

# ***TransPlan* Chapter 4: Plan Performance and Implementation Monitoring**

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## **Introduction**

This chapter describes how *TransPlan* is projected to perform and sets forth a monitoring program to assess how the plan performs over time. The monitoring program ties plan goals, objectives, and policies presented in Chapter Two to the implementation of actions presented in Chapter Three. The program also aids in tracking the plan's performance in meeting federal and state requirements.

Findings that result from analysis of these performance measures will allow for informed decisions to be made as to how best implement the plan. For example, priorities or emphasis for implementation actions may be adjusted, policies may be amended, and additional policies or implementation actions may be recommended due to performance measure outcomes. Findings may also influence budgeting and the type and phasing of capital projects included in the region's Transportation Improvement Program (TIP).

The remainder of this chapter provides a context for the performance assessment, a presentation of the performance of the plan, and an overview of the proposed program for monitoring the impacts of plan implementation. This includes a presentation of the TPR alternative performance measures approved by LCDC. .

# Part One: Context for Assessment of Plan Performance

Regional transportation planning has been carried out in the Eugene-Springfield area since the mid 1960s beginning with the Eugene-Springfield Area Transportation Study (ESATS) in 1967. T-2000 in 1978 and *TransPlan* in 1986 followed ESATS. Between the time ESATS was completed and the current update of *TransPlan*, there has been an evolution in what is expected from a region's transportation system and commensurately with the decision making for and content of the region's transportation plan. This evolution has included the following shifts:

**From:** Emphasis on methods and data in support of programming transportation system improvements.

**To:** Improved information on a wide-ranging set of impacts for a wide variety of capital, operational, pricing, lifestyle, and land-use strategies.

**From:** A focus on the efficiency of highway networks and corresponding levels of service (speed and travel time).

**To:** Multimodal systems operation and broad performance measurement.

**From:** A focus on how to get from point A to point B.

**To:** A broader context of transportation's role in a community and in the global, national, state, and local economic market.

**From:** Acceptance of land use patterns as a given and not part of the solutions set.

**To:** Use of land use strategies in connection with corresponding transportation policies as a major strategy.

**From:** A focus on transportation system user benefits and costs.

**To:** Broader concern for the equitable distribution of benefits and costs within the community.

These changes have led to consideration of a more complex set of relationships, which makes it important to consider a wide range of performance measures. The monitoring program provides for assessment of multiple performance measures to address the comprehensive, sometimes conflicting goals, objectives, and policies and to facilitate a broad discussion of issues among diverse users.

Performance measures are the primary tools for quantitatively assessing the impacts and achievements of plan implementation and are key criteria by which progress towards the plan goals can be assessed. The performance measures provide a framework within which data that are generated and collected can be presented in a meaningful way.

The performance measures are results-oriented, meaning they are focused on assessing the outcomes or effectiveness of transportation investments and other implementation actions. Results from the ongoing plan performance and implementation monitoring program will be compiled and presented to decision makers as the plan is implemented.

When making comparisons between plan costs and the plan performance presented in this chapter, care should be taken to consider only the costs beyond those associated with the operation and maintenance of the existing transportation system. The increase in costs for added roadway capacity, improved transit service, and improvements to the bicycle and pedestrian systems is a relatively small proportion of the total plan cost. The overall cost for the Financially Constrained 20-Year Plan presented in Chapter 3 is \$1.714 billion. Of this total, 69 percent is associated with the operation and maintenance of the existing transportation system. This leaves 31 percent or approximately \$528 million associated with system improvements.

## Part Two: Projected Plan Performance

The combination of land use, transportation demand management (TDM), and transportation system improvement (TSI) programs and capital investments included in *TransPlan* is the result of a comprehensive evaluation of alternative scenarios. This technical analysis provided a process to determine the relative significance of alternative scenarios and the desirability of one scenario over another.

The main focus of reviewing the performance of the plan is to assess how the proposed investments and actions are either:

- 1) Improving existing conditions, or
- 2) Avoiding undesirable conditions that would be present without the planned investments and actions.

Table 6 shows data for existing conditions and projections for two future scenarios:

- **Existing Conditions 1995**, shows system performance as of 1995.
- The first future scenario, **2015 Trends**, shows system performance for 1995 conditions extended into the year 2015. This scenario shows projections of what is expected to happen by 2015 under *business as usual* trends.
- The second future scenario, **2015 Financially Constrained *TransPlan***, shows projected draft *TransPlan* performance for the year 2015 under conditions of financial constraint. Like the second scenario, it assumes implementation of land use and TDM strategies. Transit, bicycle, and roadway capital actions are limited to financial resources expected to be available to the region as discussed in Chapter 3. Capital actions identified as Future in Chapter 3 are not included in this scenario.

For each future scenario presented in Table 6, the amount for each performance measure is listed along with the percentage change in that performance measure from 1995 conditions. In the descriptions of performance measures that follow, except where explicitly noted, comparisons are drawn between 1995 Existing Conditions and the 2015 Financially Constrained *TransPlan*. Changes to performance measures resulting from the West Eugene Parkway-related amendment to *TransPlan* are presented in this chapter in legislative format.

In general, implementation of the 2015 Financially Constrained *TransPlan* is projected to serve the region's future travel needs for people and goods, while turning the transportation system and the service it provides in a more desirable direction than existing trends. The proposed plan reflects a set of tradeoffs among the communities' goals and objectives. A comprehensive set of transportation system performance measures provides the framework for a meaningful comparison of the scenarios.

