total Sample		90.8									
TOTAL	**90.8**		**4.0**	**65.0**	**70.0**	**70.0**	**7,747**	**57.5**	**54.7**	**57.5**	**54.7**
Time (HR)								**1.6**	**1.7**	**1.6**	**1.7**
360	**US 6**		**Loveland Pass**								
R.MiA		20.4	2.4	45.0	39.5	70.0	3,977	38.9	36.3	38.4	35.8
Total Sample		20.4									
TOTAL	**20.4**		**2.4**	**45.0**	**39.5**	**70.0**	**3,977**	**38.9**	**36.3**	**38.4**	**35.8**
Time (HR)								**0.5**	**0.6**	**0.5**	**0.6**
550	**US 287/40/50**		**I-70 @ Limon - Oklahoma SL**								
R.OPA		190.4	2.1	55.0	59.2	70.0	1,856	47.1	45.0	43.5	41.7
U.OPA		3.4	3.6	35.0	37.3	70.0	8,816	25.2	24.7	25.1	24.6
Total Sample		193.9									
TOTAL	**193.9**		**2.1**	**54.4**	**58.6**	**70.0**	**1,979**	**46.4**	**44.3**	**43.0**	**41.2**
Time (HR)								**4.2**	**4.4**	**4.5**	**4.7**
560	**S 14/US 287**		**I-25 @ Ft. Collins - Wyoming SL**								
R.OPA		34.6	2.6	55.0	65.0	70.0	4,364	48.6	46.2	44.8	42.8
U.OFE		2.9	4.0	40.0	49.3	70.0	21,183	51.7	51.7	51.7	51.7
U.OPA		4.6	2.6	35.0	45.2	70.0	12,338	26.1	25.8	25.7	25.5
Total Sample		44.0									
TOTAL	**44.0**		**2.7**	**49.6**	**59.9**	**70.0**	**6,661**	**43.3**	**41.7**	**40.7**	**39.3**
Time (HR)								**1.0**	**1.1**	**1.1**	**1.1**

WTTN-Operating Speeds
Colorado Results - Performance Enhancement
Average Daily Speed

						Existing Condition Average Daily Speed		Average Daily Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
82	I-25	New Mexico SL - Colorado Springs UL													
R.Int		113.5	4.0	64.5	12,520	56.7	50.4	57.2	50.9	57.2	50.9	57.2	50.9	57.2	50.9
U.Int		18.4	4.0	40.0	25,827	54.9	52.2	55.4	52.7	55.4	52.7	55.4	52.7	56.1	53.4
Total Sample		131.8													
TOTAL	**131.8**		**4.0**	**59.4**	**14,375**	**56.4**	**50.7**	**57.0**	**51.1**	**57.0**	**51.1**	**57.1**	**51.2**	**57.1**	**51.2**
Time (HR)						**2.3**	**2.6**	**2.3**	**2.6**	**2.3**	**2.6**	**2.3**	**2.6**	**2.3**	**2.6**
83	I-25	Through Colorado Springs													
U.Int		18.8	4.1	40.0	68,262	49.4	46.6	49.5	46.7	49.5	46.7	53.2	49.8	53.2	49.8
Total Sample		18.8													
TOTAL	**18.8**		**4.1**	**40.0**	**68,262**	**49.4**	**46.6**	**49.5**	**46.7**	**49.5**	**46.7**	**53.2**	**49.8**	**53.2**	**49.8**
Time (HR)						**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**
84	I-25	Colorado Springs UL - Denver UL													
R.Int		37.2	4.1	65.0	51,191	55.7	50.4	55.9	50.5	55.9	50.5	56.0	50.7	56.2	50.8
U.Int		7.2	4.3	40.0	56,515	53.7	50.1	54.3	50.6	54.3	50.6	54.3	50.6	54.3	50.6
Total Sample		44.4													
TOTAL	**44.4**		**4.1**	**59.0**	**52,054**	**55.4**	**50.4**	**55.6**	**50.6**	**55.6**	**50.6**	**55.9**	**50.8**	**55.9**	**50.8**
Time (HR)						**0.8**	**0.9**	**0.8**	**0.9**	**0.8**	**0.9**	**0.8**	**0.9**	**0.8**	**0.9**
85	I-25	Through Denver													
U.Int		31.4	6.6	40.0	158,026	44.3	41.5	44.6	41.7	44.6	41.7	52.7	48.4	52.7	48.4
Total Sample		31.4													
TOTAL	**31.4**		**6.6**	**40.0**	**158,026**	**44.3**	**41.5**	**44.6**	**41.7**	**44.6**	**41.7**	**52.7**	**48.4**	**52.7**	**48.4**
Time (HR)						**0.7**	**0.8**	**0.7**	**0.8**	**0.7**	**0.8**	**0.6**	**0.6**	**0.6**	**0.6**
86	I-25	Denver UL - Wyoming SL (Cheyenne)													
R.Int		59.7	4.1	65.0	33,332	57.2	54.2	57.6	54.6	57.6	54.6	57.7	54.6	57.7	54.6
U.Int		12.9	4.0	40.0	32,777	47.0	45.8	47.5	46.2	47.5	46.2	47.5	46.2	47.5	46.2
Total Sample		72.6													
TOTAL	**72.6**		**4.1**	**58.5**	**33,233**	**55.1**	**52.5**	**55.5**	**52.9**	**55.5**	**52.9**	**55.6**	**52.9**	**55.6**	**52.9**
Time (HR)						**1.3**	**1.4**	**1.3**	**1.4**	**1.3**	**1.4**	**1.3**	**1.4**	**1.3**	**1.4**
160	I-70	Utah SL - Denver UL													
R.Int		241.4	4.2	52.1	17,713	55.0	49.8	55.1	49.9	55.1	49.9	55.1	49.9	55.5	50.3
U.Int		18.7	4.0	40.0	12,413	58.5	57.4	58.5	57.4	58.5	57.4	58.5	57.4	60.0	58.8
Total Sample		260.1													
TOTAL	**260.1**		**4.2**	**51.0**	**17,332**	**55.3**	**50.3**	**55.3**	**50.4**	**55.3**	**50.4**	**55.8**	**50.8**	**55.8**	**50.8**
Time (HR)						**4.7**	**5.2**	**4.7**	**5.2**	**4.7**	**5.2**	**4.7**	**5.2**	**4.7**	**5.1**

WTTN-Operating Speeds
Colorado Results - Performance Enhancement
Average Daily Speed

						Existing Condition Average Daily Speed		Average Daily Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
161	**I-70**		**Through Denver**												
U.Int		30.1	5.6	40.0	84,359	50.2	47.4	51.6	48.5	51.6	48.5	52.3	49.1	52.3	49.1
Total Sample		30.1													
TOTAL	**30.1**		**5.6**	**40.0**	**84,359**	**50.2**	**47.4**	**51.6**	**48.5**	**51.6**	**48.5**	**52.3**	**49.1**	**52.3**	**49.1**
Time (HR)						**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
162	**I-70**		**Denver UL - US 40/287 @ Limon**												
R.Int		69.3	4.0	65.0	9,472	53.2	49.1	55.5	51.0	55.5	51.0	55.5	51.0	55.5	51.0
Total Sample		69.3													
TOTAL	**69.3**		**4.0**	**65.0**	**9,472**	**53.2**	**49.1**	**55.5**	**51.0**	**55.5**	**51.0**	**55.5**	**51.0**	**55.5**	**51.0**
Time (HR)						**1.3**	**1.4**	**1.2**	**1.4**	**1.2**	**1.4**	**1.2**	**1.4**	**1.2**	**1.4**
163	**I-70**		**US 40/287 @ Limon - Kansas SL**												
R.Int		90.8	4.0	65.0	7,747	57.5	54.7	57.7	54.8	57.7	54.8	57.7	54.8	57.7	54.8
Total Sample		90.8													
TOTAL	**90.8**		**4.0**	**65.0**	**7,747**	**57.5**	**54.7**	**57.7**	**54.8**	**57.7**	**54.8**	**57.7**	**54.8**	**57.7**	**54.8**
Time (HR)						**1.6**	**1.7**	**1.6**	**1.7**	**1.6**	**1.7**	**1.6**	**1.7**	**1.6**	**1.7**
360	**US 6**		**Loveland Pass**												
R.MiA		20.4	2.4	45.0	3,977	38.9	36.3	38.9	36.3	40.4	39.8	40.4	39.8	49.4	47.8
Total Sample		20.4													
TOTAL	**20.4**		**2.4**	**45.0**	**3,977**	**38.9**	**36.3**	**38.9**	**36.3**	**40.4**	**39.8**	**49.4**	**47.8**	**49.4**	**47.8**
Time (HR)						**0.5**	**0.6**	**0.5**	**0.6**	**0.5**	**0.5**	**0.5**	**0.5**	**0.4**	**0.4**
550	**US 287/40/50**		**I-70 @ Limon - Oklahoma SL**												
R.OPA		190.4	2.1	55.0	1,856	47.1	45.0	47.7	45.5	48.1	46.1	48.1	46.1	49.4	47.3
U.OPA		3.4	3.6	35.0	8,816	25.2	24.7	25.6	25.1	25.6	25.1	25.6	25.1	31.2	30.3
Total Sample		193.9													
TOTAL	**193.9**		**2.1**	**54.4**	**1,979**	**46.4**	**44.3**	**47.0**	**44.9**	**47.4**	**45.4**	**48.9**	**46.8**	**48.9**	**46.8**
Time (HR)						**4.2**	**4.4**	**4.1**	**4.3**	**4.1**	**4.3**	**4.1**	**4.3**	**4.0**	**4.1**
560	**S 14/US 287**		**I-25 @ Ft. Collins - Wyoming SL**												
R.OPA		34.6	2.6	55.0	4,364	48.6	46.2	48.6	46.2	49.9	47.4	49.9	47.4	49.9	47.4
U.OFE		2.9	4.0	40.0	21,183	51.7	51.7	52.0	52.0	52.0	52.0	52.0	52.0	57.1	57.1
U.OPA		4.6	2.6	35.0	12,338	26.1	25.8	26.2	25.9	26.3	26.1	26.3	26.1	28.3	28.2
Total Sample		44.0													
TOTAL	**44.0**		**2.7**	**49.6**	**6,661**	**43.3**	**41.7**	**43.4**	**41.7**	**44.2**	**42.6**	**45.2**	**43.5**	**45.2**	**43.5**
Time (HR)						**1.0**	**1.1**	**1.0**	**1.1**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
Colorado Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed		Peak Hour Speed for Cumulative Improvements: Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
82	**I-25**		**New Mexico SL - Colorado Springs UL**												
R.Int		113.5	4.0	64.5	12,520	56.7	50.4	57.2	50.9	57.2	50.9	57.2	50.9	57.2	50.9
U.Int		18.4	4.0	40.0	25,827	50.3	48.0	50.7	48.4	50.7	48.4	55.3	52.6	55.9	53.2
Total Sample		131.8													
TOTAL	**131.8**		**4.0**	**59.4**	**14,375**	**55.7**	**50.1**	**56.2**	**50.5**	**56.2**	**50.5**	**57.0**	**51.2**	**57.0**	**51.2**
Time (HR)						**2.4**	**2.6**	**2.3**	**2.6**	**2.3**	**2.6**	**2.3**	**2.6**	**2.3**	**2.6**
83	**I-25**		**Through Colorado Springs**												
U.Int		18.8	4.1	40.0	68,262	22.2	21.9	22.3	21.9	22.3	21.9	52.6	49.3	52.6	49.3
Total Sample		18.8													
TOTAL	**18.8**		**4.1**	**40.0**	**68,262**	**22.2**	**21.9**	**22.3**	**21.9**	**22.3**	**21.9**	**52.6**	**49.3**	**52.6**	**49.3**
Time (HR)						**0.8**	**0.9**	**0.8**	**0.9**	**0.8**	**0.9**	**0.4**	**0.4**	**0.4**	**0.4**
84	**I-25**		**Colorado Springs UL - Denver U**												
R.Int		37.2	4.1	65.0	51,191	43.1	39.9	43.2	40.0	43.2	40.0	55.1	49.9	55.1	49.9
U.Int		7.2	4.3	40.0	56,515	39.4	37.8	39.7	38.0	39.7	38.0	52.8	49.1	52.8	49.1
Total Sample		44.4													
TOTAL	**44.4**		**4.1**	**59.0**	**52,054**	**42.4**	**39.6**	**42.6**	**39.7**	**42.6**	**39.7**	**54.7**	**49.8**	**54.7**	**49.8**
Time (HR)						**1.0**	**1.1**	**1.0**	**1.1**	**1.0**	**1.1**	**0.8**	**0.9**	**0.8**	**0.9**
85	**I-25**		**Through Denver**												
U.Int		31.4	6.6	40.0	158,026	17.0	16.8	17.1	16.9	17.1	16.9	51.6	47.5	51.6	47.5
Total Sample		31.4													
TOTAL	**31.4**		**6.6**	**40.0**	**158,026**	**17.0**	**16.8**	**17.1**	**16.9**	**17.1**	**16.9**	**51.6**	**47.5**	**51.6**	**47.5**
Time (HR)						**1.8**	**1.9**	**1.8**	**1.9**	**1.8**	**1.9**	**0.6**	**0.7**	**0.6**	**0.7**
86	**I-25**		**Denver UL - Wyoming SL (Cheyenne)**												
R.Int		59.7	4.1	65.0	33,332	51.2	48.8	51.6	49.2	51.6	49.2	57.1	54.1	57.1	54.1
U.Int		12.9	4.0	40.0	32,777	46.9	45.6	47.4	46.1	47.4	46.1	47.4	46.1	47.4	46.1
Total Sample		72.6													
TOTAL	**72.6**		**4.1**	**58.5**	**33,233**	**50.4**	**48.2**	**50.8**	**48.6**	**50.8**	**48.6**	**55.0**	**52.5**	**55.0**	**52.5**
Time (HR)						**1.4**	**1.5**	**1.4**	**1.5**	**1.4**	**1.5**	**1.3**	**1.4**	**1.3**	**1.4**
160	**I-70**		**Utah SL - Denver UL**												
R.Int		241.4	4.2	52.1	17,713	54.7	49.6	54.8	49.7	54.8	49.7	54.8	49.7	55.2	50.0
U.Int		18.7	4.0	40.0	12,413	58.5	57.4	58.5	57.4	58.5	57.4	58.5	57.4	60.0	58.8
Total Sample		260.1													
TOTAL	**260.1**		**4.2**	**51.0**	**17,332**	**55.0**	**50.1**	**55.1**	**50.2**	**55.1**	**50.2**	**55.5**	**50.5**	**55.5**	**50.5**
Time (HR)						**4.7**	**5.2**	**4.7**	**5.2**	**4.7**	**5.2**	**4.7**	**5.2**	**4.7**	**5.1**

WTTN-Operating Speeds
Colorado Results - Performance Enhancement
Peak Hour Speed

						Existing Condition		Peak Hour Speed for Cumulative Improvements							
	GIS	Sample	Average	Target	Average	Peak Hour Speed		Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	Length (MI)	Length (MI)	No. Lane	Speed	AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
161	**I-70**		**Through Denver**												
U.Int		30.1	5.6	40.0	84,359	24.6	24.1	25.0	24.6	25.0	24.6	51.3	48.3	51.3	48.3
Total Sample		30.1													
TOTAL	**30.1**		**5.6**	**40.0**	**84,359**	**24.6**	**24.1**	**25.0**	**24.6**	**25.0**	**24.6**	**51.3**	**48.3**	**51.3**	**48.3**
Time (HR)						**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**0.6**	**0.6**	**0.6**	**0.6**
162	**I-70**		**Denver UL - US 40/287 @ Limon**												
R.Int		69.3	4.0	65.0	9,472	53.2	49.1	55.5	51.0	55.5	51.0	55.5	51.0	55.5	51.0
Total Sample		69.3													
TOTAL	**69.3**		**4.0**	**65.0**	**9,472**	**53.2**	**49.1**	**55.5**	**51.0**	**55.5**	**51.0**	**55.5**	**51.0**	**55.5**	**51.0**
Time (HR)						**1.3**	**1.4**	**1.2**	**1.4**	**1.2**	**1.4**	**1.2**	**1.4**	**1.2**	**1.4**
163	**I-70**		**US 40/287 @ Limon - Kansas SL**												
R.Int		90.8	4.0	65.0	7,747	57.5	54.7	57.7	54.8	57.7	54.8	57.7	54.8	57.7	54.8
Total Sample		90.8													
TOTAL	**90.8**		**4.0**	**65.0**	**7,747**	**57.5**	**54.7**	**57.7**	**54.8**	**57.7**	**54.8**	**57.7**	**54.8**	**57.7**	**54.8**
Time (HR)						**1.6**	**1.7**	**1.6**	**1.7**	**1.6**	**1.7**	**1.6**	**1.7**	**1.6**	**1.7**
360	**US 6**		**Loveland Pass**												
R.MiA		20.4	2.4	45.0	3,977	38.4	35.8	38.4	35.8	39.8	39.2	39.8	39.2	46.5	45.0
Total Sample		20.4													
TOTAL	**20.4**		**2.4**	**45.0**	**3,977**	**38.4**	**35.8**	**38.4**	**35.8**	**39.8**	**39.2**	**46.5**	**45.0**	**46.5**	**45.0**
Time (HR)						**0.5**	**0.6**	**0.5**	**0.6**	**0.5**	**0.5**	**0.5**	**0.5**	**0.4**	**0.5**
550	**US 287/40/50**		**I-70 @ Limon - Oklahoma SL**												
R.OPA		190.4	2.1	55.0	1,856	43.5	41.7	44.0	42.2	44.4	42.6	45.3	43.4	45.7	43.8
U.OPA		3.4	3.6	35.0	8,816	25.1	24.6	25.5	25.1	25.5	25.1	25.5	25.1	31.0	30.2
Total Sample		193.9													
TOTAL	**193.9**		**2.1**	**54.4**	**1,979**	**43.0**	**41.2**	**43.5**	**41.7**	**43.8**	**42.1**	**45.3**	**43.5**	**45.3**	**43.5**
Time (HR)						**4.5**	**4.7**	**4.5**	**4.7**	**4.4**	**4.6**	**4.3**	**4.5**	**4.3**	**4.5**
560	**S 14/US 287**		**I-25 @ Ft. Collins - Wyoming SL**												
R.OPA		34.6	2.6	55.0	4,364	44.8	42.8	44.8	42.8	45.7	43.5	47.0	44.7	47.0	44.7
U.OFE		2.9	4.0	40.0	21,183	51.7	51.7	52.0	52.0	52.0	52.0	52.0	52.0	57.1	57.1
U.OPA		4.6	2.6	35.0	12,338	25.7	25.5	25.8	25.5	25.8	25.7	25.8	25.7	27.8	27.7
Total Sample		44.0													
TOTAL	**44.0**		**2.7**	**49.6**	**6,661**	**40.7**	**39.3**	**40.7**	**39.3**	**41.3**	**39.9**	**43.2**	**41.5**	**43.2**	**41.5**
Time (HR)						**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**1.0**	**1.1**	**1.0**	**1.1**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
Idaho Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
192	**I-84**		**Oregon SL - Boise (I-184)**								
R.Int		30.5	4.0	65.0	69.2	70.0	19,194	55.7	52.6	55.1	52.1
U.Int		18.9	4.6	40.0	61.3	70.0	41,818	59.4	57.3	57.2	55.3
Total Sample		49.4									
TOTAL	**49.4**		**4.2**	**52.5**	**65.9**	**70.0**	**27,848**	**57.1**	**54.3**	**55.9**	**53.3**
Time (HR)								**0.9**	**0.9**	**0.9**	**0.9**
193	**I-84**		**Boise (I-184) - I-86**								
R.Int		157.5	4.0	65.0	70.0	70.0	12,952	59.2	56.0	59.2	56.0
U.Int		15.1	4.3	40.0	60.8	70.0	29,586	58.6	56.9	58.1	56.4
Total Sample		172.6									
TOTAL	**172.6**		**4.0**	**61.6**	**69.1**	**70.0**	**14,403**	**59.2**	**56.1**	**59.1**	**56.1**
Time (HR)								**2.9**	**3.1**	**2.9**	**3.1**
194	**I-84**		**I-86 - Utah SL**								
R.Int		53.8	4.0	65.0	70.0	70.0	5,453	57.5	53.6	57.5	53.6
Total Sample		53.8									
TOTAL	**53.8**		**4.0**	**65.0**	**70.0**	**70.0**	**5,453**	**57.5**	**53.6**	**57.5**	**53.6**
Time (HR)								**0.9**	**1.0**	**0.9**	**1.0**
200	**I-86**		**I-84 to I-15 @ Pocatello**								
R.Int		58.5	4.0	65.0	70.0	70.0	6,568	60.0	57.9	60.0	57.9
U.Int		4.3	4.0	40.0	55.0	70.0	11,761	51.5	48.4	51.5	48.4
Total Sample		62.9									
TOTAL	**62.9**		**4.0**	**62.3**	**68.7**	**70.0**	**6,927**	**59.4**	**57.1**	**59.4**	**57.1**
Time (HR)								**1.1**	**1.1**	**1.1**	**1.1**
213	**I-90**		**Washington SL - US 95 @ Coeur d'Alene**								
U.Int		13.6	4.0	40.0	69.0	70.0	36,255	57.9	55.8	57.6	55.5
Total Sample		13.6									
TOTAL	**13.6**		**4.0**	**40.0**	**69.0**	**70.0**	**36,255**	**57.9**	**55.8**	**57.6**	**55.5**
Time (HR)								**0.2**	**0.2**	**0.2**	**0.2**
214	**I-90**		**US 95 - Montana SL**								
R.Int		57.0	4.0	56.4	65.8	67.1	10,285	51.7	45.9	51.6	45.8
U.Int		3.0	4.0	40.0	65.0	70.0	15,606	53.0	47.7	53.0	47.7
Total Sample		60.0									
TOTAL	**60.0**		**4.0**	**55.2**	**65.7**	**67.2**	**10,553**	**51.7**	**46.0**	**51.7**	**45.9**
Time (HR)								**1.2**	**1.3**	**1.2**	**1.3**
351	**US 2**		**Washington SL - US 95 @ Sandpoint**								
R.OPA		24.8	2.1	55.0	54.8	64.0	4,797	40.6	38.6	37.4	35.6
U.OPA		1.4	2.0	35.0	37.2	60.3	7,493	21.1	21.1	20.2	20.1
Total Sample		26.2									
TOTAL	**26.2**		**2.1**	**53.3**	**53.5**	**63.8**	**4,945**	**38.7**	**36.9**	**35.8**	**34.1**
Time (HR)								**0.7**	**0.7**	**0.7**	**0.8**
352	**US 2**		**US 95 @ Bonners Ferry - Montana SL**								
R.OPA		15.8	2.0	55.0	65.0	70.0	1,973	49.6	46.4	45.2	42.4
Total Sample		15.8									
TOTAL	**15.8**		**2.0**	**55.0**	**65.0**	**70.0**	**1,973**	**49.6**	**46.4**	**45.2**	**42.4**
Time (HR)								**0.3**	**0.3**	**0.4**	**0.4**

WTTN-Operating Speeds
Idaho Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
370	**US 12**		**US 95 - Montana SL**								
R.OPA		164.2	2.1	45.4	52.5	70.0	1,747	49.4	49.4	44.4	44.3
U.OPA		4.5	2.7	35.0	38.3	70.0	11,426	24.9	24.9	24.5	24.5
Total Sample		168.7									
TOTAL	**168.7**		**2.1**	**45.0**	**52.0**	**70.0**	**2,005**	**48.1**	**48.1**	**43.4**	**43.4**
Time (HR)								**3.5**	**3.5**	**3.9**	**3.9**
380	**US 20**		**I-15 @ Idaho Falls - Montana SL**								
R.OPA		92.5	2.9	54.4	54.8	70.0	5,759	47.4	45.5	45.1	43.3
U.OPA		5.4	2.9	35.0	52.1	68.4	11,451	32.9	31.6	32.4	31.1
Total Sample		97.9									
TOTAL	**97.9**		**2.9**	**52.7**	**54.7**	**69.9**	**6,075**	**46.3**	**44.4**	**44.1**	**42.4**
Time (HR)								**2.1**	**2.2**	**2.2**	**2.3**
490	**US 95**		**I-84 - Lewiston (US 12)**								
R.OPA		227.8	2.2	50.6	60.5	65.9	2,817	44.1	40.7	40.7	37.7
U.OPA		5.8	2.7	35.0	51.6	70.0	8,879	31.7	31.5	31.0	30.9
Total Sample		233.6									
TOTAL	**244.0**		**2.2**	**50.0**	**60.3**	**66.0**	**2,966**	**43.7**	**40.4**	**40.4**	**37.5**
Time (HR)								**5.6**	**6.0**	**6.0**	**6.5**
491	**US 95**		**US 12 @ Lewiston - I-90 @ Coeur d'Alene**								
R.OPA		107.9	2.3	52.7	59.9	67.9	4,028	45.4	42.7	41.4	38.9
U.OPA		3.6	2.6	35.0	38.2	70.0	10,948	22.8	22.1	22.1	21.5
Total Sample		111.4									
TOTAL	**116.0**		**2.3**	**51.9**	**58.8**	**67.9**	**4,250**	**44.0**	**41.4**	**40.3**	**37.9**
Time (HR)								**2.6**	**2.8**	**2.9**	**3.1**
492	**US 95**		**I-90 @ Coeur d'Alene - Canada**								
R.OPA		97.7	2.2	53.9	54.9	69.1	6,254	45.4	43.1	41.2	39.4
U.OPA		7.9	3.4	35.0	42.0	66.5	21,246	30.6	30.2	29.4	29.1
U.Col		0.5	3.0	35.0	25.0	70.0	9,904	15.3	15.3	14.8	14.8
Total Sample		106.1									
TOTAL	**109.0**		**2.3**	**51.7**	**53.4**	**68.9**	**7,388**	**43.4**	**41.4**	**39.7**	**38.1**
Time (HR)								**2.5**	**2.6**	**2.7**	**2.9**
718	**I-15**		**Utah SL - I-86 @ Pocatello**								
R.Int		64.2	4.0	65.0	70.0	70.0	8,113	58.2	53.7	58.2	53.7
U.Int		7.6	4.0	40.0	55.0	70.0	17,000	54.4	50.1	54.4	50.1
Total Sample		71.9									
TOTAL	**71.9**		**4.0**	**61.0**	**68.0**	**70.0**	**9,054**	**57.8**	**53.3**	**57.8**	**53.3**
Time (HR)								**1.2**	**1.3**	**1.2**	**1.3**
719	**I-15**		**I-86 - US 20 @ Idaho Falls**								
R.Int		35.7	4.0	65.0	70.0	70.0	14,801	60.1	57.8	60.1	57.8
U.Int		11.5	4.0	40.0	61.4	70.0	14,252	57.8	55.8	57.8	55.8
Total Sample		47.2									
TOTAL	**47.2**		**4.0**	**56.4**	**67.7**	**70.0**	**14,667**	**59.5**	**57.3**	**59.5**	**57.3**
Time (HR)								**0.8**	**0.8**	**0.8**	**0.8**
720	**I-15**		**US 20 @ Idaho Falls - Montana SL**								
R.Int		74.9	4.0	65.0	70.0	69.5	2,920	59.4	55.9	59.4	55.9
U.Int		2.0	4.0	40.0	55.0	70.0	4,088	58.1	57.1	58.1	57.1
Total Sample		76.9									
TOTAL	**76.9**		**4.0**	**64.0**	**69.5**	**69.5**	**2,950**	**59.4**	**55.9**	**59.4**	**55.9**
Time (HR)								**1.3**	**1.4**	**1.3**	**1.4**

WTTN-Operating Speeds
Idaho Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed S. Truck	Existing Condition Average Daily Speed C. Truck	Average Daily Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
192	**I-84**		**Oregon SL - Boise (I-184)**												
R.Int		30.5	4.0	65.0	19,194	55.7	52.6	56.7	53.4	56.7	53.4	56.7	53.4	56.7	53.4
U.Int		18.9	4.6	40.0	41,818	59.4	57.3	59.4	57.3	59.4	57.3	59.4	57.3	59.4	57.3
Total Sample		49.4													
TOTAL	**49.4**		**4.2**	**52.5**	**27,848**	**57.1**	**54.3**	**57.7**	**54.9**	**57.7**	**54.9**	**57.7**	**54.9**	**57.7**	**54.9**
Time (HR)						**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**
193	**I-84**		**Boise (I-184) - I-86**												
R.Int		157.5	4.0	65.0	12,952	59.2	56.0	59.4	56.2	59.4	56.2	59.4	56.2	59.4	56.2
U.Int		15.1	4.3	40.0	29,586	58.6	56.9	58.6	56.9	58.6	56.9	58.6	56.9	58.6	56.9
Total Sample		172.6													
TOTAL	**172.6**		**4.0**	**61.6**	**14,403**	**59.2**	**56.1**	**59.4**	**56.2**	**59.4**	**56.2**	**59.4**	**56.2**	**59.4**	**56.2**
Time (HR)						**2.9**	**3.1**	**2.9**	**3.1**	**2.9**	**3.1**	**2.9**	**3.1**	**2.9**	**3.1**
194	**I-84**		**I-86 - Utah SL**												
R.Int		53.8	4.0	65.0	5,453	57.5	53.6	58.1	54.1	58.1	54.1	58.1	54.1	58.1	54.1
Total Sample		53.8													
TOTAL	**53.8**		**4.0**	**65.0**	**5,453**	**57.5**	**53.6**	**58.1**	**54.1**	**58.1**	**54.1**	**58.1**	**54.1**	**58.1**	**54.1**
Time (HR)						**0.9**	**1.0**	**0.9**	**1.0**	**0.9**	**1.0**	**0.9**	**1.0**	**0.9**	**1.0**
200	**I-86**		**I-84 to I-15 @ Pocatello**												
R.Int		58.5	4.0	65.0	6,568	60.0	57.9	61.4	59.1	61.4	59.1	61.4	59.1	61.4	59.1
U.Int		4.3	4.0	40.0	11,761	51.5	48.4	52.6	49.4	52.6	49.4	52.6	49.4	52.6	49.4
Total Sample		62.9													
TOTAL	**62.9**		**4.0**	**62.3**	**6,927**	**59.4**	**57.1**	**60.7**	**58.3**	**60.7**	**58.3**	**60.7**	**58.3**	**60.7**	**58.3**
Time (HR)						**1.1**	**1.1**	**1.0**	**1.1**	**1.0**	**1.1**	**1.0**	**1.1**	**1.0**	**1.1**
213	**I-90**		**Washington SL - US 95 @ Coeur d'Alene**												
U.Int		13.6	4.0	40.0	36,255	57.9	55.8	58.8	56.6	58.8	56.6	58.8	56.6	58.8	56.6
Total Sample		13.6													
TOTAL	**13.6**		**4.0**	**40.0**	**36,255**	**57.9**	**55.8**	**58.8**	**56.6**	**58.8**	**56.6**	**58.8**	**56.6**	**58.8**	**56.6**
Time (HR)						**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**
214	**I-90**		**US 95 - Montana SL**												
R.Int		57.0	4.0	56.4	10,285	51.7	45.9	52.2	46.2	52.2	46.2	52.2	46.2	52.2	46.2
U.Int		3.0	4.0	40.0	15,606	53.0	47.7	54.0	48.5	54.0	48.5	54.0	48.5	54.0	48.5
Total Sample		60.0													
TOTAL	**60.0**		**4.0**	**55.2**	**10,553**	**51.7**	**46.0**	**52.3**	**46.3**	**52.3**	**46.3**	**52.3**	**46.3**	**52.3**	**46.3**
Time (HR)						**1.2**	**1.3**	**1.1**	**1.3**	**1.1**	**1.3**	**1.1**	**1.3**	**1.1**	**1.3**

WTTN-Operating Speeds
Idaho Results - Performance Enhancement
Average Daily Speed

						Existing Condition		Average Daily Speed for Cumulative Improvements							
						Average Daily Speed		Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
351	US 2		Washington SL - US 95 @ Sandpoint												
R.OPA		24.8	2.1	55.0	4,797	40.6	38.6	42.3	40.1	45.0	43.1	45.0	43.2	45.0	43.2
U.OPA		1.4	2.0	35.0	7,493	21.1	21.1	21.8	21.7	21.8	21.8	21.8	21.8	26.0	26.0
Total Sample		26.2													
TOTAL	**26.2**		**2.1**	**53.3**	**4,945**	**38.7**	**36.9**	**40.2**	**38.3**	**42.5**	**40.9**	**42.5**	**41.0**	**43.3**	**41.6**
Time (HR)						**0.7**	**0.7**	**0.7**	**0.7**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
352	US 2		US 95 @ Bonners Ferry - Montana SL												
R.OPA		15.8	2.0	55.0	1,973	49.6	46.4	49.6	46.4	50.1	47.1	50.1	47.1	50.1	47.1
Total Sample		15.8													
TOTAL	**15.8**		**2.0**	**55.0**	**1,973**	**49.6**	**46.4**	**49.6**	**46.4**	**50.1**	**47.1**	**50.1**	**47.1**	**50.1**	**47.1**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
370	US 12		US 95 - Montana SL												
R.OPA		164.2	2.1	45.4	1,747	49.4	49.4	49.4	49.4	49.4	49.4	49.4	49.4	50.6	50.5
U.OPA		4.5	2.7	35.0	11,426	24.9	24.9	24.9	24.9	24.9	24.9	24.9	24.9	29.2	29.2
Total Sample		168.7													
TOTAL	**168.7**		**2.1**	**45.0**	**2,005**	**48.1**	**48.1**	**48.1**	**48.1**	**48.1**	**48.1**	**48.2**	**48.1**	**49.6**	**49.6**
Time (HR)						**3.5**	**3.5**	**3.5**	**3.5**	**3.5**	**3.5**	**3.5**	**3.5**	**3.4**	**3.4**
380	US 20		I-15 @ Idaho Falls - Montana SL												
R.OPA		92.5	2.9	54.4	5,759	47.4	45.5	47.5	45.6	48.0	46.5	48.0	46.5	48.1	46.6
U.OPA		5.4	2.9	35.0	11,451	32.9	31.6	32.9	31.6	32.9	31.6	32.9	31.6	33.4	32.1
Total Sample		97.9													
TOTAL	**97.9**		**2.9**	**52.7**	**6,075**	**46.3**	**44.4**	**46.3**	**44.5**	**46.8**	**45.3**	**46.8**	**45.3**	**47.0**	**45.4**
Time (HR)						**2.1**	**2.2**	**2.1**	**2.2**	**2.1**	**2.2**	**2.1**	**2.2**	**2.1**	**2.2**
490	US 95		I-84 - Lewiston (US 12)												
R.OPA		227.8	2.2	50.6	2,817	44.1	40.7	44.3	40.8	45.3	43.1	45.3	43.1	45.8	43.6
U.OPA		5.8	2.7	35.0	8,879	31.7	31.5	31.7	31.5	31.7	31.5	31.7	31.5	34.2	34.0
Total Sample		233.6													
TOTAL	**244.0**		**2.2**	**50.0**	**2,966**	**43.7**	**40.4**	**43.9**	**40.5**	**44.8**	**42.7**	**44.8**	**42.7**	**45.5**	**43.3**
Time (HR)						**5.6**	**6.0**	**5.6**	**6.0**	**5.4**	**5.7**	**5.4**	**5.7**	**5.4**	**5.6**
491	US 95		US 12 @ Lewiston - I-90 @ Coeur d'Alene												
R.OPA		107.9	2.3	52.7	4,028	45.4	42.7	45.7	42.9	47.0	44.8	47.0	44.8	47.2	44.9
U.OPA		3.6	2.6	35.0	10,948	22.8	22.1	23.0	22.3	23.0	22.6	23.0	22.6	27.8	27.2
Total Sample		111.4													
TOTAL	**116.0**		**2.3**	**51.9**	**4,250**	**44.0**	**41.4**	**44.3**	**41.7**	**45.5**	**43.4**	**45.5**	**43.4**	**46.1**	**44.0**
Time (HR)						**2.6**	**2.8**	**2.6**	**2.8**	**2.5**	**2.7**	**2.5**	**2.7**	**2.5**	**2.6**

WTTN-Operating Speeds
Idaho Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed S. Truck	Existing Condition Average Daily Speed C. Truck	Average Daily Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
492	**US 95**		**I-90 @ Coeur d'Alene - Canada**												
R.OPA		97.7	2.2	53.9	6,254	45.4	43.1	45.7	43.4	46.5	44.7	46.6	44.8	47.1	45.2
U.OPA		7.9	3.4	35.0	21,246	30.6	30.2	30.6	30.2	30.6	30.3	30.6	30.3	35.3	34.9
U.Col		0.5	3.0	35.0	9,904	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	28.1	28.1
Total Sample		106.1													
TOTAL	**109.0**		**2.3**	**51.7**	**7,388**	**43.4**	**41.4**	**43.7**	**41.7**	**44.4**	**42.8**	**44.5**	**42.9**	**45.8**	**44.1**
Time (HR)						**2.5**	**2.6**	**2.5**	**2.6**	**2.5**	**2.5**	**2.5**	**2.5**	**2.4**	**2.5**
718	**I-15**		**Utah SL - I-86 @ Pocatello**												
R.Int		64.2	4.0	65.0	8,113	58.2	53.7	58.2	53.7	58.2	53.7	58.2	53.7	58.2	53.7
U.Int		7.6	4.0	40.0	17,000	54.4	50.1	54.4	50.1	54.4	50.1	54.4	50.1	54.4	50.1
Total Sample		71.9													
TOTAL	**71.9**		**4.0**	**61.0**	**9,054**	**57.8**	**53.3**	**57.8**	**53.3**	**57.8**	**53.3**	**57.8**	**53.3**	**57.8**	**53.3**
Time (HR)						**1.2**	**1.3**	**1.2**	**1.3**	**1.2**	**1.3**	**1.2**	**1.3**	**1.2**	**1.3**
719	**I-15**		**I-86 - US 20 @ Idaho Falls**												
R.Int		35.7	4.0	65.0	14,801	60.1	57.8	60.2	57.9	60.2	57.9	60.2	57.9	60.2	57.9
U.Int		11.5	4.0	40.0	14,252	57.8	55.8	57.8	55.8	57.8	55.8	57.8	55.8	57.8	55.8
Total Sample		47.2													
TOTAL	**47.2**		**4.0**	**56.4**	**14,667**	**59.5**	**57.3**	**59.6**	**57.4**	**59.6**	**57.4**	**59.6**	**57.4**	**59.6**	**57.4**
Time (HR)						**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**
720	**I-15**		**US 20 @ Idaho Falls - Montana SL**												
R.Int		74.9	4.0	65.0	2,920	59.4	55.9	59.6	56.0	59.6	56.0	59.6	56.0	59.6	56.0
U.Int		2.0	4.0	40.0	4,088	58.1	57.1	58.1	57.1	58.1	57.1	58.1	57.1	58.1	57.1
Total Sample		76.9													
TOTAL	**76.9**		**4.0**	**64.0**	**2,950**	**59.4**	**55.9**	**59.5**	**56.1**	**59.5**	**56.1**	**59.5**	**56.1**	**59.5**	**56.1**
Time (HR)						**1.3**	**1.4**	**1.3**	**1.4**	**1.3**	**1.4**	**1.3**	**1.4**	**1.3**	**1.4**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
Idaho Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed		Peak Hour Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
192	**I-84**		**Oregon SL - Boise (I-184)**												
R.Int		30.5	4.0	65.0	19,194	55.1	52.1	56.1	52.9	56.1	52.9	56.5	53.3	56.5	53.3
U.Int		18.9	4.6	40.0	41,818	57.2	55.3	57.2	55.3	57.2	55.3	58.8	56.7	58.8	56.7
Total Sample		49.4													
TOTAL	**49.4**		**4.2**	**52.5**	**27,848**	**55.9**	**53.3**	**56.5**	**53.8**	**56.5**	**53.8**	**57.4**	**54.5**	**57.4**	**54.5**
Time (HR)						**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**
193	**I-84**		**Boise (I-184) - I-86**												
R.Int		157.5	4.0	65.0	12,952	59.2	56.0	59.4	56.2	59.4	56.2	59.4	56.2	59.4	56.2
U.Int		15.1	4.3	40.0	29,586	58.1	56.4	58.1	56.4	58.1	56.4	58.1	56.4	58.1	56.4
Total Sample		172.6													
TOTAL	**172.6**		**4.0**	**61.6**	**14,403**	**59.1**	**56.1**	**59.3**	**56.2**	**59.3**	**56.2**	**59.3**	**56.2**	**59.3**	**56.2**
Time (HR)						**2.9**	**3.1**	**2.9**	**3.1**	**2.9**	**3.1**	**2.9**	**3.1**	**2.9**	**3.1**
194	**I-84**		**I-86 - Utah SL**												
R.Int		53.8	4.0	65.0	5,453	57.5	53.6	58.1	54.1	58.1	54.1	58.1	54.1	58.1	54.1
Total Sample		53.8													
TOTAL	**53.8**		**4.0**	**65.0**	**5,453**	**57.5**	**53.6**	**58.1**	**54.1**	**58.1**	**54.1**	**58.1**	**54.1**	**58.1**	**54.1**
Time (HR)						**0.9**	**1.0**	**0.9**	**1.0**	**0.9**	**1.0**	**0.9**	**1.0**	**0.9**	**1.0**
200	**I-86**		**I-84 to I-15 @ Pocatello**												
R.Int		58.5	4.0	65.0	6,568	60.0	57.9	61.4	59.1	61.4	59.1	61.4	59.1	61.4	59.1
U.Int		4.3	4.0	40.0	11,761	51.5	48.4	52.6	49.4	52.6	49.4	52.6	49.4	52.6	49.4
Total Sample		62.9													
TOTAL	**62.9**		**4.0**	**62.3**	**6,927**	**59.4**	**57.1**	**60.7**	**58.3**	**60.7**	**58.3**	**60.7**	**58.3**	**60.7**	**58.3**
Time (HR)						**1.1**	**1.1**	**1.0**	**1.1**	**1.0**	**1.1**	**1.0**	**1.1**	**1.0**	**1.1**
213	**I-90**		**Washington SL - US 95 @ Coeur d'Alene**												
U.Int		13.6	4.0	40.0	36,255	57.6	55.5	58.5	56.3	58.5	56.3	58.5	56.3	58.5	56.3
Total Sample		13.6													
TOTAL	**13.6**		**4.0**	**40.0**	**36,255**	**57.6**	**55.5**	**58.5**	**56.3**	**58.5**	**56.3**	**58.5**	**56.3**	**58.5**	**56.3**
Time (HR)						**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**
214	**I-90**		**US 95 - Montana SL**												
R.Int		57.0	4.0	56.4	10,285	51.6	45.8	52.2	46.2	52.2	46.2	52.2	46.2	52.2	46.2
U.Int		3.0	4.0	40.0	15,606	53.0	47.7	54.0	48.5	54.0	48.5	54.0	48.5	54.0	48.5
Total Sample		60.0													
TOTAL	**60.0**		**4.0**	**55.2**	**10,553**	**51.7**	**45.9**	**52.2**	**46.3**	**52.2**	**46.3**	**52.2**	**46.3**	**52.2**	**46.3**
Time (HR)						**1.2**	**1.3**	**1.1**	**1.3**	**1.1**	**1.3**	**1.1**	**1.3**	**1.1**	**1.3**

WTTN-Operating Speeds
Idaho Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed S. Truck	Existing Condition Peak Hour Speed C. Truck	Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
								Peak Hour Speed for Cumulative Improvements							
351	**US 2**		**Washington SL - US 95 @ Sandpoint**												
R.OPA		24.8	2.1	55.0	4,797	37.4	35.6	39.0	37.0	41.2	39.7	42.0	40.4	42.0	40.4
U.OPA		1.4	2.0	35.0	7,493	20.2	20.1	20.8	20.8	20.8	20.8	20.8	20.8	24.7	24.6
Total Sample		26.2													
TOTAL	**26.2**		**2.1**	**53.3**	**4,945**	**35.8**	**34.1**	**37.2**	**35.5**	**39.1**	**37.8**	**39.8**	**38.4**	**40.5**	**39.0**
Time (HR)						**0.7**	**0.8**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.6**	**0.7**
352	**US 2**		**US 95 @ Bonners Ferry - Montana SL**												
R.OPA		15.8	2.0	55.0	1,973	45.2	42.4	45.2	42.4	45.6	42.9	45.6	42.9	45.6	42.9
Total Sample		15.8													
TOTAL	**15.8**		**2.0**	**55.0**	**1,973**	**45.2**	**42.4**	**45.2**	**42.4**	**45.6**	**42.9**	**45.6**	**42.9**	**45.6**	**42.9**
Time (HR)						**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.4**	**0.3**	**0.4**	**0.3**	**0.4**
370	**US 12**		**US 95 - Montana SL**												
R.OPA		164.2	2.1	45.4	1,747	44.4	44.3	44.4	44.3	44.4	44.3	45.5	45.4	45.6	45.6
U.OPA		4.5	2.7	35.0	11,426	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	28.7	28.7
Total Sample		168.7													
TOTAL	**168.7**		**2.1**	**45.0**	**2,005**	**43.4**	**43.4**	**43.4**	**43.4**	**43.4**	**43.4**	**44.5**	**44.4**	**44.9**	**44.9**
Time (HR)						**3.9**	**3.9**	**3.9**	**3.9**	**3.9**	**3.9**	**3.8**	**3.8**	**3.8**	**3.8**
380	**US 20**		**I-15 @ Idaho Falls - Montana SL**												
R.OPA		92.5	2.9	54.4	5,759	45.1	43.3	45.2	43.3	45.6	44.2	45.6	44.2	45.6	44.2
U.OPA		5.4	2.9	35.0	11,451	32.4	31.1	32.4	31.1	32.4	31.1	32.4	31.1	32.9	31.6
Total Sample		97.9													
TOTAL	**97.9**		**2.9**	**52.7**	**6,075**	**44.1**	**42.4**	**44.2**	**42.4**	**44.6**	**43.2**	**44.6**	**43.2**	**44.7**	**43.2**
Time (HR)						**2.2**	**2.3**	**2.2**	**2.3**	**2.2**	**2.3**	**2.2**	**2.3**	**2.2**	**2.3**
490	**US 95**		**I-84 - Lewiston (US 12)**												
R.OPA		227.8	2.2	50.6	2,817	40.7	37.7	40.9	37.9	41.5	39.7	41.8	40.0	42.2	40.3
U.OPA		5.8	2.7	35.0	8,879	31.0	30.9	31.0	30.9	31.0	30.9	31.0	30.9	33.5	33.3
Total Sample		233.6													
TOTAL	**244.0**		**2.2**	**50.0**	**2,966**	**40.4**	**37.5**	**40.6**	**37.6**	**41.1**	**39.4**	**41.5**	**39.7**	**41.9**	**40.1**
Time (HR)						**6.0**	**6.5**	**6.0**	**6.5**	**5.9**	**6.2**	**5.9**	**6.1**	**5.8**	**6.1**
491	**US 95**		**US 12 @ Lewiston - I-90 @ Coeur d'Alene**												
R.OPA		107.9	2.3	52.7	4,028	41.4	38.9	41.7	39.2	42.6	40.7	43.8	41.7	43.9	41.8
U.OPA		3.6	2.6	35.0	10,948	22.1	21.5	22.3	21.6	22.3	21.9	22.5	22.1	27.3	26.8
Total Sample		111.4													
TOTAL	**116.0**		**2.3**	**51.9**	**4,250**	**40.3**	**37.9**	**40.5**	**38.2**	**41.3**	**39.6**	**42.5**	**40.6**	**43.0**	**41.1**
Time (HR)						**2.9**	**3.1**	**2.9**	**3.0**	**2.8**	**2.9**	**2.7**	**2.9**	**2.7**	**2.8**

WTTN-Operating Speeds
Idaho Results - Performance Enhancement
Peak Hour Speed

						Existing Condition		Peak Hour Speed for Cumulative Improvements							
						Peak Hour Speed		Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
492	**US 95**		**I-90 @ Coeur d'Alene - Canada**												
R.OPA		97.7	2.2	53.9	6,254	41.2	39.4	41.6	39.7	42.2	40.7	44.2	42.5	44.6	42.8
U.OPA		7.9	3.4	35.0	21,246	29.4	29.1	29.4	29.1	29.4	29.1	29.9	29.6	34.4	33.9
U.Col		0.5	3.0	35.0	9,904	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	27.4	27.3
Total Sample		106.1													
TOTAL	**109.0**		**2.3**	**51.7**	**7,388**	**39.7**	**38.1**	**40.0**	**38.4**	**40.5**	**39.3**	**42.4**	**40.8**	**43.5**	**41.9**
Time (HR)						**2.7**	**2.9**	**2.7**	**2.8**	**2.7**	**2.8**	**2.6**	**2.7**	**2.5**	**2.6**
718	**I-15**		**Utah SL - I-86 @ Pocatello**												
R.Int		64.2	4.0	65.0	8,113	58.2	53.7	58.2	53.7	58.2	53.7	58.2	53.7	58.2	53.7
U.Int		7.6	4.0	40.0	17,000	54.4	50.1	54.4	50.1	54.4	50.1	54.4	50.1	54.4	50.1
Total Sample		71.9													
TOTAL	**71.9**		**4.0**	**61.0**	**9,054**	**57.8**	**53.3**	**57.8**	**53.3**	**57.8**	**53.3**	**57.8**	**53.3**	**57.8**	**53.3**
Time (HR)						**1.2**	**1.3**	**1.2**	**1.3**	**1.2**	**1.3**	**1.2**	**1.3**	**1.2**	**1.3**
719	**I-15**		**I-86 - US 20 @ Idaho Falls**												
R.Int		35.7	4.0	65.0	14,801	60.1	57.8	60.2	57.9	60.2	57.9	60.2	57.9	60.2	57.9
U.Int		11.5	4.0	40.0	14,252	57.8	55.8	57.8	55.8	57.8	55.8	57.8	55.8	57.8	55.8
Total Sample		47.2													
TOTAL	**47.2**		**4.0**	**56.4**	**14,667**	**59.5**	**57.3**	**59.6**	**57.4**	**59.6**	**57.4**	**59.6**	**57.4**	**59.6**	**57.4**
Time (HR)						**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**
720	**I-15**		**US 20 @ Idaho Falls - Montana SL**												
R.Int		74.9	4.0	65.0	2,920	59.4	55.9	59.6	56.0	59.6	56.0	59.6	56.0	59.6	56.0
U.Int		2.0	4.0	40.0	4,088	58.1	57.1	58.1	57.1	58.1	57.1	58.1	57.1	58.1	57.1
Total Sample		76.9													
TOTAL	**76.9**		**4.0**	**64.0**	**2,950**	**59.4**	**55.9**	**59.5**	**56.1**	**59.5**	**56.1**	**59.5**	**56.1**	**59.5**	**56.1**
Time (HR)						**1.3**	**1.4**	**1.3**	**1.4**	**1.3**	**1.4**	**1.3**	**1.4**	**1.3**	**1.4**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
Montana Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
214	**I-90**		**Idaho SL - US 93 W. Missoula**								
R.Int		45.5	4.0	52.6	65.0	68.1	6,035	55.4	50.3	55.4	50.3
Total Sample		96.5									
TOTAL	**96.5**		**4.0**	**52.6**	**65.0**	**68.1**	**6,035**	**55.4**	**50.3**	**55.4**	**50.3**
Time (HR)								**1.7**	**1.9**	**1.7**	**1.9**
215	**I-90**		**US 93 W. Missoula - I-15 W. Butte**								
R.Int		70.4	4.0	65.0	65.0	70.0	8,594	59.1	56.3	59.1	56.3
U.Int		4.2	4.0	40.0	65.0	70.0	15,714	58.0	55.4	58.0	55.4
Total Sample		123.0									
TOTAL	**123.0**		**4.0**	**62.4**	**65.0**	**70.0**	**9,059**	**59.0**	**56.2**	**59.0**	**56.2**
Time (HR)								**2.1**	**2.2**	**2.1**	**2.2**
216	**I-90**		**I-15 W. Butte - I-94 @ Billings**								
R.Int		96.2	4.0	63.3	65.0	69.9	8,807	56.9	53.3	56.9	53.3
U.Int		23.7	4.0	40.0	59.5	70.0	12,745	56.7	54.3	56.7	54.3
Total Sample		232.2									
TOTAL	**232.2**		**4.0**	**59.3**	**64.3**	**69.9**	**9,262**	**56.9**	**53.4**	**56.9**	**53.4**
Time (HR)								**4.1**	**4.3**	**4.1**	**4.3**
217	**I-90**		**Billings (I-94) - Wyoming SL**								
R.Int		15.5	4.0	65.0	65.0	70.0	6,111	54.4	47.5	54.4	47.5
Total Sample		94.7									
TOTAL	**94.7**		**4.0**	**65.0**	**65.0**	**70.0**	**6,111**	**54.4**	**47.5**	**54.4**	**47.5**
Time (HR)								**1.7**	**2.0**	**1.7**	**2.0**
352	**US 2**		**Idaho SL - US 93 @ Kalispell**								
R.OPA		59.6	2.3	55.0	52.6	68.4	2,230	42.0	39.6	38.6	36.5
U.OPA		0.4	4.0	35.0	35.0	65.0	6,970	24.2	24.2	24.2	24.2
Total Sample		120.0									
TOTAL	**120.0**		**2.3**	**54.9**	**52.5**	**68.4**	**2,248**	**41.9**	**39.5**	**38.5**	**36.4**
Time (HR)								**2.9**	**3.0**	**3.1**	**3.3**
353	**US 2**		**US 93 @ Kalispell - North Dakota SL**								
R.OPA		248.7	2.1	54.8	54.5	69.6	1,778	48.1	45.9	43.3	41.5
R.MiA		9.2	4.0	55.0	55.0	70.0	11,814	53.2	50.9	53.2	50.9
U.OPA		3.3	3.7	35.0	41.1	70.0	16,115	25.7	25.1	25.1	24.5
Total Sample		546.9									
TOTAL	**546.9**		**2.1**	**54.3**	**54.2**	**69.6**	**2,202**	**47.4**	**45.3**	**42.9**	**41.1**
Time (HR)								**11.5**	**12.1**	**12.8**	**13.3**

WTTN-Operating Speeds
Montana Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
370	**US 12**		**Idaho SL - I-90 @ Missoula**								
R.OPA		26.0	2.5	47.2	55.0	64.7	5,933	45.5	43.1	41.9	40.3
U.OPA		1.6	2.8	35.0	30.8	70.0	15,161	19.4	19.4	19.3	19.3
Total Sample		44.9									
TOTAL	**44.9**		**2.5**	**45.3**	**50.1**	**65.3**	**7,086**	**39.0**	**37.4**	**36.5**	**35.5**
Time (HR)								**1.2**	**1.2**	**1.2**	**1.3**
371	**US 12**		**I-90 NW of Butte to I-94 @ Forsyth**								
R.OPA		47.7	2.1	54.4	54.6	69.5	2,951	48.2	45.7	44.0	42.0
R.MiA		31.0	2.0	55.0	55.0	70.0	506	50.0	48.7	44.4	43.4
U.OPA		5.6	3.9	35.0	39.4	70.0	13,437	26.6	26.5	26.6	26.5
Total Sample		334.0									
TOTAL	**334.0**		**2.1**	**54.1**	**54.3**	**69.8**	**1,773**	**48.3**	**46.6**	**43.6**	**42.2**
Time (HR)								**6.9**	**7.2**	**7.7**	**7.9**
380	**US 20/191/28**		**Idaho SL - I-90**								
R.OPA		34.7	2.0	50.5	55.0	68.8	3,365	46.3	44.3	41.3	40.0
R.MiA		5.2	2.0	55.0	55.0	70.0	10,099	35.7	34.5	30.8	30.1
U.OPA		1.0	3.8	35.0	37.5	70.0	13,187	25.6	25.6	25.6	25.6
Total Sample		99.2									
TOTAL	**101.0**		**2.1**	**49.9**	**54.1**	**68.9**	**4,086**	**44.3**	**42.5**	**39.7**	**38.5**
Time (HR)								**2.3**	**2.4**	**2.5**	**2.6**
460	**US87/191/S19**		**I-94 @ Billings to Canada**								
R.OPA		67.7	2.0	55.0	54.5	70.0	1,251	47.5	44.1	43.4	40.4
U.OPA		2.4	6.0	35.0	35.0	70.0	36,446	25.4	25.4	25.4	25.4
Total Sample		259.6									
TOTAL	**259.6**		**2.2**	**53.6**	**53.2**	**70.0**	**2,858**	**45.7**	**42.7**	**42.0**	**39.3**
Time (HR)								**5.7**	**6.1**	**6.2**	**6.6**
470	**S 200/US 89**		**I-90 @ Missoula - I-15 @ Great Falls**								
R.OPA		64.1	2.0	52.9	54.8	69.8	2,190	47.1	42.9	42.9	39.2
R.MiA		7.0	2.0	55.0	55.0	70.0	1,270	47.4	44.3	42.8	39.9
Total Sample		154.9									
TOTAL	**157.0**		**2.0**	**53.0**	**54.8**	**69.8**	**2,148**	**47.2**	**43.0**	**42.9**	**39.2**
Time (HR)								**3.3**	**3.7**	**3.7**	**4.0**
471	**US 87**		**I-15 @ Great Falls - US 2 @ Havre**								
R.OPA		60.5	2.0	55.0	55.0	70.0	1,751	51.5	49.0	46.3	44.4
U.OPA		1.4	3.3	35.0	38.7	69.4	5,141	26.8	26.6	26.8	26.6
Total Sample		112.5									
TOTAL	**112.5**		**2.0**	**53.9**	**54.2**	**70.0**	**1,868**	**49.9**	**47.7**	**45.2**	**43.4**
Time (HR)								**2.3**	**2.4**	**2.5**	**2.6**

WTTN-Operating Speeds
Montana Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
480	**US 93**		**I-90 - Canada**								
R.OPA		70.3	2.2	55.0	54.1	70.0	6,409	43.3	40.6	38.9	36.8
U.OPA		1.1	2.4	35.0	38.9	64.9	14,288	23.7	23.7	22.2	22.2
Total Sample		187.8									
TOTAL	**187.8**		**2.3**	**54.1**	**53.5**	**69.8**	**6,638**	**42.2**	**39.8**	**38.0**	**36.1**
Time (HR)								**4.4**	**4.7**	**4.9**	**5.2**
590	**S 3**		**Billings to Great Falls**								
R.OPA		76.4	2.0	55.0	54.8	70.0	1,956	48.3	45.1	44.3	41.5
R.MiA		13.7	2.0	55.0	51.1	70.0	920	46.0	44.6	41.7	40.3
U.OPA		3.9	4.0	35.0	34.6	69.6	27,902	22.9	22.0	22.9	22.0
Total Sample		192.2									
TOTAL	**192.2**		**2.2**	**53.0**	**52.5**	**70.0**	**3,596**	**44.9**	**42.2**	**41.5**	**39.1**
Time (HR)								**4.3**	**4.6**	**4.6**	**4.9**
720	**I-15**		**Idaho SL - I-90 @ Butte**								
R.Int		69.9	4.0	65.0	65.0	70.0	3,156	57.5	53.3	57.5	53.3
U.Int		2.6	4.0	40.0	65.0	70.0	11,603	61.1	59.1	61.1	59.1
Total Sample		137.7									
TOTAL	**137.7**		**4.0**	**64.2**	**65.0**	**70.0**	**3,329**	**57.6**	**53.4**	**57.6**	**53.4**
Time (HR)								**2.4**	**2.6**	**2.4**	**2.6**
721	**I-15**		**Butte (I-90) - Great Falls (I-15B)**								
R.Int		86.3	4.0	58.7	65.0	67.6	3,815	53.1	48.3	53.1	48.3
U.Int		11.7	4.0	40.0	61.7	70.0	7,487	51.0	44.4	51.0	44.4
Total Sample		152.7									
TOTAL	**152.7**		**4.0**	**56.1**	**64.7**	**67.9**	**4,181**	**52.9**	**47.9**	**52.9**	**47.9**
Time (HR)								**2.9**	**3.2**	**2.9**	**3.2**
722	**I-15**		**Great Falls - Canada**								
R.Int		46.0	4.0	65.0	65.0	70.0	3,048	58.9	55.0	58.9	55.0
U.Int		3.2	4.0	40.0	55.0	70.0	5,941	53.6	51.7	53.6	51.7
Total Sample		118.6									
TOTAL	**118.6**		**4.0**	**61.4**	**63.9**	**70.0**	**3,319**	**58.3**	**54.7**	**58.3**	**54.7**
Time (HR)								**2.0**	**2.2**	**2.0**	**2.2**
750	**I-94**		**I-90 @ Billings - North Dakota SL**								
R.Int		141.7	4.0	64.9	65.0	70.0	3,076	59.2	55.2	59.2	55.2
U.Int		1.9	4.0	40.0	65.0	70.0	3,432	60.6	57.9	60.6	57.9
Total Sample		248.5									
TOTAL	**250.0**		**4.0**	**63.5**	**65.0**	**70.0**	**3,088**	**59.3**	**55.3**	**59.3**	**55.3**
Time (HR)								**4.2**	**4.5**	**4.2**	**4.5**

WTTN-Operating Speeds
Montana Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed		Average Daily Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
214	**I-90**		**Idaho SL - US 93 W. Missoula**												
R.Int		45.5	4.0	52.6	6,035	55.4	50.3	55.6	50.4	55.6	50.4	55.6	50.4	55.6	50.4
Total Sample		96.5													
TOTAL	**96.5**		**4.0**	**52.6**	**6,035**	**55.4**	**50.3**	**55.6**	**50.4**	**55.6**	**50.4**	**55.6**	**50.4**	**55.6**	**50.4**
Time (HR)						**1.7**	**1.9**	**1.7**	**1.9**	**1.7**	**1.9**	**1.7**	**1.9**	**1.7**	**1.9**
215	**I-90**		**US 93 W. Missoula - I-15 W. Butte**												
R.Int		70.4	4.0	65.0	8,594	59.1	56.3	60.0	57.0	60.0	57.0	60.0	57.0	60.0	57.0
U.Int		4.2	4.0	40.0	15,714	58.0	55.4	58.1	55.6	58.1	55.6	58.1	55.6	58.1	55.6
Total Sample		123.0													
TOTAL	**123.0**		**4.0**	**62.4**	**9,059**	**59.0**	**56.2**	**59.8**	**56.9**	**59.8**	**56.9**	**59.8**	**56.9**	**59.8**	**56.9**
Time (HR)						**2.1**	**2.2**	**2.1**	**2.2**	**2.1**	**2.2**	**2.1**	**2.2**	**2.1**	**2.2**
216	**I-90**		**I-15 W. Butte - I-94 @ Billings**												
R.Int		96.2	4.0	63.3	8,807	56.9	53.3	58.0	54.2	58.0	54.2	58.0	54.2	58.0	54.2
U.Int		23.7	4.0	40.0	12,745	56.7	54.3	57.0	54.6	57.0	54.6	57.0	54.6	57.0	54.6
Total Sample		232.2													
TOTAL	**232.2**		**4.0**	**59.3**	**9,262**	**56.9**	**53.4**	**57.9**	**54.2**	**57.9**	**54.2**	**57.9**	**54.2**	**57.9**	**54.2**
Time (HR)						**4.1**	**4.3**	**4.0**	**4.3**	**4.0**	**4.3**	**4.0**	**4.3**	**4.0**	**4.3**
217	**I-90**		**Billings (I-94) - Wyoming SL**												
R.Int		15.5	4.0	65.0	6,111	54.4	47.5	54.4	47.5	54.4	47.5	54.4	47.5	54.4	47.5
Total Sample		94.7													
TOTAL	**94.7**		**4.0**	**65.0**	**6,111**	**54.4**	**47.5**	**54.4**	**47.5**	**54.4**	**47.5**	**54.4**	**47.5**	**54.4**	**47.5**
Time (HR)						**1.7**	**2.0**	**1.7**	**2.0**	**1.7**	**2.0**	**1.7**	**2.0**	**1.7**	**2.0**
352	**US 2**		**Idaho SL - US 93 @ Kalispell**												
R.OPA		59.6	2.3	55.0	2,230	42.0	39.6	43.6	41.0	45.4	43.5	45.4	43.5	47.3	45.2
U.OPA		0.4	4.0	35.0	6,970	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	30.9	30.7
Total Sample		120.0													
TOTAL	**120.0**		**2.3**	**54.9**	**2,248**	**41.9**	**39.5**	**43.5**	**40.9**	**45.3**	**43.4**	**45.3**	**43.4**	**47.2**	**45.1**
Time (HR)						**2.9**	**3.0**	**2.8**	**2.9**	**2.7**	**2.8**	**2.7**	**2.8**	**2.5**	**2.7**
353	**US 2**		**US 93 @ Kalispell - North Dakota SL**												
R.OPA		248.7	2.1	54.8	1,778	48.1	45.9	48.4	46.2	49.2	47.3	49.2	47.3	49.5	47.6
R.MiA		9.2	4.0	55.0	11,814	53.2	50.9	53.2	50.9	53.2	50.9	53.2	50.9	53.2	50.9
U.OPA		3.3	3.7	35.0	16,115	25.7	25.1	25.7	25.1	26.3	26.3	26.3	26.3	29.1	29.1
Total Sample		546.9													
TOTAL	**546.9**		**2.1**	**54.3**	**2,202**	**47.4**	**45.3**	**47.7**	**45.6**	**48.5**	**46.7**	**48.5**	**46.7**	**49.0**	**47.1**
Time (HR)						**11.5**	**12.1**	**11.5**	**12.0**	**11.3**	**11.7**	**11.3**	**11.7**	**11.2**	**11.6**

WTTN-Operating Speeds
Montana Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed S. Truck	Existing Condition Average Daily Speed C. Truck	Average Daily Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
370	**US 12**		**Idaho SL - I-90 @ Missoula**												
R.OPA		26.0	2.5	47.2	5,933	45.5	43.1	46.0	43.6	46.8	44.1	46.8	44.1	46.8	44.1
U.OPA		1.6	2.8	35.0	15,161	19.4	19.4	19.7	19.7	19.7	19.7	19.7	19.7	29.2	29.2
Total Sample		44.9													
TOTAL	**44.9**		**2.5**	**45.3**	**7,086**	**39.0**	**37.4**	**39.5**	**37.9**	**40.0**	**38.2**	**40.0**	**38.2**	**43.6**	**41.5**
Time (HR)						**1.2**	**1.2**	**1.1**	**1.2**	**1.1**	**1.2**	**1.1**	**1.2**	**1.0**	**1.1**
371	**US 12**		**I-90 NW of Butte to I-94 @ Forsyth**												
R.OPA		47.7	2.1	54.4	2,951	48.2	45.7	48.2	45.8	48.2	45.8	48.3	45.8	48.6	46.1
R.MiA		31.0	2.0	55.0	506	50.0	48.7	50.0	48.7	50.0	48.7	50.0	48.7	50.0	48.7
U.OPA		5.6	3.9	35.0	13,437	26.6	26.5	26.7	26.5	26.7	26.5	26.7	26.5	32.3	31.9
Total Sample		334.0													
TOTAL	**334.0**		**2.1**	**54.1**	**1,773**	**48.3**	**46.6**	**48.3**	**46.6**	**48.3**	**46.6**	**48.3**	**46.6**	**48.8**	**47.1**
Time (HR)						**6.9**	**7.2**	**6.9**	**7.2**	**6.9**	**7.2**	**6.9**	**7.2**	**6.8**	**7.1**
380	**US 20/191/28**		**Idaho SL - I-90**												
R.OPA		34.7	2.0	50.5	3,365	46.3	44.3	46.6	44.5	47.4	45.4	47.5	45.4	47.5	45.4
R.MiA		5.2	2.0	55.0	10,099	35.7	34.5	35.7	34.5	35.7	34.5	36.0	34.8	36.0	34.8
U.OPA		1.0	3.8	35.0	13,187	25.6	25.6	25.7	25.7	25.7	25.7	25.7	25.7	32.8	32.7
Total Sample		99.2													
TOTAL	**101.0**		**2.1**	**49.9**	**4,086**	**44.3**	**42.5**	**44.5**	**42.7**	**45.2**	**43.4**	**45.3**	**43.5**	**45.9**	**44.1**
Time (HR)						**2.3**	**2.4**	**2.3**	**2.4**	**2.2**	**2.3**	**2.2**	**2.3**	**2.2**	**2.3**
460	**US87/191/S19**		**I-94 @ Billings to Canada**												
R.OPA		67.7	2.0	55.0	1,251	47.5	44.1	47.7	44.2	48.4	45.6	48.4	45.6	48.8	46.0
U.OPA		2.4	6.0	35.0	36,446	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	32.8	32.8
Total Sample		259.6													
TOTAL	**259.6**		**2.2**	**53.6**	**2,858**	**45.7**	**42.7**	**45.8**	**42.8**	**46.5**	**44.0**	**46.5**	**44.0**	**47.8**	**45.1**
Time (HR)						**5.7**	**6.1**	**5.7**	**6.1**	**5.6**	**5.9**	**5.6**	**5.9**	**5.4**	**5.8**
470	**S 200/US 89**		**I-90 @ Missoula - I-15 @ Great Falls**												
R.OPA		64.1	2.0	52.9	2,190	47.1	42.9	47.2	42.9	49.9	47.4	49.9	47.4	49.9	47.4
R.MiA		7.0	2.0	55.0	1,270	47.4	44.3	47.4	44.3	48.7	46.2	48.7	46.2	48.7	46.2
Total Sample		154.9													
TOTAL	**157.0**		**2.0**	**53.0**	**2,148**	**47.2**	**43.0**	**47.2**	**43.0**	**49.8**	**47.3**	**49.8**	**47.3**	**49.8**	**47.3**
Time (HR)						**3.3**	**3.7**	**3.3**	**3.7**	**3.2**	**3.3**	**3.1**	**3.3**	**3.1**	**3.3**
471	**US 87**		**I-15 @ Great Falls - US 2 @ Havre**												
R.OPA		60.5	2.0	55.0	1,751	51.5	49.0	51.5	49.0	52.0	49.7	52.0	49.7	52.0	49.7
U.OPA		1.4	3.3	35.0	5,141	26.8	26.6	26.8	26.6	27.4	27.3	27.4	27.3	33.6	33.3
Total Sample		112.5													
TOTAL	**112.5**		**2.0**	**53.9**	**1,868**	**49.9**	**47.7**	**49.9**	**47.7**	**50.5**	**48.4**	**50.5**	**48.4**	**51.1**	**48.9**
Time (HR)						**2.3**	**2.4**	**2.3**	**2.4**	**2.2**	**2.3**	**2.2**	**2.3**	**2.2**	**2.3**

