CENTRAL LANE

CONGESTION MANAGEMENT SYSTEM

MPO

CENTRAL LANE METROPOLITAN PLANNING ORGANIZATION

CONGESTION MANAGEMENT SYSTEM BASELINE REPORT

for the Central Lane
Transportation Management Area

SEPTEMBER 2004

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EXECUTIVE SUMMARY

Overview

Federal regulations require urbanized areas with over 200,000 population, known as Transportation Management Areas (TMAs), to develop and maintain a Congestion Management System. A Congestion Management System, or CMS, is a systematic approach to dealing with congestion in a regional transportation system.

A CMS provides a structure and a process for:

- evaluating the performance of the region's transportation system
- implementing a wide range of strategies to address congestion
- monitoring results over time to improve long-term performance

The Central Lane MPO area was designated a TMA in July 2001 based on the 2000 federal census. A Congestion Management System is now required as part of our area's long-range transportation planning process. This Executive Summary describes an initial CMS for the region, to respond to requirements of last year's federal certification review for development of an initial CMS during the 2003-2004 fiscal year. Refinement of the CMS will occur in future years to more fully address all aspects of a complete congestion management system for the Central Lane TMA.

Federal Requirements

In 2003, as part of the Federal Highway Administration and Federal Transit Administration's certification review of our MPO's transportation planning process, the two federal agencies identified the need to develop an initial CMS consistent with federal requirements from TEA-21. The certification report states:

"It is recommended that the CMS include the following elements:

- Monitor and evaluate system performance and identify current and future deficiencies
- Identify and evaluate needed improvements, including roadway options and non-automobile alternatives (transit, transportation demand management (TDM), bicycle, etc…)
- When increased roadway capacity is warranted, identify appropriate options that will preserve the new capacity (access control, TDM, land use changes, etc.)"

Purpose and scope of the initial CMS

The purpose of a Congestion Management System is to provide a framework for addressing congestion on the regional transportation system. While in some cases congestion may be eliminated or significantly reduced, a more realistic goal is to improve the way we *manage* congestion, now and in the future. The CMS can help us better understand where the worst congestion is located and what the best mix of strategies is likely to be for each situation.

In order to address the three points identified above as part of the certification review, and to build a foundation for a more comprehensive Congestion Management System in the future, the initial CMS is structured around three main concepts:

<u>Build on existing plans and capabilities:</u> the CMS makes use of the adopted Regional Transportation Plan (currently *TransPlan*), the regional traffic forecasting model, and existing performance measures to define the level of congestion on the system and evaluate alternative congestion management strategies.

<u>Focus on major corridors, and a range of strategies:</u> the CMS identifies major congested corridors and a preliminary set of strategies for each congested corridor. The strategies include both short range and longer term actions, and a wide array of options including operations, TDM, access management, land use measures, and adding new capacity.

Improve the techniques for obtaining and analyzing information: the CMS incorporates a process for monitoring and evaluating transportation system performance on a more systematic basis. Future efforts will need to focus on improved data collection and analysis, better modeling tools, and ongoing coordination among individual agencies that operate different pieces of the overall system.

The Congestion Management System will exist within the context of the overall structure of the Regional Transportation Plan, or RTP. The CMS collects and organizes various pieces of the RTP that are related to congestion—in effect, providing a view of the RTP through a "congestion filter" to better define the different components and their connections with one another.

Congestion management corridors

Using the most up-to-date inputs for land use allocation and network assumptions, the model was used to simulate traffic flow on the major roadway network and compare each roadway section with the level of service or volume-to-capacity measures. Based on a review of this information, nine roadways have been identified as congestion management corridors for the initial CMS:

1. Interstate 5, from OR 58 interchange at Goshen to north boundary of the TMA at Coburg
2. OR 126/I-105, from Garfield Street in Eugene to Main Street/McKenzie Highway in Springfield
    a. 6th-7th couplet from Garfield Street to Jefferson Street
    b. Washington-Jefferson Bridge (Interstate 105) from 7th Street to Delta Highway
    c. I-105 from Delta Highway to Interstate 5
    d. Eugene-Springfield Highway from Interstate 5 to Main Street/McKenzie Highway
3. Beltline Highway, from Highway 99 to Interstate 5
4. Main Street/McKenzie Highway, from Mill Street (downtown Springfield) to 70th Street
5. Broadway/Franklin Boulevard, from Mill Street. (Eugene) to Springfield Bridge
    a. Broadway Street from Mill Street to Alder Street.
    b. Franklin Boulevard from Alder Street to I-5
    c. Franklin Boulevard from I-5 to Springfield Bridge
6. West 11th Avenue, from Terry Street to Chambers Avenue
7. Ferry Street Bridge/Coburg Road, from Broadway Street to Crescent Avenue
8. Southeast Eugene corridor (Hilyard-Patterson-Amazon Pkwy-Willamette) from 13th Street to 33rd Avenue.
9. 18th Avenue, from Bertelsen Road to Agate Street

The initial model output for the nine corridors is shown in Tables 1A-C, Corridor Descriptions and Estimated 2002 and Forecasted 2021 Daily Traffic. The primary indicator of congestion is the *Weighted PM Peak Average V/C Ratio* for each corridor or segment of a corridor, shown for both the base year of 2002 and the horizon year of 2021. (The volume-to-capacity ratio for the corridor is calculated by weighting the different sections within the corridor by vehicle-miles of travel.) Along with this overall V/C figure for each corridor, the *Maximum PM Peak V/C Ratio* is also important. In some cases the maximum congestion level occurs at only one or two intersections along the corridor, while in other cases the model shows very high congestion over a long section of corridor—for example, Beltline Highway from Delta Highway to River Road Avenue.

The CMS report discusses a set of strategies for addressing congestion within each corridor, including land use strategies; transportation demand management (TDM); intelligent transportation system (ITS) techniques and operational tools; roadway projects to add capacity; transit strategies; and bicycle/pedestrian strategies. For each corridor, the list includes projects and actions from the adopted *TransPlan* as well as additional work being done in ongoing efforts, such as the ITS plan for the area.

Congestion on the major roadway network

In addition to specific corridors, the CMS also serves the purpose of monitoring congestion on the overall network of major roadways. The regional travel model was run to produce updated values for four of the 'Key

Performance Measures' from *TransPlan*: congested miles of travel, roadway congestion index, network vehicle hours of delay, and percent transit mode share on congested corridors. Table 2, Area-Wide Performance Measures, shows the model output for each of these four measures, for the updated base year of 2002 and the RTP plan horizon year of 2021.

PM 1: Congested miles of travel (per cent of total VMT)—The model forecasts a four-fold increase in congested miles of travel on the major roadway network, assuming construction of the financially-constrained roadway projects in *TransPlan*. The 2021 forecast of 16 per cent of daily VMT as congested is still relatively small, but represents major congestion at a number of key locations on the roadway system.

PM 2: Roadway congestion index (RCI)—the model forecasts an increase in the RCI from 0.87 in the 2002 base year to 1.11 in 2021. This measure defines any value over 1.0 as "congested." The RCI is useful for comparing relative congestion over time, as well as providing a quick comparison of our TMA's congestion level with that of other urban areas.

PM 3: Network vehicle hours of delay—on a daily basis, the model forecasts the hours of delay due to congestion in 2021 will be about two and a half times the 2002 level.

PM 4: Percent transit mode share on congested corridors—unlike the other three measures, higher values for this measure are desirable. The overall share of travel by transit on the congested corridors is forecasted to increase from 5.1 per cent to 6.7 per cent over the 20-year period. Some corridors will experience a significant increase in transit ridership, based on planned implementation of Bus Rapid Transit or BRT service.

The values in Table 2 can be viewed as a set of baseline measures of congestion on the overall roadway network in the Central Lane TMA. Over time, as the CMS corridor strategies are applied and better modeling tools are developed, one of the ongoing purposes of the CMS will be to provide a central framework for monitoring congestion on the region's major roadways. This should help technical staff, policy makers, and the general public gain a better understanding of where and how congestion is occurring and how best to manage it, throughout the Central Lane TMA.

INTRODUCTION

Overview

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 contains federal regulations that require urbanized areas with over 200,000 population, known as Transportation Management Areas (TMAs), to develop and maintain a Congestion Management System. A Congestion Management System, or CMS, is a systematic approach to dealing with congestion in a regional transportation system.