**Table 6 - Summary of Key Performance Measures <sup>(1)</sup>**

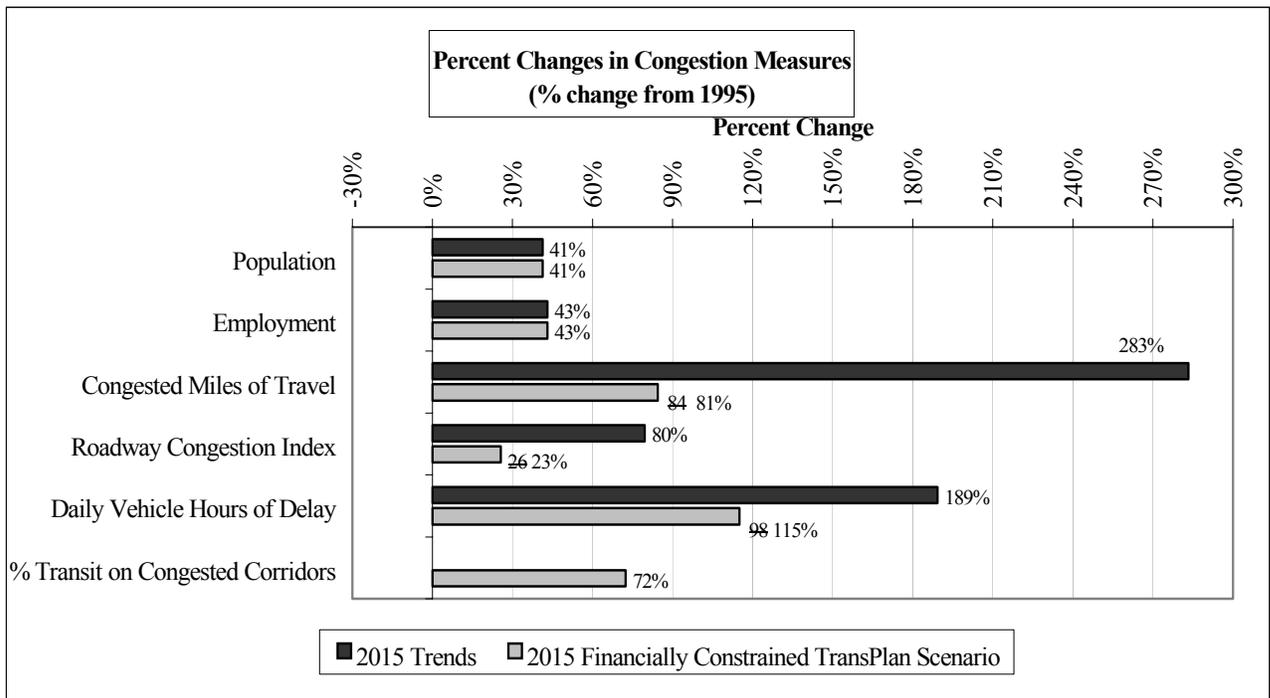
Category	Key	Description	1995 Existing Conditions	2015 Trends		2015 Financially Constrained TransPlan Scenario <sup>(2)</sup>	
				Amount	% Change from 1995	Amount	% Change from 1995
<b>Demographics</b>		Population (TransPlan Study Area)	209,800	296,500	41.3%	296,500	41.3%
		Employment (TransPlan Study Area)	106,900	153,000	43.1%	153,000	43.1%
<b>Congestion</b>	PM 1	Congested Miles of travel (percent of total VMT)	2.8%	10.6%	283.3%	5.0%	80.8%
	PM 2	Roadway Congestion Index	0.78	1.40	79.5%	96%	23.1%
	PM 3	Network Vehicle Hours of Delay (Daily)	9,818	28,407	189.3%	18,924	92.7%
	PM 4	<b>% Transit Mode Share on Congested Corridors <sup>(3)</sup></b>	5.8%			10.0%	72.4%
<b>Vehicle Miles Traveled and Trip Length</b>	PM 5a	Internal VMT (no commercial vehicles)	2,305,779	3,508,913	52%	3,232,977	40%
	PM 5b	Internal VMT/Capita	10.99	11.83	8%	10.90	-1%
	PM 6	Average Trip Length (miles)	3.7	3.9	6%	3.6	-1.7%
	PM 7	% Person Trips Under 1 Mile	14.5%	13.2%	-9%	15.9%	9.6%
<b>Mode Shares - All Trips</b>	PM 8a	Walk	8.93%	7.92%	-11%	9.52%	6.6%
	PM 8b	Bike	3.68%	3.32%	-10%	3.64%	-1.1%
	PM 8c	Transit	1.83%	1.95%	7%	2.73%	49.2%
	PM 8d	Shared Ride (2 or more)	42.04%	44.30%	5%	44.53%	5.9%
	PM 8e	Drive Alone	43.52%	42.52%	-2%	39.57%	-9.1%
	PM 8f	<b>% Non-Auto Trips</b>	14.43%	13.18%	-9%	17.00%	17.8%
	PM 8g	Person Trips per Auto Trip	1.59	1.61	2%	1.7	7.2%
<b>Environmental</b>	PM 9	Average Fuel Efficiency (VMT/Gal.)	19.7	19.1	-3%	19.2	-2.5%
	PM 10	CO Emissions (Weekday Tons)	124.4	125.3	1%	111.1	-10.7%
<b>Land Use</b>	PM 11	<b><i>Acres of zoned nodal development</i></b>				2,000	
	PM 12	<b><i>% of dwelling units built in nodes</i></b>				23.30%	
	PM 13	<b><i>% of New "Total" Employment in Nodes</i></b>				45%	
<b>System Characteristics</b>	PM 14	% of Roadway Miles with Sidewalks	58%	68%	18%	70%	20.9%
	PM 15	Ratio of Bikeway to Arterial and Collector Miles (PM24)	44%	46%	5%	81%	85.1%
	PM 16	% of Roadways in Fair or Better Condition	85%	80%	-6%	80%	-5.9%
	PM 17	% of Households Within 1/4 Mile of a Transit Stop	92%	92%	0%	92%	0.0%
	PM 18	Transit Service Hours per Capita	1.29	1.69	31%	1.99	54.3%
	PM 19	% Households with Access to 10-minute Transit Service	23%	23%	0%	88%	281.8%
	PM 20	% Employment with Access to 10-minute Transit Service	52%	52%	0%	91%	75.0%
	PM 21	Bikeway Miles	126.6	135.9	7%	257.8	103.6%
	PM 22	<b><i>Priority Bikeway Miles</i></b>				75.3	
	PM 23	Arterial and Collector Miles	325.6	331.8	2%	355.8	9.3%
PM 24	Arterial and Collector Miles (excluding fwys)	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.

The data presented in this chapter stem from extensive computer modeling analyses of different combinations of land use, TDM, and TSI programs and capital investments. The analysis draws on recent surveys of transportation patterns and behavior in the Eugene-Springfield region. Readers should interpret the data as indicating the magnitude and general direction of change, and should not attach great significance to the apparent precision of the figures.

## Traffic Congestion Measures



### ***PM 1: Congested Miles of Travel***

This measure represents congested miles of travel as a percentage of total vehicle miles traveled. High levels of congested miles of travel can indicate that the system is not operating efficiently. The evaluation of future plan alternatives shows that, regardless of the strategies employed, congestion will increase significantly over existing conditions. One objective of the planning effort is to minimize the increase in congested miles of travel. Under the Financially Constrained *TransPlan*, congested miles of travel is 5.0 percent of total miles traveled, an increase of 81 percent over 1995 conditions.

### ***PM 2: Roadway Congestion Index***

The Roadway Congestion Index (RCI) is a measure of congestion on the region’s freeways and arterials. This measure is based on a method developed to estimate relative regional congestion for urbanized areas in the U.S. It is a measure of the regional system of freeways and arterials that does not account for specific bottlenecks. An index value greater than 1 indicates generally congested conditions area-wide. A value less than one means that, while congestion may occur during certain periods on specific facilities, on average, the freeways and arterials are relatively

uncongested. The objective is to avoid area-wide congestion represented by values of 1 or greater. A lower index value relative to the trend indicates that the plan will have a positive impact on managing congestion. The Financially Constrained *TransPlan* RCI of .96 is less than 1 and thus indicates that while congestion might occur at peak traffic times, on average, congestion would remain relatively low on freeways and arterials. In comparison, the region's 2015 RCI is below Portland's 1994 value of 1.11.

### ***PM 3: Daily Vehicle Hours of Delay***

Daily vehicle hours of delay provides another measure of the level of congestion. Very similar to congested miles of travel, it is expected to increase significantly in the future. However, as expressed earlier, while congestion will increase over existing conditions, the investments proposed in the Financially Constrained *TransPlan* minimize the increase in vehicle hours of delay over what would be experienced under trend conditions. While Daily Vehicle Hours of Delay is expected to increase by 115 percent over 1995 conditions, this is approximately two thirds of what is expected under trend conditions.

