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Implementing the Regional Transportation Plan: Evaluating Traffic Congestion

Metro (Or.)

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Evaluating traffic congestion

Implementing the regional transportation plan

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What is the Regional Transportation Plan?

Metro's 2000 Regional Transportation Plan is a blueprint to guide new transportation investments in the Portland metropolitan region during the next 20 years. The plan begins to implement Metro's 2040 Growth Concept to protect the livability of this region in the face of an expected 50 percent increase in population and a 70 percent increase in jobs by 2020. The goal of the plan is to expand choices for travel in the region. To this end, the plan sets policies for traveling by cars, buses, light rail, walking, bicycling and movement of freight by air, rail, truck and water.



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Metro, the regional government that serves the 1.3 million people who live in Clackamas, Multnomah and Washington counties and the 24 cities in the Portland metropolitan area, provides planning and services that protect the nature of our region.

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Traffic congestion and quality of life

As population in the region grows, the amount of traffic congestion is increasing, especially during morning and evening commute periods. Historically, the region has responded to congestion by building more roadway capacity. In the 1950s and '60s, during the height of federal highway construction, routes such as Interstate 5, I-405, Highway 217 and the Sunset Highway

bypassed older highways, adding enough capacity to meet the region's needs for decades. In the late 1970s, Interstate 205 was the last major highway to be constructed in the region.

Since the completion of these facilities, the region's growth has gradually consumed the capacity provided on these routes. Now, most major corridors experience congestion during peak commute

periods. However, the 2000 Regional Transportation Plan (RTP) proposes a mix of solutions for dealing with congestion along major corridors. In some cases, new



Banfield (I-84) is a congested eastside route during peak periods, but it cannot be widened because of the impacts to the surrounding communities and the environment. The RTP identifies additional transit service and other improvements to serve the travel needs of the corridor.

capacity is proposed, along with expanded transit service.

In other corridors, however, new congestion standards have been adopted that recognize the limits to "building your way out" of congestion, and the inherent risks of building too much roadway capacity. These risks include increased urban sprawl, higher air pollution levels, heavy reliance on the auto-

mobile and negative impacts on the communities that border major transportation corridors.

New congestion standards

The RTP is based on a new way of evaluating traffic congestion and its impact on community livability. This fact sheet details how the RTP measures congestion, when it should be “fixed” and how it affects local plans. These new congestion standards are also based on an alternatives analysis that estimated the cost of “building your way out” of congestion at \$13.5 billion in road projects over 20 years, compared with the \$4.7 billion included in the RTP “priority” funding system.

Regional motor vehicle policy

Central to the new congestion standards is a regional motor vehicle system of arterials and collector streets whose function is to connect the central city, regional centers, industrial areas, intermodal facilities and other regional destinations, and provide mobility within and through the region. Figure 1.12 in the RTP shows the regional motor vehicle system. The new congestion standards are a way of ensuring that these critical links are operating at acceptable levels.

Analyzing motor vehicle congestion

Motor vehicle level of service is a measurement of congestion as a share of the designed road capacity. This measure of congestion assigns a grade according to how “full” a road is as compared to its design capacity. Under this system, a road that fills to its capacity begins to fail. Historically, the RTP has sought to maintain a level of service D, which represents a facility that is operating at 80 percent of capacity with relatively free-flowing traffic.

The new level-of-service policy seeks to maintain a level of service E on most roadways during peak periods, which means that a facility is operating at 90 percent of capacity.

In some areas where transit and other travel alternatives are offered (such as regional centers or highway corridors with light rail), an F standard is acceptable during the afternoon peak hour, meaning that it would be acceptable for a street or highway to operate at 100 percent of capacity. This represents congestion as it currently exists during the rush hour on many routes, such as the Banfield Freeway or I-5 North or urban centers like downtown Portland.

