7. MANAGING TRANSPORTATION

The streets, highways, and other transportation facilities and services in the Grants Pass Urban Area represent an important public resource and a major investment of public dollars. In order to get the best return on the public's investment, the transportation system needs to be managed effectively. Good management of the transportation system will result in more efficient utilization of existing and future facilities, safer travel conditions, the postponement or elimination of the need to add new facilities and/or capacity to the transportation system, and a better overall return on the investment in the area's transportation system .

Transportation management includes two major elements: (1) managing the transportation system to obtain the maximum efficiency and capacity out of transportation facilities and (2) managing travel demand to better balance demand for travel with the supply of transportation facilities and services.

This chapter describes strategies and techniques that can be used in the Grants Pass Urban Area to manage the transportation system more effectively. The first section on transportation system management (TSM) includes general information on TSM, and more specific information on access management and residential traffic management. The second section on travel demand management (TDM) includes information on strategies and techniques that can be used to manage demand (reduce total demand and move demand to other locations, or times of day).

Transportation System Management

Transportation System Management (TSM) focuses on improving the safety and efficiency of the existing transportation system through the application of relatively low-cost improvements and enhancements, as opposed to high-cost improvements such as building new facilities, or adding lanes to a highway or arterial street. The rising costs of providing major capacity improvements has forced federal, state and local agencies to do more with existing resources. Typical TSM strategies include:

- Geometric improvements to facilitate traffic operations (e.g., turn lanes at high volume intersections),
- Traffic control improvements to better manage traffic flow (e.g., interconnected traffic signals),
- Access management strategies to reduce conflicts between through traffic and local traffic entering/leaving the roadway (e.g., restrictions on driveway number and locations), and
- Safety enhancements to reduce the number and severity of accidents and provide a more pleasant environment for travelers using motorized and non-motorized travel modes (e.g., traffic "calming" and residential traffic management).

Each of these types of strategies is discussed briefly in the sections below, along with the identification of some locations where these applications could be beneficial. Many of the

benefits are related to one another. For instance, all types of improvements which reduce traffic delays will also result in lower fuel consumption and lower vehicle emissions, and better air quality. Typical benefits of TSM improvements include:

- Fewer accidents and reduced conflicts among vehicles, bicycles and pedestrians,
- Reduced delays and improved overall travel speeds (especially for buses, and car/van pools),
- Reduced number of stops,
- Reduced fuel consumption and lower vehicle emissions, and
- Increased through-put at congestion points in the transportation network.

Geometric Improvements

"Geometric improvements" are those projects which "re-shape" the physical layout of streets and intersections. As listed in Table 7-1, they are generally isolated improvements at problem spot locations which are designed to improve traffic flow and increase the safety for vehicles, pedestrians and bicyclists. Constructing exclusive turn lanes at congested intersections is generally much less costly than providing additional through travel lanes for long stretches of streets and highways. In addition, turn lanes at intersections can significantly improve overall roadway capacity by improving the efficiency of left and right turning movements, and removing them from the travel lanes for through traffic. Finally, turn lanes can significantly reduce rear-end collisions at signalized intersections by separating through movements from turning movements.

Table 7-1: Geometric TSM Improvements

Type of Improvement	Application	Benefits
Channelization	Intersections	Guide traffic movements, reduce delays to through traffic, increase safety, facilitate truck turning movements, provide refuge island for pedestrians at high volume intersections
Exclusive turn lanes	Intersections	Reduce delays to through traffic, reduce rear-end collisions, facilitate efficient signal operations
Additional through travel lanes	Intersections	Increase intersection through-put if adequate lane tapers are provided on the downstream side of the intersection
Two-way left turn lane	Arterial mid-block section	Reduce delays to through traffic, reduce rear end collisions, provide refuge for left turning traffic entering/leaving the roadway
Bus pullouts	Arterials	Reduce delays for through traffic
Loading bays for Trucks	CBD Streets, Arterials in Industrial Areas	Reduce delays to through traffic, increase safety of loading/unloading operations for trucks

Traffic Control Improvements

Since the vast majority of traffic delays and traffic accidents occur at signalized intersections, traffic control improvements can be an effective strategy to improve efficiency and safety without resorting to major roadway widening. As listed in Table 7-2, these improvements include virtually no-cost regulatory changes, such as turn prohibitions and peak-hour parking removal, as well as relatively low cost improvements such as traffic signal upgrades. Another category of traffic control improvements is the implementation of one-way streets (which is used for the 6th/7th Street couplet in the downtown area). While this strategy may result in increased through capacity with the existing number of traffic lanes, it represents a significant change in traffic patterns; this may require some geometric improvements and additional access management strategies to be successful.

Table 7-2: Traffic Control TSM Strategies

Type of Improvement	Application	Benefits
Turn prohibitions (all day or peak hour only)	Key intersections	Reduce delays to through traffic, fewer right-angle and rear-end accidents
Parking removal (all day or peak hour only)	Arterial sections	Increase capacity of roadway by one to two lanes of traffic, often used on CBD streets to provide right turn lane or bus only lane during peak hour
All-way stop signs	Intersections	Reduce delays to side-street traffic, increase safety for all turning movements; often used as an interim measure before installing a traffic signal
Traffic signal upgrade (fixed time signal changes to traffic actuated signal)	Intersections	Reduced delays to major traffic movements
Arterial signal system (inter-connection and coordinated signal timing patterns)	Series of arterial intersections	Greatly improve capacity for traffic flow through a series of intersections, control speeds to desired level through traffic progression, reduce rear-end collisions
Areawide signal system	Series of signals	Reduce travel times and delays for north/south and east/west traffic flows, improve system throughput, control travel speeds to desired levels through traffic progression

Access Management

Access management involves a set of techniques and strategies used by public agencies to improve safety and traffic flow along roadways by "controlling" the movement of vehicles on and off of roadways. This results in :

- Less traffic congestion due to improved traffic flow and travel speeds along the roadway;
- Improved safety for all travelers by minimizing the conflicts between turning traffic and through traffic, and decreasing the potential for accidents; and
- Decreased need for roadway expansion and/or modifications through more efficient use of existing facilities.