### ***PM 4: % Transit Mode share on Congested Corridors***

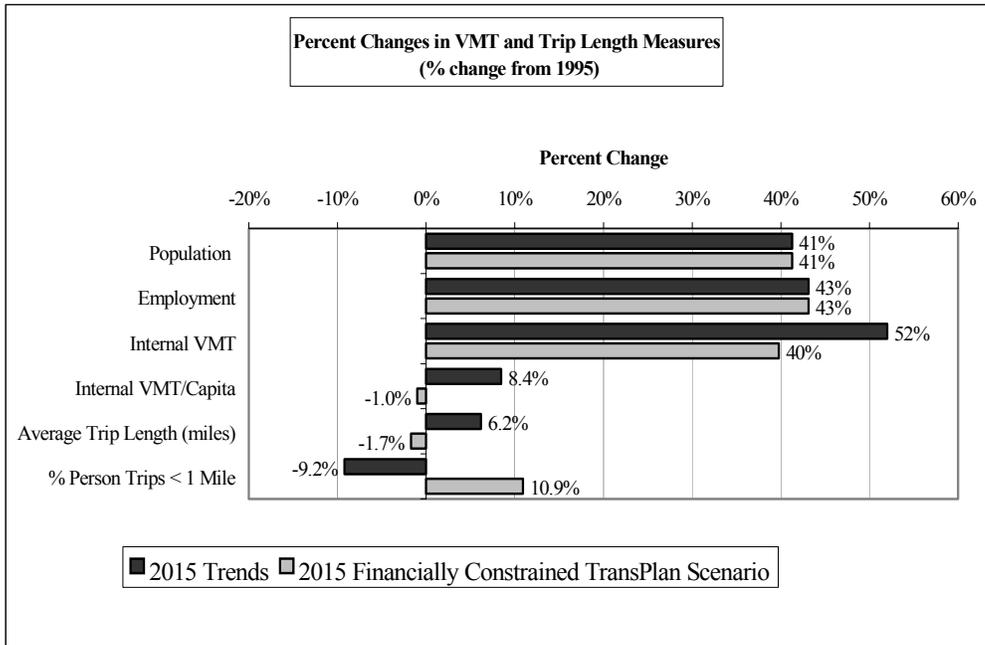
The % Transit Mode Share on Congested corridors is the ratio of transit person trips to total person trips on congested facilities during PM peak hour. An increase in this measure is a direct indication of reduced reliance on the automobile. Increasing transit mode share on the congested corridors by 72 percent over the 1995 base is a significant shift in reliance on the automobile.

## **Vehicle Miles Traveled and Trip Length Measures**

### ***PM 5: Daily Vehicle Miles of Travel Per Capita***

PM 5a is a measure of the total daily VMT by trips made within the metropolitan area by area residents (internal trips) and PM 5b presents VMT divided by the region's population. Under the Financially Constrained *TransPlan*, VMT per capita decreases slightly showing no increase over the 20-year period. The Transportation Planning Rule (TPR) seeks no increase in VMT per capita over ten years and a 5 percent reduction over 20 years.

Reasons for not meeting this VMT reduction target include a high proportion of growth in the outlying parts of the urban growth boundary (UGB), and few and small contiguous areas of higher density. Growth in outlying parts of the UGB has the effect of increasing average trip lengths in these areas. Limited areas of higher density limits the effectiveness of transit and alternative mode strategies. The region's model estimates that trips to and from these growth areas are 21 percent longer than the regional average trip length.



Amendments to the TPR require areas not meeting the VMT reduction target to seek approval from the Land Conservation and Development Commission (LCDC) for the use of alternative measures in demonstrating reduced reliance on the automobile. This process is discussed further in Part Three: TPR Alternate Performance Measures of this chapter..

### ***PM 6 and PM7: Average Trip Length and Percentage of Person Trips Under 1 Mile***

Shorter trip distance is one factor that contributes to making the use of alternative modes more attractive. As presented in Table 6, trip length reflects the average distance for trips taken within the region by all modes and does not include trips made through the region. The objective is to reduce average trip length. Percentage of person trips under 1 mile provides a measure of the plan’s specific impact on short trips. The objective here is to increase the percentage of trips under 1 mile.

Average trip length is projected to decrease slightly from 3.7 miles to 3.6 miles under the Financially Constrained *TransPlan*. As discussed under PM 5, an explanation for why this change is not greater lies in the fact that a large amount of growth over the planning period that is taking place on the edges of existing development in the region.

The percentage of trips under 1 mile is expected to increase to 16.1 percent. This reflects the impact of the plan’s proposed nodal development strategy.

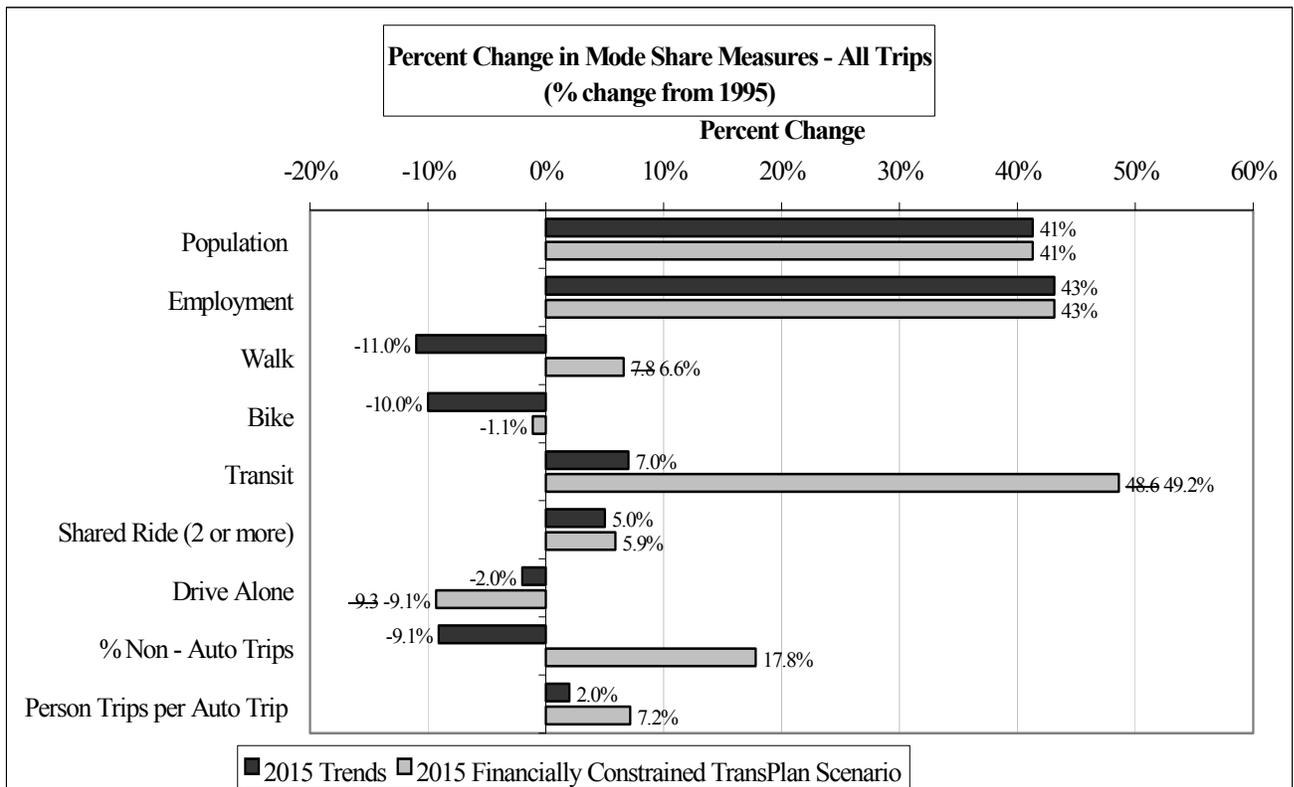
## **Mode Choice Measures**

### ***PM8: Mode Shares (All Trips)***

This measure shows the relative share of the region’s trips taken by each mode of transportation. The objective is to reduce drive-alone auto trips while increasing the number of trips taken by

other modes. Measures PM 8a through PM 8e indicate the relative percentage share for walk, bike, bus, shared-ride auto, and drive-alone auto trips. The most significant changes are the 49.2 percent increase in transit mode share and the 9.1 percent decline in drive-alone trips. The decline in bike mode share is due in large part to the significant improvements in transit provided by Bus Rapid Transit. As shown in PM 8f, there is an overall increase in the use of alternative modes under the Financially Constrained *TransPlan*.