A CMS provides a structure and a process for:

- evaluating the performance of the region's transportation system
- implementing a wide range of strategies to address congestion
- monitoring results over time to improve long-term performance

The Central Lane MPO area was designated a TMA in July 2001, based on the 2000 federal census. A Congestion Management System is now required as part of our area's long-range transportation planning process. This paper presents an initial CMS for the region, to respond to requirements of last year's federal certification review for development of an initial CMS during the 2003-2004 fiscal year. Refinement of the CMS will occur in future years to more fully address all aspects of a complete congestion management system for the Central Lane TMA.

Benefits of a CMS Plan include a better understanding and measurement of congestion, selection and evaluation of congestion mitigation measures, and actions to improve system performance.

Background

A study of traffic conditions in 75 metropolitan areas by the Texas Transportation Institute (TTI) estimated the cost of congestion at $69.5 billion in 2001. This figure includes the value of 3.5 billion hours of delay and 5.6 billion gallons of excess fuel consumed while sitting in traffic. The study points out that congestion is increasing in cities of all sizes, from the largest urban areas of over 10 million population, down to smaller cities in our own size range. For the Eugene-Springfield area, TTI's Roadway Congestion Index has increased 39 points over the 20 year period since TTI began calculating it. This is the largest increase among the group of urban areas with a population under 500,000 people.

The impact of worsening congestion is not merely greater inconvenience and delay to motorists. Congestion often brings with it a deterioration of safety on the roadway system—for example, the heightened potential for collisions where traffic backing up on off-ramps extends all the way back to the main travel lanes on freeways. Congestion delays translate directly into increased costs for freight movement and for business travel occurring on the major roadway system. The loss of travel time "reliability" for both business and personal travelers can lead to cars and trucks using alternative routes that are not suitable, such as traffic diversion onto residential streets.

A Congestion Management System (CMS) offers a helpful approach to addressing the problems of congestion in an urban area. A CMS provides a systematic way to measure existing and future congestion, evaluate alternative strategies to address congestion, implement selected strategies in key locations, and evaluate the effectiveness of different strategies over time.

Federal Requirements

The Transportation Equity Act for the 21st Century (TEA-21) requires the Metropolitan Transportation Planning Process in TMAs to include a Congestion Management System. An excerpt from TEA-21 provides the following definition of a CMS:

> "An effective CMS is a systematic process for managing congestion that provides information on transportation system performance and on alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet State and local needs."

In 2003, as part of the Federal Highway Administration and Federal Transit Administration's certification review of our MPO's transportation planning process, the two federal agencies identified the need to develop an initial CMS consistent with federal requirements from TEA-21. The certification report states:

> "It is recommended that the CMS include the following elements:
> - Monitor and evaluate system performance and identify current and future deficiencies.
> - Identify and evaluate needed improvements, including roadway options and non-automobile alternatives (transit, transportation demand management (TDM), bicycle, etc…).
> - When increased roadway capacity is warranted, identify appropriate options that will preserve the new capacity (access control, TDM, land use changes, etc.)"

PURPOSE, SCOPE, AND PLANNING CONTEXT

Purpose and Scope of Baseline CMS

The purpose of a Congestion Management System is to provide a framework for addressing congestion on the regional transportation system. While in some cases congestion may be eliminated or significantly reduced, a more realistic goal is to improve the way we *manage* congestion, now and in the future. The CMS can help us better understand where the worst congestion is located and what the best mix of strategies is likely to be for each situation.

Defining congestion is valuable to the CMS process. The Transportation Research Board (TRB) has identified two definitions of congestion, as it relates to travel time and speed. "Congestion is travel time or delay in excess of that normally incurred under light or free-flow travel conditions." *Recurring* congestion is generally concentrated during peak hours and is caused from excessive traffic volume that results in reduced speed and flow rate within the system. *Non-recurring* congestion is caused from accidental incidents such as collisions, spills, and stalls. It is estimated that more than 60 percent of traffic delay is caused from incidents in an urban area. A successful congestion management program should address both types of congestion.

Critical to the concept of congestion management, as outlined in ISTEA, is understanding that acceptable system performance will vary by type of transportation mode, geographic location, weather, and peak hours of travel. The CMS reflects parameters that identify the degree to which travel time and/or delays are within locally acceptable standards of mobility, to meet the collective needs of the Central Lane TMA area.

In order to address the points identified above as part of the certification review, and to build a foundation for a more comprehensive Congestion Management System in the future, the initial CMS is structured around three main concepts:

> Build on existing plans and capabilities: the CMS makes use of the adopted Regional Transportation Plan (derived from goals, policies, and project priority outlined in *TransPlan*), the regional traffic forecasting model, and existing performance measures to define the level of congestion on the system and evaluate alternative congestion management strategies.
>
> Focus on major corridors, and a range of strategies: the CMS identifies major congested corridors and a preliminary set of strategies for each congested corridor. The strategies include both short range and longer term actions, and cover the entire range of techniques including operations, TDM, access management, land use measures, and adding new capacity.

Improve the techniques for obtaining and analyzing information: the CMS incorporates a process for monitoring and evaluating transportation system performance on a more systematic basis. Suggestions are included for improved data collection and analysis, better modeling tools, and ongoing coordination among individual agencies that operate different pieces of the overall system.

Each of these initial components will be expanded and refined over time, as technical staff and policy makers gain experience and move up a "learning curve" of measuring and dealing with congestion.

Relationship to Other Plans and Programs

The Congestion Management System will exist within the context of the overall structure of the Regional Transportation Plan, or RTP. The CMS collects and organizes various pieces of the RTP that are related to congestion—in effect, providing a view of the RTP through a "congestion filter" to better define the different components and their connections with one another.

The initial CMS therefore is a reflection of the policies, projects and strategies contained in *TransPlan*. A number of *TransPlan's* policies are directly related to managing congestion on the regional system, including:

Land Use Policy 1: Nodal Development
TDM Policy 1: TDM Program Development
TSI System-Wide Policy 1: Transportation Infrastructure Protection and Management
TSI Roadway Policy 1: Mobility and Safety for All Modes
TSI Roadway Policy 2: Motor Vehicle Level of Service
TSI Transit Policy 1: Transit Improvements
TSI Bicycle Policy 1: Bikeway System and Support Facilities
TSI Pedestrian Policy 1: Pedestrian Environment
TSI Good Movement Policy 1: Freight Efficiency
TSI Finance Policy 2: Operations, Maintenance, and Preservation

Chapter 3 of *TransPlan* spells out specific projects and strategies aimed at implementing the adopted policies. For congestion management, the most important of these are:

- Capital Investment Actions—these are the roadway, transit, bike and pedestrian-related projects that preserve and improve the region's transportation system over a 20-year period.

- Land use planning and program actions—these planning and program actions are the recommended strategies for implementing the plan's land use policies.

- Transportation Demand Management (TDM) planning and program actions—these strategies can have a major impact on congestion, by encouraging the use of alternatives to single-occupant autos.

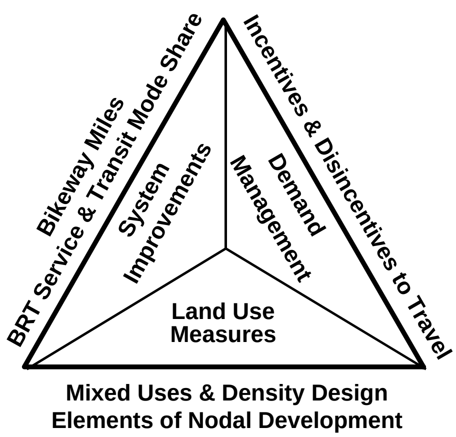
- Transportation System Improvements (TSI) planning and program actions—these proposals complement the capital projects by focusing on strategies such as improved roadway operations, access management, inter-modal linkages, and ongoing planning and support activities.

Along with the policies, projects and implementation actions in the existing *TransPlan*, several newer elements of the regional process help support the CMS:

- The *TransPlan* Transportation Demand Management (TDM) Element Refinement, issued in May 2003. Many of the strategies and techniques incorporated in this TDM report are applicable to the task of addressing congestion on the roadway network.

- The preliminary Intelligent Transportation System (ITS) Plan, presented to MPC in late 2003. The ITS Plan lays out a comprehensive set of tools and tactics for maximizing the available capacity of the existing roadway system, as well as helping ensure long-term functioning of any new capacity that is added.

- The new project now under way to develop Alternative Mobility Standards for the RTP. Funded by a state/federal TGM grant and ODOT Region Planning funds, this project will evaluate alternative ways of measuring roadway performance and congestion, which are expected to result in amendments to State performance standards in the Oregon Highway Plan. The Alternative Mobility Standards will eventually lead to refinement of the region's CMS, in terms of the methods and standards for evaluating congestion.



