

among the state's top ten percent of hazardous locations. The SPIS is a method developed by ODOT for identifying potential hazardous locations on state highways. The SPIS score is based on three years of crash data and considers crash frequency, crash rate, and crash severity. ODOT bases its SPIS on 0.10 mile segments to account for variances in how crash locations are reported. This information is a general comparison of the overall safety of the highway based on the crash information for all sections throughout the state. After reviewing this list for Cottage Grove through the study area, it was found that SPIS ratings are relatively low with no locations in the top 10% of hazardous locations over the past five years.

City Street Performance

The last five years (2000 through 2004) of available collision data was reviewed for the remaining study intersections on city streets. The data found 53 collisions occurred over the five year period within 100 feet of the study intersections not located on OR 99. Table 3-9 summarizes the study intersection collision data by crash type. As shown, the majority of collisions were categorized as turning movement (42%), rear end (26%) and angle (23%).

Table 3-9: City Study Intersection Collision Data by Type

Intersection	Backing	Parking Maneuver	Pedestrian	Angle	Head-On	Side-swipe/ Over-taking	Rear-End	Turning Movement	Fixed Object	Total
I-5 (SB) / Gateway Blvd/Cottage Grove Connector	1	-	-	2	-	-	1	5	-	9
I-5 (NB)/Row River Road/Cottage Grove Connector	-	-	-	-	-	-	-	5	-	5
Main Street/River Road	-	-	-	2	-	-	2	2	-	6
Main Street/16th Street	-	-	-	2	-	1	2	6	-	11
Main Street/Gateway Boulevard	1	-	-	3	-	1	9	2	1	17
Harrison Avenue/River Road	-	-	-	3	-	-	-	2	-	5
Main Street/R Street	-	-	-	-	-	-	-	-	-	-
Monroe Avenue/10th Street	-	-	-	-	-	-	-	-	-	-
Taylor Avenue/8th Street	-	-	-	-	-	-	-	-	-	-
I-5/6th Street	-	-	-	-	-	-	-	-	-	-
Total Collisions	2	-	-	12	-	2	14	22	1	53

Source: ODOT - Transportation Data Section - Crash Analysis and Reporting Unit, Continuous System Crash Listing, City of Cottage Grove, 2000-2004.

Table 3-10 illustrates the collision rates for study intersections on city streets. All of the study intersections are well below a collision rate of 1.0 and therefore do not identify an immediate traffic safety concern.

Table 3-10: City Study Intersection Collisions (2000-2004)

Intersection on OR 99	Fatal	Non-Fatal Injury	Property Damage Only	Total Collisions	Collision Rate
I-5 (SB)/Gateway Blvd/Cottage Grove Connector	0	5	4	9	0.24
I-5 (NB)/Row River Road	0	1	4	5	0.18
Main Street/River Road	0	1	5	6	0.36
Main Street/16 th Street	0	6	5	11	0.46
Main Street/Gateway Boulevard	0	6	11	17	0.63
Harrison Avenue/River Road	0	3	2	5	0.52
Main Street/R Street	0	0	0	0	0.00
Monroe Avenue/10 th Street	0	0	0	0	0.00
Taylor Avenue/8 th Street	0	0	0	0	0.00
I-5/6 th Street	0	0	0	0	0.00

Source: ODOT – Transportation Data Section – Crash Analysis and Reporting Unit, Continuous System Crash Listing, City of Cottage Grove, 2000-2004.

Although historical crash data may not indicate that an immediate safety concern exists at a particular intersection, the location may be hazardous or difficult to maneuver for travelers. Public dissatisfaction due to perceived safety risk exists at the following locations:

- The intersection of Woodson Place and OR 99 due to narrow roadway width and queuing that develops on the Woodson Bridge.
- The intersection of the Cottage Grove Connector and OR 99 due to the unusual intersection design.
- The intersection of Main Street and OR 99, as discussed in the Cottage Grove Downtown Revitalization and Refinement Plan.¹³

Access Management

Proper roadway access spacing is important to maintain operating characteristics and safety. Typically, each parcel is allowed access to the nearby roadway. However, when roadway access points are located too frequently along a roadway, action may need to be taken. Access management practices can include the closure, consolidation or relocation of accesses.

The ODOT access management standards for District Highways, as defined in OAR 734-051, call for minimum distances between access points on the same side of the road. The standards vary depending on posted speed on the roadway, as shown in Table 3-11. The ODOT access management standards apply to OR 99.

¹³ Cottage Grove Downtown Revitalization and Refinement Plan, CH2M Hill, Alta Planning & Design, Angelo Eaton & Associates, June 2005.

Table 3-11: ODOT Access Management Standards (feet)

Facility	Posted Speed (MPH)			
	55 or greater	50	40,45	35 or less
District Highway	700'	550'	500'	350'

Source: Oregon Highway Plan, Table 15, ODOT (1999)

The Lane County access management standards are described in Table 3-12. Like ODOT standards, the required minimum spacing varies depending on posted speed on the roadway. Spacing standards for county roads classified as local require 20 feet for residential dwellings no larger than a triplex, and 100 feet for other uses. No access spacing standards are identified in the Cottage Grove Comprehensive Plan or 1998 Cottage Grove TSP. However, access spacing standards will be defined in the Development Code.

Table 3-12: Lane County Approach Spacing Standards

Facility	Posted Speed Limit (MPH)				
	55 or greater	50	40, 45	30, 35	25 or less
Principal Arterial	700'	550'	500'	400'	400'
Minor Arterial or Major Collector	475'	475'	400'	275'	200'
Minor Collector	325'	325'	325'	220'	150'

Source: Lane County Code, Chapter 15 – Roads, Lane Code 15.138

An access inventory was conducted along OR 99 within the Cottage Grove UGB and along Main Street between R Street and Gateway Boulevard. Both roadways and driveways were considered access points. Table 3-13 identifies approximate average distances between access points on OR 99 and Main Street within Cottage Grove. The approximate locations and densities of access points on Main Street and OR 99 are illustrated in Technical Appendix G, Figure 2.

Table 3-13: Existing Access Spacing Along Select Roadway Segments

Roadway	From	To	Average Access Spacing	Access Spacing Standard	Standard Met?
OR 99	North UGB Limits	River Road	500'	350'	Yes
OR 99	River Road	Cottage Grove Conn.	<150'	350'	No
OR 99	Cottage Grove Conn.	Woodson Place	<150'	350'	No
OR 99	Woodson Place	Main Street	<150'	350'	No
OR 99	Main Street	Harrison Avenue	<150'	350'	No
OR 99	Harrison Avenue	River Road	850'	500'	Yes

Roadway	From	To	Average Access Spacing	Access Spacing Standard	Standard Met?
OR 99	River Road	Emerson Lane	250'	700'	No
Main Street	R Street	River Road	<150'	na	na
Main Street	River Road	Main Street	150'	na	na
Main Street	Main Street	12 th Street	<150'	na	na
Main Street	12 th Street	Gateway Boulevard	<150'	na	na

Most segments of OR 99 do not meet ODOT access spacing standards as a result of frequent roadway intersections or driveways located along the highway as it passes through residential areas. An exception is the segment between North River Road and the UGB limits to the north. The posted speed limit is 35 mph along most of the segment and therefore the 350 foot ODOT access spacing standard is met. Access management considerations along OR 99 include:

- Between North River Road and the Cottage Grove Connector, there are both residential and commercial land uses, with residential roadways constituting most of the access points on the western side of the roadway and commercial land uses on the eastern side.
- South of the Cottage Grove Connector to Woodson Place, land uses are primarily commercial to the west of the highway and residential to the east. Access point consolidation may be considered along this segment.
- The segment of OR 99 (9th Street) between Woodson Place and Main Street is primarily single family residential, therefore access improvements are unlikely.
- OR 99 between Main Street and Harrison Avenue includes a high frequency of driveways which are primarily for commercial land use. This segment of roadway has potential locations for implementation of access management practices.
- Between Harrison Road and South River Road there are few access points, as the roadway is bordered by primarily undeveloped land to the west and the railroad right of way to the east. Future development along this segment should take into account access management principles.
- South of Harrison Avenue to Emerson Lane, OR 99 has moderate access density despite being bordered by the railroad right of way to the east side. Driveways corresponding to individual tax lots and roadways make up the majority of access points along this segment. With limited access to other nearby roadways in the area, changes to access along this segment may be limited.

Main Street is under city jurisdiction, however, given the lack of spacing standards in place for the city, Lane County standards are used to assess the existing access spacing. For a minor arterial the Lane County spacing standard is 275 feet where posted speed limits are 30 mph, and 200 feet where speed limits are less than 25 mph. The density of roadways as well as residential and commercial driveways along Main Street result in each of the segments not meeting the County spacing standards identified.

- Between R Street and River Road, Main Street is surrounded by primarily single family residential land use. Changes to access are unlikely unless redevelopment occurs.
- Between River Road and OR 99 (9th Street), the access points on Main Street are primarily from roadways in the downtown core. Changes to access are unexpected to the area.
- Main Street east of OR 99 (9th Street) to 12th Street and from 12th Street to Gateway Boulevard is primarily commercial land use and has a high frequency of access points. These segments of roadway are potential locations for access management practices.

Trucks

Efficient truck movement plays a vital role in the economical movement of raw materials and finished products. The designation of through truck routes provides for this efficient movement while at the same time maintaining neighborhood livability, public safety, and minimizing maintenance costs of the roadway system. ODOT does not designate OR 99 as a truck route. The only ODOT designated truck route in Cottage Grove is I-5. Lane County and the City of Cottage Grove do not identify any truck routes within the Cottage Grove UGB. However, OR 99 has been used as a temporary truck route while capital improvements are performed on I-5 bridges.