PM 8f is the sum of all non-auto (walk, bike, and bus) trips. Model analysis indicates that non-auto mode shares increase by about 18 percent under the Financially Constrained *TransPlan*. PM 8g provides an aggregate estimate of the region’s reliance on the auto. Total person trips taken in the region are divided by the total number of auto trips. The objective is to increase the overall number of person trips taken relative to total auto trips. Model results suggest that person trips per auto trip will increase by approximately 7 percent under the Financially Constrained *TransPlan*.



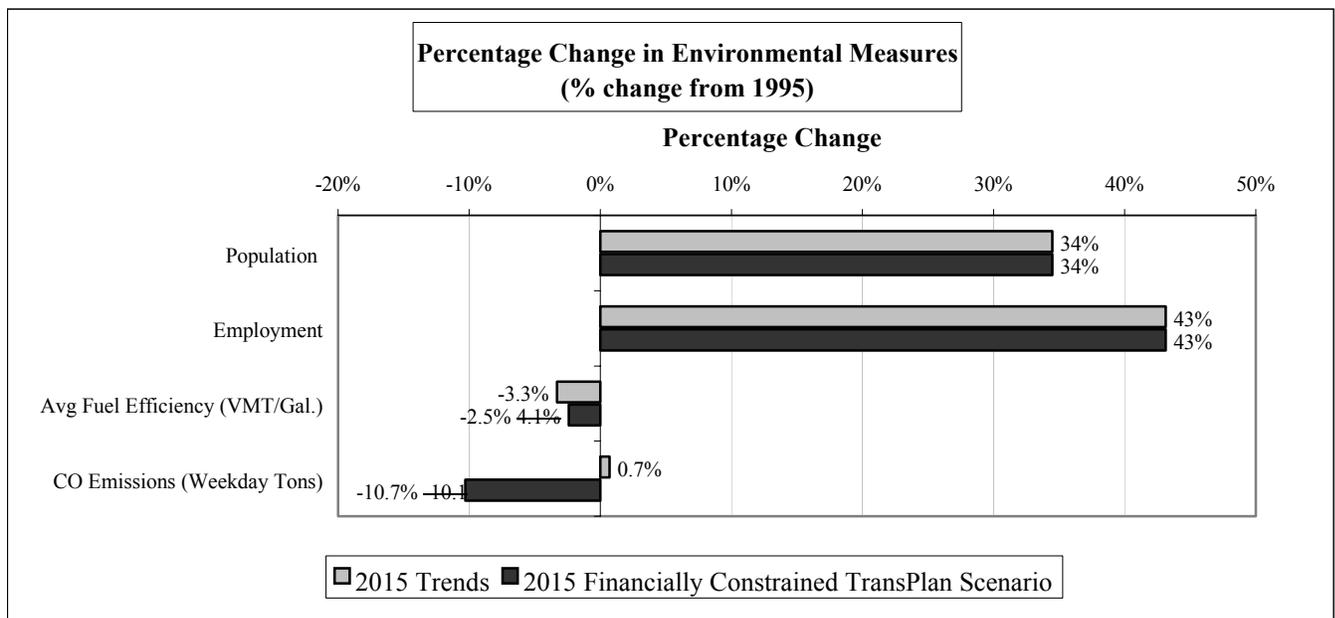
## Environmental Measures

### *PM 9: Average Fuel Economy (Miles per Gallon)*

This measure provides an estimate of fuel use under the three scenarios. The objective is to increase fuel economy. Fuel economy is directly related to levels of congestion. Higher levels of congestion result in more fuel use and lower fuel economy. The Financially Constrained *TransPlan*'s lower fuel economy is a result of increased congestion over existing conditions. However, the fuel economy achieved by the Financially Constrained *TransPlan* is higher than that achieved under the trend condition.

### *PM 10: Vehicle Emissions (Annual Tons of Carbon Monoxide)*

Vehicle emissions is a measure of plan air quality impact. The Eugene-Springfield area is required to meet National Ambient Air Quality Standards for various pollutants. Of primary concern to the transportation system are the standards for carbon monoxide. The region is currently in compliance with the standards for this pollutant. The region will continue to be in compliance with the carbon monoxide standard in the future. Vehicle fleet turnover and stricter emission controls on newer vehicles are factors that contribute to lower emissions in future scenarios.



## Land Use Measures

The three plan measures related to nodal development – *Acres of Zoned Nodal Development*, *Percent of Dwelling Units Built in Nodes* and *Percent of New “Total” Employment in Nodes* – are all indicators of plan implementation. They are measures directly intended “to result in a significant increase in the share of trips made by alternative modes. The *Percent of Dwelling Units Built in Nodes* and *Percent of New “Total” Employment in Nodes* measures are both market response measures in that they reflect the development sector response to the public policies proposed for nodal development. They reflect the benefits coming from changes in development anticipated for nodal development. These measures are defined below.

### ***PM 11: Acres of Zoned Nodal Development***

The number of acres zoned for nodal development in the Eugene-Springfield Metropolitan Area

### ***PM 12: % of Dwelling Units Built in Nodes***

The percentage of new dwelling units in Eugene-Springfield permitted for construction within an area designated for nodal development

### ***PM 13: % of New Total Employment in Nodes***

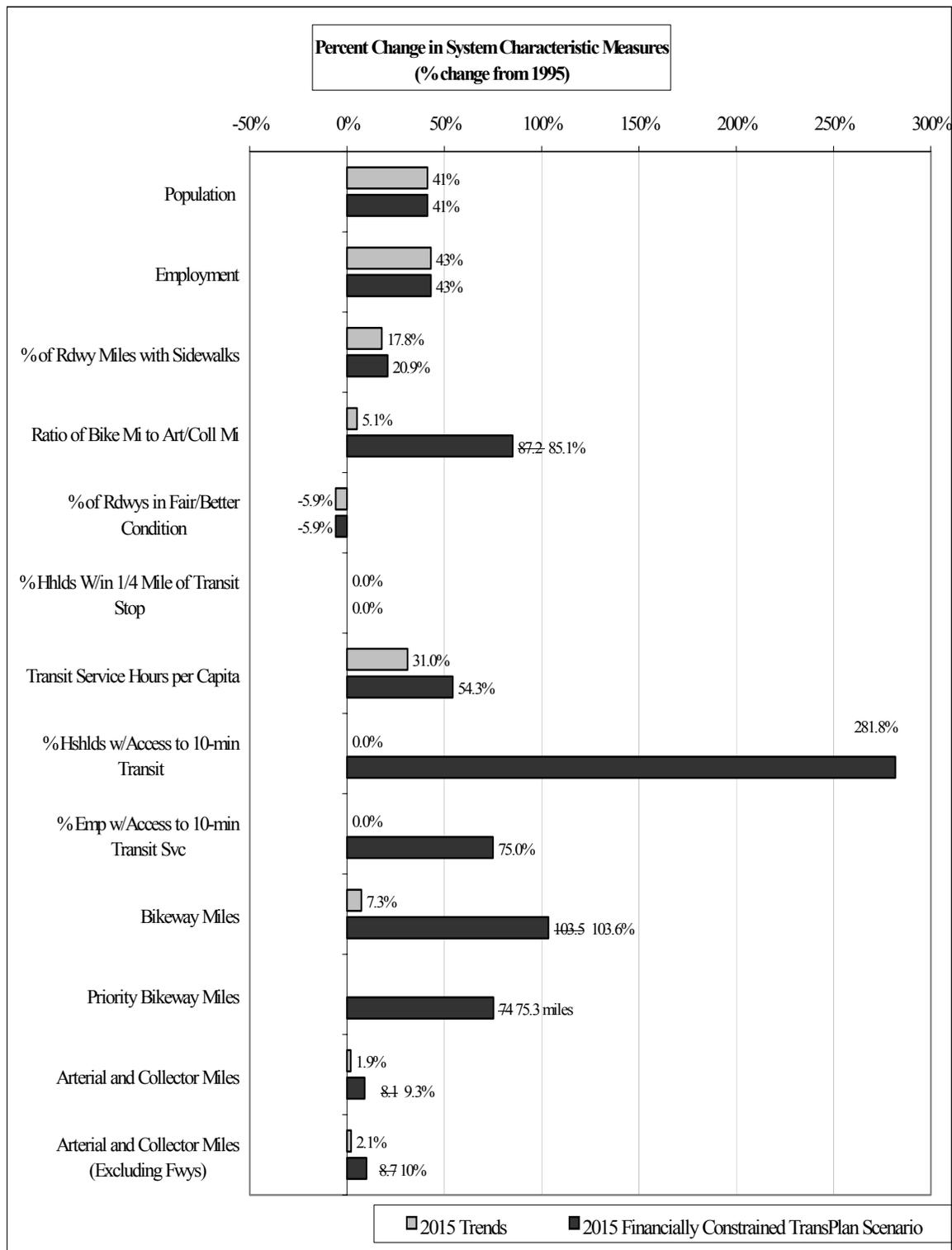
The percentage of new employment in Eugene-Springfield located within an area designated for nodal development. Calculation of the measure excludes employment that would not likely locate in a nodal area (e.g., heavy industrial).