Since it draws from the diverse components found along all three sides of *TransPlan's* "Transportation Triangle"—land use measures, demand management, and system improvements—the CMS can be a tool for improving both the technical management and the public perception of the region's congestion problems, and the strategies used to address those problems. For example, a combination of transit, TDM and ITS strategies, along with appropriate land use measures, can help reduce the growth of traffic congestion at a key intersection. If and when a major capacity-increasing roadway project is built, those same tools should continue to be used in a way that helps ensure the maximum life of the new capacity well into the future.

Public review of the CMS

This initial CMS has been developed as a staff effort, relying heavily on existing information and on the interagency coordination provided by the Transportation Planning Committee (TPC). This initial effort mainly re-packages available information and existing policy direction, to bring a number of different components together into a coordinated program of congestion management.

After informal review and comment by Metropolitan Policy Committee (MPC), staff has incorporated the initial CMS into the RTP update. Most of the citizen involvement and public review occurs in conjunction with the public involvement schedule for the RTP update as a whole, during the first half of FY 2005.

PERFORMANCE MEASURES

Congestion on individual roadways

There are several different ways one can measure congestion on an individual roadway or a network of roads. These include such things as level of service designations, volume-to-capacity ratios, hours of vehicle delay, miles of congested facilities at peak hour, and so forth.

The adopted RTP includes policy direction for identifying and responding to congestion on the major roadway network. *TransPlan* TSI Roadway Policy 2, Motor Vehicle Level of Service, includes the following elements:

1. Use motor vehicle level of service standards to maintain acceptable and reliable performance on the roadway system. These standards shall be used for identifying capacity deficiencies on the roadway system.

2. Acceptable and reliable performance is defined by the following levels of service under peak hour traffic conditions: Level of Service E within Eugene's Central Area Transportation Study (CATS) area and Level of Service D elsewhere.

3. Performance standards from the OHP [Oregon Highway Plan] shall be applied on state facilities in the Eugene-Springfield metropolitan area. [The Oregon Highway Plan uses volume-to-capacity ratio, rather than level of service designations, as the key measure of congestion for state highways.]

The *TransPlan* level of service policy, along with regional traffic model forecasts, was used to identify capacity deficiencies on the region's roadway network. Evaluation of the most serious congested locations led to the list of major capacity projects included in the Capital Investment Action Projects found in Chapter 3 of *TransPlan*. (Note that capacity deficiencies are only one basis for including projects in *TransPlan*; many other projects are based on different criteria such as the need for curbs and sidewalks, safety improvements, operational issues, and so forth.)

The initial CMS will continue to use the roadway performance measures from *TransPlan* TSI Roadway Policy 2 as the basis for identifying and evaluating congestion on individual roadway segments. The key measures are:

- On locally owned facilities, use Level of Service D or better, except in the CATS area where LOS E is acceptable, and the Gateway/Beltline intersection where LOS E is acceptable.

- On ODOT facilities, use the Oregon Highway Plan volume-to-capacity ratios for specific highway classifications.

The LOS and v/c ratios will be used to identify congested locations, model future conditions, monitor ongoing levels of congestion, and evaluate various strategies to manage or alleviate congestion.

Measuring congestion on roadway networks
The level-of-service and volume-to-capacity measures discussed above are used mainly to identify and address congestion at individual locations or along major roadway corridors. *TransPlan* also includes several other performance measures that relate to the amount of congestion on the overall roadway network, as shown in Table 6, page 4-5 of *TransPlan*:

- <u>PM 1: Congested miles of travel (per cent of total VMT)</u>—this ratio compares the amount of travel under congested conditions with all travel in the region, expressed as vehicle-miles of travel.

- <u>PM 2: Roadway congestion index, or RCI</u>—the roadway congestion index was developed by the Texas Transportation Institute (TTI) mentioned earlier. The RCI is a measure of relative congestion on an urban area's major roadway system, and is useful for comparing one area to another, as well as measuring growth of congestion over time within a given area. A Roadway Congestion Index of over 1.00 indicates a congested roadway network.

- <u>PM 3: Network vehicle hours of delay</u>—closely related to congested miles of travel, the total hours of delay to vehicles using the regional roadway system provides another useful gauge of relative congestion on the system.

- <u>PM 4: Percent transit mode share on congested corridors</u>—the ratio of transit person trips to total person trips on congested roadways during the PM peak hour provides a way to gauge the impact of transit ridership on congestion in major corridors. Unlike the other measures, an increase in this ratio is *desirable*, since it indicates reduced reliance on the auto. Including this performance measure also helps reinforce the notion that movement of people and goods, not just vehicles, is the larger objective of a good transportation system. The percent transit mode share was selected as one of the TPR Alternative Performance Measures for *TransPlan*.

Other possible measures of congestion include such items as corridor travel speeds, delay at key intersections, speed as a percentage of posted speed limits, as well as measures related to specific modes such as transit or trucks. Since these techniques would all require additional development work they are not recommended for the initial CMS, but should be considered for inclusion in later versions of the CMS.

The initial CMS will use four of the key performance measures from *TransPlan* to monitor and evaluate congestion on a system-wide basis:

- PM 1: Congested miles of travel (per cent of total VMT)
- PM 2: Roadway congestion index (RCI)
- PM 3: Network vehicle hours of delay
- PM 4: Percent transit mode share on congested corridor

(See either *TransPlan* page 4-5 or Appendix B for Table 6- *Summary of Key Performance Measures*)

Use of these measures as proposed will allow us to establish an initial CMS based on readily available, and previously agreed-upon, criteria from the adopted long-range plan. Other measures will be considered and developed as refinements to the initial CMS.

CONGESTED CORRIDORS

TransPlan projects and corridors for further study

While *TransPlan* does not contain a specific list of congested corridors, the discussion and list of capital projects in Chapter 3 of the plan provides some good information for beginning to develop such a list. Of the estimated $586 million in needed roadway projects (including future projects), nearly 70 per cent of the project cost is directly related to capacity deficiencies on major roadways and freeways. (See table on page 3-11 of *TransPlan* or Appendix C.)

TransPlan also identifies a number of major transportation corridors that will require “additional, corridor-level analyses to address existing and future capacity, safety and operational problems over the next 20-30 years” (pages 3-12 and 3-13). The discussion points out that a number of issues besides congestion are present in many of these locations.

In addition to these lists of major capacity projects and the corridors for further study, several other locations were considered for inclusion in the initial CMS, based on traffic volumes, congestion, and importance of the corridor in its relationship with the major state highway network and key travel generators such as colleges, hospitals, major employers and other large regional destinations.

Congestion Management Corridors

In order to establish a baseline condition and develop the final set of congested corridors for the initial CMS, the regional travel model was used to assess current and future conditions. Using the most up-to-date inputs for land use allocation and network assumptions, the model was used to simulate traffic flow on the major roadway network and compare each roadway section with the level of service or volume-to-capacity measures discussed earlier. Based on a review of this information and the considerations discussed above, nine roadways have been identified as congestion management corridors for the initial CMS.

The CMS will focus on nine “congestion management corridors” which have the following characteristics:

- Roadway segments classified as principal arterial or minor arterial with a high volume (average weekday traffic of 20,000 vehicles or greater)
- Currently operating, or forecasted to operate, under congested conditions over significant portions of the roadway segment, or at major interchanges or intersections

- Portions of the corridor are listed in *TransPlan* for some combination of major study or capacity-enhancing capital project (including future project list)
- Portions of the corridor appear to be good potential candidates for alternative, low-capital or non-capital project strategies to address congestion in one or more of the following ways:
- as a long-term alternative to a major capacity-increasing capital project
- as an interim strategy until a major capacity-increasing project is built
- as an ongoing strategy to protect capacity after a major project is built

Following is the list of nine congestion management corridors for the initial CMS. Note that some of the corridors in the original list from *TransPlan* have been dropped, while others have been shortened, lengthened or combined with other segments.