WTTN-Operating Speeds
Montana Results - Performance Enhancement
Average Daily Speed

						Existing Condition		Average Daily Speed for Cumulative Improvements							
						Average Daily Speed		Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
480	US 93		I-90 - Canada												
R.OPA		70.3	2.2	55.0	6,409	43.3	40.6	43.3	40.7	44.1	42.0	44.2	42.1	44.7	42.5
U.OPA		1.1	2.4	35.0	14,288	23.7	23.7	24.2	24.2	24.2	24.2	24.2	24.2	27.4	27.3
Total Sample		187.8													
TOTAL	**187.8**		**2.3**	**54.1**	**6,638**	**42.2**	**39.8**	**42.4**	**39.9**	**43.0**	**41.1**	**43.2**	**41.2**	**43.8**	**41.8**
Time (HR)						**4.4**	**4.7**	**4.4**	**4.7**	**4.4**	**4.6**	**4.3**	**4.6**	**4.3**	**4.5**
590	S 3		Billings to Great Falls												
R.OPA		76.4	2.0	55.0	1,956	48.3	45.1	48.4	45.2	49.4	46.4	49.4	46.4	49.6	46.6
R.MiA		13.7	2.0	55.0	920	46.0	44.6	46.0	44.6	46.3	44.9	46.3	44.9	49.3	47.6
U.OPA		3.9	4.0	35.0	27,902	22.9	22.0	23.1	22.1	23.4	23.1	23.4	23.1	29.9	29.4
Total Sample		192.2													
TOTAL	**192.2**		**2.2**	**53.0**	**3,596**	**44.9**	**42.2**	**45.0**	**42.2**	**45.8**	**43.4**	**45.8**	**43.4**	**47.5**	**44.9**
Time (HR)						**4.3**	**4.6**	**4.3**	**4.5**	**4.2**	**4.4**	**4.2**	**4.4**	**4.0**	**4.3**
720	I-15		Idaho SL - I-90 @ Butte												
R.Int		69.9	4.0	65.0	3,156	57.5	53.3	57.8	53.5	57.8	53.5	57.8	53.5	57.8	53.5
U.Int		2.6	4.0	40.0	11,603	61.1	59.1	61.1	59.1	61.1	59.1	61.1	59.1	61.1	59.1
Total Sample		137.7													
TOTAL	**137.7**		**4.0**	**64.2**	**3,329**	**57.6**	**53.4**	**57.9**	**53.6**	**57.9**	**53.6**	**57.9**	**53.6**	**57.9**	**53.6**
Time (HR)						**2.4**	**2.6**	**2.4**	**2.6**	**2.4**	**2.6**	**2.4**	**2.6**	**2.4**	**2.6**
721	I-15		Butte (I-90) - Great Falls (I-15B)												
R.Int		86.3	4.0	58.7	3,815	53.1	48.3	54.0	49.0	54.0	49.0	54.0	49.0	54.0	49.0
U.Int		11.7	4.0	40.0	7,487	51.0	44.4	51.4	44.7	51.4	44.7	51.4	44.7	51.4	44.7
Total Sample		152.7													
TOTAL	**152.7**		**4.0**	**56.1**	**4,181**	**52.9**	**47.9**	**53.7**	**48.5**	**53.7**	**48.5**	**53.7**	**48.5**	**53.7**	**48.5**
Time (HR)						**2.9**	**3.2**	**2.8**	**3.1**	**2.8**	**3.1**	**2.8**	**3.1**	**2.8**	**3.1**
722	I-15		Great Falls - Canada												
R.Int		46.0	4.0	65.0	3,048	58.9	55.0	59.3	55.3	59.3	55.3	59.3	55.3	59.3	55.3
U.Int		3.2	4.0	40.0	5,941	53.6	51.7	54.6	52.6	54.6	52.6	54.6	52.6	54.6	52.6
Total Sample		118.6													
TOTAL	**118.6**		**4.0**	**61.4**	**3,319**	**58.3**	**54.7**	**58.8**	**55.0**	**58.8**	**55.0**	**58.8**	**55.0**	**58.8**	**55.0**
Time (HR)						**2.0**	**2.2**	**2.0**	**2.2**	**2.0**	**2.2**	**2.0**	**2.2**	**2.0**	**2.2**
750	I-94		I-90 @ Billings - North Dakota SL												
R.Int		141.7	4.0	64.9	3,076	59.2	55.2	59.4	55.3	59.4	55.3	59.4	55.3	59.4	55.3
U.Int		1.9	4.0	40.0	3,432	60.6	57.9	60.6	57.9	60.6	57.9	60.6	57.9	60.6	57.9
Total Sample		248.5													
TOTAL	**250.0**		**4.0**	**63.5**	**3,088**	**59.3**	**55.3**	**59.4**	**55.4**	**59.4**	**55.4**	**59.4**	**55.4**	**59.4**	**55.4**
Time (HR)						**4.2**	**4.5**	**4.2**	**4.5**	**4.2**	**4.5**	**4.2**	**4.5**	**4.2**	**4.5**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
Montana Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed S. Truck	Existing Condition Peak Hour Speed C. Truck	Peak Hour Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
214	**I-90**		**Idaho SL - US 93 W. Missoula**												
R.Int		45.5	4.0	52.6	6,035	55.4	50.3	55.6	50.4	55.6	50.4	55.6	50.4	55.6	50.4
Total Sample		96.5													
TOTAL	**96.5**		**4.0**	**52.6**	**6,035**	**55.4**	**50.3**	**55.6**	**50.4**	**55.6**	**50.4**	**55.6**	**50.4**	**55.6**	**50.4**
Time (HR)						**1.7**	**1.9**	**1.7**	**1.9**	**1.7**	**1.9**	**1.7**	**1.9**	**1.7**	**1.9**
215	**I-90**		**US 93 W. Missoula - I-15 W. Butte**												
R.Int		70.4	4.0	65.0	8,594	59.1	56.3	60.0	57.0	60.0	57.0	60.0	57.0	60.0	57.0
U.Int		4.2	4.0	40.0	15,714	58.0	55.4	58.1	55.6	58.1	55.6	58.1	55.6	58.1	55.6
Total Sample		123.0													
TOTAL	**123.0**		**4.0**	**62.4**	**9,059**	**59.0**	**56.2**	**59.8**	**56.9**	**59.8**	**56.9**	**59.8**	**56.9**	**59.8**	**56.9**
Time (HR)						**2.1**	**2.2**	**2.1**	**2.2**	**2.1**	**2.2**	**2.1**	**2.2**	**2.1**	**2.2**
216	**I-90**		**I-15 W. Butte - I-94 @ Billings**												
R.Int		96.2	4.0	63.3	8,807	56.9	53.3	58.0	54.2	58.0	54.2	58.0	54.2	58.0	54.2
U.Int		23.7	4.0	40.0	12,745	56.7	54.3	57.0	54.6	57.0	54.6	57.0	54.6	57.0	54.6
Total Sample		232.2													
TOTAL	**232.2**		**4.0**	**59.3**	**9,262**	**56.9**	**53.4**	**57.9**	**54.2**	**57.9**	**54.2**	**57.9**	**54.2**	**57.9**	**54.2**
Time (HR)						**4.1**	**4.3**	**4.0**	**4.3**	**4.0**	**4.3**	**4.0**	**4.3**	**4.0**	**4.3**
217	**I-90**		**Billings (I-94) - Wyoming SL**												
R.Int		15.5	4.0	65.0	6,111	54.4	47.5	54.4	47.5	54.4	47.5	54.4	47.5	54.4	47.5
Total Sample		94.7													
TOTAL	**94.7**		**4.0**	**65.0**	**6,111**	**54.4**	**47.5**	**54.4**	**47.5**	**54.4**	**47.5**	**54.4**	**47.5**	**54.4**	**47.5**
Time (HR)						**1.7**	**2.0**	**1.7**	**2.0**	**1.7**	**2.0**	**1.7**	**2.0**	**1.7**	**2.0**
352	**US 2**		**Idaho SL - US 93 @ Kalispell**												
R.OPA		59.6	2.3	55.0	2,230	38.6	36.5	40.0	37.7	41.5	39.9	42.8	41.1	44.4	42.5
U.OPA		0.4	4.0	35.0	6,970	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	30.9	30.7
Total Sample		120.0													
TOTAL	**120.0**		**2.3**	**54.9**	**2,248**	**38.5**	**36.4**	**39.9**	**37.6**	**41.4**	**39.8**	**42.7**	**41.0**	**44.4**	**42.4**
Time (HR)						**3.1**	**3.3**	**3.0**	**3.2**	**2.9**	**3.0**	**2.8**	**2.9**	**2.7**	**2.8**
353	**US 2**		**US 93 @ Kalispell - North Dakota SL**												
R.OPA		248.7	2.1	54.8	1,778	43.3	41.5	43.6	41.7	44.2	42.6	45.6	43.9	45.9	44.1
R.MiA		9.2	4.0	55.0	11,814	53.2	50.9	53.2	50.9	53.2	50.9	53.2	50.9	53.2	50.9
U.OPA		3.3	3.7	35.0	16,115	25.1	24.5	25.1	24.5	25.7	25.6	26.2	26.2	28.6	28.6
Total Sample		546.9													
TOTAL	**546.9**		**2.1**	**54.3**	**2,202**	**42.9**	**41.1**	**43.2**	**41.3**	**43.8**	**42.2**	**45.1**	**43.4**	**45.5**	**43.8**
Time (HR)						**12.8**	**13.3**	**12.7**	**13.2**	**12.5**	**13.0**	**12.1**	**12.6**	**12.0**	**12.5**

WTTN-Operating Speeds
Montana Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed S. Truck	Existing Condition Peak Hour Speed C. Truck	Peak Hour Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
370	**US 12**		**Idaho SL - I-90 @ Missoula**												
R.OPA		26.0	2.5	47.2	5,933	41.9	40.3	42.3	40.7	42.7	41.0	43.9	41.8	43.9	41.8
U.OPA		1.6	2.8	35.0	15,161	19.3	19.3	19.6	19.6	19.6	19.6	19.6	19.6	29.1	29.1
Total Sample		44.9													
TOTAL	**44.9**		**2.5**	**45.3**	**7,086**	**36.5**	**35.5**	**37.0**	**35.9**	**37.3**	**36.1**	**38.0**	**36.6**	**41.3**	**39.6**
Time (HR)						**1.2**	**1.3**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.1**	**1.1**
371	**US 12**		**I-90 NW of Butte to I-94 @ Forsyth**												
R.OPA		47.7	2.1	54.4	2,951	44.0	42.0	44.1	42.1	44.1	42.1	45.5	43.3	45.7	43.4
R.MiA		31.0	2.0	55.0	506	44.4	43.4	44.4	43.4	44.4	43.4	46.1	45.0	46.1	45.0
U.OPA		5.6	3.9	35.0	13,437	26.6	26.5	26.7	26.5	26.7	26.5	26.7	26.5	32.3	31.9
Total Sample		334.0													
TOTAL	**334.0**		**2.1**	**54.1**	**1,773**	**43.6**	**42.2**	**43.6**	**42.2**	**43.6**	**42.2**	**45.1**	**43.6**	**45.5**	**43.9**
Time (HR)						**7.7**	**7.9**	**7.7**	**7.9**	**7.7**	**7.9**	**7.4**	**7.7**	**7.3**	**7.6**
380	**US 20/191/28**		**Idaho SL - I-90**												
R.OPA		34.7	2.0	50.5	3,365	41.3	40.0	41.6	40.2	42.1	40.8	44.9	43.2	44.9	43.2
R.MiA		5.2	2.0	55.0	10,099	30.8	30.1	30.8	30.1	30.8	30.1	35.2	34.1	35.2	34.1
U.OPA		1.0	3.8	35.0	13,187	25.6	25.6	25.7	25.7	25.7	25.7	25.7	25.7	32.4	32.3
Total Sample		99.2													
TOTAL	**101.0**		**2.1**	**49.9**	**4,086**	**39.7**	**38.5**	**39.9**	**38.7**	**40.4**	**39.2**	**43.1**	**41.5**	**43.7**	**42.1**
Time (HR)						**2.5**	**2.6**	**2.5**	**2.6**	**2.5**	**2.6**	**2.3**	**2.4**	**2.3**	**2.4**
460	**US87/191/S19**		**I-94 @ Billings to Canada**												
R.OPA		67.7	2.0	55.0	1,251	43.4	40.4	43.5	40.5	44.1	41.6	45.5	42.9	45.9	43.1
U.OPA		2.4	6.0	35.0	36,446	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	31.4	31.4
Total Sample		259.6													
TOTAL	**259.6**		**2.2**	**53.6**	**2,858**	**42.0**	**39.3**	**42.1**	**39.4**	**42.7**	**40.4**	**44.0**	**41.6**	**44.9**	**42.4**
Time (HR)						**6.2**	**6.6**	**6.2**	**6.6**	**6.1**	**6.4**	**5.9**	**6.2**	**5.8**	**6.1**
470	**S 200/US 89**		**I-90 @ Missoula - I-15 @ Great Falls**												
R.OPA		64.1	2.0	52.9	2,190	42.9	39.2	43.0	39.2	45.1	42.9	46.9	44.5	46.9	44.5
R.MiA		7.0	2.0	55.0	1,270	42.8	39.9	42.8	39.9	44.0	41.6	45.8	43.3	45.8	43.3
Total Sample		154.9													
TOTAL	**157.0**		**2.0**	**53.0**	**2,148**	**42.9**	**39.2**	**43.0**	**39.2**	**45.1**	**42.9**	**46.9**	**44.4**	**46.9**	**44.4**
Time (HR)						**3.7**	**4.0**	**3.7**	**4.0**	**3.5**	**3.7**	**3.4**	**3.5**	**3.4**	**3.5**
471	**US 87**		**I-15 @ Great Falls - US 2 @ Havre**												
R.OPA		60.5	2.0	55.0	1,751	46.3	44.4	46.3	44.4	46.8	45.0	48.3	46.3	48.3	46.3
U.OPA		1.4	3.3	35.0	5,141	26.8	26.6	26.8	26.6	27.4	27.3	27.4	27.3	33.6	33.3
Total Sample		112.5													
TOTAL	**112.5**		**2.0**	**53.9**	**1,868**	**45.2**	**43.4**	**45.2**	**43.4**	**45.7**	**44.0**	**47.1**	**45.2**	**47.6**	**45.7**
Time (HR)						**2.5**	**2.6**	**2.5**	**2.6**	**2.5**	**2.6**	**2.4**	**2.5**	**2.4**	**2.5**

WTTN-Operating Speeds
Montana Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed S. Truck	Existing Condition Peak Hour Speed C. Truck	Peak Hour Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
480	**US 93**		**I-90 - Canada**												
R.OPA		70.3	2.2	55.0	6,409	38.9	36.8	38.9	36.9	39.4	37.9	42.4	40.4	42.7	40.7
U.OPA		1.1	2.4	35.0	14,288	22.2	22.2	22.7	22.7	22.7	22.7	23.9	23.9	26.9	26.8
Total Sample		187.8													
TOTAL	**187.8**		**2.3**	**54.1**	**6,638**	**38.0**	**36.1**	**38.1**	**36.2**	**38.6**	**37.1**	**41.5**	**39.6**	**42.0**	**40.1**
Time (HR)						**4.9**	**5.2**	**4.9**	**5.2**	**4.9**	**5.1**	**4.5**	**4.7**	**4.5**	**4.7**
590	**S 3**		**Billings to Great Falls**												
R.OPA		76.4	2.0	55.0	1,956	44.3	41.5	44.3	41.5	45.2	42.5	46.3	43.5	46.5	43.7
R.MiA		13.7	2.0	55.0	920	41.7	40.3	41.7	40.3	41.9	40.6	43.3	41.9	45.7	44.1
U.OPA		3.9	4.0	35.0	27,902	22.9	22.0	23.1	22.1	23.4	23.1	23.4	23.1	29.9	29.4
Total Sample		192.2													
TOTAL	**192.2**		**2.2**	**53.0**	**3,596**	**41.5**	**39.1**	**41.6**	**39.1**	**42.3**	**40.2**	**43.3**	**41.0**	**44.8**	**42.3**
Time (HR)						**4.6**	**4.9**	**4.6**	**4.9**	**4.5**	**4.8**	**4.4**	**4.7**	**4.3**	**4.5**
720	**I-15**		**Idaho SL - I-90 @ Butte**												
R.Int		69.9	4.0	65.0	3,156	57.5	53.3	57.8	53.5	57.8	53.5	57.8	53.5	57.8	53.5
U.Int		2.6	4.0	40.0	11,603	61.1	59.1	61.1	59.1	61.1	59.1	61.1	59.1	61.1	59.1
Total Sample		137.7													
TOTAL	**137.7**		**4.0**	**64.2**	**3,329**	**57.6**	**53.4**	**57.9**	**53.6**	**57.9**	**53.6**	**57.9**	**53.6**	**57.9**	**53.6**
Time (HR)						**2.4**	**2.6**	**2.4**	**2.6**	**2.4**	**2.6**	**2.4**	**2.6**	**2.4**	**2.6**
721	**I-15**		**Butte (I-90) - Great Falls (I-15B)**												
R.Int		86.3	4.0	58.7	3,815	53.1	48.3	54.0	49.0	54.0	49.0	54.0	49.0	54.0	49.0
U.Int		11.7	4.0	40.0	7,487	51.0	44.4	51.4	44.7	51.4	44.7	51.4	44.7	51.4	44.7
Total Sample		152.7													
TOTAL	**152.7**		**4.0**	**56.1**	**4,181**	**52.9**	**47.9**	**53.7**	**48.5**	**53.7**	**48.5**	**53.7**	**48.5**	**53.7**	**48.5**
Time (HR)						**2.9**	**3.2**	**2.8**	**3.1**	**2.8**	**3.1**	**2.8**	**3.1**	**2.8**	**3.1**
722	**I-15**		**Great Falls - Canada**												
R.Int		46.0	4.0	65.0	3,048	58.9	55.0	59.3	55.3	59.3	55.3	59.3	55.3	59.3	55.3
U.Int		3.2	4.0	40.0	5,941	53.6	51.7	54.6	52.6	54.6	52.6	54.6	52.6	54.6	52.6
Total Sample		118.6													
TOTAL	**118.6**		**4.0**	**61.4**	**3,319**	**58.3**	**54.7**	**58.8**	**55.0**	**58.8**	**55.0**	**58.8**	**55.0**	**58.8**	**55.0**
Time (HR)						**2.0**	**2.2**	**2.0**	**2.2**	**2.0**	**2.2**	**2.0**	**2.2**	**2.0**	**2.2**
750	**I-94**		**I-90 @ Billings - North Dakota SL**												
R.Int		141.7	4.0	64.9	3,076	59.2	55.2	59.4	55.3	59.4	55.3	59.4	55.3	59.4	55.3
U.Int		1.9	4.0	40.0	3,432	60.6	57.9	60.6	57.9	60.6	57.9	60.6	57.9	60.6	57.9
Total Sample		248.5													
TOTAL	**250.0**		**4.0**	**63.5**	**3,088**	**59.3**	**55.3**	**59.4**	**55.4**	**59.4**	**55.4**	**59.4**	**55.4**	**59.4**	**55.4**
Time (HR)						**4.2**	**4.5**	**4.2**	**4.5**	**4.2**	**4.5**	**4.2**	**4.5**	**4.2**	**4.5**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
New Mexico Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
34	**I-10**		**Arizona SL - I-25 @ Las Cruces**								
R.Int		136.5	4.0	65.0	69.5	71.2	14,050	60.7	58.8	60.4	58.6
U.Int		8.1	4.0	40.0	56.6	70.0	14,464	55.0	52.9	55.0	52.9
Total Sample		144.7									
TOTAL	**144.7**		**4.0**	**62.8**	**68.6**	**71.2**	**14,073**	**60.3**	**58.5**	**60.1**	**58.2**
Time (HR)								**2.4**	**2.5**	**2.4**	**2.5**
35	**I-10**		**I-25 @ Las Cruces - Texas SL (El Paso)**								
R.Int		19.6	4.0	65.0	69.6	70.0	23,787	61.3	59.3	60.3	58.3
Total Sample		19.6									
TOTAL	**19.6**		**4.0**	**65.0**	**69.6**	**70.0**	**23,787**	**61.3**	**59.3**	**60.3**	**58.3**
Time (HR)								**0.3**	**0.3**	**0.3**	**0.3**
80	**I-25**		**I-10 @ Las Cruces - Albuquerque UL**								
R.Int		197.1	4.0	65.0	70.0	71.3	6,966	59.7	56.9	59.7	56.9
U.Int		17.4	4.0	40.0	62.8	70.0	11,892	56.7	54.6	56.7	54.6
Total Sample		214.5									
TOTAL	**214.5**		**4.0**	**61.9**	**69.4**	**71.2**	**7,366**	**59.4**	**56.7**	**59.4**	**56.7**
Time (HR)								**3.6**	**3.8**	**3.6**	**3.8**
81	**I-25**		**Through Albuquerque**								
U.Int		20.8	5.4	40.0	60.3	69.8	73,326	52.1	49.4	33.2	32.3
Total Sample		20.8									
TOTAL	**20.8**		**5.4**	**40.0**	**60.3**	**69.8**	**73,326**	**52.1**	**49.4**	**33.2**	**32.3**
Time (HR)								**0.4**	**0.4**	**0.6**	**0.6**
82	**I-25**		**Albuquerque UL - Colorado SL**								
R.Int		207.7	4.0	65.0	69.7	70.4	11,081	58.4	54.6	58.3	54.5
U.Int		19.1	4.0	40.0	68.4	70.1	13,430	55.0	50.8	55.0	50.8
Total Sample		226.8									
TOTAL	**226.8**		**4.0**	**61.7**	**69.6**	**70.4**	**11,280**	**58.1**	**54.3**	**58.0**	**54.2**
Time (HR)								**3.9**	**4.2**	**3.9**	**4.2**
133	**I-40**		**Arizona SL - Albuquerque UL**								
R.Int		131.1	4.2	65.0	69.5	70.7	18,159	58.5	55.4	58.5	55.4
U.Int		17.4	4.0	40.0	67.0	70.0	18,370	57.3	54.8	57.3	54.8
Total Sample		148.5									
TOTAL	**152.0**		**4.1**	**60.6**	**69.2**	**70.6**	**18,184**	**58.3**	**55.3**	**58.3**	**55.3**
Time (HR)								**2.6**	**2.7**	**2.6**	**2.7**
134	**I-40**		**Through Albuquerque**								
R.Int		6.3	5.9	65.0	69.6	70.0	43,037	54.7	50.5	53.5	49.4
U.Int		19.8	5.6	40.0	59.8	70.0	100,046	42.8	39.2	22.1	21.2
Total Sample		26.1									
TOTAL	**26.1**		**5.7**	**44.1**	**61.9**	**70.0**	**86,178**	**45.2**	**41.4**	**25.8**	**24.6**
Time (HR)								**0.6**	**0.6**	**1.0**	**1.1**

WTTN-Operating Speeds
New Mexico Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
135	**I-40**		**Albuquerque UL - Texas SL**								
R.Int		193.6	4.0	65.0	69.9	71.5	15,726	59.2	56.3	59.2	56.2
U.Int		5.3	4.0	40.0	70.0	70.0	14,200	58.6	56.5	58.6	56.5
Total Sample		198.9									
TOTAL	**198.9**		**4.0**	**63.9**	**69.9**	**71.4**	**15,686**	**59.2**	**56.3**	**59.2**	**56.2**
Time (HR)								**3.4**	**3.5**	**3.4**	**3.5**
410	**US 54**		**Texas SL - I-40**								
R.OPA		230.8	2.1	55.0	58.6	70.0	2,754	46.1	43.9	42.0	39.9
U.OPA		7.4	4.3	35.0	45.0	65.1	21,029	26.6	26.0	26.6	26.0
Total Sample		243.2									
TOTAL	**243.2**		**2.2**	**54.1**	**58.0**	**69.8**	**3,312**	**45.1**	**43.0**	**41.3**	**39.3**
Time (HR)								**5.4**	**5.7**	**5.9**	**6.2**
411	**US 54**		**I-40 - Texas SL**								
R.OPA		29.7	2.0	55.0	63.3	70.0	1,802	46.6	43.9	43.1	40.5
U.OPA		1.1	2.0	35.0	25.0	70.0	3,186	15.0	15.0	14.6	14.6
Total Sample		53.1									
TOTAL	**53.1**		**2.0**	**54.1**	**60.7**	**70.0**	**1,840**	**44.0**	**41.7**	**40.9**	**38.6**
Time (HR)								**1.2**	**1.3**	**1.3**	**1.4**
430	**US 70**		**I-10 to US 54**								
R.OPA		57.2	3.9	50.7	63.8	68.6	8,156	45.5	42.6	44.3	41.6
U.OPA		12.8	4.7	35.0	45.1	66.1	21,343	28.5	28.0	28.1	27.7
Total Sample		71.5									
TOTAL	**71.5**		**4.0**	**46.5**	**58.9**	**68.1**	**10,795**	**40.6**	**38.6**	**39.7**	**37.8**
Time (HR)								**1.8**	**1.9**	**1.8**	**1.9**

WTTN-Operating Speeds
New Mexico Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed		Average Daily Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
34	**I-10**		**Arizona SL - I-25 @ Las Cruces**												
R.Int		136.5	4.0	65.0	14,050	60.7	58.8	61.1	59.2	61.1	59.2	61.1	59.2	61.1	59.2
U.Int		8.1	4.0	40.0	14,464	55.0	52.9	55.2	53.2	55.2	53.2	55.2	53.2	55.2	53.2
Total Sample		144.7													
TOTAL	**144.7**		**4.0**	**62.8**	**14,073**	**60.3**	**58.5**	**60.7**	**58.8**	**60.7**	**58.8**	**60.7**	**58.8**	**60.7**	**58.8**
Time (HR)						**2.4**	**2.5**	**2.4**	**2.5**	**2.4**	**2.5**	**2.4**	**2.5**	**2.4**	**2.5**
35	**I-10**		**I-25 @ Las Cruces - Texas SL (El Paso)**												
R.Int		19.6	4.0	65.0	23,787	61.3	59.3	61.3	59.3	61.3	59.3	61.3	59.3	61.3	59.3
Total Sample		19.6													
TOTAL	**19.6**		**4.0**	**65.0**	**23,787**	**61.3**	**59.3**	**61.3**	**59.3**	**61.3**	**59.3**	**61.3**	**59.3**	**61.3**	**59.3**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
80	**I-25**		**I-10 @ Las Cruces - Albuquerque UL**												
R.Int		197.1	4.0	65.0	6,966	59.7	56.9	60.1	57.2	60.1	57.2	60.1	57.2	60.1	57.2
U.Int		17.4	4.0	40.0	11,892	56.7	54.6	57.0	54.9	57.0	54.9	57.0	54.9	57.0	54.9
Total Sample		214.5													
TOTAL	**214.5**		**4.0**	**61.9**	**7,366**	**59.4**	**56.7**	**59.8**	**57.0**	**59.8**	**57.0**	**59.8**	**57.0**	**59.8**	**57.0**
Time (HR)						**3.6**	**3.8**	**3.6**	**3.8**	**3.6**	**3.8**	**3.6**	**3.8**	**3.6**	**3.8**
81	**I-25**		**Through Albuquerque**												
U.Int		20.8	5.4	40.0	73,326	52.1	49.4	53.4	50.5	53.4	50.5	55.2	52.1	55.2	52.1
Total Sample		20.8													
TOTAL	**20.8**		**5.4**	**40.0**	**73,326**	**52.1**	**49.4**	**53.4**	**50.5**	**53.4**	**50.5**	**55.2**	**52.1**	**55.2**	**52.1**
Time (HR)						**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**
82	**I-25**		**Albuquerque UL - Colorado SL**												
R.Int		207.7	4.0	65.0	11,081	58.4	54.6	59.0	55.1	59.0	55.1	59.0	55.1	59.0	55.1
U.Int		19.1	4.0	40.0	13,430	55.0	50.8	56.0	51.7	56.0	51.7	56.0	51.7	56.0	51.7
Total Sample		226.8													
TOTAL	**226.8**		**4.0**	**61.7**	**11,280**	**58.1**	**54.3**	**58.7**	**54.8**	**58.7**	**54.8**	**58.7**	**54.8**	**58.7**	**54.8**
Time (HR)						**3.9**	**4.2**	**3.9**	**4.1**	**3.9**	**4.1**	**3.9**	**4.1**	**3.9**	**4.1**
133	**I-40**		**Arizona SL - Albuquerque UL**												
R.Int		131.1	4.2	65.0	18,159	58.5	55.4	58.8	55.7	58.8	55.7	58.8	55.7	58.8	55.7
U.Int		17.4	4.0	40.0	18,370	57.3	54.8	58.2	55.7	58.2	55.7	58.2	55.7	58.2	55.7
Total Sample		148.5													
TOTAL	**152.0**		**4.1**	**60.6**	**18,184**	**58.3**	**55.3**	**58.8**	**55.7**	**58.8**	**55.7**	**58.8**	**55.7**	**58.8**	**55.7**
Time (HR)						**2.6**	**2.7**	**2.6**	**2.7**	**2.6**	**2.7**	**2.6**	**2.7**	**2.6**	**2.7**
134	**I-40**		**Through Albuquerque**												
R.Int		6.3	5.9	65.0	43,037	54.7	50.5	56.1	51.6	56.1	51.6	56.1	51.6	56.1	51.6
U.Int		19.8	5.6	40.0	100,046	42.8	39.2	43.4	39.6	43.4	39.6	52.2	46.8	52.2	46.8
Total Sample		26.1													
TOTAL	**26.1**		**5.7**	**44.1**	**86,178**	**45.2**	**41.4**	**45.9**	**42.0**	**45.9**	**42.0**	**53.1**	**47.9**	**53.1**	**47.9**
Time (HR)						**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.5**	**0.5**	**0.5**	**0.5**

WTTN-Operating Speeds
New Mexico Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed S. Truck	Existing Condition Average Daily Speed C. Truck	Average Daily Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
135	**I-40**		**Albuquerque UL - Texas SL**												
R.Int		193.6	4.0	65.0	15,726	59.2	56.3	59.7	56.7	59.7	56.7	59.7	56.7	59.7	56.7
U.Int		5.3	4.0	40.0	14,200	58.6	56.5	59.0	56.8	59.0	56.8	59.0	56.8	59.0	56.8
Total Sample		198.9													
TOTAL	**198.9**		**4.0**	**63.9**	**15,686**	**59.2**	**56.3**	**59.7**	**56.7**	**59.7**	**56.7**	**59.7**	**56.7**	**59.7**	**56.7**
Time (HR)						**3.4**	**3.5**	**3.3**	**3.5**	**3.3**	**3.5**	**3.3**	**3.5**	**3.3**	**3.5**
410	**US 54**		**Texas SL - I-40**												
R.OPA		230.8	2.1	55.0	2,754	46.1	43.9	47.0	44.7	48.2	46.3	48.2	46.3	48.6	46.7
U.OPA		7.4	4.3	35.0	21,029	26.6	26.0	27.3	26.7	27.3	26.7	27.3	26.7	29.2	28.5
Total Sample		243.2													
TOTAL	**243.2**		**2.2**	**54.1**	**3,312**	**45.1**	**43.0**	**46.0**	**43.8**	**47.1**	**45.2**	**47.1**	**45.3**	**47.7**	**45.8**
Time (HR)						**5.4**	**5.7**	**5.3**	**5.6**	**5.2**	**5.4**	**5.2**	**5.4**	**5.1**	**5.3**
411	**US 54**		**I-40 - Texas SL**												
R.OPA		29.7	2.0	55.0	1,802	46.6	43.9	46.6	43.9	48.1	45.7	48.1	45.7	48.4	46.1
U.OPA		1.1	2.0	35.0	3,186	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	26.9	26.9
Total Sample		53.1													
TOTAL	**53.1**		**2.0**	**54.1**	**1,840**	**44.0**	**41.7**	**44.0**	**41.7**	**45.3**	**43.2**	**45.3**	**43.2**	**47.4**	**45.2**
Time (HR)						**1.2**	**1.3**	**1.2**	**1.3**	**1.2**	**1.2**	**1.2**	**1.2**	**1.1**	**1.2**
430	**US 70**		**I-10 to US 54**												
R.OPA		57.2	3.9	50.7	8,156	45.5	42.6	45.6	42.6	47.2	45.0	47.2	45.0	47.5	45.3
U.OPA		12.8	4.7	35.0	21,343	28.5	28.0	28.7	28.2	28.7	28.3	28.7	28.3	30.0	29.5
Total Sample		71.5													
TOTAL	**71.5**		**4.0**	**46.5**	**10,795**	**40.6**	**38.6**	**40.8**	**38.7**	**41.8**	**40.2**	**41.8**	**40.2**	**42.5**	**40.9**
Time (HR)						**1.8**	**1.9**	**1.8**	**1.8**	**1.7**	**1.8**	**1.7**	**1.8**	**1.7**	**1.7**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
New Mexico Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed S. Truck	Existing Condition Peak Hour Speed C. Truck	Peak Hour Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
34	**I-10**		**Arizona SL - I-25 @ Las Cruces**												
R.Int		136.5	4.0	65.0	14,050	60.4	58.6	60.8	59.0	60.8	59.0	60.8	59.0	60.8	59.0
U.Int		8.1	4.0	40.0	14,464	55.0	52.9	55.2	53.2	55.2	53.2	55.2	53.2	55.2	53.2
Total Sample		144.7													
TOTAL	**144.7**		**4.0**	**62.8**	**14,073**	**60.1**	**58.2**	**60.5**	**58.6**	**60.5**	**58.6**	**60.5**	**58.6**	**60.5**	**58.6**
Time (HR)						**2.4**	**2.5**	**2.4**	**2.5**	**2.4**	**2.5**	**2.4**	**2.5**	**2.4**	**2.5**
35	**I-10**		**I-25 @ Las Cruces - Texas SL (El Paso)**												
R.Int		19.6	4.0	65.0	23,787	60.3	58.3	60.3	58.3	60.3	58.3	60.3	58.3	60.3	58.3
Total Sample		19.6													
TOTAL	**19.6**		**4.0**	**65.0**	**23,787**	**60.3**	**58.3**	**60.3**	**58.3**	**60.3**	**58.3**	**60.3**	**58.3**	**60.3**	**58.3**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
80	**I-25**		**I-10 @ Las Cruces - Albuquerque UL**												
R.Int		197.1	4.0	65.0	6,966	59.7	56.9	60.1	57.2	60.1	57.2	60.1	57.2	60.1	57.2
U.Int		17.4	4.0	40.0	11,892	56.7	54.6	57.0	54.9	57.0	54.9	57.0	54.9	57.0	54.9
Total Sample		214.5													
TOTAL	**214.5**		**4.0**	**61.9**	**7,366**	**59.4**	**56.7**	**59.8**	**57.0**	**59.8**	**57.0**	**59.8**	**57.0**	**59.8**	**57.0**
Time (HR)						**3.6**	**3.8**	**3.6**	**3.8**	**3.6**	**3.8**	**3.6**	**3.8**	**3.6**	**3.8**
81	**I-25**		**Through Albuquerque**												
U.Int		20.8	5.4	40.0	73,326	33.2	32.3	33.9	32.9	33.9	32.9	53.7	50.7	53.7	50.7
Total Sample		20.8													
TOTAL	**20.8**		**5.4**	**40.0**	**73,326**	**33.2**	**32.3**	**33.9**	**32.9**	**33.9**	**32.9**	**53.7**	**50.7**	**53.7**	**50.7**
Time (HR)						**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.4**	**0.4**	**0.4**	**0.4**
82	**I-25**		**Albuquerque UL - Colorado SL**												
R.Int		207.7	4.0	65.0	11,081	58.3	54.5	58.9	55.0	58.9	55.0	58.9	55.0	58.9	55.0
U.Int		19.1	4.0	40.0	13,430	55.0	50.8	56.0	51.7	56.0	51.7	56.0	51.7	56.0	51.7
Total Sample		226.8													
TOTAL	**226.8**		**4.0**	**61.7**	**11,280**	**58.0**	**54.2**	**58.6**	**54.7**	**58.6**	**54.7**	**58.6**	**54.7**	**58.6**	**54.7**
Time (HR)						**3.9**	**4.2**	**3.9**	**4.1**	**3.9**	**4.1**	**3.9**	**4.1**	**3.9**	**4.1**
133	**I-40**		**Arizona SL - Albuquerque UL**												
R.Int		131.1	4.2	65.0	18,159	58.5	55.4	58.8	55.7	58.8	55.7	58.8	55.7	58.8	55.7
U.Int		17.4	4.0	40.0	18,370	57.3	54.8	58.2	55.7	58.2	55.7	58.2	55.7	58.2	55.7
Total Sample		148.5													
TOTAL	**152.0**		**4.1**	**60.6**	**18,184**	**58.3**	**55.3**	**58.8**	**55.7**	**58.8**	**55.7**	**58.8**	**55.7**	**58.8**	**55.7**
Time (HR)						**2.6**	**2.7**	**2.6**	**2.7**	**2.6**	**2.7**	**2.6**	**2.7**	**2.6**	**2.7**
134	**I-40**		**Through Albuquerque**												
R.Int		6.3	5.9	65.0	43,037	53.5	49.4	54.8	50.5	54.8	50.5	54.8	50.5	54.8	50.5
U.Int		19.8	5.6	40.0	100,046	22.1	21.2	22.4	21.5	22.4	21.5	51.2	45.9	51.2	45.9
Total Sample		26.1													
TOTAL	**26.1**		**5.7**	**44.1**	**86,178**	**25.8**	**24.6**	**26.2**	**24.9**	**26.2**	**24.9**	**52.0**	**47.0**	**52.0**	**47.0**
Time (HR)						**1.0**	**1.1**	**1.0**	**1.0**	**1.0**	**1.0**	**0.5**	**0.6**	**0.5**	**0.6**

WTTN-Operating Speeds
New Mexico Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed S. Truck	Existing Condition Peak Hour Speed C. Truck	Peak Hour Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
135	**I-40**		**Albuquerque UL - Texas SL**												
R.Int		193.6	4.0	65.0	15,726	59.2	56.2	59.6	56.6	59.6	56.6	59.6	56.6	59.6	56.6
U.Int		5.3	4.0	40.0	14,200	58.6	56.5	59.0	56.8	59.0	56.8	59.0	56.8	59.0	56.8
Total Sample		198.9													
TOTAL	**198.9**		**4.0**	**63.9**	**15,686**	**59.2**	**56.2**	**59.6**	**56.6**	**59.6**	**56.6**	**59.6**	**56.6**	**59.6**	**56.6**
Time (HR)						**3.4**	**3.5**	**3.3**	**3.5**	**3.3**	**3.5**	**3.3**	**3.5**	**3.3**	**3.5**
410	**US 54**		**Texas SL - I-40**												
R.OPA		230.8	2.1	55.0	2,754	42.0	39.9	42.8	40.6	43.8	42.0	45.4	43.5	45.6	43.7
U.OPA		7.4	4.3	35.0	21,029	26.6	26.0	27.3	26.7	27.3	26.7	27.3	26.7	29.2	28.5
Total Sample		243.2													
TOTAL	**243.2**		**2.2**	**54.1**	**3,312**	**41.3**	**39.3**	**42.1**	**40.0**	**43.0**	**41.3**	**44.5**	**42.6**	**44.9**	**43.0**
Time (HR)						**5.9**	**6.2**	**5.8**	**6.1**	**5.7**	**5.9**	**5.5**	**5.7**	**5.4**	**5.7**
411	**US 54**		**I-40 - Texas SL**												
R.OPA		29.7	2.0	55.0	1,802	43.1	40.5	43.1	40.5	44.3	42.1	45.6	43.3	45.9	43.6
U.OPA		1.1	2.0	35.0	3,186	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	26.3	26.3
Total Sample		53.1													
TOTAL	**53.1**		**2.0**	**54.1**	**1,840**	**40.9**	**38.6**	**40.9**	**38.6**	**42.0**	**40.0**	**43.1**	**41.0**	**45.0**	**42.8**
Time (HR)						**1.3**	**1.4**	**1.3**	**1.4**	**1.3**	**1.3**	**1.2**	**1.3**	**1.2**	**1.2**
430	**US 70**		**I-10 to US 54**												
R.OPA		57.2	3.9	50.7	8,156	44.3	41.6	44.4	41.7	45.9	43.9	46.6	44.4	46.9	44.7
U.OPA		12.8	4.7	35.0	21,343	28.1	27.7	28.3	27.9	28.3	27.9	28.3	27.9	29.5	29.1
Total Sample		71.5													
TOTAL	**71.5**		**4.0**	**46.5**	**10,795**	**39.7**	**37.8**	**39.8**	**37.9**	**40.8**	**39.4**	**41.3**	**39.7**	**42.0**	**40.4**
Time (HR)						**1.8**	**1.9**	**1.8**	**1.9**	**1.7**	**1.8**	**1.7**	**1.8**	**1.7**	**1.8**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
North Dakota Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
91	**I-29**		**South Dakota SL - I-94 (Fargo)**								
R.Int		51.3	4.0	65.0	70.0	70.0	5,095	62.7	62.5	62.7	62.5
U.Int		1.6	4.0	40.0	55.0	70.0	20,351	57.1	57.1	57.1	57.1
Total Sample		52.8									
TOTAL	**63.0**		**4.0**	**63.8**	**69.4**	**70.0**	**5,548**	**62.5**	**62.4**	**62.5**	**62.4**
Time (HR)								**1.0**	**1.0**	**1.0**	**1.0**
92	**I-29**		**Fargo (I-94) - Canada**								
R.Int		90.4	4.0	65.0	70.0	70.0	6,188	63.5	63.2	63.5	63.2
U.Int		7.0	4.0	40.0	60.6	70.0	23,620	56.7	54.6	56.7	54.6
Total Sample		97.4									
TOTAL	**154.0**		**4.0**	**62.2**	**69.2**	**70.0**	**7,446**	**62.9**	**62.5**	**62.9**	**62.5**
Time (HR)								**2.4**	**2.5**	**2.4**	**2.5**
353	**US 2**		**Montana SL - US 83 @ Minot**								
R.OPA		91.0	2.6	55.0	65.0	70.0	2,216	50.8	47.5	47.2	44.2
U.OPA		4.0	4.0	35.0	41.8	70.0	7,272	45.3	43.7	45.3	43.7
Total Sample		95.0									
TOTAL	**145.0**		**2.6**	**53.7**	**63.5**	**70.0**	**2,428**	**50.6**	**47.4**	**47.1**	**44.1**
Time (HR)								**2.9**	**3.1**	**3.1**	**3.3**
354	**US 2**		**US 83 @ Minot - Minnesota SL (Grand Forks)**								
R.OPA		113.0	4.0	55.0	65.0	70.0	3,804	61.7	60.4	61.7	60.4
U.OPA		4.1	4.0	35.0	37.3	69.3	11,232	34.1	33.9	34.1	33.9
Total Sample		117.1									
TOTAL	**209.0**		**4.0**	**53.9**	**63.4**	**70.0**	**4,062**	**60.0**	**58.8**	**60.0**	**58.8**
Time (HR)								**3.5**	**3.6**	**3.5**	**3.6**
400	**US 52**		**Canada to I-94 @ Jamestown, ND**								
R.OPA		119.5	2.1	55.0	57.0	70.0	1,615	51.5	50.1	46.0	44.8
U.OPA		3.3	4.0	35.0	29.3	68.1	8,512	19.7	19.3	19.7	19.3
Total Sample		122.8									
TOTAL	**246.0**		**2.1**	**54.2**	**55.6**	**69.9**	**1,800**	**49.4**	**48.0**	**44.4**	**43.3**
Time (HR)								**5.0**	**5.1**	**5.5**	**5.7**

WTTN-Operating Speeds
North Dakota Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
531	**US 281**		**South Dakota SL - I-94**								
R.OPA		44.4	2.0	55.0	65.0	70.0	1,269	51.1	49.9	45.6	44.6
U.OPA		1.3	3.6	35.0	40.0	70.0	14,666	37.5	37.5	37.1	37.1
Total Sample		45.7									
TOTAL	**69.0**		**2.0**	**54.1**	**63.9**	**70.0**	**1,653**	**50.6**	**49.5**	**45.3**	**44.4**
Time (HR)								**1.4**	**1.4**	**1.5**	**1.6**
750	**I-94**		**Montana SL - Bismarck (I-194)**								
R.Int		98.0	4.0	65.0	70.0	70.0	4,687	55.8	51.3	55.8	51.3
U.Int		8.2	4.0	40.0	60.7	70.0	10,424	53.7	49.0	53.7	49.0
Total Sample		106.2									
TOTAL	**156.0**		**4.0**	**62.0**	**69.2**	**70.0**	**5,130**	**55.6**	**51.1**	**55.6**	**51.1**
Time (HR)								**2.8**	**3.1**	**2.8**	**3.1**
751	**I-94**		**Bismarck (I-194) - Minnesota SL (Fargo)**								
R.Int		115.5	4.0	65.0	70.0	70.0	6,971	59.7	57.2	59.7	57.2
U.Int		16.4	4.3	40.0	63.1	70.0	14,946	54.3	50.7	54.0	50.5
Total Sample		131.9									
TOTAL	**196.0**		**4.0**	**60.3**	**69.1**	**70.0**	**7,964**	**59.0**	**56.3**	**59.0**	**56.3**
Time (HR)								**3.3**	**3.5**	**3.3**	**3.5**

WTTN-Operating Speeds
North Dakota Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed		Average Daily Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
91	**I-29**		**South Dakota SL - I-94 (Fargo)**												
R.Int		51.3	4.0	65.0	5,095	62.7	62.5	63.1	63.0	63.1	63.0	63.1	63.0	63.1	63.0
U.Int		1.6	4.0	40.0	20,351	57.1	57.1	57.2	57.2	57.2	57.2	57.2	57.2	57.2	57.2
Total Sample		52.8													
TOTAL	**63.0**		**4.0**	**63.8**	**5,548**	**62.5**	**62.4**	**62.9**	**62.8**	**62.9**	**62.8**	**62.9**	**62.8**	**62.9**	**62.8**
Time (HR)						**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
92	**I-29**		**Fargo (I-94) - Canada**												
R.Int		90.4	4.0	65.0	6,188	63.5	63.2	63.9	63.6	63.9	63.6	63.9	63.6	63.9	63.6
U.Int		7.0	4.0	40.0	23,620	56.7	54.6	56.9	54.8	56.9	54.8	56.9	54.8	56.9	54.8
Total Sample		97.4													
TOTAL	**154.0**		**4.0**	**62.2**	**7,446**	**62.9**	**62.5**	**63.3**	**62.9**	**63.3**	**62.9**	**63.3**	**62.9**	**63.3**	**62.9**
Time (HR)						**2.4**	**2.5**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**
353	**US 2**		**Montana SL - US 83 @ Minot**												
R.OPA		91.0	2.6	55.0	2,216	50.8	47.5	50.8	47.5	51.3	48.3	51.3	48.3	51.3	48.3
U.OPA		4.0	4.0	35.0	7,272	45.3	43.7	45.3	43.7	45.3	43.7	45.3	43.7	53.8	50.8
Total Sample		95.0													
TOTAL	**145.0**		**2.6**	**53.7**	**2,428**	**50.6**	**47.4**	**50.6**	**47.4**	**51.0**	**48.1**	**51.0**	**48.1**	**51.4**	**48.4**
Time (HR)						**2.9**	**3.1**	**2.9**	**3.1**	**2.8**	**3.0**	**2.8**	**3.0**	**2.8**	**3.0**
354	**US 2**		**US 83 @ Minot - Minnesota SL (Grand Forks)**												
R.OPA		113.0	4.0	55.0	3,804	61.7	60.4	61.7	60.4	61.8	60.6	61.8	60.6	61.8	60.6
U.OPA		4.1	4.0	35.0	11,232	34.1	33.9	34.4	34.2	34.4	34.2	34.4	34.2	52.3	51.7
Total Sample		117.1													
TOTAL	**209.0**		**4.0**	**53.9**	**4,062**	**60.0**	**58.8**	**60.1**	**58.8**	**60.1**	**59.0**	**60.1**	**59.0**	**61.4**	**60.2**
Time (HR)						**3.5**	**3.6**	**3.5**	**3.6**	**3.5**	**3.5**	**3.5**	**3.5**	**3.4**	**3.5**
400	**US 52**		**Canada to I-94 @ Jamestown, ND**												
R.OPA		119.5	2.1	55.0	1,615	51.5	50.1	51.5	50.1	51.6	50.2	51.6	50.2	51.6	50.2
U.OPA		3.3	4.0	35.0	8,512	19.7	19.3	19.7	19.3	19.7	19.3	19.7	19.3	29.0	28.0
Total Sample		122.8													
TOTAL	**246.0**		**2.1**	**54.2**	**1,800**	**49.4**	**48.0**	**49.4**	**48.0**	**49.5**	**48.1**	**49.5**	**48.1**	**50.6**	**49.1**
Time (HR)						**5.0**	**5.1**	**5.0**	**5.1**	**5.0**	**5.1**	**5.0**	**5.1**	**4.9**	**5.0**

WTTN-Operating Speeds
North Dakota Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed		Average Daily Speed for Cumulative Improvements: Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
531	**US 281**		**South Dakota SL - I-94**												
R.OPA		44.4	2.0	55.0	1,269	51.1	49.9	51.1	49.9	51.1	49.9	51.1	49.9	51.1	49.9
U.OPA		1.3	3.6	35.0	14,666	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5	46.4	46.4
Total Sample		45.7													
TOTAL	**69.0**		**2.0**	**54.1**	**1,653**	**50.6**	**49.5**	**50.6**	**49.5**	**50.6**	**49.5**	**50.6**	**49.5**	**50.9**	**49.8**
Time (HR)						**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**
750	**I-94**		**Montana SL - Bismarck (I-194)**												
R.Int		98.0	4.0	65.0	4,687	55.8	51.3	56.2	51.6	56.2	51.6	56.2	51.6	56.2	51.6
U.Int		8.2	4.0	40.0	10,424	53.7	49.0	53.8	49.1	53.8	49.1	53.8	49.1	53.8	49.1
Total Sample		106.2													
TOTAL	**156.0**		**4.0**	**62.0**	**5,130**	**55.6**	**51.1**	**56.0**	**51.4**	**56.0**	**51.4**	**56.0**	**51.4**	**56.0**	**51.4**
Time (HR)						**2.8**	**3.1**	**2.8**	**3.0**	**2.8**	**3.0**	**2.8**	**3.0**	**2.8**	**3.0**
751	**I-94**		**Bismarck (I-194) - Minnesota SL (Fargo)**												
R.Int		115.5	4.0	65.0	6,971	59.7	57.2	59.9	57.4	59.9	57.4	59.9	57.4	59.9	57.4
U.Int		16.4	4.3	40.0	14,946	54.3	50.7	54.9	51.2	54.9	51.2	54.9	51.2	54.9	51.2
Total Sample		131.9													
TOTAL	**196.0**		**4.0**	**60.3**	**7,964**	**59.0**	**56.3**	**59.3**	**56.6**	**59.3**	**56.6**	**59.3**	**56.6**	**59.3**	**56.6**
Time (HR)						**3.3**	**3.5**	**3.3**	**3.5**	**3.3**	**3.5**	**3.3**	**3.5**	**3.3**	**3.5**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
North Dakota Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed S. Truck	Existing Condition Peak Hour Speed C. Truck	Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
91	I-29	South Dakota SL - I-94 (Fargo)													
R.Int		51.3	4.0	65.0	5,095	62.7	62.5	63.1	63.0	63.1	63.0	63.1	63.0	63.1	63.0
U.Int		1.6	4.0	40.0	20,351	57.1	57.1	57.2	57.2	57.2	57.2	57.2	57.2	57.2	57.2
Total Sample		52.8													
TOTAL	**63.0**		**4.0**	**63.8**	**5,548**	**62.5**	**62.4**	**62.9**	**62.8**	**62.9**	**62.8**	**62.9**	**62.8**	**62.9**	**62.8**
Time (HR)						**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
92	I-29	Fargo (I-94) - Canada													
R.Int		90.4	4.0	65.0	6,188	63.5	63.2	63.9	63.6	63.9	63.6	63.9	63.6	63.9	63.6
U.Int		7.0	4.0	40.0	23,620	56.7	54.6	56.9	54.8	56.9	54.8	56.9	54.8	56.9	54.8
Total Sample		97.4													
TOTAL	**154.0**		**4.0**	**62.2**	**7,446**	**62.9**	**62.5**	**63.3**	**62.9**	**63.3**	**62.9**	**63.3**	**62.9**	**63.3**	**62.9**
Time (HR)						**2.4**	**2.5**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**
353	US 2	Montana SL - US 83 @ Minot													
R.OPA		91.0	2.6	55.0	2,216	47.2	44.2	47.2	44.2	47.5	44.8	48.8	46.0	48.8	46.0
U.OPA		4.0	4.0	35.0	7,272	45.3	43.7	45.3	43.7	45.3	43.7	45.3	43.7	53.8	50.8
Total Sample		95.0													
TOTAL	**145.0**		**2.6**	**53.7**	**2,428**	**47.1**	**44.1**	**47.1**	**44.1**	**47.4**	**44.8**	**48.6**	**45.9**	**49.0**	**46.2**
Time (HR)						**3.1**	**3.3**	**3.1**	**3.3**	**3.1**	**3.2**	**3.0**	**3.2**	**3.0**	**3.1**
354	US 2	US 83 @ Minot - Minnesota SL (Grand Forks)													
R.OPA		113.0	4.0	55.0	3,804	61.7	60.4	61.7	60.4	61.8	60.6	61.8	60.6	61.8	60.6
U.OPA		4.1	4.0	35.0	11,232	34.1	33.9	34.4	34.2	34.4	34.2	34.4	34.2	51.7	51.1
Total Sample		117.1													
TOTAL	**209.0**		**4.0**	**53.9**	**4,062**	**60.0**	**58.8**	**60.1**	**58.8**	**60.1**	**59.0**	**60.1**	**59.0**	**61.4**	**60.2**
Time (HR)						**3.5**	**3.6**	**3.5**	**3.6**	**3.5**	**3.5**	**3.5**	**3.5**	**3.4**	**3.5**
400	US 52	Canada to I-94 @ Jamestown, ND													
R.OPA		119.5	2.1	55.0	1,615	46.0	44.8	46.0	44.8	46.0	44.9	47.5	46.3	47.5	46.3
U.OPA		3.3	4.0	35.0	8,512	19.7	19.3	19.7	19.3	19.7	19.3	19.7	19.3	28.9	28.0
Total Sample		122.8													
TOTAL	**246.0**		**2.1**	**54.2**	**1,800**	**44.4**	**43.3**	**44.4**	**43.3**	**44.4**	**43.4**	**45.8**	**44.6**	**46.7**	**45.5**
Time (HR)						**5.5**	**5.7**	**5.5**	**5.7**	**5.5**	**5.7**	**5.4**	**5.5**	**5.3**	**5.4**

WTTN-Operating Speeds
North Dakota Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed S. Truck	Existing Condition Peak Hour Speed C. Truck	Peak Hour Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
531	**US 281**		**South Dakota SL - I-94**												
R.OPA		44.4	2.0	55.0	1,269	45.6	44.6	45.6	44.6	45.6	44.6	46.4	45.4	46.4	45.4
U.OPA		1.3	3.6	35.0	14,666	37.1	37.1	37.1	37.1	37.1	37.1	37.1	37.1	46.0	46.0
Total Sample		45.7													
TOTAL	**69.0**		**2.0**	**54.1**	**1,653**	**45.3**	**44.4**	**45.3**	**44.4**	**45.3**	**44.4**	**46.1**	**45.1**	**46.4**	**45.4**
Time (HR)						**1.5**	**1.6**	**1.5**	**1.6**	**1.5**	**1.6**	**1.5**	**1.5**	**1.5**	**1.5**
750	**I-94**		**Montana SL - Bismarck (I-194)**												
R.Int		98.0	4.0	65.0	4,687	55.8	51.3	56.2	51.6	56.2	51.6	56.2	51.6	56.2	51.6
U.Int		8.2	4.0	40.0	10,424	53.7	49.0	53.8	49.1	53.8	49.1	53.8	49.1	53.8	49.1
Total Sample		106.2													
TOTAL	**156.0**		**4.0**	**62.0**	**5,130**	**55.6**	**51.1**	**56.0**	**51.4**	**56.0**	**51.4**	**56.0**	**51.4**	**56.0**	**51.4**
Time (HR)						**2.8**	**3.1**	**2.8**	**3.0**	**2.8**	**3.0**	**2.8**	**3.0**	**2.8**	**3.0**
751	**I-94**		**Bismarck (I-194) - Minnesota SL (Fargo)**												
R.Int		115.5	4.0	65.0	6,971	59.7	57.2	59.9	57.4	59.9	57.4	59.9	57.4	59.9	57.4
U.Int		16.4	4.3	40.0	14,946	54.0	50.5	54.6	51.0	54.6	51.0	54.6	51.0	54.6	51.0
Total Sample		131.9													
TOTAL	**196.0**		**4.0**	**60.3**	**7,964**	**59.0**	**56.3**	**59.2**	**56.5**	**59.2**	**56.5**	**59.2**	**56.5**	**59.2**	**56.5**
Time (HR)						**3.3**	**3.5**	**3.3**	**3.5**	**3.3**	**3.5**	**3.3**	**3.5**	**3.3**	**3.5**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
Oregon Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
6	I-5		California SL - Douglas/Lane CL								
R.Int		143.6	4.0	64.7	64.0	68.8	21,015	53.9	48.2	53.6	48.0
U.Int		24.4	4.0	40.0	61.9	69.6	28,544	55.6	52.5	55.6	52.5
Total Sample		168.0									
TOTAL	**168.0**		**4.0**	**59.4**	**63.7**	**68.9**	**22,108**	**54.1**	**48.8**	**53.9**	**48.6**
Time (HR)								**3.1**	**3.4**	**3.1**	**3.5**
7	I-5		Douglas/Lane CL - S 58 @ Eugene								
R.Int		18.0	4.0	65.0	65.0	70.0	29,261	60.7	58.8	60.1	58.3
U.Int		2.7	4.0	40.0	65.0	70.0	23,891	55.9	52.3	55.9	52.3
Total Sample		20.7									
TOTAL	**20.7**		**4.0**	**60.1**	**65.0**	**70.0**	**28,563**	**60.0**	**57.9**	**59.5**	**57.4**
Time (HR)								**0.3**	**0.4**	**0.3**	**0.4**
8	I-5		S 58 @ Eugene - Portland								
R.Int		70.8	4.6	65.0	65.0	70.0	48,515	61.6	60.0	56.2	54.8
U.Int		27.7	4.7	40.0	58.6	70.0	60,144	55.2	52.2	30.9	30.2
Total Sample		98.5									
TOTAL	**98.5**		**4.6**	**55.3**	**63.1**	**70.0**	**51,782**	**59.6**	**57.6**	**45.7**	**44.6**
Time (HR)								**1.7**	**1.7**	**2.2**	**2.2**
9	I-5		Through Portland (OR)								
U.Int		21.0	5.9	40.0	54.3	68.2	122,424	44.3	41.7	15.2	14.9
Total Sample		21.0									
TOTAL	**21.0**		**5.9**	**40.0**	**54.3**	**68.2**	**122,424**	**44.3**	**41.7**	**15.2**	**14.9**
Time (HR)								**0.5**	**0.5**	**1.4**	**1.4**
190	I-84		In Portland (I-5 - Portland UL)								
U.Int		15.2	5.3	40.0	55.0	69.3	95,444	44.1	42.4	26.1	25.6
Total Sample		15.2									
TOTAL	**15.2**		**5.3**	**40.0**	**55.0**	**69.3**	**95,444**	**44.1**	**42.4**	**26.1**	**25.6**
Time (HR)								**0.3**	**0.4**	**0.6**	**0.6**
191	I-84		Portland UL - I-82								
R.Int		152.4	4.0	65.0	65.0	70.0	13,609	60.5	58.2	60.5	58.2
U.Int		7.8	4.0	40.0	65.0	70.0	16,003	57.7	54.6	57.7	54.6
Total Sample		160.2									
TOTAL	**160.2**		**4.0**	**63.1**	**65.0**	**70.0**	**13,725**	**60.3**	**58.0**	**60.3**	**58.0**
Time (HR)								**2.7**	**2.8**	**2.7**	**2.8**
192	I-84		I-82 - Idaho SL								
R.Int		185.4	4.0	64.3	65.0	69.4	7,747	56.5	51.4	56.5	51.4
U.Int		14.3	4.0	40.0	65.0	70.0	8,984	57.8	54.2	57.8	54.2
Total Sample		199.7									
TOTAL	**199.7**		**4.0**	**61.6**	**65.0**	**69.4**	**7,835**	**56.6**	**51.6**	**56.6**	**51.6**
Time (HR)								**3.5**	**3.9**	**3.5**	**3.9**

WTTN-Operating Speeds
Oregon Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
240	**I-205**		**Washington SL - I-5 S. Portland**								
U.Int		26.1	5.5	40.0	56.9	69.8	107,800	49.2	45.9	16.3	16.2
Total Sample		26.1									
TOTAL	**26.1**		**5.5**	**40.0**	**56.9**	**69.8**	**107,800**	**49.2**	**45.9**	**16.3**	**16.2**
Time (HR)								**0.5**	**0.6**	**1.6**	**1.6**
290	**I-405**		**in Portland**								
U.Int		3.5	6.4	40.0	50.0	62.7	94,923	43.9	40.7	19.4	18.9
Total Sample		3.5									
TOTAL	**3.5**		**6.4**	**40.0**	**50.0**	**62.7**	**94,923**	**43.9**	**40.7**	**19.4**	**18.9**
Time (HR)								**0.1**	**0.1**	**0.2**	**0.2**
500	**US 97/S 58**		**California SL to I-5 @ Eugene**								
R.OPA		175.7	2.2	54.9	55.3	67.5	4,663	45.5	42.9	41.4	39.3
U.OPA		6.9	2.5	35.0	55.9	68.1	6,575	26.6	25.8	26.1	25.3
Total Sample		182.6									
TOTAL	**182.6**		**2.2**	**53.8**	**55.3**	**67.5**	**4,735**	**44.3**	**41.9**	**40.5**	**38.5**
Time (HR)								**4.1**	**4.4**	**4.5**	**4.7**
740	**I-82**		**Washington SL - I-84**								
R.Int		11.0	4.0	65.0	65.0	69.3	6,869	59.1	56.3	59.1	56.3
Total Sample		11.0									
TOTAL	**11.0**		**4.0**	**65.0**	**65.0**	**69.3**	**6,869**	**59.1**	**56.3**	**59.1**	**56.3**
Time (HR)								**0.2**	**0.2**	**0.2**	**0.2**

WTTN-Operating Speeds
Oregon Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed S. Truck	Existing Condition Average Daily Speed C. Truck	Average Daily Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
6	I-5		California SL - Douglas/Lane CL												
R.Int		143.6	4.0	64.7	21,015	53.9	48.2	54.1	48.4	54.1	48.4	54.1	48.4	54.1	48.4
U.Int		24.4	4.0	40.0	28,544	55.6	52.5	56.1	52.9	56.1	52.9	56.1	52.9	56.1	52.9
Total Sample		168.0													
TOTAL	**168.0**		**4.0**	**59.4**	**22,108**	**54.1**	**48.8**	**54.4**	**49.0**	**54.4**	**49.0**	**54.4**	**49.0**	**54.4**	**49.0**
Time (HR)						**3.1**	**3.4**	**3.1**	**3.4**	**3.1**	**3.4**	**3.1**	**3.4**	**3.1**	**3.4**
7	I-5		Douglas/Lane CL - S 58 @ Eugene												
R.Int		18.0	4.0	65.0	29,261	60.7	58.8	60.8	59.0	60.8	59.0	60.8	59.0	60.8	59.0
U.Int		2.7	4.0	40.0	23,891	55.9	52.3	55.9	52.3	55.9	52.3	55.9	52.3	55.9	52.3
Total Sample		20.7													
TOTAL	**20.7**		**4.0**	**60.1**	**28,563**	**60.0**	**57.9**	**60.2**	**58.0**	**60.2**	**58.0**	**60.2**	**58.0**	**60.2**	**58.0**
Time (HR)						**0.3**	**0.4**	**0.3**	**0.4**	**0.3**	**0.4**	**0.3**	**0.4**	**0.3**	**0.4**
8	I-5		S 58 @ Eugene - Portland												
R.Int		70.8	4.6	65.0	48,515	61.6	60.0	61.7	60.1	61.7	60.1	61.7	60.1	61.7	60.1
U.Int		27.7	4.7	40.0	60,144	55.2	52.2	55.3	52.4	55.3	52.4	55.5	52.5	55.5	52.5
Total Sample		98.5													
TOTAL	**98.5**		**4.6**	**55.3**	**51,782**	**59.6**	**57.6**	**59.7**	**57.7**	**59.7**	**57.7**	**59.8**	**57.8**	**59.8**	**57.8**
Time (HR)						**1.7**	**1.7**	**1.6**	**1.7**	**1.6**	**1.7**	**1.6**	**1.7**	**1.6**	**1.7**
9	I-5		Through Portland (OR)												
U.Int		21.0	5.9	40.0	122,424	44.3	41.7	45.2	42.4	45.2	42.4	49.8	46.4	50.3	46.9
Total Sample		21.0													
TOTAL	**21.0**		**5.9**	**40.0**	**122,424**	**44.3**	**41.7**	**45.2**	**42.4**	**45.2**	**42.4**	**49.8**	**46.4**	**50.3**	**46.9**
Time (HR)						**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.4**	**0.5**	**0.4**	**0.4**
190	I-84		In Portland (I-5 - Portland UL)												
U.Int		15.2	5.3	40.0	95,444	44.1	42.4	44.3	42.6	44.3	42.6	53.2	50.6	53.2	50.6
Total Sample		15.2													
TOTAL	**15.2**		**5.3**	**40.0**	**95,444**	**44.1**	**42.4**	**44.3**	**42.6**	**44.3**	**42.6**	**53.2**	**50.6**	**53.2**	**50.6**
Time (HR)						**0.3**	**0.4**	**0.3**	**0.4**	**0.3**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**
191	I-84		Portland UL - I-82												
R.Int		152.4	4.0	65.0	13,609	60.5	58.2	60.5	58.2	60.5	58.2	60.5	58.2	60.5	58.2
U.Int		7.8	4.0	40.0	16,003	57.7	54.6	58.0	54.9	58.0	54.9	58.0	54.9	58.0	54.9
Total Sample		160.2													
TOTAL	**160.2**		**4.0**	**63.1**	**13,725**	**60.3**	**58.0**	**60.4**	**58.0**	**60.4**	**58.0**	**60.4**	**58.0**	**60.4**	**58.0**
Time (HR)						**2.7**	**2.8**	**2.7**	**2.8**	**2.7**	**2.8**	**2.7**	**2.8**	**2.7**	**2.8**
192	I-84		I-82 - Idaho SL												
R.Int		185.4	4.0	64.3	7,747	56.5	51.4	56.6	51.4	56.6	51.4	56.6	51.4	56.6	51.4
U.Int		14.3	4.0	40.0	8,984	57.8	54.2	57.9	54.2	57.9	54.2	57.9	54.2	57.9	54.2
Total Sample		199.7													
TOTAL	**199.7**		**4.0**	**61.6**	**7,835**	**56.6**	**51.6**	**56.6**	**51.6**	**56.6**	**51.6**	**56.6**	**51.6**	**56.6**	**51.6**
Time (HR)						**3.5**	**3.9**	**3.5**	**3.9**	**3.5**	**3.9**	**3.5**	**3.9**	**3.5**	**3.9**
240	I-205		Washington SL - I-5 S. Portland												
U.Int		26.1	5.5	40.0	107,800	49.2	45.9	49.8	46.5	49.8	46.5	52.3	48.6	52.3	48.6
Total Sample		26.1													
TOTAL	**26.1**		**5.5**	**40.0**	**107,800**	**49.2**	**45.9**	**49.8**	**46.5**	**49.8**	**46.5**	**52.3**	**48.6**	**52.3**	**48.6**
Time (HR)						**0.5**	**0.6**	**0.5**	**0.6**	**0.5**	**0.6**	**0.5**	**0.5**	**0.5**	**0.5**