## Transportation System Measures

The following set of measures provides information on changes to various parts of the region’s transportation system. Where the previous sets of performance measures reflected changes in and impacts of the region’s demand for transportation, the measure described below reflects changes in and impacts of the region’s supply of transportation. Investments in non-auto systems increase the convenience and practicality of their use, thereby improving travel choices. Investments in the roadway system to address safety and congestion issues allow all modes to function more effectively and efficiently.

### ***PM 14: Percentage of Roadway Miles with Sidewalks***

This measure indicates the percentage of the total roadway system (local collector and arterial, excluding freeways) on which there are sidewalks on at least one side. This percentage has been increasing over several years as new development occurs and roads are built to current city codes. Projects that raise existing collectors and arterials to urban standards (adding curb, gutter, sidewalks, and bikeways) are another factor explaining the increases.



***PM 15: Ratio of Bikeway miles to Arterial and Collector Miles***

This measure indicates the percentage of total bikeway miles (both on- and off-street) compared to total arterial and collector roadways (excluding freeways). Because of the proposed addition of several miles of off-street bikeways, additional new and reconstructed roadway miles with

bikeways, and the proposed striping of several miles of existing roadway, this ratio is expected to increase substantially from 44 percent today to 81 percent in 2015.

***PM 16: Percentage of Roadways in Fair or Better Condition***

This measure provides a summary of the overall pavement condition of the region's roadways. Currently, 85 percent of the region's roadways are in fair or better condition. The objective is to maintain at least 80 percent of the roadways in fair or better condition. The ability to maintain that standard is dependent upon financial priorities identified during the draft *TransPlan* review. Maintaining the roadway condition at this level helps minimize the cost of future system.

***PM 17: Percentage of Households Within ¼ Mile of a Transit Stop***

This measure provides an indication of the geographic coverage of Lane Transit District's service. Currently, 92 percent of the households in the region are within ¼ mile of a transit stop. The objective is to maintain that level of coverage. Given the transit system's maturity and extensive geographic coverage, focus is not on achieving 100 percent coverage but on improving the convenience of existing service.

***PM 18: Transit Service Hours per Capita***

This measure shows the amount of annual transit service (in hours) per person in the region. The objective in the plan is to increase transit service hours, ideally in terms of the frequency of service (e.g., change from service every 15 minutes to service every ten minutes). The increases in service hours projected for the Trend condition are necessary to offset delays caused by increased traffic congestion. They assume no increases in service frequency, but are necessary to maintain existing frequency of service. The 2015 Financially Constrained *TransPlan* increases (to 1.99 service hours per capita) reflect substantial increases in service frequency with the implementation of Bus Rapid Transit (BRT).

***PM 19: Percentage of Households with Access to Ten-Minute Transit Service***

Frequency of service is one of the key factors in making public transportation more attractive. The frequency of service proposed in the extensive neighborhood feeder system and interconnected trunk lines of the BRT system is one of the primary reasons explaining the 48.6 percent increase in transit mode shares. PM19 presents the percentage of households in the region with access to ten-minute transit service frequencies. The proposed BRT system would increase the percentage of households with access to ten-minute service frequencies from 23 percent under existing conditions to 88 percent in 2015 under the Financially Constrained *TransPlan*. This represents an increase of approximately 282 percent.

***PM 20: Percentage of Employment with Access to Ten-Minute Transit Service***

Similar to PM19, PM20 presents the percentage of employment in the region with access to ten-minute service frequency. The proposed BRT system would increase the percentage of

employment with access to ten-minute service frequencies from 52 percent under existing conditions to 91 percent in 2015 under the Financially Constrained *TransPlan*. This represents an increase of approximately 75 percent.

### ***PM 21: Bikeway Miles***

This measure indicates the additional bikeway miles and percentage change in bikeway miles anticipated over the planning period. As described under PM15, additions to the off-street system and striping of existing roadways result in a significant increase in bikeway miles (103 percent over existing conditions).

### ***PM 22: Arterial and Collector Miles***

This measure indicates the additional roadway centerline miles and percentage change in roadway centerline miles anticipated over the planning period. Total miles of collector and arterials are proposed to increase by 9.3 percent from 325.6 to 355.8.

### ***PM 23: Arterial and Collector Miles (excluding freeways)***

This measure is similar to PM19a except that it excludes freeway miles. Total miles of collector and arterials, excluding freeways, are proposed to increase by about 10 percent from 290.5 to 319.6.

## **Summary Assessment**

This section provides an overall assessment of the plan's performance. A more detailed assessment of the plan's compliance with Transportation Planning Rule (TPR) requirements is provided in Part Three: TPR Alternative Performance Measures.

Over the past 25 years, growth in the region has been fairly compact. This is in part due to the limitations put on partitioning of parcels outside of city limits and allowing development to occur only with the extension of public facilities. Thus, infill and redevelopment have been taking place over time and, as a result, a large portion of future development will occur within the UGB on the edges of existing development. As demonstrated above, growth on the edges leads to longer overall trip lengths, which in turn, makes non-auto modes less attractive. This makes it difficult to achieve VMT reductions within the planning period.

However, the Financially Constrained *TransPlan* has been shown to perform much better than trend conditions in minimizing increases in congested miles of travel, and minimizing area-wide congestion. An overall outcome stemming from implementation of nodal development is that the region is able to increase the percentage of person trips less than one mile in length to approximately 16 percent.

Investments in non-auto modes (particularly BRT) and implementation of nodal development strategies improve choices available for travel and contribute to the Financially Constrained *TransPlan*'s ability to increase levels of non-auto mode share of all trips over existing conditions (increase from 14.1% to 17%). Increases in the percentage of households and employment with access to ten-minute transit service are the basis for the 48.6 percent increase in transit mode

share. The Financially Constrained *TransPlan* also calls for increases in the percentage of roadway miles with sidewalks and a significant increase in the number of bikeway miles. As noted above, investments in alternative modes increase their convenience and practicality. This improves the transportation choices available to the region's residents.