Access management strategies are designed to maintain the necessary balance between accommodating through traffic on roadways, while providing access to adjacent homes, businesses and other properties. This is done through such things as controlling the number and spacing of driveways and intersections, and providing turn lanes and other provisions to separate turning traffic from through traffic. Table 7-3 includes a summary of typical access management strategies used to address traffic management issues.

Table 7-3: Access Management Strategies

Traffic Management Objective	Access Management Techniques
Reduction of access points on/off roadway	• Consolidate driveways to reduce number of driveways • Restrict access on to the roadway to public roads only (i.e., no private driveways)
Left turn management	• Provide turn pockets/lanes at intersections to remove turning vehicles from traffic flow • Provide center two-way-left-turn lanes to remove turning vehicles from traffic flow • Allow "U" turns at intersections and limit left turns between intersections • Install raised and/or landscaped medians to prevent turns • Use paint, "C" curb or other barriers to prevent left turns
Intersection Management	• Prohibit driveways close to intersections to reduce conflicts and interference with turning vehicles • Establish minimum spacing between intersections to reduce number of point of conflict and congestion • Use signals and other traffic control devices at intersections (as warranted to meet specific) conditions to improve traffic operations at intersections

Traffic Management Objective	Access Management Techniques
Separating through traffic from turning traffic	• Provide frontage roads to separate local and through traffic • Provide alleys for property access • Provide internal property circulation systems to remove local traffic from through traffic
Traffic Merging	• Provide acceleration/deceleration lanes to separate slower moving traffic from through traffic • Restrict outside lane(s) to turning traffic to separate local and through traffic movements

Access Management Guidelines

The State and local governments responsible for transportation facilities within the Grants Pass Urban Area have their own access management guidelines and standards. While they are similar in purpose and in many characteristics, there are some differences in how such standards would be applied to the facilities under the control of the respective jurisdictions.

Oregon Department of Transportation Access Management Standards

ODOT's Access Management Policy provides a framework to guide access management decisions for individual state highways so that they are consistent with the intended functions, key characteristics and operational conditions of that state highway within the Grants Pass Urban Area. The function, characteristics and operational conditions for state highways are defined in ODOT's "Level of Importance (LOI) Policy". Under the LOI policy, state highways are placed into one of four categories: Interstate, Statewide, Regional or District. Level of service standards are assigned for each highway segment based on the LOI classification, and the degree of urbanization of the area served by the highway segment. LOI classified highways in the Grants Pass Urban Area include Interstate 5 (Interstate), US 199 (Statewide), Highways 99, 238, and the Rogue River Loop (District).

Consistency with the LOI policy is achieved by assigning highway segments to one of six access management categories and then applying the specific access management standards developed for that category. Assignment of a highway segment to an access management category typically is done during the development of corridor plans for state facilities; but may be done for shorter segments in coordination with affected local governments.

Several factors are considered when making assignments to access management categories, including:

- Existing and proposed roadside development patterns,
- Regional and local transportation system plans and comprehensive plans,

- The potential for increasing the use of local roads to provide property access and local circulation,
- Topography, drainage and other land characteristics,
- Existing access agreements between ODOT and local jurisdictions, and
- Other operational aspects of access.

The six highway access management categories are described below in Table 7-4.

Table 7-4: ODOT Highway Access Management Categories

Access Management Category	Facility Characteristics
Category 1 Interstate 5 is in this category	Provides for high speed, high volume traffic. Standards include: • Full access control • Grade separated interchanges • Full median • No direct access to adjacent land • Access spacing is 2-3 miles (urban) and 3-8 miles (rural)
Category 2	Provides for high speed, high volume traffic. Standards include: • Full access control • At grade intersections allowed when designed to minimize impacts on mainline traffic • Full median • No direct access to adjacent land • Access spacing is 1/2-2 miles (urban), 1-5 miles (rural)
Category 3 Segments of US 199 (west of Highway 99) are in this category	Provides for medium to high speed, medium to high volume traffic. Standards include: • Limited access control • At-grade intersections • Partial median • Direct access to adjacent land through right turns in/out • Access spacing is 1/2-1 miles (urban), 1-3 miles (rural)

Access Management Category	Facility Characteristics
Category 4 Segments of the combined US 199 and Highway 99 are in this category	Provides for medium to high-speed, medium to high-volume traffic. Standards include: • Limited access control • At-grade intersections • Partial or no median • Direct access to adjacent land through right and left turns • Access spacing is 1/4 mile (urban), 1 mile (rural)
Category 5 Highway 238 is in this category	Provides for medium speed, medium to high volumes of traffic. Standards include: • Partial access control • At grade intersections, • No median • Direct access to adjacent land through right and left turns • Access spacing is 1/4 mile (urban), 1/2 mile (rural)
Category 6 Rogue River Loop is in this category	Provides for slow to medium speed and low to high volume traffic. Standards include: • Partial access control • At-grade intersections • No median • Direct access to adjacent land through right and left turns • Access spacing is 500 feet (urban) and 1/4 mile (rural)

ODOT's standards for access management are included in Table 7-4, along with guidelines for arterials and collectors for the Grants Pass Urban Area. Access control regulations for the City of Grants Pass are included in the City's Development Code. Some of the city's current regulations are less restrictive than ODOT's, e.g., the current City regulations allow closer spacing between private driveways (five feet for dwellings, and up to 22 feet for commercial and industrial uses). The City currently allows more access points for properties with frontage in excess of minimum lot sizes (e.g., properties of less than 100 feet of frontage are limited to two access lanes, and properties exceeding 100 feet of frontage are limited to two access lanes per 100 feet of frontage.) While the City's regulations are generally less restrictive than ODOT's, the City regulations state that the more restrictive ODOT requirements will apply on ODOT highways within the city.