WTTN-Operating Speeds
Oregon Results - Performance Enhancement
Average Daily Speed

						Existing Condition		Average Daily Speed for Cumulative Improvements							
	GIS	Sample	Average	Target	Average	Average Daily Speed		Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	Length (MI)	Length (MI)	No. Lane	Speed	AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
290	**I-405**		**in Portland**												
U.Int		3.5	6.4	40.0	94,923	43.9	40.7	45.2	41.7	45.2	41.7	45.3	41.9	46.5	43.0
Total Sample		3.5													
TOTAL	**3.5**		**6.4**	**40.0**	**94,923**	**43.9**	**40.7**	**45.2**	**41.7**	**45.2**	**41.7**	**45.3**	**41.9**	**46.5**	**43.0**
Time (HR)						**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
500	**US 97/S 58**		**California SL to I-5 @ Eugene**												
R.OPA		175.7	2.2	54.9	4,663	45.5	42.9	45.9	43.3	46.7	45.1	47.0	45.4	47.2	45.6
U.OPA		6.9	2.5	35.0	6,575	26.6	25.8	27.1	26.2	27.6	26.7	27.6	26.7	27.6	26.7
Total Sample		182.6													
TOTAL	**182.6**		**2.2**	**53.8**	**4,735**	**44.3**	**41.9**	**44.7**	**42.2**	**45.5**	**44.0**	**45.7**	**44.2**	**46.0**	**44.4**
Time (HR)						**4.1**	**4.4**	**4.1**	**4.3**	**4.0**	**4.2**	**4.0**	**4.1**	**4.0**	**4.1**
740	**I-82**		**Washington SL - I-84**												
R.Int		11.0	4.0	65.0	6,869	59.1	56.3	59.5	56.6	59.5	56.6	59.5	56.6	59.5	56.6
Total Sample		11.0													
TOTAL	**11.0**		**4.0**	**65.0**	**6,869**	**59.1**	**56.3**	**59.5**	**56.6**	**59.5**	**56.6**	**59.5**	**56.6**	**59.5**	**56.6**
Time (HR)						**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
Oregon Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed		Peak Hour Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
6	**I-5**		**California SL - Douglas/Lane CL**												
R.Int		143.6	4.0	64.7	21,015	53.6	48.0	53.9	48.2	53.9	48.2	53.9	48.2	53.9	48.2
U.Int		24.4	4.0	40.0	28,544	55.6	52.5	56.0	52.9	56.0	52.9	56.0	52.9	56.0	52.9
Total Sample		168.0													
TOTAL	**168.0**		**4.0**	**59.4**	**22,108**	**53.9**	**48.6**	**54.2**	**48.8**	**54.2**	**48.8**	**54.2**	**48.8**	**54.2**	**48.8**
Time (HR)						**3.1**	**3.5**	**3.1**	**3.4**	**3.1**	**3.4**	**3.1**	**3.4**	**3.1**	**3.4**
7	**I-5**		**Douglas/Lane CL - S 58 @ Eugene**												
R.Int		18.0	4.0	65.0	29,261	60.1	58.3	60.3	58.5	60.3	58.5	60.3	58.5	60.3	58.5
U.Int		2.7	4.0	40.0	23,891	55.9	52.3	55.9	52.3	55.9	52.3	55.9	52.3	55.9	52.3
Total Sample		20.7													
TOTAL	**20.7**		**4.0**	**60.1**	**28,563**	**59.5**	**57.4**	**59.7**	**57.6**	**59.7**	**57.6**	**59.7**	**57.6**	**59.7**	**57.6**
Time (HR)						**0.3**	**0.4**	**0.3**	**0.4**	**0.3**	**0.4**	**0.3**	**0.4**	**0.3**	**0.4**
8	**I-5**		**S 58 @ Eugene - Portland**												
R.Int		70.8	4.6	65.0	48,515	56.2	54.8	56.3	54.9	56.3	54.9	58.8	57.4	58.8	57.4
U.Int		27.7	4.7	40.0	60,144	30.9	30.2	31.0	30.3	31.0	30.3	54.2	51.3	54.2	51.3
Total Sample		98.5													
TOTAL	**98.5**		**4.6**	**55.3**	**51,782**	**45.7**	**44.6**	**45.8**	**44.7**	**45.8**	**44.7**	**57.4**	**55.5**	**57.4**	**55.5**
Time (HR)						**2.2**	**2.2**	**2.1**	**2.2**	**2.1**	**2.2**	**1.7**	**1.8**	**1.7**	**1.8**
9	**I-5**		**Through Portland (OR)**												
U.Int		21.0	5.9	40.0	122,424	15.2	14.9	15.5	15.2	15.5	15.2	48.9	45.5	49.2	45.8
Total Sample		21.0													
TOTAL	**21.0**		**5.9**	**40.0**	**122,424**	**15.2**	**14.9**	**15.5**	**15.2**	**15.5**	**15.2**	**48.9**	**45.5**	**49.2**	**45.8**
Time (HR)						**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**0.4**	**0.5**	**0.4**	**0.5**
190	**I-84**		**In Portland (I-5 - Portland UL)**												
U.Int		15.2	5.3	40.0	95,444	26.1	25.6	26.2	25.7	26.2	25.7	52.6	50.1	52.6	50.1
Total Sample		15.2													
TOTAL	**15.2**		**5.3**	**40.0**	**95,444**	**26.1**	**25.6**	**26.2**	**25.7**	**26.2**	**25.7**	**52.6**	**50.1**	**52.6**	**50.1**
Time (HR)						**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.3**	**0.3**	**0.3**	**0.3**
191	**I-84**		**Portland UL - I-82**												
R.Int		152.4	4.0	65.0	13,609	60.5	58.2	60.5	58.2	60.5	58.2	60.5	58.2	60.5	58.2
U.Int		7.8	4.0	40.0	16,003	57.7	54.6	58.0	54.9	58.0	54.9	58.0	54.9	58.0	54.9
Total Sample		160.2													
TOTAL	**160.2**		**4.0**	**63.1**	**13,725**	**60.3**	**58.0**	**60.4**	**58.0**	**60.4**	**58.0**	**60.4**	**58.0**	**60.4**	**58.0**
Time (HR)						**2.7**	**2.8**	**2.7**	**2.8**	**2.7**	**2.8**	**2.7**	**2.8**	**2.7**	**2.8**
192	**I-84**		**I-82 - Idaho SL**												
R.Int		185.4	4.0	64.3	7,747	56.5	51.4	56.6	51.4	56.6	51.4	56.6	51.4	56.6	51.4
U.Int		14.3	4.0	40.0	8,984	57.8	54.2	57.9	54.2	57.9	54.2	57.9	54.2	57.9	54.2
Total Sample		199.7													
TOTAL	**199.7**		**4.0**	**61.6**	**7,835**	**56.6**	**51.6**	**56.6**	**51.6**	**56.6**	**51.6**	**56.6**	**51.6**	**56.6**	**51.6**
Time (HR)						**3.5**	**3.9**	**3.5**	**3.9**	**3.5**	**3.9**	**3.5**	**3.9**	**3.5**	**3.9**

WTTN-Operating Speeds
Oregon Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed S. Truck	Existing Condition Peak Hour Speed C. Truck	Peak Hour Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
240	**I-205**		**Washington SL - I-5 S. Portland**												
U.Int		26.1	5.5	40.0	107,800	16.3	16.2	16.5	16.3	16.5	16.3	51.2	47.5	51.2	47.5
Total Sample		26.1													
TOTAL	**26.1**		**5.5**	**40.0**	**107,800**	**16.3**	**16.2**	**16.5**	**16.3**	**16.5**	**16.3**	**51.2**	**47.5**	**51.2**	**47.5**
Time (HR)						**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**0.5**	**0.5**	**0.5**	**0.5**
290	**I-405**		**in Portland**												
U.Int		3.5	6.4	40.0	94,923	19.4	18.9	19.8	19.3	19.8	19.3	44.6	41.2	44.9	41.5
Total Sample		3.5													
TOTAL	**3.5**		**6.4**	**40.0**	**94,923**	**19.4**	**18.9**	**19.8**	**19.3**	**19.8**	**19.3**	**44.6**	**41.2**	**44.9**	**41.5**
Time (HR)						**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**
500	**US 97/S 58**		**California SL to I-5 @ Eugene**												
R.OPA		175.7	2.2	54.9	4,663	41.4	39.3	41.8	39.6	42.3	41.0	44.7	43.2	44.9	43.3
U.OPA		6.9	2.5	35.0	6,575	26.1	25.3	26.5	25.8	27.0	26.3	27.0	26.3	27.0	26.3
Total Sample		182.6													
TOTAL	**182.6**		**2.2**	**53.8**	**4,735**	**40.5**	**38.5**	**40.9**	**38.8**	**41.4**	**40.2**	**43.6**	**42.1**	**43.8**	**42.3**
Time (HR)						**4.5**	**4.7**	**4.5**	**4.7**	**4.4**	**4.5**	**4.2**	**4.3**	**4.2**	**4.3**
740	**I-82**		**Washington SL - I-84**												
R.Int		11.0	4.0	65.0	6,869	59.1	56.3	59.5	56.6	59.5	56.6	59.5	56.6	59.5	56.6
Total Sample		11.0													
TOTAL	**11.0**		**4.0**	**65.0**	**6,869**	**59.1**	**56.3**	**59.5**	**56.6**	**59.5**	**56.6**	**59.5**	**56.6**	**59.5**	**56.6**
Time (HR)						**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
South Dakota Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
90	**I-29**		**Iowa SL (Sioux City) - I-90 (Sioux Falls)**								
R.Int		71.7	4.0	65.0	69.8	70.0	10,031	63.8	63.5	63.8	63.5
U.Int		12.5	4.0	40.0	65.0	69.9	21,158	59.6	59.0	59.6	59.0
Total Sample		84.2									
TOTAL	**84.2**		**4.0**	**59.5**	**69.1**	**70.0**	**11,681**	**63.1**	**62.8**	**63.1**	**62.8**
Time (HR)								**1.3**	**1.3**	**1.3**	**1.3**
91	**I-29**		**I-90 @ Sioux Falls - North Dakota SL**								
R.Int		166.2	4.0	65.0	69.9	70.0	6,590	62.5	61.6	62.5	61.6
U.Int		2.1	4.0	40.0	70.0	70.0	7,670	63.8	63.4	63.8	63.4
Total Sample		168.3									
TOTAL	**168.3**		**4.0**	**64.5**	**69.9**	**70.0**	**6,604**	**62.5**	**61.7**	**62.5**	**61.7**
Time (HR)								**2.7**	**2.7**	**2.7**	**2.7**
218	**I-90**		**Wyoming SL - Rapid City (S 473)**								
R.Int		50.3	4.0	56.5	70.0	70.0	11,421	63.2	62.2	63.2	62.2
U.Int		11.7	4.0	40.0	68.1	70.0	17,786	61.2	60.6	61.2	60.6
Total Sample		61.9									
TOTAL	**61.9**		**4.0**	**52.5**	**69.6**	**70.0**	**12,621**	**62.8**	**61.9**	**62.8**	**61.9**
Time (HR)								**1.0**	**1.0**	**1.0**	**1.0**
219	**I-90**		**Rapid City (S 473) - US 281**								
R.Int		248.9	4.0	65.0	70.0	70.0	6,214	62.1	61.1	62.1	61.1
Total Sample		248.9									
TOTAL	**248.9**		**4.0**	**65.0**	**70.0**	**70.0**	**6,214**	**62.1**	**61.1**	**62.1**	**61.1**
Time (HR)								**4.0**	**4.1**	**4.0**	**4.1**
220	**I-90**		**US 281 - US 81**								
R.Int		50.4	4.0	65.0	70.0	70.0	7,669	63.4	63.1	63.4	63.1
U.Int		3.0	4.0	40.0	70.0	70.0	8,190	62.6	62.2	62.6	62.2
Total Sample		53.5									
TOTAL	**53.5**		**4.0**	**62.8**	**70.0**	**70.0**	**7,699**	**63.3**	**63.0**	**63.3**	**63.0**
Time (HR)								**0.8**	**0.8**	**0.8**	**0.8**

WTTN-Operating Speeds
South Dakota Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
221	**I-90**		**US 81 - I-29 @ Sioux Falls**								
R.Int		31.4	4.0	65.0	70.0	70.0	9,554	61.7	60.9	61.7	60.9
U.Int		1.0	4.0	40.0	65.0	70.0	11,380	63.2	63.2	63.2	63.2
Total Sample		32.5									
TOTAL	**32.5**		**4.0**	**63.7**	**69.8**	**70.0**	**9,613**	**61.7**	**61.0**	**61.7**	**61.0**
Time (HR)								**0.5**	**0.5**	**0.5**	**0.5**
222	**I-90**		**I-29 - Minnesota SL**								
R.Int		10.0	4.0	65.0	70.0	70.0	11,005	56.4	56.0	56.4	56.0
U.Int		6.0	4.0	40.0	66.5	70.0	13,295	57.6	56.6	57.6	56.6
Total Sample		16.0									
TOTAL	**16.0**		**4.0**	**52.7**	**68.7**	**70.0**	**11,863**	**56.8**	**56.2**	**56.8**	**56.2**
Time (HR)								**0.3**	**0.3**	**0.3**	**0.3**
451	**US 81**		**Nebraska SL - I-90**								
R.OPA		54.6	2.0	55.0	64.8	70.0	1,669	51.7	51.2	46.1	45.7
U.OPA		3.1	3.8	35.0	34.7	70.0	12,423	22.5	22.5	22.4	22.4
Total Sample		57.7									
TOTAL	**57.7**		**2.1**	**53.4**	**62.0**	**70.0**	**2,249**	**48.3**	**47.9**	**43.6**	**43.3**
Time (HR)								**1.2**	**1.2**	**1.3**	**1.3**
452	**US 81**		**I-90 - I-29 @ Watertown**								
R.OPA		94.2	2.0	55.0	62.1	70.0	1,489	50.7	50.1	45.4	44.9
U.OPA		4.2	3.7	35.0	47.4	67.0	10,827	30.2	30.1	30.1	30.1
Total Sample		98.4									
TOTAL	**98.4**		**2.1**	**53.7**	**61.3**	**69.9**	**1,885**	**49.3**	**48.7**	**44.5**	**44.0**
Time (HR)								**2.0**	**2.0**	**2.2**	**2.2**

WTTN-Operating Speeds
South Dakota Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
530	**US 281**	**Nebraska SL - I-90**									
R.OPA		12.9	2.0	55.0	63.2	69.0	1,433	49.5	48.9	44.7	44.1
R.MiA		54.2	2.0	55.0	65.0	70.0	1,410	51.8	50.3	45.9	44.7
Total Sample		67.1									
TOTAL	**67.1**		**2.0**	**55.0**	**64.6**	**69.8**	**1,414**	**51.3**	**50.0**	**45.6**	**44.6**
Time (HR)								**1.3**	**1.3**	**1.5**	**1.5**
531	**US 281**	**I-90 - North Dakota SL**									
R.OPA		100.4	2.5	55.0	64.3	69.9	2,242	48.6	48.3	44.4	44.1
R.MiA		50.4	2.0	55.0	65.0	70.0	961	50.9	50.7	44.6	44.5
U.OPA		2.8	4.0	35.0	42.2	66.0	11,662	32.5	32.2	32.5	32.2
Total Sample		153.7									
TOTAL	**159.0**		**2.4**	**54.4**	**63.9**	**69.8**	**1,994**	**48.9**	**48.6**	**44.2**	**43.9**
Time (HR)								**3.3**	**3.3**	**3.6**	**3.6**
640	**S 79/US 385**	**I-90 @ Rapid City - Nebraska SL (U16B,S238,S437)**									
R.OPA		78.4	2.1	52.6	65.0	70.0	3,132	49.2	48.6	43.3	42.7
U.OPA		6.1	3.0	35.0	47.0	68.0	11,721	28.5	28.3	26.7	26.5
Total Sample		84.5									
TOTAL	**84.5**		**2.1**	**50.8**	**63.2**	**69.8**	**3,753**	**46.8**	**46.2**	**41.4**	**40.9**
Time (HR)								**1.8**	**1.8**	**2.0**	**2.1**

WTTN-Operating Speeds
South Dakota Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed S. Truck	Existing Condition Average Daily Speed C. Truck	Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
90	**I-29**		**Iowa SL (Sioux City) - I-90 (Sioux Falls)**												
R.Int		71.7	4.0	65.0	10,031	63.8	63.5	64.0	63.7	64.0	63.7	64.0	63.7	64.0	63.7
U.Int		12.5	4.0	40.0	21,158	59.6	59.0	61.8	61.2	61.8	61.2	61.8	61.2	61.8	61.2
Total Sample		84.2													
TOTAL	**84.2**		**4.0**	**59.5**	**11,681**	**63.1**	**62.8**	**63.7**	**63.3**	**63.7**	**63.3**	**63.7**	**63.3**	**63.7**	**63.3**
Time (HR)						**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**
91	**I-29**		**I-90 @ Sioux Falls - North Dakota SL**												
R.Int		166.2	4.0	65.0	6,590	62.5	61.6	63.4	62.5	63.4	62.5	63.4	62.5	63.4	62.5
U.Int		2.1	4.0	40.0	7,670	63.8	63.4	63.8	63.4	63.8	63.4	63.8	63.4	63.8	63.4
Total Sample		168.3													
TOTAL	**168.3**		**4.0**	**64.5**	**6,604**	**62.5**	**61.7**	**63.4**	**62.5**	**63.4**	**62.5**	**63.4**	**62.5**	**63.4**	**62.5**
Time (HR)						**2.7**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**
218	**I-90**		**Wyoming Sl**												
R.Int		50.3	4.0	56.5	11,421	63.2	62.2	63.3	62.2	63.3	62.2	63.3	62.2	63.3	62.2
U.Int		11.7	4.0	40.0	17,786	61.2	60.6	61.2	60.6	61.2	60.6	61.2	60.6	61.2	60.6
Total Sample		61.9													
TOTAL	**61.9**		**4.0**	**52.5**	**12,621**	**62.8**	**61.9**	**62.9**	**61.9**	**62.9**	**61.9**	**62.9**	**61.9**	**62.9**	**61.9**
Time (HR)						**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
219	**I-90**		**Rapid City (S 473) - US 281**												
R.Int		248.9	4.0	65.0	6,214	62.1	61.1	62.9	61.9	62.9	61.9	62.9	61.9	62.9	61.9
Total Sample		248.9													
TOTAL	**248.9**		**4.0**	**65.0**	**6,214**	**62.1**	**61.1**	**62.9**	**61.9**	**62.9**	**61.9**	**62.9**	**61.9**	**62.9**	**61.9**
Time (HR)						**4.0**	**4.1**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**
220	**I-90**		**US 281 - US 81**												
R.Int		50.4	4.0	65.0	7,669	63.4	63.1	63.7	63.4	63.7	63.4	63.7	63.4	63.7	63.4
U.Int		3.0	4.0	40.0	8,190	62.6	62.2	62.6	62.2	62.6	62.2	62.6	62.2	62.6	62.2
Total Sample		53.5													
TOTAL	**53.5**		**4.0**	**62.8**	**7,699**	**63.3**	**63.0**	**63.6**	**63.3**	**63.6**	**63.3**	**63.6**	**63.3**	**63.6**	**63.3**
Time (HR)						**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**
221	**I-90**		**US 81 - I-29 @ Sioux Falls**												
R.Int		31.4	4.0	65.0	9,554	61.7	60.9	62.4	61.6	62.4	61.6	62.4	61.6	62.4	61.6
U.Int		1.0	4.0	40.0	11,380	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2
Total Sample		32.5													
TOTAL	**32.5**		**4.0**	**63.7**	**9,613**	**61.7**	**61.0**	**62.4**	**61.6**	**62.4**	**61.6**	**62.4**	**61.6**	**62.4**	**61.6**
Time (HR)						**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**

WTTN-Operating Speeds
South Dakota Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed S. Truck	C. Truck	Average Daily Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	C. Truck	Curves and Grades (2) S. Truck	C. Truck	Congestion (3) S. Truck	C. Truck	Speed Limit (4) S. Truck	C. Truck
222	**I-90**		**I-29 - Minnesota SL**												
R.Int		10.0	4.0	65.0	11,005	56.4	56.0	62.2	61.6	62.2	61.6	62.2	61.6	62.2	61.6
U.Int		6.0	4.0	40.0	13,295	57.6	56.6	60.8	59.6	60.8	59.6	60.8	59.6	60.8	59.6
Total Sample		16.0													
TOTAL	**16.0**		**4.0**	**52.7**	**11,863**	**56.8**	**56.2**	**61.6**	**60.8**	**61.6**	**60.8**	**61.6**	**60.8**	**61.6**	**60.8**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
451	**US 81**		**Nebraska SL - I-90**												
R.OPA		54.6	2.0	55.0	1,669	51.7	51.2	52.5	51.9	52.6	52.1	52.6	52.1	52.7	52.1
U.OPA		3.1	3.8	35.0	12,423	22.5	22.5	23.3	23.3	23.3	23.3	23.3	23.3	32.6	32.5
Total Sample		57.7													
TOTAL	**57.7**		**2.1**			**48.3**	**47.9**	**49.1**	**48.7**	**49.3**	**48.8**	**49.3**	**48.8**	**51.0**	**50.5**
Time (HR)						**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.1**	**1.1**
452	**US 81**		**I-90 - I-29 @ Watertown**												
R.OPA		94.2	2.0	55.0	1,489	50.7	50.1	51.0	50.4	51.1	50.4	51.1	50.4	52.2	51.5
U.OPA		4.2	3.7	35.0	10,827	30.2	30.1	30.7	30.6	30.8	30.7	30.8	30.7	33.7	33.5
Total Sample		98.4													
TOTAL	**98.4**		**2.1**	**53.7**	**1,885**	**49.3**	**48.7**	**49.6**	**49.0**	**49.7**	**49.1**	**49.7**	**49.1**	**51.0**	**50.3**
Time (HR)						**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**1.9**	**2.0**
530	**US 281**		**Nebraska SL - I-90**												
R.OPA		12.9	2.0	55.0	1,433	49.5	48.9	49.5	48.9	50.6	49.9	50.6	49.9	50.9	50.3
R.MiA		54.2	2.0	55.0	1,410	51.8	50.3	51.8	50.3	51.9	50.7	51.9	50.7	51.9	50.7
Total Sample		67.1													
TOTAL	**67.1**		**2.0**	**55.0**	**1,414**	**51.3**	**50.0**	**51.3**	**50.0**	**51.7**	**50.6**	**51.7**	**50.6**	**51.7**	**50.6**
Time (HR)						**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**
531	**US 281**		**I-90 - North Dakota SL**												
R.OPA		100.4	2.5	55.0	2,242	48.6	48.3	49.6	49.3	50.0	49.7	50.0	49.7	50.2	49.9
R.MiA		50.4	2.0	55.0	961	50.9	50.7	52.4	52.2	52.4	52.2	52.4	52.2	52.4	52.2
U.OPA		2.8	4.0	35.0	11,662	32.5	32.2	32.8	32.6	33.1	32.8	33.1	32.8	40.1	39.7
Total Sample		153.7													
TOTAL	**159.0**		**2.4**	**54.4**	**1,994**	**48.9**	**48.6**	**50.0**	**49.7**	**50.3**	**50.0**	**50.3**	**50.0**	**50.6**	**50.4**
Time (HR)						**3.3**	**3.3**	**3.2**	**3.2**	**3.2**	**3.2**	**3.2**	**3.2**	**3.1**	**3.2**
640	**S 79/US 385**		**I-90 @ Rapid City - Nebraska SL (U16B,S238,S437)**												
R.OPA		78.4	2.1	52.6	3,132	49.2	48.6	49.2	48.6	49.3	48.7	49.4	48.7	49.4	48.7
U.OPA		6.1	3.0	35.0	11,721	28.5	28.3	28.5	28.3	28.8	28.7	28.8	28.7	28.8	28.7
Total Sample		84.5													
TOTAL	**84.5**		**2.1**	**50.8**	**3,753**	**46.8**	**46.2**	**46.8**	**46.2**	**46.9**	**46.3**	**47.0**	**46.4**	**47.0**	**46.4**
Time (HR)						**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
South Dakota Results - Performance Enhancement
Peak Hour Speed

						Existing Condition Peak Hour Speed		Peak Hour Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
90	**I-29**		**Iowa SL (Sioux City) - I-90 (Sioux Falls)**												
R.Int		71.7	4.0	65.0	10,031	63.8	63.5	64.0	63.7	64.0	63.7	64.0	63.7	64.0	63.7
U.Int		12.5	4.0	40.0	21,158	59.6	59.0	61.8	61.2	61.8	61.2	61.8	61.2	61.8	61.2
Total Sample		84.2													
TOTAL	**84.2**		**4.0**	**59.5**	**11,681**	**63.1**	**62.8**	**63.7**	**63.3**	**63.7**	**63.3**	**63.7**	**63.3**	**63.7**	**63.3**
Time (HR)						**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**
91	**I-29**		**I-90 @ Sioux Falls - North Dakota SL**												
R.Int		166.2	4.0	65.0	6,590	62.5	61.6	63.4	62.5	63.4	62.5	63.4	62.5	63.4	62.5
U.Int		2.1	4.0	40.0	7,670	63.8	63.4	63.8	63.4	63.8	63.4	63.8	63.4	63.8	63.4
Total Sample		168.3													
TOTAL	**168.3**		**4.0**	**64.5**	**6,604**	**62.5**	**61.7**	**63.4**	**62.5**	**63.4**	**62.5**	**63.4**	**62.5**	**63.4**	**62.5**
Time (HR)						**2.7**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**
218	**I-90**		**Wyoming SL - Rapid City (S 473)**												
R.Int		50.3	4.0	56.5	11,421	63.2	62.2	63.3	62.2	63.3	62.2	63.3	62.2	63.3	62.2
U.Int		11.7	4.0	40.0	17,786	61.2	60.6	61.2	60.6	61.2	60.6	61.2	60.6	61.2	60.6
Total Sample		61.9													
TOTAL	**61.9**		**4.0**	**52.5**	**12,621**	**62.8**	**61.9**	**62.9**	**61.9**	**62.9**	**61.9**	**62.9**	**61.9**	**62.9**	**61.9**
Time (HR)						**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
219	**I-90**		**Rapid City (S 473) - US 281**												
R.Int		248.9	4.0	65.0	6,214	62.1	61.1	62.9	61.9	62.9	61.9	62.9	61.9	62.9	61.9
Total Sample		248.9													
TOTAL	**248.9**		**4.0**	**65.0**	**6,214**	**62.1**	**61.1**	**62.9**	**61.9**	**62.9**	**61.9**	**62.9**	**61.9**	**62.9**	**61.9**
Time (HR)						**4.0**	**4.1**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**
220	**I-90**		**US 281 - US 81**												
R.Int		50.4	4.0	65.0	7,669	63.4	63.1	63.7	63.4	63.7	63.4	63.7	63.4	63.7	63.4
U.Int		3.0	4.0	40.0	8,190	62.6	62.2	62.6	62.2	62.6	62.2	62.6	62.2	62.6	62.2
Total Sample		53.5													
TOTAL	**53.5**		**4.0**	**62.8**	**7,699**	**63.3**	**63.0**	**63.6**	**63.3**	**63.6**	**63.3**	**63.6**	**63.3**	**63.6**	**63.3**
Time (HR)						**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**
221	**I-90**		**US 81 - I-29 @ Sioux Falls**												
R.Int		31.4	4.0	65.0	9,554	61.7	60.9	62.4	61.6	62.4	61.6	62.4	61.6	62.4	61.6
U.Int		1.0	4.0	40.0	11,380	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2
Total Sample		32.5													
TOTAL	**32.5**		**4.0**	**63.7**	**9,613**	**61.7**	**61.0**	**62.4**	**61.6**	**62.4**	**61.6**	**62.4**	**61.6**	**62.4**	**61.6**
Time (HR)						**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
222	**I-90**		**I-29 - Minnesota SL**												
R.Int		10.0	4.0	65.0	11,005	56.4	56.0	62.2	61.6	62.2	61.6	62.2	61.6	62.2	61.6
U.Int		6.0	4.0	40.0	13,295	57.6	56.6	60.8	59.6	60.8	59.6	60.8	59.6	60.8	59.6
Total Sample		16.0													
TOTAL	**16.0**		**4.0**	**52.7**	**11,863**	**56.8**	**56.2**	**61.6**	**60.8**	**61.6**	**60.8**	**61.6**	**60.8**	**61.6**	**60.8**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**

WTTN-Operating Speeds
South Dakota Results - Performance Enhancement
Peak Hour Speed

						Existing Condition		Peak Hour Speed for Cumulative Improvements							
						Peak Hour Speed		Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
451	**US 81**		**Nebraska SL - I-90**												
R.OPA		54.6	2.0	55.0	1,669	46.1	45.7	46.8	46.3	46.9	46.5	48.0	47.5	48.0	47.5
U.OPA		3.1	3.8	35.0	12,423	22.4	22.4	23.2	23.2	23.2	23.2	23.2	23.2	32.5	32.4
Total Sample		57.7													
TOTAL	**57.7**		**2.1**	**53.4**	**2,249**	**43.6**	**43.3**	**44.3**	**43.9**	**44.5**	**44.1**	**45.4**	**45.0**	**46.8**	**46.4**
Time (HR)						**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.2**	**1.2**
452	**US 81**		**I-90 - I-29 @ Watertown**												
R.OPA		94.2	2.0	55.0	1,489	45.4	44.9	45.7	45.1	45.7	45.2	46.2	45.6	47.0	46.4
U.OPA		4.2	3.7	35.0	10,827	30.1	30.1	30.6	30.5	30.7	30.6	30.7	30.6	33.5	33.4
Total Sample		98.4													
TOTAL	**98.4**		**2.1**	**53.7**	**1,885**	**44.5**	**44.0**	**44.7**	**44.2**	**44.8**	**44.3**	**45.2**	**44.7**	**46.2**	**45.6**
Time (HR)						**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.1**	**2.2**
530	**US 281**		**Nebraska SL - I-90**												
R.OPA		12.9	2.0	55.0	1,433	44.7	44.1	44.7	44.1	45.5	45.0	45.7	45.2	45.7	45.2
R.MiA		54.2	2.0	55.0	1,410	45.9	44.7	45.9	44.7	46.0	45.0	47.1	46.1	47.1	46.1
Total Sample		67.1													
TOTAL	**67.1**		**2.0**	**55.0**	**1,414**	**45.6**	**44.6**	**45.6**	**44.6**	**45.9**	**45.0**	**46.8**	**45.9**	**46.8**	**45.9**
Time (HR)						**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.4**	**1.5**	**1.4**	**1.5**
531	**US 281**		**I-90 - North Dakota SL**												
R.OPA		100.4	2.5	55.0	2,242	44.4	44.1	45.3	45.0	45.6	45.3	46.5	46.2	46.6	46.4
R.MiA		50.4	2.0	55.0	961	44.6	44.5	46.0	45.8	46.0	45.8	47.3	47.1	47.3	47.1
U.OPA		2.8	4.0	35.0	11,662	32.5	32.2	32.8	32.6	33.1	32.8	33.1	32.8	40.1	39.7
Total Sample		153.7													
TOTAL	**159.0**		**2.4**	**54.4**	**1,994**	**44.2**	**43.9**	**45.2**	**45.0**	**45.4**	**45.2**	**46.4**	**46.2**	**46.7**	**46.5**
Time (HR)						**3.6**	**3.6**	**3.5**	**3.5**	**3.5**	**3.5**	**3.4**	**3.4**	**3.4**	**3.4**
640	**S 79/US 385**		**I-90 @ Rapid City - Nebraska SL (U16B,S238,S437)**												
R.OPA		78.4	2.1	52.6	3,132	43.3	42.7	43.3	42.7	43.3	42.8	46.3	45.7	46.3	45.7
U.OPA		6.1	3.0	35.0	11,721	26.7	26.5	26.8	26.6	27.0	26.9	27.0	26.9	27.0	26.9
Total Sample		84.5													
TOTAL	**84.5**		**2.1**	**50.8**	**3,753**	**41.4**	**40.9**	**41.4**	**40.9**	**41.5**	**41.1**	**44.1**	**43.5**	**44.1**	**43.5**
Time (HR)						**2.0**	**2.1**	**2.0**	**2.1**	**2.0**	**2.1**	**1.9**	**1.9**	**1.9**	**1.9**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
Texas Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
36	**I-10**		**Through El Paso (NM SL - El Paso UL)**								
R.Int		5.2	4.0	65.0	70.0	70.0	30,409	59.5	55.4	58.7	54.6
U.Int		22.7	6.4	40.0	58.9	69.8	91,396	55.1	51.8	24.2	23.8
Total Sample		28.0									
TOTAL	**37.0**		**5.9**	**43.1**	**60.7**	**69.8**	**79,981**	**55.9**	**52.4**	**27.2**	**26.6**
Time (HR)								**0.7**	**0.7**	**1.4**	**1.4**
37	**I-10**		**El Paso UL - I-20**								
R.Int		109.2	4.0	63.4	68.9	70.0	10,167	59.4	55.9	59.4	55.9
Total Sample		109.2									
TOTAL	**149.0**		**4.0**	**63.4**	**68.9**	**70.0**	**10,167**	**59.4**	**55.9**	**59.4**	**55.9**
Time (HR)								**2.5**	**2.7**	**2.5**	**2.7**
38	**I-10**		**I-20 - San Antonio UL**								
R.Int		203.3	4.0	64.7	66.2	70.0	6,845	60.7	56.5	60.7	56.5
U.Int		3.1	4.0	40.0	65.0	70.0	5,387	58.4	53.8	58.4	53.8
Total Sample		206.4									
TOTAL	**364.0**		**4.0**	**64.1**	**66.2**	**70.0**	**6,823**	**60.7**	**56.5**	**60.6**	**56.4**
Time (HR)								**6.0**	**6.4**	**6.0**	**6.5**
39	**I-10**		**Through San Antonio**								
U.Int		28.2	4.7	40.0	55.0	70.0	59,197	53.6	50.0	34.3	33.0
Total Sample		28.2									
TOTAL	**37.0**		**4.7**	**40.0**	**55.0**	**70.0**	**59,197**	**53.6**	**50.0**	**34.3**	**33.0**
Time (HR)								**0.7**	**0.7**	**1.1**	**1.1**
40	**I-10**		**San Antonio UL - Houston UL**								
R.Int		75.9	4.1	65.0	69.8	70.0	22,530	61.5	58.8	61.3	58.7
U.Int		3.2	4.0	40.0	70.0	70.0	26,567	60.1	57.5	60.1	57.5
Total Sample		79.0									
TOTAL	**164.0**		**4.1**	**63.4**	**69.8**	**70.0**	**22,692**	**61.4**	**58.8**	**61.3**	**58.7**
Time (HR)								**2.7**	**2.8**	**2.7**	**2.8**
41	**I-10**		**Through Houston**								
U.Int		31.3	6.5	40.0	62.2	70.0	105,072	57.7	57.4	22.5	22.5
Total Sample		31.3									
TOTAL	**37.0**		**6.5**	**40.0**	**62.2**	**70.0**	**105,072**	**57.7**	**57.4**	**22.5**	**22.5**
Time (HR)								**0.6**	**0.6**	**1.6**	**1.6**
42	**I-10**		**Houston UL - Louisiana SL**								
R.Int		61.9	4.5	65.0	66.1	70.0	29,056	62.1	59.0	59.4	56.5
U.Int		18.4	4.9	40.0	59.9	69.9	54,225	57.1	55.7	50.9	49.2
Total Sample		80.3									
TOTAL	**89.0**		**4.6**	**56.9**	**64.6**	**70.0**	**34,814**	**60.9**	**58.2**	**57.2**	**54.6**
Time (HR)								**1.5**	**1.5**	**1.6**	**1.6**

WTTN-Operating Speeds
Texas Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed		Peak Hour Speed	
								S. Truck	C. Truck	S. Truck	C. Truck
100	**I-30**		**In Dallas/Ft. Worth**								
U.Int		54.2	6.0	40.0	59.9	70.0	95,138	57.3	54.8	23.8	23.5
Total Sample		54.2									
TOTAL	**70.0**		**6.0**	**40.0**	**59.9**	**70.0**	**95,138**	**57.3**	**54.8**	**23.8**	**23.5**
Time (HR)								**1.2**	**1.3**	**2.9**	**3.0**
101	**I-30**		**Dallas/Ft. Worth UL - Texarkana (Arkansas SL)**								
R.Int		56.4	4.0	65.0	65.5	70.0	21,376	63.8	62.8	63.8	62.8
U.Int		29.9	4.0	40.0	66.9	70.0	27,398	63.6	63.2	63.5	63.1
Total Sample		86.3									
TOTAL	**151.0**		**4.0**	**53.4**	**66.0**	**70.0**	**23,462**	**63.8**	**63.0**	**63.7**	**62.9**
Time (HR)								**2.4**	**2.4**	**2.4**	**2.4**
110	**I-35**		**Laredo - San Antonio UL**								
R.Int		92.4	4.0	65.0	70.0	70.0	10,667	60.9	58.4	60.9	58.4
U.Int		11.0	4.0	40.0	62.6	70.0	29,000	56.3	53.3	56.3	53.3
Total Sample		103.4									
TOTAL	**140.0**		**4.0**	**61.0**	**69.1**	**70.0**	**12,615**	**60.3**	**57.8**	**60.3**	**57.8**
Time (HR)								**2.3**	**2.4**	**2.3**	**2.4**
111	**I-35**		**Through San Antonio**								
U.Int		11.2	6.1	40.0	64.5	70.0	88,125	56.1	53.2	26.6	26.0
Total Sample		11.2									
TOTAL	**35.0**		**6.1**	**40.0**	**64.5**	**70.0**	**88,125**	**56.1**	**53.2**	**26.6**	**26.0**
Time (HR)								**0.6**	**0.7**	**1.3**	**1.3**
112	**I-35**		**San Antonio UL - Dallas/Ft. Worth UL**								
R.Int		56.4	4.6	65.0	67.8	70.0	46,905	60.2	56.8	55.1	51.9
U.Int		83.2	5.2	40.0	60.3	70.0	77,733	55.2	51.7	30.9	29.9
Total Sample		139.5									
TOTAL	**253.0**		**5.0**	**47.4**	**63.1**	**70.0**	**65,276**	**57.1**	**53.6**	**37.6**	**36.1**
Time (HR)								**4.4**	**4.7**	**6.7**	**7.0**
113	**I-35 E/W**		**Through Dallas/Ft. Worth**								
R.Int		40.8	4.0	65.0	68.1	70.0	19,448	59.7	56.1	59.2	55.7
U.Int		69.5	5.9	40.0	66.1	69.9	90,080	55.3	52.3	25.6	25.2
Total Sample		110.2									
TOTAL	**130.0**		**5.2**	**46.6**	**66.9**	**70.0**	**63,950**	**56.9**	**53.7**	**32.4**	**31.6**
Time (HR)								**2.3**	**2.4**	**4.0**	**4.1**
114	**I-35**		**Dallas/Ft. Worth UL - Oklahoma SL**								
R.Int		15.6	4.0	65.0	70.0	70.0	24,965	59.1	56.2	59.1	56.2
U.Int		3.3	4.0	40.0	70.0	70.0	27,709	59.9	57.7	59.9	57.7
Total Sample		18.9									
TOTAL	**39.0**		**4.0**	**58.6**	**70.0**	**70.0**	**25,447**	**59.3**	**56.4**	**59.3**	**56.4**
Time (HR)								**0.7**	**0.7**	**0.7**	**0.7**

WTTN-Operating Speeds
Texas Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
120	**I-37**		**Through San Antonio (I-35 - UL)**								
U.Int		10.9	5.6	40.0	60.1	70.0	69,020	55.8	52.5	48.8	45.6
Total Sample		10.9									
TOTAL	**17.0**		**5.6**	**40.0**	**60.1**	**70.0**	**69,020**	**55.8**	**52.5**	**48.8**	**45.6**
Time (HR)								**0.3**	**0.3**	**0.3**	**0.4**
121	**I-37**		**San Antonio UL - Corpus Christi UL**								
R.Int		58.5	4.0	65.0	69.2	70.0	12,864	60.7	57.5	60.7	57.5
Total Sample		58.5									
TOTAL	**119.0**		**4.0**	**65.0**	**69.2**	**70.0**	**12,864**	**60.7**	**57.5**	**60.7**	**57.5**
Time (HR)								**2.0**	**2.1**	**2.0**	**2.1**
122	**I-37**		**Through Corpus Christi (UL - US 181)**								
U.Int		15.8	5.5	40.0	55.0	70.0	45,893	55.0	52.0	54.2	51.1
Total Sample		15.8									
TOTAL	**15.8**		**5.5**	**40.0**	**55.0**	**70.0**	**45,893**	**55.0**	**52.0**	**54.2**	**51.1**
Time (HR)								**0.3**	**0.3**	**0.3**	**0.3**
135	**I-40**		**New Mexico SL - Amarillo UL**								
R.Int		34.7	4.0	65.0	68.3	70.0	11,371	65.2	65.2	65.2	65.2
Total Sample		34.7									
TOTAL	**62.0**		**4.0**	**65.0**	**68.3**	**70.0**	**11,371**	**65.2**	**65.2**	**65.2**	**65.2**
Time (HR)								**1.0**	**1.0**	**1.0**	**1.0**
136	**I-40**		**Through Amarillo**								
U.Int		15.7	5.6	40.0	56.9	70.0	50,695	59.7	59.7	49.5	49.5
Total Sample		15.7									
TOTAL	**15.7**		**5.6**	**40.0**	**56.9**	**70.0**	**50,695**	**59.7**	**59.7**	**49.5**	**49.5**
Time (HR)								**0.3**	**0.3**	**0.3**	**0.3**
137	**I-40**		**Amarillo UL- Oklahoma SL**								
R.Int		60.7	4.0	65.0	67.2	70.0	12,623	63.1	61.3	63.1	61.3
Total Sample		60.7									
TOTAL	**99.0**		**4.0**	**65.0**	**67.2**	**70.0**	**12,623**	**63.1**	**61.3**	**63.1**	**61.3**
Time (HR)								**1.6**	**1.6**	**1.6**	**1.6**
140	**I-44**		**US 287 - Oklahoma SL**								
R.Int		2.6	4.0	65.0	70.0	70.0	16,557	60.3	57.6	60.3	57.6
U.Int		12.0	4.9	40.0	67.5	67.5	22,996	54.0	50.4	54.0	50.3
Total Sample		14.6									
TOTAL	**14.6**		**4.7**	**42.9**	**68.0**	**68.0**	**21,861**	**55.0**	**51.6**	**55.0**	**51.5**
Time (HR)								**0.3**	**0.3**	**0.3**	**0.3**
150	**I-45**		**In Dallas/Ft. Worth**								
U.Int		12.3	4.6	40.0	56.5	70.0	43,089	53.9	50.3	52.7	49.1
Total Sample		12.3									
TOTAL	**18.0**		**4.6**	**40.0**	**56.5**	**70.0**	**43,089**	**53.9**	**50.3**	**52.7**	**49.1**
Time (HR)								**0.3**	**0.4**	**0.3**	**0.4**

WTTN-Operating Speeds
Texas Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
151	**I-45**		**Dallas/Ft. Worth UL - Houston UL**								
R.Int		61.5	4.1	65.0	66.0	70.0	36,566	63.2	62.3	51.8	51.2
U.Int		19.7	4.0	40.0	66.9	70.0	34,968	59.7	57.0	37.4	36.6
Total Sample		81.2									
TOTAL	**200.0**		**4.1**	**56.4**	**66.2**	**70.0**	**36,178**	**62.3**	**60.9**	**47.4**	**46.7**
Time (HR)								**3.2**	**3.3**	**4.2**	**4.3**
152	**I-45**		**Through Houston**								
U.Int		26.8	7.8	40.0	58.8	70.0	165,450	50.4	49.7	18.4	18.3
Total Sample		26.8									
TOTAL	**34.0**		**7.8**	**40.0**	**58.8**	**70.0**	**165,450**	**50.4**	**49.7**	**18.4**	**18.3**
Time (HR)								**0.7**	**0.7**	**1.8**	**1.9**
153	**I-45**		**Houston UL - Galveston**								
R.Int		4.8	5.0	65.0	59.7	70.0	78,896	53.8	52.0	35.5	35.0
U.Int		20.3	6.0	40.0	55.0	70.0	54,149	57.1	56.4	55.4	54.6
Total Sample		25.1									
TOTAL	**32.0**		**5.8**	**43.2**	**55.8**	**70.0**	**58,883**	**56.4**	**55.5**	**50.0**	**49.4**
Time (HR)								**0.6**	**0.6**	**0.6**	**0.6**
410	**US 54**		**I-10 @ El Paso - New Mexico SL**								
R.MaC		1.1	2.0	55.0	55.0	70.0	1,550	51.3	50.1	45.3	44.4
U.OFE		9.0	4.7	40.0	60.0	70.0	47,906	55.9	52.3	53.5	49.9
U.OPA		3.0	6.0	35.0	45.0	70.0	19,354	29.3	29.2	29.3	29.2
Total Sample		13.1									
TOTAL	**20.0**		**4.8**	**39.6**	**55.4**	**70.0**	**37,501**	**46.0**	**44.1**	**44.5**	**42.5**
Time (HR)								**0.4**	**0.5**	**0.4**	**0.5**
411	**US 54**		**New Mexico SL - Oklahoma SL (through Texas)**								
R.OPA		89.3	2.0	55.0	69.1	70.0	2,010	52.6	52.5	47.1	47.0
U.OPA		1.3	4.0	35.0	30.0	55.0	5,909	19.0	19.0	19.0	19.0
Total Sample		90.6									
TOTAL	**92.0**		**2.1**	**54.6**	**67.9**	**69.7**	**2,065**	**51.3**	**51.3**	**46.1**	**46.0**
Time (HR)								**1.8**	**1.8**	**2.0**	**2.0**
420	**US 59**		**Laredo - Houston UL**								
R.OPA		108.9	2.6	55.0	58.5	70.0	8,975	52.1	50.6	48.1	46.8
U.OFE		2.6	4.0	40.0	55.0	70.0	58,216	56.8	56.4	56.8	56.4
U.OPA		15.5	2.9	35.0	49.3	68.7	9,806	28.5	28.2	28.2	27.9
Total Sample		127.0									
TOTAL	**290.0**		**2.7**	**51.1**	**57.1**	**69.8**	**10,087**	**47.4**	**46.2**	**44.4**	**43.3**
Time (HR)								**6.1**	**6.3**	**6.5**	**6.7**
421	**US 59**		**Through Houston**								
U.OFE		31.6	6.9	40.0	58.4	70.0	153,188	54.3	53.6	21.4	21.2
Total Sample		31.6									
TOTAL	**43.0**		**6.9**	**40.0**	**58.4**	**70.0**	**153,188**	**54.3**	**53.6**	**21.4**	**21.2**
Time (HR)								**0.8**	**0.8**	**2.0**	**2.0**

WTTN-Operating Speeds
Texas Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
422	**US 59**		**Houston UL - I-30**								
R.OPA		68.4	4.0	55.0	55.4	70.0	25,048	52.6	51.4	44.8	43.9
R.MiA		1.7	4.0	55.0	44.2	70.0	5,363	35.5	35.5	35.5	35.5
R.MaC		31.1	2.1	55.0	56.8	70.0	1,243	44.9	42.5	40.6	38.3
U.OFE		5.6	4.5	40.0	55.0	70.0	43,313	54.1	53.9	27.7	27.7
U.OPA		36.3	4.1	35.0	52.3	70.0	17,717	32.8	32.5	32.8	32.5
U.MiA		1.4	2.0	35.0	40.0	65.0	5,200	24.2	23.6	23.5	22.8
U.Col		0.3	2.0	35.0	45.0	70.0	3,800	26.6	26.6	26.0	25.9
Total Sample		144.8									
TOTAL	**275.0**		**3.6**	**47.2**	**54.5**	**69.9**	**18,324**	**43.6**	**42.5**	**38.9**	**38.0**
Time (HR)								**6.3**	**6.5**	**7.1**	**7.2**
440	**US 77**		**Brownsville to US 59**								
R.OPA		69.4	4.0	55.0	54.8	70.0	10,633	53.0	52.4	52.9	52.4
R.MiA		11.4	2.0	54.0	54.2	64.8	5,033	43.9	41.1	40.6	38.0
R.MaC		11.4	2.0	55.0	55.0	70.0	3,239	50.5	49.5	42.0	41.6
U.OFE		19.6	4.0	40.0	60.5	70.0	27,446	58.9	57.8	58.9	57.8
U.OPA		29.3	3.8	35.0	45.3	68.5	14,001	27.4	27.2	27.2	27.0
U.MiA		2.0	2.5	35.0	33.3	63.3	9,888	20.5	20.4	19.8	19.7
Total Sample		143.2									
TOTAL	**234.0**		**3.6**	**46.7**	**52.7**	**69.2**	**12,582**	**43.4**	**42.8**	**42.4**	**41.8**
Time (HR)								**5.4**	**5.5**	**5.5**	**5.6**
540	**US 281**		**Mexico to I-37**								
R.OPA		40.1	3.7	55.0	65.7	69.0	5,876	50.2	47.6	48.8	46.3
R.MiA		20.5	2.0	55.0	55.0	70.0	2,032	48.0	44.4	44.0	40.8
R.MaC		28.4	2.0	55.0	65.5	70.0	1,483	49.6	47.1	44.5	42.3
U.OFE		7.7	4.1	40.0	53.0	70.0	39,737	53.6	52.3	50.8	49.6
U.OPA		11.0	4.0	35.0	44.6	68.3	12,840	27.6	27.5	27.6	27.5
Total Sample		107.7									
TOTAL	**171.0**		**3.0**	**50.7**	**59.6**	**69.5**	**7,115**	**46.0**	**43.9**	**43.5**	**41.5**
Time (HR)								**3.7**	**3.9**	**3.9**	**4.1**
550	**US 287**		**Oklahoma SL - Amarillo UL**								
R.OPA		35.7	3.6	55.0	65.7	70.0	4,354	54.8	54.7	53.3	53.2
U.OPA		1.0	4.0	35.0	35.0	70.0	12,455	24.0	24.0	24.0	24.0
Total Sample		36.8									
TOTAL	**90.0**		**3.6**	**54.2**	**64.2**	**70.0**	**4,576**	**52.9**	**52.9**	**51.6**	**51.5**
Time (HR)								**1.7**	**1.7**	**1.7**	**1.7**
551	**US 287**		**Through Amarillo**								
U.OFE		6.8	4.4	40.0	55.0	70.0	12,564	58.3	58.3	58.3	58.3
Total Sample		6.8									
TOTAL	**6.8**		**4.4**	**40.0**	**55.0**	**70.0**	**12,564**	**58.3**	**58.3**	**58.3**	**58.3**
Time (HR)								**0.1**	**0.1**	**0.1**	**0.1**

WTTN-Operating Speeds
Texas Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
552	**US 287**		**Amarillo UL - I-44 @ Wichita Falls**								
R.OPA		44.5	4.0	55.0	58.5	69.9	7,765	48.8	46.3	48.8	46.3
R.MaC		4.4	4.0	55.0	55.0	70.0	4,810	52.8	51.6	52.8	51.6
U.OFE		4.4	4.0	40.0	70.0	70.0	18,885	55.9	51.9	55.9	51.9
U.OPA		6.5	4.0	35.0	47.2	70.0	9,616	27.6	27.5	27.6	27.5
Total Sample		59.8									
TOTAL	**198.0**		**4.0**	**50.5**	**57.4**	**69.9**	**8,560**	**45.7**	**43.7**	**45.7**	**43.7**
Time (HR)								**4.3**	**4.5**	**4.3**	**4.5**
553	**US 287**		**I-44 @ Wichita Falls - Dallas/Ft. Worth UL**								
R.OPA		10.2	4.0	55.0	70.0	70.0	15,177	52.3	50.1	52.3	50.1
U.OPA		3.4	4.0	35.0	30.0	70.0	7,863	19.5	19.5	19.5	19.5
Total Sample		13.7									
TOTAL	**105.0**		**4.0**	**48.1**	**52.5**	**70.0**	**13,343**	**36.8**	**35.9**	**36.8**	**35.9**
Time (HR)								**2.9**	**2.9**	**2.9**	**2.9**
554	**US 287**		**Through Dallas/Ft. Worth (North UL - I-45 @Ennis)**								
R.OPA		13.0	2.6	55.0	58.9	70.0	11,789	47.6	45.1	44.0	42.0
U.OFE		16.5	4.8	40.0	67.2	70.0	31,271	40.9	39.4	27.7	27.0
U.OPA		13.6	3.8	35.0	42.4	64.7	11,832	29.1	28.3	29.0	28.1
U.MiA		2.4	2.0	35.0	45.0	70.0	9,436	26.7	25.9	26.0	25.3
Total Sample		45.5									
TOTAL	**61.0**		**3.7**	**41.1**	**54.2**	**68.3**	**18,767**	**36.9**	**35.5**	**31.3**	**30.3**
Time (HR)								**1.7**	**1.7**	**1.9**	**2.0**
555	**US 287**		**I-45 @ Ennis - Port Arthur**								
R.MiA		36.6	2.0	55.0	57.4	70.0	2,514	48.3	44.6	44.3	40.7
R.MaC		8.9	2.0	55.0	70.0	70.0	1,542	51.4	50.5	45.1	44.5
U.OFE		0.5	4.0	40.0	70.0	70.0	11,500	55.9	51.8	55.9	51.8
U.OPA		3.9	4.0	35.0	49.2	70.0	10,159	29.7	27.6	29.7	27.6
U.MiA		1.4	2.0	35.0	38.6	70.0	1,987	23.6	23.6	22.9	22.9
Total Sample		51.3									
TOTAL	**254.0**		**2.2**	**51.8**	**57.8**	**70.0**	**2,998**	**45.4**	**42.5**	**41.9**	**39.1**
Time (HR)								**5.6**	**6.0**	**6.1**	**6.5**
70	**I-20**		**I-10 - Dallas/Ft. Worth UL**								
R.Int		180.6	4.1	65.0	67.9	70.0	12,637	59.8	55.7	59.7	55.7
U.Int		52.5	4.0	40.0	63.7	70.0	13,078	58.2	55.2	58.2	55.2
Total Sample		233.0									
TOTAL	**420.0**		**4.0**	**57.0**	**66.9**	**70.0**	**12,736**	**59.4**	**55.6**	**59.4**	**55.5**
Time (HR)								**7.1**	**7.6**	**7.1**	**7.6**
71	**I-20**		**Through Dallas/Ft. Worth**								
U.Int		46.0	7.9	40.0	66.5	70.0	101,738	55.6	51.8	29.0	28.2
Total Sample		46.0									
TOTAL	**79.0**		**7.9**	**40.0**	**66.5**	**70.0**	**101,738**	**55.6**	**51.8**	**29.0**	**28.2**
Time (HR)								**1.4**	**1.5**	**2.7**	**2.8**
72	**I-20**		**Dallas/Ft. Worth UL - Louisiana SL (Shreveport)**								
R.Int		48.6	4.0	65.0	66.0	70.0	24,989	62.1	59.2	61.8	59.0
U.Int		3.2	4.0	40.0	60.5	70.0	23,494	58.6	56.2	58.6	56.2
Total Sample		51.8									
TOTAL	**137.0**		**4.0**	**62.6**	**65.6**	**70.0**	**24,898**	**61.9**	**59.0**	**61.6**	**58.8**
Time (HR)								**2.2**	**2.3**	**2.2**	**2.3**

WTTN-Operating Speeds
Texas Results - Performance Enhancement
Average Daily Speed

						Existing Condition		Average Daily Speed for Cumulative Improvements							
						Average Daily Speed		Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
36	I-10		Through El Paso (NM SL - El Paso UL)												
R.Int		5.2	4.0	65.0	30,409	59.5	55.4	59.5	55.4	59.5	55.4	59.5	55.4	59.5	55.4
U.Int		22.7	6.4	40.0	91,396	55.1	51.8	55.2	51.8	55.2	51.8	55.7	52.3	55.7	52.3
Total Sample		28.0													
TOTAL	**37.0**		**5.9**	**43.1**	**79,981**	**55.9**	**52.4**	**56.0**	**52.5**	**56.0**	**52.5**	**56.4**	**52.8**	**56.4**	**52.8**
Time (HR)						**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**
37	I-10		El Paso UL - I-20												
R.Int		109.2	4.0	63.4	10,167	59.4	55.9	59.4	55.9	59.4	55.9	59.4	55.9	59.4	55.9
Total Sample		109.2													
TOTAL	**149.0**		**4.0**	**63.4**	**10,167**	**59.4**	**55.9**	**59.4**	**55.9**	**59.4**	**55.9**	**59.4**	**55.9**	**59.4**	**55.9**
Time (HR)						**2.5**	**2.7**	**2.5**	**2.7**	**2.5**	**2.7**	**2.5**	**2.7**	**2.5**	**2.7**
38	I-10		I-20 - San Antonio UL												
R.Int		203.3	4.0	64.7	6,845	60.7	56.5	60.7	56.5	60.7	56.5	60.7	56.5	60.7	56.5
U.Int		3.1	4.0	40.0	5,387	58.4	53.8	58.4	53.8	58.4	53.8	58.4	53.8	58.4	53.8
Total Sample		206.4													
TOTAL	**364.0**		**4.0**	**64.1**	**6,823**	**60.7**	**56.5**	**60.7**	**56.5**	**60.7**	**56.5**	**60.7**	**56.5**	**60.7**	**56.5**
Time (HR)						**6.0**	**6.4**	**6.0**	**6.4**	**6.0**	**6.4**	**6.0**	**6.4**	**6.0**	**6.4**
39	I-10		Through San Antonio												
U.Int		28.2	4.7	40.0	59,197	53.6	50.0	53.6	50.0	53.6	50.0	53.7	50.1	53.7	50.1
Total Sample		28.2													
TOTAL	**37.0**		**4.7**	**40.0**	**59,197**	**53.6**	**50.0**	**53.6**	**50.0**	**53.6**	**50.0**	**53.7**	**50.1**	**53.7**	**50.1**
Time (HR)						**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**
40	I-10		San Antonio UL - Houston UL												
R.Int		75.9	4.1	65.0	22,530	61.5	58.8	61.5	58.8	61.5	58.8	61.5	58.8	61.5	58.8
U.Int		3.2	4.0	40.0	26,567	60.1	57.5	60.1	57.5	60.1	57.5	60.1	57.5	60.1	57.5
Total Sample		79.0													
TOTAL	**164.0**		**4.1**	**63.4**	**22,692**	**61.4**	**58.8**	**61.4**	**58.8**	**61.4**	**58.8**	**61.4**	**58.8**	**61.4**	**58.8**
Time (HR)						**2.7**	**2.8**	**2.7**	**2.8**	**2.7**	**2.8**	**2.7**	**2.8**	**2.7**	**2.8**
41	I-10		Through Houston												
U.Int		31.3	6.5	40.0	105,072	57.7	57.4	57.7	57.4	57.7	57.4	58.0	57.7	58.0	57.7
Total Sample		31.3													
TOTAL	**37.0**		**6.5**	**40.0**	**105,072**	**57.7**	**57.4**	**57.7**	**57.4**	**57.7**	**57.4**	**58.0**	**57.7**	**58.0**	**57.7**
Time (HR)						**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
42	I-10		Houston UL - Louisiana SL												
R.Int		61.9	4.5	65.0	29,056	62.1	59.0	62.1	59.0	62.1	59.0	62.1	59.0	62.1	59.0
U.Int		18.4	4.9	40.0	54,225	57.1	55.7	57.3	55.8	57.3	55.8	57.3	55.8	57.3	55.8
Total Sample		80.3													
TOTAL	**89.0**		**4.6**	**56.9**	**34,814**	**60.9**	**58.2**	**60.9**	**58.2**	**60.9**	**58.2**	**61.0**	**58.2**	**61.0**	**58.2**
Time (HR)						**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**
100	I-30		In Dallas/Ft. Worth												
U.Int		54.2	6.0	40.0	95,138	57.3	54.8	57.4	54.9	57.4	54.9	57.8	55.3	57.9	55.3
Total Sample		54.2													
TOTAL	**70.0**		**6.0**	**40.0**	**95,138**	**57.3**	**54.8**	**57.4**	**54.9**	**57.4**	**54.9**	**57.8**	**55.3**	**57.9**	**55.3**
Time (HR)						**1.2**	**1.3**	**1.2**	**1.3**	**1.2**	**1.3**	**1.2**	**1.3**	**1.2**	**1.3**

WTTN-Operating Speeds
Texas Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed S. Truck	Existing Condition Average Daily Speed C. Truck	Average Daily Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
101	**I-30**		**Dallas/Ft. Worth UL - Texarkana (Arkansas SL)**												
R.Int		56.4	4.0	65.0	21,376	63.8	62.8	63.8	62.8	63.8	62.8	63.8	62.8	63.8	62.8
U.Int		29.9	4.0	40.0	27,398	63.6	63.2	63.6	63.2	63.6	63.2	63.6	63.2	63.6	63.2
Total Sample		86.3													
TOTAL	**151.0**		**4.0**	**53.4**	**23,462**	**63.8**	**63.0**	**63.8**	**63.0**	**63.8**	**63.0**	**63.8**	**63.0**	**63.8**	**63.0**
Time (HR)						**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**
110	**I-35**		**Laredo - San Antonio UL**												
R.Int		92.4	4.0	65.0	10,667	60.9	58.4	61.0	58.6	61.0	58.6	61.0	58.6	61.0	58.6
U.Int		11.0	4.0	40.0	29,000	56.3	53.3	56.3	53.3	56.3	53.3	56.3	53.3	56.3	53.3
Total Sample		103.4													
TOTAL	**140.0**		**4.0**	**61.0**	**12,615**	**60.3**	**57.8**	**60.5**	**58.0**	**60.5**	**58.0**	**60.5**	**58.0**	**60.5**	**58.0**
Time (HR)						**2.3**	**2.4**	**2.3**	**2.4**	**2.3**	**2.4**	**2.3**	**2.4**	**2.3**	**2.4**
111	**I-35**		**Through San Antonio**												
U.Int		11.2	6.1	40.0	88,125	56.1	53.2	56.1	53.2	56.1	53.2	57.2	54.2	57.2	54.2
Total Sample		11.2													
TOTAL	**35.0**		**6.1**	**40.0**	**88,125**	**56.1**	**53.2**	**56.1**	**53.2**	**56.1**	**53.2**	**57.2**	**54.2**	**57.2**	**54.2**
Time (HR)						**0.6**	**0.7**	**0.6**	**0.7**	**0.6**	**0.7**	**0.6**	**0.6**	**0.6**	**0.6**
112	**I-35**		**San Antonio UL - Dallas/Ft. Worth UL**												
R.Int		56.4	4.6	65.0	46,905	60.2	56.8	60.2	56.8	60.2	56.8	60.2	56.8	60.2	56.8
U.Int		83.2	5.2	40.0	77,733	55.2	51.7	55.2	51.7	55.2	51.7	56.3	52.7	56.3	52.7
Total Sample		139.5													
TOTAL	**253.0**		**5.0**	**47.4**	**65,276**	**57.1**	**53.6**	**57.1**	**53.6**	**57.1**	**53.6**	**57.8**	**54.3**	**57.8**	**54.3**
Time (HR)						**4.4**	**4.7**	**4.4**	**4.7**	**4.4**	**4.7**	**4.4**	**4.7**	**4.4**	**4.7**
113	**I-35 E/W**		**Through Dallas/Ft. Worth**												
R.Int		40.8	4.0	65.0	19,448	59.7	56.1	59.7	56.1	59.7	56.1	59.7	56.1	59.7	56.1
U.Int		69.5	5.9	40.0	90,080	55.3	52.3	55.4	52.4	55.4	52.4	56.4	53.2	56.4	53.2
Total Sample		110.2													
TOTAL	**130.0**		**5.2**	**46.6**	**63,950**	**56.9**	**53.7**	**56.9**	**53.7**	**56.9**	**53.7**	**57.5**	**54.2**	**57.5**	**54.2**
Time (HR)						**2.3**	**2.4**	**2.3**	**2.4**	**2.3**	**2.4**	**2.3**	**2.4**	**2.3**	**2.4**
114	**I-35**		**Dallas/Ft. Worth UL - Oklahoma SL**												
R.Int		15.6	4.0	65.0	24,965	59.1	56.2	59.1	56.2	59.1	56.2	59.1	56.2	59.1	56.2
U.Int		3.3	4.0	40.0	27,709	59.9	57.7	59.9	57.7	59.9	57.7	59.9	57.7	59.9	57.7
Total Sample		18.9													
TOTAL	**39.0**		**4.0**	**58.6**	**25,447**	**59.3**	**56.4**	**59.3**	**56.4**	**59.3**	**56.4**	**59.3**	**56.4**	**59.3**	**56.4**
Time (HR)						**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**
120	**I-37**		**Through San Antonio (I-35 - UL)**												
U.Int		10.9	5.6	40.0	69,020	55.8	52.5	55.8	52.5	55.8	52.5	55.8	52.5	55.8	52.5
Total Sample		10.9													
TOTAL	**17.0**		**5.6**	**40.0**	**69,020**	**55.8**	**52.5**	**55.8**	**52.5**	**55.8**	**52.5**	**55.8**	**52.5**	**55.8**	**52.5**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
121	**I-37**		**San Antonio UL - Corpus Christi UL**												
R.Int		58.5	4.0	65.0	12,864	60.7	57.5	60.7	57.5	60.7	57.5	60.7	57.5	60.7	57.5
Total Sample		58.5													
TOTAL	**119.0**		**4.0**	**65.0**	**12,864**	**60.7**	**57.5**	**60.7**	**57.5**	**60.7**	**57.5**	**60.7**	**57.5**	**60.7**	**57.5**
Time (HR)						**2.0**	**2.1**	**2.0**	**2.1**	**2.0**	**2.1**	**2.0**	**2.1**	**2.0**	**2.1**