Financial constraint limits the resources available to make improvements to the roadway system. This is the primary explanation for the increase in the region's congestion levels. Limited expansion of the roadway system is also a contributing factor to the reductions in the drive alone mode share. The increases in the region's congestion levels have the general effect of making the auto mode less attractive. However, congestion, in and of itself, is not a major determinant in shifts to alternative modes. Congestion increases in much higher proportion than the shifts to alternative modes. The primary factor contributing to the increase in use of alternative modes are the investments made directly in each alternative mode.

Continued development of the region's TDM program provides incentives that also make use of alternative modes more attractive. TDM also provides a low-cost means of helping to address transportation demand in specific areas surrounding congested facilities.

Overall, the performance measures presented in this chapter clearly point to a reduced reliance on the automobile. A longer timeframe than the planning period is required to accomplish the full benefits of several aspects of the proposed plan. Nodal development may take 30 to 40 years before its full benefits are realized in the region. BRT will be implemented incrementally over the planning period and will require additional time for its full benefits to be realized. It is important to pursue the balanced set of strategies in the proposed plan to set the stage for future benefits.

# Part Three: TPR Alternative Performance Measures

## Background on LCDC Approval

Oregon's Transportation Planning Rule (TPR) requires that TransPlan comply with certain performance measures (either a Vehicle Miles Traveled per capita target or alternative measures). As described in Table 6 (Chapter 4, Page 5), VMT per capita is expected to remain virtually unchanged through 2015 (1-percent decrease). As a result, the region will not meet the reduction in VMT per capita called for in the TPR. The TPR provides that, should a plan not meet the VMT reduction targets, alternative measures can be developed to demonstrate compliance with the TPR. The alternative measures must demonstrate that:

- (A) Achieving the alternative standard will result in a reduction in reliance on automobiles;
- (B) Achieving the alternative standard will accomplish a significant increase in the availability or convenience of alternative modes of transportation;
- (C) Achieving the alternative standard is likely to result in a significant increase in the share of trips made by alternative modes, including walking, bicycling, ridesharing and transit;
- (D) VMT per capita is unlikely to increase by more than 5 percent; and,
- (E) The alternative standard is measurable and reasonably related to achieving the goal of reduced reliance on the automobile as described in OAR 660-012-0000.

Alternative Performance Measures were developed to address this requirement. While these measures have been incorporated into Table 6, a more detailed description of the measures and related interim benchmarks are presented in Table 7. These measures were approved by LCDC on May 4th, 2001. The Commission Order approving the measures is attached as **Appendix G**.

Based on its review, the Commission approved the proposed alternative standard with the following conditions:

1. Assure that the methodology for calculating non-auto mode split is adjusted to account for improved counting of non-auto trips to assure that results in achieving this standard are not the result of improved counting of non-auto trips.
2. Develop a definition of qualifying dwelling units and employment in nodes that includes only those dwelling units and employment that are clearly consistent with implementing the nodal development strategy.
3. Revise the "interim benchmarks" for dwellings and employment in nodes to be clearly consistent with achieving the 20-year performance standard.

The first condition will be addressed by adjusting both base year and future year model output. This will assure that changes in future year forecasts are not the result of improvements in the model.

The second condition will be addressed by using TPR definition of “mixed-use, pedestrian-friendly” development contained in TPR Section 0060 (7)(a)-(b) dealing with Plan and Land Use Regulation Amendments. This Section of the TPR identifies the following characteristics of “mixed-use, pedestrian-friendly” development:

- (A) A concentration of a variety of land uses in a well-defined area, including the following:
  - (i) medium to high density residential development (12 or more units per acre);
  - (ii) offices or office buildings;
  - (iii) retail stores and services;
  - (iv) restaurants; and,
  - (v) public open space or private open space which is available for public use, such as a park or plaza.
- (B) Generally include civic or cultural uses;
- (C) A core commercial area where multi-story buildings are permitted;
- (D) Buildings and building entrances oriented to streets;
- (E) Street connections and crossings that make the center safe and conveniently accessible from adjacent areas;
- (F) A network of streets and, where appropriate, accessways and major driveways that make it attractive and highly convenient for people to walk between uses within the center or neighborhood, including streets and major driveways within the center with wide sidewalks and other features, including pedestrian-oriented street crossings, street trees, pedestrian-scale lighting and on-street parking;
- (G) One or more transit stops (in urban areas with fixed route transit service); and
- (H) Limit or do not allow low-intensity or land extensive uses, such as most industrial uses, automobile sales and services, and drive-through services.

The third condition involved restating the interim benchmarks for dwelling units and employment in nodes such that the percentages are of an interim total rather than the ultimate total. Table 7 provides these performance measures calculated in both ways.

## **Development of TransPlan’s Alternative Performance Measures**

Multiple objectives are set forth in the TPR for demonstrating compliance - reduced reliance on the auto, increase in the availability or convenience of alternative modes, and increase in the use of alternative modes. The strongest way to measure compliance with the TPR is through a framework of multiple performance measures. As well, the complex interrelationship among the plan’s set of goals, objectives, policies, and suggested implementation measures calls for consideration of multiple performance measures in assessing plan progress.

An underlying purpose of the TPR is to promote the development of plans that lead to a reduced reliance on the automobile. The alternative performance measures are meant to provide an objective indicator of the improvement in the transportation system achieved through

implementation of the plan. In particular, it is important to measure the implementation of and response to those elements of the plan that most directly contribute to reduced reliance on the automobile. For example, Bus Rapid Transit and Nodal Development are key elements of TransPlan that contribute to reduced reliance on the automobile.

The framework of alternative measures should therefore include performance measures that capture both the supply (plan implementation) and demand (travel or market response) for transportation in the Eugene-Springfield area. In addition, where possible, these measures should provide a direct indication of the region's progress in implementing key elements in the plan that contribute to reduced reliance on the auto. This approach ties the plan's implementation effort to expected results. Table 7 provides an indication for each measure as to its type (plan implementation or travel/market response).

## **Summary Assessment of TransPlan's TPR Compliance**

### **A. Demonstrating the "Significance" of Alternative Measures**

One of the main challenges present in development of alternative measures is demonstrating why and how a particular target represents a "significant" change in reliance on the auto. The term "significant" is inherently subjective. What is "significant" from one perspective can well be "insignificant" from another perspective.

A key measure of whether the expected reduction in reliance on the automobile is 'significant' is whether local governments have committed to every reasonable effort to accomplish reduced reliance. In the development of TransPlan over the past 9 years, the region has gone to considerable effort to identify a wide range of strategies to reduce reliance on the auto. The more ambitious strategies ranged from TDM pricing measures (increased parking fees (tripling) in central Eugene; reduced transit fare; bridge tolls; \$1.00 per gallon gas tax;) to restrictions on development to force concentration of development (some land in the UGB would be restricted from developing by 2015), and 100 percent exclusive bus lanes.

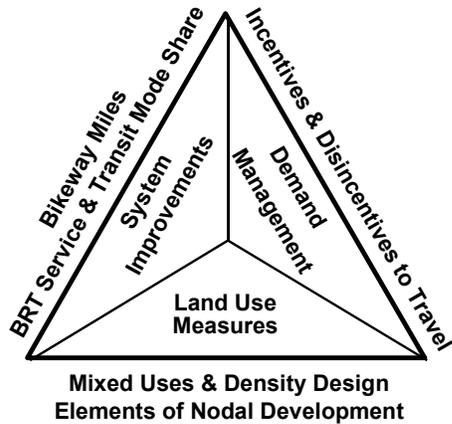
These alternative plan concepts were presented to the region's planning commissions and elected officials in the form of a Decision Package. The feedback from these groups indicated that there was considerable interest in an overall approach that integrated land use, system improvements, and demand management. They focused on support of nodal development, bus rapid transit and expanded voluntary TDM as key strategies to be pursued in TransPlan. However, there was no policy-level support for TDM pricing measures, constraining development, or mandatory TDM techniques.