1. Interstate 5, from OR 58 interchange at Goshen to north boundary of the TMA at Coburg
2. OR 126/I-105, from Garfield Street in Eugene to Main Street/McKenzie Highway in Springfield
    a. 6^{th}-7^{th} couplet from Garfield to Jefferson
    b. Washington-Jefferson Bridge (I-105) from 7^{th} to Delta Highway
    c. I-105 from Delta Highway to Interstate 5
    d. Eugene-Springfield Highway from I-5 to Main Street/McKenzie Highway
3. Beltline Highway, from Highway 99 to Interstate 5
4. Main Street/McKenzie Highway, from Mill Street (downtown Springfield) to 70^{th} Street
5. Broadway/Franklin Boulevard, from Mill St. (Eugene) to Springfield Bridge
    a. Broadway from Mill St. to Alder St.
    b. Franklin Blvd. from Alder St. to I-5
    c. Franklin Blvd. from I-5 to Springfield Bridge
6. West 11^{th} Avenue, from Terry Street to Chambers Street
7. Ferry Street Bridge/Coburg Road, from Broadway to Crescent Avenue
8. Southeast Eugene corridor (Hilyard-Patterson-Am. Pkwy-Willamette) from 13^{th} to 33^{rd} Ave.
9. 18^{th} Avenue, from Bertelsen Road to Agate Street

On the following page, Figure 1 is a map showing the TMA's major roadway network, and highlighting the 2002 nine congestion management corridors. On successive pages, Figure 2 illustrates projected 2021 congestion while Figure 3 shows the percent change between 2002 and 2021.

The initial model output for the nine corridors is shown in Tables 1A-C, Corridor Descriptions and Estimated 2002 and Forecasted 2021 Daily Traffic. Tables 1A-C include the following information:

- Corridor name and limits
- Length in miles of the overall corridor and any segments
- For 2002 and 2021, the weighted average daily volume for the corridor or segment This provides an "average" volume for the whole segment that gives greater weight to the longest sections
- For 2002 and 2021, the traffic volume for the highest-volume section within the overall corridor.
- For 2002 and 2021, the volume to capacity ratio (v/c) using the weighted values for the daily traffic volume as well as the PM peak volume. The daily figure is useful for comparison, but the PM peak volume usually includes the most congested time of day.
- The maximum v/c ratio in the PM peak period. This shows the level of congestion at the worst location on the corridor.

Note: This map is illustrative and should be used for reference only.

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* V/C ratios assume the construction of the West Eugene Parkway

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* V/C ratios assume the construction of the West Eugene Parkway

Table 1-A

Corridor Descriptions and Estimated* 2002 and Forecasted 2021 Daily Traffic

Corridor		S/W Limit	N/E Limit	Approximate Length (mi)	2002 Weighted Avg Daily Volume	2002 Highest Segment Volume	2021 Weighted Avg Daily Volume	2021 Highest Segment Volume
Interstate 5		Highway 58 Interchange	North Boundary of TMA	13.1	49,770	69,390	66,740	92,060
Oregon Hwy 126 Corridor								
	6th - 7th Couplet	Garfield Street	Jefferson Street	1.1	58,260	68,300	72,740	80,800
	Washington-Jefferson Bridge	7th Ave	Delta Highway	1.0	59,070	66,000	70,910	78,470
	Interstate 105	Delta Highway	Interstate 5 Interchange	2.6	51,070	62,810	60,780	71,680
	Eugene-Springfield Highway	Interstate 5 Interchange	Main Street / 58th	6.4	38,410	60,980	53,940	70,160
Beltline Highway		Highway 99 Interchange	Interstate 5 Interchange	6.3	56,430	83,710	70,100	100,100
McKenzie Highway (Main/SA St)		Mill Street (Springfield)	70th Street	6.1	22,940	32,850	32,440	42,980
Broadway / Franklin Corridor								
	Broadway	Mill Street (Eugene)	Alder Street	0.3	38,220	49,250	39,820	50,900
	Franklin Boulevard (Eugene)	Alder Street	Interstate 5 Interchange	1.3	30,020	34,600	43,310	51,320
	Franklin Boulevard (Glenwood)	Interstate 5 Interchange	Springfield Bridges	1.6	21,010	30,900	29,690	44,000
West 11th Avenue		Terry Street	Chambers Street	3.4	23,760	33,400	22,490	34,850
Ferry St Bridge / Coburg Rd		Broadway	Crescent Avenue	3.3	34,950	59,100	40,350	67,260
Southeast Eugene Corridor								
	Willamette / Oak	33rd Ave	13th Street	1.7	18,560	23,700	20,450	25,930
	Pearl / High / Amazon	33rd Ave	14th Street	1.7	12,430	21,450	15,080	24,450
	Patterson / Hilyard	33rd Ave	15th Street	1.7	19,380	25,950	22,390	30,190
18th Avenue		Bertelsen Road	Agate Street	4.6	14,250	23,200	15,700	24,970

*Based on Adjusted EMME/2 Model Results

Table 1-B

Estimated* 2002 Volume/Capacity Ratios

Corridor	Direction	2002 Weighted Daily Avg V/C Ratio	2002 Weighted PM Peak Avg V/C Ratio	2002 Maximum PM Peak V/C Ratio (Peak Dir)	Location of Greatest PM Peak V/C Ratio(s)
Interstate 5	Northbound	0.60	0.71	0.98	Southbound, south of Franklin Blvd Interchange
	Southbound	0.58	0.71		
Oregon Hwy 126 Corridor					
6th - 7th Couplet	Eastbound	0.70	0.76	0.92	E/B Chambers; approaching Jefferson and Washington
	Westbound	0.60	0.72		
Washington-Jefferson Bridge	Northbound	0.73	0.91	1.09	N/B approaching Delta Highway; S/B 6th Ave ramp
	Southbound	0.70	0.75		
Interstate 105	Eastbound	0.65	0.82	1.22	E/B at I-5 Interchange
	Westbound	0.62	0.60		
Eugene-Springfield Highway	Eastbound	0.55	0.73	0.88	W/B Pioneer Parkway / Q St Interchange; I-5 ramps
	Westbound	0.53	0.49		
Beltline Highway	Northbound	0.73	0.82	1.16	Both directions; between River Road and Delta Highway Interchanges
	Southbound	0.68	0.80		
McKenzie Highway (Main/SA St)	Eastbound	0.45	0.65	0.94	W/B approaching Mill St, Eastbound at Eugene-Springfield Highway
	Westbound	0.53	0.48		
Broadway / Franklin Corridor					
Broadway	Eastbound	0.58	0.66	0.78	E/B at Ferry St.
	Westbound	0.55	0.64		
Franklin Boulevard (Eugene)	Eastbound	0.43	0.62	0.71	E/B at Villard St
	Westbound	0.45	0.42		
Franklin Boulevard (Glenwood)	Eastbound	0.41	0.59	0.81	Approaching Springfield Bridge
	Westbound	0.35	0.33		
West 11th Avenue	Eastbound	0.65	0.72	1.00	E/B at Garfield; W/B at Danebo
	Westbound	0.61	0.72		
Ferry St Bridge / Coburg Rd	Northbound	0.72	0.88	1.3+	N/B 6th Ave to MLK Blvd; I-105 to Oakmont St; Beltline S/B at Broadway; Beltline
	Southbound	0.76	0.76		
Southeast Eugene Corridor					
Willamette / Oak	Northbound	0.63	0.62	1.02	S/B 19th Ave to 24th Ave; 29th Ave
	Southbound	0.55	0.74		
Pearl / High / Amazon	Northbound	0.37	0.38	0.93	S/B approaching 18th Ave
	Southbound	0.48	0.61		
Patterson / Hilyard	Northbound	0.55	0.51	0.77	S/B at 24th Ave; 30th Ave
	Southbound	0.45	0.71		
18th Avenue	Eastbound	0.62	0.67	1.01	Olive St to High St
	Westbound	0.63	0.72		