Truck (heavy vehicle) volumes and percentages of the traffic stream were collected as part of the intersection turn movement counts and were used in traffic level of service calculations. Truck volumes and percentages at the study intersections are illustrated in Table 3-14.

Table 3-14: 16-Hour Count Truck Volumes at Study Intersections

Intersection	Intersection Truck Volume	Truck % of All Vehicular Traffic
I-5 SB Ramps/Cottage Grove Connector	1,200	6%
I-5 NB Ramps/Row River Road	1,030	7%
I-5 Off Ramp/6 th Street	300	9%
I-5 On Ramp/6 th Street	510	12%
OR 99/Cottage Grove Connector	450	2%
OR 99/Woodson Bridge ¹	370	3%
OR 99/Main Street ¹	470	3%
OR 99/6 th Street ²	260	3%
OR 99/4 th Street	290	4%
OR 99/S. River Road	370	7%
Main Street/Gateway Boulevard ³	280	2%
Main Street/16 th Street ³	200	2%
Main Street/River Road	220	3%
Main Street/R Street	160	4%
Harrison Avenue/River Road	70	2%

Intersection	Intersection Truck Volume	Truck % of All Vehicular Traffic
S. 8 th Street/Taylor Avenue	100	3%
S. 10th Street/Monroe Avenue	30	1%

Source: ODOT Transportation System Monitoring Unit Counts, October, 2005, unless otherwise noted.

¹ ODOT Transportation System Monitoring Unit Counts, January, 2004.

² ODOT Transportation System Monitoring Unit Counts, March, 2004. (14 hour count, 6AM to 8PM)

³ ODOT Transportation System Monitoring Unit Counts, February, 2006.

Other Travel Modes

There are four other modes of transportation included in the TSP Update: rail, pipeline, air, and water. Existing transportation systems for these modes are considered adequate for the current needs of the Cottage Grove community.

Waterway

While the Coast Fork Willamette River travels through Cottage Grove and the Row River borders the city on the east side, no waterways are used for transportation purposes within the UGB.

Railroads

A short line freight railroad owned by Central Oregon & Pacific Railroad runs through the City of Cottage Grove. The rail line, known as the Siskiyou Line, runs parallel to OR 99 throughout most of the City. The Siskiyou Line track is maintained to Federal Railroad Administration Class 1 and 2 conditions. The route is used for freight hauling with lumber making up a large share of transported goods. The route serves an average of approximately five trains per day and provides a connection between Medford and Eugene. Train lengths typically vary from 25 to 75 cars in length.

Passenger rail service is not available in Cottage Grove. However, passenger rail service is available in Eugene on Amtrak. Connections to Amtrak service (as well as additional intercity buses through Greyhound Lines) in Eugene may be made via LTD bus service.

Pipelines

No major pipelines are located in Cottage Grove.

Airport

The Cottage Grove State Airport is located off Airport Road in northeast Cottage Grove within the urban growth boundary. The airport is owned by the Oregon Department of Aviation and is used by both public and private parties. Cottage Grove State Airport is classified as a Category 4 airport by ODOT and may be used by small recreational planes or light jets. The runway is approximately 3,200 feet long and 60 feet wide with pavement asphalt in good condition. Oregon Aeronautical personnel routinely perform inspections of the facilities. The airport has a daily average of 46 aircraft operations (take-offs and landings). The airport's runway protection zone and airport imaginary service regulations set limitations to development in the area immediately surrounding the airport.

Commercial passenger service is available at the Eugene Airport, located approximately 30 miles north of Cottage Grove.

Work Distribution and Journey to Work

Census data¹⁴ indicate that 89.5% of workers travel via car, truck or van, with 77.8% of all workers driving alone and 11.7% carpooling. Other commuters travel by walking (4.5%), biking (0.8%) or using public transportation (1.5%). The remaining workers either remain at home (3.4%) or use other means of transport.

The Census data also indicate that 42.5 percent of workers who did not work at home traveled between 25 and 45 minutes to reach work. A significant portion of these travelers are believed to be destined to the Eugene/Springfield metropolitan area, as 25-40 minutes is the approximate travel time expected to reach the area. In comparison, 37.7 percent of workers travel less than 15 minutes, a travel time which would be adequate for most trips within Cottage Grove. These statistics indicate that a significant portion of the workers in Cottage Grove travel to the Eugene area for work.

¹⁴ U.S. Census Bureau, 2000 Census Summary File 4, Journey to Work: 2000, Cottage Grove, Oregon.

4. FUTURE DEMAND

As part of the City of Cottage Grove Transportation System Plan (TSP) Update, an analysis was performed of 2025 future demand on the Cottage Grove transportation system. The analysis is based upon the transportation system inventory (performed during the summer of 2006) and analysis of existing conditions (Chapter 3). The analysis does not furnish a twenty-year analysis from the expected date of adoption of the TSP, as forecasts of future demand are based on land use projections for 2025.

A forecast model was used to determine future traffic volumes in Cottage Grove for the year 2025. This forecast model translates assumed land uses into person travel and assigns motor vehicles to the roadway network. These traffic volume projections form the basis for identifying potential roadway deficiencies and for evaluating alternative circulation improvements. This section describes the forecasting process including key assumptions and the land use scenario developed from the existing Comprehensive Plan designations and allowed densities.

Projected Land Use Growth

Land use is a key factor in developing a functional transportation system. The amount of land that is planned to be developed, the type of land uses and how the land uses are mixed together have a direct relationship to expected demands on the transportation system. Understanding the amount and type of land use is critical to taking actions to maintain or enhance transportation system operation. The following section summarizes the forecasted growth that will influence travel within Cottage Grove.

Projected land use changes were developed for the study area and reflect information provided from several sources. Lane County's 2025 coordinated population projection for Cottage Grove is used to estimate expected growth in households within the Cottage Grove UGB. The existing average household size of 2.6 is retained for future forecasting. The 2001 Cottage Grove Buildable Lands Analysis included a 2020 employment projection based on historical trends. This projection was adjusted upwards to account for economic development activities and a 2025 horizon year. Local knowledge of known and expected developments was used to supplement and adjust the land use forecasts where appropriate. Table 4-1 summarizes the land uses for the 2005 base and future 2025 scenarios within the Cottage Grove TSP Update study area.

Table 4-1: Cottage Grove TSP Study Area Land Use Summary

Land Use	2005	2025	Increase	Percent Increase
Households	3,839	5,439	1,600	42%
Employees	3,425	6,102	2,677	78%

Source: Lane County 2025 Coordinated Population Projection & 2001 Cottage Grove Buildable Lands Analysis

This land use forecast includes growth by various types of employment including retail, service, education, government and industrial. These land use projections are stratified into geographical areas called transportation analysis zones (TAZs), which represent the sources of vehicle trip generation. The TAZs in the Cottage Grove study area were originally developed by LCOG. A detailed summary of the uses for each Transportation Analysis Zone (TAZ) within the Cottage Grove study area is provided in Technical Appendix I. Projected employment and household growths are illustrated in Figure 4-1 and 4-2, respectively.

For transportation forecasting, the land use data is grouped into 17 larger TAZs within the Cottage Grove TSP Update study area. These TAZs represent land use and access to the transportation system in Cottage Grove. The aggregated model zone boundaries are shown in Figure 4-3.

At the existing level of land development, the transportation system generally operates without significant deficiencies in the study area. As land uses are changed in proportion to each other (i.e. there is a significant increase in employment relative to household growth), there will be a shift in the overall operation of the transportation system. Retail and service land uses generate higher amounts of trips per acre of land than households and other land uses do. The location and design of retail land uses in a community can greatly affect transportation system operation. Additionally, if a community is homogeneous in land use character (i.e. all employment or residential), the transportation system must support significant trips coming to or from the community rather than within the community. Typically, there should be a mix of residential, commercial, and employment type land uses so that some residents may work and shop locally, reducing the need for residents to travel long distances.