Table 7-5 presents guidelines for the average situation. Exceptions may be justified for more restrictive, or less restrictive, access control based on the conditions at specific locations. When making a determination of the type and extent of access control to implement, the factors described below should be taken into consideration.

Existing Conditions - Development along individual roadways which has occurred over a long period of time under current regulations may not meet these access management guidelines. Trying to retrofit roadway facilities to meet new guidelines may not be

technically or politically feasible. These guidelines should serve as a target for ultimate access control for the facility, to be achieved over time as properties are developed or redeveloped.

Minimums versus Maximums - These guidelines provide a minimum level of access control for various types of facilities. More stringent levels of access control may be required to address safety issues (especially in the vicinity of intersections or major traffic generators), or to address congestion and capacity issues. Sub-standard spacing of intersections and/or driveways should be considered only where safe and effective traffic operations can be maintained on the roadway based on traffic analysis of the specific location.

One Size Does Not Fit All - Special access control standards may need to be established for individual facilities based on the results of ODOT corridor planning projects and/or local plans.

Retrofitting Versus New Development - These standards are most successful when applied to new development, when it is possible to design the most appropriate forms of access control before the construction of private properties, and/or transportation facilities begins. However, they should be used to "retrofit" existing roadways as opportunities occur in the process of property development, and/or facility improvements and upgrades.

Legal Rights to Access - Properties must be provided with some reasonable access to the public roadway system. Exceptions to the guidelines may be necessary in individual circumstances where properties have limited options for roadway access. Efforts should be made to find reasonable alternatives to direct connections from private properties to state highways and arterials. Access may be restricted to a lower classified roadway if the property is served by more than one roadway.

Access for Large Developments - For large properties with frontage that exceeds minimum spacing standards for private driveways, internal circulation options should be explored to minimize the number of access connections to the public roadways. The total number of access connections permitted may be less than the driveway spacing standards would indicate.

Design of Connections - Permitted connections must be designed and managed to be consistent with the function and purpose of the roadway. This means that they should be of sufficient width and turning radii to safely accommodate the level and type of traffic that will be using them. It may be desirable to provide acceleration and/or deceleration lanes (on the private property) to ensure that traffic entering/leaving the property does not impede traffic operations on the roadway.

Table 7-5 Access Management Guidelines for Grants Pass Urban Area

Facility	Access Treatment	ADT per lane	Access Spacing		Turn Management	Signal Spacing	Median Treatment
			Public Road	Driveway			
ODOT Cat 1 Interstate	Full control	n/a	2-3 miles (interchange)	None allowed	Ramps	None	Full
ODOT Cat 2 Statewide LOI	Full control	n/a	1/2 - 2 miles (at grade)	None allowed	High-type design turn channelization	1/2-2 miles	Full
ODOT Cat 3 Statewide LOI	Limited control	n/a	1/2 - 1 mile (at grade)	800 feet	Left and/or right turn lanes	1/2-1 mile	Partial
ODOT Cat 4 Statewide or Regional LOI	Limited control	n/a	1/4 mile (at grade)	500 feet	Left and/or right turn lanes	1/2 mile	Partial or none
ODOT Cat 5 Regional/Dist. LOI	Partial control	n/a	1/4 mile (at grade)	300 feet	Left and/or right turn lanes	1/4 mile	None
ODOT Cat 6 District LOI	Partial control	n/a	500 feet	150 feet	Left turn lanes	1/4 mile	None
Arterial	Partial control	3,000 to 6,000	500 feet	150 feet	turn lanes or turn pockets	600 feet	None
Collector	Partial control	1,500 to 3,000	300 feet	100 feet	short turn pockets	600 feet	None
Local collector	No control	500 to 1,500	250 feet	50 feet	None	None	None
Local residential	No control	0 to 500	200 feet	20 feet	None	None	None

Access Management Strategies for Facilities in the Grants Pass Urban Area

This section presents specific access management strategies aimed at managing access along local highways and arterials within the study area. Thirteen roadways and one complex interchange area were studied for the Grants Pass Urban Area MTP. Nine "hot spots" were identified which could benefit immediately by implementing access control measures. Existing access conditions were reviewed for the roadways and interchanges within the study area described in Table 7-6. Several of these roadways have segments with poor access control, which results in traffic flow and other operational problems, as well as safety issues.

Table 7-6 describes the roadway segments where access control problems were identified, along with the identification of potential access management techniques that could be used to address the identified problems in these locations. In looking at potential access management improvements, four major strategies were considered: (1) limiting the number of conflict points, (2) separating the basic conflict areas, (3) limiting deceleration requirements, and (4) removing turning vehicles from through traffic lanes. There are numerous specific techniques that can be used to implement these strategies. For this plan the techniques were grouped into the twelve major categories included in Table 7-6. Description of these twelve strategies are provided below.

1. Median Barriers - Installing a raised median barrier (concrete safety shape barrier a curbed non-traverseable median, or a landscaped median) can be used to prohibit left-turns to/from adjacent properties along a roadway. Left-turns are allowed at intersections or at upstream/downstream turn pockets where left and "U" turns are allowed. This technique is effective along roadway segments with high numbers of mid-block accidents (turning and or rear-end accidents), where roadway speeds are over 40 mph, or where the development level exceeds 30 driveways per mile of roadway. A center median barrier is currently used along Grants Pass Parkway. Installation of a median barrier along Redwood Avenue (Redwood Circle to Daisy Lane) would eliminate traffic weaving for left turns to/from the frequent driveways along both sides of the roadway.

2. Channelization and Delineation - Physical channelization and pavement delineation is used to align motorists with a preferable travel path or to discourage use of a route. Channelization can consist of a raised or otherwise delineated channelization island or other measures to provide adequate safety areas for merging vehicles and/or to eliminate bottleneck traffic conditions. Channelization can also consist of providing raised curbing, barriers or landscaping to separate the roadway from abutting parking areas. Such channelization could be very effective in controlling access along roadways such as the Rogue River Highway.