*Based on Adjusted EMME/2 Model Results

Table 1-C

Forecasted 2021 Volume/Capacity Ratios

Corridor	Direction	2021 Weighted Daily Avg v/c Ratio	2021 Weighted PM Peak Avg v/c Ratio	2021 Maximum PM Peak v/c Ratio (Peak Dir)	Location of Greatest PM Peak V/C Ratio(s)
Interstate 5	Northbound Southbound	0.80 0.76	0.92 0.90	1.16	Both directions, between Eugene-Springfield Highway and Goshen / Highway 58 Interchange
Oregon Hwy 126 Corridor					
6th - 7th Couplet	Eastbound Westbound	0.85 0.77	0.87 0.95	1.13	Both directions at Chambers; Washington; Jefferson
Washington-Jefferson Bridge	Northbound Southbound	0.84 0.81	1.04 0.94	1.27	N/B approaching Delta Highway; S/B 6th Ave ramp
Interstate 105	Eastbound Westbound	0.75 0.73	0.90 0.76	1.3+	E/B Coburg Rd. to I-5 Interchange; WB at Southwood ramp
Eugene-Springfield Highway	Eastbound Westbound	0.72 0.71	0.92 0.66	1.12	E/B I-5 Interchange to 42nd; 52nd Ave Intersection; Main St. W/B Pioneer Parkway / Q St and I-5 ramps.
Beltline Highway	Northbound Southbound	0.88 0.82	0.93 0.96	1.3+	E/B River Road to Delta Highway Interchanges; W/B I-5 to River Road Interchanges
McKenzie Highway (Main/SA St)	Eastbound Westbound	0.65 0.73	0.91 0.67	1.22	W/B approaching Mill St, E/B from 20th to 70th
Broadway / Franklin Corridor					
Broadway	Eastbound Westbound	0.73 0.68	0.79 0.87	0.91	E/B at Ferry St. W/B approaching 6th Ave at High St.
Franklin Boulevard (Eugene)	Eastbound Westbound	0.61 0.65	0.79 0.65	0.91	E/B at Villard St. W/B at 11th Ave.
Franklin Boulevard (Glenwood)	Eastbound Westbound	0.58 0.50	0.80 0.49	1.12	Springfield Bridge; Intersection with N-S Franklin Blvd.
West 11th Avenue	Eastbound Westbound	0.64 0.59	0.72 0.71	1.13	E/B at Garfield and at Beltline
Ferry St Bridge / Coburg Rd	Northbound Southbound	0.82 0.88	1.01 0.90	1.3+	Both directions, between 6th Ave and Harlow Rd, and between Beltline and Chad Dr.
Southeast Eugene Corridor					
Willamette / Oak	Northbound Southbound	0.68 0.61	0.65 0.80	1.11	S/B 19th Ave to 24th Ave; 29th Ave
Pearl / High / Amazon	Northbound Southbound	0.45 0.56	0.44 0.71	1.03	S/B approaching 18th Ave
Patterson / Hilyard	Northbound Southbound	0.63 0.52	0.57 0.85	1.11	S/B at 24th Ave; 30th Ave
18th Avenue	Eastbound Westbound	0.69 0.67	0.72 0.80	1.20	Olive St to High St; Arthur St. to Bailey Hill Rd.

Initial Assessment of Each Corridor
Each of the congested corridors is discussed in more detail in Appendix A: Initial Assessment of Congested Corridors, which summarizes:

- The location and severity of congestion in the corridor
- A recap of proposed projects or major studies for that corridor in *TransPlan*
- A review of other strategies included in *TransPlan*, such as TDM or nodal development, that are directed at addressing congestion in the corridor
- Any other studies or projects contemplated for the corridor that are not already in *TransPlan*
- A quick assessment of the potential for using other strategies to address congestion in the corridor, including land use measures, transit, bike/pedestrian, TDM, ITS/operational measures, or other tools.

These initial assessments comprise a baseline summary of current conditions as well as our current thinking about how best to address the congestion in each particular location. For each corridor, this initial assessment represents a combined approach that includes the continuation of activities already under way, initiating new actions, and coordinating activities with other programs such as the ITS plan and TDM plan. The priorities for allocating resources will need to be determined in context with other regional transportation priorities and ongoing programs.

CONGESTION ON THE MAJOR ROADWAY NETWORK

As discussed earlier, the CMS also serves the purpose of monitoring congestion on the overall network of major roadways. Using the four system performance measures of congested miles of travel, roadway congestion index, network vehicle hours of delay, and percent transit mode share on congested corridors; the regional travel model was run to produce updated values for these three measures, for the updated base year of 2002 and the RTP plan horizon year of 2021

Table 2, Area-Wide Performance Measures, shows the model output for each of these four measures.

Table 2

Area-Wide Performance Measures

	2002	2021
PM 1: Congested Miles of Travel (Percent of Weekday VMT)	**4.0%**	**16.0%**
PM 2: Roadway Congestion Index (RCI)	**0.87**	**1.11**
PM 3: Network Vehicle Hours of Delay (VHD)	**13,517**	**31,694**
PM 4: Peak Hour Transit Mode Shares on Congested Corridors	**5.1%**	**6.7%**
McKenzie Hwy	5.0%	5.9%
Broadway / Franklin	7.1%	8.6%
W. 11th Ave (a)	2.3%	6.0%
Ferry St Bridge / Coburg Rd	5.6%	7.7%
Southeast Eugene	4.0%	6.7%
18th Ave (b)	5.4%	3.0%

Table 2 Notes:
PM1: % of Weekday VMT at v/c = .87 or greater
PM2: Calculated on Freeways and Principal Arterials, per TTI Urban Mobility Study methodology
PM3: Vehicle Hours difference between congested speed and posted speed
PM4: EMME/2 Model Estimates: Percent Transit Person-Miles-Traveled (PMT) of total PMT in corridor segments where transit service is available
a) Some auto PMT shifts to WEP in 2021, resulting in unusually high transit share increase on W. 11th Ave
b) Some transit PMT shifts to new BRT Feeder on 28th / 29th between City View and Willamette, resulting in unusual transit share reduction on 18th Ave.

PM 1: Congested miles of travel (per cent of total VMT)—The model forecasts a four-fold increase in congested miles of travel on the major roadway network, assuming construction of the financially-constrained roadway projects in *TransPlan*. The 2021 forecast of 16 per cent of daily vmt as congested is still relatively small, but represents major congestion at a number of key locations on the roadway system. The impacts can be better appreciated by looking at individual corridors as discussed in Appendix A.

PM 2: Roadway congestion index (RCI)—the model forecasts an increase in the RCI from 0.87 in the 2002 base year to 1.11 in 2021. This measure defines any value over 1.0 as "congested." The RCI is useful for comparing relative congestion over time, as well as providing a quick comparison of our TMA's congestion level with that of other urban areas.

PM 3: Network vehicle hours of delay—on a daily basis, the model forecasts the hours of delay due to congestion in 2021 will be about two and a half times the 2002 level.

PM 4: Percent transit mode share on congested corridors—the overall share of travel by transit on the congested corridors is forecasted to increase from 5.1 per cent to 6.7 per cent over the 20-year period. Some corridors will experience significantly more of an increase in transit ridership, based on planned implementation of BRT service.

The values in Table 2 can be viewed as a set of baseline measures of congestion on the overall roadway network in the Central Lane TMA. Over time, as the CMS corridor strategies are applied and better modeling tools are developed, one of the ongoing purposes of the CMS will be to provide a central framework for monitoring congestion on the region's major roadways. This should help technical staff, policy makers and the general public gain a better understanding of where and how congestion is occurring and how best to manage it, throughout the Central Lane TMA.

Appendix

APPENDIX A
INITIAL ASSESSMENT OF CONGESTED CORRIDORS

This appendix to the CMS report provides a summary assessment of each of the nine congested corridors identified in the main report. A brief statement about the location and severity of congestion in each corridor is followed by a recap of projects and other strategies already in *TransPlan* that are expected to have a positive impact on congestion in the corridor. Where appropriate, other strategies not already incorporated in the adopted *TransPlan* are listed also, such as recommendations in the Intelligent Transportation Systems (ITS) plan.

The following nine corridors have been selected for evaluation and monitoring as part of the CMS process:

1. Interstate 5, from OR 58 interchange at Goshen to north boundary of the TMA at Coburg
2. OR 126/I-105, from Garfield Street in Eugene to Main Street/McKenzie Highway in Springfield
    a. 6th-7th couplet from Garfield to Jefferson
    b. Washington-Jefferson Bridge (I-105) from 7th to Delta Highway
    c. I-105 from Delta Highway to Interstate 5
    d. Eugene-Springfield Highway from I-5 to Main Street/McKenzie Highway
3. Beltline Highway, from Highway 99 to Interstate 5
4. Main Street/McKenzie Highway, from Mill Street (downtown Springfield) to 70th Street
5. Broadway/Franklin Boulevard, from Mill St. (Eugene) to Springfield Bridge
    a. Broadway from Mill St. to Alder St.
    b. Franklin Blvd. from Alder St. to I-5
    c. Franklin Blvd. from I-5 to Springfield Bridge
6. West 11th Avenue, from Terry Street to Chambers Street
7. Ferry Street Bridge/Coburg Road, from Broadway to Crescent Avenue
8. Southeast Eugene corridor (Hilyard-Patterson-Am. Pkwy-Willamette) from 13th to 33rd Ave.
9. 18th Avenue, from Bertelsen Road to Agate Street

1. Interstate 5, from OR 58 interchange at Goshen to north boundary of the TMA at Coburg
Level of congestion: moderate on northern portion (north of I-105), more severe on southern portion. The southern portion is anticipated to be a bigger long-term problem due to the 4-lane section, along with obsolete interchanges and ramps. The northern portion will experience construction-related congestion over a period of several years, due to major construction of bridges and Beltline/I-5 interchange.