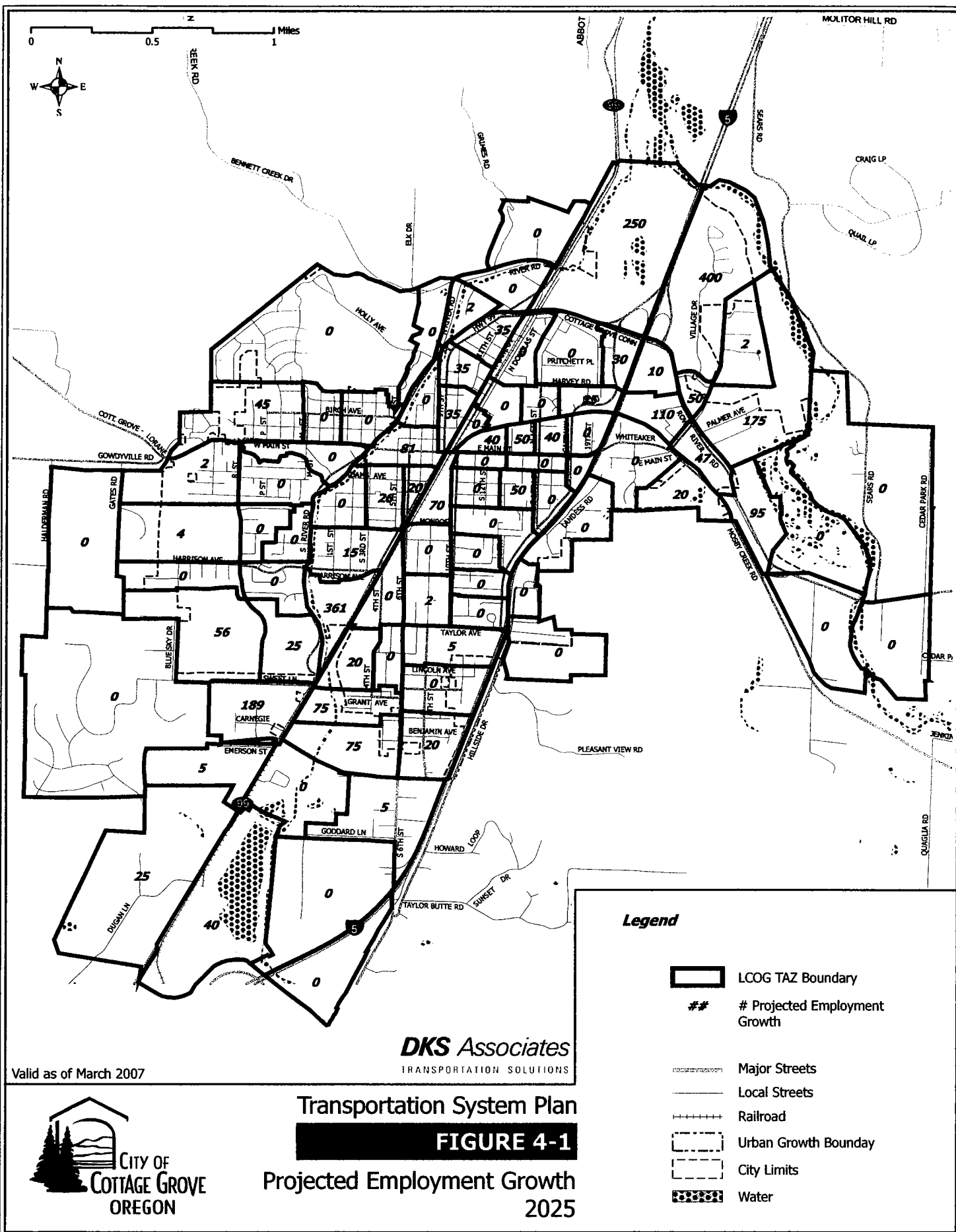
Table 4-1 indicates that significant residential (about 1,600 households) growth and employment (about 2,700 employees) increases are expected in Cottage Grove in the coming decades. The household growth and especially the employment growth generate significant increases in traffic volume. The transportation system will need to be monitored to make sure that land uses in the plan are balanced with transportation system capacity.

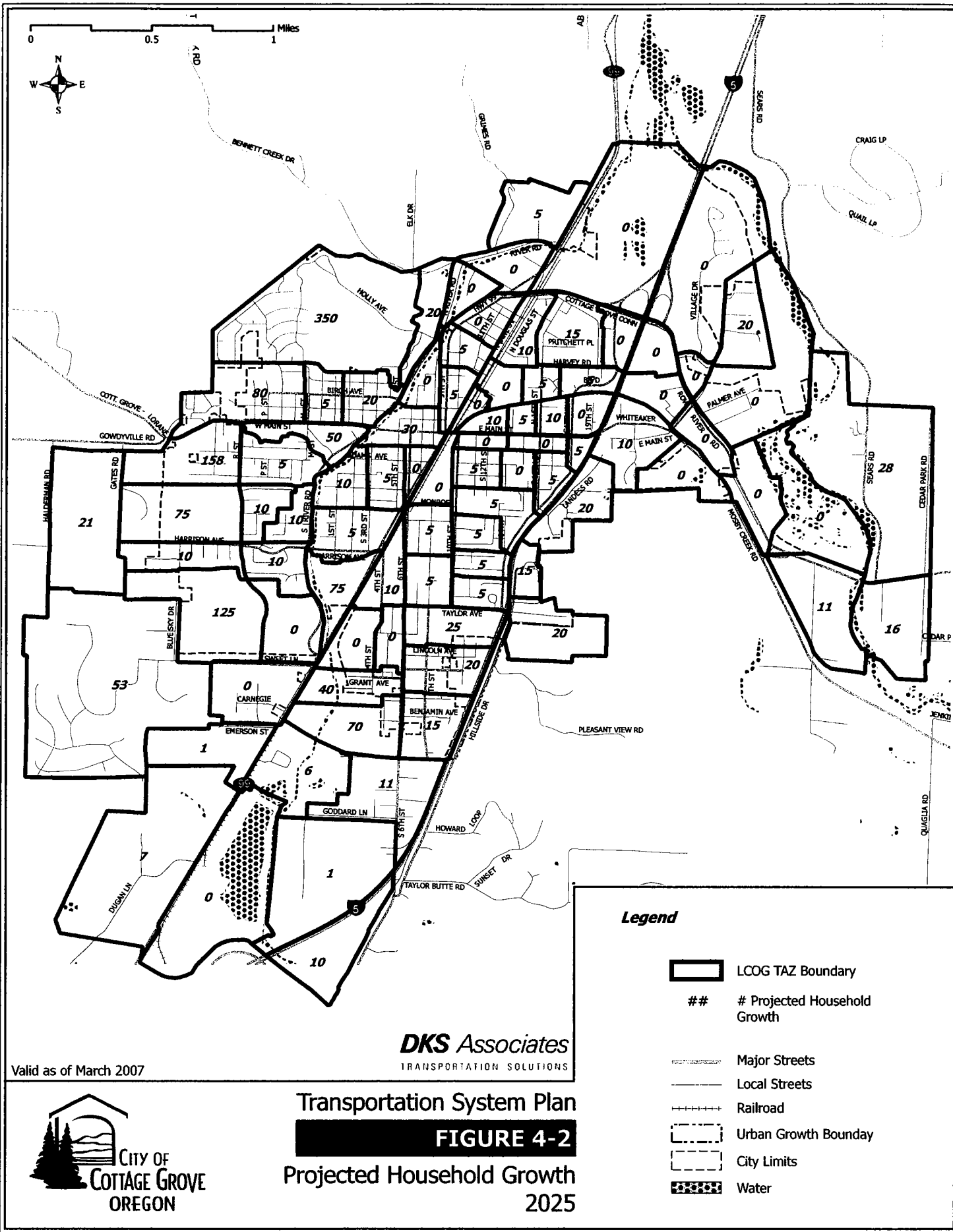
Traffic Volume Forecast

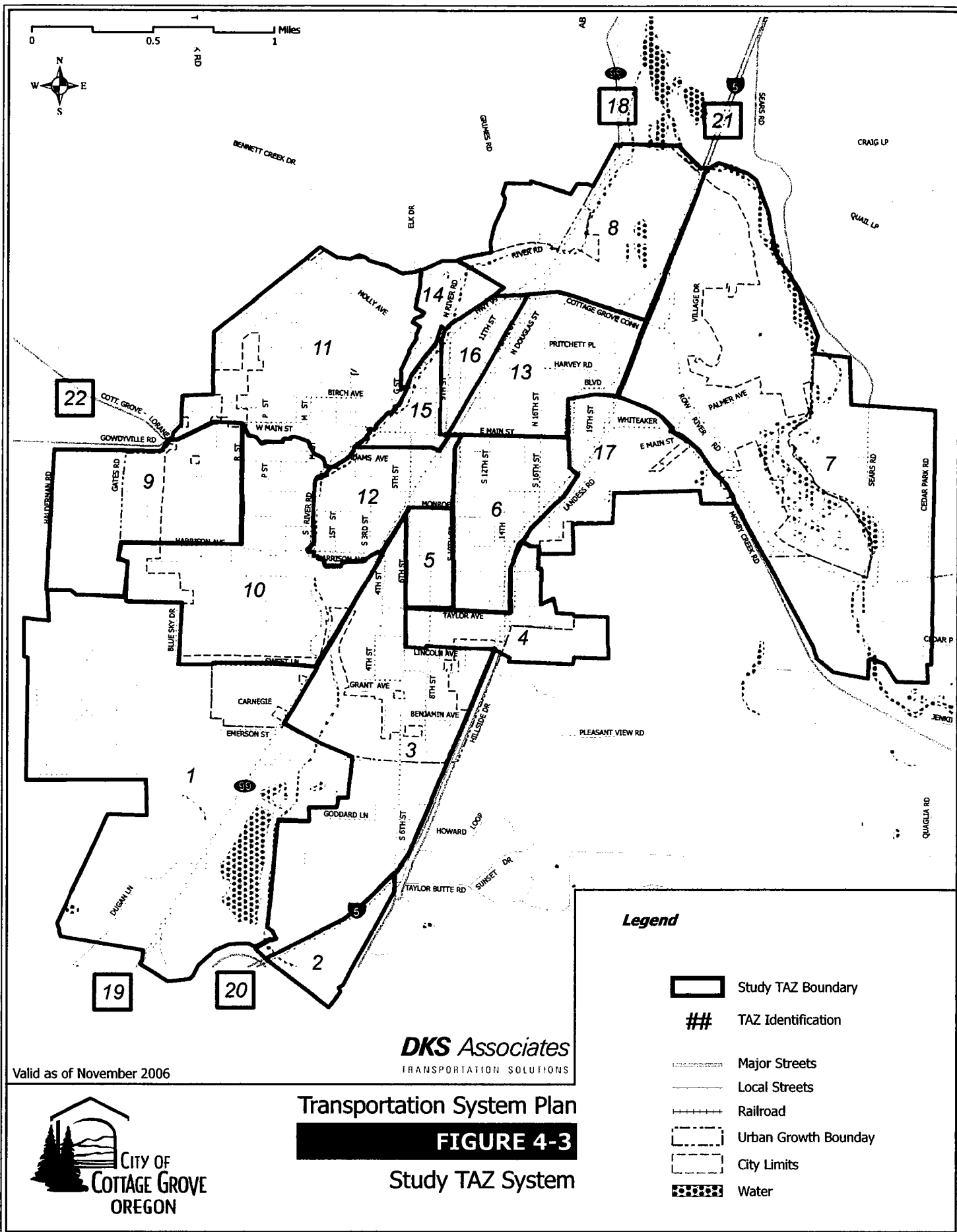
A determination of future traffic system needs in Cottage Grove requires the ability to accurately forecast travel demand resulting from estimates of future housing and employment for the City. The objective of the transportation planning process is to provide the information necessary for making decisions on when and where improvements should be made to the transportation system to meet travel demand as developed in forecasting procedures.