3. Signalization of Intersections - If properly designed, installed and maintained, traffic signals can reduce right-angle collisions, vehicular/pedestrian accidents, and opposing left turn collisions. However, rear-end collisions can increase. A driveway should be considered for signalization only if the signal would be "warranted" according to the standards in the *Manual on Uniform Traffic Control Devices* (MUTCD), and if the signal would not interfere with traffic progression and operation on the roadway. Currently there are signals along

Grants Pass Parkway to allow access to/from major commercial areas. Additional signals could be warranted to consolidate access from private properties to side streets such as "E" and "F" and then on to the Parkway.

4. Driveway Treatment - Driveway consolidation (to reduce the total number of access points) and driveway narrowing have wide potential application to the urban area roadways. There are several specific techniques that could be considered, including one way driveways, driveway consolidation and provision of on-site circulation systems, and closing of open fronted properties to consolidate entry/exit at one driveway location. One of the most common access problems in the Grants Pass area is the presence of many abutting parking lots along roadways. Driveways and channelization could be implemented to provide better control of entry/exit to these lots without impacting the availability and convenience of parking.

5. Side Street Access - Providing access to the road network via side streets instead of major arterials is aimed at maintaining the traffic movement function of the major roadway by locating private driveways on collector and/or local side streets and consolidating access to the arterials and/or highways at fewer points. The measure reduces the number of locations for conflict and potential interference of traffic flow and improves safety, by diverting some or all driveway vehicles to the side street location where traffic volumes and speeds are lower. An example of where this technique could be used is along "E" street where access could be provided via Mill Street rather than from driveways along "E" Street.

6. Provisions for Pedestrians and Bicycles - Providing facilities for non-motorized travel can improve safety and traffic operations. Along segments where the volume of pedestrians and/or bicyclists is high, and/or there is high volume and/or high speed traffic, it may be appropriate to provide one or more of the following types of improvements: (1) continuous or spot bicycle lanes to keep slower moving bicycle out of the traffic flow, (2) sidewalks or other facilities for pedestrians along the roadway; and (3) signalized crossings between intersections to allow pedestrian and/or bicyclists to cross the roadway safely. In some cases, it may be appropriate to install barriers to prevent pedestrians from crossing critical roadway links.

7. Removing On-Street Parking - The removal of on-street parking provides additional capacity for through movement of vehicles. In addition it may help with the movement of vehicles to/from adjacent properties by removing obstacles from the vicinity of driveways, and improving sight distance for motorists and travelers using non-motorized travel modes. Accident frequency and/or severity may be reduced because turning vehicles do not have to slow down so much and the speed differential between turning and through movement is reduced. On-street parking near driveways exists at several locations along "E", "F", 6th and 7th Streets.

8. Improving Sight Distance - Improving sight distance at driveways and intersections allows drivers of turning vehicles a better view of the roadway so they can identify acceptable gaps in traffic. In addition it allows drivers of through vehicles better perception of turning vehicles and better reaction and braking distances which helps them to avoid accidents. There are numerous locations where sight distance is impeded by roadway

alignment, buildings too near the roadway, topography, foliage and other landscaping, parked vehicles and other physical features. In some locations commercial establishments with insufficient setback distances and on-site parking and circulation use unpaved portions of the highway right-of-way for parking, e.g., Rogue River Highway. Enforcing regulations against such use would help to improve traffic flow and safety.

9. Acceleration/Deceleration Lanes - Installing special lanes for acceleration and/or deceleration for turning traffic allows slower moving vehicles to get out of the traffic stream. This improves overall traffic flow for through vehicles and reduces the potential for accidents. This technique is especially helpful in reducing "diverge", "merge" and "rear-end" accidents, and in improving perception times for drivers. Grants Pass Parkway and parts of Redwood Highway provide right-turn deceleration lanes. Acceleration/deceleration lanes should be considered along the Jacksonville Highway, particularly southwest of the 99/199/238 interchange.

10. Left-Turn Lanes - Left-turn lanes can be provided in several ways, including: continuous two-way-left-turn lane (TWLTL), as an alternating left-turn lane, or as an isolated left turn lane at or between intersections. Continuous TWLTL are applicable on roadways with adjacent strip development and low volume driveways; they are compatible with the function of collector streets and some minor arterials serving commercial and industrial and multi-family residential areas. They provide a level of access that may not be compatible with high volume, higher speed roadways. Alternating and isolated left-turn lanes are effective in reducing the frequency and severity of rear-end collisions by allowing slower moving and stopped vehicles to get out of the traffic flow. Continuous TWLTL exist along segments of Foothill Boulevard, Grants Pass Parkway, Rogue River Highway and Jacksonville Highway. Installation of additional TWLTLs should be considered along a segment of Redwood Avenue. Individual left-turn lanes could be justified along several area roadways.

11. Right Turn Lanes - Isolated right-turn lanes and continuous right-turn lanes provide a means of separating slower moving turning traffic from faster moving through traffic. They allow turning traffic to get out of the traffic stream and enter/leave adjacent properties. Continuous right-turn lanes are essentially a combination of a right-turn acceleration/deceleration lane that is extended to accommodate several nearby driveways. They are appropriate on high volume roadways with adjacent strip development that generates high volumes of turning traffic. This technique improves traffic flow and reduces the potential for rear-end and turning accidents.

12. Internal Driveways - Providing internal driveways between abutting parking lots or developments could remove local traffic from the roadway, and reduce the interference between turning vehicles and through traffic. The strategy for implementing this technique is to encourage adjacent property owners to permit property-to-property movements off of the highway, thus reducing the use of the highway for short trips between adjacent properties. This technique may be appropriate of several area roadways, including "E", "F", 6th and 7th Streets.