Projects and strategies already in *TransPlan* that will have a positive impact on congestion:

- Land use— Specific area management plans, access controls, and similar techniques will be employed to protect the capacity of new interchanges and major improvements. Given the high proportion of intercity travel and commercial traffic on Interstate 5, land use measures are expected to have only limited impact on travel in the corridor.

- TDM— Employment-based strategies at major employment centers in the corridor can have a measurable impact. However, the overall TDM impact on this corridor is likely to be limited in view of high proportion of trucks and through auto trips on I-5.

- ITS/operational strategies— The ITS plan recommends video and variable message sign installation at key locations. These kinds of strategies will be very important to provide real-time travel information and trip advisories during lengthy construction projects. Longer term impacts of ITS and operations can also be very helpful, but major capacity-adding projects will also be needed because of the capacity constraints inherent in the 4-lane section south of I-105 and substandard interchanges at 30th Ave. and at Glenwood Blvd.

- Roadway projects— *TransPlan* includes the following roadway projects and studies: study of interchanges south of I-105; widening to 6 lanes; reconstruction of several interchanges at 30th, Glenwood; major interchange reconstruction at Beltline. Another project, the interchange reconstruction at city of Coburg is not in *TransPlan* but is anticipated to be added to the RTP during the 2004-2005 update.

- Transit— The impact of transit on I-5 congestion may be limited, in view of LTD's route structure and limited access to/from I-5. However, parts of I-5 could play an important role in providing future express transit routes.

- Bike and pedestrian— Due to the nature of the I-5 freeway, bicycle and pedestrian trips are not expected to become a significant substitute for vehicular trips on I-5. However, bike/pedestrian facilities will be important components of major projects such as the Beltline/I-5 interchange reconstruction.

<u>Other projects and studies:</u> Bridge replacement projects at Willamette and McKenzie Rivers will contribute to congestion during the construction period, and the new bridges should have a minor but positive impact on congestion after completion, due to updated design features such as wider shoulders. MPC recently approved an MTIP amendment to add the environmental impact statement work for the I-5 Willamette River crossing.

2. OR 126 and I-105, from Garfield Street in Eugene to Main Street/McKenzie Highway in Springfield
This corridor includes the following segments, running from west to east:

a. 6th-7th couplet from Garfield to Jefferson
b. Washington-Jefferson Bridge (I-105) from 7th to Delta Highway
c. I-105 from Delta Highway to Interstate 5
d. Eugene-Springfield Highway from I-5 to Main Street/McKenzie Highway

<u>Level of congestion:</u> moderate to severe on portions of 6th-7th couplet, Washington-Jefferson bridge, Delta to I-5 section, and I-5 to Mohawk section. The most congested locations are at the foot of the Washington-Jefferson bridge (at 6th and 7th), northbound Washington-Jefferson at the Delta Highway off-ramp, and the eastbound lanes approaching the Interstate 5 interchange.

<u>Projects and strategies already in *TransPlan* that will have a positive impact on congestion:</u>

- Land use— Specific area management plans, access controls, and similar techniques will be employed to protect the capacity of new interchanges and major improvements.

- TDM— Given the high proportion of medium-distance commuters using this corridor to access regional job destinations, TDM measures can have a positive impact. Parking strategies combined with express LTD routes could be considered for their potential impact on peak-hour congestion in this corridor.

- ITS/operational strategies— The ITS plan recommends video and variable message sign installation at key locations. These kinds of strategies will be very important to provide real-time travel information and trip advisories during construction projects, such as the I-105 overlay planned for 2005. Longer term impacts of ITS and operations can also be very helpful, but major capacity-adding projects will also be needed.

- Roadway projects— *TransPlan* includes the following roadway projects and studies: intersection improvements on 6th-7th couplet at several locations; added lanes on Washington-Jefferson Bridge;

widening I-105/OR 126 to 6 lanes from Delta Highway to Mohawk; study of interchanges at several locations; corridor study from I-5 to Main Street; interchange improvements at Mohawk, Q Street; new interchanges at 52nd Street, Main Street.

- Transit— The impact of transit on congestion in this corridor may be limited, in view of LTD's route structure and limited access to/from the freeway and expressway portions of the corridor. However, parts of the corridor could play an important role in providing future express transit routes.

- Bike and pedestrian— Due to the length of trips and limited access to most of this corridor, bicycle and pedestrian trips are not expected to become a significant substitute for vehicular trips. However, bike/pedestrian travel should benefit from improvement to parallel routes, such as the extension of the south bank path from Autzen footbridge to I-5.

Other projects and studies: Major preservation overlay project in STIP for 2005, Interstate 105 from Delta Highway to I-5.

3. Beltline Highway, from Highway 99 to Interstate 5
Level of congestion: high on Delta to Coburg Road portion; very high on River Road to Delta section.

Projects and strategies already in *TransPlan* that will have a positive impact on congestion:

- Land use— Specific management plans, access controls, and similar techniques will be employed to protect the capacity of the existing facilities and major improvements. Land use actions can also be pursued that will enhance the presence and use of Bus Rapid Transit in this corridor.

- TDM— Given the high proportion of medium-distance commuters to regional job destinations, TDM measures could have an impact on congestion in this corridor. Parking strategies combined with express LTD routes could be considered for their potential impact on peak-hour congestion in this corridor.

- ITS/operational strategies— The ITS plan recommends ramp metering, video and variable message sign installation at key locations. Given the long-range timing of any major capacity enhancements to Beltline between River Road and Coburg Road, operational techniques are likely to have a positive payoff for a number of years.

- Roadway projects—TransPlan includes the following roadway projects and studies: major capacity project at Beltline/I-5 interchange; moderate improvements at Coburg Road-Beltline interchange; major improvements at Delta-Beltline interchange; facility plan study of River Road to Coburg Road section; widening to 6 lanes from River Road to Delta Highway.

- Transit— Since this corridor is one of the proposed Bus Rapid Transit (BRT) corridors in *TransPlan*, transit use is expected to increase in this corridor, which should have a positive effect on congestion.

- Bike and pedestrian— Due to the length of trips and limited access to most of this corridor, bicycle and pedestrian trips are not expected to become a significant substitute for vehicular trips. However, bike/pedestrian facilities will be important components of major projects such as the Beltline/I-5 interchange reconstruction.

Other projects and studies: None currently in *TransPlan*. (Two additional bridge crossings parallel to Beltline bridge were proposed in the draft *TransPlan*.)

4. Main Street/McKenzie Highway, from Mill Street (downtown Springfield) to 70th Street
Level of congestion: moderate along most of the western end (downtown Springfield area) and middle portion of the corridor. Several segments in the eastern portion of the corridor are experiencing worsening congestion, including the area around 42nd Street at Main and the east end of the corridor from the point where the Eugene-Springfield Highway intersects Main Street and McKenzie Highway.

Projects and strategies already in *TransPlan* that will have a positive impact on congestion:

- Land use— Specific management plans, access controls, and similar techniques will be employed to protect the capacity of the existing facilities and major improvements. Land use actions can also be pursued that will enhance the presence and use of Bus Rapid Transit in this corridor.

- TDM— Given the high proportion of medium-distance commuters to regional job destinations using this corridor, there is potential for TDM to have a positive impact on congestion.

- ITS/operational strategies— Operational measures can be helpful in addressing congestion in certain locations in the corridor, for example, the retiming of traffic signals to optimize traffic flow at key intersections. Operational measures will also be very important in enhancing bus operations and maintaining a balance of mobility for BRT vehicles and private vehicles in the traffic stream.

- Roadway projects— *TransPlan* includes the following roadway projects and studies: access management plan for entire length of corridor; intersection improvements at 42nd Street, 48th Street, Mountaingate Drive; interchange construction to replace at-grade intersection at Main Street-Eugene Springfield Highway intersection.

- Transit— Since this corridor is one of the proposed Bus Rapid Transit (BRT) corridors in *TransPlan*, transit use is expected to increase in this corridor, which should have a positive effect on congestion.

- Bike and pedestrian—*TransPlan* includes the proposed addition of striped bicycle lanes (project 830 in *TransPlan*). Also, bike/pedestrian travel will benefit from improvement to parallel routes, such as the Springfield Mill Race path (project 840) and the Booth-Kelly path (project 921).

Other projects and studies: None.

5. Broadway/Franklin Boulevard, from Mill St. (Eugene) to Springfield Bridge
This corridor includes the following segments, running from west to east:
a. Broadway from Mill St. to Alder St.
b. Franklin Blvd. from Alder St. to I-5
c. Franklin Blvd. from I-5 to Springfield Bridge

Level of congestion: moderate to heavy along most of the western end (east Broadway and Franklin Blvd. from downtown Eugene to Villard Street); very heavy at the east end of the corridor where the Springfield bridges meet Franklin Blvd.