The proposed alternative performance measures assessed below rely heavily on the implementation of the key strategies identified in the process described above.

### **B. Elements of TransPlan Directly Contributing to Reduced Reliance on the Auto:**

Achieving a reduction in automobile reliance is dependent on the success of implementing the following key elements of TransPlan and the degree to which each option is developed. As mentioned above, four key elements identified by TransPlan policy officials include Nodal

Development, Bus Rapid Transit, Transportation Demand Management and Priority Bikeway Miles.



The diagram to the left depicts the synergistic relationship that exists between each of the proposed elements and their combined ability to reduce automobile dependency. The effect of combining TSI, TDM and Land Use policies, programs and services is relative to the degree in which auto dependency is diminished.

As residential, retail and commercial densities increase in specific areas, urban design features can be implemented that give more emphasis to the mobility of pedestrian, bicycle and transit modes. The addition of parking constraints within a limited area further affects the use of the automobile. Connecting nodal developments with a fixed, frequent transit service provides competition for similar trips that would have originally been made using an automobile. Through TDM, providing comprehensive information about alternative transportation programs, services and facilities to residents and employees in nodal developments insures that options other than driving can begin to be considered.

The more robust the implementation of TSI, TDM and Land Use, the greater the effect the combination will have reducing automobile reliance.

The integrated nature of the plan elements means that changes in any of the individual elements will affect the outcome of the alternative performance measures. For example, while nodal development and BRT have a primary affect on reducing Percent Non-Auto Trips, changes in TDM, bikeway and other plan strategies also contribute to the reduction.

*Nodal Development* – By design, nodal development reduces the need for individual trips made by automobile within the node. The proximity of residential clusters to retail and commercial services, coupled with at-grade pedestrian and bicycle facilities, fosters movement by alternative modes within the node. A range of designs exist that can directly affect the amount of drive alone traffic that occurs within and through the node. As the integration of designs for pedestrian, bicycle and transit are enhanced, the accessibility and movement of the automobile through this environment starts to diminish.

*Bus Rapid Transit (BRT)* – BRT provides a frequent and highly reliable source of transportation that can compete with the automobile. The more frequent and reliable transit service becomes, the easier it is for patrons to board and use the service. People have a tendency to avoid using transit because it cannot compete with the ease and convenience their own automobile affords them. As proposed in TransPlan the service will provide a quick and easy transportation solution for a whole variety of trip purposes and will compete well with the travel time of the automobile along major corridors. As such, the service will start to attract more riders. As the time between buses using the BRT corridor diminishes, so to does the need for using a schedule. Connecting

viable nodes along the BRT corridor creates the ability for more riders to use the service to get to and from the destinations they want to go to.

*Transportation Demand Management (TDM)* – TDM is the essential management of information that can be provided to prospective users of alternative means of transportation to diminish their reliance on driving to and from destinations via their own automobiles. An essential component in establishing TDM programs is marketing. The more attractive TDM options become, the easier they are to use; however, in order to be used the public needs to be made aware that various programs, facilities and services exist. Nodal development coupled with TDM marketing and services effectively reduces the reliance of single occupancy automobile trips.

*Priority Bikeway Miles* – Priority bikeway projects consist of those projects that are along an essential core route on which the overall system depends, fill in a critical gap in the existing bicycle system, or overcome a barrier where no other nearby existing or programmed bikeway alternatives exist (e.g., river, major street, highway), or significantly improve bicycle users safety in a given corridor. As such, they are the key additions to the bikeway system that support nodal development and an increase in the use of this alternative mode.

### C. Analysis

The assessment of compliance below focuses on the five objectives listed in the TPR.

TPR Objective A: *Achieving the alternative standard will result in a reduction in reliance on automobiles.*

The plan's performance on this objective can be measured using the **Travel Response** performance measures. In general, the travel response described below relies on implementation of the nodal development, Bus Rapid Transit, and expanded TDM strategies set forth in TransPlan, and the Priority Bikeway Miles.

Reduced reliance on the auto is indicated in the forecasted 18 percent increase in the *Percent Non-Auto Trips*, a measure of the relative proportion of trips occurring by alternative modes. This increase is particularly significant when compared to the 2015 Trend Scenario which indicates a 9 percent decrease without implementation of the plan. An increase in the percent of the region's trips taken by alternative modes is a direct measure of reduced reliance on the auto. An increase indicates that improvements made to alternative modes have been successful in attracting more people to use those alternatives for some trips. Percent Non-Auto Trips is a good measure of the cumulative effect of the implementation of all of TransPlan's key strategies.

The *Percent Transit Mode Share on Congested Corridors* measure also directly indicates reduced reliance on the automobile. The target of increasing transit mode share on the congested corridors by 72 percent over the 1995 base is a significant shift in reliance on the automobile. The fact that this target specifically calls for reduced reliance on the automobile in the areas of greatest congestion is also of significance. By doing so, the measure targets reduced reliance on the automobile in those areas where the impact will be the greatest.

TPR Objective B:     *Achieving the alternative standard will accomplish a significant increase in the availability or convenience of alternative modes of transportation.*

The plan's performance on this objective can be measured using Plan Implementation and other measures. These measures reflect the implementation effort made by the adopting agencies in nodal development, TDM, and alternative modes improvements (e.g., additional Priority Bikeway miles, etc.).

The additional 74 miles of *Priority Bikeway Miles* proposed in TransPlan represent a 58 percent increase in total bikeway miles. This is part of TransPlan's overall planned increase in total bikeway miles of 104 percent. An increase in bikeway miles is a direct measure of the availability and convenience of alternative modes and is expected to result in an increase in the use of those modes. One of the key aspects of the bike system planning effort was to identify and address existing gaps and barriers in the existing system. These gaps and barriers are addressed in the bicycle project list, and are identified as the "Priority Bikeways," thus increasing the convenience and availability of the bike mode. This measure provides a direct indication of the public policy effort in TransPlan toward reducing reliance on the auto and increasing the availability of alternative modes.

Both the *Percent Transit Mode Share on Congested Corridors* and the *Percent Non-Auto Trips* also are indicators of increased availability and convenience of alternative modes. Achieving the 72 percent increase in transit mode share along the congested corridors is a direct result of more frequent service. The proposed BRT system would provide 10-minute service along its corridors. The 10-minute threshold is a critical one for transit service because it is considered to be the level of service at which riders do not need schedules. This increase in convenience is one of the main reasons for the 72 percent increase in mode share on congested corridors. This is part of an overall increase in transit mode share of 49 percent.

TPR Objective C:     *Achieving the alternative standard is likely to result in a significant increase in the share of trips made by alternative modes, including walking, bicycling, ridesharing and transit.*

Virtually all of the plan's six performance measures are relevant to this objective. As already described above, the 72 percent increase in *Transit Mode Share on Congested Corridors* and the 18 percent increase in *Non-Auto Trips* both show a significant increase in the share of trips made by alternative modes as a result of implementation actions in the plan.

Also already described above is the direct relationship between the *Priority Bikeway Miles* measure and the likely result of additional bike trips.