Table 7-6: Potential Access Management Strategies

Roadway Problem Locations	Segment	Description	Median Barrier	Channel-ization	Signal-ization	Driveway Treatment	X-Street Access	Bike/Ped Mngmnt	Restrict Parking	Sight Distance	Accel/Del Lane(s)	Left-turn Lane(s)	Right-turn Lane(s)	Internal Driveways
A Street	Highland to 6th/7th	2-lanes w/pkg. No turn lanes. 25 mph. All residential except near Chevron and hospital.		X		X			X					
	6th/7th to Foothill	2-lanes w/parking. No turn lanes. 25 mph. Mostly residential, few apartments, convenience store and high school.	X					X				X		
E Street	G.P. Pkwy. to 6th/7th	2-lane westbound, w/parking on left side from Mill to west, on right from 8th to west. No turn lanes. 35 mph to east of Skunk Cr., 20 mph to west Comm. and retail with numerous and close driveways.		X	X	X	X	X	X	X		X	X	X
F Street	6th/7th to G.P. Pkwy.	2-lane eastbound, w/parking isolated on both sides, includmg head-on and parallel. No turn lanes. 20 mph to west of Skunk Cr., 35 mph to east. Commercial and retail with numerous and close driveways.		X	X	X	X	X	X	X		X	X	X
Foothill Blvd.	A St to Agness	East end has 3-lanes (includes 2WLTL), west end has 2-lanes. 25 mph. Residential including apartments.												
Grants Pass Pkwy.	Hwy 99 to I-5	4 to 5 lanes (2WLTL in 5-lane segments) w/out parking, left turn lanes with right-turn deceleration lanes. 50 mph Bike lanes. No private driveways with uncontrolled access Well-spaced signals at public cross-streets.												
Hwy. 99/199/238	Vicinity of the south "Y"	5+ legged interchange of Highways 99, 199 and 238. Commercial and retail land uses within interchange area. Some driveways are close to key intersections.	X	X		X			X					
M Street	4th to 6th/7th	2-lanes w/out parking. Left turn lanes. 25mph. Retail uses.				X								
	6th/7th to G P Pkwy.	2-lanes w/parking and bike lanes. Only left-turn lane at 9th. 30 mph All residential.										X		
Redwood Ave.	Darneille to Dowell	2-lanes w/bike lanes. No turn lanes. 45 mph. Residential with 50'-100' minimum driveway spacing.												
	Dowell to Redwood Hwy.	2-lanes w/bike lanes. No turn lanes. 35 mph. Commercial uses. Parking lots abut roadway, numerous access points, wide driveways.	X	X		X	X					X		X
Redwood Hwy.	Willow Lane to Redwood Ave.	4-lanes w/out parking. Left turn lanes with right-turn deceleration lanes. 50 mph. Striped median. No private access from parkway. Vacant land.												
	Redwood Ave. to Hwy. 99	4-lanes w/out parking Left-turn lanes with right-turn deceleration lanes. 45 mph. Divided median with left-turns only at public roadways.		X		X	X							X
Rogue River Loop Hwy. ("G" St.)	Lincoln Rd. to 3rd St.	2-lanes w/parking and bike lanes. No turn lanes. 35 mph. All residential with few vacant lots.	X	X	X	X		X				X		

Table 7-6: Potential Access Management Strategies (continued)

Roadway Problem Locations	Segment	Description	Median Barrier	Channel-ization	Signal-ization	Driveway Treatment	X-Street Access	Bike/Ped Mngmnt	Restrict Parking	Sight Distance	Accel/Del Lane(s)	Left-turn Lane(s)	Right-turn Lane(s)	Internal Driveways
Rogue River Hwy	G.P. Pkwy. To Hamilton	3-lanes (includes continuous 2WLTL) w/out parking. Has shoulders. 40 mph. Commercial & retail uses w/abutting parking lots.	X	X	X	X		X	X			X		X
	Hamilton to Mt. Baldy	2-lanes w/out pkg. No turn lanes. Gravel and paved shoulders. Commercial, retail and vacant uses w/abutting parking lots.		X		X						X		
Sixth St	I-5 to Midland	2-lanes southbound, w/parking isolated on both sides. No turn lanes. 35 mph Commercial and retail. Some close driveway spacing.				X	X		X					
	Midland to G.P. Pkwy.	4-lanes southbound, w/parking on both sides. No turn lanes. 30 to 25 mph. Commercial and retail. Some close driveway spacing.				X	X						X	X
Seventh St.	Midland to I-5	2-lanes northbound, w/parking on both sides. No turn lanes. 35 mph. Commercial and retail. Some close driveway spacing.				X	X		X	X				X
	G P. Pkwy. To Midland	3-lanes northbound s/o Jackson, w/out parking. 2-lanes, w/out parking n/o Jackson. No turn lanes. 25 to 30 mph. Commercial and retail. Some close driveway spacing.				X	X							X
Jacksonville Hwy.	Shadow Mtn. Way to New Hope	2-lanes w/narrow shouldersand no turn lanes. 55 mph Golf course.				X	X	X		X		X	X	
	New Hope to Meridian Way	5-lanes (includes continuous 2WLTL) w/out parking. Has curbs, bike lanes. 40 mph. Residential uses with limited commercial activity. School. Few vacant parcels.	X	X		X	X							
	Meridian Way to G.P. Pkwy.	5-lanes (includes continuous 2WLTL) w/out parking. Has curbs, bike lanes, 30 mph. Shopping centers prevail.	X	X		X					X			X

Residential Traffic Management (RTM)

Traffic in residential areas is an issue in many parts of the Grants Pass Urban Area. Appendix D to this Plan includes excerpts from *A Guidebook for Residential Traffic Management*, prepared for the Washington State Department of Transportation. Copies of the complete document can be obtained from ODOT's Technology Transfer Office, or directly from the Washington State Department of Transportation.

Programs and practices to manage traffic in residential areas have many names: "neighborhood traffic control (NTC)," "traffic restraint", "traffic calming", "local area traffic management", and "environmental traffic management (ETM)." The key words are "calming", "restraint," and "management." Nearly all RTM programs seek to make residential streets safer, and to reduce traffic intrusion into neighborhoods by reducing traffic speeds, traffic noise, visual impacts, and traffic volumes.