In order to accurately forecast 2025 traffic volume, future travel demand projections are based on adding three distinct segments of demand growth to existing traffic volumes:

- *Internal-Internal* trips: trips traveling within Cottage Grove exclusively;
- *Internal-External and External-Internal* trips: trips with either an origin or destination in Cottage Grove with the opposite trip end in a location outside the Cottage Grove TSP update study area; and
- *External-External* trips: trips that do not have an origin or destination in Cottage Grove. In other words, this is through traffic that does not stop in Cottage Grove.







Valid as of November 2006

DKS Associates
TRANSPORTATION SOLUTIONS

Transportation System Plan
FIGURE 4-3
Study TAZ System



Internal trips are based on local trip generation – trips resulting from the expected growth in employment and households in Cottage Grove. External trips are based on ODOT forecasted growth on I-5 and OR 99¹. External-external and internal-internal trips are calculated by removing the external-internal and internal-external segments of the demand from the two forecast methods. By using this method, double counting of trips was avoided.

The combined local land use and external trip growth was then added to the existing traffic to yield a future volume forecast. This future volume forecast was analyzed to uncover areas of performance deficiencies in the roadway network. The analysis was performed using the Traffix software package for trip distribution and operational performance analysis. The methodology for determining forecasted 2025 traffic volumes in Cottage Grove is described in further detail below.

Local Trip Generation

The trip generation process translates land use quantities (number of households or employees) into vehicle trip ends (number of vehicles entering or leaving a TAZ) using established trip generation rates. As in most traffic impact studies, this analysis relies on the Institute of Transportation Engineers (ITE) research for applicable trip generation rates². Table 4-2 provides a listing of PM peak hour trip rates used in this analysis. Although the land use description will not match all actual developments, the trip generation rate identified is believed to be representative of the overall growth in Cottage Grove.

Table 4-2: ITE PM Peak Hour Trip Rates

Growth Segment	Land Use Description	ITE Code	Vehicle Trips Per Land Use Unit
Residential Households	Single Family Detached Housing	210	1.01
Industrial Employment	General Light Industrial	89	0.42
Retail Employment	Shopping Center	820	4.38 ³
Service Employment	Specialty Retail	814	1.89 ³
Education Employment	High School	530	1.55
Government Employment	Government Office Building	730	0.30 ³
Other Employment	Office Park	750	0.39

Forecasted PM peak hour trip growth was calculated by applying the ITE Trip Generation rates above to the land use growth forecasts for TAZs. Table 4-3 illustrates the estimated growth in

¹ 2025 Secondary Highway Future Volume Table. Retrieved December 2006, from ODOT Web site: <http://www.oregon.gov/ODOT/TD/TP/TADRIVE.shtml>

² Trip Generation Manual, 7th Edition, Institute of Transportation Engineers, 2003.

³ Because this ITE code has no trip generation rate for PM peak hour based on employees, a trip rate per 1000 square feet had to be modified to an employee rate by utilizing the ratio of employees per 1000 square feet. These conversions are detailed in the technical appendix.

vehicle trip ends (trip productions and attractions) generated within the Cottage Grove study area during the PM peak hour between 2005 and 2025.

Table 4-3: Vehicle Trip Generation Growth Forecast - PM Peak Hour

Growth Segment	Cottage Grove
Residential Households	1,619
Industrial Employment	126
Retail Employment	2,777
Service Employment	2,742
Education Employment	149
Government Employment	29
Other Employment	39
TOTAL	7,481

This forecast provides the internal-internal as well as the internal-external and external-internal trip growth segments, but not external-external trip growth. The following section describes external trip growth in more detail.

External Trip Growth

In addition to growth resulting from forecasted land use changes within the City of Cottage Grove, growth of external traffic must be accounted for. Given that the I-5, Cottage Grove – Lorane Road (Main Street) and OR 99 are the primary roadways for travel in Cottage Grove with origins and/or destinations outside of the City, it was assumed that growth in external traffic would utilize these three roadways.

Growth of external trips (trips that have an origin and/or a destination outside of Cottage Grove) was projected based on forecasted traffic growth on I-5 and OR 99. Traffic growth is estimated by using the ODOT Future Volume Table⁴ which forecasts traffic volume at several points along OR 99 and I-5 in 2025 based on historical growth trends. This data indicates an expected annual growth rate of approximately 0.8%, or total growth of 16% on OR 99 from 2006 to 2025. Growth on I-5 is estimated at 1.8% annually for a total growth of 40% by 2025. Since no projections are available for Cottage Grove – Lorane Road, the growth rate for OR 99 is applied. The projected growth on these external roadways, at each external location, is illustrated in Table 4-4.

⁴ 2024 Secondary Highway Future Volume Table. Retrieved June 2006, from Oregon Dept. of Transportation Web site: <http://www.oregon.gov/ODOT/TD/TP/TADRIVEShtml>

Table 4-4: External PM Peak Hour Growth Forecast

Location	Direction	2006 Design Hour Volume	Growth Factor	2025 Design Hour Volume	Projected Growth
Hwy 99	Enter	178	1.16	207	29
North End	Exit	193	1.16	225	32
Hwy 99	Enter	281	1.16	327	46
South End	Exit	220	1.16	256	36
I-5	Enter	1,846	1.40	2591	745
North End	Exit	2,179	1.40	3058	879
I-5	Enter	1,375	1.40	1930	555
South End	Exit	1,341	1.40	1882	541
CG-Lorane	Enter	139	1.16	161	22
West End	Exit	201	1.16	233	32

To separate external-external traffic growth on these roadways from traffic with either a trip origin or destination in Cottage Grove (internal-external and external-internal trips, respectively) a probability of being an external-external trip was applied. The ODOT Analysis Procedures Manual⁵ describes the process to calculate the probability of an external-external trip. By using this method, the external-external trip probability was estimated for travel to and from each end of the highway and applied to the forecasted trip growth at each location to yield the expected 2025 external-external trip growth⁶. External-external trips are separated from external-internal and internal-external trips, thereby accounting for through trip growth on I-5, OR 99, and Cottage Grove – Lorane Road. The growth forecasted for these roadways was separated by type in Table 4-5.

⁵ *Analysis Procedures Manual*, Oregon Dept. of Transportation: Transportation Development Division, April 2006, p. 4-21.

⁶ Due to the large number of turns resulting from trips within the city, the Analysis Procedures Manual methodology for determining external-external trip percentages resulted in a zero percentage estimate for OR 99 and Cottage Grove-Lorane Road. As this was considered to be unrealistic, a 5% external-external trip percentage was assumed. Although significant through truck traffic currently travels on OR 99 (as a result of height restrictions on I-5 at the 6th Street interchange), future improvements should address this issue. Once the I-5 height restriction issue is resolved, through truck traffic should decrease substantially on OR 99.

Table 4-5: External PM Peak Hour Growth Forecast by Trip Type

Location	Direction	Total Projected Growth	External-External Trip Probability	2025 External-External Trip Growth	2025 External-Internal / Internal-External Trip Growth
Hwy 99 North End	Enter	29	0.05	2	27
	Exit	32	0.05	2	30
Hwy 99 South End	Enter	46	0.05	2	44
	Exit	36	0.05	2	34
I-5 North End	Enter	745	0.65	486	259
	Exit	879	0.57	499	380
I-5 South End	Enter	555	0.90	499	56
	Exit	541	0.90	486	55
CG-Lorane West End	Enter	22	0.05	2	20
	Exit	32	0.05	2	30

TAZ Allocation

The forecasted growth in trips was allocated to the 17 project TAZs based on land use (comprehensive plan land use designation), buildable land in the TAZ, and local knowledge of approved and expected developments within the city that are not yet occupied. The allocation of trips between zones is described in detail in Technical Appendix F (Cottage Grove 2025 Traffic Volume Forecasting Methodology).

External zones outside of the study area are added to the network at I-5 and OR 99 north and south of Cottage Grove and Cottage Grove – Lorane Road west of Cottage Grove. These five external zones are added to the 17 internal zones to result in a 22-zone system. Figure 4-3 shows the project TAZ system used for future traffic volume forecasting.

Trip Distribution

Trip distribution estimates how many trips travel from one zone in the model to any other zone. Distribution was based on the number of trip ends generated in each zone as either trips coming out from the zone (productions) or trips going into the zone (attractions). The percentage of each zone's total trips that are productions and attractions are defined based on ITE trip generation research. The productions and attractions for each zone are used to determine an attraction probability and production probability for each zone, relative to other zones in the transportation network.

In projecting long-range future traffic volumes, it was important to consider potential changes in regional travel patterns as well. Although the locations and amounts of traffic generation in Cottage Grove are essentially a function of future land use in the city, the distribution of trips

was influenced by regional growth, particularly along I-5. For this reason, external trips are included in the analysis as well.

External trips are added to the trip table. However, so as not to double-count the external-internal and internal-external trips, the growth in these trips calculated for external roadways was subtracted from the local trip growth. The production and attraction probabilities are used to distribute external trips to and from the appropriate TAZs.

Trip productions and attractions are balanced to result in a trip table that specifies the number of trips from each zone to each other zone in the network. The resulting trip table was the travel growth that was added to the existing traffic in Cottage Grove for 2025 traffic volume projections.

Traffic Assignment

In this process, trips from one zone to another are assigned to specific travel routes in the network, and resulting trip volumes are accumulated on links of the network until all trips are assigned. The Traffix software package was used to represent the transportation network and to assign the additional growth volume to the existing roadway and intersection volumes.