WTTN-Operating Speeds
Texas Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed S. Truck	Existing Condition Average Daily Speed C. Truck	Average Daily Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
122	**I-37**		**Through Corpus Christi (UL - US 181)**												
U.Int		15.8	5.5	40.0	45,893	55.0	52.0	55.0	52.0	55.0	52.0	55.0	52.0	55.0	52.0
Total Sample		15.8													
TOTAL	**15.8**		**5.5**	**40.0**	**45,893**	**55.0**	**52.0**	**55.0**	**52.0**	**55.0**	**52.0**	**55.0**	**52.0**	**55.0**	**52.0**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
135	**I-40**		**New Mexico SL - Amarillo UL**												
R.Int		34.7	4.0	65.0	11,371	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2
Total Sample		34.7													
TOTAL	**62.0**		**4.0**	**65.0**	**11,371**	**65.2**	**65.2**	**65.2**	**65.2**	**65.2**	**65.2**	**65.2**	**65.2**	**65.2**	**65.2**
Time (HR)						**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
136	**I-40**		**Through Amarillo**												
U.Int		15.7	5.6	40.0	50,695	59.7	59.7	59.7	59.7	59.7	59.7	59.7	59.7	59.7	59.7
Total Sample		15.7													
TOTAL	**15.7**		**5.6**	**40.0**	**50,695**	**59.7**	**59.7**	**59.7**	**59.7**	**59.7**	**59.7**	**59.7**	**59.7**	**59.7**	**59.7**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
137	**I-40**		**Amarillo UL- Oklahoma SL**												
R.Int		60.7	4.0	65.0	12,623	63.1	61.3	63.1	61.3	63.1	61.3	63.1	61.3	63.1	61.3
Total Sample		60.7													
TOTAL	**99.0**		**4.0**	**65.0**	**12,623**	**63.1**	**61.3**	**63.1**	**61.3**	**63.1**	**61.3**	**63.1**	**61.3**	**63.1**	**61.3**
Time (HR)						**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**
140	**I-44**		**US 287 - Oklahoma SL**												
R.Int		2.6	4.0	65.0	16,557	60.3	57.6	60.3	57.6	60.3	57.6	60.3	57.6	60.3	57.6
U.Int		12.0	4.9	40.0	22,996	54.0	50.4	54.4	50.7	54.4	50.7	54.4	50.7	54.4	50.7
Total Sample		14.6													
TOTAL	**14.6**		**4.7**	**42.9**	**21,861**	**55.0**	**51.6**	**55.4**	**51.8**	**55.4**	**51.8**	**55.4**	**51.8**	**55.4**	**51.8**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
150	**I-45**		**In Dallas/Ft. Worth**												
U.Int		12.3	4.6	40.0	43,089	53.9	50.3	53.9	50.3	53.9	50.3	53.9	50.3	53.9	50.3
Total Sample		12.3													
TOTAL	**18.0**		**4.6**	**40.0**	**43,089**	**53.9**	**50.3**	**53.9**	**50.3**	**53.9**	**50.3**	**53.9**	**50.3**	**53.9**	**50.3**
Time (HR)						**0.3**	**0.4**	**0.3**	**0.4**	**0.3**	**0.4**	**0.3**	**0.4**	**0.3**	**0.4**
151	**I-45**		**Dallas/Ft. Worth UL - Houston UL**												
R.Int		61.5	4.1	65.0	36,566	63.2	62.3	63.2	62.3	63.2	62.3	63.9	63.0	63.9	63.0
U.Int		19.7	4.0	40.0	34,968	59.7	57.0	59.7	57.1	59.7	57.1	59.8	57.2	59.8	57.2
Total Sample		81.2													
TOTAL	**200.0**		**4.1**	**56.4**	**36,178**	**62.3**	**60.9**	**62.3**	**60.9**	**62.3**	**60.9**	**62.8**	**61.4**	**62.8**	**61.4**
Time (HR)						**3.2**	**3.3**	**3.2**	**3.3**	**3.2**	**3.3**	**3.2**	**3.3**	**3.2**	**3.3**
152	**I-45**		**Through Houston**												
U.Int		26.8	7.8	40.0	165,450	50.4	49.7	50.5	49.8	50.5	49.8	57.6	56.6	57.6	56.6
Total Sample		26.8													
TOTAL	**34.0**		**7.8**	**40.0**	**165,450**	**50.4**	**49.7**	**50.5**	**49.8**	**50.5**	**49.8**	**57.6**	**56.6**	**57.6**	**56.6**
Time (HR)						**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.6**	**0.6**	**0.6**	**0.6**

WTTN-Operating Speeds
Texas Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed S. Truck	Existing Condition Average Daily Speed C. Truck	Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
								Average Daily Speed for Cumulative Improvements							
153	**I-45**		**Houston UL - Galveston**												
R.Int		4.8	5.0	65.0	78,896	53.8	52.0	53.8	52.0	53.8	52.0	57.8	55.7	60.1	58.0
U.Int		20.3	6.0	40.0	54,149	57.1	56.4	57.1	56.4	57.1	56.4	57.1	56.4	57.1	56.4
Total Sample		25.1													
TOTAL	**32.0**		**5.8**	**43.2**	**58,883**	**56.4**	**55.5**	**56.4**	**55.5**	**56.4**	**55.5**	**57.2**	**56.2**	**57.6**	**56.7**
Time (HR)						**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
410	**US 54**		**I-10 @ El Paso - New Mexico SL**												
R.MaC		1.1	2.0	55.0	1,550	51.3	50.1	51.3	50.1	51.3	50.1	51.3	50.1	51.3	50.1
U.OFE		9.0	4.7	40.0	47,906	55.9	52.3	56.3	52.7	56.3	52.7	56.3	52.7	56.3	52.7
U.OPA		3.0	6.0	35.0	19,354	29.3	29.2	29.3	29.2	29.3	29.2	29.3	29.2	29.3	29.2
Total Sample		13.1													
TOTAL	**20.0**		**4.8**	**39.6**	**37,501**	**46.0**	**44.1**	**46.2**	**44.3**	**46.2**	**44.3**	**46.2**	**44.3**	**46.2**	**44.3**
Time (HR)						**0.4**	**0.5**	**0.4**	**0.5**	**0.4**	**0.5**	**0.4**	**0.5**	**0.4**	**0.5**
411	**US 54**		**New Mexico SL - Oklahoma SL (through Texas)**												
R.OPA		89.3	2.0	55.0	2,010	52.6	52.5	52.6	52.5	52.6	52.5	52.6	52.5	52.8	52.8
U.OPA		1.3	4.0	35.0	5,909	19.0	19.0	19.5	19.4	19.5	19.5	19.5	19.5	28.8	28.8
Total Sample		90.6													
TOTAL	**92.0**		**2.1**	**54.6**	**2,065**	**51.3**	**51.3**	**51.4**	**51.3**	**51.4**	**51.3**	**51.4**	**51.3**	**52.2**	**52.2**
Time (HR)						**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**
420	**US 59**		**Laredo - Houston UL**												
R.OPA		108.9	2.6	55.0	8,975	52.1	50.6	52.1	50.6	52.3	50.8	52.3	50.8	52.8	51.3
U.OFE		2.6	4.0	40.0	58,216	56.8	56.4	56.8	56.4	56.8	56.4	56.8	56.4	56.8	56.4
U.OPA		15.5	2.9	35.0	9,806	28.5	28.2	28.5	28.2	28.5	28.3	28.5	28.3	30.3	30.1
Total Sample		127.0													
TOTAL	**290.0**		**2.7**	**51.1**	**10,087**	**47.4**	**46.2**	**47.4**	**46.2**	**47.5**	**46.4**	**47.5**	**46.4**	**48.5**	**47.3**
Time (HR)						**6.1**	**6.3**	**6.1**	**6.3**	**6.1**	**6.3**	**6.1**	**6.2**	**6.0**	**6.1**
421	**US 59**		**Through Houston**												
U.OFE		31.6	6.9	40.0	153,188	54.3	53.6	54.6	53.9	54.6	53.9	56.6	55.8	56.6	55.8
Total Sample		31.6													
TOTAL	**43.0**		**6.9**	**40.0**	**153,188**	**54.3**	**53.6**	**54.6**	**53.9**	**54.6**	**53.9**	**56.6**	**55.8**	**56.6**	**55.8**
Time (HR)						**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**
422	**US 59**		**Houston UL - I-30**												
R.OPA		68.4	4.0	55.0	25,048	52.6	51.4	52.7	51.4	52.7	51.5	53.0	51.7	53.6	52.3
R.MiA		1.7	4.0	55.0	5,363	35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5	44.4	44.4
R.MaC		31.1	2.1	55.0	1,243	44.9	42.5	45.0	42.5	47.4	45.3	47.4	45.3	49.1	46.9
U.OFE		5.6	4.5	40.0	43,313	54.1	53.9	54.9	54.7	54.9	54.7	56.9	56.6	56.9	56.6
U.OPA		36.3	4.1	35.0	17,717	32.8	32.5	32.8	32.5	32.8	32.5	32.8	32.5	33.2	32.9
U.MiA		1.4	2.0	35.0	5,200	24.2	23.6	24.2	23.6	24.3	23.8	24.3	23.8	27.1	26.4
U.Col		0.3	2.0	35.0	3,800	26.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6
Total Sample		144.8													
TOTAL	**275.0**		**3.6**	**47.2**	**18,324**	**43.6**	**42.5**	**43.7**	**42.6**	**44.2**	**43.2**	**44.3**	**43.3**	**45.2**	**44.2**
Time (HR)						**6.3**	**6.5**	**6.3**	**6.5**	**6.2**	**6.4**	**6.2**	**6.3**	**6.1**	**6.2**

WTTN-Operating Speeds
Texas Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed S. Truck	Existing Condition Average Daily Speed C. Truck	Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
								Average Daily Speed for Cumulative Improvements							
440	**US 77**		**Brownsville to US 59**												
R.OPA		69.4	4.0	55.0	10,633	53.0	52.4	53.0	52.4	53.0	52.4	53.0	52.4	53.9	53.3
R.MiA		11.4	2.0	54.0	5,033	43.9	41.1	43.9	41.1	44.5	43.0	44.5	43.0	45.2	43.6
R.MaC		11.4	2.0	55.0	3,239	50.5	49.5	50.5	49.5	50.5	49.5	50.5	49.5	50.5	49.5
U.OFE		19.6	4.0	40.0	27,446	58.9	57.8	58.9	57.8	58.9	57.8	58.9	57.8	58.9	57.8
U.OPA		29.3	3.8	35.0	14,001	27.4	27.2	27.5	27.3	27.5	27.4	27.5	27.4	29.7	29.6
U.MiA		2.0	2.5	35.0	9,888	20.5	20.4	20.5	20.4	20.5	20.5	20.5	20.5	28.2	27.8
Total Sample		143.2													
TOTAL	**234.0**		**3.6**	**46.7**	**12,582**	**43.4**	**42.8**	**43.4**	**42.8**	**43.5**	**43.0**	**43.5**	**43.0**	**45.3**	**44.8**
Time (HR)						**5.4**	**5.5**	**5.4**	**5.5**	**5.4**	**5.4**	**5.4**	**5.4**	**5.2**	**5.2**
540	**US 281**		**Mexico to I-37**												
R.OPA		40.1	3.7	55.0	5,876	50.2	47.6	50.3	47.7	50.6	48.0	50.6	48.0	51.2	48.6
R.MiA		20.5	2.0	55.0	2,032	48.0	44.4	48.0	44.4	49.5	46.1	49.5	46.1	49.5	46.1
R.MaC		28.4	2.0	55.0	1,483	49.6	47.1	49.6	47.1	50.1	47.6	50.1	47.6	50.1	47.6
U.OFE		7.7	4.1	40.0	39,737	53.6	52.3	53.6	52.3	53.6	52.3	53.6	52.3	56.8	55.3
U.OPA		11.0	4.0	35.0	12,840	27.6	27.5	27.6	27.5	27.7	27.7	27.7	27.7	30.4	30.3
Total Sample		107.7													
TOTAL	**171.0**		**3.0**	**50.7**	**7,115**	**46.0**	**43.9**	**46.0**	**43.9**	**46.5**	**44.5**	**46.5**	**44.5**	**47.6**	**45.5**
Time (HR)						**3.7**	**3.9**	**3.7**	**3.9**	**3.7**	**3.8**	**3.7**	**3.8**	**3.6**	**3.8**
550	**US 287**		**Oklahoma SL - Amarillo UL**												
R.OPA		35.7	3.6	55.0	4,354	54.8	54.7	54.8	54.7	54.8	54.8	54.8	54.8	54.8	54.8
U.OPA		1.0	4.0	35.0	12,455	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	30.7	30.6
Total Sample		36.8													
TOTAL	**90.0**		**3.6**	**54.2**	**4,576**	**52.9**	**52.9**	**52.9**	**52.9**	**52.9**	**52.9**	**52.9**	**52.9**	**53.6**	**53.6**
Time (HR)						**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**
551	**US 287**		**Through Amarillo**												
U.OFE		6.8	4.4	40.0	12,564	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3
Total Sample		6.8													
TOTAL	**6.8**		**4.4**	**40.0**	**12,564**	**58.3**	**58.3**	**58.3**	**58.3**	**58.3**	**58.3**	**58.3**	**58.3**	**58.3**	**58.3**
Time (HR)						**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
552	**US 287**		**Amarillo UL - I-44 @ Wichita Falls**												
R.OPA		44.5	4.0	55.0	7,765	48.8	46.3	48.9	46.3	48.9	46.4	48.9	46.4	50.7	47.9
R.MaC		4.4	4.0	55.0	4,810	52.8	51.6	52.8	51.6	54.1	53.6	54.1	53.6	54.1	53.6
U.OFE		4.4	4.0	40.0	18,885	55.9	51.9	55.9	51.9	55.9	51.9	55.9	51.9	55.9	51.9
U.OPA		6.5	4.0	35.0	9,616	27.6	27.5	28.0	27.9	28.3	28.3	28.3	28.3	29.8	29.8
Total Sample		59.8													
TOTAL	**198.0**		**4.0**	**50.5**	**8,560**	**45.7**	**43.7**	**45.9**	**43.9**	**46.1**	**44.1**	**46.1**	**44.1**	**47.6**	**45.5**
Time (HR)						**4.3**	**4.5**	**4.3**	**4.5**	**4.3**	**4.5**	**4.3**	**4.5**	**4.2**	**4.3**
553	**US 287**		**I-44 @ Wichita Falls - Dallas/Ft. Worth UL**												
R.OPA		10.2	4.0	55.0	15,177	52.3	50.1	52.3	50.1	52.3	50.1	52.3	50.1	52.3	50.1
U.OPA		3.4	4.0	35.0	7,863	19.5	19.5	19.8	19.8	19.8	19.8	19.8	19.8	29.2	28.6
Total Sample		13.7													
TOTAL	**105.0**		**4.0**	**48.1**	**13,343**	**36.8**	**35.9**	**37.1**	**36.2**	**37.1**	**36.2**	**37.1**	**36.2**	**43.7**	**42.1**
Time (HR)						**2.9**	**2.9**	**2.8**	**2.9**	**2.8**	**2.9**	**2.8**	**2.9**	**2.4**	**2.5**
554	**US 287**		**Through Dallas/Ft. Worth (North UL - I-45 @Ennis)**												
R.OPA		13.0	2.6	55.0	11,789	47.6	45.1	47.6	45.1	48.4	46.0	49.1	46.6	49.1	46.6
U.OFE		16.5	4.8	40.0	31,271	40.9	39.4	40.9	39.5	40.9	39.5	41.0	39.5	41.0	39.5
U.OPA		13.6	3.8	35.0	11,832	29.1	28.3	29.2	28.3	29.3	28.5	29.3	28.5	32.3	31.3
U.MiA		2.4	2.0	35.0	9,436	26.7	25.9	26.7	25.9	27.1	26.3	27.1	26.3	27.1	26.3
Total Sample		45.5													
TOTAL	**61.0**		**3.7**	**41.1**	**18,767**	**36.9**	**35.5**	**36.9**	**35.6**	**37.2**	**35.9**	**37.3**	**36.0**	**38.7**	**37.3**
Time (HR)						**1.7**	**1.7**	**1.7**	**1.7**	**1.6**	**1.7**	**1.6**	**1.7**	**1.6**	**1.6**

WTTN-Operating Speeds
Texas Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed S. Truck	Existing Condition Average Daily Speed C. Truck	Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
								Average Daily Speed for Cumulative Improvements							
555	**US 287**		**I-45 @ Ennis - Port Arthur**												
R.MiA		36.6	2.0	55.0	2,514	48.3	44.6	48.3	44.6	48.6	44.9	48.6	44.9	48.6	44.9
R.MaC		8.9	2.0	55.0	1,542	51.4	50.5	51.4	50.5	51.4	50.5	51.4	50.5	51.4	50.5
U.OFE		0.5	4.0	40.0	11,500	55.9	51.8	55.9	51.8	55.9	51.8	55.9	51.8	55.9	51.8
U.OPA		3.9	4.0	35.0	10,159	29.7	27.6	29.7	27.6	29.7	27.6	29.7	27.6	29.7	27.6
U.MiA		1.4	2.0	35.0	1,987	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	27.2	27.2
Total Sample		51.3													
TOTAL	**254.0**		**2.2**	**51.8**	**2,998**	**45.4**	**42.5**	**45.4**	**42.5**	**45.6**	**42.7**	**45.6**	**42.7**	**45.9**	**43.0**
Time (HR)						**5.6**	**6.0**	**5.6**	**6.0**	**5.6**	**6.0**	**5.6**	**5.9**	**5.5**	**5.9**
70	**I-20**		**I-10 - Dallas/Ft. Worth UL**												
R.Int		180.6	4.1	65.0	12,637	59.8	55.7	59.8	55.7	59.8	55.7	59.8	55.7	59.8	55.7
U.Int		52.5	4.0	40.0	13,078	58.2	55.2	58.2	55.2	58.2	55.2	58.2	55.2	58.2	55.2
Total Sample		233.0													
TOTAL	**420.0**		**4.0**	**57.0**	**12,736**	**59.4**	**55.6**	**59.4**	**55.6**	**59.4**	**55.6**	**59.4**	**55.6**	**59.4**	**55.6**
Time (HR)						**7.1**	**7.6**	**7.1**	**7.6**	**7.1**	**7.6**	**7.1**	**7.6**	**7.1**	**7.6**
71	**I-20**		**Through Dallas/Ft. Worth**												
U.Int		46.0	7.9	40.0	101,738	55.6	51.8	55.7	51.9	55.7	51.9	55.8	52.0	55.8	52.0
Total Sample		46.0													
TOTAL	**79.0**		**7.9**	**40.0**	**101,738**	**55.6**	**51.8**	**55.7**	**51.9**	**55.7**	**51.9**	**55.8**	**52.0**	**55.8**	**52.0**
Time (HR)						**1.4**	**1.5**	**1.4**	**1.5**	**1.4**	**1.5**	**1.4**	**1.5**	**1.4**	**1.5**
72	**I-20**		**Dallas/Ft. Worth UL - Louisiana SL (Shreveport)**												
R.Int		48.6	4.0	65.0	24,989	62.1	59.2	62.1	59.2	62.1	59.2	62.1	59.2	62.1	59.2
U.Int		3.2	4.0	40.0	23,494	58.6	56.2	58.6	56.2	58.6	56.2	58.6	56.2	58.6	56.2
Total Sample		51.8													
TOTAL	**137.0**		**4.0**	**62.6**	**24,898**	**61.9**	**59.0**	**61.9**	**59.0**	**61.9**	**59.0**	**61.9**	**59.0**	**61.9**	**59.0**
Time (HR)						**2.2**	**2.3**	**2.2**	**2.3**	**2.2**	**2.3**	**2.2**	**2.3**	**2.2**	**2.3**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
Texas Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed S. Truck	Existing Condition Peak Hour Speed C. Truck	Peak Hour Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
36	**I-10**		**Through El Paso (NM SL - El Paso UL)**												
R.Int		5.2	4.0	65.0	30,409	58.7	54.6	58.7	54.6	58.7	54.6	58.7	54.6	58.7	54.6
U.Int		22.7	6.4	40.0	91,396	24.2	23.8	24.3	23.8	24.3	23.8	52.9	49.4	52.9	49.4
Total Sample		28.0													
TOTAL	**37.0**		**5.9**	**43.1**	**79,981**	**27.2**	**26.6**	**27.3**	**26.6**	**27.3**	**26.6**	**53.9**	**50.3**	**53.9**	**50.3**
Time (HR)						**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**0.7**	**0.7**	**0.7**	**0.7**
37	**I-10**		**El Paso UL - I-20**												
R.Int		109.2	4.0	63.4	10,167	59.4	55.9	59.4	55.9	59.4	55.9	59.4	55.9	59.4	55.9
Total Sample		109.2													
TOTAL	**149.0**		**4.0**	**63.4**	**10,167**	**59.4**	**55.9**	**59.4**	**55.9**	**59.4**	**55.9**	**59.4**	**55.9**	**59.4**	**55.9**
Time (HR)						**2.5**	**2.7**	**2.5**	**2.7**	**2.5**	**2.7**	**2.5**	**2.7**	**2.5**	**2.7**
38	**I-10**		**I-20 - San Antonio UL**												
R.Int		203.3	4.0	64.7	6,845	60.7	56.5	60.7	56.5	60.7	56.5	60.7	56.5	60.7	56.5
U.Int		3.1	4.0	40.0	5,387	58.4	53.8	58.4	53.8	58.4	53.8	58.4	53.8	58.4	53.8
Total Sample		206.4													
TOTAL	**364.0**		**4.0**	**64.1**	**6,823**	**60.6**	**56.4**	**60.6**	**56.4**	**60.6**	**56.4**	**60.6**	**56.4**	**60.6**	**56.4**
Time (HR)						**6.0**	**6.5**	**6.0**	**6.5**	**6.0**	**6.5**	**6.0**	**6.5**	**6.0**	**6.5**
39	**I-10**		**Through San Antonio**												
U.Int		28.2	4.7	40.0	59,197	34.3	33.0	34.3	33.0	34.3	33.0	53.2	49.6	53.2	49.6
Total Sample		28.2													
TOTAL	**37.0**		**4.7**	**40.0**	**59,197**	**34.3**	**33.0**	**34.3**	**33.0**	**34.3**	**33.0**	**53.2**	**49.6**	**53.2**	**49.6**
Time (HR)						**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**0.7**	**0.7**	**0.7**	**0.7**
40	**I-10**		**San Antonio UL - Houston UL**												
R.Int		75.9	4.1	65.0	22,530	61.3	58.7	61.3	58.7	61.3	58.7	61.3	58.7	61.3	58.7
U.Int		3.2	4.0	40.0	26,567	60.1	57.5	60.1	57.5	60.1	57.5	60.1	57.5	60.1	57.5
Total Sample		79.0													
TOTAL	**164.0**		**4.1**	**63.4**	**22,692**	**61.3**	**58.7**	**61.3**	**58.7**	**61.3**	**58.7**	**61.3**	**58.7**	**61.3**	**58.7**
Time (HR)						**2.7**	**2.8**	**2.7**	**2.8**	**2.7**	**2.8**	**2.7**	**2.8**	**2.7**	**2.8**
41	**I-10**		**Through Houston**												
U.Int		31.3	6.5	40.0	105,072	22.5	22.5	22.5	22.5	22.5	22.5	54.3	53.9	54.3	53.9
Total Sample		31.3													
TOTAL	**37.0**		**6.5**	**40.0**	**105,072**	**22.5**	**22.5**	**22.5**	**22.5**	**22.5**	**22.5**	**54.3**	**53.9**	**54.3**	**53.9**
Time (HR)						**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**0.7**	**0.7**	**0.7**	**0.7**
42	**I-10**		**Houston UL - Louisiana SL**												
R.Int		61.9	4.5	65.0	29,056	59.4	56.5	59.4	56.5	59.4	56.5	61.8	58.7	61.8	58.7
U.Int		18.4	4.9	40.0	54,225	50.9	49.2	51.1	49.4	51.1	49.4	56.1	54.6	56.1	54.6
Total Sample		80.3													
TOTAL	**89.0**		**4.6**	**56.9**	**34,814**	**57.2**	**54.6**	**57.2**	**54.7**	**57.2**	**54.7**	**60.4**	**57.7**	**60.4**	**57.7**
Time (HR)						**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.5**	**1.5**	**1.5**	**1.5**

WTTN-Operating Speeds
Texas Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed S. Truck	Existing Condition Peak Hour Speed C. Truck	Peak Hour Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
100	**I-30**		**In Dallas/Ft. Worth**												
U.Int		54.2	6.0	40.0	95,138	23.8	23.5	23.8	23.5	23.8	23.5	54.0	51.7	54.1	51.8
Total Sample		54.2													
TOTAL	**70.0**		**6.0**	**40.0**	**95,138**	**23.8**	**23.5**	**23.8**	**23.5**	**23.8**	**23.5**	**54.0**	**51.7**	**54.1**	**51.8**
Time (HR)						**2.9**	**3.0**	**2.9**	**3.0**	**2.9**	**3.0**	**1.3**	**1.4**	**1.3**	**1.4**
101	**I-30**		**Dallas/Ft. Worth UL - Texarkana (Arkansas SL)**												
R.Int		56.4	4.0	65.0	21,376	63.8	62.8	63.8	62.8	63.8	62.8	63.8	62.8	63.8	62.8
U.Int		29.9	4.0	40.0	27,398	63.5	63.1	63.5	63.1	63.5	63.1	63.5	63.1	63.5	63.1
Total Sample		86.3													
TOTAL	**151.0**		**4.0**	**53.4**	**23,462**	**63.7**	**62.9**	**63.7**	**62.9**	**63.7**	**62.9**	**63.7**	**62.9**	**63.7**	**62.9**
Time (HR)						**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**
110	**I-35**		**Laredo - San Antonio UL**												
R.Int		92.4	4.0	65.0	10,667	60.9	58.4	61.0	58.6	61.0	58.6	61.0	58.6	61.0	58.6
U.Int		11.0	4.0	40.0	29,000	56.3	53.3	56.3	53.3	56.3	53.3	56.3	53.3	56.3	53.3
Total Sample		103.4													
TOTAL	**140.0**		**4.0**	**61.0**	**12,615**	**60.3**	**57.8**	**60.5**	**58.0**	**60.5**	**58.0**	**60.5**	**58.0**	**60.5**	**58.0**
Time (HR)						**2.3**	**2.4**	**2.3**	**2.4**	**2.3**	**2.4**	**2.3**	**2.4**	**2.3**	**2.4**
111	**I-35**		**Through San Antonio**												
U.Int		11.2	6.1	40.0	88,125	26.6	26.0	26.6	26.0	26.6	26.0	54.1	51.1	54.1	51.1
Total Sample		11.2													
TOTAL	**35.0**		**6.1**	**40.0**	**88,125**	**26.6**	**26.0**	**26.6**	**26.0**	**26.6**	**26.0**	**54.1**	**51.1**	**54.1**	**51.1**
Time (HR)						**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**0.6**	**0.7**	**0.6**	**0.7**
112	**I-35**		**San Antonio UL - Dallas/Ft. Worth UL**												
R.Int		56.4	4.6	65.0	46,905	55.1	51.9	55.1	51.9	55.1	51.9	58.0	54.7	58.0	54.7
U.Int		83.2	5.2	40.0	77,733	30.9	29.9	30.9	29.9	30.9	29.9	54.3	50.8	54.3	50.8
Total Sample		139.5													
TOTAL	**253.0**		**5.0**	**47.4**	**65,276**	**37.6**	**36.1**	**37.6**	**36.1**	**37.6**	**36.1**	**55.7**	**52.3**	**55.7**	**52.3**
Time (HR)						**6.7**	**7.0**	**6.7**	**7.0**	**6.7**	**7.0**	**4.5**	**4.8**	**4.5**	**4.8**
113	**I-35 E/W**		**Through Dallas/Ft. Worth**												
R.Int		40.8	4.0	65.0	19,448	59.2	55.7	59.2	55.7	59.2	55.7	59.6	56.0	59.6	56.0
U.Int		69.5	5.9	40.0	90,080	25.6	25.2	25.6	25.2	25.6	25.2	53.8	50.7	53.8	50.7
Total Sample		110.2													
TOTAL	**130.0**		**5.2**	**46.6**	**63,950**	**32.4**	**31.6**	**32.4**	**31.6**	**32.4**	**31.6**	**55.8**	**52.5**	**55.8**	**52.5**
Time (HR)						**4.0**	**4.1**	**4.0**	**4.1**	**4.0**	**4.1**	**2.3**	**2.5**	**2.3**	**2.5**
114	**I-35**		**Dallas/Ft. Worth UL - Oklahoma SL**												
R.Int		15.6	4.0	65.0	24,965	59.1	56.2	59.1	56.2	59.1	56.2	59.1	56.2	59.1	56.2
U.Int		3.3	4.0	40.0	27,709	59.9	57.7	59.9	57.7	59.9	57.7	59.9	57.7	59.9	57.7
Total Sample		18.9													
TOTAL	**39.0**		**4.0**	**58.6**	**25,447**	**59.3**	**56.4**	**59.3**	**56.4**	**59.3**	**56.4**	**59.3**	**56.4**	**59.3**	**56.4**
Time (HR)						**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**

WTTN-Operating Speeds
Texas Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed		Peak Hour Speed for Cumulative Improvements: Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
120	**I-37**		**Through San Antonio (I-35 - UL)**												
U.Int		10.9	5.6	40.0	69,020	48.8	45.6	48.8	45.6	48.8	45.6	54.0	50.7	54.0	50.7
Total Sample		10.9													
TOTAL	**17.0**		**5.6**	**40.0**	**69,020**	**48.8**	**45.6**	**48.8**	**45.6**	**48.8**	**45.6**	**54.0**	**50.7**	**54.0**	**50.7**
Time (HR)						**0.3**	**0.4**	**0.3**	**0.4**	**0.3**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**
121	**I-37**		**San Antonio UL - Corpus Christi UL**												
R.Int		58.5	4.0	65.0	12,864	60.7	57.5	60.7	57.5	60.7	57.5	60.7	57.5	60.7	57.5
Total Sample		58.5													
TOTAL	**119.0**		**4.0**	**65.0**	**12,864**	**60.7**	**57.5**	**60.7**	**57.5**	**60.7**	**57.5**	**60.7**	**57.5**	**60.7**	**57.5**
Time (HR)						**2.0**	**2.1**	**2.0**	**2.1**	**2.0**	**2.1**	**2.0**	**2.1**	**2.0**	**2.1**
122	**I-37**		**Through Corpus Christi (UL - US 181)**												
U.Int		15.8	5.5	40.0	45,893	54.2	51.1	54.2	51.1	54.2	51.1	54.2	51.1	54.2	51.1
Total Sample		15.8													
TOTAL	**15.8**		**5.5**	**40.0**	**45,893**	**54.2**	**51.1**	**54.2**	**51.1**	**54.2**	**51.1**	**54.2**	**51.1**	**54.2**	**51.1**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
135	**I-40**		**New Mexico SL - Amarillo UL**												
R.Int		34.7	4.0	65.0	11,371	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2
Total Sample		34.7													
TOTAL	**62.0**		**4.0**	**65.0**	**11,371**	**65.2**	**65.2**	**65.2**	**65.2**	**65.2**	**65.2**	**65.2**	**65.2**	**65.2**	**65.2**
Time (HR)						**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
136	**I-40**		**Through Amarillo**												
U.Int		15.7	5.6	40.0	50,695	49.5	49.5	49.5	49.5	49.5	49.5	58.1	58.1	58.1	58.1
Total Sample		15.7													
TOTAL	**15.7**		**5.6**	**40.0**	**50,695**	**49.5**	**49.5**	**49.5**	**49.5**	**49.5**	**49.5**	**58.1**	**58.1**	**58.1**	**58.1**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
137	**I-40**		**Amarillo UL- Oklahoma SL**												
R.Int		60.7	4.0	65.0	12,623	63.1	61.3	63.1	61.3	63.1	61.3	63.1	61.3	63.1	61.3
Total Sample		60.7													
TOTAL	**99.0**		**4.0**	**65.0**	**12,623**	**63.1**	**61.3**	**63.1**	**61.3**	**63.1**	**61.3**	**63.1**	**61.3**	**63.1**	**61.3**
Time (HR)						**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**
140	**I-44**		**US 287 - Oklahoma SL**												
R.Int		2.6	4.0	65.0	16,557	60.3	57.6	60.3	57.6	60.3	57.6	60.3	57.6	60.3	57.6
U.Int		12.0	4.9	40.0	22,996	54.0	50.3	54.3	50.6	54.3	50.6	54.3	50.6	54.3	50.6
Total Sample		14.6													
TOTAL	**14.6**		**4.7**	**42.9**	**21,861**	**55.0**	**51.5**	**55.3**	**51.7**	**55.3**	**51.7**	**55.3**	**51.7**	**55.3**	**51.7**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**

WTTN-Operating Speeds
Texas Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed		Peak Hour Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
150	**I-45**		**In Dallas/Ft. Worth**												
U.Int		12.3	4.6	40.0	43,089	52.7	49.1	52.7	49.1	52.7	49.1	52.7	49.1	52.7	49.1
Total Sample		12.3													
TOTAL	**18.0**		**4.6**	**40.0**	**43,089**	**52.7**	**49.1**	**52.7**	**49.1**	**52.7**	**49.1**	**52.7**	**49.1**	**52.7**	**49.1**
Time (HR)						**0.3**	**0.4**	**0.3**	**0.4**	**0.3**	**0.4**	**0.3**	**0.4**	**0.3**	**0.4**
151	**I-45**		**Dallas/Ft. Worth UL - Houston UL**												
R.Int		61.5	4.1	65.0	36,566	51.8	51.2	51.8	51.2	51.8	51.2	63.1	62.2	63.1	62.2
U.Int		19.7	4.0	40.0	34,968	37.4	36.6	37.4	36.6	37.4	36.6	58.5	55.9	58.5	55.9
Total Sample		81.2													
TOTAL	**200.0**		**4.1**	**56.4**	**36,178**	**47.4**	**46.7**	**47.4**	**46.7**	**47.4**	**46.7**	**61.9**	**60.6**	**61.9**	**60.6**
Time (HR)						**4.2**	**4.3**	**4.2**	**4.3**	**4.2**	**4.3**	**3.2**	**3.3**	**3.2**	**3.3**
152	**I-45**		**Through Houston**												
U.Int		26.8	7.8	40.0	165,450	18.4	18.3	18.4	18.3	18.4	18.3	54.7	53.6	54.7	53.6
Total Sample		26.8													
TOTAL	**34.0**		**7.8**	**40.0**	**165,450**	**18.4**	**18.3**	**18.4**	**18.3**	**18.4**	**18.3**	**54.7**	**53.6**	**54.7**	**53.6**
Time (HR)						**1.8**	**1.9**	**1.8**	**1.9**	**1.8**	**1.9**	**0.6**	**0.6**	**0.6**	**0.6**
153	**I-45**		**Houston UL - Galveston**												
R.Int		4.8	5.0	65.0	78,896	35.5	35.0	35.5	35.0	35.5	35.0	57.5	55.4	59.1	57.0
U.Int		20.3	6.0	40.0	54,149	55.4	54.6	55.4	54.6	55.4	54.6	55.4	54.6	55.4	54.6
Total Sample		25.1													
TOTAL	**32.0**		**5.8**	**43.2**	**58,883**	**50.0**	**49.4**	**50.0**	**49.4**	**50.0**	**49.4**	**55.8**	**54.8**	**56.0**	**55.1**
Time (HR)						**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
410	**US 54**		**I-10 @ El Paso - New Mexico SL**												
R.MaC		1.1	2.0	55.0	1,550	45.3	44.4	45.3	44.4	45.3	44.4	46.8	45.8	46.8	45.8
U.OFE		9.0	4.7	40.0	47,906	53.5	49.9	53.9	50.2	53.9	50.2	53.9	50.2	53.9	50.2
U.OPA		3.0	6.0	35.0	19,354	29.3	29.2	29.3	29.2	29.3	29.2	29.3	29.2	29.3	29.2
Total Sample		13.1													
TOTAL	**20.0**		**4.8**	**39.6**	**37,501**	**44.5**	**42.5**	**44.7**	**42.7**	**44.7**	**42.7**	**44.8**	**42.8**	**44.8**	**42.8**
Time (HR)						**0.4**	**0.5**	**0.4**	**0.5**	**0.4**	**0.5**	**0.4**	**0.5**	**0.4**	**0.5**
411	**US 54**		**New Mexico SL - Oklahoma SL (through Texas)**												
R.OPA		89.3	2.0	55.0	2,010	47.1	47.0	47.1	47.0	47.1	47.0	48.6	48.5	48.8	48.7
U.OPA		1.3	4.0	35.0	5,909	19.0	19.0	19.5	19.4	19.5	19.5	19.5	19.5	28.8	28.8
Total Sample		90.6													
TOTAL	**92.0**		**2.1**	**54.6**	**2,065**	**46.1**	**46.0**	**46.2**	**46.1**	**46.2**	**46.1**	**47.6**	**47.5**	**48.3**	**48.2**
Time (HR)						**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**1.9**	**1.9**	**1.9**	**1.9**

WTTN-Operating Speeds
Texas Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed S. Truck	Existing Condition Peak Hour Speed C. Truck	Peak Hour Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
420	**US 59**		**Laredo - Houston UL**												
R.OPA		108.9	2.6	55.0	8,975	48.1	46.8	48.1	46.8	48.2	46.9	50.1	48.7	50.6	49.2
U.OFE		2.6	4.0	40.0	58,216	56.8	56.4	56.8	56.4	56.8	56.4	56.8	56.4	56.8	56.4
U.OPA		15.5	2.9	35.0	9,806	28.2	27.9	28.2	27.9	28.2	28.0	28.2	28.0	29.8	29.6
Total Sample		127.0													
TOTAL	**290.0**		**2.7**	**51.1**	**10,087**	**44.4**	**43.3**	**44.4**	**43.3**	**44.5**	**43.5**	**45.9**	**44.8**	**46.7**	**45.6**
Time (HR)						**6.5**	**6.7**	**6.5**	**6.7**	**6.5**	**6.7**	**6.3**	**6.5**	**6.2**	**6.4**
421	**US 59**		**Through Houston**												
U.OFE		31.6	6.9	40.0	153,188	21.4	21.2	21.5	21.4	21.5	21.4	54.2	53.1	54.2	53.1
Total Sample		31.6													
TOTAL	**43.0**		**6.9**	**40.0**	**153,188**	**21.4**	**21.2**	**21.5**	**21.4**	**21.5**	**21.4**	**54.2**	**53.1**	**54.2**	**53.1**
Time (HR)						**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**0.8**	**0.8**	**0.8**	**0.8**
422	**US 59**		**Houston UL - I-30**												
R.OPA		68.4	4.0	55.0	25,048	44.8	43.9	44.9	44.0	44.9	44.1	52.8	51.6	53.2	52.0
R.MiA		1.7	4.0	55.0	5,363	35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5	44.4	44.4
R.MaC		31.1	2.1	55.0	1,243	40.6	38.3	40.6	38.3	42.7	40.7	45.0	42.8	46.3	44.0
U.OFE		5.6	4.5	40.0	43,313	27.7	27.7	28.5	28.5	28.5	28.5	56.5	56.2	56.5	56.2
U.OPA		36.3	4.1	35.0	17,717	32.8	32.5	32.8	32.5	32.8	32.5	32.8	32.5	33.2	32.9
U.MiA		1.4	2.0	35.0	5,200	23.5	22.8	23.5	22.8	23.6	23.1	23.6	23.1	26.4	25.8
U.Col		0.3	2.0	35.0	3,800	26.0	25.9	26.0	25.9	26.0	25.9	26.0	25.9	26.0	25.9
Total Sample		144.8													
TOTAL	**275.0**		**3.6**	**47.2**	**18,324**	**38.9**	**38.0**	**39.0**	**38.1**	**39.4**	**38.6**	**43.7**	**42.7**	**44.5**	**43.5**
Time (HR)						**7.1**	**7.2**	**7.1**	**7.2**	**7.0**	**7.1**	**6.3**	**6.4**	**6.2**	**6.3**
440	**US 77**		**Brownsville to US 59**												
R.OPA		69.4	4.0	55.0	10,633	52.9	52.4	52.9	52.4	52.9	52.4	52.9	52.4	53.7	53.2
R.MiA		11.4	2.0	54.0	5,033	40.6	38.0	40.6	38.0	41.2	39.6	42.1	40.5	42.7	41.0
R.MaC		11.4	2.0	55.0	3,239	42.0	41.6	42.0	41.6	42.0	41.6	46.8	45.9	46.8	45.9
U.OFE		19.6	4.0	40.0	27,446	58.9	57.8	58.9	57.8	58.9	57.8	58.9	57.8	58.9	57.8
U.OPA		29.3	3.8	35.0	14,001	27.2	27.0	27.3	27.1	27.3	27.2	27.3	27.2	29.5	29.3
U.MiA		2.0	2.5	35.0	9,888	19.8	19.7	19.8	19.8	19.8	19.8	19.8	19.8	26.9	26.5
Total Sample		143.2													
TOTAL	**234.0**		**3.6**	**46.7**	**12,582**	**42.4**	**41.8**	**42.4**	**41.8**	**42.5**	**42.0**	**42.9**	**42.4**	**44.7**	**44.1**
Time (HR)						**5.5**	**5.6**	**5.5**	**5.6**	**5.5**	**5.6**	**5.4**	**5.5**	**5.2**	**5.3**
540	**US 281**		**Mexico to I-37**												
R.OPA		40.1	3.7	55.0	5,876	48.8	46.3	48.9	46.4	49.2	46.7	50.2	47.6	50.6	47.9
R.MiA		20.5	2.0	55.0	2,032	44.0	40.8	44.0	40.8	45.4	42.4	47.3	44.0	47.3	44.0
R.MaC		28.4	2.0	55.0	1,483	44.5	42.3	44.5	42.3	44.9	42.7	46.6	44.2	46.6	44.2
U.OFE		7.7	4.1	40.0	39,737	50.8	49.6	50.8	49.6	50.8	49.6	53.6	52.3	56.8	55.3
U.OPA		11.0	4.0	35.0	12,840	27.6	27.5	27.6	27.5	27.7	27.7	27.7	27.7	30.3	30.2
Total Sample		107.7													
TOTAL	**171.0**		**3.0**	**50.7**	**7,115**	**43.5**	**41.5**	**43.5**	**41.5**	**44.0**	**42.0**	**45.2**	**43.1**	**46.1**	**44.0**
Time (HR)						**3.9**	**4.1**	**3.9**	**4.1**	**3.9**	**4.1**	**3.8**	**4.0**	**3.7**	**3.9**

WTTN-Operating Speeds
Texas Results - Performance Enhancement
Peak Hour Speed

						Existing Condition		Peak Hour Speed for Cumulative Improvements							
						Peak Hour Speed		Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
550	**US 287**		**Oklahoma SL - Amarillo UL**												
R.OPA		35.7	3.6	55.0	4,354	53.3	53.2	53.3	53.2	53.3	53.3	53.7	53.6	53.7	53.6
U.OPA		1.0	4.0	35.0	12,455	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	30.7	30.6
Total Sample		36.8													
TOTAL	**90.0**		**3.6**	**54.2**	**4,576**	**51.6**	**51.5**	**51.6**	**51.5**	**51.6**	**51.5**	**51.9**	**51.9**	**52.6**	**52.6**
Time (HR)						**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**
551	**US 287**		**Through Amarillo**												
U.OFE		6.8	4.4	40.0	12,564	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3
Total Sample		6.8													
TOTAL	**6.8**		**4.4**	**40.0**	**12,564**	**58.3**	**58.3**	**58.3**	**58.3**	**58.3**	**58.3**	**58.3**	**58.3**	**58.3**	**58.3**
Time (HR)						**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
552	**US 287**		**Amarillo UL - I-44 @ Wichita Falls**												
R.OPA		44.5	4.0	55.0	7,765	48.8	46.3	48.9	46.3	48.9	46.4	48.9	46.4	50.7	47.9
R.MaC		4.4	4.0	55.0	4,810	52.8	51.6	52.8	51.6	54.1	53.6	54.1	53.6	54.1	53.6
U.OFE		4.4	4.0	40.0	18,885	55.9	51.9	55.9	51.9	55.9	51.9	55.9	51.9	55.9	51.9
U.OPA		6.5	4.0	35.0	9,616	27.6	27.5	28.0	27.9	28.3	28.3	28.3	28.3	29.8	29.8
Total Sample		59.8													
TOTAL	**198.0**		**4.0**	**50.5**	**8,560**	**45.7**	**43.7**	**45.9**	**43.9**	**46.1**	**44.1**	**46.1**	**44.1**	**47.6**	**45.5**
Time (HR)						**4.3**	**4.5**	**4.3**	**4.5**	**4.3**	**4.5**	**4.3**	**4.5**	**4.2**	**4.3**
553	**US 287**		**I-44 @ Wichita Falls - Dallas/Ft. Worth UL**												
R.OPA		10.2	4.0	55.0	15,177	52.3	50.1	52.3	50.1	52.3	50.1	52.3	50.1	52.3	50.1
U.OPA		3.4	4.0	35.0	7,863	19.5	19.5	19.8	19.8	19.8	19.8	19.8	19.8	29.2	28.6
Total Sample		13.7													
TOTAL	**105.0**		**4.0**	**48.1**	**13,343**	**36.8**	**35.9**	**37.1**	**36.2**	**37.1**	**36.2**	**37.1**	**36.2**	**43.7**	**42.1**
Time (HR)						**2.9**	**2.9**	**2.8**	**2.9**	**2.8**	**2.9**	**2.8**	**2.9**	**2.4**	**2.5**
554	**US 287**		**Through Dallas/Ft. Worth (North UL - I-45 @Ennis)**												
R.OPA		13.0	2.6	55.0	11,789	44.0	42.0	44.0	42.0	44.7	42.8	48.7	46.2	48.7	46.2
U.OFE		16.5	4.8	40.0	31,271	27.7	27.0	27.7	27.1	27.7	27.1	36.5	35.4	36.5	35.4
U.OPA		13.6	3.8	35.0	11,832	29.0	28.1	29.0	28.2	29.2	28.4	29.2	28.4	32.2	31.2
U.MiA		2.4	2.0	35.0	9,436	26.0	25.3	26.0	25.3	26.4	25.7	26.4	25.7	26.4	25.7
Total Sample		45.5													
TOTAL	**61.0**		**3.7**	**41.1**	**18,767**	**31.3**	**30.3**	**31.4**	**30.4**	**31.5**	**30.6**	**35.6**	**34.5**	**36.9**	**35.7**
Time (HR)						**1.9**	**2.0**	**1.9**	**2.0**	**1.9**	**2.0**	**1.7**	**1.8**	**1.7**	**1.7**

WTTN-Operating Speeds
Texas Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed S. Truck	Existing Condition Peak Hour Speed C. Truck	Peak Hour Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
555	**US 287**		**I-45 @ Ennis - Port Arthur**												
R.MiA		36.6	2.0	55.0	2,514	44.3	40.7	44.3	40.7	44.5	41.0	46.1	42.4	46.1	42.4
R.MaC		8.9	2.0	55.0	1,542	45.1	44.5	45.1	44.5	45.1	44.5	46.6	45.9	46.6	45.9
U.OFE		0.5	4.0	40.0	11,500	55.9	51.8	55.9	51.8	55.9	51.8	55.9	51.8	55.9	51.8
U.OPA		3.9	4.0	35.0	10,159	29.7	27.6	29.7	27.6	29.7	27.6	29.7	27.6	29.7	27.6
U.MiA		1.4	2.0	35.0	1,987	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9	26.6	26.6
Total Sample		51.3													
TOTAL	**254.0**		**2.2**	**51.8**	**2,998**	**41.9**	**39.1**	**41.9**	**39.1**	**42.0**	**39.3**	**43.3**	**40.4**	**43.6**	**40.7**
Time (HR)						**6.1**	**6.5**	**6.1**	**6.5**	**6.0**	**6.5**	**5.9**	**6.3**	**5.8**	**6.2**
70	**I-20**		**I-10 - Dallas/Ft. Worth UL**												
R.Int		180.6	4.1	65.0	12,637	59.7	55.7	59.8	55.7	59.8	55.7	59.8	55.7	59.8	55.7
U.Int		52.5	4.0	40.0	13,078	58.2	55.2	58.2	55.2	58.2	55.2	58.2	55.2	58.2	55.2
Total Sample		233.0													
TOTAL	**420.0**		**4.0**	**57.0**	**12,736**	**59.4**	**55.5**	**59.4**	**55.6**	**59.4**	**55.6**	**59.4**	**55.6**	**59.4**	**55.6**
Time (HR)						**7.1**	**7.6**	**7.1**	**7.6**	**7.1**	**7.6**	**7.1**	**7.6**	**7.1**	**7.6**
71	**I-20**		**Through Dallas/Ft. Worth**												
U.Int		46.0	7.9	40.0	101,738	29.0	28.2	29.1	28.2	29.1	28.2	51.9	48.2	51.9	48.2
Total Sample		46.0													
TOTAL	**79.0**		**7.9**	**40.0**	**101,738**	**29.0**	**28.2**	**29.1**	**28.2**	**29.1**	**28.2**	**51.9**	**48.2**	**51.9**	**48.2**
Time (HR)						**2.7**	**2.8**	**2.7**	**2.8**	**2.7**	**2.8**	**1.5**	**1.6**	**1.5**	**1.6**
72	**I-20**		**Dallas/Ft. Worth UL - Louisiana SL (Shreveport)**												
R.Int		48.6	4.0	65.0	24,989	61.8	59.0	61.8	59.0	61.8	59.0	61.8	59.0	61.8	59.0
U.Int		3.2	4.0	40.0	23,494	58.6	56.2	58.6	56.2	58.6	56.2	58.6	56.2	58.6	56.2
Total Sample		51.8													
TOTAL	**137.0**		**4.0**	**62.6**	**24,898**	**61.6**	**58.8**	**61.6**	**58.8**	**61.6**	**58.8**	**61.6**	**58.8**	**61.6**	**58.8**
Time (HR)						**2.2**	**2.3**	**2.2**	**2.3**	**2.2**	**2.3**	**2.2**	**2.3**	**2.2**	**2.3**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
Utah Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed		Peak Hour Speed	
								S. Truck	C. Truck	S. Truck	C. Truck
160	**I-70**		**I-15 - Colorado SL**								
R.Int		227.1	4.0	60.4	70.0	69.8	4,903	60.5	57.2	60.5	57.2
U.Int		5.0	4.0	40.0	70.0	70.0	4,489	63.6	63.6	63.6	63.6
Total Sample		232.1									
TOTAL	**232.1**		**4.0**	**59.8**	**70.0**	**69.8**	**4,894**	**60.5**	**57.3**	**60.5**	**57.3**
Time (HR)								**3.8**	**4.1**	**3.8**	**4.1**
175	**I-80**		**Nevada SL - Salt Lake City UL**								
R.Int		117.1	4.1	65.0	69.7	70.0	10,004	60.0	56.7	59.9	56.6
Total Sample		117.1									
TOTAL	**117.1**		**4.1**	**65.0**	**69.7**	**70.0**	**10,004**	**60.0**	**56.7**	**59.9**	**56.6**
Time (HR)								**2.0**	**2.1**	**2.0**	**2.1**
176	**I-80**		**Through Salt Lake City**								
R.Int		2.0	6.0	50.0	69.5	70.0	38,387	50.1	37.3	49.2	36.9
U.Int		12.5	5.5	40.0	65.0	70.0	51,457	58.0	56.8	39.1	38.6
Total Sample		14.5									
TOTAL	**14.5**		**5.6**	**41.1**	**65.6**	**70.0**	**49,657**	**56.7**	**53.0**	**40.2**	**38.3**
Time (HR)								**0.3**	**0.3**	**0.4**	**0.4**
177	**I-80**		**Salt Lake City UL - Wyoming SL**								
R.Int		63.4	4.4	61.8	70.0	70.0	16,371	62.6	61.6	62.3	61.2
Total Sample		63.4									
TOTAL	**63.4**		**4.4**	**61.8**	**70.0**	**70.0**	**16,371**	**62.6**	**61.6**	**62.3**	**61.2**
Time (HR)								**1.0**	**1.0**	**1.0**	**1.0**
194	**I-84**		**Idaho SL - N. Salt Lake City (I-15)**								
R.Int		43.2	4.0	65.0	70.0	70.0	7,986	60.6	57.9	60.6	57.9
Total Sample		43.2									
TOTAL	**43.2**		**4.0**	**65.0**	**70.0**	**70.0**	**7,986**	**60.6**	**57.9**	**60.6**	**57.9**
Time (HR)								**0.7**	**0.7**	**0.7**	**0.7**
195	**I-84**		**I-15 - I-80**								
R.Int		31.6	4.0	55.9	70.0	70.0	8,855	59.4	55.1	59.4	55.1
U.Int		7.9	4.0	40.0	65.3	70.0	9,400	58.6	56.0	58.6	56.0
Total Sample		39.5									
TOTAL	**39.5**		**4.0**	**51.8**	**69.0**	**70.0**	**8,964**	**59.2**	**55.3**	**59.2**	**55.3**
Time (HR)								**0.7**	**0.7**	**0.7**	**0.7**

WTTN-Operating Speeds
Utah Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
715	**I-15**		**Arizona SL - I-70**								
R.Int		115.1	4.0	64.6	70.0	70.0	13,016	61.5	59.5	61.5	59.5
U.Int		17.2	4.0	40.0	70.0	70.0	19,632	62.2	61.1	62.2	61.1
Total Sample		132.3									
TOTAL	**132.3**		**4.0**	**59.8**	**70.0**	**70.0**	**13,877**	**61.6**	**59.7**	**61.6**	**59.7**
Time (HR)								**2.1**	**2.2**	**2.1**	**2.2**
716	**I-15**		**I-70 - Salt Lake City UL (Provo)**								
R.Int		116.9	4.0	64.1	70.0	70.0	10,996	62.0	60.6	62.0	60.6
U.Int		5.1	4.0	40.0	70.0	70.0	22,904	57.4	52.3	57.4	52.3
Total Sample		122.0									
TOTAL	**122.0**		**4.0**	**62.5**	**70.0**	**70.0**	**11,495**	**61.8**	**60.2**	**61.8**	**60.2**
Time (HR)								**2.0**	**2.0**	**2.0**	**2.0**
717	**I-15**		**Through Salt Lake City (Provo - N. Ogden)**								
R.Int		2.4	5.2	65.0	67.9	70.0	70,182	56.5	52.7	49.2	46.4
U.Int		95.0	5.8	40.0	65.5	69.9	85,408	55.6	53.7	28.2	27.8
Total Sample		97.4									
TOTAL	**97.4**		**5.8**	**40.4**	**65.6**	**69.9**	**85,033**	**55.6**	**53.7**	**28.5**	**28.1**
Time (HR)								**1.8**	**1.8**	**3.4**	**3.5**
718	**I-15**		**Salt Lake City UL (N. Ogden) - Idaho SL**								
R.Int		49.3	4.0	65.0	70.0	70.0	18,355	61.0	59.1	60.7	58.9
Total Sample		49.3									
TOTAL	**49.3**		**4.0**	**65.0**	**70.0**	**70.0**	**18,355**	**61.0**	**59.1**	**60.7**	**58.9**
Time (HR)								**0.8**	**0.8**	**0.8**	**0.8**

WTTN-Operating Speeds
Utah Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed S. Truck		Average Daily Speed for Cumulative Improvements: Pavement Condition (1) S. Truck		Curves and Grades (2) S. Truck		Congestion (3) S. Truck		Speed Limit (4) S. Truck	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
160	**I-70**		**I-15 - Colorado SL**												
R.Int		227.1	4.0	60.4	4,903	60.5	57.2	60.6	57.3	60.6	57.3	60.6	57.3	60.6	57.3
U.Int		5.0	4.0	40.0	4,489	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6
Total Sample		232.1													
TOTAL	**232.1**		**4.0**	**59.8**	**4,894**	**60.5**	**57.3**	**60.7**	**57.4**	**60.7**	**57.4**	**60.7**	**57.4**	**60.7**	**57.4**
Time (HR)						**3.8**	**4.1**	**3.8**	**4.0**	**3.8**	**4.0**	**3.8**	**4.0**	**3.8**	**4.0**
175	**I-80**		**Nevada SL - Salt Lake City UL**												
R.Int		117.1	4.1	65.0	10,004	60.0	56.7	60.0	56.7	60.0	56.7	60.0	56.7	60.0	56.7
Total Sample		117.1													
TOTAL	**117.1**		**4.1**	**65.0**	**10,004**	**60.0**	**56.7**	**60.0**	**56.7**	**60.0**	**56.7**	**60.0**	**56.7**	**60.0**	**56.7**
Time (HR)						**2.0**	**2.1**	**2.0**	**2.1**	**2.0**	**2.1**	**2.0**	**2.1**	**2.0**	**2.1**
176	**I-80**		**Through Salt Lake City**												
R.Int		2.0	6.0	50.0	38,387	50.1	37.3	50.1	37.3	50.1	37.3	50.1	37.3	50.1	37.3
U.Int		12.5	5.5	40.0	51,457	58.0	56.8	60.0	58.6	60.0	58.6	60.0	58.7	60.0	58.7
Total Sample		14.5													
TOTAL	**14.5**		**5.6**	**41.1**	**49,657**	**56.7**	**53.0**	**58.4**	**54.3**	**58.4**	**54.3**	**58.4**	**54.4**	**58.4**	**54.4**
Time (HR)						**0.3**	**0.3**	**0.2**	**0.3**	**0.2**	**0.3**	**0.2**	**0.3**	**0.2**	**0.3**
177	**I-80**		**Salt Lake City UL - Wyoming SL**												
R.Int		63.4	4.4	61.8	16,371	62.6	61.6	63.0	62.0	63.0	62.0	63.0	62.0	63.0	62.0
Total Sample		63.4													
TOTAL	**63.4**		**4.4**	**61.8**	**16,371**	**62.6**	**61.6**	**63.0**	**62.0**	**63.0**	**62.0**	**63.0**	**62.0**	**63.0**	**62.0**
Time (HR)						**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
194	**I-84**		**Idaho SL - N. Salt Lake City (I-15)**												
R.Int		43.2	4.0	65.0	7,986	60.6	57.9	60.8	58.2	60.8	58.2	60.8	58.2	60.8	58.2
Total Sample		43.2													
TOTAL	**43.2**		**4.0**	**65.0**	**7,986**	**60.6**	**57.9**	**60.8**	**58.2**	**60.8**	**58.2**	**60.8**	**58.2**	**60.8**	**58.2**
Time (HR)						**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**
195	**I-84**		**I-15 - I-80**												
R.Int		31.6	4.0	55.9	8,855	59.4	55.1	59.4	55.1	59.4	55.1	59.4	55.1	59.4	55.1
U.Int		7.9	4.0	40.0	9,400	58.6	56.0	59.2	56.6	59.2	56.6	59.2	56.6	59.2	56.6
Total Sample		39.5													
TOTAL	**39.5**		**4.0**	**51.8**	**8,964**	**59.2**	**55.3**	**59.3**	**55.4**	**59.3**	**55.4**	**59.3**	**55.4**	**59.3**	**55.4**
Time (HR)						**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**
715	**I-15**		**Arizona SL - I-70**												
R.Int		115.1	4.0	64.6	13,016	61.5	59.5	61.6	59.7	61.6	59.7	61.6	59.7	61.6	59.7
U.Int		17.2	4.0	40.0	19,632	62.2	61.1	62.2	61.1	62.2	61.1	62.2	61.1	62.2	61.1
Total Sample		132.3													
TOTAL	**132.3**		**4.0**	**59.8**	**13,877**	**61.6**	**59.7**	**61.7**	**59.8**	**61.7**	**59.8**	**61.7**	**59.8**	**61.7**	**59.8**
Time (HR)						**2.1**	**2.2**	**2.1**	**2.2**	**2.1**	**2.2**	**2.1**	**2.2**	**2.1**	**2.2**

WTTN-Operating Speeds
Utah Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed		Average Daily Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
716	**I-15**		**I-70 - Salt Lake City UL (Provo)**												
R.Int		116.9	4.0	64.1	10,996	62.0	60.6	62.6	61.2	62.6	61.2	62.6	61.2	62.6	61.2
U.Int		5.1	4.0	40.0	22,904	57.4	52.3	57.4	52.3	57.4	52.3	57.4	52.3	57.4	52.3
Total Sample		122.0													
TOTAL	**122.0**		**4.0**	**62.5**	**11,495**	**61.8**	**60.2**	**62.4**	**60.8**	**62.4**	**60.8**	**62.4**	**60.8**	**62.4**	**60.8**
Time (HR)						**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
717	**I-15**		**Through Salt Lake City (Provo - N. Ogden)**												
R.Int		2.4	5.2	65.0	70,182	56.5	52.7	56.6	52.7	56.6	52.7	56.6	52.7	56.6	52.7
U.Int		95.0	5.8	40.0	85,408	55.6	53.7	56.0	54.1	56.0	54.1	59.1	57.0	59.1	57.0
Total Sample		97.4													
TOTAL	**97.4**		**5.8**	**40.4**	**85,033**	**55.6**	**53.7**	**56.0**	**54.1**	**56.0**	**54.1**	**59.0**	**56.9**	**59.0**	**56.9**
Time (HR)						**1.8**	**1.8**	**1.7**	**1.8**	**1.7**	**1.8**	**1.7**	**1.7**	**1.7**	**1.7**
718	**I-15**		**Salt Lake City UL (N. Ogden) - Idaho SL**												
R.Int		49.3	4.0	65.0	18,355	61.0	59.1	61.2	59.3	61.2	59.3	61.2	59.3	61.2	59.3
Total Sample		49.3													
TOTAL	**49.3**		**4.0**	**65.0**	**18,355**	**61.0**	**59.1**	**61.2**	**59.3**	**61.2**	**59.3**	**61.2**	**59.3**	**61.2**	**59.3**
Time (HR)						**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
Utah Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed		Peak Hour Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
160	**I-70**		**I-15 - Colorado SL**												
R.Int		227.1	4.0	60.4	4,903	60.5	57.2	60.6	57.3	60.6	57.3	60.6	57.3	60.6	57.3
U.Int		5.0	4.0	40.0	4,489	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6
Total Sample		232.1													
TOTAL	**232.1**		**4.0**	**59.8**	**4,894**	**60.5**	**57.3**	**60.7**	**57.4**	**60.7**	**57.4**	**60.7**	**57.4**	**60.7**	**57.4**
Time (HR)						**3.8**	**4.1**	**3.8**	**4.0**	**3.8**	**4.0**	**3.8**	**4.0**	**3.8**	**4.0**
175	**I-80**		**Nevada SL - Salt Lake City UL**												
R.Int		117.1	4.1	65.0	10,004	59.9	56.6	59.9	56.6	59.9	56.6	59.9	56.6	59.9	56.6
Total Sample		117.1													
TOTAL	**117.1**		**4.1**	**65.0**	**10,004**	**59.9**	**56.6**	**59.9**	**56.6**	**59.9**	**56.6**	**59.9**	**56.6**	**59.9**	**56.6**
Time (HR)						**2.0**	**2.1**	**2.0**	**2.1**	**2.0**	**2.1**	**2.0**	**2.1**	**2.0**	**2.1**
176	**I-80**		**Through Salt Lake City**												
R.Int		2.0	6.0	50.0	38,387	49.2	36.9	49.2	36.9	49.2	36.9	49.2	36.9	49.2	36.9
U.Int		12.5	5.5	40.0	51,457	39.1	38.6	40.6	40.1	40.6	40.1	56.1	54.9	56.1	54.9
Total Sample		14.5													
TOTAL	**14.5**		**5.6**	**41.1**	**49,657**	**40.2**	**38.3**	**41.6**	**39.6**	**41.6**	**39.6**	**55.1**	**51.5**	**55.1**	**51.5**
Time (HR)						**0.4**	**0.4**	**0.3**	**0.4**	**0.3**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**
177	**I-80**		**Salt Lake City UL - Wyoming SL**												
R.Int		63.4	4.4	61.8	16,371	62.3	61.2	62.7	61.7	62.7	61.7	62.7	61.7	62.7	61.7
Total Sample		63.4													
TOTAL	**63.4**		**4.4**	**61.8**	**16,371**	**62.3**	**61.2**	**62.7**	**61.7**	**62.7**	**61.7**	**62.7**	**61.7**	**62.7**	**61.7**
Time (HR)						**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
194	**I-84**		**Idaho SL - N. Salt Lake City (I-15)**												
R.Int		43.2	4.0	65.0	7,986	60.6	57.9	60.8	58.2	60.8	58.2	60.8	58.2	60.8	58.2
Total Sample		43.2													
TOTAL	**43.2**		**4.0**	**65.0**	**7,986**	**60.6**	**57.9**	**60.8**	**58.2**	**60.8**	**58.2**	**60.8**	**58.2**	**60.8**	**58.2**
Time (HR)						**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**
195	**I-84**		**I-15 - I-80**												
R.Int		31.6	4.0	55.9	8,855	59.4	55.1	59.4	55.1	59.4	55.1	59.4	55.1	59.4	55.1
U.Int		7.9	4.0	40.0	9,400	58.6	56.0	59.2	56.6	59.2	56.6	59.2	56.6	59.2	56.6
Total Sample		39.5													
TOTAL	**39.5**		**4.0**	**51.8**	**8,964**	**59.2**	**55.3**	**59.3**	**55.4**	**59.3**	**55.4**	**59.3**	**55.4**	**59.3**	**55.4**
Time (HR)						**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**
715	**I-15**		**Arizona SL - I-70**												
R.Int		115.1	4.0	64.6	13,016	61.5	59.5	61.6	59.7	61.6	59.7	61.6	59.7	61.6	59.7
U.Int		17.2	4.0	40.0	19,632	62.2	61.1	62.2	61.1	62.2	61.1	62.2	61.1	62.2	61.1
Total Sample		132.3													
TOTAL	**132.3**		**4.0**	**59.8**	**13,877**	**61.6**	**59.7**	**61.7**	**59.8**	**61.7**	**59.8**	**61.7**	**59.8**	**61.7**	**59.8**
Time (HR)						**2.1**	**2.2**	**2.1**	**2.2**	**2.1**	**2.2**	**2.1**	**2.2**	**2.1**	**2.2**