RTM programs accomplish these objectives through several tactics including: physical, psychological, visual, social and legal (regulatory and enforcement) methods. Table 7-7 highlights some of the more common actions included in RTM programs. Table 7-8 includes a more comprehensive listing and description of RTM techniques.

It would be best to address specific neighborhood issues in the Grants Pass area in a systematic manner in order to ensure consistency throughout the urban area, allocate limited funds to the most serious problem locations, and ensure equity in the expenditure of funds for neighborhood traffic control. Part E of Appendix Dincludes a section on "Setting Up a Self Managed Program in Small Communities."

This has been briefly summarized below to provide an example of how the Grants Pass area could address neighborhood traffic issues.

- Step 1 - Determine the legal authority of the City of Grants Pass and Josephine County to implement a RTM program.
- Step 2 - Establish specific goals and objectives for the local RTM program.
- Step 3 - Identify needs in a consistent and equitable manner for neighborhoods throughout the Grants Pass Urban Area, using complaints from residents, and factual information about existing conditions.
- Step 4 - Assess identified problems to understand the nature of problems, and their complexity, magnitude and origin(s).
- Step 5 - Develop alternative solutions to address the identified problem(s) in the specific location(s) where it exists.
- Step 6 - Evaluate alternative solutions to determine the best approach.
- Step 7 - Select a preferred alternative based on the evaluation of the strengths and weaknesses of the various alternatives.
- Step 8 - Implement the selected alternative using either temporary or permanent devices or programs to control traffic.

- Step 9 - Evaluate the results to determine how effective the solution is in achieving its objectives, and make appropriate modifications if needed.

Table 7-7: Residential Traffic Management Strategies

Goals	General Strategy	Examples
Reduce Through Volume	Physical Means	Traffic circles, speed humps, traffic diverters, street closures
Reduce Vehicle Noise	Psychological Means	Variable-spaced paint stripes
Reduce Visual Impacts	Visual Means	Landscaping to block through views
Reduce Traffic Speeds	Social Means	Neighborhood "Speed Watch" programs
Reduce Accidents	Legal Means	Strict speed and traffic enforcement

Individual RTM programs are defined largely by their goals and objectives, and the tools that communities select to achieve them. The goals typically include the kinds of goals included in Table 7-7, with some variation in content and emphasis by community. The tools used to achieve these goals fall into four major categories:

- Education and enforcement programs such as "emphasis patrols" by local police to catch speeders, elementary school programs to teach and reinforce "defensive walking and biking" habits, or "speed watch" programs conducted by local residents;
- Laws and ordinances prohibiting through traffic and/or trucks in residential areas, posting speed limits in residential areas, and on-street parking restrictions;
- Traffic control devices ranging from turn prohibitions at key entry points to a succession of stop signs; and
- Geometric design features such as physical restrictions to induce low speed travel such as narrow streets, traffic circles or speed humps, and even traffic diverters and street closures.