Table 4-6 summarizes the expected PM peak hour volumes along key roadway segments in Cottage Grove. The increases in expected PM peak hour volume are substantial and reflect the expected increases in households and employment identified in Table 4-1. Figure 4-4 illustrates the expected average daily two-way existing traffic volumes on several roadways in the Cottage Grove area.

Table 4-6: PM Peak Hour Volume Comparison

Roadway	Two-way Volume		Percent Growth
	2006	2025	
Hwy 99 (South of Main St.)	1,016	2,113	108%
Hwy 99 (North of Woodson Br.)	1,280	2,377	86%
Hwy 99 (South of River Road)	501	1,019	103%
Main (West of Hwy 99)	661	1,306	98%
Main (West of Gateway Boulevard)	1,204	1,908	58%

Future Capacity Analysis

The projected growth in traffic volumes by 2025 was added to the existing roadway network (no-build) to examine future performance at the study intersections. This expected growth would result in significant increases in traffic volumes at most intersections. The 2025 operational analysis (summarized in Table 4-7 below) found many study intersections would reach or exceed full capacity and experience high levels of congestion and delay without improvements to the existing transportation system.

Table 4-7: Future 2025 Study Intersection Level of Service - PM Peak Hour

Intersection	Level of Service	Average Delay (Sec)	Volume / Capacity	Standard Met?
<i>Signalized Intersections</i>				
I-5 SB Ramp/Cottage Grove Connector	F	141	>1	No
I-5 NB Ramp/Row River Road	C	29	0.95	No
OR 99/Woodson Place	C	27	0.92	No
OR 99/Main Street	F	138	>1	No
OR 99/6 th Street	C	21	0.86	Yes
OR 99/4 th Street	C	26	0.74	Yes
Main Street/River Road	C	24	0.83	Yes
Main Street/16 th Street	C	25	0.87	Yes
Main Street/Gateway Boulevard	F	92	>1	No
<i>Unsignalized Intersections</i>				
OR 99/S. River Road	A / F	11	0.13 / 0.85	No
Harrison Avenue/S. River Road*	E	42	>1	No
Main Street/R Street	A / B	4	0.09 / 0.33	Yes
Monroe Avenue/10 th Street	A / B	2	0.02 / 0.08	Yes
Taylor Avenue/8 th Street*	B	13	0.66	Yes
I-5/6 th Street (southbound off ramp)	A / B	5	0.00 / 0.45	Yes
I-5 NB Ramp OFF Ramp (Southbound Right) / Row River Road	A / C	1	0.00 / 0.35	Yes
OR 99/Cottage Grove Connector (OR 99 northbound & southbound)	A / F	77	>1	No
OR 99/Cottage Grove Connector (CGC northbound right turn)	A / B	4	0.17 / 0.38	Yes
OR 99/Cottage Grove Connector (OR 99 eastbound left turn)	A / F	60	>1	No

Notes: Unsignalized Intersection Operations:

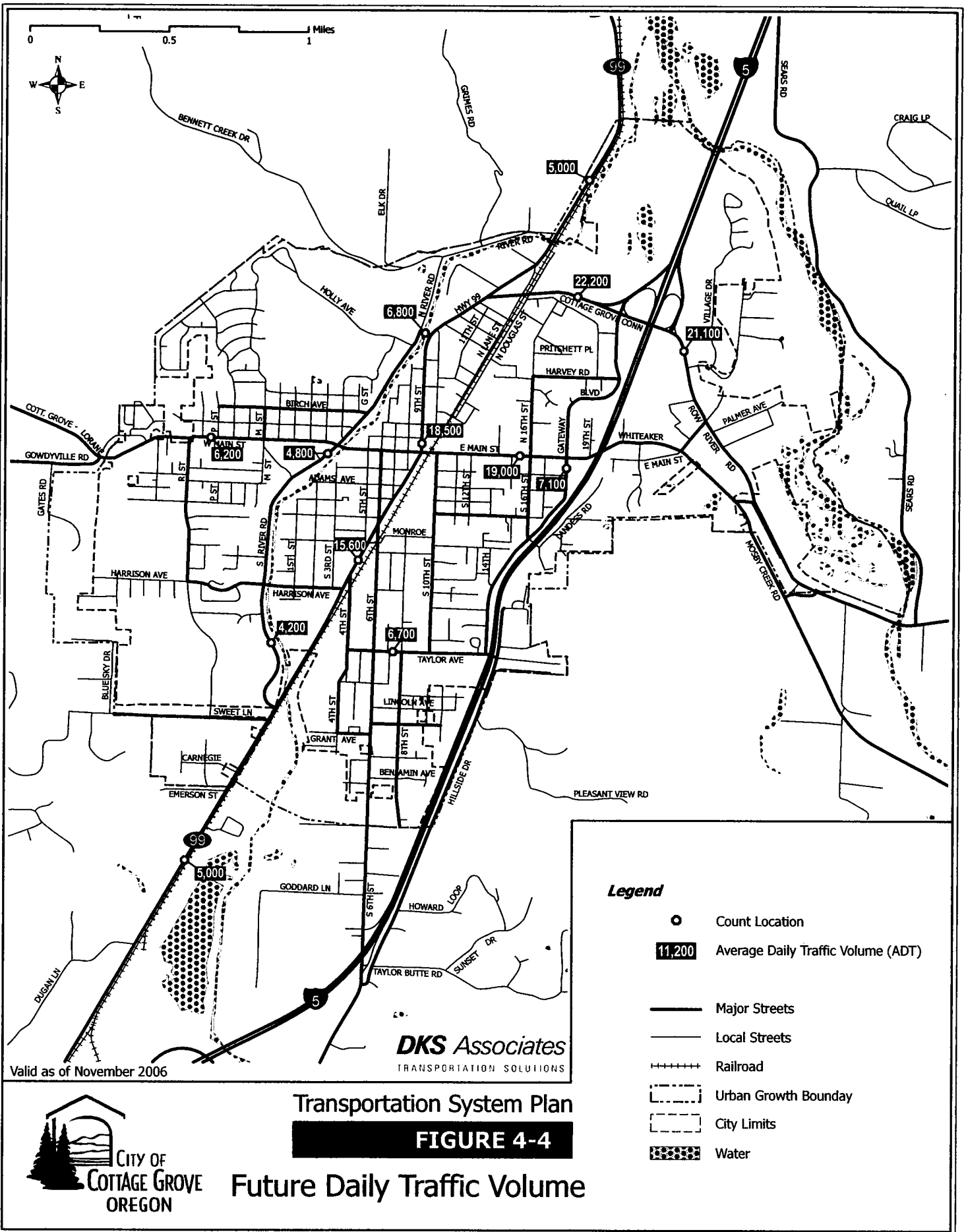
A/A = Major street turn LOS / Minor street turn LOS

#/# = Major street turn v/c / Minor street turn v/c

Signalized and All-Way Stop Intersections:

Delay = Average vehicle delay in the peak hour for entire intersection in seconds.

* All-Way Stop Intersection



5. PEDESTRIAN PLAN

Existing pedestrian facilities in Cottage Grove were inventoried and described in Chapter 3. The location of existing activity centers such as parks, schools, City Hall, the city library, transit stops and the downtown central business district were identified to determine possible pedestrian trip generators. Figure 3-2 shows the existing sidewalk and multi-use trail inventory in Cottage Grove as well as the location of major activity centers.

This chapter summarizes existing and future pedestrian needs in the City of Cottage Grove, and outlines strategies and a recommended Master Plan. Analysis of the pedestrian system and the strategies for addressing needs were completed through work with the City's Technical Advisory Committee. Pedestrian system issues within Cottage Grove include an incomplete arterial/collector sidewalk system and substandard sidewalk design in some locations.

Policies

Several goals for the Cottage Grove transportation system were identified in Chapter 2. Several policies associated with these goals concern future pedestrian facilities in Cottage Grove. These policies are aimed at providing the City with assistance in directing its funds towards pedestrian projects that meet the goals of the City.

The policies related to pedestrian facilities are:

Overall

Policy 1: Develop a well connected transportation system across all modes and locations in the city.

Policy 3: Protect the function of existing and planned transportation systems as identified in the Street Plan, Bicycle Plan and Pedestrian Plan through application of appropriate land use regulations.

Policy 4: Develop a street network that provides connections to and from activity centers such as schools, commercial areas, parks, and employment centers.

Standards

Policy 12: Utilize access management spacing standards on all new and/or improved arterial and collector streets to improve safety and promote efficient through street movement.

Policy 15: Prohibit land development from encroaching on setbacks required for potential street expansion.

Policy 17: Require the dedication of additional street right-of-way at the time of land development or land division to ensure adequate street widths.

Multi-Modal

Policy 18: Plan and develop a network of streets, accessways, and other facilities, including bikeways, sidewalks and safe street crossings, to promote safe and convenient bicycle and pedestrian circulation within the community.

Policy 19: Maintain bikeways and pedestrian accessways (including sidewalks) at the same priority as motor vehicle facilities.

Policy 20: Consider multi-modal contributions and linkages in evaluating and prioritizing street improvement projects.

Policy 21: Connect bikeways and pedestrian accessways with local and regional travel routes.

Policy 22: Foster the design and construction of bikeways and pedestrian accessways to minimize potential conflicts between transportation modes.

Policy 23: Consider opportunities for promoting interconnections between road, rail, and air freight transportation facilities.

Policy 24: Encourage demand management programs, such as carpooling and park-and-ride facilities, to reduce single-occupancy auto trips to and from Eugene-Springfield.

Pedestrian

Policy 25: Design new streets and crossings to meet the needs of pedestrians and encourage walking as a transportation mode.

Policy 26: Develop a pedestrian network by focusing on direct, convenient, and safe pedestrian travel within and between residential areas, schools, parks, and shopping and working areas within the urban area.

Policy 27: Install sidewalks and/or pedestrian trails of suitable surfacing on all future local streets. Reconstructed and new collectors and arterials shall include sidewalks. Pedestrian facilities may be installed on or off-street to facilitate walking between significant activity areas.