WTTN-Operating Speeds
Utah Results - Performance Enhancement
Peak Hour Speed

						Existing Condition Peak Hour Speed		Peak Hour Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	**GIS Length (MI)**	**Sample Length (MI)**	**Average No. Lane**	**Target Speed**	**Average AADT**	**S. Truck**	**C. Truck**	**S. Truck**	**C. Truck**	**S. Truck**	**C. Truck**	**S. Truck**	**C. Truck**	**S. Truck**	**C. Truck**
716	**I-15**		**I-70 - Salt Lake City UL (Provo)**												
R.Int		116.9	4.0	64.1	10,996	62.0	60.6	62.6	61.2	62.6	61.2	62.6	61.2	62.6	61.2
U.Int		5.1	4.0	40.0	22,904	57.4	52.3	57.4	52.3	57.4	52.3	57.4	52.3	57.4	52.3
Total Sample		122.0													
TOTAL	**122.0**		**4.0**	**62.5**	**11,495**	**61.8**	**60.2**	**62.4**	**60.8**	**62.4**	**60.8**	**62.4**	**60.8**	**62.4**	**60.8**
Time (HR)						**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
717	**I-15**		**Through Salt Lake City (Provo - N. Ogden)**												
R.Int		2.4	5.2	65.0	70,182	49.2	46.4	49.3	46.4	49.3	46.4	54.0	50.4	54.0	50.4
U.Int		95.0	5.8	40.0	85,408	28.2	27.8	28.4	28.0	28.4	28.0	54.8	53.0	54.8	53.0
Total Sample		97.4													
TOTAL	**97.4**		**5.8**	**40.4**	**85,033**	**28.5**	**28.1**	**28.7**	**28.3**	**28.7**	**28.3**	**54.8**	**52.9**	**54.8**	**52.9**
Time (HR)						**3.4**	**3.5**	**3.4**	**3.4**	**3.4**	**3.4**	**1.8**	**1.8**	**1.8**	**1.8**
718	**I-15**		**Salt Lake City UL (N. Ogden) - Idaho SL**												
R.Int		49.3	4.0	65.0	18,355	60.7	58.9	60.9	59.0	60.9	59.0	60.9	59.0	60.9	59.0
Total Sample		49.3													
TOTAL	**49.3**		**4.0**	**65.0**	**18,355**	**60.7**	**58.9**	**60.9**	**59.0**	**60.9**	**59.0**	**60.9**	**59.0**	**60.9**	**59.0**
Time (HR)						**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
Washington Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
9	**I-5**		**Through Portland (WA)**								
U.Int		6.9	4.9	40.0	60.0	70.0	65,415	62.2	61.4	32.9	32.5
Total Sample		6.9									
TOTAL	**14**		**4.9**	**40.0**	**60.0**	**70.0**	**65,415**	**62.2**	**61.4**	**32.9**	**32.5**
Time (HR)								**0.2**	**0.2**	**0.4**	**0.4**
10	**I-5**		**Portland - Seattle/Tacoma UL**								
R.Int		22.9	5.4	65.0	67.5	70.0	54,759	65.7	65.7	57.3	57.3
U.Int		25.0	5.4	40.0	65.3	70.0	71,896	64.1	64.1	33.6	33.5
Total Sample		47.8									
TOTAL	**108**		**5.4**	**49.0**	**66.3**	**70.0**	**63,706**	**64.9**	**64.9**	**41.8**	**41.8**
Time (HR)								**1.7**	**1.7**	**2.6**	**2.6**
11	**I-5**		**Tacoma UL - S18**								
U.Int		10.9	7.7	40.0	60.0	70.0	146,489	60.3	60.3	15.7	15.7
Total Sample		10.9									
TOTAL	**21**		**7.7**	**40.0**	**60.0**	**70.0**	**146,489**	**60.3**	**60.3**	**15.7**	**15.7**
Time (HR)								**0.3**	**0.3**	**1.3**	**1.3**
12	**I-5**		**S18 - I-90**								
U.Int		11.5	7.9	40.0	60.0	70.0	180,319	46.4	46.4	15.4	15.4
Total Sample		11.5									
TOTAL	**22**		**7.9**	**40.0**	**60.0**	**70.0**	**180,319**	**46.4**	**46.4**	**15.4**	**15.4**
Time (HR)								**0.5**	**0.5**	**1.4**	**1.4**
13	**I-5**		**I-90 - Seattle UL**								
U.Int		12.1	8.7	40.0	60.0	70.0	182,107	54.3	54.3	15.8	15.8
Total Sample		12.1									
TOTAL	**33**		**8.7**	**40.0**	**60.0**	**70.0**	**182,107**	**54.3**	**54.3**	**15.8**	**15.8**
Time (HR)								**0.6**	**0.6**	**2.1**	**2.1**
14	**I-5**		**Seattle UL - Canada**								
R.Int		19.0	4.7	65.0	68.8	70.0	40,099	64.7	64.7	62.8	62.8
U.Int		12.7	4.2	40.0	63.5	70.0	46,590	62.9	62.9	59.4	59.4
Total Sample		31.7									
TOTAL	**77**		**4.5**	**52.0**	**66.6**	**70.0**	**42,705**	**64.0**	**64.0**	**61.4**	**61.4**
Time (HR)								**1.2**	**1.2**	**1.3**	**1.3**
210	**I-90**		**In Seattle**								
U.Int		5.3	6.1	40.0	60.0	70.0	70,739	64.1	64.1	50.5	50.5
Total Sample		5.3									
TOTAL	**16**		**6.1**	**40.0**	**60.0**	**70.0**	**70,739**	**64.1**	**64.1**	**50.5**	**50.5**
Time (HR)								**0.2**	**0.2**	**0.3**	**0.3**

WTTN-Operating Speeds
Washington Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
211	**I-90**		**Seattle UL - Spokane UL**								
R.Int		181.0	4.3	62.7	69.6	70.0	15,538	65.5	65.5	65.2	65.2
U.Int		10.8	4.3	40.0	70.0	70.0	23,752	64.6	64.6	64.3	64.3
Total Sample		191.8									
TOTAL	**258**		**4.3**	**60.7**	**69.6**	**70.0**	**16,000**	**65.5**	**65.5**	**65.2**	**65.2**
Time (HR)								**3.9**	**3.9**	**4.0**	**4.0**
212	**I-90**		**Through Spokane**								
U.Int		8.0	5.3	40.0	60.0	70.0	67,970	64.2	64.2	34.2	34.2
Total Sample		8.0									
TOTAL	**18**		**5.3**	**40.0**	**60.0**	**70.0**	**67,970**	**64.2**	**64.2**	**34.2**	**34.2**
Time (HR)								**0.3**	**0.3**	**0.5**	**0.5**
213	**I-90**		**Spokane UL - Idaho SL**								
R.Int		1.3	4.0	65.0	70.0	70.0	56,166	64.8	64.8	48.0	48.0
Total Sample		1.3									
TOTAL	**6**		**4.0**	**65.0**	**70.0**	**70.0**	**56,166**	**64.8**	**64.8**	**48.0**	**48.0**
Time (HR)								**0.1**	**0.1**	**0.1**	**0.1**
240	**I-205**		**I-5 N. Portland - Oregon SL**								
U.Int		8.8	4.6	40.0	60.0	70.0	54,125	64.7	64.7	57.4	57.4
Total Sample		8.8									
TOTAL	**11**		**4.6**	**40.0**	**60.0**	**70.0**	**54,125**	**64.7**	**64.7**	**57.4**	**57.4**
Time (HR)								**0.2**	**0.2**	**0.2**	**0.2**
350	**US 2**		**I-5 - I-90 @ Spokane**								
R.OPA		156.0	2.3	52.8	57.2	69.3	4,851	47.6	45.7	41.6	40.1
U.OFE		5.7	4.0	40.0	55.0	70.0	31,577	57.4	57.4	57.3	57.3
U.OPA		4.5	3.7	35.0	52.6	70.0	18,606	35.1	35.0	34.9	34.9
Total Sample		166.2									
TOTAL	**284**		**2.4**	**51.5**	**57.0**	**69.3**	**6,149**	**47.4**	**45.7**	**41.8**	**40.3**
Time (HR)								**6.0**	**6.2**	**6.8**	**7.0**
351	**US 2**		**I-90 @ Spokane - Idaho SL**								
R.OPA		18.8	3.4	55.0	59.1	70.0	9,160	51.0	51.0	48.3	48.3
U.OPA		3.5	4.3	35.0	30.6	70.0	28,114	20.3	20.3	19.1	19.0
Total Sample		22.3									
TOTAL	**50**		**3.5**	**50.5**	**51.6**	**70.0**	**12,105**	**41.3**	**41.3**	**39.0**	**39.0**
Time (HR)								**1.2**	**1.2**	**1.3**	**1.3**
520	**US 195**		**US 95 (Idaho SL) to I-90 @ Spokane**								
R.OPA		42.5	2.1	55.0	58.1	70.0	4,860	50.1	50.0	44.5	44.5
U.OFE		4.1	4.0	40.0	55.0	70.0	10,463	57.7	57.7	57.7	57.7
Total Sample		46.6									
TOTAL	**97**		**2.3**	**53.2**	**57.8**	**70.0**	**5,353**	**50.6**	**50.6**	**45.4**	**45.4**
Time (HR)								**1.9**	**1.9**	**2.1**	**2.1**

WTTN-Operating Speeds
Washington Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
570	**US 395**		**Spokane to Canada**								
R.OPA		47.5	2.0	55.0	53.9	68.3	5,170	47.8	46.9	41.4	40.9
Total Sample		47.5									
TOTAL	**106**		**2.0**	**55.0**	**53.9**	**68.3**	**5,170**	**47.8**	**46.9**	**41.4**	**40.9**
Time (HR)								**2.2**	**2.3**	**2.6**	**2.6**
580	**US 395**		**I-82 to I-90**								
R.OPA		42.7	3.6	55.0	70.0	70.0	5,368	56.6	56.5	55.0	54.9
U.OFE		7.3	4.0	40.0	46.8	70.0	22,690	49.3	49.2	47.4	47.3
Total Sample		50.0									
TOTAL	**81**		**3.6**	**52.2**	**65.3**	**70.0**	**7,892**	**55.4**	**55.3**	**53.7**	**53.7**
Time (HR)								**1.5**	**1.5**	**1.5**	**1.5**
610	**S 18**		**I-5 to I-90 @ Seattle**								
R.OPA		4.3	2.0	55.0	55.0	70.0	20,105	36.1	36.0	23.8	23.7
U.OFE		3.2	4.0	40.0	60.0	70.0	49,765	61.5	58.6	30.4	30.4
U.OPA		3.4	2.7	35.0	57.0	70.0	27,395	28.0	28.0	15.6	15.6
Total Sample		10.9									
TOTAL	**26**		**2.8**	**42.7**	**57.0**	**70.0**	**31,155**	**37.3**	**37.0**	**21.7**	**21.7**
Time (HR)								**0.7**	**0.7**	**1.2**	**1.2**
740	**I-82**		**I-90 - Oregon SL**								
R.Int		45.7	4.0	59.3	70.0	70.0	12,276	66.0	66.0	66.0	66.0
U.Int		7.5	4.0	40.0	61.5	70.0	23,304	65.0	65.0	65.0	65.0
Total Sample		53.2									
TOTAL	**133**		**4.0**	**55.5**	**68.7**	**70.0**	**13,838**	**65.9**	**65.9**	**65.9**	**65.9**
Time (HR)								**2.0**	**2.0**	**2.0**	**2.0**

WTTN-Operating Speeds
Washington Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed S. Truck	Existing Condition Average Daily Speed C. Truck	Average Daily Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
9	I-5		Through Portland (WA)												
U.Int		6.9	4.9	40.0	65,415	62.2	61.4	62.2	61.4	62.2	61.4	62.4	61.6	62.4	61.6
Total Sample		6.9													
TOTAL	**14.0**		**4.9**	**40.0**	**65,415**	**62.2**	**61.4**	**62.2**	**61.4**	**62.2**	**61.4**	**62.4**	**61.6**	**62.4**	**61.6**
Time (HR)						**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**
10	I-5		Portland - Seattle/Tacoma UL												
R.Int		22.9	5.4	65.0	54,759	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7
U.Int		25.0	5.4	40.0	71,896	64.1	64.1	64.1	64.1	64.1	64.1	64.6	64.6	64.6	64.6
Total Sample		47.8													
TOTAL	**108.0**		**5.4**	**49.0**	**63,706**	**64.9**	**64.9**	**64.9**	**64.9**	**64.9**	**64.9**	**65.1**	**65.1**	**65.1**	**65.1**
Time (HR)						**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**
11	I-5		Tacoma UL - S18												
U.Int		10.9	7.7	40.0	146,489	60.3	60.3	60.5	60.5	60.5	60.5	62.5	62.5	62.5	62.5
Total Sample		10.9													
TOTAL	**21.0**		**7.7**	**40.0**	**146,489**	**60.3**	**60.3**	**60.5**	**60.5**	**60.5**	**60.5**	**62.5**	**62.5**	**62.5**	**62.5**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
12	I-5		S18 - I-90												
U.Int		11.5	7.9	40.0	180,319	46.4	46.4	46.8	46.7	46.8	46.7	59.9	59.9	59.9	59.9
Total Sample		11.5													
TOTAL	**22.0**		**7.9**	**40.0**	**180,319**	**46.4**	**46.4**	**46.8**	**46.7**	**46.8**	**46.7**	**59.9**	**59.9**	**59.9**	**59.9**
Time (HR)						**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.4**	**0.4**	**0.4**	**0.4**
13	I-5		I-90 - Seattle UL												
U.Int		12.1	8.7	40.0	182,107	54.3	54.3	54.3	54.3	54.3	54.3	61.7	61.7	61.7	61.7
Total Sample		12.1													
TOTAL	**33.0**		**8.7**	**40.0**	**182,107**	**54.3**	**54.3**	**54.3**	**54.3**	**54.3**	**54.3**	**61.7**	**61.7**	**61.7**	**61.7**
Time (HR)						**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.5**	**0.5**	**0.5**	**0.5**
14	I-5		Seattle UL - Canada												
R.Int		19.0	4.7	65.0	40,099	64.7	64.7	64.8	64.8	64.8	64.8	64.8	64.8	65.5	65.5
U.Int		12.7	4.2	40.0	46,590	62.9	62.9	63.3	63.3	63.3	63.3	63.3	63.3	63.3	63.3
Total Sample		31.7													
TOTAL	**77.0**		**4.5**	**52.0**	**42,705**	**64.0**	**64.0**	**64.2**	**64.2**	**64.2**	**64.2**	**64.2**	**64.2**	**64.6**	**64.6**
Time (HR)						**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
210	I-90		In Seattle												
U.Int		5.3	6.1	40.0	70,739	64.1	64.1	64.1	64.1	64.1	64.1	64.2	64.2	64.2	64.2
Total Sample		5.3													
TOTAL	**16.0**		**6.1**	**40.0**	**70,739**	**64.1**	**64.1**	**64.1**	**64.1**	**64.1**	**64.1**	**64.2**	**64.2**	**64.2**	**64.2**
Time (HR)						**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**

WTTN-Operating Speeds
Washington Results - Performance Enhancement
Average Daily Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed S. Truck	Existing Condition Average Daily Speed C. Truck	Average Daily Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
211	**I-90**		**Seattle UL - Spokane UL**												
R.Int		181.0	4.3	62.7	15,538	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5
U.Int		10.8	4.3	40.0	23,752	64.6	64.6	64.6	64.6	64.6	64.6	64.6	64.6	64.6	64.6
Total Sample		191.8													
TOTAL	**258.0**		**4.3**	**60.7**	**16,000**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**	**65.5**
Time (HR)						**3.9**	**3.9**	**3.9**	**3.9**	**3.9**	**3.9**	**3.9**	**3.9**	**3.9**	**3.9**
212	**I-90**		**Through Spokane**												
U.Int		8.0	5.3	40.0	67,970	64.2	64.2	64.2	64.2	64.2	64.2	64.3	64.3	64.3	64.3
Total Sample		8.0													
TOTAL	**18.0**		**5.3**	**40.0**	**67,970**	**64.2**	**64.2**	**64.2**	**64.2**	**64.2**	**64.2**	**64.3**	**64.3**	**64.3**	**64.3**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
213	**I-90**		**Spokane UL - Idaho SL**												
R.Int		1.3	4.0	65.0	56,166	64.8	64.8	64.8	64.8	64.8	64.8	64.9	64.9	64.9	64.9
Total Sample		1.3													
TOTAL	**6.0**		**4.0**	**65.0**	**56,166**	**64.8**	**64.8**	**64.8**	**64.8**	**64.8**	**64.8**	**64.9**	**64.9**	**64.9**	**64.9**
Time (HR)						**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
240	**I-205**		**I-5 N. Portland - Oregon SL**												
U.Int		8.8	4.6	40.0	54,125	64.7	64.7	64.7	64.7	64.7	64.7	64.7	64.7	64.7	64.7
Total Sample		8.8													
TOTAL	**11.0**		**4.6**	**40.0**	**54,125**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**	**64.7**
Time (HR)						**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**
350	**US 2**		**I-5 - I-90 @ Spokane**												
R.OPA		156.0	2.3	52.8	4,851	47.6	45.7	47.6	45.8	48.1	46.8	48.5	47.2	49.1	47.9
U.OFE		5.7	4.0	40.0	31,577	57.4	57.4	57.5	57.5	57.5	57.5	57.5	57.5	58.7	58.7
U.OPA		4.5	3.7	35.0	18,606	35.1	35.0	35.1	35.0	35.1	35.0	35.1	35.0	35.7	35.7
Total Sample		166.2													
TOTAL	**284.0**		**2.4**	**51.5**	**6,149**	**47.4**	**45.7**	**47.4**	**45.7**	**47.9**	**46.6**	**48.3**	**47.0**	**48.9**	**47.8**
Time (HR)						**6.0**	**6.2**	**6.0**	**6.2**	**5.9**	**6.1**	**5.9**	**6.0**	**5.8**	**5.9**
351	**US 2**		**I-90 @ Spokane - Idaho SL**												
R.OPA		18.8	3.4	55.0	9,160	51.0	51.0	51.0	51.0	51.0	51.0	51.1	51.0	51.6	51.6
U.OPA		3.5	4.3	35.0	28,114	20.3	20.3	20.4	20.4	20.4	20.4	20.4	20.4	30.1	30.1
Total Sample		22.3													
TOTAL	**50.0**		**3.5**	**50.5**	**12,105**	**41.3**	**41.3**	**41.4**	**41.4**	**41.4**	**41.4**	**41.4**	**41.4**	**46.5**	**46.4**
Time (HR)						**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.1**	**1.1**

WTTN-Operating Speeds
Washington Results - Performance Enhancement
Average Daily Speed

						Existing Condition Average Daily Speed		Average Daily Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	**GIS Length (MI)**	**Sample Length (MI)**	**Average No. Lane**	**Target Speed**	**Average AADT**	**S. Truck**	**C. Truck**	**S. Truck**	**C. Truck**	**S. Truck**	**C. Truck**	**S. Truck**	**C. Truck**	**S. Truck**	**C. Truck**
520	**US 195**		**US 95 (Idaho SL) to I-90 @ Spokane**												
R.OPA		42.5	2.1	55.0	4,860	50.1	50.0	50.1	50.0	50.1	50.0	50.1	50.1	50.3	50.2
U.OFE		4.1	4.0	40.0	10,463	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7
Total Sample		46.6													
TOTAL	**97.0**		**2.3**	**53.2**	**5,353**	**50.6**	**50.6**	**50.6**	**50.6**	**50.6**	**50.6**	**50.7**	**50.6**	**50.8**	**50.8**
Time (HR)						**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**
570	**US 395**		**Spokane to Canada**												
R.OPA		47.5	2.0	55.0	5,170	47.8	46.9	47.8	46.9	47.9	47.2	48.0	47.3	48.5	47.7
Total Sample		47.5													
TOTAL	**106.0**		**2.0**	**55.0**	**5,170**	**47.8**	**46.9**	**47.8**	**46.9**	**47.9**	**47.2**	**48.0**	**47.3**	**48.5**	**47.7**
Time (HR)						**2.2**	**2.3**	**2.2**	**2.3**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**
580	**US 395**		**I-82 to I-90**												
R.OPA		42.7	3.6	55.0	5,368	56.6	56.5	56.6	56.5	56.6	56.5	56.6	56.5	56.6	56.5
U.OFE		7.3	4.0	40.0	22,690	49.3	49.2	49.5	49.3	49.5	49.3	51.1	50.9	58.1	57.9
Total Sample		50.0													
TOTAL	**81.0**		**3.6**	**52.2**	**7,892**	**55.4**	**55.3**	**55.4**	**55.4**	**55.4**	**55.4**	**55.7**	**55.6**	**56.8**	**56.7**
Time (HR)						**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.4**	**1.4**
610	**S 18**		**I-5 to I-90 @ Seattle**												
R.OPA		4.3	2.0	55.0	20,105	36.1	36.0	36.1	36.0	36.1	36.0	48.1	48.1	48.1	48.1
U.OFE		3.2	4.0	40.0	49,765	61.5	58.6	61.5	58.6	61.5	58.6	61.6	58.7	61.6	58.7
U.OPA		3.4	2.7	35.0	27,395	28.0	28.0	28.0	28.0	28.0	28.0	31.6	31.6	31.6	31.6
Total Sample		10.9													
TOTAL	**26.0**		**2.8**	**42.7**	**31,155**	**37.3**	**37.0**	**37.3**	**37.0**	**37.3**	**37.0**	**43.9**	**43.4**	**43.9**	**43.4**
Time (HR)						**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.6**	**0.6**	**0.6**	**0.6**
740	**I-82**		**I-90 - Oregon SL**												
R.Int		45.7	4.0	59.3	12,276	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
U.Int		7.5	4.0	40.0	23,304	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0
Total Sample		53.2													
TOTAL	**133.0**		**4.0**	**55.5**	**13,838**	**65.9**	**65.9**	**65.9**	**65.9**	**65.9**	**65.9**	**65.9**	**65.9**	**65.9**	**65.9**
Time (HR)						**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
Washington Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed		Peak Hour Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
9	I-5		Through Portland (WA)												
U.Int		6.9	4.9	40.0	65,415	32.9	32.5	32.9	32.6	32.9	32.6	58.3	57.4	58.3	57.4
Total Sample		6.9													
TOTAL	**14.0**		**4.9**	**40.0**	**65,415**	**32.9**	**32.5**	**32.9**	**32.6**	**32.9**	**32.6**	**58.3**	**57.4**	**58.3**	**57.4**
Time (HR)						**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.2**	**0.2**	**0.2**	**0.2**
10	I-5		Portland - Seattle/Tacoma UL												
R.Int		22.9	5.4	65.0	54,759	57.3	57.3	57.3	57.3	57.3	57.3	61.3	61.3	61.3	61.3
U.Int		25.0	5.4	40.0	71,896	33.6	33.5	33.6	33.5	33.6	33.5	59.4	59.4	59.4	59.4
Total Sample		47.8													
TOTAL	**108.0**		**5.4**	**49.0**	**63,706**	**41.8**	**41.8**	**41.8**	**41.8**	**41.8**	**41.8**	**60.3**	**60.3**	**60.3**	**60.3**
Time (HR)						**2.6**	**2.6**	**2.6**	**2.6**	**2.6**	**2.6**	**1.8**	**1.8**	**1.8**	**1.8**
11	I-5		Tacoma UL - S18												
U.Int		10.9	7.7	40.0	146,489	15.7	15.7	15.7	15.7	15.7	15.7	56.5	56.5	56.5	56.5
Total Sample		10.9													
TOTAL	**21.0**		**7.7**	**40.0**	**146,489**	**15.7**	**15.7**	**15.7**	**15.7**	**15.7**	**15.7**	**56.5**	**56.5**	**56.5**	**56.5**
Time (HR)						**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**0.4**	**0.4**	**0.4**	**0.4**
12	I-5		S18 - I-90												
U.Int		11.5	7.9	40.0	180,319	15.4	15.4	15.6	15.6	15.6	15.6	55.7	55.7	55.7	55.7
Total Sample		11.5													
TOTAL	**22.0**		**7.9**	**40.0**	**180,319**	**15.4**	**15.4**	**15.6**	**15.6**	**15.6**	**15.6**	**55.7**	**55.7**	**55.7**	**55.7**
Time (HR)						**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**0.4**	**0.4**	**0.4**	**0.4**
13	I-5		I-90 - Seattle UL												
U.Int		12.1	8.7	40.0	182,107	15.8	15.8	15.8	15.8	15.8	15.8	56.6	56.6	56.6	56.6
Total Sample		12.1													
TOTAL	**33.0**		**8.7**	**40.0**	**182,107**	**15.8**	**15.8**	**15.8**	**15.8**	**15.8**	**15.8**	**56.6**	**56.6**	**56.6**	**56.6**
Time (HR)						**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**0.6**	**0.6**	**0.6**	**0.6**
14	I-5		Seattle UL - Canada												
R.Int		19.0	4.7	65.0	40,099	62.8	62.8	62.9	62.9	62.9	62.9	62.9	62.9	63.6	63.6
U.Int		12.7	4.2	40.0	46,590	59.4	59.4	59.9	59.9	59.9	59.9	61.5	61.5	61.5	61.5
Total Sample		31.7													
TOTAL	**77.0**		**4.5**	**52.0**	**42,705**	**61.4**	**61.4**	**61.6**	**61.6**	**61.6**	**61.6**	**62.3**	**62.3**	**62.7**	**62.7**
Time (HR)						**1.3**	**1.3**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
210	I-90		In Seattle												
U.Int		5.3	6.1	40.0	70,739	50.5	50.5	50.5	50.5	50.5	50.5	57.6	57.6	57.6	57.6
Total Sample		5.3													
TOTAL	**16.0**		**6.1**	**40.0**	**70,739**	**50.5**	**50.5**	**50.5**	**50.5**	**50.5**	**50.5**	**57.6**	**57.6**	**57.6**	**57.6**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**

WTTN-Operating Speeds
Washington Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed		Peak Hour Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
211	**I-90**		**Seattle UL - Spokane UL**												
R.Int		181.0	4.3	62.7	15,538	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2
U.Int		10.8	4.3	40.0	23,752	64.3	64.3	64.3	64.3	64.3	64.3	64.3	64.3	64.3	64.3
Total Sample		191.8													
TOTAL	**258.0**		**4.3**	**60.7**	**16,000**	**65.2**	**65.2**	**65.2**	**65.2**	**65.2**	**65.2**	**65.2**	**65.2**	**65.2**	**65.2**
Time (HR)						**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**
212	**I-90**		**Through Spokane**												
U.Int		8.0	5.3	40.0	67,970	34.2	34.2	34.2	34.2	34.2	34.2	58.2	58.2	58.2	58.2
Total Sample		8.0													
TOTAL	**18.0**		**5.3**	**40.0**	**67,970**	**34.2**	**34.2**	**34.2**	**34.2**	**34.2**	**34.2**	**58.2**	**58.2**	**58.2**	**58.2**
Time (HR)						**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.3**	**0.3**	**0.3**	**0.3**
213	**I-90**		**Spokane UL - Idaho SL**												
R.Int		1.3	4.0	65.0	56,166	48.0	48.0	48.0	48.0	48.0	48.0	63.3	63.3	63.3	63.3
Total Sample		1.3													
TOTAL	**6.0**		**4.0**	**65.0**	**56,166**	**48.0**	**48.0**	**48.0**	**48.0**	**48.0**	**48.0**	**63.3**	**63.3**	**63.3**	**63.3**
Time (HR)						**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
240	**I-205**		**I-5 N. Portland - Oregon SL**												
U.Int		8.8	4.6	40.0	54,125	57.4	57.4	57.4	57.4	57.4	57.4	61.9	61.9	61.9	61.9
Total Sample		8.8													
TOTAL	**11.0**		**4.6**	**40.0**	**54,125**	**57.4**	**57.4**	**57.4**	**57.4**	**57.4**	**57.4**	**61.9**	**61.9**	**61.9**	**61.9**
Time (HR)						**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**
350	**US 2**		**I-5 - I-90 @ Spokane**												
R.OPA		156.0	2.3	52.8	4,851	41.6	40.1	41.7	40.1	41.9	40.8	46.0	44.7	46.5	45.3
U.OFE		5.7	4.0	40.0	31,577	57.3	57.3	57.4	57.4	57.4	57.4	57.4	57.4	58.6	58.6
U.OPA		4.5	3.7	35.0	18,606	34.9	34.9	34.9	34.9	34.9	34.9	34.9	34.9	35.6	35.5
Total Sample		166.2													
TOTAL	**284.0**		**2.4**	**51.5**	**6,149**	**41.8**	**40.3**	**41.8**	**40.3**	**42.0**	**41.0**	**45.9**	**44.7**	**46.4**	**45.4**
Time (HR)						**6.8**	**7.0**	**6.8**	**7.0**	**6.8**	**6.9**	**6.2**	**6.4**	**6.1**	**6.3**
351	**US 2**		**I-90 @ Spokane - Idaho SL**												
R.OPA		18.8	3.4	55.0	9,160	48.3	48.3	48.3	48.3	48.3	48.3	49.3	49.3	49.7	49.7
U.OPA		3.5	4.3	35.0	28,114	19.1	19.0	19.2	19.2	19.2	19.2	20.4	20.4	27.8	27.8
Total Sample		22.3													
TOTAL	**50.0**		**3.5**	**50.5**	**12,105**	**39.0**	**39.0**	**39.1**	**39.0**	**39.1**	**39.0**	**40.4**	**40.4**	**44.3**	**44.2**
Time (HR)						**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.2**	**1.2**	**1.1**	**1.1**
520	**US 195**		**US 95 (Idaho SL) to I-90 @ Spokane**												
R.OPA		42.5	2.1	55.0	4,860	44.5	44.5	44.5	44.5	44.5	44.5	47.6	47.6	47.8	47.7
U.OFE		4.1	4.0	40.0	10,463	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7
Total Sample		46.6													
TOTAL	**97.0**		**2.3**	**53.2**	**5,353**	**45.4**	**45.4**	**45.4**	**45.4**	**45.4**	**45.4**	**48.4**	**48.4**	**48.5**	**48.5**
Time (HR)						**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.0**	**2.0**	**2.0**	**2.0**
570	**US 395**		**Spokane to Canada**												
R.OPA		47.5	2.0	55.0	5,170	41.4	40.9	41.4	40.9	41.5	41.1	45.5	44.8	45.9	45.2
Total Sample		47.5													
TOTAL	**106.0**		**2.0**	**55.0**	**5,170**	**41.4**	**40.9**	**41.4**	**40.9**	**41.5**	**41.1**	**45.5**	**44.8**	**45.9**	**45.2**

WTTN-Operating Speeds
Washington Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed S. Truck	Existing Condition Peak Hour Speed C. Truck	Peak Hour Speed for Cumulative Improvements: Pavement Condition (1) S. Truck	Pavement Condition (1) C. Truck	Curves and Grades (2) S. Truck	Curves and Grades (2) C. Truck	Congestion (3) S. Truck	Congestion (3) C. Truck	Speed Limit (4) S. Truck	Speed Limit (4) C. Truck
Time (HR)						**2.6**	**2.6**	**2.6**	**2.6**	**2.6**	**2.6**	**2.3**	**2.4**	**2.3**	**2.3**
580	**US 395**		**I-82 to I-90**												
R.OPA		42.7	3.6	55.0	5,368	55.0	54.9	55.0	54.9	55.0	54.9	55.6	55.6	55.6	55.6
U.OFE		7.3	4.0	40.0	22,690	47.4	47.3	47.6	47.4	47.6	47.4	51.1	50.9	58.1	57.9
Total Sample		50.0													
TOTAL	**81.0**		**3.6**	**52.2**	**7,892**	**53.7**	**53.7**	**53.8**	**53.7**	**53.8**	**53.7**	**54.9**	**54.8**	**56.0**	**55.9**
Time (HR)						**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.4**	**1.4**
610	**S 18**		**I-5 to I-90 @ Seattle**												
R.OPA		4.3	2.0	55.0	20,105	23.8	23.7	23.8	23.7	23.8	23.7	48.0	48.0	48.0	48.0
U.OFE		3.2	4.0	40.0	49,765	30.4	30.4	30.4	30.4	30.4	30.4	59.8	56.8	59.8	56.8
U.OPA		3.4	2.7	35.0	27,395	15.6	15.6	15.6	15.6	15.6	15.6	30.2	30.2	30.2	30.2
Total Sample		10.9													
TOTAL	**26.0**		**2.8**	**42.7**	**31,155**	**21.7**	**21.7**	**21.7**	**21.7**	**21.7**	**21.7**	**42.8**	**42.3**	**42.8**	**42.3**
Time (HR)						**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**0.6**	**0.6**	**0.6**	**0.6**
740	**I-82**		**I-90 - Oregon SL**												
R.Int		45.7	4.0	59.3	12,276	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
U.Int		7.5	4.0	40.0	23,304	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0
Total Sample		53.2													
TOTAL	**133.0**		**4.0**	**55.5**	**13,838**	**65.9**	**65.9**	**65.9**	**65.9**	**65.9**	**65.9**	**65.9**	**65.9**	**65.9**	**65.9**
Time (HR)						**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
Wyoming Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
87	I-25		Through Cheyenne								
U.Int		9.2	4.0	40.0	60.0	80.0	12,436	58.9	56.8	58.9	56.8
Total Sample		9.2									
TOTAL	**16.2**		**4.0**	**40.0**	**60.0**	**80.0**	**12,436**	**58.9**	**56.8**	**58.9**	**56.8**
Time (HR)								**0.3**	**0.3**	**0.3**	**0.3**
88	I-25		Cheyenne UL - US 26								
R.Int		36.7	4.0	65.0	70.0	80.0	5,099	57.5	53.3	57.5	53.3
Total Sample		76.1									
TOTAL	**76.1**		**4.0**	**65.0**	**70.0**	**80.0**	**5,099**	**57.5**	**53.3**	**57.5**	**53.3**
Time (HR)								**1.3**	**1.4**	**1.3**	**1.4**
89	I-25		US 26 - I-90 N. Casper								
R.Int		75.0	4.0	65.0	69.7	80.0	4,146	57.4	52.7	57.4	52.7
U.Int		17.0	4.0	40.0	62.5	80.4	7,910	56.1	51.4	56.1	51.4
Total Sample		208.7									
TOTAL	**208.7**		**4.0**	**61.9**	**69.0**	**80.0**	**4,452**	**57.3**	**52.6**	**57.3**	**52.6**
Time (HR)								**3.6**	**4.0**	**3.6**	**4.0**
177	I-80		Utah SL - Cheyenne UL								
R.Int		136.7	4.0	63.6	70.0	80.0	9,935	57.8	53.3	57.8	53.2
U.Int		27.8	4.0	40.0	70.0	80.0	10,815	56.6	53.5	56.6	53.5
Total Sample		356.7									
TOTAL	**356.7**		**4.0**	**60.8**	**70.0**	**80.0**	**10,003**	**57.7**	**53.3**	**57.7**	**53.3**
Time (HR)								**6.2**	**6.7**	**6.2**	**6.7**
178	I-80		Through Cheyenne								
U.Int		13.7	4.0	40.0	70.0	80.0	8,984	60.3	58.0	60.3	58.0
Total Sample		13.7									
TOTAL	**13.7**		**4.0**	**40.0**	**70.0**	**80.0**	**8,984**	**60.3**	**58.0**	**60.3**	**58.0**
Time (HR)								**0.2**	**0.2**	**0.2**	**0.2**
179	I-80		Cheyenne UL - Nebraska SL								
R.Int		17.1	4.0	65.0	70.0	80.0	7,377	58.0	54.8	58.0	54.8
Total Sample		32.4									
TOTAL	**32.4**		**4.0**	**65.0**	**70.0**	**80.0**	**7,377**	**58.0**	**54.8**	**58.0**	**54.8**
Time (HR)								**0.6**	**0.6**	**0.6**	**0.6**

WTTN-Operating Speeds
Wyoming Results - Existing Conditions

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed S. Truck	Average Daily Speed C. Truck	Peak Hour Speed S. Truck	Peak Hour Speed C. Truck
217	**I-90**		**Montana SL - I-25**								
R.Int		14.5	4.0	65.0	70.0	80.0	5,375	56.3	50.6	56.3	50.6
U.Int		10.3	4.0	40.0	70.0	80.0	5,379	57.0	52.0	57.0	52.0
Total Sample		59.5									
TOTAL	**59.5**		**4.0**	**58.7**	**70.0**	**80.0**	**5,376**	**56.4**	**50.9**	**56.4**	**50.9**
Time (HR)								**1.1**	**1.2**	**1.1**	**1.2**
218	**I-90**		**I-25 - South Dakota SL**								
R.Int		55.3	4.0	63.6	70.0	80.0	4,182	57.7	53.3	57.7	53.3
U.Int		8.1	4.0	40.0	70.0	80.0	5,617	57.4	54.2	57.4	54.2
Total Sample		148.6									
TOTAL	**148.6**		**4.0**	**61.6**	**70.0**	**80.0**	**4,260**	**57.7**	**53.3**	**57.7**	**53.3**
Time (HR)								**2.6**	**2.8**	**2.6**	**2.8**
390	**US 26**		**I-25 - Nebraska SL**								
R.OPA		51.5	2.0	55.0	49.5	73.3	2,397	44.4	43.4	41.3	40.4
U.OPA		4.5	2.8	35.0	51.6	64.1	7,842	30.7	30.7	30.3	30.3
Total Sample		56.2									
TOTAL	**56.2**		**2.1**	**52.6**	**49.7**	**72.4**	**2,837**	**42.9**	**42.0**	**40.1**	**39.3**
Time (HR)								**1.3**	**1.3**	**1.4**	**1.4**
560	**US 287**		**Colorado SL - I-80**								
R.OPA		19.3	2.3	55.0	65.0	80.0	3,809	49.0	45.4	44.9	41.6
U.OPA		3.5	2.8	35.0	60.4	80.0	6,139	31.9	31.1	31.4	30.6
Total Sample		24.5									
TOTAL	**24.5**		**2.4**	**50.9**	**64.3**	**80.0**	**4,140**	**45.5**	**42.6**	**42.3**	**39.6**
Time (HR)								**0.5**	**0.6**	**0.6**	**0.6**

WTTN-Operating Speeds
Wyoming Results - Performance Enhancement
Average Daily Speed

						Existing Condition Average Daily Speed		Average Daily Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
87	**I-25**		**Through Cheyenne**												
U.Int		9.2	4.0	40.0	12,436	58.9	56.8	59.5	57.3	59.5	57.3	59.5	57.3	59.5	57.3
Total Sample		9.2													
TOTAL	**16.2**		**4.0**	**40.0**	**12,436**	**58.9**	**56.8**	**59.5**	**57.3**	**59.5**	**57.3**	**59.5**	**57.3**	**59.5**	**57.3**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
88	**I-25**		**Cheyenne UL - US 26**												
R.Int		36.7	4.0	65.0	5,099	57.5	53.3	57.6	53.5	57.6	53.5	57.6	53.5	57.6	53.5
Total Sample		76.1													
TOTAL	**76.1**		**4.0**	**65.0**	**5,099**	**57.5**	**53.3**	**57.6**	**53.5**	**57.6**	**53.5**	**57.6**	**53.5**	**57.6**	**53.5**
Time (HR)						**1.3**	**1.4**	**1.3**	**1.4**	**1.3**	**1.4**	**1.3**	**1.4**	**1.3**	**1.4**
89	**I-25**		**US 26 - I-90 N. Casper**												
R.Int		75.0	4.0	65.0	4,146	57.4	52.7	57.4	52.7	57.4	52.7	57.4	52.7	57.4	52.7
U.Int		17.0	4.0	40.0	7,910	56.1	51.4	56.2	51.6	56.2	51.6	56.2	51.6	56.2	51.6
Total Sample		208.7													
TOTAL	**208.7**		**4.0**	**61.9**	**4,452**	**57.3**	**52.6**	**57.3**	**52.6**	**57.3**	**52.6**	**57.3**	**52.6**	**57.3**	**52.6**
Time (HR)						**3.6**	**4.0**	**3.6**	**4.0**	**3.6**	**4.0**	**3.6**	**4.0**	**3.6**	**4.0**
177	**I-80**		**Utah SL - Cheyenne UL**												
R.Int		136.7	4.0	63.6	9,935	57.8	53.3	57.9	53.3	57.9	53.3	57.9	53.3	57.9	53.3
U.Int		27.8	4.0	40.0	10,815	56.6	53.5	57.3	54.1	57.3	54.1	57.3	54.1	57.3	54.1
Total Sample		356.7													
TOTAL	**356.7**		**4.0**	**60.8**	**10,003**	**57.7**	**53.3**	**57.9**	**53.4**	**57.9**	**53.4**	**57.9**	**53.4**	**57.9**	**53.4**
Time (HR)						**6.2**	**6.7**	**6.2**	**6.7**	**6.2**	**6.7**	**6.2**	**6.7**	**6.2**	**6.7**
178	**I-80**		**Through Cheyenne**												
U.Int		13.7	4.0	40.0	8,984	60.3	58.0	60.5	58.2	60.5	58.2	60.5	58.2	60.5	58.2
Total Sample		13.7													
TOTAL	**13.7**		**4.0**	**40.0**	**8,984**	**60.3**	**58.0**	**60.5**	**58.2**	**60.5**	**58.2**	**60.5**	**58.2**	**60.5**	**58.2**
Time (HR)						**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**
179	**I-80**		**Cheyenne UL - Nebraska SL**												
R.Int		17.1	4.0	65.0	7,377	58.0	54.8	58.1	54.8	58.1	54.8	58.1	54.8	58.1	54.8
Total Sample		32.4													
TOTAL	**32.4**		**4.0**	**65.0**	**7,377**	**58.0**	**54.8**	**58.1**	**54.8**	**58.1**	**54.8**	**58.1**	**54.8**	**58.1**	**54.8**
Time (HR)						**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
217	**I-90**		**Montana SL - I-25**												
R.Int		14.5	4.0	65.0	5,375	56.3	50.6	56.3	50.7	56.3	50.7	56.3	50.7	56.3	50.7
U.Int		10.3	4.0	40.0	5,379	57.0	52.0	57.0	52.0	57.0	52.0	57.0	52.0	57.0	52.0
Total Sample		59.5													
TOTAL	**59.5**		**4.0**	**58.7**	**5,376**	**56.4**	**50.9**	**56.4**	**50.9**	**56.4**	**50.9**	**56.4**	**50.9**	**56.4**	**50.9**
Time (HR)						**1.1**	**1.2**	**1.1**	**1.2**	**1.1**	**1.2**	**1.1**	**1.2**	**1.1**	**1.2**

WTTN-Operating Speeds
Wyoming Results - Performance Enhancement
Average Daily Speed

						Existing Condition		Average Daily Speed for Cumulative Improvements							
						Average Daily Speed		Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
218	**I-90**		**I-25 - South Dakota SL**												
R.Int		55.3	4.0	63.6	4,182	57.7	53.3	57.7	53.3	57.7	53.3	57.7	53.3	57.7	53.3
U.Int		8.1	4.0	40.0	5,617	57.4	54.2	57.8	54.6	57.8	54.6	57.8	54.6	57.8	54.6
Total Sample		148.6													
TOTAL	**148.6**		**4.0**	**61.6**	**4,260**	**57.7**	**53.3**	**57.7**	**53.4**	**57.7**	**53.4**	**57.7**	**53.4**	**57.7**	**53.4**
Time (HR)						**2.6**	**2.8**	**2.6**	**2.8**	**2.6**	**2.8**	**2.6**	**2.8**	**2.6**	**2.8**
390	**US 26**		**I-25 - Nebraska SL**												
R.OPA		51.5	2.0	55.0	2,397	44.4	43.4	44.4	43.4	44.4	43.4	44.4	43.4	50.6	49.2
U.OPA		4.5	2.8	35.0	7,842	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	34.4	34.4
Total Sample		56.2													
TOTAL	**56.2**		**2.1**	**52.6**	**2,837**	**42.9**	**42.0**	**42.9**	**42.0**	**42.9**	**42.0**	**42.9**	**42.0**	**48.7**	**47.5**
Time (HR)						**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.2**	**1.2**
560	**US 287**		**Colorado SL - I-80**												
R.OPA		19.3	2.3	55.0	3,809	49.0	45.4	49.0	45.4	49.5	46.1	49.5	46.1	49.5	46.1
U.OPA		3.5	2.8	35.0	6,139	31.9	31.1	31.9	31.1	31.9	31.1	31.9	31.1	31.9	31.1
Total Sample		24.5													
TOTAL	**24.5**		**2.4**	**50.9**	**4,140**	**45.5**	**42.6**	**45.5**	**42.6**	**45.9**	**43.1**	**45.9**	**43.1**	**45.9**	**43.1**
Time (HR)						**0.5**	**0.6**	**0.5**	**0.6**	**0.5**	**0.6**	**0.5**	**0.6**	**0.5**	**0.6**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN-Operating Speeds
Wyoming Results - Performance Enhancement
Peak Hour Speed

						Existing Condition		Peak Hour Speed for Cumulative Improvements							
						Peak Hour Speed		Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck	S. Truck	C. Truck
87	**I-25**		**Through Cheyenne**												
U.Int		9.2	4.0	40.0	12,436	58.9	56.8	59.5	57.3	59.5	57.3	59.5	57.3	59.5	57.3
Total Sample		9.2													
TOTAL	**16.2**		**4.0**	**40.0**	**12,436**	**58.9**	**56.8**	**59.5**	**57.3**	**59.5**	**57.3**	**59.5**	**57.3**	**59.5**	**57.3**
Time (HR)						**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
88	**I-25**		**Cheyenne UL - US 26**												
R.Int		36.7	4.0	65.0	5,099	57.5	53.3	57.6	53.5	57.6	53.5	57.6	53.5	57.6	53.5
Total Sample		76.1													
TOTAL	**76.1**		**4.0**	**65.0**	**5,099**	**57.5**	**53.3**	**57.6**	**53.5**	**57.6**	**53.5**	**57.6**	**53.5**	**57.6**	**53.5**
Time (HR)						**1.3**	**1.4**	**1.3**	**1.4**	**1.3**	**1.4**	**1.3**	**1.4**	**1.3**	**1.4**
89	**I-25**		**US 26 - I-90 N. Casper**												
R.Int		75.0	4.0	65.0	4,146	57.4	52.7	57.4	52.7	57.4	52.7	57.4	52.7	57.4	52.7
U.Int		17.0	4.0	40.0	7,910	56.1	51.4	56.2	51.6	56.2	51.6	56.2	51.6	56.2	51.6
Total Sample		208.7													
TOTAL	**208.7**		**4.0**	**61.9**	**4,452**	**57.3**	**52.6**	**57.3**	**52.6**	**57.3**	**52.6**	**57.3**	**52.6**	**57.3**	**52.6**
Time (HR)						**3.6**	**4.0**	**3.6**	**4.0**	**3.6**	**4.0**	**3.6**	**4.0**	**3.6**	**4.0**
177	**I-80**		**Utah SL - Cheyenne UL**												
R.Int		136.7	4.0	63.6	9,935	57.8	53.2	57.9	53.3	57.9	53.3	57.9	53.3	57.9	53.3
U.Int		27.8	4.0	40.0	10,815	56.6	53.5	57.3	54.1	57.3	54.1	57.3	54.1	57.3	54.1
Total Sample		356.7													
TOTAL	**356.7**		**4.0**	**60.8**	**10,003**	**57.7**	**53.3**	**57.8**	**53.3**	**57.8**	**53.3**	**57.8**	**53.3**	**57.8**	**53.3**
Time (HR)						**6.2**	**6.7**	**6.2**	**6.7**	**6.2**	**6.7**	**6.2**	**6.7**	**6.2**	**6.7**
178	**I-80**		**Through Cheyenne**												
U.Int		13.7	4.0	40.0	8,984	60.3	58.0	60.5	58.2	60.5	58.2	60.5	58.2	60.5	58.2
Total Sample		13.7													
TOTAL	**13.7**		**4.0**	**40.0**	**8,984**	**60.3**	**58.0**	**60.5**	**58.2**	**60.5**	**58.2**	**60.5**	**58.2**	**60.5**	**58.2**
Time (HR)						**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**
179	**I-80**		**Cheyenne UL - Nebraska SL**												
R.Int		17.1	4.0	65.0	7,377	58.0	54.8	58.1	54.8	58.1	54.8	58.1	54.8	58.1	54.8
Total Sample		32.4													
TOTAL	**32.4**		**4.0**	**65.0**	**7,377**	**58.0**	**54.8**	**58.1**	**54.8**	**58.1**	**54.8**	**58.1**	**54.8**	**58.1**	**54.8**
Time (HR)						**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
217	**I-90**		**Montana SL - I-25**												
R.Int		14.5	4.0	65.0	5,375	56.3	50.6	56.3	50.7	56.3	50.7	56.3	50.7	56.3	50.7
U.Int		10.3	4.0	40.0	5,379	57.0	52.0	57.0	52.0	57.0	52.0	57.0	52.0	57.0	52.0
Total Sample		59.5													
TOTAL	**59.5**		**4.0**	**58.7**	**5,376**	**56.4**	**50.9**	**56.4**	**50.9**	**56.4**	**50.9**	**56.4**	**50.9**	**56.4**	**50.9**
Time (HR)						**1.1**	**1.2**	**1.1**	**1.2**	**1.1**	**1.2**	**1.1**	**1.2**	**1.1**	**1.2**

WTTN-Operating Speeds
Wyoming Results - Performance Enhancement
Peak Hour Speed

SSN	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed: S. Truck	Existing Condition Peak Hour Speed: C. Truck	Pavement Condition (1): S. Truck	Pavement Condition (1): C. Truck	Curves and Grades (2): S. Truck	Curves and Grades (2): C. Truck	Congestion (3): S. Truck	Congestion (3): C. Truck	Speed Limit (4): S. Truck	Speed Limit (4): C. Truck
								Peak Hour Speed for Cumulative Improvements							
218	**I-90**		**I-25 - South Dakota SL**												
R.Int		55.3	4.0	63.6	4,182	57.7	53.3	57.7	53.3	57.7	53.3	57.7	53.3	57.7	53.3
U.Int		8.1	4.0	40.0	5,617	57.4	54.2	57.8	54.6	57.8	54.6	57.8	54.6	57.8	54.6
Total Sample		148.6													
TOTAL	**148.6**		**4.0**	**61.6**	**4,260**	**57.7**	**53.3**	**57.7**	**53.4**	**57.7**	**53.4**	**57.7**	**53.4**	**57.7**	**53.4**
Time (HR)						**2.6**	**2.8**	**2.6**	**2.8**	**2.6**	**2.8**	**2.6**	**2.8**	**2.6**	**2.8**
390	**US 26**		**I-25 - Nebraska SL**												
R.OPA		51.5	2.0	55.0	2,397	41.3	40.4	41.3	40.4	41.3	40.4	42.1	41.1	46.1	44.9
U.OPA		4.5	2.8	35.0	7,842	30.3	30.3	30.3	30.3	30.3	30.3	30.3	30.3	34.0	34.0
Total Sample		56.2													
TOTAL	**56.2**		**2.1**	**52.6**	**2,837**	**40.1**	**39.3**	**40.1**	**39.3**	**40.1**	**39.3**	**40.8**	**40.0**	**44.8**	**43.7**
Time (HR)						**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.3**	**1.3**
560	**US 287**		**Colorado SL - I-80**												
R.OPA		19.3	2.3	55.0	3,809	44.9	41.6	44.9	41.6	45.3	42.2	46.6	43.2	46.6	43.2
U.OPA		3.5	2.8	35.0	6,139	31.4	30.6	31.4	30.6	31.4	30.6	31.4	30.6	31.4	30.6
Total Sample		24.5													
TOTAL	**24.5**		**2.4**	**50.9**	**4,140**	**42.3**	**39.6**	**42.3**	**39.6**	**42.6**	**40.0**	**43.6**	**40.8**	**43.6**	**40.8**
Time (HR)						**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN Operating Speeds
Corridor Results - Existing Conditions

Corridor/ Funct.Class	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed		Peak Hour Speed	
								Single Truck	Comb. Truck	Single Truck	Comb. Truck
1											
R.Int		1491.8	4.0	63.1	67.7	70.6	8,329	59.6	56.5	59.5	56.4
R.OPA		1137.2	2.4	53.4	56.8	69.5	3,041	49.2	47.0	44.7	42.9
R.MiA		47.2	2.1	55.0	55.0	70.0	1,027	50.0	48.7	44.7	43.5
U.Int		165.8	4.4	40.0	63.1	70.7	29,319	57.8	55.7	50.7	49.0
U.OFE		16.3	4.0	40.0	52.5	70.0	32,788	54.8	54.0	43.5	43.5
U.OPA		37.7	3.5	35.0	39.7	69.6	16,224	26.9	26.7	24.4	24.2
Total Sample		2896.0									
TOTAL	**4781.3**		**3.3**	**56.0**	**61.2**	**70.1**	**7,047**	**53.3**	**50.9**	**50.2**	**48.0**
Time (HR)								**89.7**	**93.9**	**95.2**	**99.5**
2											
R.Int		858.7	4.1	63.6	69.3	72.2	15,190	59.6	56.2	58.1	54.9
U.Int		190.8	6.1	40.0	65.1	71.3	88,027	53.4	50.7	24.8	24.4
Total Sample		1049.5									
TOTAL	**1754.3**		**4.5**	**58.0**	**68.6**	**72.1**	**27,041**	**58.5**	**55.2**	**47.7**	**45.6**
Time (HR)								**30.0**	**31.8**	**36.8**	**38.4**
3											
R.Int		845.0	4.0	60.4	68.9	69.9	11,153	57.6	53.6	57.5	53.5
R.MiA		20.4	2.4	45.0	39.5	70.0	3,977	38.9	36.3	38.4	35.8
U.Int		81.0	4.9	40.0	62.2	69.4	45,098	54.4	51.2	40.7	39.0
Total Sample		946.4									
TOTAL	**1125.7**		**4.1**	**57.3**	**67.3**	**69.8**	**14,214**	**56.8**	**52.9**	**54.9**	**51.2**
Time (HR)								**19.8**	**21.3**	**20.5**	**22.0**
4											
R.Int		1140.3	4.0	64.9	68.1	70.3	15,358	61.4	59.0	61.2	58.8
R.OPA		23.5	3.5	50.6	58.9	68.3	15,821	49.2	43.7	47.5	42.6
R.MiA		0.1	4.0	55.0	20.0	70.0	2,410	19.8	19.8	19.8	19.8
U.Int		137.4	4.5	40.0	65.4	70.0	38,004	56.8	54.4	47.3	45.7
U.OFE		8.3	5.0	40.0	65.0	68.6	45,726	58.5	55.3	53.9	50.9
U.OPA		5.8	3.0	35.0	42.6	59.0	16,410	25.5	25.4	24.0	24.0
Total Sample		1315.4									
TOTAL	**1546.2**		**4.0**	**59.4**	**66.7**	**70.0**	**17,868**	**59.2**	**56.5**	**57.7**	**55.1**
Time (HR)								**26.1**	**27.4**	**26.8**	**28.1**
5											
R.Int		1552.0	4.1	64.7	68.0	70.1	15,088	61.2	58.3	61.0	58.1
R.OPA		7.6	4.0	55.0	65.0	70.0	31,114	64.4	64.4	63.1	63.1
U.Int		403.8	6.1	40.0	62.7	69.9	83,709	52.7	50.6	29.5	28.9
U.OFE		47.0	5.9	40.0	65.0	70.0	111,621	47.3	45.7	19.8	19.7
Total Sample		2010.4									
TOTAL	**2745.6**		**4.5**	**56.5**	**66.8**	**70.0**	**32,058**	**58.8**	**56.1**	**47.6**	**46.0**
Time (HR)								**46.7**	**48.9**	**57.6**	**59.7**

WTTN Operating Speeds
Corridor Results - Existing Conditions

Corridor/ Funct.Class	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed		Peak Hour Speed	
								Single Truck	Comb. Truck	Single Truck	Comb. Truck
6											
R.Int		285.6	4.0	65.0	67.0	70.0	17,072	61.0	57.7	60.9	57.6
U.Int		185.8	5.5	40.0	63.9	70.0	57,726	58.1	55.4	36.8	35.9
Total Sample		471.4									
TOTAL	**857.0**		**4.5**	**53.2**	**65.9**	**70.0**	**31,506**	**60.0**	**56.8**	**49.4**	**47.4**
Time (HR)								**14.3**	**15.1**	**17.3**	**18.1**
7											
R.Int		598.7	4.6	64.5	67.1	69.8	29,603	58.0	54.5	56.8	53.5
R.OPA		326.5	3.3	54.9	59.4	69.0	17,193	51.5	49.2	47.8	45.8
R.MiA		8.6	4.0	55.0	60.7	68.8	13,713	60.7	60.7	60.7	60.7
U.Int		420.9	6.9	40.0	62.9	69.8	128,003	49.5	47.8	21.6	21.4
U.OFE		102.7	5.1	40.0	64.8	70.0	62,058	57.3	55.5	37.3	36.4
U.OPA		12.7	3.2	35.0	47.3	64.7	12,286	28.0	27.5	27.7	27.2
U.Col		0.6	2.0	35.0	55.0	60.0	16,035	24.9	24.9	21.7	21.7
Total Sample		1470.7									
TOTAL	**2162.5**		**5.0**	**50.9**	**63.7**	**69.6**	**58,048**	**53.4**	**51.0**	**36.3**	**35.3**
Time (HR)								**40.5**	**42.4**	**59.5**	**61.3**
8											
R.Int		654.5	4.0	64.3	67.3	69.8	10,779	58.5	54.8	58.5	54.8
U.Int		79.1	4.5	40.0	61.2	69.9	38,069	55.1	52.8	46.8	45.2
Total Sample		733.6									
TOTAL	**733.5**		**4.0**	**60.3**	**66.6**	**69.8**	**13,720**	**58.1**	**54.6**	**56.9**	**53.6**
Time (HR)								**12.6**	**13.4**	**12.9**	**13.7**
9											
R.OPA		523.4	2.2	52.7	58.0	67.7	4,229	45.9	43.5	41.5	39.5
U.OFE		4.1	4.0	40.0	55.0	70.0	10,463	57.7	57.7	57.7	57.7
U.OPA		17.2	3.0	35.0	43.9	68.4	14,936	28.9	28.5	28.0	27.6
U.Col		0.5	3.0	35.0	25.0	70.0	9,904	15.3	15.3	14.8	14.8
Total Sample		545.2									
TOTAL	**672.0**		**2.2**	**51.8**	**57.4**	**67.7**	**4,597**	**45.2**	**42.9**	**41.1**	**39.2**
Time (HR)								**14.9**	**15.7**	**16.4**	**17.1**
10											
R.Int		922.2	4.2	64.0	67.7	69.7	15,755	59.7	56.7	59.0	56.1
R.OPA		311.9	2.6	53.0	53.5	69.7	6,162	48.3	47.3	44.3	43.5
R.MiA		5.2	2.0	55.0	55.0	70.0	10,099	35.7	34.5	30.8	30.1
U.Int		354.7	5.9	40.0	63.6	70.0	79,736	53.2	51.1	29.4	28.9
U.OFE		23.4	5.2	40.0	67.2	70.0	48,940	58.2	56.0	43.5	42.2
U.OPA		23.3	3.6	35.0	44.2	68.6	17,654	27.8	26.8	25.9	25.0
Total Sample		1640.7									
TOTAL	**2155.3**		**4.2**	**54.4**	**63.2**	**69.7**	**26,751**	**54.9**	**52.7**	**46.0**	**44.5**
Time (HR)								**39.3**	**40.9**	**46.9**	**48.5**

WTTN Operating Speeds
Corridor Results - Existing Conditions

Corridor/ Funct.Class	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed		Peak Hour Speed	
								Single Truck	Comb. Truck	Single Truck	Comb. Truck
11											
R.Int		1199.2	4.0	63.1	67.9	71.4	10,513	59.8	56.6	59.7	56.5
R.OPA		134.0	2.1	55.0	57.1	70.8	2,617	49.4	48.1	44.9	43.9
U.Int		173.8	4.5	40.0	62.5	72.2	33,968	58.1	55.6	47.4	45.9
U.OPA		6.2	2.5	35.0	45.0	66.3	7,086	28.1	28.0	27.7	27.6
Total Sample		1513.2									
TOTAL	**2368.9**		**3.9**	**58.9**	**66.2**	**71.4**	**12,161**	**58.4**	**55.5**	**56.5**	**53.8**
Time (HR)								**40.6**	**42.7**	**42.0**	**44.1**
12											
R.OPA		67.7	2.0	55.0	54.5	70.0	1,251	47.5	44.1	43.4	40.4
U.OPA		2.4	6.0	35.0	35.0	70.0	36,446	25.4	25.4	25.4	25.4
Total Sample		70.1									
TOTAL	**259.6**		**2.2**	**53.6**	**53.2**	**70.0**	**2,858**	**45.7**	**42.7**	**42.0**	**39.3**
Time (HR)								**5.7**	**6.1**	**6.2**	**6.6**
13											
R.Int		115.5	4.0	65.0	70.0	70.0	6,971	59.7	57.2	59.7	57.2
R.OPA		119.5	2.1	55.0	57.0	70.0	1,615	51.5	50.1	46.0	44.8
U.Int		16.4	4.3	40.0	63.1	70.0	14,946	54.3	50.7	54.0	50.5
U.OPA		3.3	4.0	35.0	29.3	68.1	8,512	19.7	19.3	19.7	19.3
Total Sample		254.7									
TOTAL	**442.0**		**3.0**	**56.7**	**60.8**	**70.0**	**4,533**	**53.2**	**51.4**	**49.8**	**48.2**
Time (HR)								**8.3**	**8.6**	**8.9**	**9.2**
14											
R.Int		307.0	4.1	65.0	68.6	74.5	17,772	58.2	54.7	54.2	51.2
R.OPA		304.2	3.1	55.0	59.2	70.0	6,033	48.6	46.7	46.8	45.1
R.MiA		36.6	2.0	55.0	57.4	70.0	2,514	48.3	44.6	44.3	40.7
R.MaC		13.4	2.5	55.0	65.5	70.0	2,360	51.7	50.8	46.8	46.1
U.Int		179.6	5.4	40.0	59.8	71.1	75,879	52.8	50.4	29.7	29.1
U.OFE		28.3	4.4	40.0	66.0	70.0	23,523	47.7	45.7	37.6	36.3
U.OPA		31.8	3.9	35.0	39.4	68.9	9,714	25.0	24.5	25.0	24.5
U.MiA		3.8	2.0	35.0	40.4	70.0	4,328	24.5	24.3	23.8	23.6
Total Sample		904.7									
TOTAL	**1738.0**		**3.7**	**52.7**	**60.3**	**71.5**	**19,332**	**49.0**	**46.8**	**42.6**	**40.9**
Time (HR)								**35.4**	**37.2**	**40.8**	**42.5**
15											
R.Int		236.8	4.0	61.3	65.3	70.0	25,492	64.4	64.4	63.5	63.5
U.Int		100.6	5.9	40.0	58.3	70.0	93,624	52.7	52.7	27.0	27.0
Total Sample		337.4									
TOTAL	**337.4**		**4.6**	**52.9**	**63.0**	**70.0**	**45,803**	**60.4**	**60.4**	**45.3**	**45.3**
Time (HR)								**5.6**	**5.6**	**7.5**	**7.5**

WTTN Operating Speeds
Corridor Results - Existing Conditions

Corridor/ Funct.Class	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed		Peak Hour Speed	
								Single Truck	Comb. Truck	Single Truck	Comb. Truck
16											
R.Int		726.9	4.0	64.9	69.6	73.2	11,522	58.0	53.8	56.8	52.7
R.OPA		189.5	2.1	54.3	62.3	70.7	2,561	50.1	47.9	45.1	43.3
U.Int		172.2	4.6	40.0	61.0	71.3	55,073	51.7	48.8	33.4	32.4
U.OFE		2.9	4.0	40.0	49.3	70.0	21,183	51.7	51.7	51.7	51.7
U.OPA		17.6	2.7	35.0	44.9	70.7	9,471	25.8	25.4	25.0	24.6
Total Sample		1109.1									
TOTAL	**1379.9**		**3.7**	**57.0**	**66.1**	**72.4**	**15,378**	**54.1**	**50.8**	**48.6**	**45.9**
Time (HR)								**25.5**	**27.2**	**28.4**	**30.0**
17											
R.Int		1294.9	4.0	65.0	68.5	70.0	16,411	61.0	58.6	59.4	57.1
R.OPA		445.6	2.3	55.0	62.8	70.0	3,542	49.9	48.2	45.7	44.3
R.MiA		104.6	2.0	55.0	65.0	70.0	1,189	51.4	50.5	45.3	44.6
U.Int		448.2	5.1	40.0	62.9	69.9	63,698	56.0	53.2	33.7	32.8
U.OPA		19.9	3.9	35.0	36.2	69.5	10,206	23.2	23.2	20.8	20.7
Total Sample		2313.2									
TOTAL	**3472.5**		**3.8**	**54.6**	**64.9**	**70.0**	**22,296**	**55.3**	**53.2**	**46.9**	**45.5**
Time (HR)								**62.8**	**65.3**	**74.0**	**76.4**
18											
R.OPA		286.8	3.3	55.0	57.7	69.9	12,718	52.2	50.8	48.2	47.0
R.MiA		33.6	2.1	54.7	53.9	68.1	3,260	45.6	42.6	42.2	39.4
R.MaC		70.9	2.0	55.0	59.4	70.0	1,633	47.4	45.1	42.2	40.1
U.OFE		67.1	5.3	40.0	57.8	70.0	84,374	55.7	54.8	31.6	31.3
U.OPA		92.1	3.7	35.0	48.7	69.1	14,516	29.7	29.4	29.5	29.3
U.MiA		3.4	2.3	35.0	36.0	64.0	7,790	22.0	21.7	21.3	21.0
U.Col		0.3	2.0	35.0	45.0	70.0	3,800	26.6	26.6	26.0	25.9
Total Sample		554.2									
TOTAL	**1013.0**		**3.4**	**48.3**	**55.7**	**69.7**	**18,473**	**45.4**	**44.2**	**40.4**	**39.4**
Time (HR)								**22.3**	**22.9**	**25.1**	**25.7**
19											
R.Int		897.7	4.0	65.0	68.6	70.3	15,389	60.5	57.3	60.3	57.2
R.OPA		491.7	2.4	54.6	60.3	69.9	3,911	47.7	45.8	44.1	42.4
R.MiA		0.1	4.0	55.0	20.0	70.0	2,410	19.8	19.8	19.8	19.8
R.MaC		1.1	2.0	55.0	55.0	70.0	1,550	51.3	50.1	45.3	44.4
U.Int		175.1	4.7	40.0	65.0	69.7	53,713	55.3	52.3	35.4	34.3
U.OFE		14.4	5.4	40.0	59.4	69.6	53,540	55.8	53.2	48.0	45.5
U.OPA		34.0	4.2	35.0	42.2	67.2	21,238	28.6	28.2	28.1	27.7
Total Sample		1614.1									
TOTAL	**2086.7**		**3.6**	**55.7**	**64.1**	**70.0**	**16,864**	**53.6**	**51.2**	**48.8**	**46.8**
Time (HR)								**38.9**	**40.8**	**42.8**	**44.6**

WTTN Operating Speeds
Corridor Results - Existing Conditions

Corridor/ Funct.Class	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Speed Limit	Design Speed	Average AADT	Average Daily Speed		Peak Hour Speed	
								Single Truck	Comb. Truck	Single Truck	Comb. Truck
20											
R.Int		212.5	4.0	64.1	65.0	70.0	7,303	58.0	54.5	58.0	54.5
R.OPA		146.7	2.1	55.0	54.4	70.0	4,288	45.5	42.7	41.3	38.9
R.MiA		13.7	2.0	55.0	51.1	70.0	920	46.0	44.6	41.7	40.3
U.Int		31.2	4.0	40.0	59.2	70.0	11,622	56.1	53.9	56.1	53.9
U.OPA		5.0	3.5	35.0	35.8	68.1	23,805	23.2	22.5	22.7	22.1
Total Sample		409.1									
TOTAL	**853.8**		**3.2**	**57.2**	**58.8**	**69.9**	**6,555**	**50.5**	**47.5**	**48.1**	**45.4**
Time (HR)								**16.9**	**18.0**	**17.8**	**18.8**

WTTN Operating Speeds
Corridor Results - Performance Enhancement
Average Daily Speed