- Projects and strategies already in *TransPlan* that will have a positive impact on congestion:

- Land use— Specific management plans, access controls, and similar techniques will be employed to protect the capacity of the existing facilities and major improvements. Land use actions can also be pursued that will enhance the presence and use of Bus Rapid Transit in this corridor.

- TDM— Since this corridor provides the primary connections for downtown Eugene, the University of Oregon, and downtown Springfield, TDM will continue to be an important component in addressing congestion in the corridor. In particular, parking strategies will continue to be important as a means of attracting more people to the use of transit and alternative modes.

- ITS/operational strategies— Operational measures can be helpful in addressing congestion in certain locations in the corridor, for example, the retiming of traffic signals to optimize traffic flow at key intersections. Operational measures will also be very important in enhancing bus operations and maintaining a balance of mobility for BRT vehicles and private vehicles in the traffic stream.

- Roadway projects— *TransPlan* includes the following roadway projects and studies: improvements to east Broadway as part of the federal courthouse project; BRT along Franklin Blvd. from 11th Ave. to Springfield; roadway and intersection improvements at various locations, in conjunction with the BRT project; urban standards improvements on Franklin in Glenwood, from Jenkins Drive to Springfield bridges.

- Transit— Since this corridor is one of the first Bus Rapid Transit (BRT) corridors in *TransPlan* to be implemented, and because of the factors mentioned above under TDM, transit ridership is expected to continue its historically high levels in this corridor and increase in relative importance, over time.

- Bike and pedestrian— Based on the same factors that contribute to high transit ridership in this corridor, bicycling and walking will continue to be very important components of the overall travel mix. Although on-street bike lanes on Franklin Blvd. (in Eugene) are not likely in the short run, completion of the South Bank trail from Agate to I-5 will enhance bike and pedestrian travel in the area.

<u>Other projects and studies:</u> The City of Springfield is continuing a nodal development plan for the Glenwood portion of this corridor. This includes a facility plan for the Glenwood section of Franklin Boulevard, from I-5 to the Springfield bridges. Eugene is considering nodal designation for the area around Walnut Street and Franklin Blvd., east of the University of Oregon.

6. West 11th Avenue, from Terry Street to Chambers Street

<u>Level of congestion:</u> moderate to heavy along various sections of the corridor. Currently the most congested section is between Bailey Hill and Garfield Street, where traffic volumes are high and commercial development lines both sides of the street. The greatest increase in congestion is forecasted to occur in the ¼ mile segments west and east of the intersection of W. 11th and Beltline.

<u>Projects and strategies already in *TransPlan* that will have a positive impact on congestion:</u>

- Land use— Specific management plans, access controls, and similar techniques will be employed to protect the capacity of the existing facilities and major improvements. Land use actions can also be pursued that will enhance the presence and use of Bus Rapid Transit in this corridor.

- TDM— West 11th will continue to be an important commute route to jobs in west Eugene, therefore TDM strategies can have a positive impact on congestion in this corridor. This is most relevant for the western end of the corridor, where a number of large employers are located within ½ mile of West 11th Avenue.

- ITS/operational strategies— Operational measures can be helpful in addressing congestion in certain locations in the corridor, for example, the retiming of traffic signals to optimize traffic flow at key intersections. Operational measures will also be very important in enhancing bus operations and maintaining a balance of mobility for BRT vehicles and private vehicles in the traffic stream.

- Roadway projects— *TransPlan* includes the following roadway projects and studies: an access management, safety and operational study of W. 11th from Beltline to Chambers Street; widening the section of W. 11th from Green Hill Road to Terry Street to 4 lanes, and upgrading to urban standards.

- Transit— Since this corridor is one of the proposed Bus Rapid Transit (BRT) corridors in *TransPlan*, transit use is expected to increase in this corridor, which should have a positive effect on congestion.

- Bike and pedestrian— Most pedestrian activity occurs in the more densely-developed retail area east of Bailey Hill Road. Sidewalks have been added in recent years to many portions of the corridor, but there are still major gaps. The street is too narrow to allow for on-street bicycle lanes. However, the Amazon Creek (Fern Ridge) Path provides a nearly parallel off-street bicycle path between Garfield and Danebo Road.

Other projects and studies: None.

7. Ferry Street Bridge/Coburg Road, from Broadway to Crescent Avenue

Level of congestion: moderate to heavy along various sections of the corridor. Currently the most congested portions are the southern part of the corridor, including the Ferry Street Bridge approaches and Coburg Road from the river to Harlow Road; and the northern section of Coburg Road extending about ¼ mile on either side of Beltline Highway. The growth of congestion is these two areas is closely related to, respectively, increased travel to downtown Eugene and the University area, and continuing development of the Crescent Avenue/Chad Drive area in northeast Eugene.

Projects and strategies already in *TransPlan* that will have a positive impact on congestion:

- Land use— Specific management plans, access controls, and similar techniques will be employed to protect the capacity of the existing facilities and major improvements. Land use actions can also be pursued that will enhance the presence and use of Bus Rapid Transit in this corridor.

- TDM— Because of the large concentration of jobs in central Eugene and the growing concentration of employment in the Chad Drive area, TDM strategies can have a very large and positive impact on congestion in this corridor.

- ITS/operational strategies— Operational measures will be very important in addressing congestion in this corridor, for example, the retiming of traffic signals to optimize traffic flow at key intersections. Operational measures will also be very important in enhancing bus operations and maintaining a balance of mobility for BRT vehicles and private vehicles in the traffic stream.

- Roadway projects— *TransPlan* includes the following roadway projects and studies: a long-range capacity refinement plan for the FSB corridor from Broadway to Oakway Road; an access management/safety/operational study of Coburg Road from Oakway to Crescent; interchange improvements at the Beltline/Coburg interchange.

- Transit— Since this corridor is one of the proposed Bus Rapid Transit (BRT) corridors in *TransPlan*, transit use is expected to increase in this corridor, which should have a positive effect on congestion.

- Bike and pedestrian—This corridor has long been an important route for bicycles to access downtown Eugene and the University area. As development continues north of Beltline, bicycling to destinations in northeast Eugene becomes more important. Walking is also increasing in importance throughout this corridor, as a means of transportation in itself as well as accessing transit in the corridor. Bicycle lanes and sidewalks are in place throughout the corridor, though in most areas the lanes and sidewalks are minimal in width, so opportunities for enhancing these facilities should be pursued wherever possible.

Other projects and studies: The federal courthouse transportation improvements planned for the south end of this corridor will be very important for providing access to the redeveloping courthouse district.

8. Southeast Eugene corridor (Hilyard-Patterson-Am. Pkwy-Willamette) from 13th to 33rd Ave.

Level of congestion: moderate to heavy along various sections of the corridor. Currently the most congested sections are Willamette from 24th to 29th; Pearl Street near 18th and 19th Avenues; and Hilyard Street near 24th Avenue. Congestion is expected to worsen somewhat as development continues in the downtown Eugene area, including the courthouse district.

Projects and strategies already in *TransPlan* that will have a positive impact on congestion:

- Land use— Specific management plans, access controls, and similar techniques will be employed to protect the capacity of the existing facilities and major improvements. Land use actions can also be pursued that will enhance the presence and use of Bus Rapid Transit in this corridor.

- TDM— Since this corridor provides primary access for residents of south Eugene to major employment centers in downtown Eugene, the U of O area and the Sacred Heart hospital area, TDM measures will continue to be a very important component for dealing with congestion.

- ITS/operational strategies— Operational measures can be helpful in addressing congestion in certain locations in the corridor, for example, the retiming of traffic signals to optimize traffic flow at key intersections. Operational measures will also be very important in enhancing bus operations and maintaining a balance of mobility for BRT vehicles and private vehicles in the traffic stream.

- Roadway projects— *TransPlan* includes the following roadway projects and studies: a corridor study to determine needed improvements; two north-south Bus Rapid Transit routes (along Willamette and along Hilyard-Patterson); and a priority bikeway project on Willamette from 18th to 33rd.

- Transit— Since this corridor directly serves downtown Eugene and the U of O, and it includes two of the proposed Bus Rapid Transit (BRT) corridors in *TransPlan*, transit use is expected to increase in this corridor, which should have a positive effect on congestion.