Policy 28: Develop a downtown streetscape enhancement program to install curb extensions, crosswalk pavers, benches, pedestrian-scaled lighting, and bicycle parking racks.

Policy 29: Consider the potential to establish or maintain accessways, paths or trails prior to the vacation of any public easement or right-of-way.

Needs

To assess the adequacy of pedestrian facilities in Cottage Grove, an inventory of sidewalks, crosswalks and off-street trails was conducted along arterial and collector streets. The location of existing activity centers such as parks, schools, City Hall, the city library, transit stops and the downtown central business district were identified to determine possible pedestrian trip generators. Figure 3-2 shows existing pedestrian facility inventory in Cottage Grove as well as the location of major activity centers.

An important existing pedestrian need in Cottage Grove is providing sidewalks on all arterial and collector roadways and providing a connection from pedestrian trip generators. This includes the need for safe, well lighted arterials and collector streets with suitable pedestrian amenities for on-street and crossing facilities to reduce the barriers for pedestrian travel. Pedestrian facility needs in Cottage Grove must consider the three most prevalent trip types:

- Residential based trips – home to school, home to home, home to retail, home to park, home to transit, home to entertainment
- Service based trips – multi-stop retail trips, work to restaurant, work to services, work/shop to transit
- Recreational based trips – home to park, exercise trips, casual walking trips

Residential trips need a set of interconnected sidewalks radiating out from homes to destinations within one-half to one mile. Beyond these distances, walking trips of this type become substantially less common (over 20 minutes). Service based trips require direct, conflict-free connectivity between uses (for example, a shopping mall with its central spine walkway that connects multiple destinations). Service based trips need a clear definition of connectivity. This requires mixed use developments to locate front doors which relate directly to the public right-of-way and provide walking links between uses within one-half mile. Recreational walking trips have different needs. Off-street trails, well landscaped sidewalks and relationships to unique environments (creeks, trees, and farmland) are important.

Arterial and collector streets in Cottage Grove currently provide an incomplete sidewalk network (see Figure 3-2). Although most arterial and collector streets include sidewalks on some sections, gaps exist along several key roadways, preventing good pedestrian connectivity throughout the city. Gaps within the sidewalk and trail network discourage pedestrians and put them at an increased safety risk by requiring them to share the roadway with vehicles in certain locations. Gaps in the existing sidewalk network in Cottage Grove (on major streets, as listed in the 1998 TSP functional classification) are detailed in Table 5-1.

Table 5-1: Locations of Gaps in Sidewalk Network

Street	Gap Location	Side of Street
4 th St.	Grant Avenue to Fillmore Avenue	Both
4 th St.	Fillmore Avenue to Taylor Avenue	East
6 th St.	Quincy Avenue to OR 99	East
6 th St.	Johnson Avenue to Fillmore Avenue	Both
10 th Street	Madison Ave to Main St.	West
16 th St.	Gibbs Ave to Harvey Ln.	East
16 th St.	Gateway Boulevard to Madison St.	Both
Cottage Grove Conn.	OR 99 to Gateway Boulevard	Both
Cottage Grove Conn.	Gateway Boulevard to n/b I-5 ramp	Both
Gateway Boulevard	Taylor Avenue to Adams Avenue	East
Harrison Avenue	Edison Avenue to River Road	North
Harrison Avenue	1 st St. to 2 nd St.	North
Harrison Avenue	West of 2 nd St. to 2 nd St.	South
Harrison Avenue	3 rd St. to OR 99	South
Harvey Ln.	16 th St. to 20 th St	Both
Johnson Avenue	East of 8 th St. to 11 th St.	Both
Madison St.	12 th St. to 15 th St.	South
Mosby Creek Road	Currin Conn. To Row River Conn.	Both
OR 99	Woodson Pl. to Lord Avenue	East
OR 99	Geer Ave to Chamberlain Avenue	East
OR 99	Harrison Avenue to south city limits.	Both
OR 99	North of Withycombe Avenue to north city limits	Both
River Road	Harrison Avenue to Bryant Road	West
River Road	Willamette Ct. to Nellis Pl.	East
River Road	Birch Avenue to Holly Avenue	West
Row River Conn.	Mosby Creek Road to Row River Road	Both
Row River Road	Currin Conn. To Row River Conn.	Both
Sweet Lane	OR 99 to Blue Sky Drive	Both
Taylor Avenue	West of Gateway Boulevard to Gateway Boulevard	South
Currin Conn.	Mosby Creek Road to Row River Road	Both
Birch Avenue	O St. to P St.	Both
E Main St.	R St. to Cemetery Road	Both
Hillside Drive	Within City limits	Both
Cottage Grove-Lorane Rd	Gowdyville Road to South S. St.	Both

It is desirable to provide at least one continuous sidewalk connection between activity centers and arterial and collector roadways to provide safe and attractive non-motorized travel options. There are locations where sidewalk coverage could be more complete and provide greater connectivity throughout the city. Specific areas where missing sidewalk facilities are thought to particularly impact the consideration of the walking mode of travel include:

- The Cottage Grove Connector, from the southbound I-5 ramps to OR 99. Continuity and quality of sidewalks along the Cottage Grove Connector, particularly along the bridge crossing the railroad tracks, where the sidewalk is approximately 2 feet wide, should be improved. The narrow sidewalk width creates an uncomfortable pedestrian environment, particularly with the heavy vehicles that travel along the roadway.
- Residential areas south of Taylor Avenue, including 4th and 6th Streets, have poor connectivity. This is of particular concern near Lincoln Middle School.
- Harrison Avenue, between 1st and 3rd Streets
- River Road, between Harrison Avenue and Girard Avenue

Another area where future needs may create greater demand for pedestrian facilities is M Street, north of Main Street. In general, sidewalks are desirable on all new collectors and arterials within the city.

The availability and convenience for crossing arterial roadways is usually provided by pedestrian traffic signals at major intersections or a marked crosswalk at lower volume intersections.

Pedestrian crossings are of particular concern in the following locations:

- OR 99, north of Woodson Place to the Cottage Grove Connector. There are no direct crosswalks available between residential areas to the east of the highway and commercial land uses to the west.
- Pedestrians traveling east or west at the intersection of OR 99 and Main Street have to rush across the intersection due to the duration of the crossing time provided by the pedestrian signal. The intersection is generally difficult for pedestrians because of high traffic volumes, narrow sidewalk area, and limited sight-distance towards the north.
- Row River Road also represents a barrier to pedestrians due to the distance between marked crossings at intersections located at Thornton Road and the northbound I-5 ramps.
- The intersection at Thornton Road and Whiteaker Avenue is poorly configured for pedestrian crossing, as the nearby multi-use path crosses through Thornton Road, rather than through the intersection.
- North of the Woodson Place intersection, the spacing between marked or controlled crossings across OR 99 is designed to facilitate safe and efficient vehicular traffic flow rather than accessibility by pedestrian travelers. This can create unsafe situations where pedestrians cross arterials at mid-block locations without any controls.

Facilities

Sidewalks should be built to current design standards of ODOT and the City of Cottage Grove and in compliance with the Americans with Disabilities Act (at least four feet of unobstructed sidewalk).¹ Narrow sidewalks are of particular concern at the intersection of Main Street and 9th Street as well as along the Cottage Grove Connector as it passes over the railroad tracks between OR 99 and Gateway Boulevard

Wider sidewalks may be constructed in commercial districts or on arterial streets. Additional pedestrian facilities may include accessways, pedestrian districts and pedestrian plazas.

- Accessway – A walkway that provides pedestrian and/or bicycle passage either between streets or from a street to a building or other destinations such as a school, park or transit stop.
- Pedestrian District – A plan designation or zoning classification that establishes a safe and convenient pedestrian environment in an area planned for a mix of uses likely to support a relatively high level of pedestrian activity.
- Pedestrian Plaza – A small, semi-enclosed area usually adjoining a sidewalk or a transit stop which provides a place for pedestrians to sit, stand or rest.

Strategies

In addition to completing the arterial and collector gaps in sidewalk infrastructure, several potential strategies have been identified to address pedestrian needs and create a Pedestrian Master Plan. The Action Plan includes projects which are selected from the Master Plan to be funded and constructed by 2025. This selection process helps to focus community investment on those projects that are most effective at meeting critical needs, while deferring other projects of lesser value. The strategies for pedestrian facilities are:

- Arterial crossing enhancements
- Connect key pedestrian corridors to schools, parks, and activity centers
- Create pedestrian corridors that connect neighborhoods
- Fill in gaps in the network where some sidewalks exist
- Create pedestrian corridors that connect to major recreational uses
- Create pedestrian corridors that encourage retail development

The first three strategies place a strong emphasis on those types of improvements that would likely be more used than others (connection to schools versus shoppers) and provide a more significant safety improvement (arterial crossing enhancement versus filling in sidewalk gaps). By

¹ *Americans with Disabilities Act*, Uniform Building Code.

creating pedestrian corridors in the major retail areas in Cottage Grove, motorized trips are discouraged for intra-area trips. Pedestrian corridors can also reduce motor vehicle/pedestrian conflicts within the zone when used in conjunction with roadway traffic calming techniques. Pedestrian corridors may be developed in the downtown area by utilizing existing alleyways.

Pedestrian Master Plan

To serve expected growth, the future transportation system needs multi-modal improvements to manage the forecasted travel demand. The extent of the recommended multi-modal improvements for Cottage Grove is significant. Future growth can be accommodated with significant investment in transportation improvements.

A list of actions to achieve fulfillment of identified strategies was developed into a Pedestrian Master Plan. The Master Plan (Figure 5-1) is an overall plan and summarizes the list of desired pedestrian related projects in Cottage Grove. Table 5-2 identifies pedestrian projects considered to be an important part of the Cottage Grove Transportation System Plan as well as estimated costs for these projects.