Corridor/ Funct.Class	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed		Average Daily Speed for Cumulative Improvements: Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck
1															
R.Int		1491.8	4.0	63.1	8,329	59.6	56.5	59.9	56.8	59.9	56.8	59.9	56.8	59.9	56.8
R.OPA		1137.2	2.4	53.4	3,041	49.2	47.0	49.4	47.3	50.2	48.4	50.3	48.6	50.8	49.0
R.MiA		47.2	2.1	55.0	1,027	50.0	48.7	50.0	48.7	50.1	48.7	50.1	48.7	50.1	48.7
U.Int		165.8	4.4	40.0	29,319	57.8	55.7	58.2	56.0	58.2	56.0	59.0	56.8	59.0	56.8
U.OFE		16.3	4.0	40.0	32,788	54.8	54.0	54.9	54.1	54.9	54.1	55.6	54.9	59.2	58.4
U.OPA		37.7	3.5	35.0	16,224	26.9	26.7	27.1	26.9	27.2	27.1	27.5	27.4	33.7	33.5
Total Sample		2896.0													
TOTAL	**4781.3**		**3.3**	**56.0**	**7,047**	**53.3**	**50.9**	**53.6**	**51.2**	**54.0**	**51.8**	**54.1**	**51.9**	**54.6**	**52.4**
Time (HR)						**89.7**	**93.9**	**89.2**	**93.4**	**88.6**	**92.4**	**88.3**	**92.1**	**87.5**	**91.3**
2															
R.Int		858.7	4.1	63.6	15,190	59.6	56.2	59.9	56.4	59.9	56.4	59.9	56.5	59.9	56.5
U.Int		190.8	6.1	40.0	88,027	53.4	50.7	54.4	51.6	54.4	51.6	57.0	53.9	57.0	53.9
Total Sample		1049.5													
TOTAL	**1754.3**		**4.5**	**58.0**	**27,041**	**58.5**	**55.2**	**58.9**	**55.6**	**58.9**	**55.6**	**59.4**	**56.0**	**59.4**	**56.0**
Time (HR)						**30.0**	**31.8**	**29.8**	**31.6**	**29.8**	**31.6**	**29.5**	**31.3**	**29.5**	**31.3**
3															
R.Int		845.0	4.0	60.4	11,153	57.6	53.6	57.9	53.8	57.9	53.8	57.9	53.8	58.0	53.9
R.MiA		20.4	2.4	45.0	3,977	38.9	36.3	38.9	36.3	40.4	39.8	40.4	39.8	49.4	47.8
U.Int		81.0	4.9	40.0	45,098	54.4	51.2	54.9	51.6	54.9	51.6	55.1	51.8	55.5	52.1
Total Sample		946.4													
TOTAL	**1125.7**		**4.1**	**57.3**	**14,214**	**56.8**	**52.9**	**57.1**	**53.1**	**57.2**	**53.3**	**57.2**	**53.3**	**57.6**	**53.6**
Time (HR)						**19.8**	**21.3**	**19.7**	**21.2**	**19.7**	**21.1**	**19.7**	**21.1**	**19.5**	**21.0**
4															
R.Int		1140.3	4.0	64.9	15,358	61.4	59.0	61.5	59.1	61.5	59.1	61.5	59.1	61.5	59.1
R.OPA		23.5	3.5	50.6	15,821	49.2	43.7	49.2	43.7	50.2	45.6	50.2	45.6	51.5	46.6
R.MiA		0.1	4.0	55.0	2,410	19.8	19.8	20.5	20.5	20.5	20.5	20.5	20.5	39.3	37.7
U.Int		137.4	4.5	40.0	38,004	56.8	54.4	57.1	54.7	57.1	54.7	58.8	56.3	58.8	56.3
U.OFE		8.3	5.0	40.0	45,726	58.5	55.3	58.5	55.3	58.5	55.3	58.5	55.3	58.5	55.3
U.OPA		5.8	3.0	35.0	16,410	25.5	25.4	25.6	25.5	25.8	25.7	25.8	25.7	28.5	28.3
Total Sample		1315.4													
TOTAL	**1546.2**		**4.0**	**59.4**	**17,868**	**59.2**	**56.5**	**59.3**	**56.6**	**59.5**	**56.8**	**59.6**	**57.0**	**59.9**	**57.2**
Time (HR)						**26.1**	**27.4**	**26.1**	**27.3**	**26.0**	**27.2**	**25.9**	**27.1**	**25.8**	**27.0**
5															
R.Int		1552.0	4.1	64.7	15,088	61.2	58.3	61.3	58.4	61.3	58.4	61.3	58.4	61.4	58.5
R.OPA		7.6	4.0	55.0	31,114	64.4	64.4	64.4	64.4	64.4	64.4	64.4	64.4	64.4	64.4
U.Int		403.8	6.1	40.0	83,709	52.7	50.6	53.0	50.9	53.0	50.9	57.0	54.5	57.0	54.5
U.OFE		47.0	5.9	40.0	111,621	47.3	45.7	48.1	46.4	48.1	46.4	57.0	54.5	57.0	54.5
Total Sample		2010.4													
TOTAL	**2745.6**		**4.5**	**56.5**	**32,058**	**58.8**	**56.1**	**59.0**	**56.3**	**59.0**	**56.3**	**60.3**	**57.5**	**60.3**	**57.5**
Time (HR)						**46.7**	**48.9**	**46.6**	**48.8**	**46.6**	**48.8**	**45.6**	**47.8**	**45.5**	**47.7**
6															
R.Int		285.6	4.0	65.0	17,072	61.0	57.7	61.0	57.7	61.0	57.7	61.0	57.7	61.0	57.7
U.Int		185.8	5.5	40.0	57,726	58.1	55.4	58.2	55.4	58.2	55.4	58.3	55.6	58.3	55.6
Total Sample		471.4													
TOTAL	**857.0**		**4.5**	**53.2**	**31,506**	**60.0**	**56.8**	**60.0**	**56.9**	**60.0**	**56.9**	**60.0**	**56.9**	**60.0**	**56.9**
Time (HR)						**14.3**	**15.1**	**14.3**	**15.1**	**14.3**	**15.1**	**14.3**	**15.1**	**14.3**	**15.1**

WTTN Operating Speeds
Corridor Results - Performance Enhancement
Average Daily Speed

Corridor/ Funct.Class	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed Single Truck	Existing Condition Average Daily Speed Comb. Truck	Average Daily Speed for Cumulative Improvements: Pavement Condition (1) Single Truck	Pavement Condition (1) Comb. Truck	Curves and Grades (2) Single Truck	Curves and Grades (2) Comb. Truck	Congestion (3) Single Truck	Congestion (3) Comb. Truck	Speed Limit (4) Single Truck	Speed Limit (4) Comb. Truck
7															
R.Int		598.7	4.6	64.5	29,603	58.0	54.5	58.8	55.2	58.8	55.2	58.8	55.2	58.8	55.2
R.OPA		326.5	3.3	54.9	17,193	51.5	49.2	51.7	49.4	52.4	51.0	52.6	51.1	52.9	51.4
R.MiA		8.6	4.0	55.0	13,713	60.7	60.7	60.7	60.7	60.9	60.9	60.9	60.9	61.6	61.6
U.Int		420.9	6.9	40.0	128,003	49.5	47.8	50.6	48.8	50.6	48.8	57.4	55.0	57.5	55.1
U.OFE		102.7	5.1	40.0	62,058	57.3	55.5	58.2	56.2	58.2	56.2	58.4	56.4	58.4	56.4
U.OPA		12.7	3.2	35.0	12,286	28.0	27.5	28.5	28.0	28.8	28.3	28.8	28.3	30.7	30.1
U.Col		0.6	2.0	35.0	16,035	24.9	24.9	25.8	25.7	25.8	25.7	25.8	25.8	25.8	25.8
Total Sample		1470.7													
TOTAL	**2162.5**		**5.0**	**50.9**	**58,048**	**53.4**	**51.0**	**54.2**	**51.7**	**54.4**	**52.0**	**56.6**	**54.0**	**56.7**	**54.1**
Time (HR)						**40.5**	**42.4**	**39.9**	**41.9**	**39.8**	**41.6**	**38.2**	**40.1**	**38.1**	**40.0**
8															
R.Int		654.5	4.0	64.3	10,779	58.5	54.8	58.7	54.9	58.7	54.9	58.7	54.9	58.7	54.9
U.Int		79.1	4.5	40.0	38,069	55.1	52.8	55.2	52.9	55.2	52.9	57.5	55.0	57.5	55.0
Total Sample		733.6													
TOTAL	**733.5**		**4.0**	**60.3**	**13,720**	**58.1**	**54.6**	**58.3**	**54.7**	**58.3**	**54.7**	**58.5**	**54.9**	**58.5**	**54.9**
Time (HR)						**12.6**	**13.4**	**12.6**	**13.4**	**12.6**	**13.4**	**12.5**	**13.3**	**12.5**	**13.3**
9															
R.OPA		523.4	2.2	52.7	4,229	45.9	43.5	46.1	43.6	46.8	45.1	46.8	45.2	47.3	45.6
U.OFE		4.1	4.0	40.0	10,463	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7
U.OPA		17.2	3.0	35.0	14,936	28.9	28.5	28.9	28.5	28.9	28.6	29.0	28.6	33.1	32.7
U.Col		0.5	3.0	35.0	9,904	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	28.1	28.1
Total Sample		545.2													
TOTAL	**672.0**		**2.2**	**51.8**	**4,597**	**45.2**	**42.9**	**45.4**	**43.1**	**46.1**	**44.5**	**46.1**	**44.5**	**46.8**	**45.2**
Time (HR)						**14.9**	**15.7**	**14.8**	**15.6**	**14.6**	**15.1**	**14.6**	**15.1**	**14.4**	**14.9**
10															
R.Int		922.2	4.2	64.0	15,755	59.7	56.7	60.0	57.0	60.0	57.0	60.0	57.0	60.2	57.2
R.OPA		311.9	2.6	53.0	6,162	48.3	47.3	48.4	47.4	48.7	47.8	48.8	48.0	49.3	48.4
R.MiA		5.2	2.0	55.0	10,099	35.7	34.5	35.7	34.5	35.7	34.5	36.0	34.8	36.0	34.8
U.Int		354.7	5.9	40.0	79,736	53.2	51.1	53.6	51.5	53.6	51.5	57.7	55.2	57.7	55.2
U.OFE		23.4	5.2	40.0	48,940	58.2	56.0	59.0	56.7	59.0	56.7	59.5	57.2	59.5	57.2
U.OPA		23.3	3.6	35.0	17,654	27.8	26.8	27.9	26.9	28.2	27.9	28.2	27.9	29.9	29.5
Total Sample		1640.7													
TOTAL	**2155.3**		**4.2**	**54.4**	**26,751**	**54.9**	**52.7**	**55.2**	**52.9**	**55.3**	**53.1**	**56.1**	**53.9**	**56.4**	**54.2**
Time (HR)						**39.3**	**40.9**	**39.1**	**40.7**	**39.0**	**40.6**	**38.4**	**40.0**	**38.2**	**39.8**
11															
R.Int		1199.2	4.0	63.1	10,513	59.8	56.6	60.0	56.8	60.0	56.8	60.0	56.8	60.0	56.8
R.OPA		134.0	2.1	55.0	2,617	49.4	48.1	49.4	48.1	49.5	48.2	49.5	48.2	51.3	49.9
U.Int		173.8	4.5	40.0	33,968	58.1	55.6	58.3	55.8	58.3	55.8	59.2	56.6	59.2	56.6
U.OPA		6.2	2.5	35.0	7,086	28.1	28.0	28.2	28.1	28.2	28.1	28.2	28.1	31.5	31.3
Total Sample		1513.2													
TOTAL	**2368.9**		**3.9**	**58.9**	**12,161**	**58.4**	**55.5**	**58.6**	**55.7**	**58.6**	**55.7**	**58.7**	**55.8**	**58.9**	**56.0**
Time (HR)						**40.6**	**42.7**	**40.4**	**42.6**	**40.4**	**42.5**	**40.4**	**42.5**	**40.2**	**42.3**
12															
R.OPA		67.7	2.0	55.0	1,251	47.5	44.1	47.7	44.2	48.4	45.6	48.4	45.6	48.8	46.0
U.OPA		2.4	6.0	35.0	36,446	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	32.8	32.8
Total Sample		70.1													
TOTAL	**259.6**		**2.2**	**53.6**	**2,858**	**45.7**	**42.7**	**45.8**	**42.8**	**46.5**	**44.0**	**46.5**	**44.0**	**47.8**	**45.1**
Time (HR)						**5.7**	**6.1**	**5.7**	**6.1**	**5.6**	**5.9**	**5.6**	**5.9**	**5.4**	**5.8**

WTTN Operating Speeds
Corridor Results - Performance Enhancement
Average Daily Speed

Corridor/	GIS	Sample	Average	Target	Average	Existing Condition Average Daily Speed		Average Daily Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
Funct.Class	Length (MI)	Length (MI)	No. Lane	Speed	AADT	Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck
13															
R.Int		115.5	4.0	65.0	6,971	59.7	57.2	59.9	57.4	59.9	57.4	59.9	57.4	59.9	57.4
R.OPA		119.5	2.1	55.0	1,615	51.5	50.1	51.5	50.1	51.6	50.2	51.6	50.2	51.6	50.2
U.Int		16.4	4.3	40.0	14,946	54.3	50.7	54.9	51.2	54.9	51.2	54.9	51.2	54.9	51.2
U.OPA		3.3	4.0	35.0	8,512	19.7	19.3	19.7	19.3	19.7	19.3	19.7	19.3	29.0	28.0
Total Sample		254.7													
TOTAL	**442.0**		**3.0**	**56.7**	**4,533**	**53.2**	**51.4**	**53.3**	**51.5**	**53.4**	**51.5**	**53.4**	**51.5**	**54.1**	**52.2**
Time (HR)						**8.3**	**8.6**	**8.3**	**8.6**	**8.3**	**8.6**	**8.3**	**8.6**	**8.2**	**8.5**
14															
R.Int		307.0	4.1	65.0	17,772	58.2	54.7	58.6	55.1	58.6	55.1	58.9	55.3	58.9	55.3
R.OPA		304.2	3.1	55.0	6,033	48.6	46.7	48.8	46.9	49.0	47.2	49.0	47.2	50.8	48.7
R.MiA		36.6	2.0	55.0	2,514	48.3	44.6	48.3	44.6	48.6	44.9	48.6	44.9	48.6	44.9
R.MaC		13.4	2.5	55.0	2,360	51.7	50.8	51.7	50.8	52.0	51.2	52.0	51.2	52.0	51.2
U.Int		179.6	5.4	40.0	75,879	52.8	50.4	53.1	50.7	53.1	50.7	55.6	53.0	55.6	53.0
U.OFE		28.3	4.4	40.0	23,523	47.7	45.7	47.8	45.7	47.8	45.7	47.8	45.7	47.8	45.7
U.OPA		31.8	3.9	35.0	9,714	25.0	24.5	25.3	24.8	25.4	24.9	25.4	24.9	30.2	29.3
U.MiA		3.8	2.0	35.0	4,328	24.5	24.3	24.5	24.3	24.6	24.4	24.6	24.4	27.2	26.9
Total Sample		904.7													
TOTAL	**1738.0**		**3.7**	**52.7**	**19,332**	**49.0**	**46.8**	**49.3**	**47.0**	**49.4**	**47.1**	**49.8**	**47.5**	**51.2**	**48.7**
Time (HR)						**35.4**	**37.2**	**35.2**	**37.0**	**35.2**	**36.9**	**34.9**	**36.6**	**33.9**	**35.7**
15															
R.Int		236.8	4.0	61.3	25,492	64.4	64.4	64.4	64.4	64.4	64.4	64.4	64.4	65.3	65.3
U.Int		100.6	5.9	40.0	93,624	52.7	52.7	52.7	52.7	52.7	52.7	59.3	59.3	59.3	59.3
Total Sample		337.4													
TOTAL	**337.4**		**4.6**	**52.9**	**45,803**	**60.4**	**60.4**	**60.4**	**60.4**	**60.4**	**60.4**	**62.8**	**62.8**	**63.4**	**63.4**
Time (HR)						**5.6**	**5.6**	**5.6**	**5.6**	**5.6**	**5.6**	**5.4**	**5.4**	**5.3**	**5.3**
16															
R.Int		726.9	4.0	64.9	11,522	58.0	53.8	58.3	54.0	58.3	54.0	58.3	54.1	58.3	54.1
R.OPA		189.5	2.1	54.3	2,561	50.1	47.9	50.1	47.9	50.5	48.3	50.5	48.3	50.5	48.3
U.Int		172.2	4.6	40.0	55,073	51.7	48.8	52.2	49.3	52.2	49.3	54.6	51.3	54.7	51.4
U.OFE		2.9	4.0	40.0	21,183	51.7	51.7	52.0	52.0	52.0	52.0	52.0	52.0	57.1	57.1
U.OPA		17.6	2.7	35.0	9,471	25.8	25.4	26.0	25.5	26.1	25.7	26.1	25.7	28.5	27.9
Total Sample		1109.1													
TOTAL	**1379.9**		**3.7**	**57.0**	**15,378**	**54.1**	**50.8**	**54.4**	**51.0**	**54.5**	**51.1**	**54.9**	**51.4**	**55.1**	**51.6**
Time (HR)						**25.5**	**27.2**	**25.4**	**27.0**	**25.3**	**27.0**	**25.2**	**26.8**	**25.1**	**26.7**
17															
R.Int		1294.9	4.0	65.0	16,411	61.0	58.6	61.2	58.8	61.2	58.8	61.3	58.8	61.3	58.9
R.OPA		445.6	2.3	55.0	3,542	49.9	48.2	50.2	48.5	50.5	48.9	50.5	48.9	50.7	49.0
R.MiA		104.6	2.0	55.0	1,189	51.4	50.5	52.1	51.2	52.2	51.4	52.2	51.4	52.2	51.4
U.Int		448.2	5.1	40.0	63,698	56.0	53.2	56.2	53.3	56.2	53.3	57.1	54.2	57.2	54.2
U.OPA		19.9	3.9	35.0	10,206	23.2	23.2	23.6	23.5	23.6	23.5	23.6	23.6	30.8	30.4
Total Sample		2313.2													
TOTAL	**3472.5**		**3.8**	**54.6**	**22,296**	**55.3**	**53.2**	**55.6**	**53.4**	**55.7**	**53.6**	**55.9**	**53.8**	**56.4**	**54.2**
Time (HR)						**62.8**	**65.3**	**62.5**	**65.0**	**62.4**	**64.8**	**62.1**	**64.6**	**61.5**	**64.0**

WTTN Operating Speeds
Corridor Results - Performance Enhancement
Average Daily Speed

Corridor/ Funct.Class	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Average Daily Speed		Average Daily Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck
18															
R.OPA		286.8	3.3	55.0	12,718	52.2	50.8	52.2	50.8	52.3	50.9	52.4	51.0	53.0	51.6
R.MiA		33.6	2.1	54.7	3,260	45.6	42.6	45.6	42.6	46.6	44.2	46.7	44.2	47.7	45.2
R.MaC		70.9	2.0	55.0	1,633	47.4	45.1	47.4	45.1	48.8	46.7	48.8	46.8	49.7	47.5
U.OFE		67.1	5.3	40.0	84,374	55.7	54.8	55.9	55.0	55.9	55.0	57.0	56.1	57.4	56.5
U.OPA		92.1	3.7	35.0	14,516	29.7	29.4	29.7	29.4	29.7	29.5	29.7	29.5	31.3	31.0
U.MiA		3.4	2.3	35.0	7,790	22.0	21.7	22.0	21.7	22.0	21.8	22.0	21.8	27.7	27.1
U.Col		0.3	2.0	35.0	3,800	26.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6
Total Sample		554.2													
TOTAL	**1013.0**		**3.4**	**48.3**	**18,473**	**45.4**	**44.2**	**45.4**	**44.2**	**45.7**	**44.6**	**45.8**	**44.7**	**47.0**	**45.8**
Time (HR)						**22.3**	**22.9**	**22.3**	**22.9**	**22.2**	**22.7**	**22.1**	**22.7**	**21.6**	**22.1**
19															
R.Int		897.7	4.0	65.0	15,389	60.5	57.3	60.6	57.4	60.6	57.4	60.6	57.4	60.6	57.4
R.OPA		491.7	2.4	54.6	3,911	47.7	45.8	48.0	46.1	48.7	47.1	48.7	47.1	49.9	48.2
R.MiA		0.1	4.0	55.0	2,410	19.8	19.8	20.5	20.5	20.5	20.5	20.5	20.5	39.3	37.7
R.MaC		1.1	2.0	55.0	1,550	51.3	50.1	51.3	50.1	51.3	50.1	51.3	50.1	51.3	50.1
U.Int		175.1	4.7	40.0	53,713	55.3	52.3	55.5	52.5	55.5	52.5	57.0	53.7	57.1	53.8
U.OFE		14.4	5.4	40.0	53,540	55.8	53.2	56.4	53.7	56.4	53.7	56.6	53.8	56.8	54.0
U.OPA		34.0	4.2	35.0	21,238	28.6	28.2	29.0	28.7	29.1	28.7	29.1	28.7	33.1	32.5
Total Sample		1614.1													
TOTAL	**2086.7**		**3.6**	**55.7**	**16,864**	**53.6**	**51.2**	**53.8**	**51.4**	**54.1**	**51.8**	**54.3**	**51.9**	**55.1**	**52.6**
Time (HR)						**38.9**	**40.8**	**38.8**	**40.6**	**38.5**	**40.3**	**38.4**	**40.2**	**37.9**	**39.6**
20															
R.Int		212.5	4.0	64.1	7,303	58.0	54.5	58.8	55.2	58.8	55.2	58.8	55.2	58.8	55.2
R.OPA		146.7	2.1	55.0	4,288	45.5	42.7	45.6	42.7	46.5	44.0	46.5	44.0	46.9	44.3
R.MiA		13.7	2.0	55.0	920	46.0	44.6	46.0	44.6	46.3	44.9	46.3	44.9	49.3	47.6
U.Int		31.2	4.0	40.0	11,622	56.1	53.9	56.6	54.3	56.6	54.3	56.6	54.3	56.6	54.3
U.OPA		5.0	3.5	35.0	23,805	23.2	22.5	23.4	22.7	23.7	23.4	23.7	23.4	29.1	28.8
Total Sample		409.1													
TOTAL	**853.8**		**3.2**	**57.2**	**6,555**	**50.5**	**47.5**	**50.8**	**47.8**	**51.3**	**48.5**	**51.3**	**48.6**	**52.0**	**49.2**
Time (HR)						**16.9**	**18.0**	**16.8**	**17.9**	**16.6**	**17.6**	**16.6**	**17.6**	**16.4**	**17.4**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

WTTN Operating Speeds
Corridor Results - Performance Enhancement
Peak Hour Speeds

Corridor/	GIS	Sample	Average	Target	Average	Existing Condition Peak Hour Speed		Peak Hour Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
Funct.Class	Length (MI)	Length (MI)	No. Lane	Speed	AADT	Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck
1															
R.Int		1491.8	4.0	63.1	8,329	59.5	56.4	59.8	56.7	59.8	56.7	59.9	56.7	59.9	56.7
R.OPA		1137.2	2.4	53.4	3,041	44.7	42.9	45.0	43.1	45.6	44.1	47.4	45.8	47.7	46.1
R.MiA		47.2	2.1	55.0	1,027	44.7	43.5	44.7	43.5	44.7	43.6	46.4	45.2	46.4	45.2
U.Int		165.8	4.4	40.0	29,319	50.7	49.0	50.9	49.3	50.9	49.3	58.1	55.9	58.1	55.9
U.OFE		16.3	4.0	40.0	32,788	43.5	43.5	43.6	43.5	43.6	43.5	55.2	54.4	58.7	57.8
U.OPA		37.7	3.5	35.0	16,224	24.4	24.2	24.5	24.3	24.6	24.5	27.3	27.2	32.9	32.7
Total Sample		2896.0													
TOTAL	**4781.3**		**3.3**	**56.0**	**7,047**	**50.2**	**48.0**	**50.5**	**48.3**	**50.8**	**48.8**	**52.4**	**50.3**	**52.8**	**50.7**
Time (HR)						**95.2**	**99.5**	**94.7**	**99.0**	**94.2**	**98.0**	**91.2**	**95.1**	**90.5**	**94.3**
2															
R.Int															
U.Int		190.8	6.1	40.0	88,027	24.8	24.4	25.3	24.9	25.3	24.9	54.4	51.5	54.4	51.5
Total Sample		1049.5													
TOTAL	**1754.3**		**4.5**	**58.0**	**27,041**	**47.7**	**45.6**	**48.1**	**46.0**	**48.1**	**46.0**	**58.8**	**55.4**	**58.8**	**55.4**
Time (HR)						**36.8**	**38.4**	**36.4**	**38.1**	**36.4**	**38.1**	**29.9**	**31.7**	**29.9**	**31.7**
3															
R.Int		845.0	4.0	60.4	11,153	57.5	53.5	57.8	53.7	57.8	53.7	57.8	53.8	57.9	53.8
R.MiA		20.4	2.4	45.0	3,977	38.4	35.8	38.4	35.8	39.8	39.2	39.8	39.2	46.5	45.0
U.Int		81.0	4.9	40.0	45,098	40.7	39.0	41.0	39.3	41.0	39.3	54.0	50.6	54.3	51.0
Total Sample		946.4													
TOTAL	**1125.7**		**4.1**	**57.3**	**14,214**	**54.9**	**51.2**	**55.2**	**51.5**	**55.2**	**51.6**	**57.0**	**53.1**	**57.3**	**53.4**
Time (HR)						**20.5**	**22.0**	**20.4**	**21.9**	**20.4**	**21.8**	**19.8**	**21.2**	**19.6**	**21.1**
4															
R.Int		1140.3	4.0	64.9	15,358	61.2	58.8	61.4	59.0	61.4	59.0	61.4	59.0	61.4	59.0
R.OPA		23.5	3.5	50.6	15,821	47.5	42.6	47.5	42.6	48.4	44.4	48.4	44.4	49.6	45.4
R.MiA		0.1	4.0	55.0	2,410	19.8	19.8	20.5	20.5	20.5	20.5	20.5	20.5	39.3	37.7
U.Int		137.4	4.5	40.0	38,004	47.3	45.7	47.6	46.0	47.6	46.0	58.2	55.6	58.2	55.6
U.OFE		8.3	5.0	40.0	45,726	53.9	50.9	53.9	50.9	53.9	50.9	53.9	50.9	53.9	50.9
U.OPA		5.8	3.0	35.0	16,410	24.0	24.0	24.1	24.0	24.2	24.1	24.2	24.1	26.6	26.5
Total Sample		1315.4													
TOTAL	**1546.2**		**4.0**	**59.4**	**17,868**	**57.7**	**55.1**	**57.8**	**55.2**	**57.9**	**55.5**	**59.2**	**56.6**	**59.4**	**56.8**
Time (HR)						**26.8**	**28.1**	**26.7**	**28.0**	**26.7**	**27.9**	**26.1**	**27.3**	**26.0**	**27.2**
5															
R.Int		1552.0	4.1	64.7	15,088	61.0	58.1	61.0	58.2	61.0	58.2	61.2	58.3	61.2	58.3
R.OPA		7.6	4.0	55.0	31,114	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1
U.Int		403.8	6.1	40.0	83,709	29.5	28.9	29.7	29.2	29.7	29.2	55.2	52.7	55.2	52.7
U.OFE		47.0	5.9	40.0	111,621	19.8	19.7	20.1	20.0	20.1	20.0	53.8	51.4	53.8	51.4
Total Sample		2010.4													
TOTAL	**2745.6**		**4.5**	**56.5**	**32,058**	**47.6**	**46.0**	**47.8**	**46.2**	**47.8**	**46.2**	**59.6**	**56.8**	**59.6**	**56.9**
Time (HR)						**57.6**	**59.7**	**57.4**	**59.5**	**57.4**	**59.5**	**46.1**	**48.3**	**46.0**	**48.3**
6															
R.Int		285.6	4.0	65.0	17,072	60.9	57.6	60.9	57.6	60.9	57.6	60.9	57.6	60.9	57.6
U.Int		185.8	5.5	40.0	57,726	36.8	35.9	36.9	35.9	36.9	35.9	56.2	53.5	56.3	53.5
Total Sample		471.4													
TOTAL	**857.0**		**4.5**	**53.2**	**31,506**	**49.4**	**47.4**	**49.5**	**47.4**	**49.5**	**47.4**	**59.2**	**56.1**	**59.2**	**56.1**
Time (HR)						**17.3**	**18.1**	**17.3**	**18.1**	**17.3**	**18.1**	**14.5**	**15.3**	**14.5**	**15.3**

WTTN Operating Speeds
Corridor Results - Performance Enhancement
Peak Hour Speeds

Corridor/ Funct.Class	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed		Peak Hour Speed for Cumulative Improvements: Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck
7															
R.Int		598.7	4.6	64.5	29,603	56.8	53.5	57.5	54.1	57.5	54.1	58.0	54.5	58.0	54.5
R.OPA		326.5	3.3	54.9	17,193	47.8	45.8	48.0	46.0	48.5	47.3	50.6	49.2	50.8	49.4
R.MiA		8.6	4.0	55.0	13,713	60.7	60.7	60.7	60.7	60.9	60.9	60.9	60.9	61.5	61.5
U.Int		420.9	6.9	40.0	128,003	21.6	21.4	22.1	21.9	22.1	21.9	54.5	52.2	54.5	52.2
U.OFE		102.7	5.1	40.0	62,058	37.3	36.4	37.8	36.8	37.8	36.8	55.2	53.2	55.2	53.2
U.OPA		12.7	3.2	35.0	12,286	27.7	27.2	28.2	27.8	28.5	28.1	28.5	28.1	30.2	29.8
U.Col		0.6	2.0	35.0	16,035	21.7	21.7	22.5	22.4	22.5	22.4	25.2	25.2	25.2	25.2
Total Sample		1470.7													
TOTAL	**2162.5**		**5.0**	**50.9**	**58,048**	**36.3**	**35.3**	**36.9**	**35.8**	**37.0**	**36.0**	**54.7**	**52.2**	**54.8**	**52.3**
Time (HR)						**59.5**	**61.3**	**58.6**	**60.4**	**58.5**	**60.1**	**39.5**	**41.4**	**39.5**	**41.3**
8															
R.Int		654.5	4.0	64.3	10,779	58.5	54.8	58.6	54.9	58.6	54.9	58.7	54.9	58.7	54.9
U.Int		79.1	4.5	40.0	38,069	46.8	45.2	47.0	45.4	47.0	45.4	57.2	54.6	57.2	54.6
Total Sample		733.6													
TOTAL	**733.5**		**4.0**	**60.3**	**13,720**	**56.9**	**53.6**	**57.1**	**53.7**	**57.1**	**53.7**	**58.5**	**54.9**	**58.5**	**54.9**
Time (HR)						**12.9**	**13.7**	**12.8**	**13.7**	**12.8**	**13.7**	**12.5**	**13.4**	**12.5**	**13.4**
9															
R.OPA		523.4	2.2	52.7	4,229	41.5	39.5	41.7	39.7	42.2	40.9	43.9	42.4	44.1	42.6
U.OFE		4.1	4.0	40.0	10,463	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7
U.OPA		17.2	3.0	35.0	14,936	28.0	27.6	28.0	27.6	28.0	27.7	28.3	28.0	32.3	32.0
U.Col		0.5	3.0	35.0	9,904	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	27.4	27.3
Total Sample		545.2													
TOTAL	**672.0**		**2.2**	**51.8**	**4,597**	**41.1**	**39.2**	**41.2**	**39.3**	**41.7**	**40.4**	**43.3**	**41.9**	**43.8**	**42.4**
Time (HR)						**16.4**	**17.1**	**16.3**	**17.1**	**16.1**	**16.6**	**15.5**	**16.0**	**15.3**	**15.9**
10															
R.Int		922.2	4.2	64.0	15,755	59.0	56.1	59.3	56.4	59.3	56.4	59.7	56.7	59.9	56.9
R.OPA		311.9	2.6	53.0	6,162	44.3	43.5	44.3	43.5	44.6	43.9	47.0	46.2	47.4	46.6
R.MiA		5.2	2.0	55.0	10,099	30.8	30.1	30.8	30.1	30.8	30.1	35.2	34.1	35.2	34.1
U.Int		354.7	5.9	40.0	79,736	29.4	28.9	29.6	29.1	29.6	29.1	55.1	52.8	55.1	52.8
U.OFE		23.4	5.2	40.0	48,940	43.5	42.2	44.0	42.6	44.0	42.6	56.1	54.0	56.1	54.0
U.OPA		23.3	3.6	35.0	17,654	25.9	25.0	26.0	25.2	26.3	26.0	27.8	27.5	29.2	28.9
Total Sample		1640.7													
TOTAL	**2155.3**		**4.2**	**54.4**	**26,751**	**46.0**	**44.5**	**46.2**	**44.7**	**46.3**	**44.8**	**54.9**	**52.8**	**55.2**	**53.0**
Time (HR)						**46.9**	**48.5**	**46.6**	**48.2**	**46.5**	**48.1**	**39.2**	**40.9**	**39.0**	**40.7**
11															
R.Int		1199.2	4.0	63.1	10,513	59.7	56.5	59.9	56.7	59.9	56.7	60.0	56.7	60.0	56.7
R.OPA		134.0	2.1	55.0	2,617	44.9	43.9	44.9	43.9	45.0	43.9	46.2	45.0	47.4	46.1
U.Int		173.8	4.5	40.0	33,968	47.4	45.9	47.6	46.0	47.6	46.0	58.1	55.5	58.1	55.5
U.OPA		6.2	2.5	35.0	7,086	27.7	27.6	27.7	27.7	27.7	27.7	27.7	27.7	31.0	30.8
Total Sample		1513.2													
TOTAL	**2368.9**		**3.9**	**58.9**	**12,161**	**56.5**	**53.8**	**56.7**	**53.9**	**56.7**	**54.0**	**58.1**	**55.2**	**58.3**	**55.4**
Time (HR)						**42.0**	**44.1**	**41.8**	**43.9**	**41.8**	**43.9**	**40.8**	**42.9**	**40.6**	**42.8**

WTTN Operating Speeds
Corridor Results - Performance Enhancement
Peak Hour Speeds

Corridor/ Funct.Class	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed		Peak Hour Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck
12															
R.OPA		67.7	2.0	55.0	1,251	43.4	40.4	43.5	40.5	44.1	41.6	45.5	42.9	45.9	43.1
U.OPA		2.4	6.0	35.0	36,446	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	31.4	31.4
Total Sample		70.1													
TOTAL	**259.6**		**2.2**	**53.6**	**2,858**	**42.0**	**39.3**	**42.1**	**39.4**	**42.7**	**40.4**	**44.0**	**41.6**	**44.9**	**42.4**
Time (HR)						**6.2**	**6.6**	**6.2**	**6.6**	**6.1**	**6.4**	**5.9**	**6.2**	**5.8**	**6.1**
13															
R.Int		115.5	4.0	65.0	6,971	59.7	57.2	59.9	57.4	59.9	57.4	59.9	57.4	59.9	57.4
R.OPA		119.5	2.1	55.0	1,615	46.0	44.8	46.0	44.8	46.0	44.9	47.5	46.3	47.5	46.3
U.Int		16.4	4.3	40.0	14,946	54.0	50.5	54.6	51.0	54.6	51.0	54.6	51.0	54.6	51.0
U.OPA		3.3	4.0	35.0	8,512	19.7	19.3	19.7	19.3	19.7	19.3	19.7	19.3	28.9	28.0
Total Sample		254.7													
TOTAL	**442.0**		**3.0**	**56.7**	**4,533**	**49.8**	**48.2**	**49.9**	**48.3**	**50.0**	**48.4**	**50.9**	**49.2**	**51.5**	**49.8**
Time (HR)						**8.9**	**9.2**	**8.9**	**9.2**	**8.8**	**9.1**	**8.7**	**9.0**	**8.6**	**8.9**
14															
R.Int		307.0	4.1	65.0	17,772	54.2	51.2	54.5	51.5	54.5	51.5	58.6	55.1	58.6	55.1
R.OPA		304.2	3.1	55.0	6,033	46.8	45.1	47.0	45.3	47.2	45.5	47.7	46.0	48.9	46.9
R.MiA		36.6	2.0	55.0	2,514	44.3	40.7	44.3	40.7	44.5	41.0	46.1	42.4	46.1	42.4
R.MaC		13.4	2.5	55.0	2,360	46.8	46.1	46.8	46.1	47.1	46.4	48.3	47.6	48.3	47.6
U.Int		179.6	5.4	40.0	75,879	29.7	29.1	29.9	29.3	29.9	29.3	54.4	51.8	54.4	51.8
U.OFE		28.3	4.4	40.0	23,523	37.6	36.3	37.7	36.4	37.7	36.4	44.7	42.9	44.7	42.9
U.OPA		31.8	3.9	35.0	9,714	25.0	24.5	25.3	24.8	25.4	24.9	25.4	24.9	30.1	29.3
U.MiA		3.8	2.0	35.0	4,328	23.8	23.6	23.8	23.6	23.9	23.7	23.9	23.7	26.5	26.3
Total Sample		904.7													
TOTAL	**1738.0**		**3.7**	**52.7**	**19,332**	**42.6**	**40.9**	**42.9**	**41.1**	**42.9**	**41.2**	**48.6**	**46.4**	**49.9**	**47.4**
Time (HR)						**40.8**	**42.5**	**40.6**	**42.3**	**40.5**	**42.2**	**35.7**	**37.5**	**34.8**	**36.6**
15															
R.Int		236.8	4.0	61.3	25,492	63.5	63.5	63.5	63.5	63.5	63.5	63.7	63.7	64.5	64.5
U.Int		100.6	5.9	40.0	93,624	27.0	27.0	27.0	27.0	27.0	27.0	58.5	58.5	58.5	58.5
Total Sample		337.4													
TOTAL	**337.4**		**4.6**	**52.9**	**45,803**	**45.3**	**45.3**	**45.3**	**45.3**	**45.3**	**45.3**	**62.1**	**62.1**	**62.6**	**62.6**
Time (HR)						**7.5**	**7.5**	**7.4**	**7.5**	**7.4**	**7.5**	**5.4**	**5.4**	**5.4**	**5.4**
16															
R.Int		726.9	4.0	64.9	11,522	56.8	52.7	57.1	53.0	57.1	53.0	58.2	54.0	58.2	54.0
R.OPA		189.5	2.1	54.3	2,561	45.1	43.3	45.1	43.3	45.4	43.6	47.3	45.2	47.3	45.2
U.Int		172.2	4.6	40.0	55,073	33.4	32.4	33.6	32.6	33.6	32.6	54.1	50.8	54.1	50.9
U.OFE		2.9	4.0	40.0	21,183	51.7	51.7	52.0	52.0	52.0	52.0	52.0	52.0	57.1	57.1
U.OPA		17.6	2.7	35.0	9,471	25.0	24.6	25.1	24.7	25.2	24.9	25.2	24.9	27.5	27.0
Total Sample		1109.1													
TOTAL	**1379.9**		**3.7**	**57.0**	**15,378**	**48.6**	**45.9**	**48.8**	**46.2**	**48.9**	**46.2**	**53.8**	**50.5**	**54.0**	**50.7**
Time (HR)						**28.4**	**30.0**	**28.3**	**29.9**	**28.2**	**29.8**	**25.6**	**27.3**	**25.5**	**27.2**

WTTN Operating Speeds
Corridor Results - Performance Enhancement
Peak Hour Speeds

Corridor/ Funct.Class	GIS Length (MI)	Sample Length (MI)	Average No. Lane	Target Speed	Average AADT	Existing Condition Peak Hour Speed		Peak Hour Speed for Cumulative Improvements							
								Pavement Condition (1)		Curves and Grades (2)		Congestion (3)		Speed Limit (4)	
						Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck	Single Truck	Comb. Truck
17															
R.Int		1294.9	4.0	65.0	16,411	59.4	57.1	59.6	57.3	59.6	57.3	61.1	58.6	61.1	58.6
R.OPA		445.6	2.3	55.0	3,542	45.7	44.3	46.0	44.6	46.3	44.9	47.4	45.9	47.5	46.0
R.MiA		104.6	2.0	55.0	1,189	45.3	44.6	45.9	45.2	46.0	45.4	47.2	46.6	47.2	46.6
U.Int		448.2	5.1	40.0	63,698	33.7	32.8	33.8	32.9	33.8	32.9	55.2	52.4	55.3	52.4
U.OPA		19.9	3.9	35.0	10,206	20.8	20.7	21.0	21.0	21.0	21.0	23.2	23.2	30.1	29.7
Total Sample		2313.2													
TOTAL	**3472.5**		**3.8**	**54.6**	**22,296**	**46.9**	**45.5**	**47.1**	**45.6**	**47.2**	**45.7**	**54.2**	**52.2**	**54.7**	**52.6**
Time (HR)						**74.0**	**76.4**	**73.7**	**76.1**	**73.6**	**75.9**	**64.0**	**66.5**	**63.5**	**66.0**
18															
R.OPA		286.8	3.3	55.0	12,718	48.2	47.0	48.2	47.1	48.3	47.2	51.3	49.9	51.8	50.4
R.MiA		33.6	2.1	54.7	3,260	42.2	39.4	42.2	39.4	43.2	40.9	44.6	42.2	45.4	43.0
R.MaC		70.9	2.0	55.0	1,633	42.2	40.1	42.2	40.2	43.4	41.5	45.8	43.8	46.5	44.4
U.OFE		67.1	5.3	40.0	84,374	31.6	31.3	31.9	31.5	31.9	31.5	55.9	54.9	56.3	55.2
U.OPA		92.1	3.7	35.0	14,516	29.5	29.3	29.5	29.3	29.6	29.4	29.6	29.4	31.0	30.8
U.MiA		3.4	2.3	35.0	7,790	21.3	21.0	21.3	21.0	21.3	21.1	21.3	21.1	26.7	26.2
U.Col		0.3	2.0	35.0	3,800	26.0	25.9	26.0	25.9	26.0	25.9	26.0	25.9	26.0	25.9
Total Sample		554.2													
TOTAL	**1013.0**		**3.4**	**48.3**	**18,473**	**40.4**	**39.4**	**40.5**	**39.5**	**40.7**	**39.8**	**44.8**	**43.7**	**45.8**	**44.7**
Time (HR)						**25.1**	**25.7**	**25.0**	**25.6**	**24.9**	**25.4**	**22.6**	**23.2**	**22.1**	**22.7**
19															
R.Int		897.7	4.0	65.0	15,389	60.3	57.2	60.4	57.3	60.4	57.3	60.5	57.4	60.5	57.4
R.OPA		491.7	2.4	54.6	3,911	44.1	42.4	44.4	42.7	45.0	43.6	46.3	44.7	47.2	45.5
R.MiA		0.1	4.0	55.0	2,410	19.8	19.8	20.5	20.5	20.5	20.5	20.5	20.5	39.3	37.7
R.MaC		1.1	2.0	55.0	1,550	45.3	44.4	45.3	44.4	45.3	44.4	46.8	45.8	46.8	45.8
U.Int		175.1	4.7	40.0	53,713	35.4	34.3	35.5	34.4	35.5	34.4	55.1	52.0	55.2	52.0
U.OFE		14.4	5.4	40.0	53,540	48.0	45.5	48.4	45.9	48.4	45.9	53.4	50.5	53.5	50.7
U.OPA		34.0	4.2	35.0	21,238	28.1	27.7	28.5	28.2	28.6	28.2	28.9	28.5	32.8	32.2
Total Sample		1614.1													
TOTAL	**2086.7**		**3.6**	**55.7**	**16,864**	**48.8**	**46.8**	**49.0**	**47.0**	**49.3**	**47.3**	**53.0**	**50.7**	**53.7**	**51.3**
Time (HR)						**42.8**	**44.6**	**42.6**	**44.4**	**42.4**	**44.1**	**39.4**	**41.2**	**38.9**	**40.7**
20															
R.Int		212.5	4.0	64.1	7,303	58.0	54.5	58.8	55.2	58.8	55.2	58.8	55.2	58.8	55.2
R.OPA		146.7	2.1	55.0	4,288	41.3	38.9	41.3	38.9	42.0	40.0	44.2	41.9	44.5	42.1
R.MiA		13.7	2.0	55.0	920	41.7	40.3	41.7	40.3	41.9	40.6	43.3	41.9	45.7	44.1
U.Int		31.2	4.0	40.0	11,622	56.1	53.9	56.6	54.3	56.6	54.3	56.6	54.3	56.6	54.3
U.OPA		5.0	3.5	35.0	23,805	22.7	22.1	22.9	22.3	23.2	23.0	23.6	23.3	28.9	28.6
Total Sample		409.1													
TOTAL	**853.8**		**3.2**	**57.2**	**6,555**	**48.1**	**45.4**	**48.4**	**45.7**	**48.8**	**46.3**	**50.1**	**47.4**	**50.7**	**47.9**
Time (HR)						**17.8**	**18.8**	**17.6**	**18.7**	**17.5**	**18.4**	**17.0**	**18.0**	**16.8**	**17.8**

(1) Pavement Condition set to a minimum of 3.1 for Interstates and 2.6 for others.
(2) No change for interstates. For others, curves and grades reset to not exceed tolerable condition which varies with the functional class and the terrain.
(3) Congestion does not exceed LOS C for Interstates and LOS D for others.
(4) Speed Limits set to a minimum of 65 MPH (flat or rolling terrain) or 60 MPH (mountainous) for Rural Interstate and to 55 MPH for all others.

Appendix E
WTTN INTERMODAL FACILITIES MAPS

This appendix contains maps showing the location of all WTTN transportation facilities included by the states for evaluation during Phase II activities. The maps in Appendix E use the same base as the Appendix A maps and are arranged alphabetically by state, including urbanized area enlargements. The maps show:

- All 26,346 miles of WTTN highways (orange) and all other NHS routes
- The WTTN rail lines
- 18 WTTN airports
- 234 WTTN grain elevators
- 50 WTTN rail intermodal facilities (TOFC/COFC)
- Five WTTN rail reload facilities
- 28 WTTN water ports

As explained in Chapter 2, these facilities were identified and designated by the states, working with the consultant team.

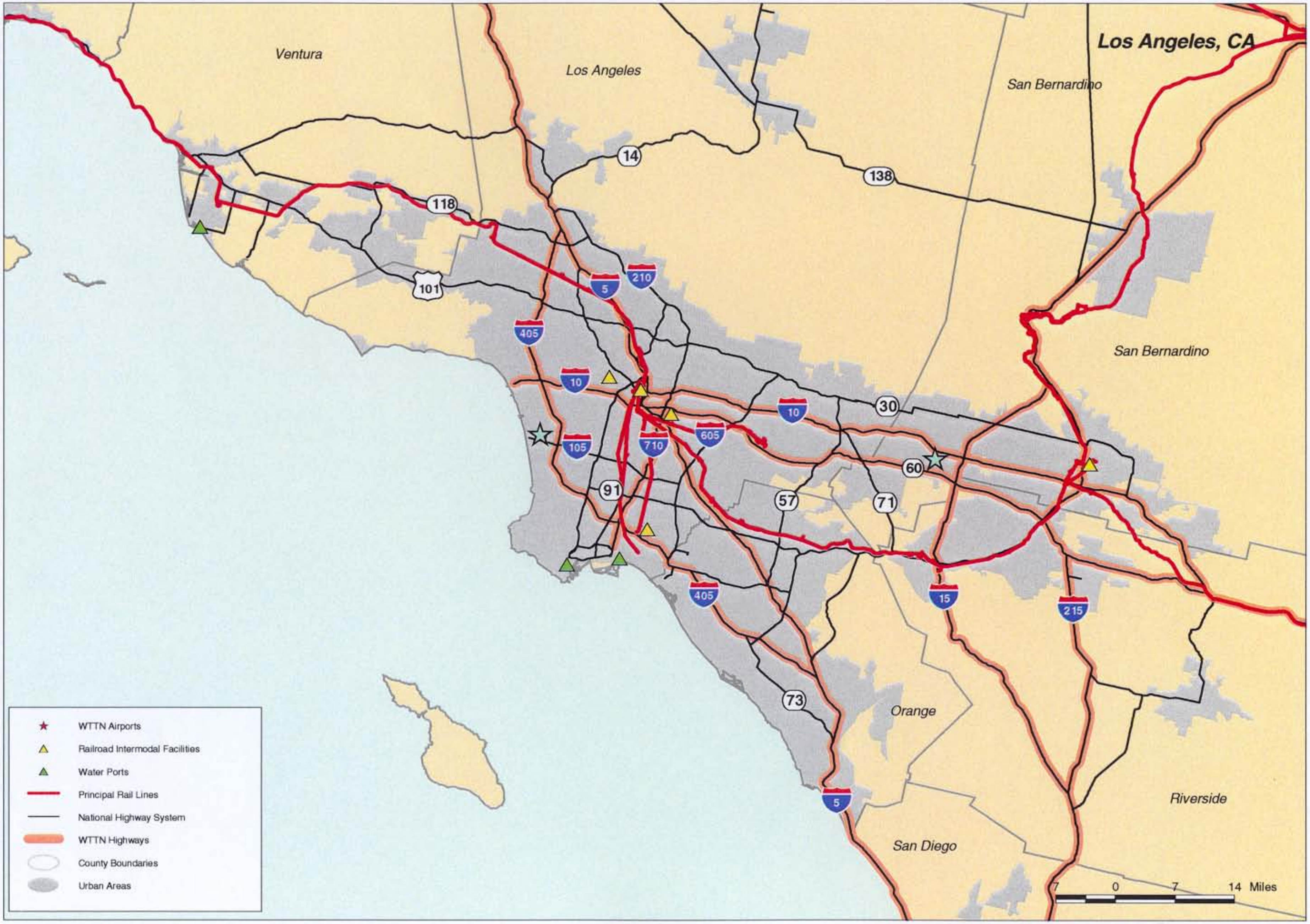
Arizona


Mohave
Coconino
Apache
Navajo
Yavapai
Flagstaff
La Paz
Gila
Phoenix
Greenlee
Yuma
Pinal
Graham
Maricopa
Yuma
Tuscon
Pima
Cochise
Santa Cruz
15
89
160
180
93
40
17
77
69
260
93
10
95
8
19
90
WTTN Airports
Railroad Intermodal Facilities
Principal Rail Lines
National Highway System
WTTN Highways
County Boundaries
Urban Areas
20 0 20 40 Miles

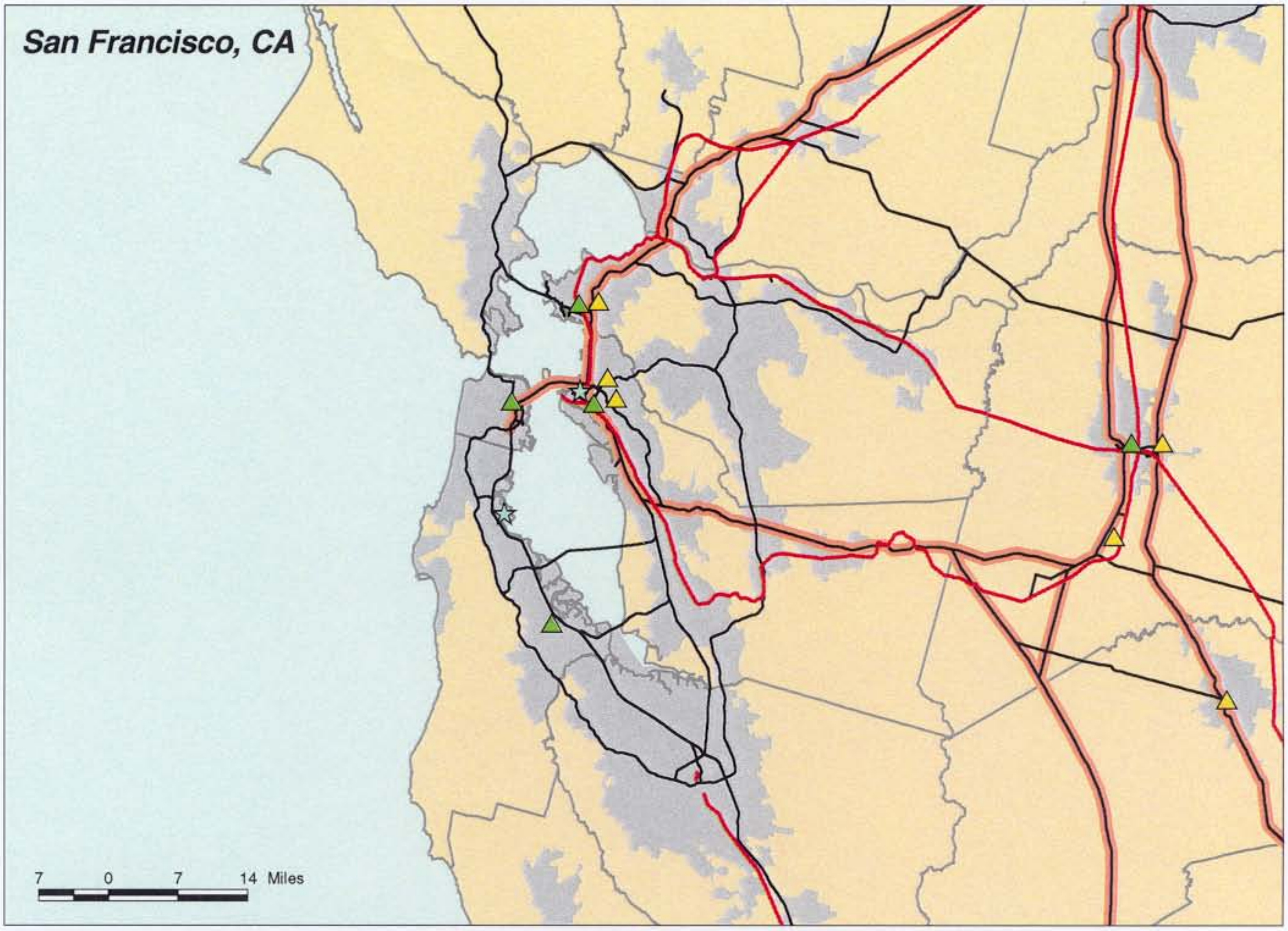
California

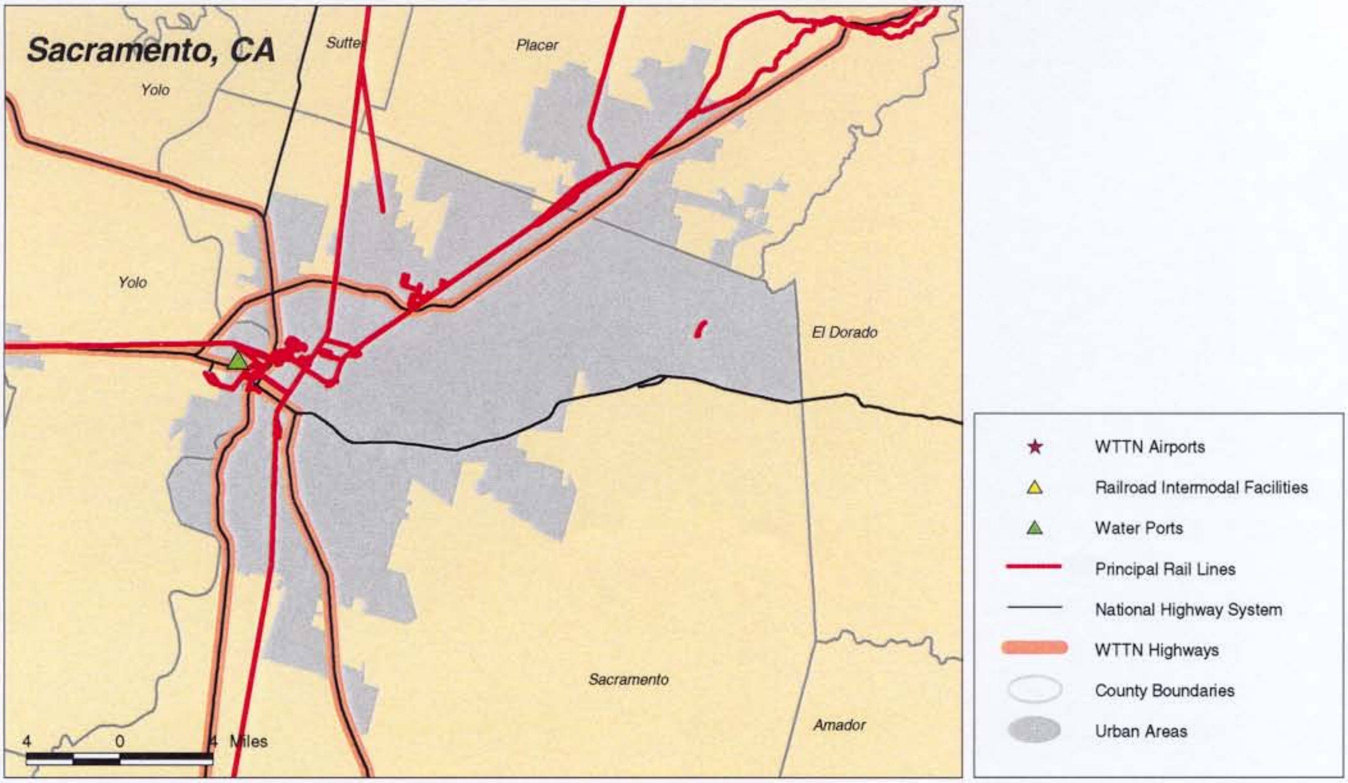
Del Norte
Humboldt
Redding
Shasta
Lassen
Modoc
Mendocino
Lake
Glenn
Sierra
Nevada
Placer
Yuba
Sutter
Santa Rosa
Sonoma
Napa
Marin
Sacramento
El Dorado
Amador
Alpine
Calaveras
Tuolumne
San Francisco/Oakland
Contra Costa
San Mateo
Santa Clara
Santa Cruz
Stanislaus
Merced
Mariposa
Mono
Madera
Fresno
San Benito
Monterey
Tulare
Inyo
Kings
San Luis Obispo
Bakersfield
Kern
Santa Barbara
Ventura
Los Angeles
San Bernardino
Riverside
Palm Springs
Orange
San Diego
Imperial
199
299
89
139
395
101
70
20
50
5
99
108
41
180
6
99
14
15
40
10
405
86
8
WTTN Airports
Railroad Intermodal Facilities
Water Ports
Principal Rail Lines
National Highway System
WTTN Highways
County Boundaries
Urban Areas
40
0
40
80 Miles

California: Urban Areas

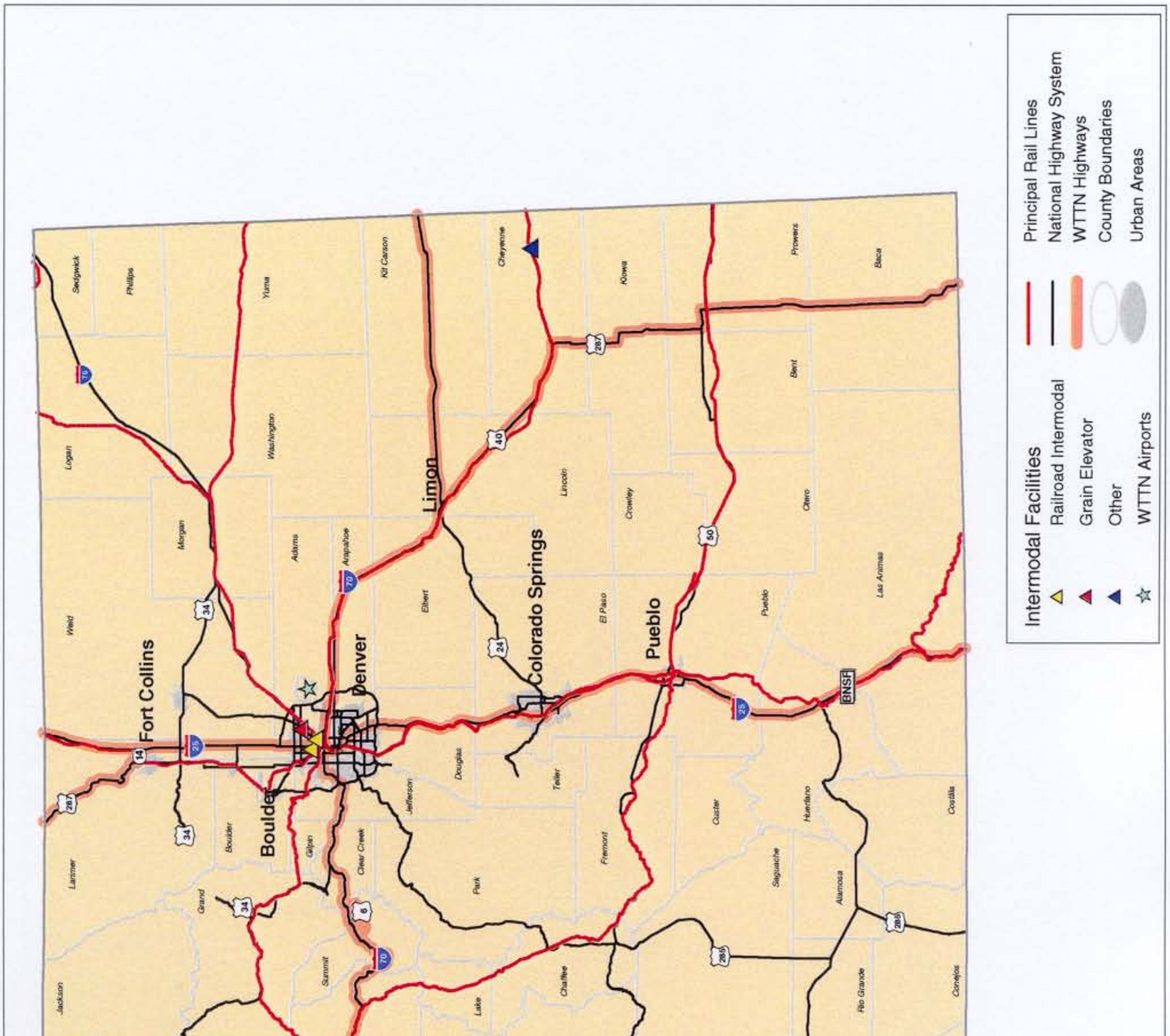


California: Urban Areas



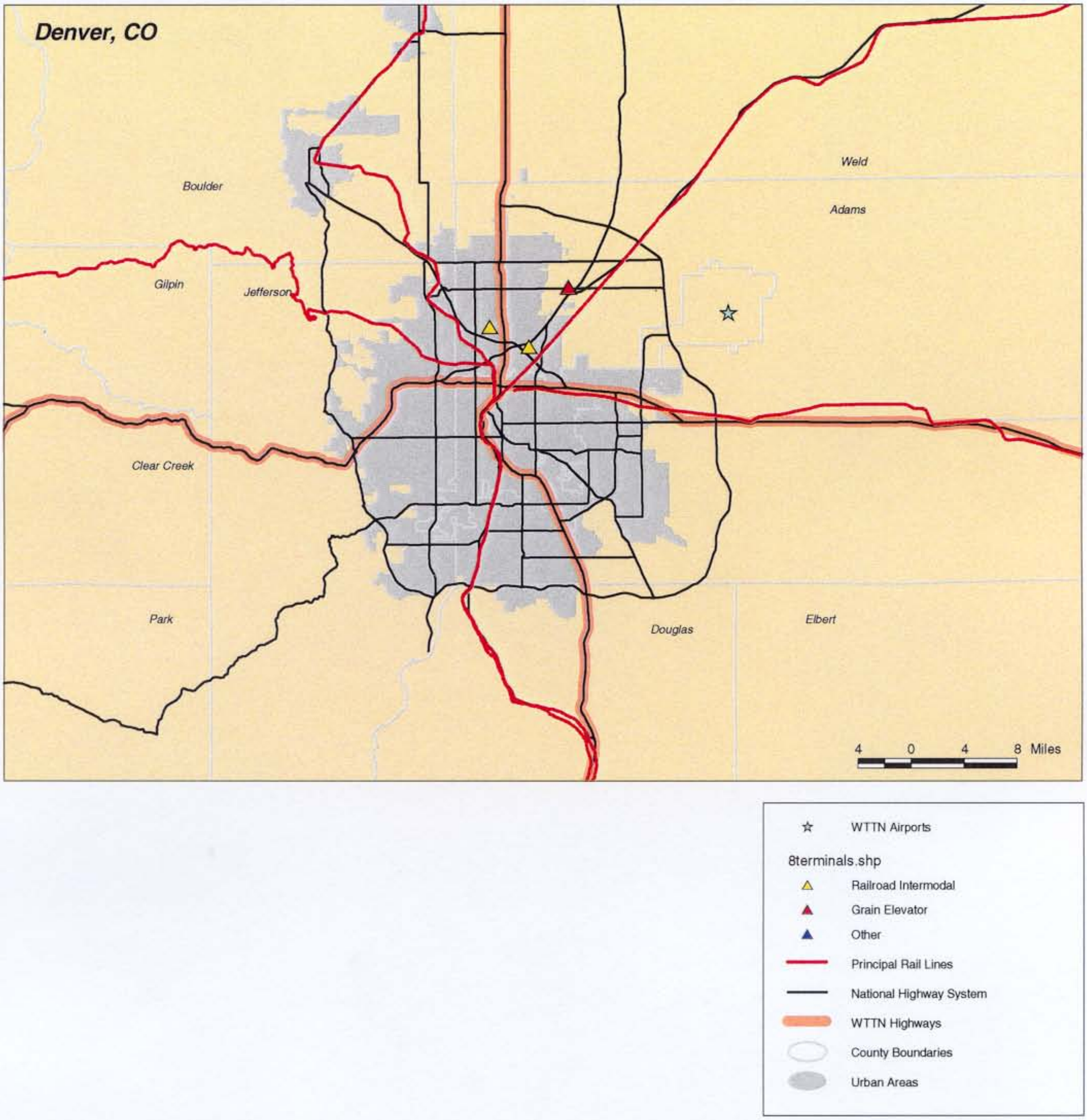


Colorado



Fort Collins
Boulder
Denver
Limon
Colorado Springs
Pueblo
Grand Junction
UP
BNSF
Intermodal Facilities
Railroad Intermodal
Grain Elevator
Other
WTTN Airports
Principal Rail Lines
National Highway System
WTTN Highways
County Boundaries
Urban Areas
30
0
30
60 Miles

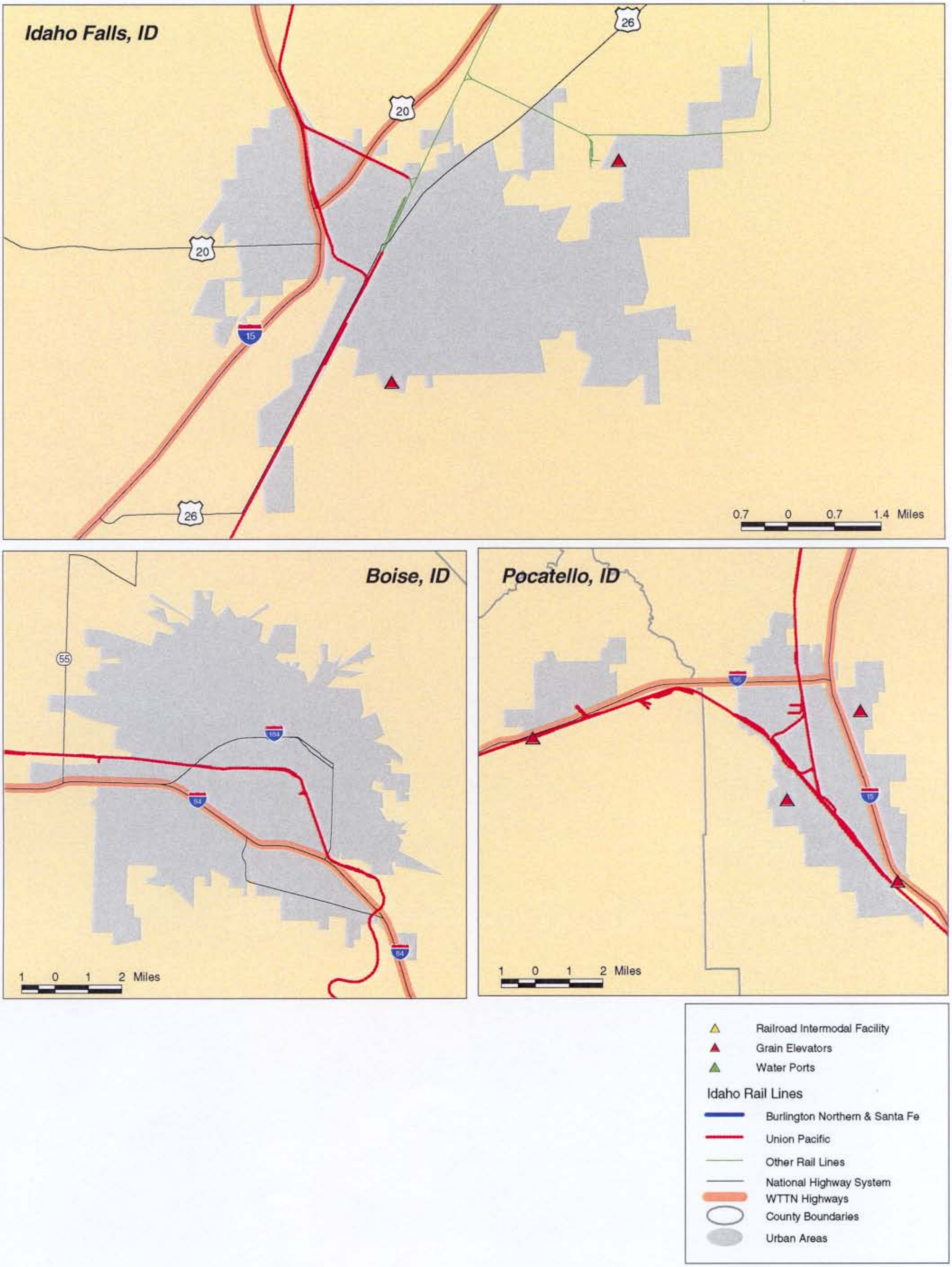
Colorado: Urban Areas



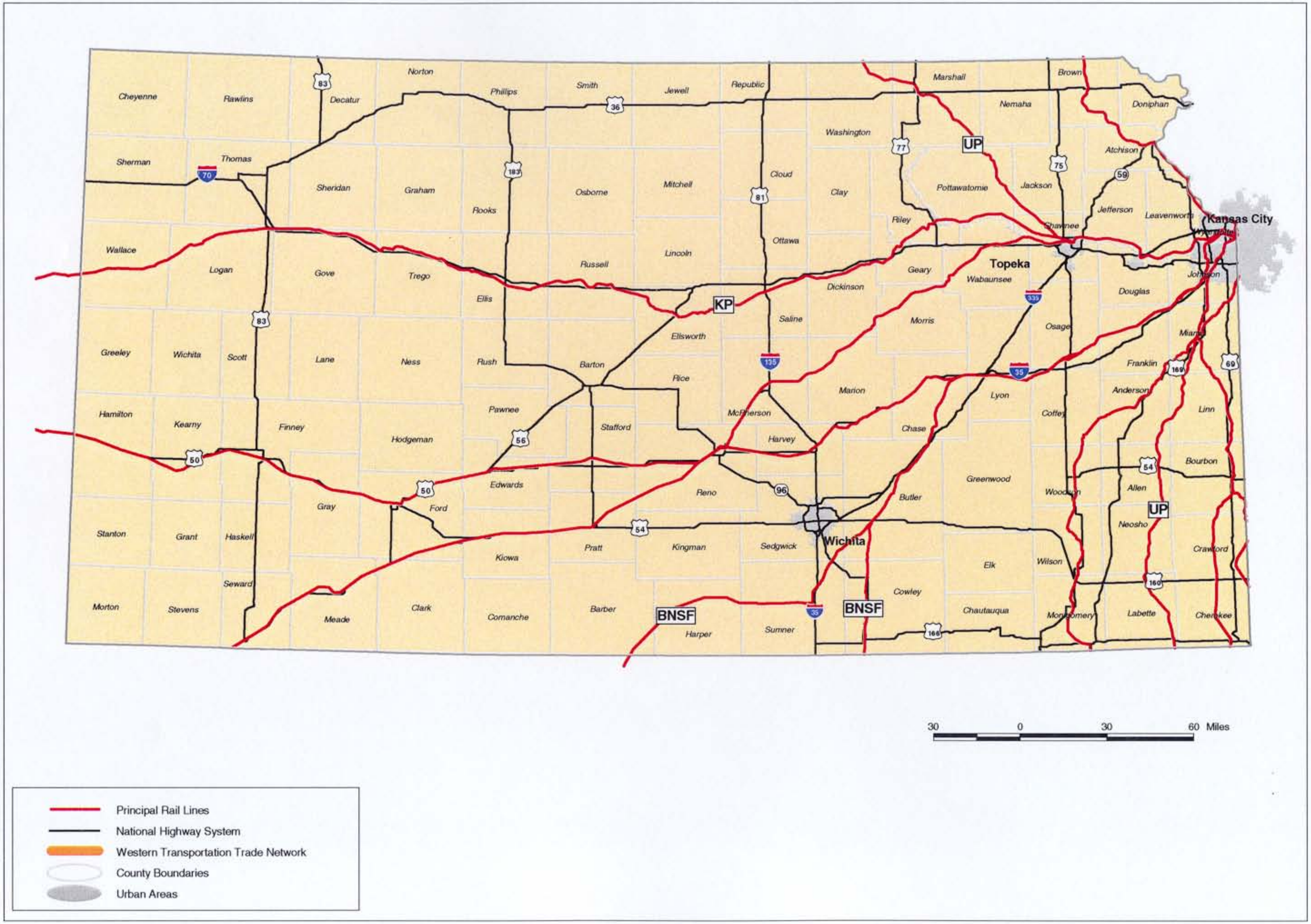
Idaho

Railroad Intermodal Facility
Grain Elevators
Water Ports
Idaho Rail Lines
Burlington Northern & Santa Fe
Union Pacific
Other Rail Lines
National Highway System
WTTN Highways
County Boundaries
Urban Areas
Boundary
Bonner
Kootenai
Benewah
Shoshone
Latah
Clearwater
Lewiston
Nez Perce
Lewis
Idaho
Adams
Valley
Lemhi
Washington
Payette
Gem
Boise
Custer
Clark
Fremont
Butte
Jefferson
Madison
Teton
Idaho Falls
Bonneville
Bingham
Canyon
Ada
Elmore
Camas
Blaine
Gooding
Lincoln
Bannock
Pocatello
Caribou
Minidoka
Jerome
Power
Owyhee
Twin Falls
Cassia
Oneida
Franklin
Bear Lake
MPL
BNSF
STMA
CSP
INPR
UP
EIRR
USG
90
2
95
12
55
93
84
20
26
15
86
30
89
30 0 30 60 Miles