Table 7-8: A Catalog of RTM Actions

Device	Definition	Volume Reduction	Speed Reduction	Change in % trucks	Environment/Pollution Changes in conditions		Safety			Emergency/ Service Vehicle Access/Delay	Dependence on Police Enforcement	Level of Violation	Type/ Classification of Street			Impact on Adjacent Arterial	Use on Bus Route	Use with Driveways On Street	Use with Curbs & Gutters	Construct Cost/ Problems	Maintenanc Cost/ Proble	Aesthetics/ Landscapin Potential	Useful for Spot/Areawic Problems
					Noise	Air	Vehicle Conflicts	Pedestrian	Bicyclist				Collector Commercial	Local Streets Neighborhood Collector	Local Streets Local Access								
Bicycle Lanes	Lanes reserved for bicycles	No	No	No	No change	No change	-	-	Improved	No effect	-	Low	Yes	Yes	Yes	No	Yes	Plan with care	-	Low	Low	-	Both
Crosswalks	Painted pedestrian crossing areas mid-block or at intersections	No	No	No	No change	No change	No change	No change	No change	-	-	Low	Yes	Yes	Yes	No	Yes	Yes	Yes	Low	Low	No	Both
Curb Extensions (Entry, Exit, Mid Block)	Extension of the curb into the roadway to create a narrower travel lane to protect parking strip or shorten pedestrian crossing distance	No	Slight	No	Slight Improvement	No change	No effect	Improved	Plan with care	No problems	-	-	Yes	Yes	Yes	No	No	Yes	Yes	Moderate	Low to Moderate	Yes	Both
Diagonal Diverters	Barrier placed diagonally across an intersection to force drivers to make a sharp turn but not allow other movements	Yes	Likely	Yes	Reduction	Improved	Improved	Varies	Varies	Minor Constraint	Self Enforcing	-	No	Avoid	Yes	Yes	Plan with care	Yes	Yes	Low	Moderate	Yes	Usually Areawide
Enforcement (Visible & active police presence)	Extensive traffic enforcement, "emphasis patrols."	Not likely	Yes, temporary	Not likely	Possible reduction	No change	-	Improved	Improved	-	High	Low	Yes	Yes	Yes	Yes	Yes	Yes	-	-	Moderate	-	Both
Forced Turn Islands, Barriers, Channelization	Traffic islands or curbs specifically designed to prevent traffic from executing specific movements at an intersection	Yes	Likely	Yes	Reduction	No change	Improved	Improved	Varies	Minor constraints	-	Low	Yes	Yes	Yes	Yes	No Major Effect	Yes	Yes	Can be complex	Low	Optional, Depends upon priority	Both
Median Barriers	Barrier along the center line of a roadway to prohibit left turns or cross traffic	Yes	No	Possible	reduction	Decrease	Improved	Varies	Varies	Minor constraints	-	Low	Yes	Yes	Yes	No	Possible	Plan with care	Yes	Complex	Varies	Varies	Both
Median Entry/Exit Islands	Traffic islands used to create narrower roadway at entry/exit point	Possible	No	Possible	Possible reduction	Possible Decrease	Improved	Improved	Varies	Minor constraints	-	Low	Yes	Yes	Yes	No	No	Yes	Yes	Low	Varies	Yes	Both
Median Mid Block Islands	Traffic islands between intersections to create a narrower roadway or provide refuge for crossing pedestrians	No	Slight	Slight	No change	No change	Improved	Improved	Varies	Minor constraints	-	Low	Yes	Yes	Yes	No	Possible	Plan with care	Yes	Low	Low	Varies	Both
Mid-Block Slow points, Chicanes	Curbed islands or curb extensions protruding into the roadway, leaving a single-lane or narrow two-lane gap, often at an angle to the centerline	Yes	Yes	Likely	Reduction	Decrease	Improved	Improved	Questionable	Minor constraint	Self Enforcing	-	Yes	Yes	Yes	No	Yes	Avoid near driveways	Yes	Moderate	Moderate to High	Yes	Both
Neighborhood Traffic Safety/Campaign Program (Education)	Distribute safety information, special pedestrian safety classes for children	No	Not likely	Not likely	No change	No change	-	Possible Improvement	Possible Improvement	-	-	-	-	-	-	-	-	-	-	-	-	-	Both
Neotraditional Neighborhood Design	Integrated land use and transportation design to increase transit and non-motorized travel to non-residential destinations within the neighborhood	Likely	Likely	Likely	Likely reduction	Unknown	Improved	Improved	Improved	No constraint	-	Low	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Can be high	Varies	High	Area
Novelty signs	"Slow - Nudist Crossing", etc.	No	No	No	No change	No change	No change	No change	No change	-	-	High	No	No	Yes	-	-	-	-	Low	High	No	Spot
Odd speed limit signs	"13 MPH", etc	No	No	No	No change	No change	No change	No change	No change	-	High	High	No	Yes	Yes	-	-	-	-	Low	High	No	Spot
One-Way Entry/Exit Chokers, Half closures, Semi-Diverters	A barrier to traffic in one direction of a street which permits traffic in the opposite direction to pass through	Possible	Yes	Not likely	Reduction	No change	Improved	Improved	Improved	Minor constraint	Initially high	Varies	Avoid	Avoid	Yes	Possible	Plan with care	Yes	Yes	Low	Moderate	Yes	Both
One-Way streets and signs	Restricted entry/exits to/from neighborhoods, one-way street patterns	Yes	Varies	Possible	Reduction	Improved	Improved	Improved	Improved	Plan with care	Low	Low	Yes	Yes	Yes	Yes	Plan with care	Yes	-	Low	Low	-	Usually Areawide
Parking Variants Class I (Zones, Signs, Striping, timed, resident restricted)	Parking areas create narrower roadways and increased activity leading to increased attention by drivers	Possible	Likely	Likely	Possible reduction	No change	Possible Improvement	Possible Improvement	-	No effect	Low	Varies	Yes	Yes	Yes	Yes	Yes	Yes	-	Low	Low	-	Both
Parking Variants, Class II (Shifting Traveled Way)	Alternating parking from one side of street to the other, parallel or diagonal	Possible	Likely	Not likely	Possible reduction	No change	Increased conflicts	Possible Improvement	Varies	No effect	-	-	Yes	Yes	Yes	No	No	Yes	Yes	Low	Low	Yes	Spot

Table 7-8: A Catalog of RTM Actions (continued)