From this Master Plan, a more specific shorter term, Action Plan (Table 5-3) was developed. The Action Plan consists of projects that the City should give priority to in funding. As development occurs, streets are rebuilt and other opportunities (such as grant programs) arise, projects on the Master Plan should be pursued as well.

Table 5-2: Pedestrian Master Plan Project List

#	Project	Cost (2006 \$)
<i>Crossings</i>		
1	Bicycle and Pedestrian Bridge adjacent to Woodson Bridge	\$250,000
2	Intersection Improvements at Row River Road and Jim Wright Way	**
3	Signalized crosswalk at Row River Road and Thornton Road	**
4	Signalized crosswalk at Whiteaker Avenue and Thornton Road / Realign adjacent segment of Row River Trail to cross at intersection	**
5	Signalized crosswalk Main Street and M Street	**
6	New Cottage Grove Connector bridge for pedestrians and bikes / New Cottage Grove Connector bridge including sidewalks ***	\$1,000,000
7	Pedestrian Crossing Refuge on OR 99 between intersections with Woodson Bridge and the Cottage Grove Connector ***	\$60,000
<i>Trail Extensions</i>		
8	Multi-use trail connection from North River Road to North Regional Park	\$500,000*
9	Additional trail connection across I-5 from North Regional Park to Village Drive	\$500,000*
10	Multi-use trail connection from Village Drive to Palmer Avenue	\$500,000*
<i>Sidewalks</i>		
11	OR 99 between the Cottage Grove Connector and N. River Road ***	\$250,000

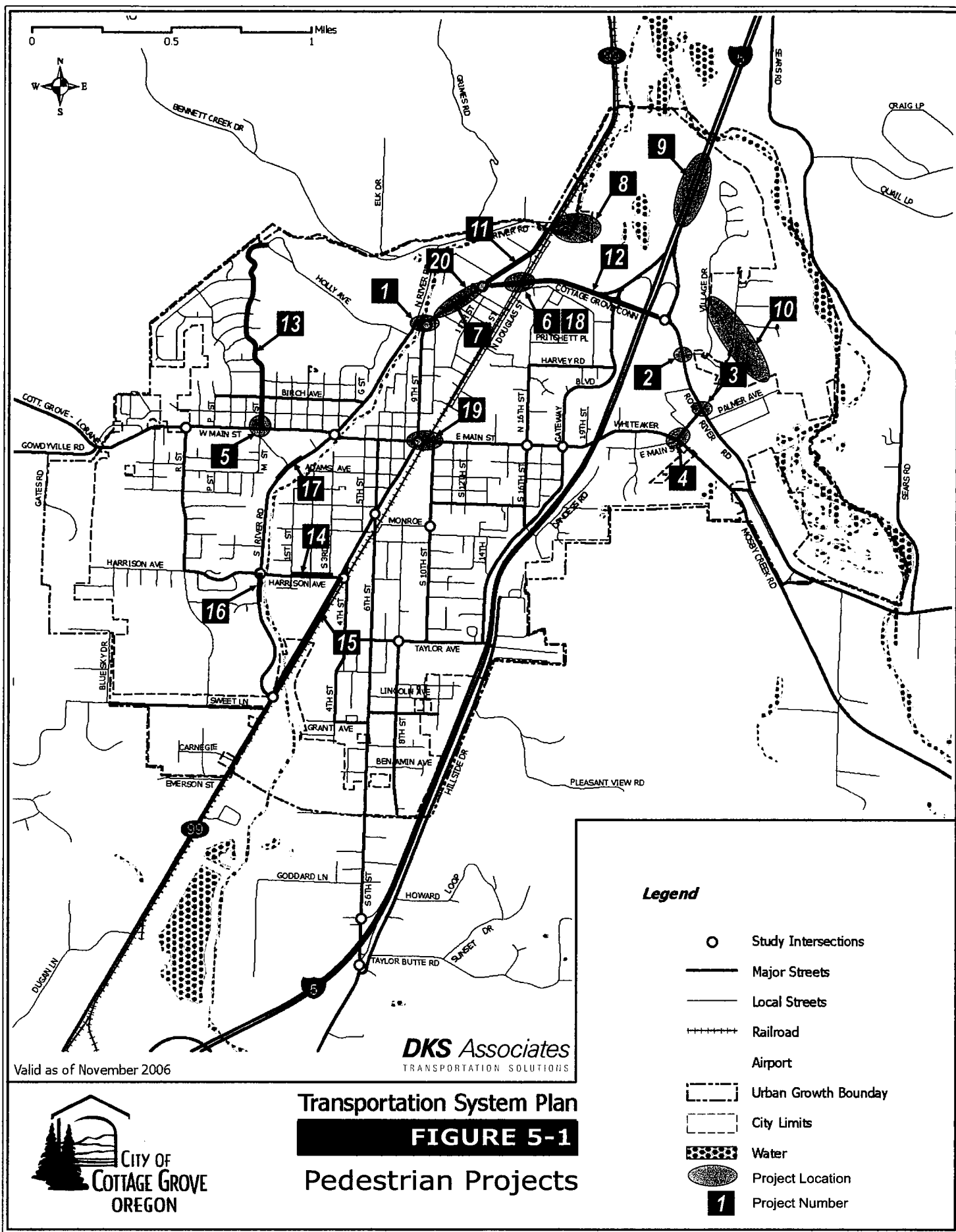
#	Project	Cost (2006 \$)
12	Cottage Grove Connector between OR 99 and I-5 Northbound Ramp *** (excluding bridge related costs)	\$500,000
13	M Street from Main Street to Holly Avenue (To be installed by developers.)	\$400,000
14	Harrison Avenue from OR 99 to 1 st Street ***	\$150,000
15	OR 99 from S. River Road to 4 th Street ***	\$400,000
16	S. River Road from Whitman Road to Harrison Avenue	\$100,000
17	Repair substandard sections and fill-in missing sections of sidewalk along River Road near Adams Avenue	\$10,000
Other Projects		
18	Lower speed limits on Cottage Grove Connector to encourage a safer pedestrian environment.	****
19	Pedestrian crossing enhancements recommended in Downtown Revitalization and Refinement Plan	**
20	Access management on the north/west side of OR 99 between intersection with Woodson Place and the Cottage Grove Connector.	-

*Includes estimated costs for right of way acquisition.

**Costs included in related motor vehicle project.

***Requires ODOT approval.

****To lower speed limits on a state facility, an ODOT Speed Reduction Study would need to be initiated by the City and deemed to be appropriate by ODOT.



Pedestrian Action Plan

A pedestrian system action plan project list was created to identify pedestrian projects that are reasonably expected to be funded by the year 2025, which meets the requirements of the updated Transportation Planning Rule². Table 10-3 shows the full action plan identified in the TSP update analysis.

The costs outlined to maintain the existing roadway system including operations and capital improvements to existing facilities over 18 years exceed projected revenues, as discussed in Chapter 10. Without additional revenue sources, the expected funding deficit would not allow for any capital improvements projects that provide new pedestrian facilities.

Action Plan Projects (Table 5-3) are presented assuming funding equivalent to a doubling of street SDC charges. Refer to Chapter 10 (Financing and Implementation) for details on the financial assumptions. Note that some projects listed in the Pedestrian Action Plan are anticipated to be funded by ODOT or private development. Other projects include pedestrian facilities as part of total project costs to capture economies of scale. Such project costs are included in the Motor Vehicle Action Plan (Chapter 8).

Table 5-3: Pedestrian Action Plan Projects (2007 Dollars)

Project	Improvement	Estimated City Cost	Priority
Intersection Improvements	Intersection Improvements at Row River Road and Jim Wright Way Intersection including pedestrian crosswalks and pedestrian signals	*	Short Term
Traffic Signal	New traffic signal at Row River Road and Thornton Road Intersection including pedestrian crosswalks and pedestrian signals	*	Short Term
Traffic Signal	New traffic signal at Whiteaker Avenue and Thornton Road Intersection including pedestrian crosswalks and pedestrian signals and realignment of Row River Trail to align with intersection.	*	Short Term
Traffic Signal	New traffic signal at Main Street and M Street Intersection including pedestrian crosswalks and pedestrian signals	*	Short Term
Cottage Grove Connector - Interchange Area Management Plan	Initiate IAMP for I-5/Cottage Grove Connector/OR 99 Corridor	-	Short Term
M Street Extension	New roadway from Main St. to Holly Avenue	**	Short Term

² OAR Chapter 660, Department of Land Conservation and Development, Division 012, Transportation Planning, adopted on March 15, 2005, effective April 2005.

OR 99 Pedestrian Refuge	Restripe OR 99 to 3 lanes (and bike lanes) from Woodson Bridge to Cottage Grove Connector including Pedestrian Crossing Refuge	\$60,000	Mid Term
Realign OR 99 at Main Street	Realignment of OR 99 and Main Street Intersection as recommended in Downtown Revitalization and Refinement Plan including recommended pedestrian crossing enhancements	*	Mid Term
Main Street Access Management	Close motor vehicle access to Main Street from Lane Street	*	Mid Term
Intersection Improvements	Add intersection improvements at the intersection of OR 99 and Cottage Grove Connector. Include pedestrian signals and crosswalks.	*	Long Term
Gates Road Extension	New roadway from Gowdyville Road to Harrison Avenue	**	Long Term
Blue Sky Drive Extension	New roadway from Harrison Avenue to Sweet Ln.	**	Long Term

* Construction costs for pedestrian facilities included in Motor Vehicle Plan Projects costs (Chapter 8)

**Construction costs including sidewalks to be covered by private development exactions.

Plan Implementation

Address Gaps in Pedestrian System

In an effort to provide adequate pedestrian infrastructure, developers in the City of Cottage Grove shall be required to build sidewalks on project frontages. However, developers often have little means or incentive to extend sidewalks beyond their property. Additionally, property owners without sidewalks are unlikely to independently build sidewalks that do not connect to anything. In fact, some property owners are resistant to sidewalk improvements due to cost (they do not want to pay) or changes to their frontage (they may have landscaping in the public right-of-way). As an incentive to fill some of these gaps concurrent with development activities, the City could consider an annual walkway fund that would supplement capital improvement-type projects. A fund of about \$20,000 per year could build over 600-feet of sidewalk annually to help fill gaps. If matching funds were provided, over double this amount may be possible. The fund could be used several ways:

- Matching other governmental transportation funds to build connecting sidewalks identified in the master plan.
- Matching funds with land use development projects to extend a developer's sidewalks off-site to connect to non-contiguous sidewalks.
- Supplemental funds to roadway projects which build new arterial/collector sidewalks to create better linkages into neighborhoods.
- Matching funds with adjacent land owners that front the proposed sidewalk.
- Reimbursement agreements with developers.