Idaho: Urban Areas



Kansas

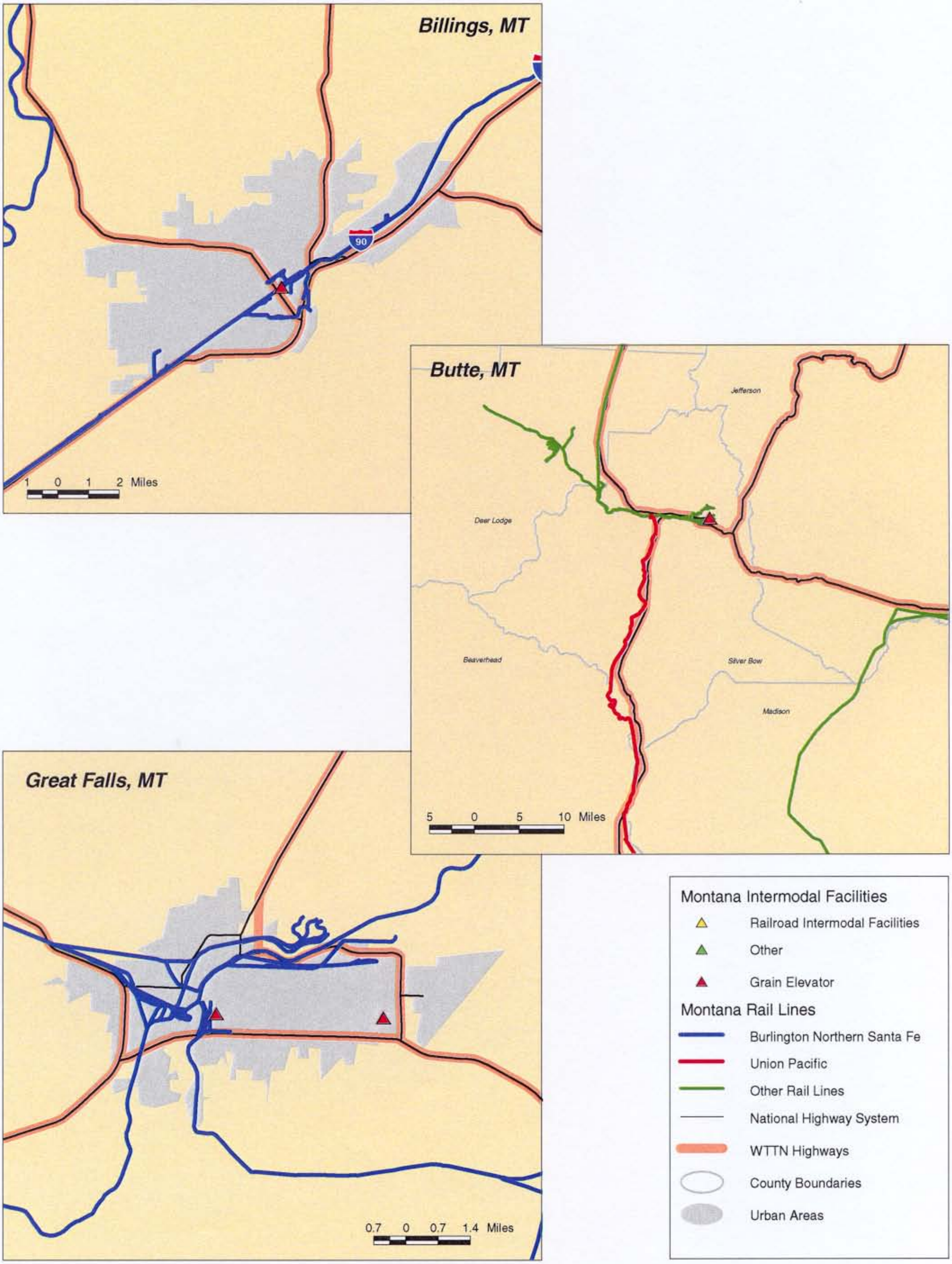


Kansas City
Topeka
Wichita
UP
KP
BNSF
Cheyenne
Rawlins
Decatur
Norton
Phillips
Smith
Jewell
Republic
Washington
Marshall
Nemaha
Brown
Doniphan
Sherman
Thomas
Sheridan
Graham
Rooks
Osborne
Mitchell
Cloud
Clay
Riley
Pottawatomie
Jackson
Atchison
Jefferson
Leavenworth
Wallace
Logan
Gove
Trego
Ellis
Russell
Lincoln
Ottawa
Saline
Dickinson
Geary
Wabaunsee
Shawnee
Douglas
Johnson
Greeley
Wichita
Scott
Lane
Ness
Rush
Barton
Ellsworth
Rice
McPherson
Marion
Morris
Osage
Franklin
Miami
Hamilton
Kearny
Finney
Hodgeman
Pawnee
Stafford
Harvey
Chase
Lyon
Coffey
Anderson
Linn
Gray
Ford
Edwards
Reno
Butler
Greenwood
Woodson
Allen
Bourbon
Stanton
Grant
Haskell
Kiowa
Pratt
Kingman
Sedgwick
Elk
Wilson
Neosho
Crawford
Morton
Stevens
Seward
Meade
Clark
Comanche
Barber
Harper
Sumner
Cowley
Chautauqua
Montgomery
Labette
Cherokee
30 0 30 60 Miles
Principal Rail Lines
National Highway System
Western Transportation Trade Network
County Boundaries
Urban Areas

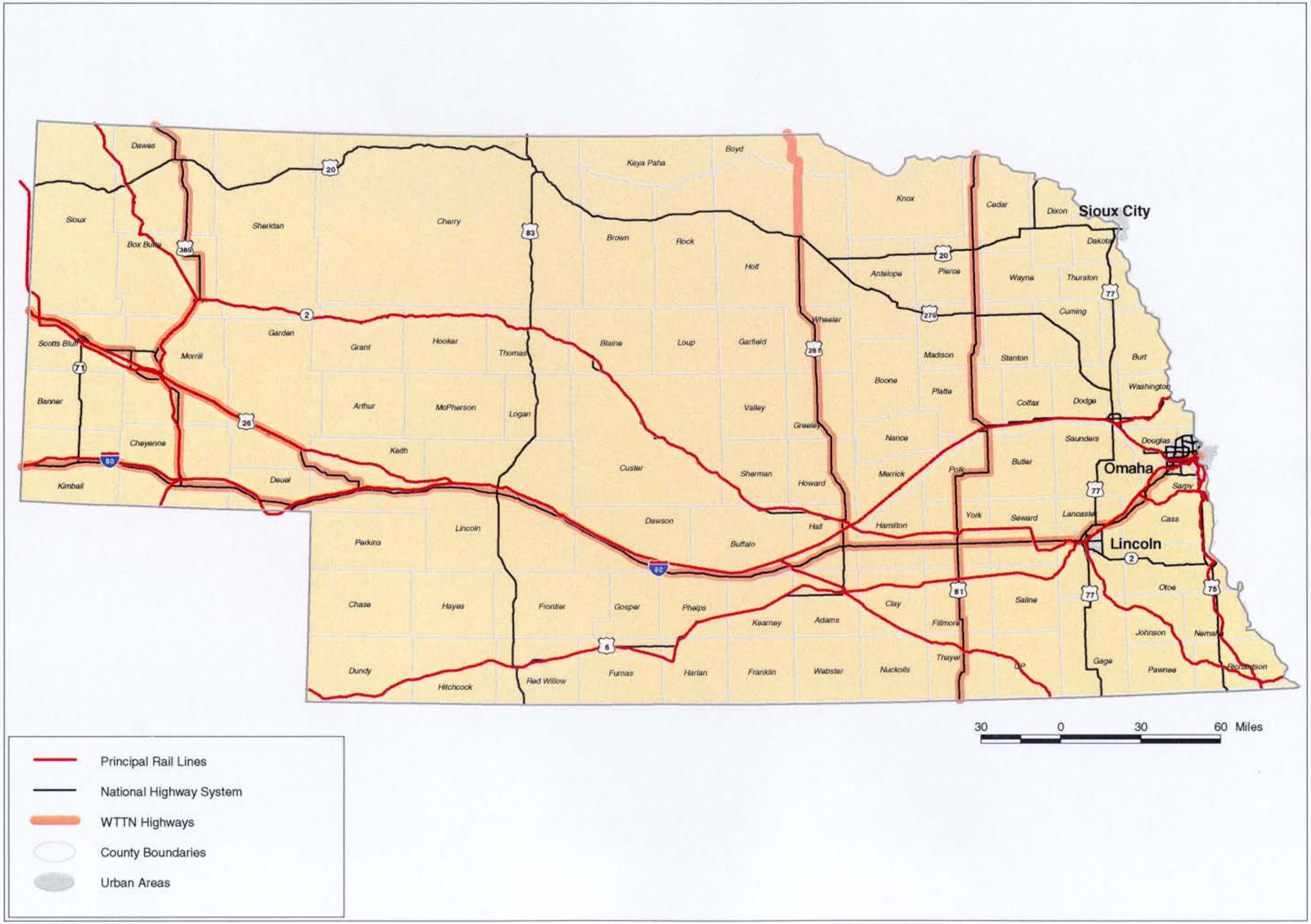
Montana

Lincoln
Flathead
Glacier
Toole
Liberty
Hill
Kalispell
Sheridan
Daniels
Valley
Roosevelt
Blaine
Pondera
Teton
Chouteau
Phillips
Richland
Sanders
Lake
Powell
Lewis and Clark
Great Falls
Fergus
McCone
Dawson
BNSF
CM
Cascade
Petroleum
Garfield
Prairie
Missoula
Mineral
Judith Basin
Meagher
Wibaux
Granite
Broadwater
Musselshell
Rosebud
Treasure
Custer
Fallon
Wheatland
Golden Valley
Jefferson
Gallatin
Park
Sweet Grass
Stillwater
Deer Lodge
Silver Bow
Ravalli
Billings
Yellowstone
Carter
Beaverhead
Big Horn
Carbon
Powder River
Madison
MRL
MWRP
DMVW
Montana Intermodal Facilities
Railroad Intermodal Facilities
Other
Grain Elevator
Montana Rail Lines
Burlington Northern Santa Fe
Union Pacific
Other Rail Lines
National Highway System
WTTN Highways
County Boundaries
Urban Areas
30 0 30 60 Miles

Montana: Urban Areas



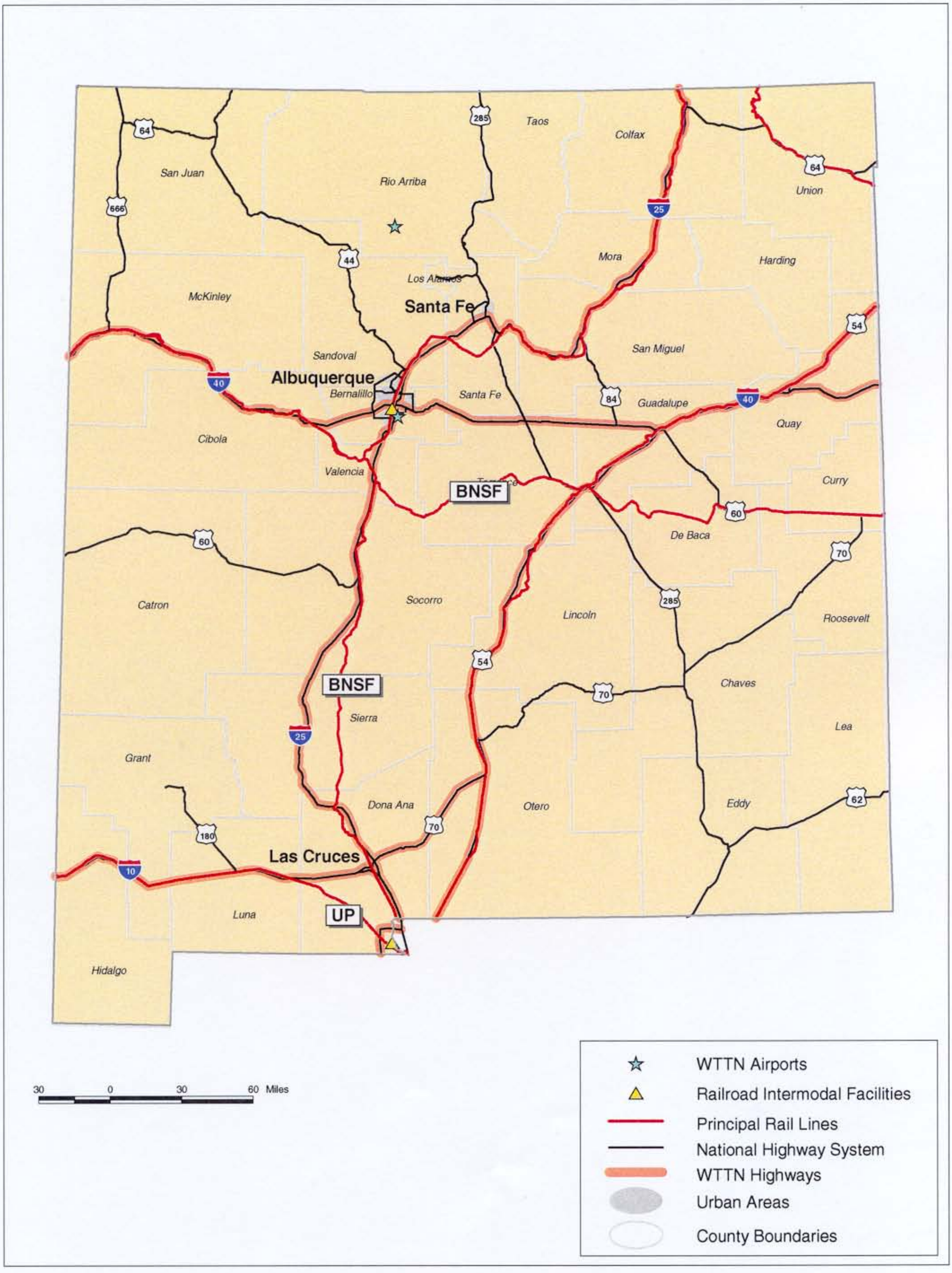
Nebraska


Sioux City
Omaha
Lincoln
Dawes
Sioux
Box Butte
Sheridan
Cherry
Keya Paha
Boyd
Brown
Rock
Holt
Knox
Cedar
Dixon
Dakota
Antelope
Pierce
Wayne
Thurston
Cuming
Scotts Bluff
Banner
Kimball
Cheyenne
Morrill
Garden
Deuel
Grant
Hooker
Thomas
Arthur
McPherson
Logan
Keith
Blaine
Loup
Garfield
Wheeler
Custer
Valley
Greeley
Sherman
Howard
Boone
Madison
Stanton
Burt
Washington
Platte
Colfax
Dodge
Nance
Merrick
Polk
Butler
Saunders
Douglas
Sarpy
Cass
Lancaster
Seward
York
Hamilton
Hall
Buffalo
Dawson
Lincoln
Perkins
Chase
Hayes
Frontier
Gosper
Phelps
Kearney
Adams
Clay
Fillmore
Saline
Otoe
Johnson
Nemaha
Richardson
Pawnee
Gage
Thayer
Nuckolls
Webster
Franklin
Harlan
Furnas
Red Willow
Hitchcock
Dundy
UP
20
83
385
2
71
26
80
281
275
77
81
75
6
30
0
30
60 Miles
Principal Rail Lines
National Highway System
WTTN Highways
County Boundaries
Urban Areas

Nevada


Humboldt
Elko
Washoe
Pershing
UP
UP
UP
Reno
Eureka
Lander
White Pine
Churchill
Lyon
Mineral
Lincoln
Esmeralda
Nye
Clark
Las Vegas
95
80
93
50
395
360
318
15
515
30 0 30 60 Miles
Principal Rail Lines
National Highway System
Western Transportation Trade Network
Urban Areas
County Boundaries

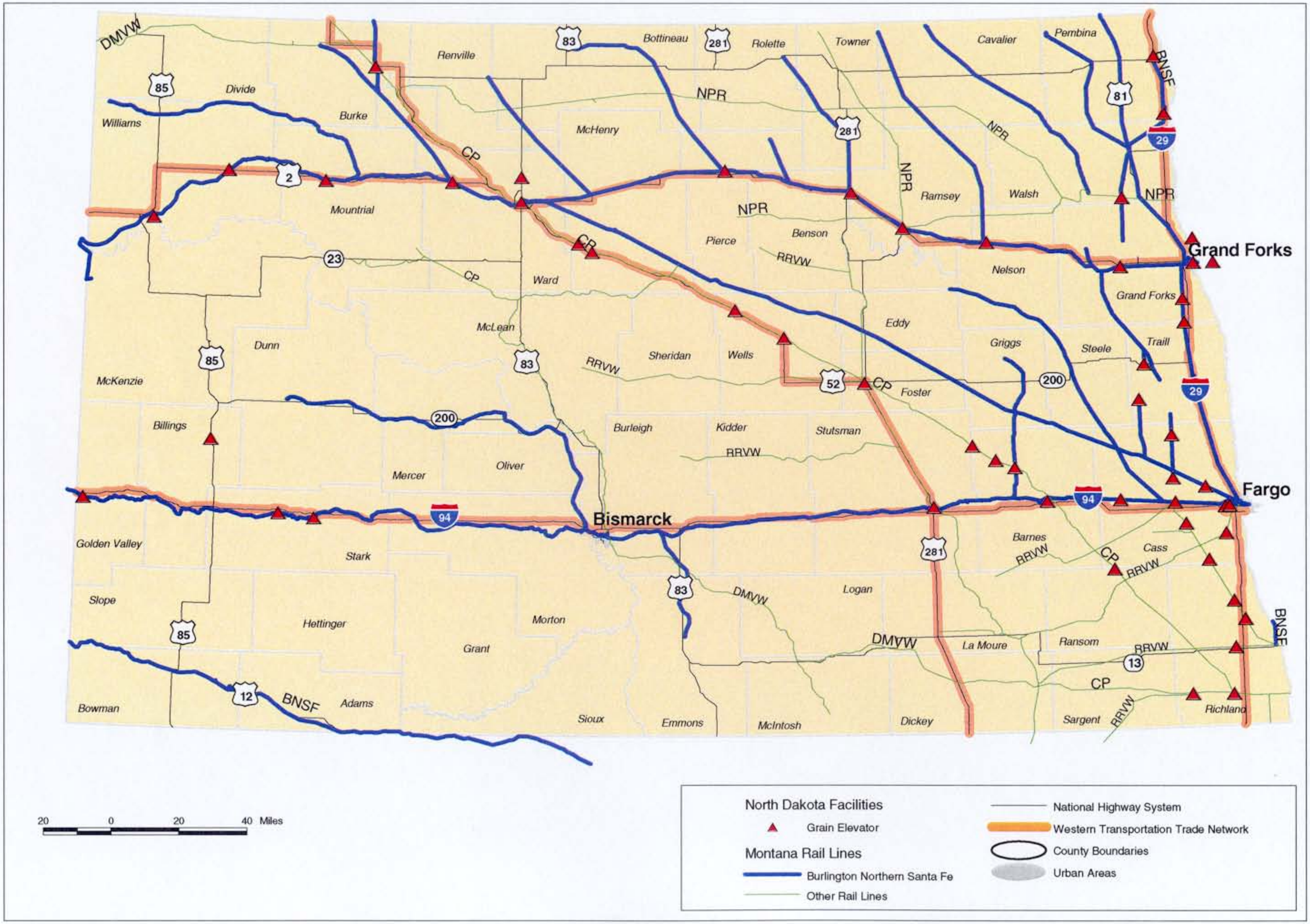
New Mexico



San Juan
Rio Arriba
Taos
Colfax
Union
McKinley
Los Alamos
Santa Fe
Mora
Harding
Sandoval
Albuquerque
Bernalillo
Santa Fe
San Miguel
Guadalupe
Quay
Cibola
Valencia
BNSF
Curry
De Baca
Catron
Socorro
Lincoln
Roosevelt
BNSF
Sierra
Chaves
Lea
Grant
Dona Ana
Otero
Eddy
Las Cruces
Luna
UP
Hidalgo
64
666
44
285
25
40
84
54
60
70
285
62
180
10
30 0 30 60 Miles
WTTN Airports
Railroad Intermodal Facilities
Principal Rail Lines
National Highway System
WTTN Highways
Urban Areas
County Boundaries

New Mexico: Urban Areas

North Dakota

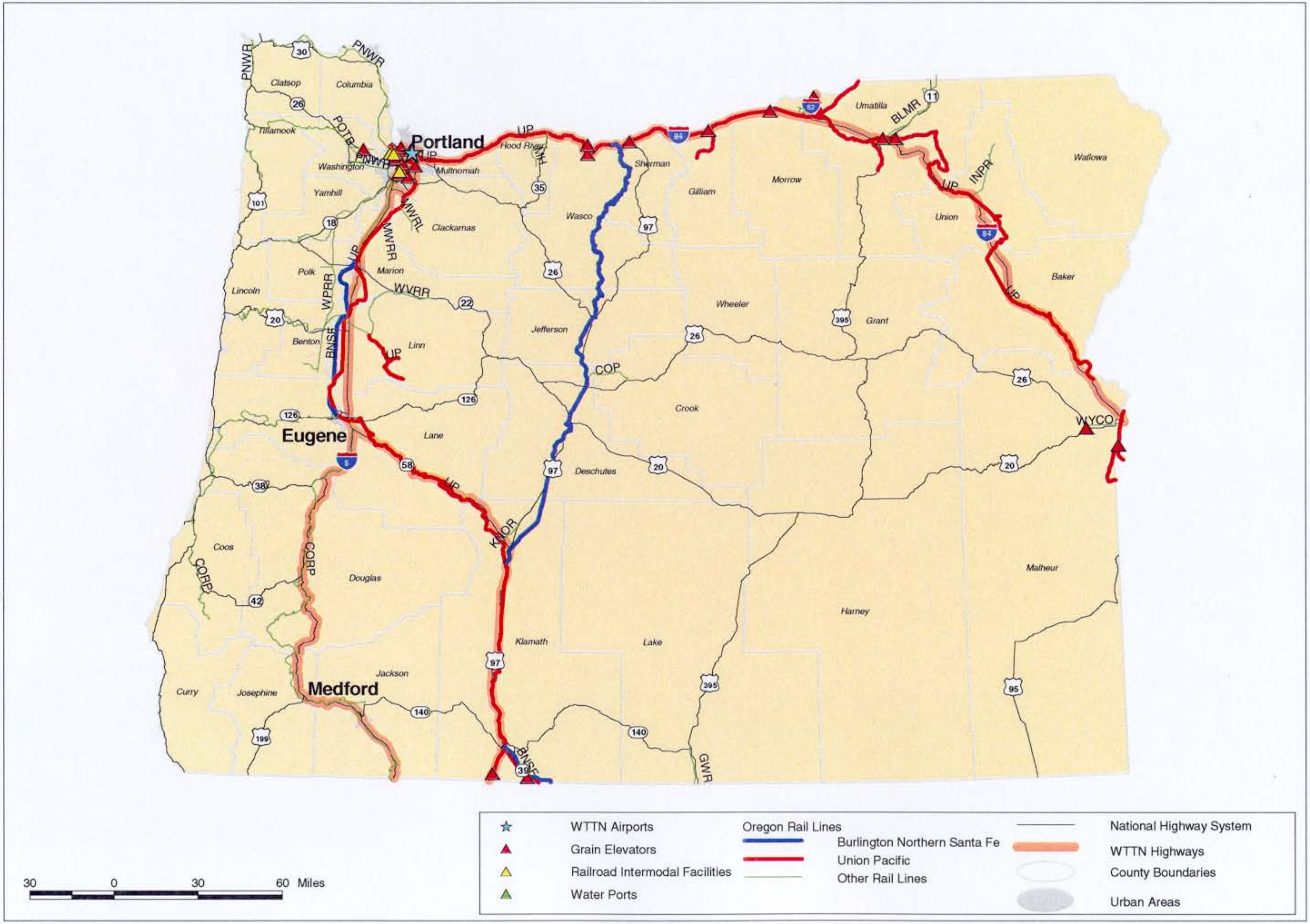


North Dakota: Urban Areas

Oklahoma

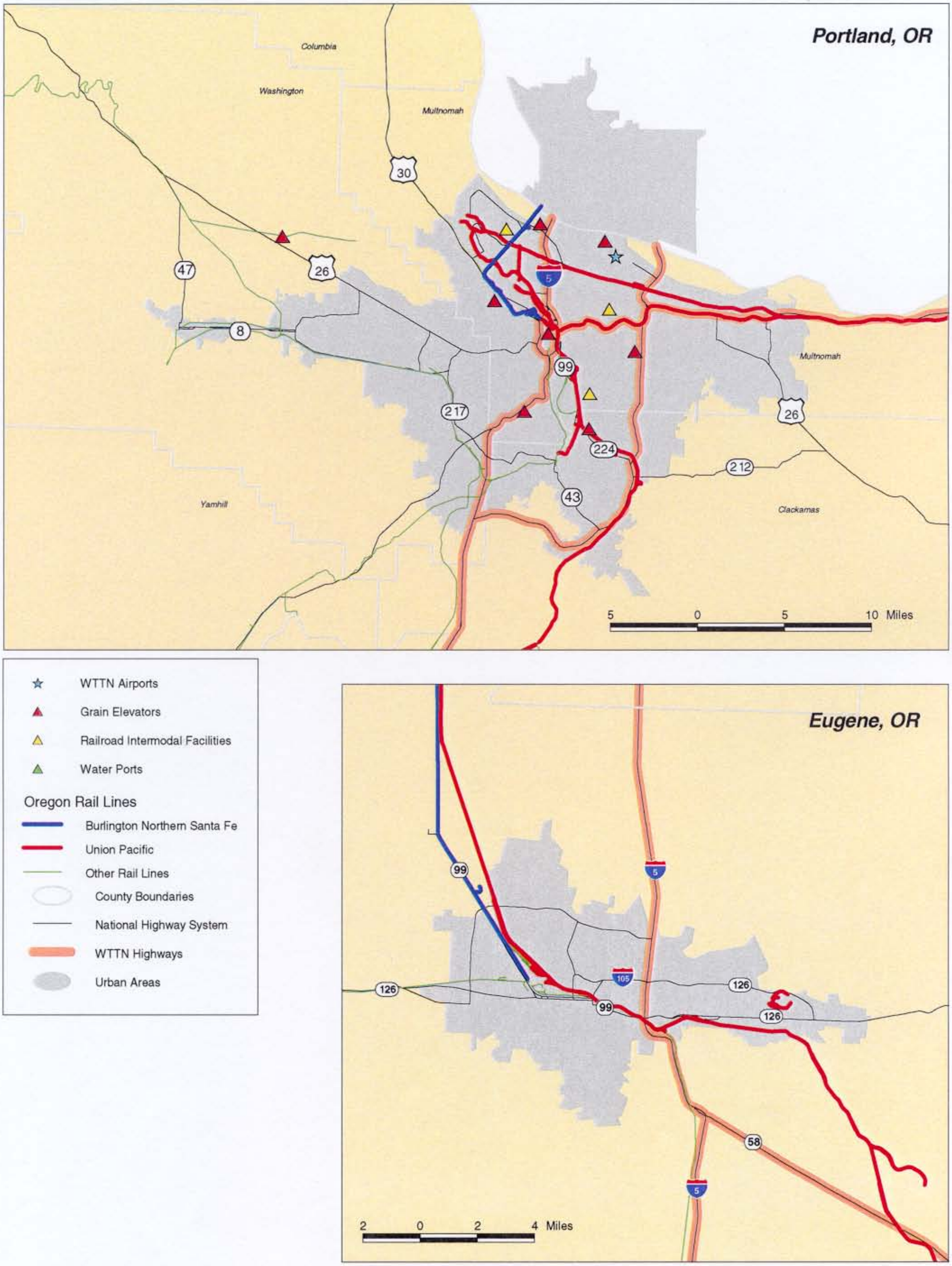
Cimarron
Texas
Beaver
Harper
Woods
Alfalfa
Grant
Kay
Osage
Nowata
Craig
Ottawa
Delaware
Washington
Rogers
Mayes
Woodward
Ellis
Major
Garfield
Noble
Pawnee
Tulsa
Dewey
Blaine
Kingfisher
Logan
Payne
Creek
Wagoner
Cherokee
Adair
Lincoln
Muskogee
Sequoyah
Roger Mills
Custer
Canadian
Oklahoma
Okfuskee
Okmulgee
Oklahoma City
McIntosh
Washita
Caddo
Beckham
Cleveland
Pottawatomie
Seminole
Hughes
Haskell
Kiowa
Greer
Grady
McClain
Pittsburg
Latimer
Harmon
Comanche
Garvin
Coal
Le Flore
Stephens
Murray
Pontotoc
Jackson
Tillman
Johnston
Pushmataha
McCurtain
Carter
Atoka
Cotton
Jefferson
Choctaw
Love
Marshall
Bryan
BNSF
UP
30 0 30 60 Miles
Principal Rail Lines
National Highway System
WTTN Highways
County Boundaries
Urban Areas

Oregon

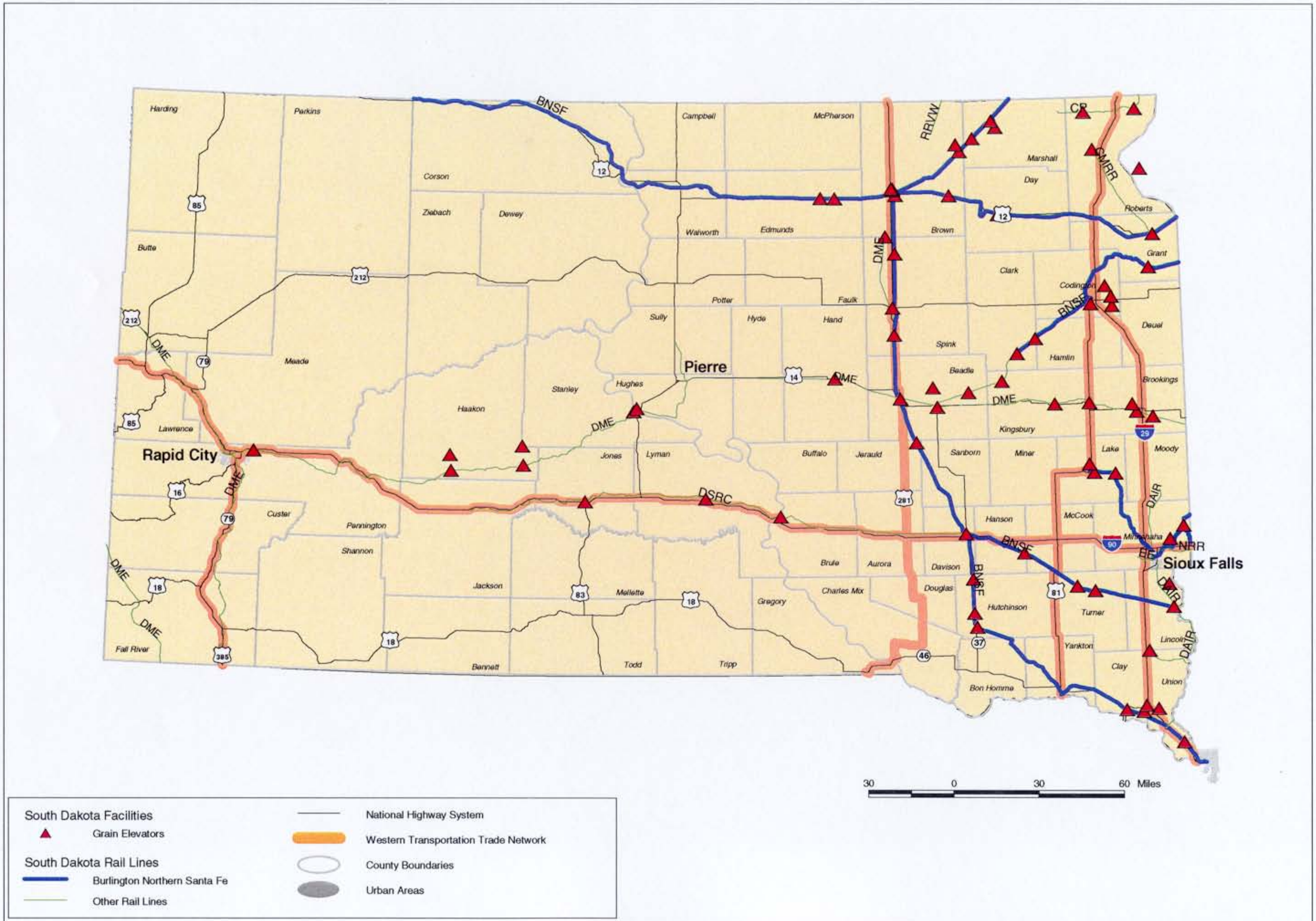


Portland
Eugene
Medford
PNWR
POTB
PNWR
UP
MWRL
MWRR
WPRR
WVRR
BNSF
COP
KNOR
CORP
BLMR
INPR
WYCO
GWR
Clatsop
Columbia
Tillamook
Washington
Multnomah
Yamhill
Clackamas
Hood River
Polk
Marion
Lincoln
Benton
Linn
Lane
Coos
Douglas
Curry
Josephine
Jackson
Klamath
Lake
Deschutes
Jefferson
Wasco
Sherman
Gilliam
Morrow
Umatilla
Wheeler
Crook
Grant
Union
Wallowa
Baker
Malheur
Harney
WTTN Airports
Grain Elevators
Railroad Intermodal Facilities
Water Ports
Oregon Rail Lines
Burlington Northern Santa Fe
Union Pacific
Other Rail Lines
National Highway System
WTTN Highways
County Boundaries
Urban Areas
30
0
30
60 Miles

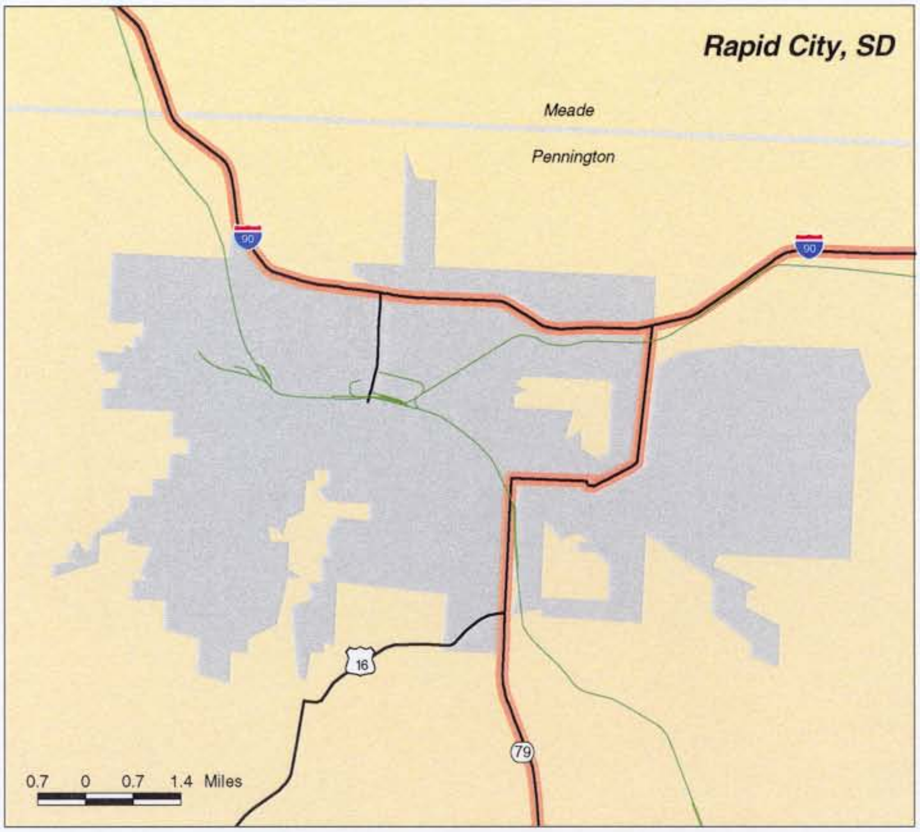
Oregon: Urban Areas

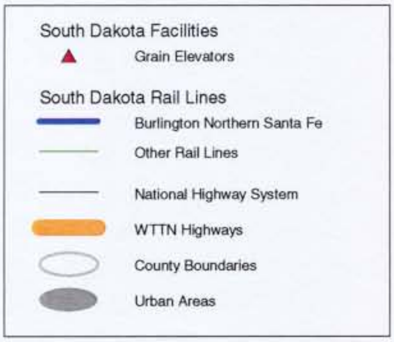


South Dakota

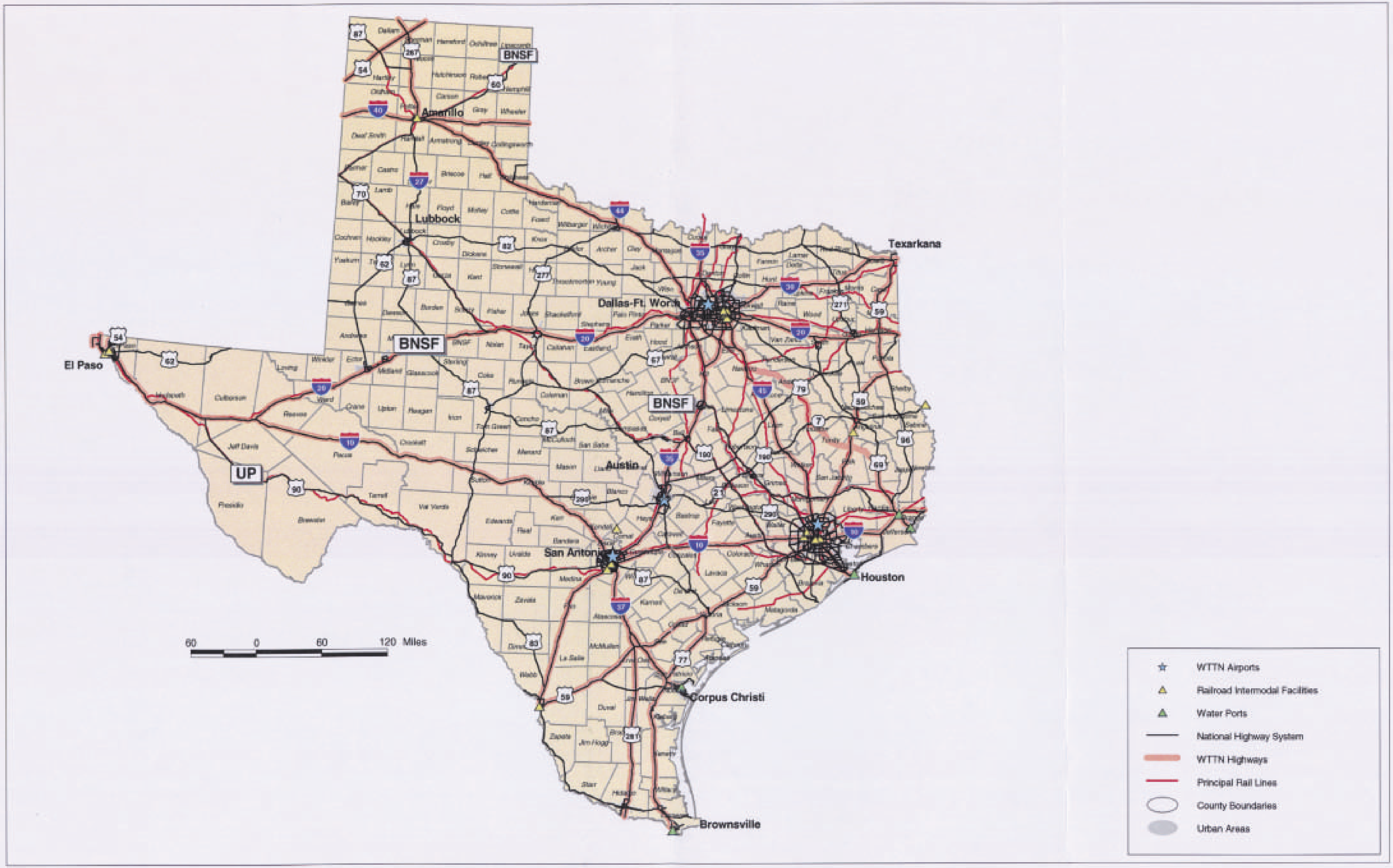


South Dakota: Urban Areas

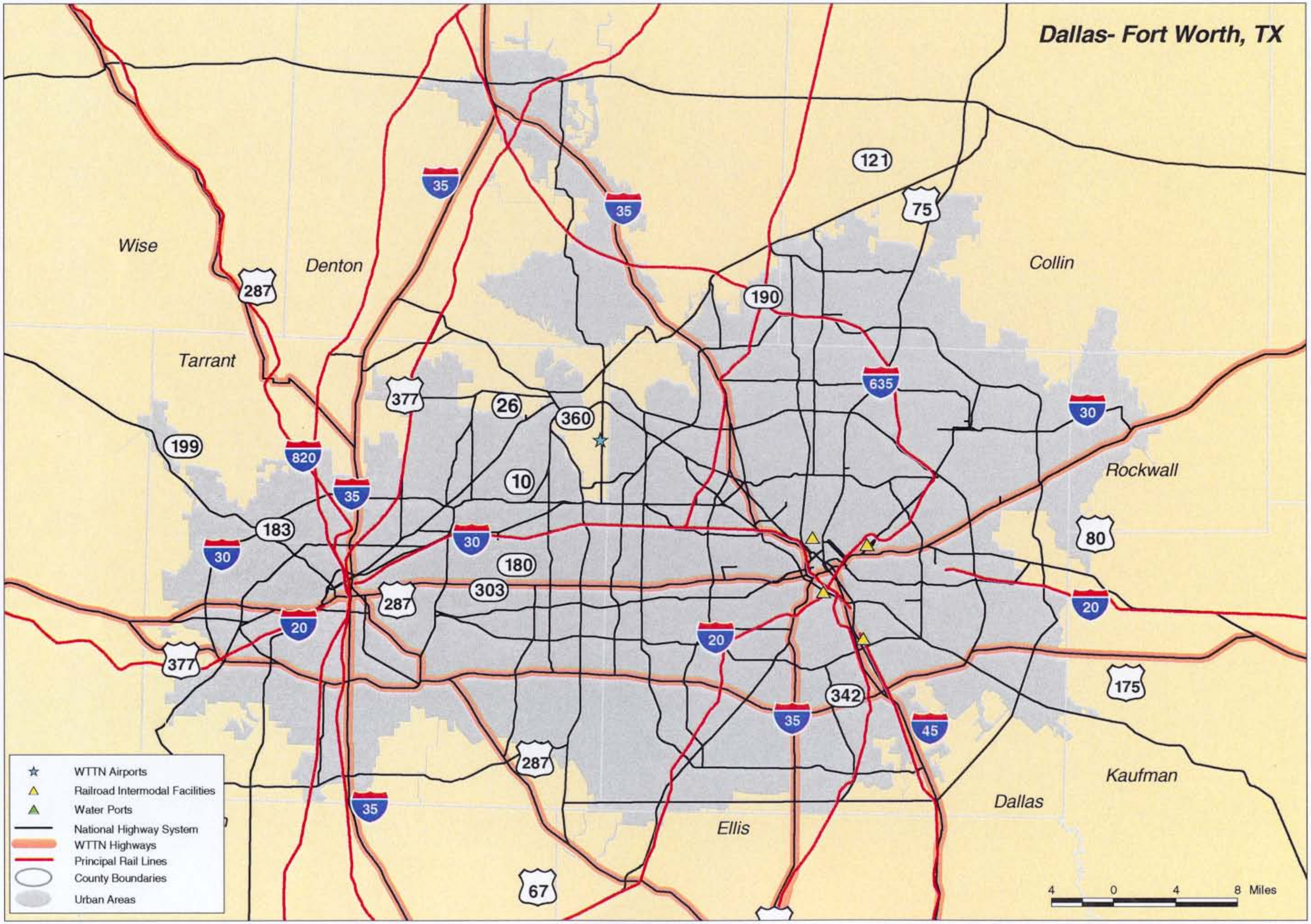




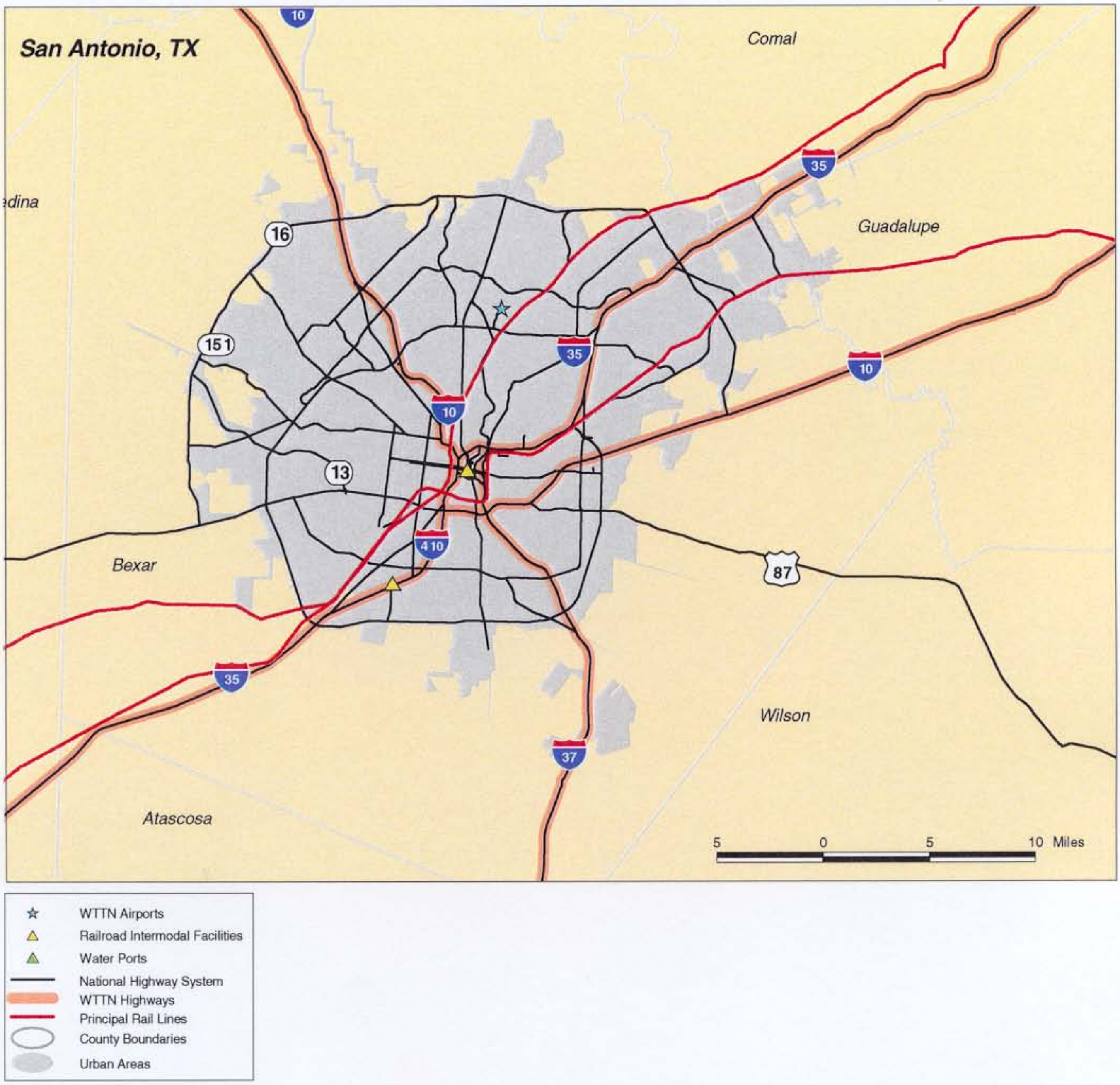
Texas


Amarillo
Lubbock
Dallas-Ft. Worth
Texarkana
El Paso
Austin
San Antonio
Houston
Corpus Christi
Brownsville
BNSF
BNSF
BNSF
UP
60
0
60
120 Miles
WTTN Airports
Railroad Intermodal Facilities
Water Ports
National Highway System
WTTN Highways
Principal Rail Lines
County Boundaries
Urban Areas

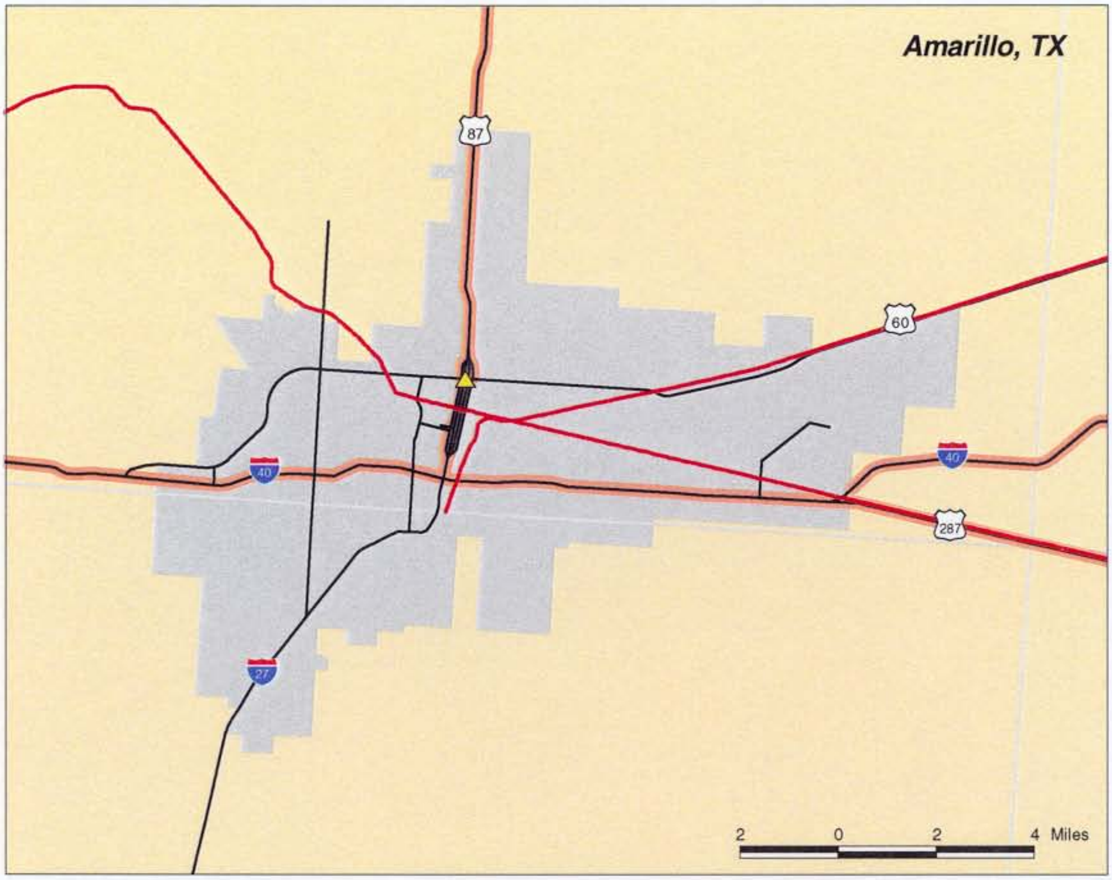
Texas: Urban Areas

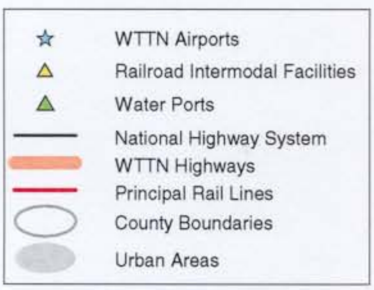


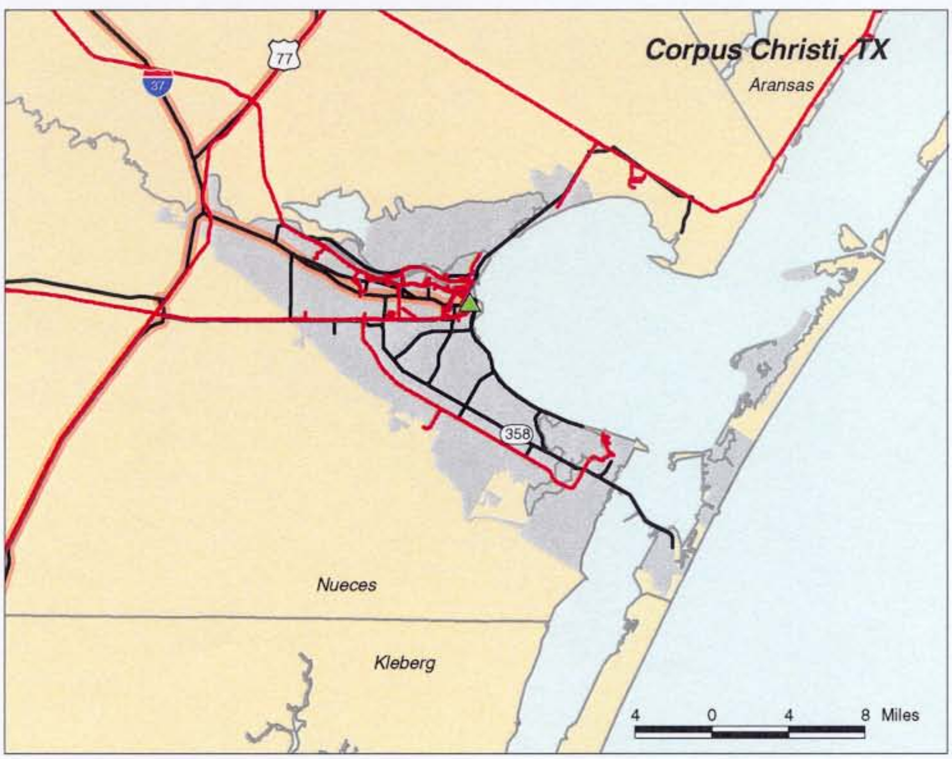
Texas: Urban Areas



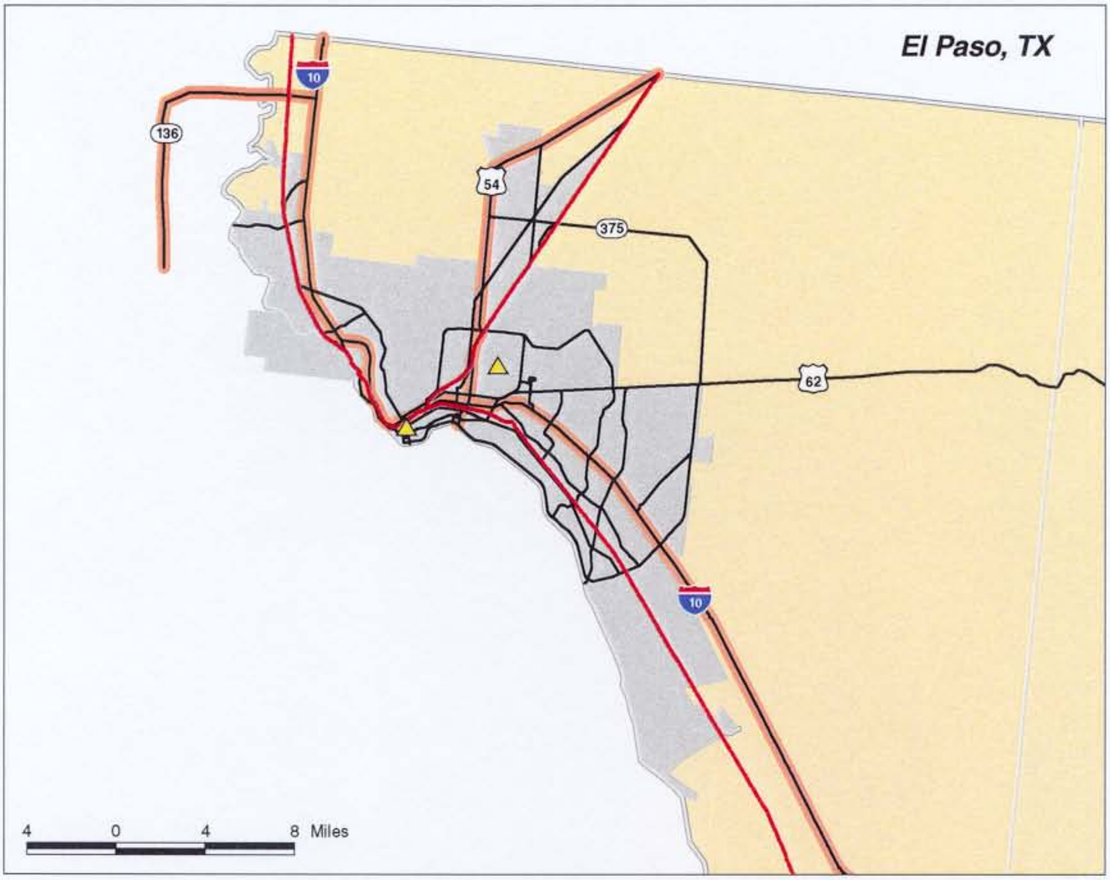
Texas: Urban Areas



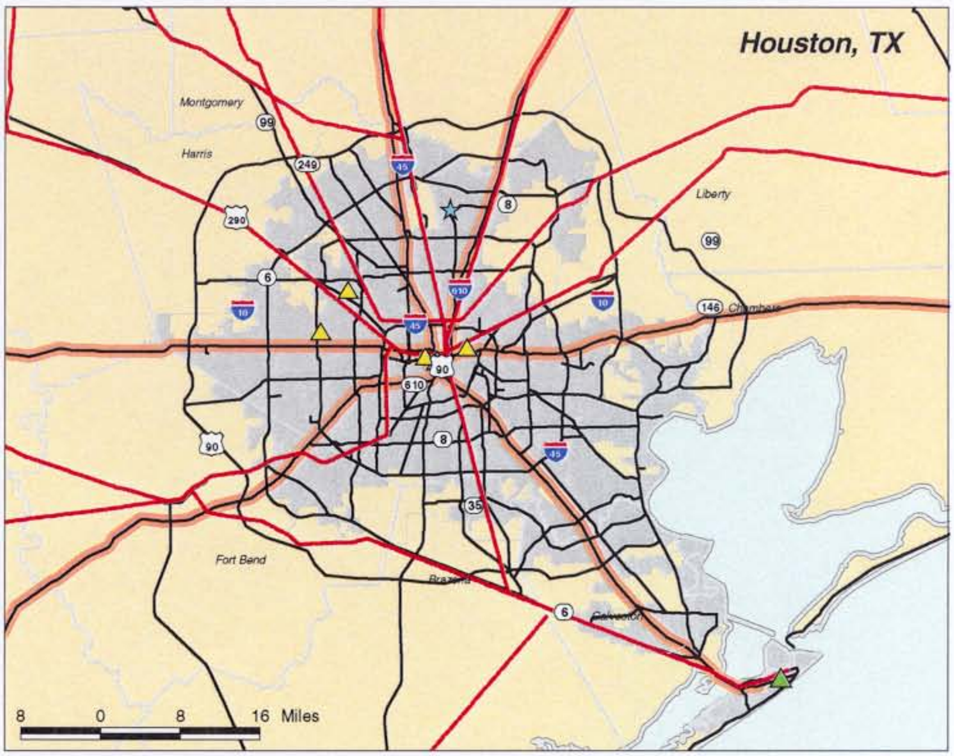




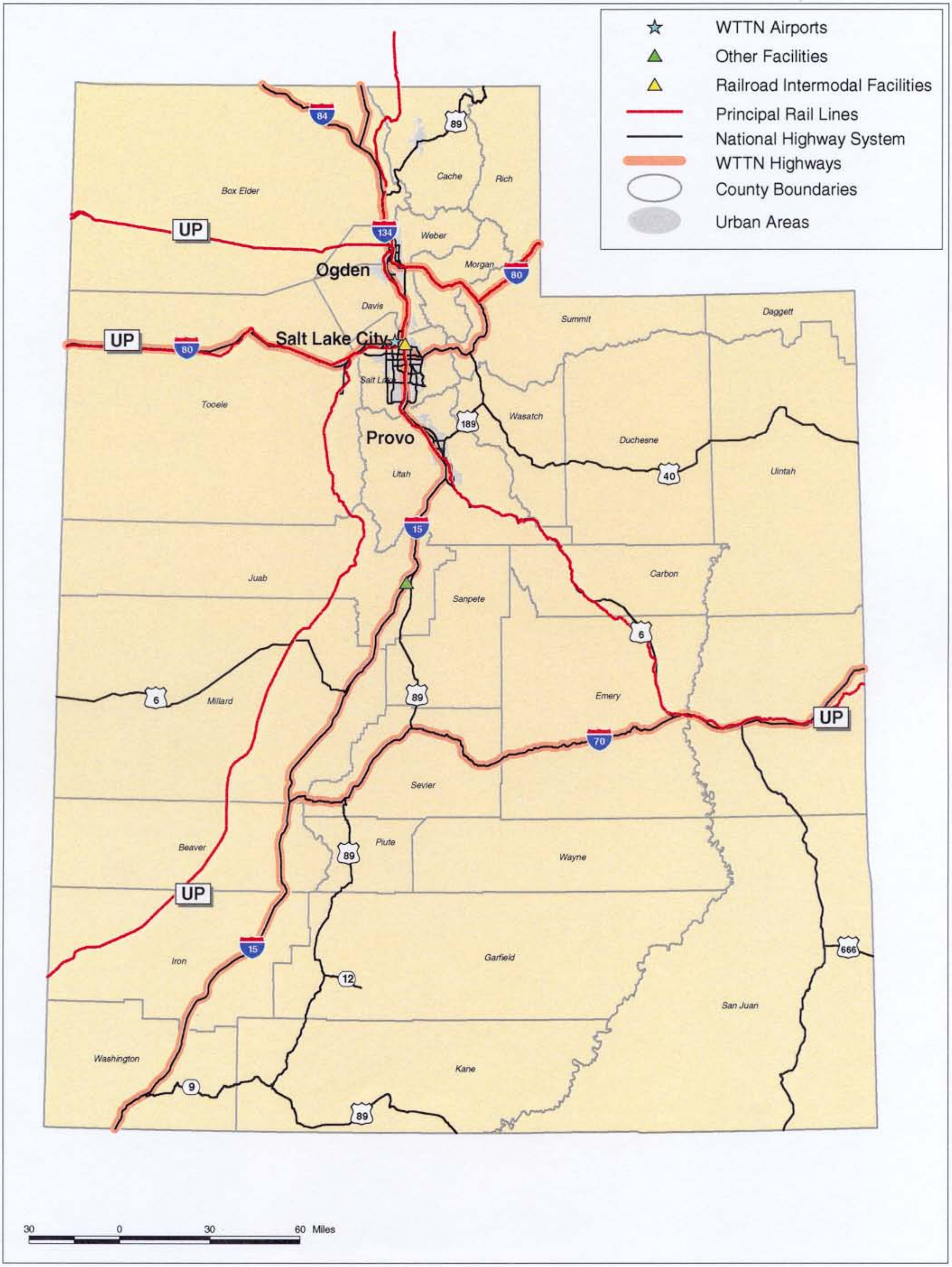
Texas: Urban Areas



- WTTN Airports
- Railroad Intermodal Facilities
- Water Ports
- National Highway System
- WTTN Highways
- Principal Rail Lines
- County Boundaries
- Urban Areas