The three plan measures related to nodal development – *Acres of Zoned Nodal Development*, *Percent of Dwelling Units Built in Nodes* and *Percent of New "Total" Employment in Nodes* – are all indicators of plan implementation measures directly intended "to result in a significant increase in the share of trips made by alternative modes". The *Percent of Dwelling Units Built in Nodes* and *Percent of New "Total" Employment in Nodes* measures are both market response measures in that they reflect the development sector response to the public policies proposed for

nodal development. They reflect the benefits coming from changes in development anticipated for nodal development. The very definition of nodal development included in TransPlan states that:

Nodal development is a mixed-use *pedestrian-friendly* land use pattern that seeks to increase concentrations of population and employment in well-defined areas *with good transit service*, a mix of diverse and compatible land uses, and *public and private improvements designed to be pedestrian and transit oriented*. (emphasis added)

The TransPlan definition of nodes and nodal development continues, stating in part that:

Fundamental characteristics of Nodal Development require:

- Design elements that support pedestrian environments and encourage transit use, walking and bicycling;
- A transit stop which is within walking distance (generally 1/4 mile) of anywhere in the node;
- Mixed uses so that services are available within walking distance

These requirements are directly related to increasing the use of alternative modes. The nodal development measures and their integration into the overall TransPlan strategy are the basis for the increase in *Percent Non-Auto Trips* and the *Percent Transit Mode Share on Congested Corridors*. Nodal development in TransPlan also plays a significant role in allowing the region's VMT per capita to remain virtually unchanged over the planning horizon.

TPR Objective D: *VMT per capita is unlikely to increase by more than 5 percent.*

As indicated in Table 6, VMT per capita in the Eugene-Springfield area is expected to remain virtually unchanged through 2015 (1 percent decrease).

TPR Objective E: *The alternative standard is measurable and reasonably related to achieving the goal of reduced reliance on the automobile as described in OAR 660-012-0000.*

The measurability of each of the performance measures weighed heavily in the MPC subcommittee's selection process. The relationship of these measures to reduced reliance on the automobile is referenced in the assessment of other objectives. The table below summarizes the measurability of each of the proposed measures. While each measure relies on different data, the region currently maintains all of the underlying information required to track these measures.

Measure	<i>Update Process/Reliability</i>
<b>Percent Non-Auto Trips</b>	The mode choice model relies on current data on the existing transportation system (traffic counts, transit ridership, roadway speeds, etc.) and travel behavior data (typically through travel surveys). Estimates are as reliable as the model being used. The model is most reliable when based on an updated travel survey and current system data.
<b>Percent Transit Mode Share on Congested</b>	LTD updates its ridership data frequently. Traffic volumes are updated regularly. Very reliable.

<b>Corridors</b>	
<b>Priority Bikeway Miles</b>	This measure would be updated based on the sum of the distances of bikeway projects determined to be “priority.” Very reliable.
<b>Acres of zoned nodal development</b>	This measure would be updated as each city takes action to zone parcels for nodal development. Very reliable.
<b>Percent of dwelling units built in nodes</b>	This measure would be updated periodically through analysis of building permits. Very reliable.
<b>Percent of New “Total” Employment in Nodes</b>	Requires taking employment files and “cleaning” them to establish correct address (geographic location). GIS is then used to estimate new employment in nodes. This is typically done on a regular basis (every two years). Fairly reliable. Need to define “excluded” employment to equate to standard employment codes used in the state employment files.

D. Summary:

The process employed for the development of TransPlan considered a wide range of strategies to reduce reliance on the automobile. The strategies identified by the adopting officials for inclusion in TransPlan represent a significant commitment to the objectives of the TPR.

The process used in developing the measures represents an extensive effort on the part of local policy officials to identify the measures that would document the region’s implementation of key strategies in TransPlan which achieve state and local goals.

**Table 7**  
**Alternative TPR Performance Measures for the Eugene-Springfield MPO**  
**(approved by LCDC on May 4<sup>th</sup>, 2001)**

Measure	Key Plan Element	Plan Implementation or Travel/Market Response	1995	2005	2010	2015
% Non-Auto Trips	Alternative Modes	Travel Response	14.43% Walk=8.93% Bike=3.68% Bus=1.83%	15%	16%	17% Walk=10% Bike=4% Bus=3%
% Transit Mode Share on Congested Corridors	Transit	Travel Response	5.8% 5.9% in 1999	6.8%	8.0%	10.0%
Priority Bikeway Miles	Bicycle	Plan Implementation		15 miles	45 miles	74 miles
Acres of zoned nodal development	Nodal Development	Plan Implementation		1,000 acres	1,500 acres	2,000 acres zoned for nodal development
% of dwelling units built in nodes	Nodal Development	Market Response		2.5% 5.6%	14.5% 20.4%	23.3% of new Dus
% of New "Total" Employment in Nodes	Nodal Development	Market Response		10% 18.1%	25% 32.6	45%
Internal VMT			2,305,779			3,224,037
VMT/Capita			11			10.9

Note that % of dwelling units and employment in nodes are expressed **first** as a percentage of the planning horizon total and **second** as an interim year total (e.g., the % of dwelling units in nodes in 2005 is 2.5% of the 2015 total new dwelling units and 5.6% of the new dwelling units built by 2005).

## **Part Four: Plan Implementation Monitoring**

Plan implementation monitoring is an ongoing program of data collection and analyses for providing feedback to policy makers and the public on the progress of the policies and actions in *TransPlan*. Monitoring allows local jurisdictions to assess how well the plan is performing and complying with federal and state requirements and to determine when steps need to be taken to keep the plan on course. Monitoring examines the effectiveness of policy implementation efforts through the collection and analysis of data for various performance measures. Lane Council of Governments will coordinate the plan implementation monitoring program in cooperation with implementing agencies.

### **Plan Monitoring Process**

The ongoing plan monitoring process includes the following components:

1. Review of trends, assumptions, and new opportunities;
2. Inventory of actions taken to implement TransPlan policies;
3. Analysis of transportation system performance using the performance measures presented above; and
4. Recommended actions and corrective steps, including potential plan amendments during the next update cycle.

The second component of the plan monitoring process involves tracking how local jurisdictions and regional and state agencies are applying TransPlan policies. Implementation of Planning and Program Actions and Capital Investment Actions from Chapter 3 will be summarized.

The third component of the plan monitoring process involves collecting data to assess transportation system performance in relation to the performance measures. This analysis will provide a comprehensive view of how the transportation system as a whole is performing. The analysis will indicate when additional actions need to be taken. The need may become apparent to identify different performance measures.

The fourth component of the plan monitoring process involves identifying actions and making recommendations as to how the plan can be implemented most effectively. In many cases, these actions will involve increased or decreased emphasis on existing policies and implementation actions. In other cases, plan monitoring will indicate that new or modified policies and implementation actions are necessary. Modifications to the plan will most often be made during the regular plan update process, occurring every three years. Should modifications need to be made to the plan between updates, the plan amendment process will be used. The TransPlan amendment and update processes are described in Appendix C: TransPlan Update Process Documentation.

## Part Five: TransPlan Update Cycle

To keep the plan relevant to current conditions, federal legislation requires an update of the plan every three years. Specifically, the federal guidelines state that the plan:

*“...shall be reviewed and updated triennially...to confirm its validity and its consistency with current and forecasted transportation and land use conditions and trends and to extend the forecast period.”*

The planning process envisioned in the Transportation Equity Act for the 21st Century (TEA 21) is a dynamic activity that effectively integrates current operational and preservation considerations with longer term mobility, environmental, and development concerns. This more frequent update requirement reflects the perspective that the function of the TSP is moving from a documentation of system development to contemporary decision tool. The three-year update cycle maintains the technical utility of the plan and its ability to serve the needs of local decision makers.

The table below shows the proposed update process, with TransPlan adoption in mid-2001. Minor updates would extend and adjust forecasts of land uses and the transportation system and update priorities. A major update will add a review of policies, priorities, and major projects. Air quality conformity analysis and financial constraint analysis would be prepared for each update as required by federal legislation.

Schedule for TransPlan Updates

Year	Update
2001	Major
2002	
2003	
2004	Minor
2005	
2006	
2007	Major
2008	
2009	
2010	Minor