Level of service comparisons

Level of service	Percent of road capacity used	Freeway speeds	Street speeds
A	50 – 59%	more than 60 mph	more than 35 mph
B	60 – 69%	57 – 60 mph	28 – 35 mph
C	70 – 79%	54 – 57 mph	22 – 28 mph
D	80 – 89%	46 – 54 mph	17 – 22 mph
E	90 – 99%	30 – 46 mph	13 – 17 mph
F	100%	less than 30 mph	less than 13 mph

Source: Highway Capacity Manual (2000)

Motor vehicle level of service (LOS) is a measurement of congestion used to determine when new roadway capacity or other strategies in lieu of new travel lanes are needed. This measure is based on an A through F grading scale. Under this scale, traffic conditions are best at LOS A. As you move down the scale, traffic conditions incrementally deteriorate to the worst condition – LOS F.

Source: Highway Capacity Manual (2000)



Level of service D

Level of service D is characterized by average freeway operating speeds of between 46 to 54 mph, with an average distance of six car lengths between vehicles.

Source: Highway Capacity Manual (2000)



Level of service E

Level of service E is characterized by average freeway operating speeds of between 30 to 46 mph, with an average distance of four car lengths between vehicles.

Source: Highway Capacity Manual (2000)



Level of service F

Level of service F is characterized by average freeway operating speeds under 30 mph, with stop-and-go traffic where lane mergers and other bottlenecks occur.

Using the level-of-service standards

Table 1.2 in the RTP establishes motor vehicle level-of-service policy for regional facilities. These standards will be incorporated into most local comprehensive plans and implementing ordinances to replace current methods of determining congestion on regional facilities. Jurisdictions may also adopt alternative standards that are higher than the minimum level of service established in Table 1.2. Such alternative standards must not:

- result in major road capacity improvements that have the effect of shifting congestion into neighboring jurisdictions
- result in motor vehicle capacity improvements to the principal arterial system (as defined in Figure 1.12 of the RTP) that are not recommended in, or are inconsistent with, the RTP
- increase single-occupancy vehicle travel to a measurable degree that affects local consistency with the modal targets contained in Table 1.3 of the RTP.

The RTP addresses congestion of regional significance in two ways. If a transportation solution is known, a project is identified in Chapter 5 of the plan. When a solution is not yet known, the need is addressed through

refinement plans contained in Chapter 6 of the plan. However, other more localized congestion is more appropriately addressed through the local transportation planning process. This includes any locations on the regional roadway system that are not addressed by a project or refinement plan in the RTP. Localized congestion occurs where short segments of the transportation system exceed congestion standards, though the overall system in the vicinity of the congested segment is performing acceptably.

In cases where these localized areas of congestion are located on principal arterial routes (shown in Figure 1.12 in the plan) or the regional freight system (Figure 1.17 in the plan), they must be evaluated as part of the local planning process to determine whether an unmet transportation need exists that has not been identified in the RTP.

Intersection analysis and improvements also generally fall outside of the RTP. Instead, capacity improvements recommended in this plan generally apply to links in the regional system, not intersections.

Transportation system analysis

For the purpose of demonstrating local compliance with the performance measures in Table 1.2 in the RTP, the following congestion analysis process must be used when amending local plans:

Part 1 – Analysis

A transportation need is identified in a given location when analysis indicates that congestion has reached the level indicated in the “exceeds deficiency threshold” column of Table 1.2 in the RTP. An appropriate solution that responds to the need is determined through requirements contained in Section 6.4 of the RTP.

Part 2 – Accessibility

If a level-of-service standard is exceeded on the regional transportation system, cities and counties must evaluate the impact of the congestion on regional accessibility.

Part 3 – Consistency

The function or capacity of a road may be significantly affected by planning for the 2040 Growth Concept. Cities and counties must take actions described in Section 6.7 of the RTP, including amending local transportation plans to retain consistency between planned land uses and transportation facilities.



Frustration mounts as traffic congestion increases throughout the region.

How can I get more information?

Call the transportation hotline, (503) 797-1900 option 2. You can leave a message requesting a copy of the Regional Transportation Plan or other fact sheets about the plan. Ask for a list of all RTP fact sheets. If you are hearing impaired, call TDD (503) 797-1804.

Visit our web site at www.metro-region.org

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