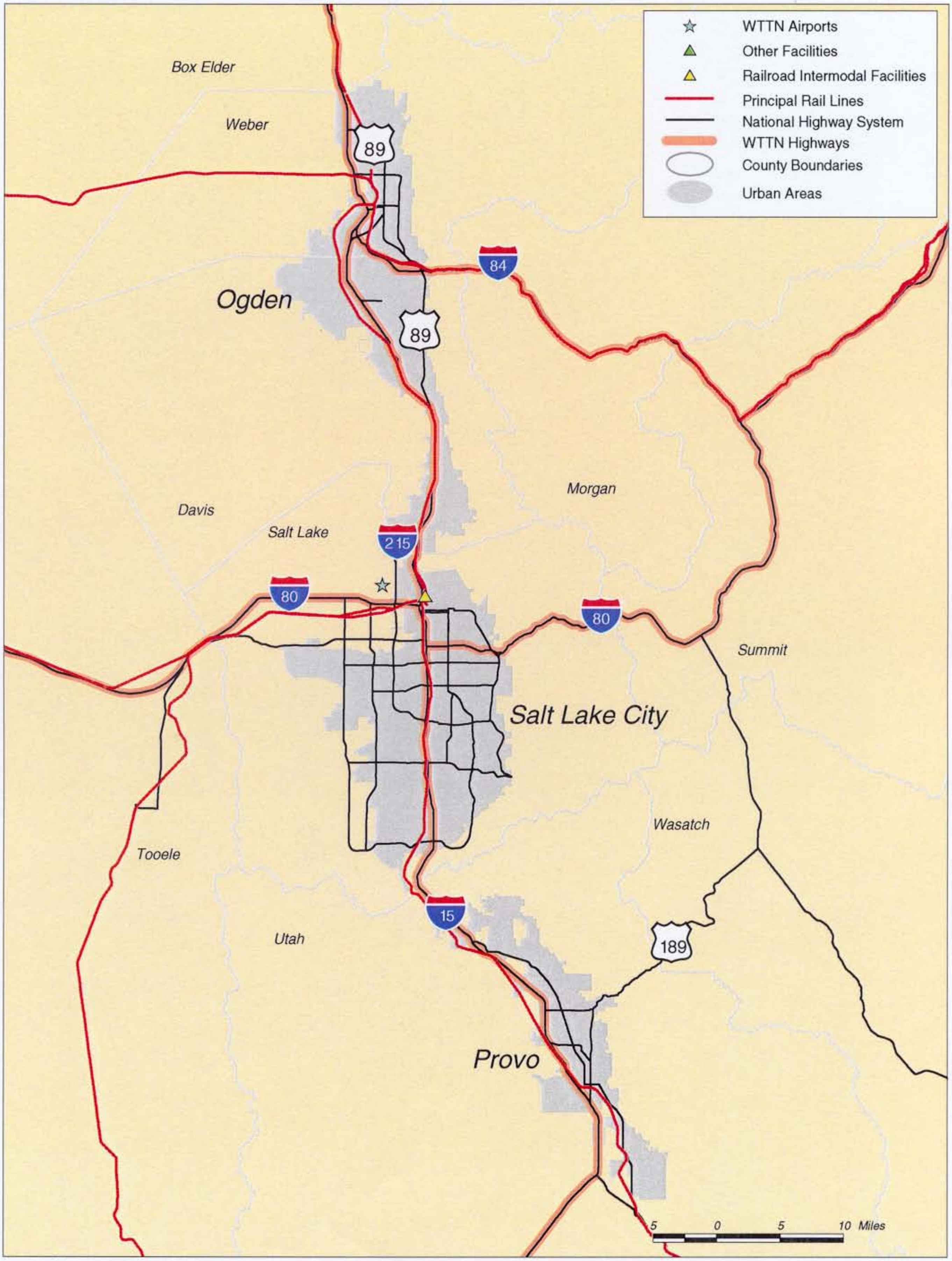


Utah

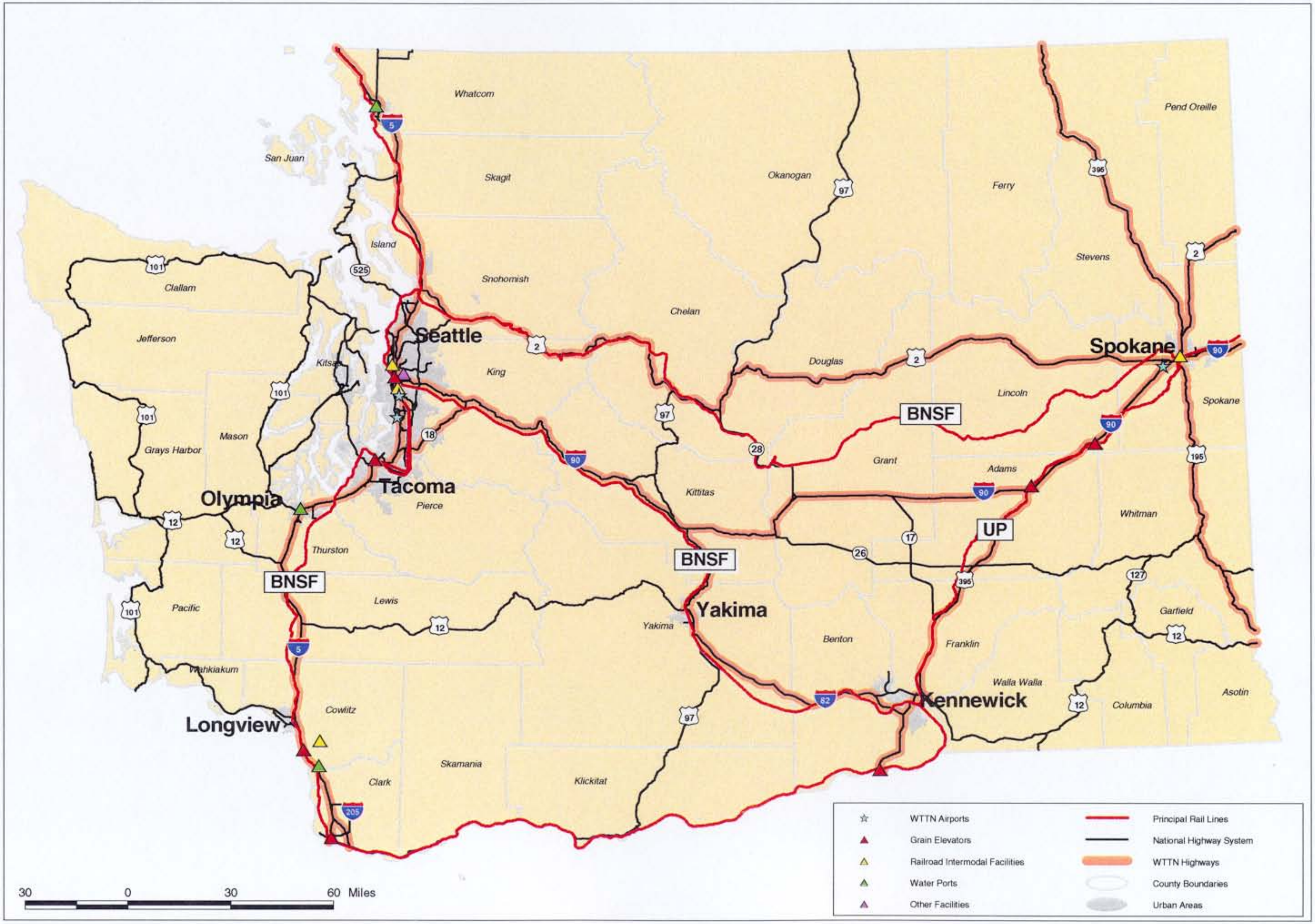


WTTN Airports
Other Facilities
Railroad Intermodal Facilities
Principal Rail Lines
National Highway System
WTTN Highways
County Boundaries
Urban Areas
Box Elder
Cache
Rich
Weber
Morgan
Davis
Summit
Daggett
Tooele
Wasatch
Duchesne
Uintah
Utah
Juab
Carbon
Sanpete
Millard
Emery
Sevier
Beaver
Piute
Wayne
Iron
Garfield
San Juan
Washington
Kane
Ogden
Salt Lake City
Provo
UP
84
89
134
80
189
40
15
6
70
12
9
666
30
0
30
60 Miles

Utah: Urban Areas

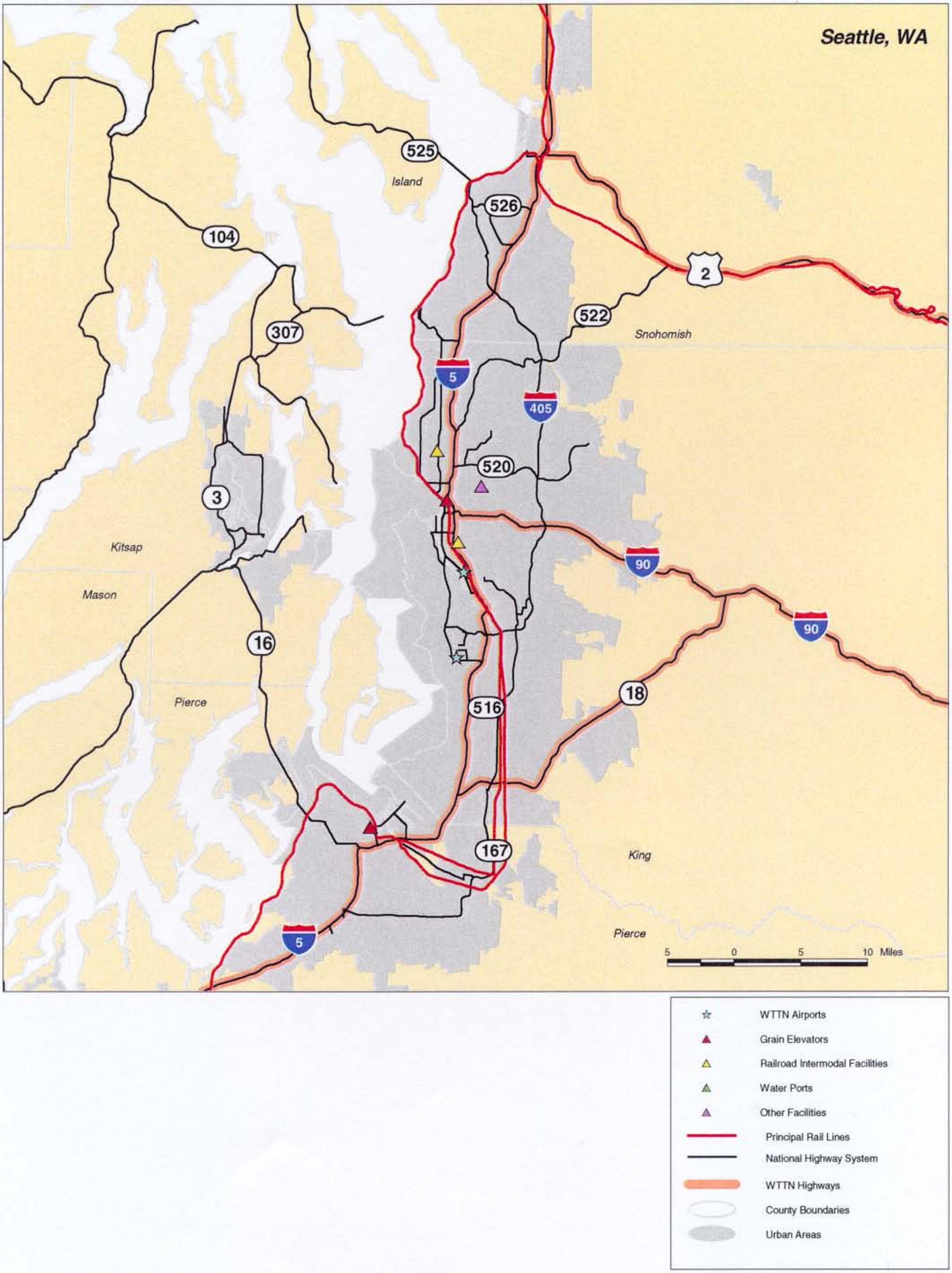


Washington

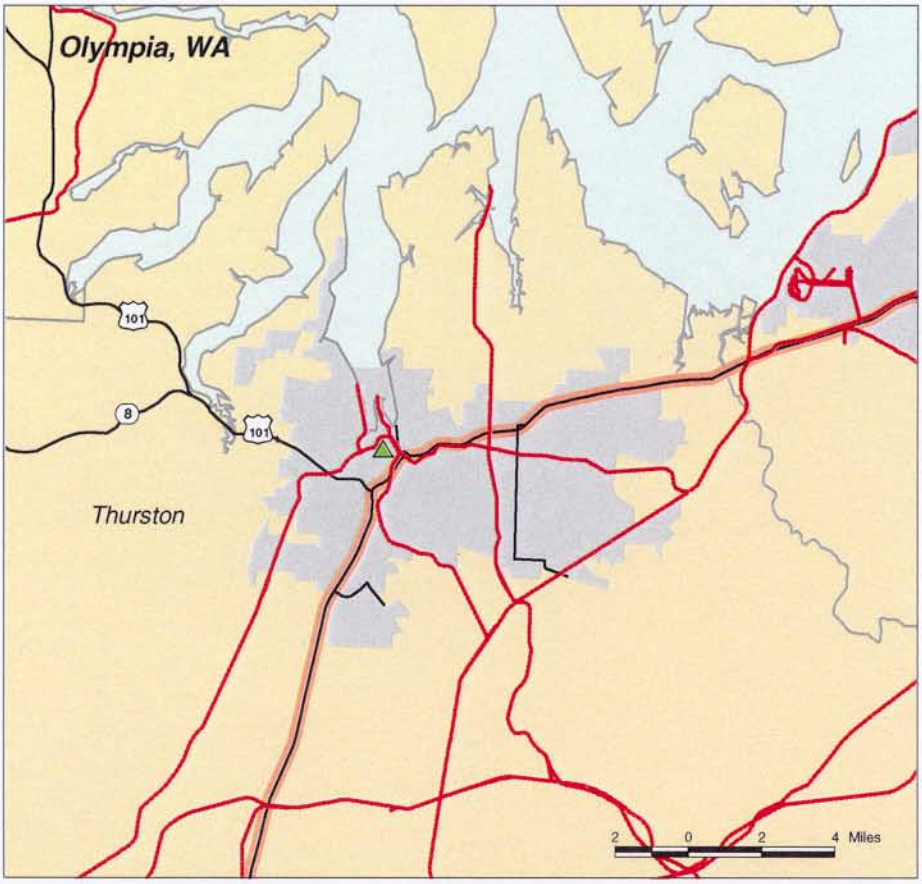


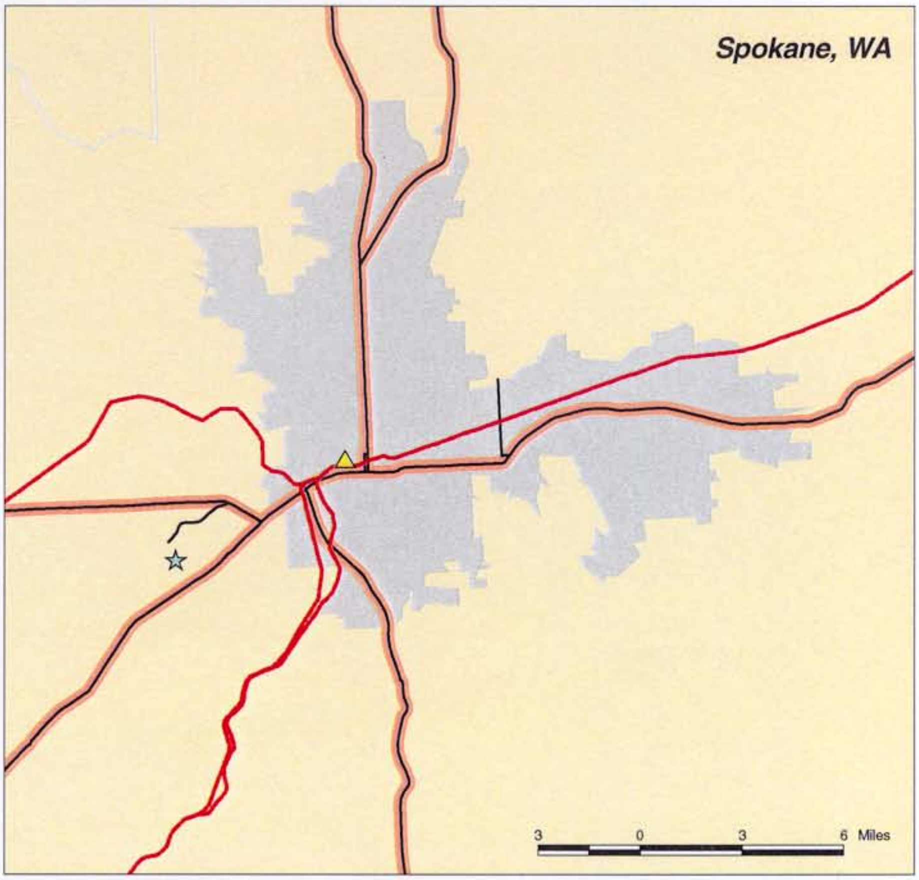
Whatcom
San Juan
Skagit
Okanogan
Ferry
Pend Oreille
Stevens
Island
Snohomish
Chelan
Clallam
Jefferson
Kitsap
Seattle
King
Douglas
Lincoln
Spokane
Mason
Grays Harbor
Tacoma
Pierce
Olympia
Grant
Adams
Kittitas
Whitman
Thurston
Lewis
Pacific
Yakima
Benton
Franklin
Garfield
Wahkiakum
Walla Walla
Kennewick
Columbia
Asotin
Cowlitz
Longview
Skamania
Clark
Klickitat
BNSF
UP
30
0
30
60 Miles
WTTN Airports
Grain Elevators
Railroad Intermodal Facilities
Water Ports
Other Facilities
Principal Rail Lines
National Highway System
WTTN Highways
County Boundaries
Urban Areas

Washington: Urban Areas

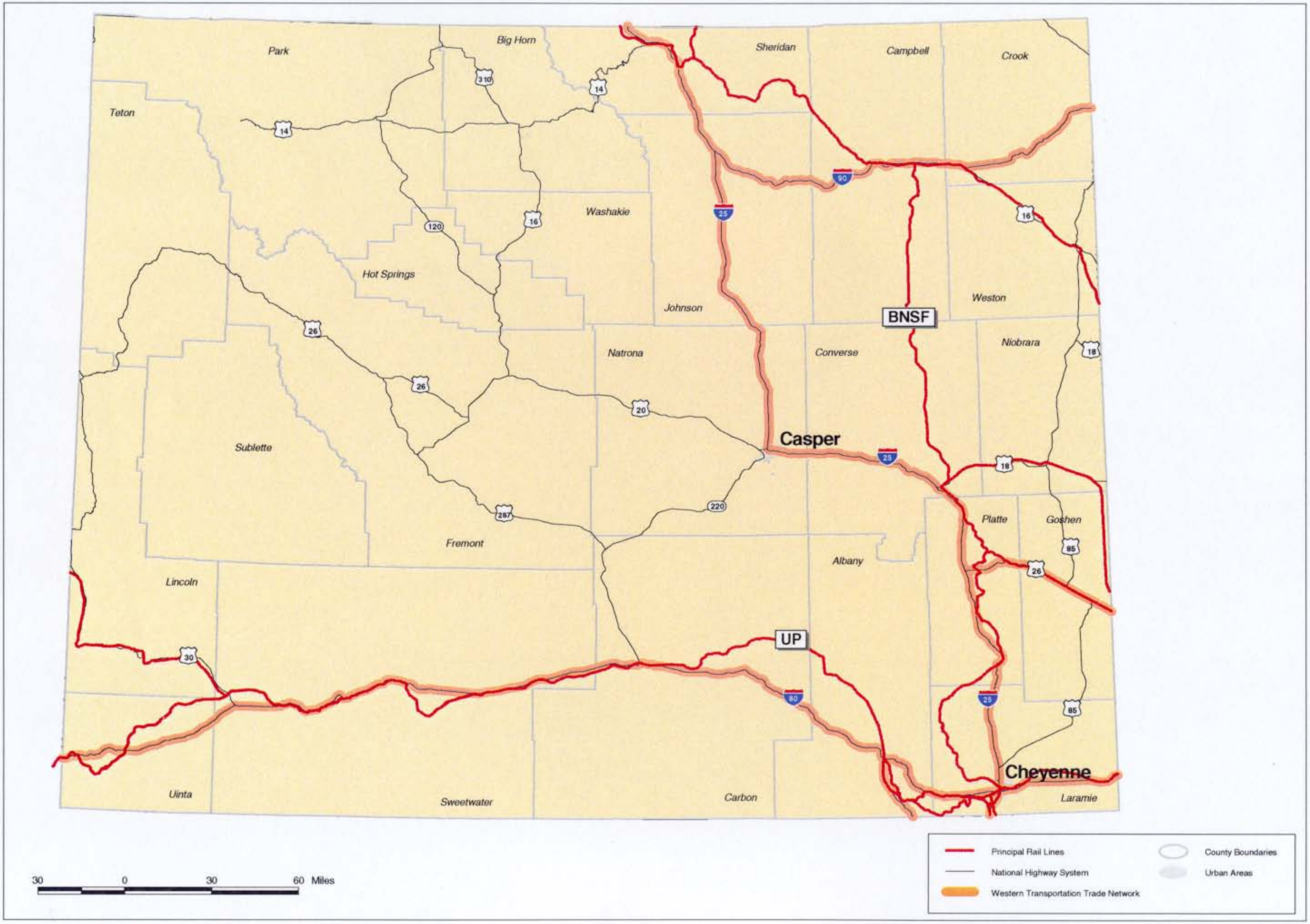


Washington: Urban Areas





Wyoming



Park
Big Horn
Sheridan
Campbell
Crook
Teton
Washakie
Hot Springs
Johnson
Weston
BNSF
Niobrara
Natrona
Converse
Casper
Sublette
Fremont
Platte
Goshen
Albany
Lincoln
UP
Cheyenne
Uinta
Sweetwater
Carbon
Laramie
30 0 30 60 Miles
Principal Rail Lines
National Highway System
Western Transportation Trade Network
County Boundaries
Urban Areas

Appendix F
MENU OF SOLUTIONS

The Menu of Solutions, as explained in Chapter 3, is designed to suggest *possible* capital and/or operational improvements to address identified deficiencies on WTTN Highways. These generic solutions are not intended to replace the robust program planning processes at work in each WTTN state. Rather, they are offered as a means to consider potential ways to address deficiencies.

Appendix F contains a listing of the Menu of Solutions for each WTTN supersegment, arranged alphabetically by state. Each supersegment has rural and urban deficiencies listed, along with **principal** and **supplemental solutions**. Principal solutions are drawn from a list of eight traditional improvement types, ranging from pavement rehabilitation to geometric improvements, lane widening, and adding lanes. Supplemental solutions include 17 possible choices that include more non-traditional approaches like new bypasses, truck lanes, regulatory improvements, interchanges, grade separations, and ITS.

The solutions are numbered, with references to the 8 principal solutions at the bottom of each page. The 17 supplemental solutions follow this page.

Supplemental Highway Solutions

new

9. Construct new/rehabilitated interchanges
10. Provide truck by-pass routes in crucial areas
11. Construct new alternative roadway
12. Construct new/improved tunnels
13. Provide specified truck lanes (climbing lanes or with special design standards)
14. Provide additional run-away truck ramps
15. Eliminate/improve/grade-separate at-grade rail crossings
16. (Re-)develop HOV lanes to accommodate trucks
17. Regulate minimum speeds in left lanes (instead of prohibiting trucks from left lanes)
18. Improve ports-of-entry operations
19. Improve weigh-in-motion and other freight industry related forms of new technology and equipment designed to speed truck traffic
20. Utilize ITS (including: permitting/ports-of-entry: weather/accident information far in advance; speed warning signs; Commercial
21. Provide incentives to encourage off-peak travel/schedule
22. Consider TDM (improve transit to reduce highway congestion on highways)
23. Encourage local land use planners to provide adequate land to accommodate external distribution centers
24. Encourage road-railer technology
25. Support maintenance and improvement in other modes to improve the overall performance of the freight transportation system

Arizona Super Segments
Deficiencies and Potential Solutions

Route	Termini	SS#	Rural			Urban			Notes
			Deficiencies	Principal Solutions	Supplemental Solutions	Deficiencies	Principal Solutions	Supplemental Solutions	
I-8	California SL - I-10 S. Phoenix	21	P	1, 5	No Additional Solutions	No Deficient Sections	-	-	
I-10	California SL - Phoenix	31	P, SL	1, 5, 2	No Additional Solutions	P	1, 5	No Additional Solutions	
I-10	Through Phoenix	32	No Rural Sections	-	-	CE, CF	6, 7, 8	9 - 13, 15 - 24	
I-10	Phoenix UL - I-19 @ Tucson	33	SL, CF	2*, 6, 7, 8	9 - 13, 15 - 24	CF	6, 7, 8	9 - 13, 15 - 24	consider raising speed limit to MTC if no safety or other concerns preclude it
I-10	I-19 @ Tucson - New Mexico SL	34	P, SL, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	P	1, 5	No Additional Solutions	
I-19	Mexico - I-10 @ Tucson	60	P, SL	1, 5, 2	No Additional Solutions	CF	6, 7, 8	9 - 13, 15 - 24	
US 60/US 93	I-17 @ Phoenix - I-40	61	P, SW, SL, CE, CF	1, 5, 4, 2, 6, 7, 8	9 - 13, 15 - 24	SL, CE, CF	2*, 6, 7, 8	9 - 13, 15 - 24	consider raising speed limit to MTC if no safety or other concerns preclude it
US 93	I-40 - Nevada SL	62	P, SW, SL, CE, CF	1, 5, 4, 2, 6, 7, 8	9 - 13, 15 - 24	SW, SL	4*, 2*	No Additional Solutions	shoulders should be widened to meet AASHTO standards as part of a corridor improvement project; consider raising speed limit to MTC if no safety or other concerns preclude it
I-40	California SL - US 93 @ Kingman	130	P	1, 5	No Additional Solutions	No Urban Sections	-	-	
I-40	US 93 @ Kingman - US 93	131	No Deficient Sections	-	-	No Deficient Sections	-	-	
I-40	US 93 - I-17 @ Flagstaff	132	No Deficient Sections	-	-	No Deficient Sections	-	-	
I-40	I-17 @ Flagstaff - New Mexico	133	P	1, 5	No Additional Solutions	No Deficient Sections	-	-	
I-15	Nevada SL - Utah SL (through AZ)	715	SL	2*	No Additional Solutions	No Urban Sections	-	-	consider raising speed limit to MTC if no safety or other concerns preclude it
I-17	I-40 @ Flagstaff to I-10 @ Phoenix	730	No Deficient Sections	-	-	P, LW, SW, CE, CF	1, 5, 3, 4, 6, 7, 8	9 - 13, 15 - 24	

KEY

Deficiencies

P = Pavement
LW = Lane Width
SW = Shoulder Width
VA = Vertical Alignment
HA = Horizontal Alignment
SL = Speed Limit
CE = Existing Capacity (1996)
CF = Future Capacity (2016)

Principal Highway Solutions

1. Improve pavement conditions (resurface, enhance maintenance program, increased pavement strength)
2. Improve roadway geometrics (curves, turning radii)
3. Increase lane widths to 12 feet
4. Increase shoulder widths to be in accordance with AASHTO standards
5. Reconstruct existing roadways without adding lanes
6. Reconstruct existing roadways including additional lanes
7. Reconstruct existing highway to reduce access
8. Widen roadway; construct with additional lanes

California Super Segments

Deficiencies and Potential Solutions

Route	Termini	SS#	Rural			Urban			Notes
			Deficiencies	Principal Solutions	Supplemental Solutions	Deficiencies	Principal Solutions	Supplemental Solutions	
I-5	In San Diego	1	No Rural Sections	-	-	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-5	San Diego - Los Angeles	2	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	No Urban Sections	-	-	
I-5	Through Los Angeles (San Clemente - Santa Clarita)	3	No Rural Sections	-	-	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-5	Los Angeles - Sacramento	4	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-5	Through Sacramento	5	No Rural Sections	-	-	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-5	Sacramento - Oregon SL	6	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-8	In San Diego	20	No Deficient Sections	-	-	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-8	San Diego UL - Arizona SL	21	P, SL	1, 5, 2	No Additional Solutions	P	1, 5	No Additional Solutions	
I-10	Through Los Angeles (Santa Monica - Palm Springs)	30	No Rural Sections	-	-	P, LW, CE, CF	1, 5, 3, 6, 7, 8	9 - 13, 15 - 24	
I-10	Palm Springs - Arizona SL	31	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-40	I-15 - Arizona SL	130	P	1, 5	No Additional Solutions	P	1, 5	No Additional Solutions	
I-80	In San Francisco	170	No Rural Sections	-	-	P, LW, SW, CE, CF	1, 5, 3, 4, 6, 7, 8	9 - 13, 15 - 24	
I-80	San Francisco UL - Sacramento UL	171	CE, CF	6, 7, 8	9 - 13, 15 - 24	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-80	Through Sacramento	172	P, SW, CE, CF	1, 5, 4, 6, 7, 8	9 - 13, 15 - 24	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-80	Sacramento UL - Nevada SL (Reno)	173	P, SW, VA, SL, CE, CF	1, 5, 4, 2, 6, 7, 8	9 - 24	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-205	I-5 to I-580 E. of San Francisco	250	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-215	I-15 @ Temecula to I-15 N. San Bernadino	260	CF	6, 7, 8	9 - 13, 15 - 24	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-405	I-5 in Los Angeles to I-5 @ Irvine	300	No Rural Sections	-	-	P, LW, CE, CF	1, 5, 3, 6, 7, 8	9 - 13, 15 - 24	
I-580	I-5 to S 238 in San Francisco	310	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-710	Long Beach to I-5	320	No Rural Sections	-	-	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-805	I-5 to I-15 in San Diego	330	No Rural Sections	-	-	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-880	I-80 to S 238 in San Francisco	340	No Rural Sections	-	-	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	

California Super Segments

Deficiencies and Potential Solutions

Route	Termini	SS#	Rural			Urban			Notes
			Deficiencies	Principal Solutions	Supplemental Solutions	Deficiencies	Principal Solutions	Supplemental Solutions	
US 97	I-5 @ Weed, CA - Oregon SL	500	SW, SL, CE, CF	4, 2, 6, 7, 8	9 - 13, 15 - 24	No Urban Sections	-	-	
US 101	I-80 to I-280 in San Francisco	510	No Rural Sections	-	-	P	1, 5	No Additional Solutions	
S 7/86/78	Mexico to I-10	600	P, SL	1, 5, 2	No Additional Solutions	P, SL, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
S 58	S 99 to Barstow	620	P, SL, CE, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	SL, CE, CF	2*, 6, 7, 8	9 - 13, 15 - 24	consider raising speed limit to MTC if no safety or other concerns preclude it
S 60	I-10 in Los Angeles to I-10 near Beaumont, CA	630	CF	6, 7, 8	9 - 13, 15 - 24	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
S 94/125	San Diego (I-5 to I-8)	650	No Deficient Sections	-	-	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
S 99	I-5 S. Bakersfield to I-5 @ Sacramento	660	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	P, SW, CE, CF	1, 5, 4, 6, 7, 8	9 - 13, 15 - 24	
I-238	I-580 to I-880 in SF	680	No Rural Sections	-	-	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
S 905	I-5 to Mexico	690	No Deficient Sections	-	-	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-15	In San Diego	700	No Rural Sections	-	-	P, SL, CE, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
I-15	San Diego UL - Los Angeles (Temecula)	710	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-15	Through LA UZA (Temecula - San Bernadino)	711	No Rural Sections	-	-	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-15	N. San Bernadino (Los Angeles UZA) - Nevada SL	712	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-15	I-40 - Nevada SL	713	CF	6, 7, 8	9 - 13, 15 - 24	No Urban Sections	-	-	

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Principal Highway Solutions

1. Improve pavement conditions (resurface, enhance maintenance program, increased pavement strength)
2. Improve roadway geometrics (curves, turning radii)
3. Increase lane widths to 12 feet
4. Increase shoulder widths to be in accordance with AASHTO standards
5. Reconstruct existing roadways without adding lanes
6. Reconstruct existing roadways including additional lanes
7. Reconstruct existing highway to reduce access
8. Widen roadway; construct with additional lanes

Colorado Super Segments
Deficiencies and Potential Solutions

Route	Termini	SS#	Rural			Urban			Notes
			Deficiencies	Principal Solutions	Supplemental Solutions	Deficiencies	Principal Solutions	Supplemental Solutions	
I-25	New Mexico SL - Colorado Springs	82	P, SW*, HA	1, 5, 4, 2	No Additional Solutions	P, SW*, SL, CF	1, 5, 4, 2, 6, 7, 8	9 - 13, 15 - 24	SW constructed with FHWA exception
I-25	Through Colorado Springs	83	No Rural Sections	-	-	P, HA, CE, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
I-25	Colorado Springs UL - Denver UL	84	P, HA, SL, CE, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	P, HA, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
I-25	Through Denver	85	No Rural Sections	-	-	P, SW*, CE, CF	1, 5, 4, 2, 6, 7, 8	9 - 24	SW constructed with FHWA exception
I-25	Denver UL - Wyoming SL (Cheyenne)	86	P, HA, CE, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	P, HA	1, 5, 2	No Additional Solutions	
I-70	Utah SL - Denver UL	160	P, SW*, VA*, HA, SL, CE, CF	1, 5, 4, 2, 6, 7, 8	9 - 24	P, SW, SL	1, 5, 4, 2	No Additional Solutions	VA added on basis of knowledge of corridor; SW constructed with FHWA exception
I-70	Through Denver	161	No Rural Sections	-	-	P, SW*, HA, CE, CF	1, 5, 4, 2, 6, 7, 8	9 - 24	SW constructed with FHWA exception
I-70	Denver UL - US 40/287 @ Limon	162	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	No Urban Sections	-	-	
I-70	US 40/287 @ Limon - Kansas SL	163	P	1, 5	No Additional Solutions	No Urban Sections	-	-	
US 6	Loveland Pass	360	LW, SL, CE, CF	3, 2, 6, 7, 8	9 - 13, 15 - 24	No Urban Sections	-	-	
US 287/40/50	I-70 @ Limon - Oklahoma SL	550	P, SL	1, 5, 2	No Additional Solutions	P, SL	1, 5, 2	No Additional Solutions	
S 14/ US 287	I-25 @ Ft. Collins - Wyoming SL	560	VA	5	13, 14, 17	P, LW, HA, SL	1, 5, 3, 2	9 - 13, 15 - 24	

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HA = Horizontal Alignment
SL = Speed Limit
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CF = Future Capacity (2016)

Principal Highway Solutions

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2. Improve roadway geometrics (curves, turning radii)
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4. Increase shoulder widths to be in accordance with AASHTO standards
5. Reconstruct existing roadways without adding lanes
6. Reconstruct existing roadways including additional lanes
7. Reconstruct existing highway to reduce access
8. Widen roadway; construct with additional lanes

F-7

Idaho Super Segments
Deficiencies and Potential Solutions

Route	Termini	SS#	Rural			Urban			Notes
			Deficiencies	Principal Solutions	Supplemental Solutions	Deficiencies	Principal Solutions	Supplemental Solutions	
I-84	Oregon SL - Boise (I-184)	192	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	CF	6, 7, 8	9 - 13, 15 - 24	
I-84	Boise (I-184) - I-86	193	P	1, 5	No Additional Solutions	CE, CF	6, 7, 8	9 - 13, 15 - 24	
I-84	I-86 - Utah SL	194	P	1, 5	No Additional Solutions	No Urban Sections	-	-	
I-86	I-84 to I-15 @ Pocatello	200	P	1, 5	No Additional Solutions	P	1, 5	No Additional Solutions	
I-90	Washington SL - US 95 @ Coeur d'Alene	213	No Rural Sections	-	-	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-90	US 95 - Montana SL	214	P, HA, SL, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	P	1, 5	No Additional Solutions	
US 2	Washington SL - US 95 @ Sandpoint	351	P, LW, SW, VA, HA, SL, CE, CF	1, 5, 3, 4, 2, 6, 7, 8	9 - 24	P, SW, SL, CE, CF	1, 5, 4, 2, 6, 7, 8	9 - 13, 15 - 24	
US 2	US 95 @ Bonners Ferry - Montana SL	352	SW, HA	4, 2, 5	No Additional Solutions	No Urban Sections	-	-	
US 12	US 95 - Montana SL	370	SW, SL, CE, CF	4, 2, 6, 7, 8	9 - 13, 15 - 24	SW, SL, CF	4, 2, 6, 7, 8	9 - 13, 15 - 24	
US 20	I-15 @ Idaho Falls - Montana SL	380	SL, CE, CF	2*, 6, 7, 8	9 - 13, 15 - 24	SL, CF	2*, 6, 7, 8	9 - 13, 15 - 24	consider raising speed limit to MTC if no safety or other concerns preclude it
US 95	I-84 - Lewiston (US 12)	490	P, LW, SW, VA, HA, SL, CE, CF	1, 5, 3, 4, 2, 6, 7, 8	9 - 24	SL, CE, CF	2*, 6, 7, 8	9 - 13, 15 - 24	consider raising speed limit to MTC if no safety or other concerns preclude it
US 95	US 12 @ Lewiston - I-90 @ Coeur d'Alene	491	P, SW, VA, HA, SL, CE, CF	1, 5, 4, 2, 6, 7, 8	9 - 24	P, SW, SL, CE, CF	1, 5, 4, 2, 6, 7, 8	9 - 13, 15 - 24	
US 95	I-90 @ Coeur d'Alene - Canada	492	P, SW, VA, HA, SL, CE, CF	1, 5, 4, 2, 6, 7, 8	9 - 24	SL, CE, CF	2*, 6, 7, 8	9 - 13, 15 - 24	consider raising speed limit to MTC if no safety or other concerns preclude it
I-15	Utah SL - I-86 @ Pocatello	718	No Deficient Sections	-	-	No Deficient Sections	-	-	
I-15	I-86 - US 20 @ Idaho Falls	719	P	1, 5	No Additional Solutions	No Deficient Sections	-	-	
I-15	US 20 @ Idaho Falls - Montana SL	720	P, HA	1, 5, 2	No Additional Solutions	No Deficient Sections	-	-	

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Deficiencies

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SL = Speed Limit
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Principal Highway Solutions

1. Improve pavement conditions (resurface, enhance maintenance program, increased pavement strength)
2. Improve roadway geometrics (curves, turning radii)
3. Increase lane widths to 12 feet
4. Increase shoulder widths to be in accordance with AASHTO standards
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6. Reconstruct existing roadways including additional lanes
7. Reconstruct existing highway to reduce access
8. Widen roadway; construct with additional lanes

Kansas Super Segments
Deficiencies and Potential Solutions

Route	Termini	SS#	Rural			Urban			Notes
			Deficiencies	Principal Solutions	Supplemental Solutions	Deficiencies	Principal Solutions	Supplemental Solutions	
I-35	Oklahoma SL - Wichita UL	116	No Deficient Sections	-	-	No Urban Sections	-	-	
I-35	Through Wichita	117	No Rural Sections	-	-	No Deficient Sections	-	-	
I-35	Wichita UL - Missouri SL (Kansas City)	118	P	1, 5	No Additional Solutions	SL, CE, CF	2*, 6, 7, 8	9 - 13, 15 - 24	consider raising speed limit to MTC if no safety or other concerns preclude it
I-70	Colorado SL - Topeka UL	163	P	1, 5	No Additional Solutions	No Deficient Sections	-	-	
I-70	Through Topeka	164	No Rural Sections	-	-	HA, SL, CF	2, 5, 6, 7, 8	9 - 13, 15 - 24	
I-70	Topeka UL - Kansas City (MO SL)	165	CF	6, 7, 8	9 - 13, 15 - 24	P, HA, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
I-135	Through Wichita (I-35 - Wichita UL)	230	No Rural Sections	-	-	P, SL, CE, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
I-135	Wichita UL - I-70	231	P	1, 5	No Additional Solutions	P	1, 5	No Additional Solutions	
I-235	I-135 N. to I-135 S. of Wichita	270	No Rural Sections	-	-	HA	2, 5	No Additional Solutions	
I-335	I-35 to I-70 @ Topeka	280	HA	2, 5	No Additional Solutions	No Deficient Sections	-	-	
US 54	Oklahoma SL - I-235 @ Wichita	411	SL, CF	2*, 6, 7, 8	9 - 13, 15 - 24	P, LW, SL, CE, CF	1, 5, 3, 2, 6, 7, 8	9 - 13, 15 - 24	consider raising speed limit to MTC if no safety or other concerns preclude it
US 81	I-70 - Nebraska SL	450	CE, CF	6, 7, 8	9 - 13, 15 - 24	No Urban Sections	-	-	

KEY

Deficiencies

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Principal Highway Solutions

1. Improve pavement conditions (resurface, enhance maintenance program, increased pavement strength)
2. Improve roadway geometrics (curves, turning radii)
3. Increase lane widths to 12 feet
4. Increase shoulder widths to be in accordance with AASHTO standards
5. Reconstruct existing roadways without adding lanes
6. Reconstruct existing roadways including additional lanes
7. Reconstruct existing highway to reduce access
8. Widen roadway; construct with additional lanes

Montana Super Segments
Deficiencies and Potential Solutions

Route	Termini	SS#	Rural			Urban			Notes
			Deficiencies	Principal Solutions	Supplemental Solutions	Deficiencies	Principal Solutions	Supplemental Solutions	
I-90	Idaho SL - US 93 W. Missoula	214	P, SL	1, 5, 2	No Additional Solutions	No Urban Sections	-	-	
I-90	US 93 W. Missoula - I-15 W. Butte	215	P	1, 5	No Additional Solutions	No Deficient Sections	-	-	
I-90	I-15 W. Butte - I-94 @ Billings	216	P, SW, HA	1, 5, 4, 2	No Additional Solutions	P	1, 5	No Additional Solutions	
I-90	Billings (I-94) - Wyoming SL	217	P	1, 5	No Additional Solutions	No Urban Sections	-	-	
US 2	Idaho SL - US 93 @ Kalispell	352	P, LW, SW, VA, HA, SL, CE, CF	1, 5, 3, 4, 2, 6, 7, 8	9 - 24	SL	2*	No Additional Solutions	consider raising speed limit to MTC if no safety or other concerns preclude it
US 2	US 93 @ Kalispell - North Dakota SL	353	P, SW, VA, HA, SL, CE, CF	1, 5, 4, 2, 6, 7, 8	9 - 24	P, SW, SL, CF	1, 5, 4, 2, 6, 7, 8	9 - 13, 15 - 24	
US 12	Idaho SL - I-90 @ Missoula	370	P, SW, HA, CE, CF	1, 5, 4, 2, 6, 7, 8	9 - 13, 15 - 24	P, SL, CE, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
US 12	I-90 NW of Butte to I-94 @ Forsyth	371	P, SW, HA, SL, CF	1, 5, 4, 2, 6, 7, 8	9 - 13, 15 - 24	P, SL, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
US 20/191/28	Idaho SL - I-90	380	P, SW, VA, HA, CE, CF	1, 5, 4, 2, 6, 7, 8	9 - 24	P, SL	1, 5, 2	No Additional Solutions	
US 87/191/ S19	I-94 @ Billings to Canada	460	P, LW, SW, SL	1, 5, 3, 4, 2	No Additional Solutions	SL, CE, CF	2*, 6, 7, 8	9 - 13, 15 - 24	consider raising speed limit to MTC if no safety or other concerns preclude it
US 200/ US89	I-90 @ Missoula - I-15 @ Great Falls	470	P, SW, VA, HA, SL, CE, CF	1, 5, 4, 2, 6, 7, 8	9 - 24	No Urban Sections	-	-	
US 87	I-15 @ Great Falls - US 2 @ Havre	471	P, LW, SW, HA	1, 5, 3, 4, 2	No Additional Solutions	P, SW, SL	1, 5, 4, 2	No Additional Solutions	
US 93	I-90 - Canada	480	P, LW, SW, VA, SL, CE, CF	1, 5, 3, 4, 2, 6, 7, 8	9 - 24	P, SW, SL, CF	1, 5, 4, 2, 6, 7, 8	9 - 13, 15 - 24	
S 3	Billings - Great Falls	590	P, LW, SW, VA, HA, SL, CF	1, 5, 3, 4, 2, 6, 7, 8	9 - 24	P, SL, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
I-15	Idaho SL - I-90 @ Butte	720	P	1, 5	No Additional Solutions	P	1, 5	No Additional Solutions	
I-15	Butte (I-90) - Great Falls (I-15B)	721	P, SW, HA	1, 5, 4, 2	No Additional Solutions	P	1, 5	No Additional Solutions	
I-15	Great Falls - Canada	722	P	1, 5	No Additional Solutions	P, SW	1, 5, 4	No Additional Solutions	
I-94	I-90 @ Billings - North Dakota	750	P	1, 5	No Additional Solutions	No Deficient Sections	-	-	

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VA = Vertical Alignment
HA = Horizontal Alignment
SL = Speed Limit
CE = Existing Capacity (1996)
CF = Future Capacity (2016)

Principal Highway Solutions

1. Improve pavement conditions (resurface, enhance maintenance program, increased pavement strength)
2. Improve roadway geometrics (curves, turning radii)
3. Increase lane widths to 12 feet
4. Increase shoulder widths to be in accordance with AASHTO standards
5. Reconstruct existing roadways without adding lanes
6. Reconstruct existing roadways including additional lanes
7. Reconstruct existing highway to reduce access
8. Widen roadway; construct with additional lanes

Nebraska Super Segments

Deficiencies and Potential Solutions

Route	Termini	SS#	Rural			Urban			Notes
			Deficiencies	Principal Solutions	Supplemental Solutions	Deficiencies	Principal Solutions	Supplemental Solutions	
I-80	Wyoming SL - US 26	179	No Deficient Sections	-	-	No Deficient Sections	-	-	
I-80	US 26 - US 281	180	No Deficient Sections	-	-	No Deficient Sections	-	-	
I-80	US 281 - US 81	181	No Deficient Sections	-	-	No Urban Sections	-	-	
I-80	US 81 - Iowa SL	182	P, SL, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
US 26	Wyoming SL - I-80	390	P, LW, SW	1, 5, 3, 4	No Additional Solutions	P, SL, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
US 81	Kansas SL - I-80	450	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	No Urban Sections	-	-	
US 81	I-80 - South Dakota SL	451	P, HA, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	SL	2*	No Additional Solutions	consider raising speed limit to MTC if no safety or other concerns preclude it
US 281	I-80 - South Dakota SL	530	SW, CF	4, 6, 7, 8	9 - 13, 15 - 24	SW, CE, CF	4, 6, 7, 8	9 - 13, 15 - 24	
US 385	South Dakota SL - I-80 @ Sidney	640	SW, HA	4, 2, 5	No Additional Solutions	P, SL, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	

KEY

Deficiencies

P = Pavement

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Principal Highway Solutions

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8. Widen roadway; construct with additional lanes

Nevada Super Segments
Deficiencies and Potential Solutions

Route	Termini	SS#	Rural			Urban			Notes
			Deficiencies	Principal Solutions	Supplemental Solutions	Deficiencies	Principal Solutions	Supplemental Solutions	
US 93	Arizona SL - Las Vegas UL	62	SW, SL, CE, CF	4, 2, 6, 7, 8	9 - 13, 15 - 24	P, SL, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
US 93/I-515	Las Vegas UL - I-15	63	No Rural Sections	-	-	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-80	Through Reno	174	CE, CF	6, 7, 8	9 - 13, 15 - 24	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-80	Reno UL - Utah SL	175	P	1, 5	No Additional Solutions	P	1, 5	No Additional Solutions	
I-15	California SL - Las Vegas UL	713	CE, CF	6, 7, 8	9 - 13, 15 - 24	No Urban Sections	-	-	
I-15	Through Las Vegas	714	No Rural Sections	-	-	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-15	Las Vegas UL - Arizona SL	715	No Deficient Sections	-	-	No Urban Sections	-	-	

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Principal Highway Solutions

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North Dakota Super Segments
Deficiencies and Potential Solutions

Route	Termini	SS#	Rural			Urban			Notes
			Deficiencies	Principal Solutions	Supplemental Solutions	Deficiencies	Principal Solutions	Supplemental Solutions	
I-29	South Dakota SL - I-94 (Fargo)	91	P	1, 5	see notes	CF*	6, 7, 8	9 - 13, 15 - 24	add'l rural & urban solutions include snow fences, shelter belts (trees) and redirection of drainage; CF added on basis of knowledge of corridor
I-29	Fargo (I-94) - Canada	92	P	1, 5	see notes	P, CF*	1, 5, 6, 7, 8	9 - 13, 15 - 24	add'l rural & urban solutions include snow fences, shelter belts (trees) and redirection of drainage; CF added on basis of knowledge of corridor
US 2	Montana SL - US 83 @ Minot	353	No Deficient Sections	-	-	SL, CF	2*, 6, 7, 8	9 - 13, 15 - 24	consider raising speed limit to MTC if no safety or other concerns preclude it
US 2	US 83 @ Minot - Minnesota SL (Grand Forks)	354	No Deficient Sections	-	-	P, SL, CE, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
US 52	Canada to I-94 Jamestown, ND	400	No Deficient Sections	-	-	SL	2*	No Additional Solutions	consider raising speed limit to MTC if no safety or other concerns preclude it
US 281	South Dakota SL - I-94	531	SW	4*	No Additional Solutions	SL, CF	2*, 6, 7, 8	9 - 13, 15 - 24	shoulders should be widened to meet AASHTO standards as part of an adjacent improvement project; consider raising speed limit to MTC if no safety or other concerns preclude it
I-94	Montana SL - Bismark (I-194)	750	P	1, 5	No Additional Solutions	P	1, 5	No Additional Solutions	
I-94	Bismark (I-194) - Minnesota SL	751	P	1, 5	No Additional Solutions	P	1, 5	No Additional Solutions	

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Principal Highway Solutions

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Oregon Super Segments
Deficiencies and Potential Solutions

Route	Termini	SS#	Rural			Urban			Notes
			Deficiencies	Principal Solutions	Supplemental Solutions	Deficiencies	Principal Solutions	Supplemental Solutions	
I-5	California SL - Douglas/Lane CL	6	P, HA, SL, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	P, SW, HA, CF	1, 5, 4, 2, 6, 7, 8	9 - 13, 15 - 24	
I-5	Douglas/Lane CL - S 58 @ Eugene	7	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	No Deficient Sections	-	-	
I-5	S 58 @ Eugene- Portland	8	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	P, SW, CE, CF	1, 5, 4, 6, 7, 8	9 - 13, 15 - 24	
I-5	Through Portland (OR)	9	No Rural Sections	-	-	P, SL, CE, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
I-84	In Portland (I-5 - Portland UL)	190	No Rural Sections	-	-	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-84	Portland - I-82	191	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	P	1, 5	No Additional Solutions	
I-84	I-82 - Idaho SL	192	P, HA	1, 5, 2	No Additional Solutions	No Deficient Sections	-	-	
I-205	Washington SL - I-5 S. Portland	240	No Rural Sections	-	-	P, SW, CE, CF	1, 5, 4, 6, 7, 8	9 - 13, 15 - 24	
I-405	in Portland	290	No Rural Sections	-	-	P, SL	1, 5, 2	No Additional Solutions	
US 97/ S 58	California SL to I-5 @ Eugene	500	P, SW, VA, HA, SL, CE, CF	1, 5, 4, 2, 6, 7, 8	9 - 24	P	1, 5	No Additional Solutions	
I-82	Washington SL - I-84	740	P, HA	1, 5, 2	No Additional Solutions	No Urban Sections	-	-	

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South Dakota Super Segments
Deficiencies and Potential Solutions

Route	Termini	SS#	Rural			Urban			Notes
			Deficiencies	Principal Solutions	Supplemental Solutions	Deficiencies	Principal Solutions	Supplemental Solutions	
I-29	Iowa SL (Sioux City) - I-90 (Sioux Falls)	90	P	1, 5	No Additional Solutions	P	1, 5	No Additional Solutions	
I-29	I-90 @ Sioux Falls - North Dakota SL	91	P	1, 5	No Additional Solutions	No Deficient Sections	-	-	
I-90	Wyoming SL - Rapid City (S 473)	218	P, HA	1, 5, 2	No Additional Solutions	No Deficient Sections	-	-	
I-90	Rapid City (S 473) - US 281	219	P	1, 5	No Additional Solutions	No Urban Sections	-	-	
I-90	US-281 - US 81	220	P	1, 5	No Additional Solutions	No Deficient Sections	-	-	
I-90	US 81 - I-29 @ Sioux Falls	221	P	1, 5	No Additional Solutions	No Deficient Sections	-	-	
I-90	I-29 - Minnesota SL	222	P	1, 5	No Additional Solutions	P	1, 5	No Additional Solutions	
US 81	Nebraska SL - I-90	451	P, HA, SL, CE, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	P, SL, CE, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
US 81	I-90 - I-29 @ Watertown	452	P, LW, HA, SL, CF	1, 5, 3, 2, 6, 7, 8	9 - 13, 15 - 24	P, HA, SL	1, 5, 2	No Additional Solutions	
US 281	Nebraska SL - I-90	530	SW, HA, SL, CF	4, 2, 5, 6, 7, 8	9 - 13, 15 - 24	No Urban Sections	-	-	
US 281	I-90 - North Dakota	531	P, LW, SW, HA, SL, CF	1, 5, 3, 4, 2, 6, 7, 8	9 - 13, 15 - 24	P, SL	1, 5, 2	No Additional Solutions	
S 79/US 385	I-90 @ Rapid City - Nebraska SL	640	HA, CE, CF	2, 5, 6, 7, 8	9 - 13, 15 - 24	P, SL, CE, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	

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Principal Highway Solutions

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Texas Super Segments
Deficiencies and Potential Solutions

Route	Termini	SS#	Rural			Urban			Notes
			Deficiencies	Principal Solutions	Supplemental Solutions	Deficiencies	Principal Solutions	Supplemental Solutions	
I-10	Through El Paso (NM SL - El Paso UL)	36	No Deficient Sections	-	-	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-10	El Paso UL - I-20	37	No Deficient Sections	-	-	No Urban Sections	-	-	
I-10	I-20 - San Antonio UL	38	CF	6, 7, 8	9 - 13, 15 - 24	No Deficient Sections	-	-	
I-10	Through San Antonio	39	No Rural Sections	-	-	CE, CF	6, 7, 8	9 - 13, 15 - 24	
I-10	San Antonio UL - Houston UL	40	CE, CF	6, 7, 8	9 - 13, 15 - 24	CF	6, 7, 8	9 - 13, 15 - 24	
I-10	Through Houston	41	No Rural Sections	-	-	CE, CF	6, 7, 8	9 - 13, 15 - 24	
I-10	Houston UL - Louisiana SL	42	CE, CF	6, 7, 8	9 - 13, 15 - 24	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-20	I-10 - Dallas/Ft. Worth UL	70	P, SW, HA, CF	1, 5, 4, 2, 6, 7, 8	9 - 13, 15 - 24	No Deficient Sections	-	-	
I-20	Through Dallas/Ft. Worth	71	No Rural Sections	-	-	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-20	Dallas/Ft. Worth UL - Louisiana SL (Shreveport)	72	CF	6, 7, 8	9 - 13, 15 - 24	No Deficient Sections	-	-	
I-30	In Dallas/Ft. Worth	100	No Rural Sections	-	-	P, SL, CE, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
I-30	Dallas/Ft. Worth UL - Texarkana (Arkansas SL)	101	CF	6, 7, 8	9 - 13, 15 - 24	CF	6, 7, 8	9 - 13, 15 - 24	
I-35	Laredo - San Antonio UL	110	P	1, 5	No Additional Solutions	CF	6, 7, 8	9 - 13, 15 - 24	
I-35	Through San Antonio	111	No Rural Sections	-	-	CE, CF	6, 7, 8	9 - 13, 15 - 24	
I-35	San Antonio - Dallas/Ft. Worth	112	SW, CE, CF	4, 6, 7, 8	9 - 13, 15 - 24	CE, CF	6, 7, 8	9 - 13, 15 - 24	
I-35 E/W	Through Dallas/Ft. Worth	113	CE, CF	6, 7, 8	9 - 13, 15 - 24	P, HA, CE, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
I-35	Dallas/Ft. Worth - Oklahoma SL	114	HA, CF	2, 5, 6, 7, 8	9 - 13, 15 - 24	No Deficient Sections	-	-	
I-37	Through San Antonio (I-35 - UL)	120	No Rural Sections	-	-	CF	6, 7, 8	9 - 13, 15 - 24	
I-37	San Antonio UL - Corpus Christi	121	CF	6, 7, 8	9 - 13, 15 - 24	No Urban Sections	-	-	
I-37	Through Corpus Christi (UL - US 181)	122	No Rural Sections	-	-	CE, CF	6, 7, 8	9 - 13, 15 - 24	
I-40	New Mexico SL - Amarillo UL	135	No Deficient Sections	-	-	No Urban Sections	-	-	
I-40	Through Amarillo	136	No Rural Sections	-	-	CF	6, 7, 8	9 - 13, 15 - 24	
I-40	Amarillo UL - Oklahoma SL	137	No Deficient Sections	-	-	No Urban Sections	-	-	
I-44	US 287 - Oklahoma SL	140	No Deficient Sections	-	-	P	1, 5	No Additional Solutions	

Texas Super Segments
Deficiencies and Potential Solutions

Route	Termini	SS#	Rural Deficiencies	Rural Principal Solutions	Rural Supplemental Solutions	Urban Deficiencies	Urban Principal Solutions	Urban Supplemental Solutions	Notes
I-45	In Dallas/Ft. Worth	150	No Rural Sections	-	-	CF	6, 7, 8	9 - 13, 15 - 24	
I-45	Dallas/Ft. Worth UL - Houston UL	151	HA, CE, CF	2, 5, 6, 7, 8	9 - 13, 15 - 24	CE, CF	6, 7, 8	9 - 13, 15 - 24	
I-45	Through Houston	152	No Rural Sections	-	-	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-45	Houston UL - Galveston	153	SL, CE, CF	2*, 6, 7, 8	9 - 13, 15 - 24	CF	6, 7, 8	9 - 13, 15 - 24	consider raising speed limit to MTC if no safety or other concerns preclude it
US 54	I-10 @ El Paso - New Mexico SL	410	No Deficient Sections	-	-	P, LW, SL, CF	1, 5, 3, 2, 6, 7, 8	9 - 13, 15 - 24	
US 54	New Mexico SL - Oklahoma SL (through Texas)	411	SL	2*	No Additional Solutions	P, SL	1, 5, 2	No Additional Solutions	consider raising speed limit to MTC if no safety or other concerns preclude it
US 59	Laredo - Houston UL	420	LW, SL, CE, CF	3, 2, 6, 7, 8	9 - 13, 15 - 24	LW, SL, CE, CF	3, 2, 6, 7, 8	9 - 13, 15 - 24	
US 59	Through Houston	421	No Rural Sections	-	-	P, LW, SW, CE, CF	1, 5, 3, 4, 6, 7, 8	9 - 13, 15 - 24	
US 59	Houston UL - I-30	422	P, LW, VA, HA, SL, CE, CF	1, 5, 3, 2, 6, 7, 8	9 - 24	P, LW, SL, CE, CF	1, 5, 3, 2, 6, 7, 8	9 - 13, 15 - 24	
US 77	Brownsville to US 59	440	SL, CE, CF	2*, 6, 7, 8	9 - 13, 15 - 24	P, LW, SL, CF	1, 5, 3, 2, 6, 7, 8	9 - 13, 15 - 24	consider raising speed limit to MTC if no safety or other concerns preclude it
US 281	Mexico to I-37	540	P, HA, SL, CE, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	SL, CF	2*, 6, 7, 8	9 - 13, 15 - 24	consider raising speed limit to MTC if no safety or other concerns preclude it
US 287	Oklahoma SL - Amarillo UL	550	No Deficient Sections	-	-	SL	2*	No Additional Solutions	consider raising speed limit to MTC if no safety or other concerns preclude it
US 287	Through Amarillo	551	No Rural Sections	-	-	No Deficient Sections	-	-	
US 287	Amarillo UL - I-44 @ Wichita Falls	552	P, LW, SL	1, 5, 3, 2	No Additional Solutions	P, LW, SL	1, 5, 3, 2	No Additional Solutions	
US 287	I-44 @ Wichita Falls - Dallas/Ft. Worth UL	553	No Deficient Sections	-	-	P, LW, SL	1, 5, 3, 2	No Additional Solutions	
US 287	Through Dallas/Ft. Worth (North UL - I-45 @Ennis)	554	CE, CF	6, 7, 8	9 - 13, 15 - 24	P, SL, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
US 287	I-45 @ Ennis - Port Arthur	555	No Deficient Sections	-	-	SL	2*	No Additional Solutions	consider raising speed limit to MTC if no safety or other concerns preclude it

F-18

KEY

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Principal Highway Solutions
1. Improve pavement conditions (resurface, enhance maintenance program, increased pavement strength)
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F-19

Utah Super Segments
Deficiencies and Potential Solutions

Route	Termini	SS#	Rural			Urban			Notes
			Deficiencies	Principal Solutions	Supplemental Solutions	Deficiencies	Principal Solutions	Supplemental Solutions	
I-70	I-15 - Colorado SL	160	P, SW, HA	1, 5, 4, 2	No Additional Solutions	SW	4*	No Additional Solutions	shoulders should be widened to meet AASHTO standards as part of a corridor improvement project
I-80	Nevada SL - Salt Lake City UL	175	P, SW, CF	1, 5, 4, 6, 7, 8	9 - 13, 15 - 24	No Urban Sections	-	-	
I-80	Through Salt Lake City	176	CF	6, 7, 8	9 - 13, 15 - 24	P, SW, CE, CF	1, 5, 4, 6, 7, 8	9 - 13, 15 - 24	
I-80	Salt Lake City - Wyoming SL	177	P, SW, CF	1, 5, 4, 6, 7, 8	9 - 13, 15 - 24	No Urban Sections	-	-	
I-84	Idaho SL - N. Salt Lake City (I-15)	194	P, SW	1, 5, 4	No Additional Solutions	No Urban Sections	-	-	
I-84	I-15 - I-80	195	SW	4*	No Additional Solutions	P, SW	1, 5, 4	No Additional Solutions	shoulders should be widened to meet AASHTO standards as part of a corridor improvement project
I-15	Arizona SL - I-70	715	P, SW, HA, CF	1, 5, 4, 2, 6, 7, 8	9 - 13, 15 - 24	SW, CF	4, 6, 7, 8	9 - 13, 15 - 24	
I-15	I-70 - Salt Lake City UL (Provo)	716	P, SW, CF	1, 5, 4, 6, 7, 8	9 - 13, 15 - 24	SW, CF	4, 6, 7, 8	9 - 13, 15 - 24	
I-15	Through Salt Lake City (Provo - N. Ogden)	717	P, SW, CE, CF	1, 5, 4, 6, 7, 8	9 - 13, 15 - 24	P, SW, CE, CF	1, 5, 4, 6, 7, 8	9 - 13, 15 - 24	
I-15	Salt Lake City UL (N. Ogden) - Idaho SL	718	P, SW, CF	1, 5, 4, 6, 7, 8	9 - 13, 15 - 24	No Urban Sections	-	-	

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Washington Super Segments
Deficiencies and Potential Solutions

Route	Termini	SS#	Rural			Urban			Notes
			Deficiencies	Principal Solutions	Supplemental Solutions	Deficiencies	Principal Solutions	Supplemental Solutions	
I-5	Through Portland (WA)	9	No Rural Sections	-	-	CE, CF	6, 7, 8	9 - 13, 15 - 24	
I-5	Portland - Seattle/Tacoma UL	10	SL, CE, CF	2*, 6, 7, 8	9 - 13, 15 - 24	CE, CF	6, 7, 8	9 - 13, 15 - 24	consider raising speed limit to MTC if no safety or other concerns preclude it
I-5	Tacoma UL - S18	11	No Rural Sections	-	-	P, CE, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-5	S18 - I-90	12	No Rural Sections	-	-	P, LW, CE, CF	1, 5, 3, 6, 7, 8	9 - 13, 15 - 24	
I-5	I-90 - Seattle UL	13	No Rural Sections	-	-	SW, CE, CF	4, 6, 7, 8	9 - 13, 15 - 24	
I-5	Seattle UL - Canada	14	P, SL, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	P, CF	1, 5, 6, 7, 8	9 - 13, 15 - 24	
I-90	In Seattle	210	No Rural Sections	-	-	CF	6, 7, 8	9 - 13, 15 - 24	
I-90	Seattle UL - Spokane UL	211	CE, CF	6, 7, 8	9 - 13, 15 - 24	CF	6, 7, 8	9 - 13, 15 - 24	
I-90	Through Spokane	212	No Rural Sections	-	-	SW, CE, CF	4, 6, 7, 8	9 - 13, 15 - 24	
I-90	Spokane UL - Idaho SL	213	CE, CF	6, 7, 8	9 - 13, 15 - 24	No Urban Sections	-	-	
I-205	I-5 N. Portland - Oregon SL	240	No Rural Sections	-	-	CF	6, 7, 8	9 - 13, 15 - 24	
US 2	I-5 - I-90 @ Spokane	350	LW, SW, VA, HA, SL, CE, CF	3, 4, 5, 2, 6, 7, 8	9 - 24	P, SW, SL, CF	1, 5, 4, 2, 6, 7, 8	9 - 13, 15 - 24	
US 2	I-90 @ Spokane - Idaho SL	351	SW, SL, CE, CF	4, 2, 6, 7, 8	9 - 13, 15 - 24	P, SL, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
US 195	US 95 (Idaho SL) to I-90 @ Spokane	520	LW, SL, CE, CF	3, 2, 6, 7, 8	9 - 13, 15 - 24	No Deficient Sections	-	-	
US 395	Spokane to Canada	570	LW, SW, VA, HA, SL, CE, CF	3, 4, 5, 2, 6, 7, 8	9 - 24	No Urban Sections	-	-	
US 395	I-82 to I-90	580	No Deficient Sections	-	-	P, SL, CE, CF	1, 5, 2, 6, 7, 8	9 - 13, 15 - 24	
S 18	I-5 to I-90 @ Seattle	610	CE, CF	6, 7, 8	9 - 13, 15 - 24	LW, SW, CE, CF	3, 4, 6, 7, 8	9 - 13, 15 - 24	
I-82	I-90 - Oregon SL	740	No Deficient Sections	-	-	SW	4*	No Additional Solutions	shoulders should be widened to meet AASHTO standards as part of a corridor improvement project

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7. Reconstruct existing highway to reduce access
8. Widen roadway; construct with additional lanes

Wyoming Super Segments
Deficiencies and Potential Solutions

Route	Termini	SS#	Rural			Urban			Notes
			Deficiencies	Principal Solutions	Supplemental Solutions	Deficiencies	Principal Solutions	Supplemental Solutions	
I-25	Through Cheyenne	87	SL	2*	No Additional Solutions	P	1, 5	No Additional Solutions	consider raising speed limit to MTC if no safety or other concerns preclude it
I-25	Cheyenne UL - US 26	88	P	1, 5	No Additional Solutions	No Urban Sections	-	-	
I-25	US 26 - I-90 N. Casper	89	P, SL	1, 5, 2	No Additional Solutions	P	1, 5	No Additional Solutions	
I-80	Utah SL - Cheyenne UL	177	P	1, 5	No Additional Solutions	P	1, 5	No Additional Solutions	
I-80	Through Cheyenne	178	No Rural Sections	-	-	P	1, 5	No Additional Solutions	
I-80	Cheyenne UL - Nebraska SL	179	P	1, 5	No Additional Solutions	No Urban Sections	-	-	
I-90	Montana SL - I-25	217	P	1, 5	No Additional Solutions	No Deficient Sections	-	-	
I-90	I-25 - South Dakota SL	218	P	1, 5	No Additional Solutions	P	1, 5	No Additional Solutions	
US 26	I-25 - Nebraska SL	390	HA, SL, CE, CF	2, 5, 6, 7, 8	9 - 13, 15 - 24	SL, CE	2*, 6, 7, 8	9 - 13, 15 - 24	consider raising speed limit to MTC if no safety or other concerns preclude it
US 287	Colorado SL - I-80	560	CF	6, 7, 8	9 - 13, 15 - 24	SL	2*	No Additional Solutions	consider raising speed limit to MTC if no safety or other concerns preclude it

KEY

Deficiencies

P = Pavement
LW = Lane Width
SW = Shoulder Width
VA = Vertical Alignment
HA = Horizontal Alignment
SL = Speed Limit
CE = Existing Capacity (1996)
CF = Future Capacity (2016)

Principal Highway Solutions

1. Improve pavement conditions (resurface, enhance maintenance program, increased pavement strength)
2. Improve roadway geometrics (curves, turning radii)
3. Increase lane widths to 12 feet
4. Increase shoulder widths to be in accordance with AASHTO standards
5. Reconstruct existing roadways without adding lanes
6. Reconstruct existing roadways including additional lanes
7. Reconstruct existing highway to reduce access
8. Widen roadway; construct with additional lanes

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