- Bike and pedestrian— Bicycling and walking are perhaps more significant on this corridor than on any of the other congested corridors in the CMS. The concentration of commercial activities along south Willamette and portions of Hilyard Street, and the proximity to downtown and the university area, make these streets extremely important routes for bikes and pedestrians, as well as transit. With the exception of Willamette Street south of 18th, bike and pedestrian facilities are reasonably well-provided throughout the corridor Opportunities for improved connections and other enhancements will need to be pursued where possible.

Other projects and studies: Eugene is planning to convert a portion of Willamette Street, from 13th to 18th, to two-way operation during 2004 or 2005.

9. 18th Avenue, from Bertelsen Road to Agate Street

Level of congestion: moderate to heavy along various sections of the corridor. Currently the most congested sections are near the east end between Olive Street and High Street, and the western portion near Bailey Hill Road. Both these areas, and the entire corridor, are forecast to become somewhat more congested by 2021. The main factors contributing to existing and future congestion on 18th Avenue include travel to the University of Oregon and downtown Eugene, and the large number of public and private schools along the western portion of 18th. A newer but growing component of travel consists of commuters using 18th to get to the Hynix plant and other high-tech businesses at the western end of 18th Avenue.

Projects and strategies already in *TransPlan* that will have a positive impact on congestion:

- Land use— Specific management plans, access controls, and similar techniques will be employed to protect the capacity of the existing facilities and major improvements. Land use actions can also be pursued that will enhance the presence and use of Bus Rapid Transit in this corridor.

- TDM— Traditionally, 18^{th} Avenue has been a major commute route for west Eugene residents to get to downtown and the UO area, and this travel is forecast to increase somewhat. Downtown and university commuters represent a strong market for TDM measures such as car pooling and use of alternative modes. In addition, West 18^{th} has become an important commute route to jobs in west Eugene, therefore TDM strategies can have a positive impact on congestion in this part of the corridor as well.

- ITS/operational strategies— Operational measures can be helpful in addressing congestion in certain locations in the corridor, for example, the retiming of traffic signals to optimize traffic flow at key intersections. Operational measures will also be very important in enhancing bus operations and maintaining a balance of mobility for BRT vehicles and private vehicles in the traffic stream.

- Roadway projects— *TransPlan* includes the following roadway projects and studies: a corridor study to determine needed improvements.

- Transit— Transit use is high in this corridor, due to its importance in providing access to downtown and the UO area. Since this corridor includes one of the proposed Bus Rapid Transit (BRT) corridors in *TransPlan*, transit use is expected to increase, which should have a positive effect on congestion.

- Bike and pedestrian— Because of its central location and length, connecting west Eugene with the UO area, 18^{th} Avenue is one of the busiest corridors for on-street bike travel in Eugene. Sidewalks are present the entire length of the corridor, as well. Opportunities for enhancement to bike and pedestrian facilities on 18^{th} should be pursued where possible, not only for those two modes but also for improved access to transit.

Other projects and studies: None.

APPENDIX B

Table 6 - Summary of Key Performance Measures (1)

Category	Key	Description	1995 Existing Conditions	2015 Trends Amount	2015 Trends *% Change from 1995*	2015 Financially Constrained TransPlan Scenario (2) Amount	2015 Financially Constrained TransPlan Scenario (2) *% Change from 1995*
Demographics		Population (TransPlan Study Area)	209,800	296,500	*41.3%*	296,500	*41.3%*
		Employment (TransPlan Study Area)	106,900	153,000	*43.1%*	153,000	*43.1%*
Congestion	PM1	Congested Miles of travel (percent of total VMT)	2.8%	10.6%	*283.3%*	5.0%	*80.8%*
	PM2	Roadway Congestion Index	0.78	1.40	*79.5%*	96%	*23.1%*
	PM3	Network Vehicle Hours of Delay (Daily)	9,818	28,407	*189.3%*	18,924	*92.7%*
	PM4	***% Transit Mode Share on Congested Corridors*** (3)	5.8%			10.0%	*72.4%*
Vehicle Miles Traveled and Trip Length	PM5a	Internal VMT (no commercial vehicles)	2,305,779	3,508,913	*52%*	3,232,977	*40%*
	PM5b	Internal VMT/Capita	10.99	11.83	*8%*	10.90	*-1%*
	PM6	Average Trip Length (miles)	3.7	3.9	*6%*	3.6	*-1.7%*
	PM7	% Person Trips Under 1 Mile	14.5%	13.2%	*-9%*	15.9%	*9.6%*
Mode Shares - All Trips	PM8a	Walk	8.93%	7.92%	*-11%*	9.52%	*6.6%*
	PM8b	Bike	3.68%	3.32%	*-10%*	3.64%	*-1.1%*
	PM8c	Transit	1.83%	1.95%	*7%*	2.73%	*49.2%*
	PM8d	Shared Ride (2 or more)	42.04%	44.30%	*5%*	44.53%	*5.9%*

	PM8e	Drive Alone	43.52%	42.52%	*-2%*	39.57%	*-9.1%*
	PM8f	***% Non-Auto Trips***	14.43%	13.18%	*-9%*	17.00%	*17.8%*
	PM8g	Person Trips per Auto Trip	1.59	1.61	*2%*	1.7	*7.2%*
Environmental	PM9	Average Fuel Efficiency (VMT/Gal.)	19.7	19.1	*-3%*	19.2	*-2.5%*
	PM10	CO Emissions (Weekday Tons)	124.4	125.3	*1%*	111.1	*-10.7%*
Land Use	PM11	***Acres of zoned nodal development***				2,000	
	PM12	***% of dwelling units built in nodes***				23.30%	
	PM13	***% of New "Total" Employment in Nodes***				45%	

System Characteristics	PM14	% of Roadway Miles with Sidewalks	58%	68%	*18%*	70%	*20.9%*
	PM15	Ratio of Bikeway to Arterial and Collector Miles (PM24)	44%	46%	*5%*	81%	*85.1%*
	PM16	% of Roadways in Fair or Better Condition	85%	80%	*-6%*	80%	*-5.9%*
	PM17	% of Households Within 1/4 Mile of a Transit Stop	92%	92%	*0%*	92%	*0.0%*
	PM18	Transit Service Hours per Capita	1.29	1.69	*31%*	1.99	*54.3%*
	PM19	% Households with Access to 10-minute Transit Service	23%	23%	*0%*	88%	*281.8%*
	PM20	% Employment with Access to 10-minute Transit Service	52%	52%	*0%*	91%	*75.0%*
	PM21	Bikeway Miles	126.6	135.9	*7%*	257.8	*103.6%*
	PM22	***Priority Bikeway Miles***				75.3	
	PM23	Arterial and Collector Miles	325.6	331.8	*2%*	355.8	*9.3%*
	PM24	Arterial and Collector Miles (excluding freeways)	290.5	296.7	*2%*	319.6	*10.0%*

(1) Note - these scenarios factor in the 10 percent vehicle trip rate reduction allowed in the Transportation Planning Rule amendments for mixed-use pedestrian friendly areas. This reduction has been applied to nodal development areas identified in the Draft *TransPlan.*

(2) Note - Measures in ***bold italics*** are the TPR alternative performance measures approved by LCDC.

APPENDIX C

Summary of Capital Investment Actions Roadway Projects ($ Thousands)							
Project Category	**Status**	**Total Cost**	**EUGENE**	**LANE CO.**	**ODOT**	**SPRINGFIELD**
New Arterial Link or Interchange	*Future*	$40,705	$0	$5,705	$35,000	$0
	Programmed	$28,799	$1,116	$10,400	$17,283	$0
	Unprogrammed	$82,772	$0	$0	$71,272	$11,500
Added Freeway Lanes or Major Interchange Improvements	*Future*	$164,672	$0	$0	$164,672	$0
	Programmed	$21,449	$0	$5,500	$15,949	$0
	Unprogrammed	$54,805	$0	$0	$54,805	$0
Arterial Capacity Improvements	*Future*	$4,530	$0	$0	$4,530	$0
	Programmed	$2,246	$0	$500	$1,746	$0
	Unprogrammed	$7,870	$2,000	$2,000	$1,470	$2,400
New Collectors	*Unprogrammed*	$57,949	$23,620	$0	$0	$34,329
Urban Standards	*Future*	$22,206	$0	$0	$16,706	$5,500
	Programmed	$22,681	$9,176	$11,765	$0	$1,740
	Unprogrammed	$61,920	$26,885	$18,325	$1,600	$15,110
Study	*Programmed*	$3,375	$0	$0	$3,375	$0
	Unprogrammed	$3,050	$1,450	$0	$1,600	$0
Nodal Development Implementation	-	$7,000	$5,400	-	-	$1,600
TOTAL:		**$586,029**	**$69,647**	**$54,195**	**$390,008**	**$72,179**