Device	Definition	Volume Reduction	Speed Reduction	Change in % trucks	Environment/Pollution Changes in conditions		Safety			Emergency/ Service Vehicle	Dependence on Police	Level of Violation	Type/ Classification of Street			Impact on Adjacent	Use on Bus	Use with Driveways	Use with Curbs &	Construct Cost/	Maintenanc	Aesthetics/ Landscapin	Useful for Spot/Areawi
					Noise	Air	Vehicle Conflicts	Pedestrian	Bicyclist	Access/Delay	Enforcement		Collector Commercial	Local Streets Neighborhood Collector	Local Access	Arterial	Route	On Street	Gutters	Problems	Cost/ Proble	Potential	Problems
Pavement Treatment, Class II (Texture/Composition, Patterns, Color)	Special pavement compositions and markings to alert drivers of special conditions	Not likely	Possible	Possible	Possible reduction	No change	-	Possible improvement	Varies	No constraint	-	-	Yes	Yes	Yes	No	Yes	Yes	-	Low	Low	-	Both
Pavement Treatments, Class I Marking and Striping & Color	Special pavement markings at entries, hazard locations or crosswalks to alert drivers of special conditions	No	Possible	Not likely	No change	No change	-	Possible improvement	-	No effect	-	-	Yes	Yes	Yes	No	Yes	Yes	-	Low	Low	Yes	Both
Raised Crosswalks	Crosswalks raised transversely across the pavement	Possible	Yes	Not likely	No change	No change	-	Improved	Plan with care	Minor constraint	Self Enforcing	-	Plan with care	Yes	Yes	Yes	Plan with care	Yes	Yes	Moderate	Low to Moderate	Yes	Site
Speed Alert w/Warning	Residents use radar to clock speeds, record license plate numbers, police send notice to drivers	No	Varies	Not likely	Slight, temporary, reduction	No change	-	Slight, temporary, improvement	No change	-	High	-	Yes	Yes	Yes	No	Yes	Yes	-	-	Low	-	Both
Speed Bumps (about 3 5"h X 6")	Short strips of raised pavement, avoid using on public streets	Possible	Varies	Yes	Increased noise	Increase	Safety problem	Improved	Plan with care	Significant problems	Self Enforcing	-	No	No	No	-	No	-	-	Low	High	-	Spot
Speed Humps (about 2.75-4"h X 12')	Raised sections of pavement across the traveled way with curved transitions	Possible	Yes	Possible	No change	No change	-	Improved	Plan with care	Minor constraint	Self Enforcing	-	Plan with care	Yes	Yes	Yes	Yes	Yes	Yes	Low	Low to Moderate	Yes	Both
Speed limit signs	"25 MPH in residential areas", etc	No	No	No	No change	No change	No change	No change	No change	-	High	High	Yes	Yes	Yes	No	-	-	-	Low	Low	No	Both
Speed Tables (3-4"h X 22')	Speed humps with a long flat section, often used as crosswalks	Possible	Yes	Possible	No change	No change	-	Improved	Plan with care	Minor constraint	Self Enforcing	-	Plan with care	Yes	Yes	Yes	Plan with care	Yes	Yes	Moderate	Low to Moderate	Yes	Both
Speed Watch	Illuminated display shows actual speed to passing drivers	No	Varies	Not likely	Slight, temporary, reduction	No change	-	Slight, temporary, improvement	No change	-	None	-	Yes	Yes	Yes	No	Yes	Yes	-	-	Low	-	Spot
Stop Signs	Stop signs, two way or four way, used to assign right-of-way at intersections	Seldom	Varies	Not likely	Increased noise	Increase	Varies	Varies	Varies	No constraint	Low	Varies	Follow MUTCD guidelines	MUTCD guidelines	MUTCD guidelines	No	Yes	Yes	-	Low	Low	-	Both
Street Closures, Cul-De-Sacs	A complete barricade of a street at an intersection or a dead end street	Yes	Yes	Yes	Reduction	Improved	No	Improved	Improved	Significant constraints	-	-	No	No	Yes	Yes	No	Yes	-	Moderate	Moderate to High	Yes	Both
Traffic Circles	These geometric design features force traffic at intersections into circular maneuvers	Possible	Yes, near circle	Yes	No change	No change	Improved	Varies	Varies	Minor Constraint	Self Enforcing	-	Plan with care	Yes	Yes	Yes	Plan with care	Yes	Yes	Low	Moderate	Yes	Both
Traffic signals	Vehicle or pedestrian actuated	No	Possible	No	Increase	Increase	Improved	Improved	Improved	-	-	Low	Yes	Avoid	No	No	-	-	-	Moderate	Low	No	Both
Truck prohibitions	"No trucks over 10,000 lbs ", etc	Minor	No	Yes	Likely reduction	Slightly improved	Improved	Improved	Improved	-	-	Low	No	Yes	Yes	Yes	-	-	-	Low	Low	No	Area
Turn Prohibition sign	Regulatory signs at intersections	Yes	Likely	Possible	Reduction	No change	Improved	Varies	Varies	No effect	Low	Varies	Yes	Yes	Yes	Yes	Yes	Yes	-	Low	Low	-	Both
Woonerf	Traffic calmed residential area where the street is an extension of the front yards and vehicles share street space with bikes and pedestrians	Yes	Yes	Yes	Significant reduction	Improved due to lower vol	Improved	Improved	Improved	No constraint	-	Low	No	No	Yes	No	No	Yes	Yes	High	Varies	High	Spot

Travel Demand Management

In addition to managing the transportation system to achieve better operating efficiencies, it is equally important to manage the demand for travel. Travel demand strategies focus on one or more of the following objectives:

- Reducing the total amount of travel demand (i.e. eliminating trips or shortening the travel distance),
- Changing the modes of travel from the single occupant vehicle to more efficient travel modes such as carpooling, public transit, walking or bicycling,
- Relocating travel from congested corridors to less congested ones to balance the use of transportation facilities more efficiently, or
- Redistributing travel from peak periods (when the worst congestion occurs) to non peak times when there is more capacity available in the transportation system.

There are a wide variety of specific techniques that can be used to accomplish these objectives. A summary of such techniques is included in Table 7-9. The techniques are rated according to their relative effectiveness in inducing changes in travel mode from private automobile to ridesharing or non-motorized travel, (high, medium, or low); and in their relative costs for implementation (high, medium or low). It is important to maintain reasonable expectations about the potential effectiveness of TDM measures in communities like Grants Pass. Given the current situation regarding development patterns, alternatives to the private automobiles for travel, and the relative ease of driving and parking in the Grants Pass Urban Area it may be difficult to effect a significant change in the mode of travel selected by area residents and visitors.

There are five keys to successful travel demand management:

- Careful integration of land use and transportation decisions to provide for more compact development, minimization of sprawl, and provision of reasonable opportunities for travel by walking, bicycling and/or public transit;
- Provision of reasonable and attractive alternatives to traveling by private automobile, especially during the peak hour;
- Sufficient incentives and disincentives to encourage people to change their travel from less efficient to more efficient travel patterns;
- Coordination and integration of TDM programs and policies with other transportation decisions to ensure that facilities are designed to accommodate travel by means other than the private automobile, and
- Active support and implementation of TDM strategies by the private sector, particularly employers.

Table 7-9: Potential TDM Strategies

Strategy or Technique	Relative Effectiveness	Relative Cost
Carpool, Vanpool Program	Medium	Medium
Public Transportation System	Medium	High
Car/vanpool Preferential Parking (location and/pricing)	High	Low
Ridesharing Education and Promotion	Medium	Low
Guaranteed Ride Home Program	Low	Low
Flextime- Adjustable Working Schedules	Medium	Low
Transportation/Parking Management Association	Medium	Medium
Bicycle Facilities (on and off road)	High	Medium

There are fewer opportunities to manage travel demand in the Grants Pass Urban Area than in a more densely developed city such as Portland. So far, travel by private automobile is relatively easy. There is little congestion which would deter some drivers; parking is readily available throughout the urban area and largely free, and public transit alternatives are fairly limited. For those people who have access to a private vehicle, there are few disincentives to using it. However, the community can work towards reducing travel per capita as specified in the goals and policies element of this plan through:

- Consideration of the travel implications of proposed development,
- Encouraging developers to provide facilities for bicyclists and pedestrians,
- Supporting the provision of public transit services for "transit dependent" and for "transit choice" travelers,
- Educating the community about the benefits of travel demand management, and encouraging people to "share the ride" and/or use alternatives to the private automobile for their travel needs, and
- Implementing parking management strategies that reward those who travel by carpool rather than single occupant vehicles.