Complementing Land Use Actions

Land use actions enable significant improvements to the pedestrian system to occur. A change in land use from vacant or under utilized land creates two key impacts to the pedestrian system:

- Added vehicle trips that conflict with pedestrian flows
- Added pedestrian volume that requires safe facilities

The above mentioned impacts require mitigation to maintain a safe pedestrian system. Pedestrians walking in the traveled way of motor vehicles are exposed to potential conflicts that can be minimized or removed entirely with sidewalk installation. The cost of a fronting sidewalk to an individual single family home would be roughly \$1,000 to \$2,000 (representing less than one percent of the cost of a house). Over a typical 50-year life of a house, this would represent less than \$50 per year assuming that cost of money is 4% annually. This cost is substantially less than the potential risk associated with the cost of an injury accident or fatality without safe pedestrian facilities (injury accidents are likely to be \$10,000 to \$50,000 per occurrence and fatalities are \$500,000 to \$1,000,000). Sidewalks are essential for the safety of elderly persons, the disabled, transit patrons and children walking to school, a park or a neighbor's house. No area of the city can be isolated from the needs of these users (not residential, employment areas or shopping districts). Therefore, fronting improvements including sidewalks are required on every change in land use or roadway project.

For any developing or redeveloping property in Cottage Grove, the cost savings to the private developer is the only benefit of not providing sidewalks – at the potential risk and future expense to the public. Therefore, it is recommended that sidewalks be required in Cottage Grove with all new development and roadway projects.

Developments should be responsible for providing a pedestrian connection from the site main entrance to the public right-of-way and/or nearby facilities including parks. Also, buildings should be sited to be supportive and convenient to pedestrians, bicyclists and transit riders. This is most critical for residential, commercial and public service (library, community center, parks) developments where higher pedestrian volumes would be expected. Pedestrian circulation through large parking lots should generally be provided in the form of accessways. Conflict free paths and traffic calming elements should be identified, as appropriate.

It is important that, as new development occurs, connections or accessways are provided to link the development to the existing pedestrian facilities in as direct manner as possible. As a guideline, the sidewalk distance from the building entrance to the public right-of-way should not exceed 1.25 times the straight line distance. Off-site sidewalk improvements may be required to complete connectivity to nearby sidewalks and/or roadways.

It is also very important that residential developments consider the routes that children will use to walk to school. Safe and accessible sidewalks should be provided to accommodate these routes, particularly within one mile of a school site.

6. BICYCLE PLAN

To assess the adequacy of bicycle facilities in Cottage Grove, an inventory of designated bike lanes, shoulder bikeways, identified shared roadways and off-street trails was conducted along arterial and collector streets. The location of existing activity centers such as parks, schools, City Hall, the city library, transit stops and the downtown central business district were identified to determine possible bicycle trip generators. Figure 3-3 shows the existing bicycle facility inventory in Cottage Grove as well as the location of major activity centers.

The arterial and collector roadway system in Cottage Grove has intermittent bike lanes providing poor connectivity. These conditions force the bicyclist to share the travel lane with motor vehicles or use the shoulder if available. In many cases, this is not a desirable option for bicyclists due to narrow widths or uneven pavement conditions. Adequate bicycle facilities should be provided to allow for safe travel between neighborhoods and activity centers.

This chapter summarizes existing and future facility needs for bicycles in the City of Cottage Grove. The following sections identify the policies for implementing a bicycle plan, evaluate needs and recommend a bicycle plan for the City of Cottage Grove. The policies used in evaluating bicycle needs were identified through work with the City's Technical Advisory Committee.

Policies

Several transportation system policies must be considered when planning and constructing future bikeway facilities in Cottage Grove. These policies are aimed at providing the City with assistance in directing its funds towards Bikeway projects that meet the goals of the City.

The policies related to bikeway facilities are:

Overall

Policy 1: Develop a well connected transportation system across all modes and locations in the city.

Policy 3: Protect the function of existing and planned transportation systems as identified in the Street Plan, Bicycle Plan and Pedestrian Plan through application of appropriate land use regulations.

Policy 4: Develop a street network that provides connections to and from activity centers such as schools, commercial areas, parks, and employment centers.

Standards

Policy 12: Utilize access management spacing standards on all new and/or improved arterial and collector streets to improve safety and promote efficient through street movement.

Policy 15: Prohibit land development from encroaching on setbacks required for potential street expansion.

Policy 17: Require the dedication of additional street right-of-way at the time of land development or land division to ensure adequate street widths.

Multi-Modal

Policy 18: Plan and develop a network of streets, accessways, and other facilities, including bikeways, sidewalks and safe street crossings, to promote safe and convenient bicycle and pedestrian circulation within the community.

Policy 19: Maintain bikeways and pedestrian accessways (including sidewalks) at the same priority as motor vehicle facilities.

Policy 20: Consider multi-modal contributions and linkages in evaluating and prioritizing street improvement projects.

Policy 21: Connect bikeways and pedestrian accessways with local and regional travel routes.

Policy 22: Foster the design and construction of bikeways and pedestrian accessways to minimize potential conflicts between transportation modes.

Policy 23: Consider opportunities for promoting interconnections between road, rail, and air freight transportation facilities.

Policy 24: Encourage demand management programs, such as carpooling and park-and-ride facilities, to reduce single-occupancy auto trips to and from Eugene-Springfield.

Pedestrian

Policy 28: Develop a downtown streetscape enhancement program to install curb extensions, crosswalk pavers, benches, pedestrian-scaled lighting, and bicycle parking racks.

Policy 29: Consider the potential to establish or maintain accessways, paths or trails prior to the vacation of any public easement or right-of-way.

Bicycle

Policy 30: Ensure consistency with the policies in the most current Bikeway Master Plan.

Policy 31: Require adequate bicycle parking in schools, parks, churches, existing shopping and working areas, and other destination areas to encourage increased use of bicycles.

Policy 32: Include bicycle facilities such as bike lanes or dedicated bikeways in the planning, design, and construction of all new and/or reconstructed collectors and arterial roads. The Oregon Bicycle and Pedestrian Plan Bike Lane Matrix for urban and suburban settings shall be used as a guide in making decisions regarding the need for bike lanes.

Policy 33: Require provision of bicycle parking facilities with new commercial and industrial development and multi-family residential development.

Needs

Bicycle trips are different from pedestrian and motor vehicle trips. Common bicycle trips are longer than walking trips and generally shorter than motor vehicle trips. Where walking trips are attractive at lengths of a quarter mile (generally not more than a mile), bicycle trips are attractive up to three miles. Bicycle trips can generally fall into three groups: commuting, activity-based and recreational. Commuter trips are typically home/work/home (sometimes linking to transit) and are made on direct, major connecting roadways and/or local streets. Bicycle lanes provide good accommodations for these trips. Activity based trips can be home-to-school, home-to-park, home-to-neighborhood commercial or home-to-home. Many of these trips are made on local streets with some connections to arterials and collectors. Their needs are for lower volume/speed traffic streets, safety and connectivity. It is important for bicyclists to be able to use through streets¹. Recreational trips share many of the needs of both the commuter and activity-based trips, but create greater needs for off-street routes, connections to rural routes and safety. Typically, these bike trips will exceed the normal bike trip length.

Streets with low vehicle volumes (under 3,000 average daily traffic) and slow speeds (25 miles per hour or less) do not require designated bike lanes, as right of way under these conditions can be shared between motor vehicles and bicyclists.

Locations of particular concern on the bikeway network include:

- Main Street bike lanes are not continuous. Few east-west bike lanes exist resulting in poor overall east-west connectivity.
- Key arterial roads including OR 99 and the Cottage Grove Connector do not provide bike lanes.

¹ This can include end of cul-de-sac connections, but even better is regular spacing of local streets.

- The intersection at Thornton Road and Whiteaker Avenue is poorly configured for crossing by bicycle, as the nearby bicycle path crosses through Thornton Road, rather than through the intersection.
- The Woodson Bridge is narrow and often has vehicle queuing concerns due to its short length, making this a difficult intersection to navigate for bicyclists.
- The intersection of OR 99 and Main Street, along with the nearby intersection of 10th Street and Main Street, are difficult to navigate on bicycle due to high traffic volume and sight distance concerns. These are important crossings for bicycle travel due to the proximity of the entrance to the Row River Trail.
- The connectivity of multi-use trails east of Row River Road is limited due to the location of the airport, which prevents a viable alternative to traveling via Row River Road.

Other areas where future needs may create greater demand for bicycle facilities include:

- OR 99 north of the Cottage Grove Connector.
- OR 99 south of N. River Road.

Facilities

Bikeways can generally be categorized as bike lanes, shoulder bikeways, shared roadways, or off-street bike paths/multi-use trails. Bike lanes are areas within the street right-of-way designated specifically for bicycle use. Shoulder bikeways provide space outside of the travel lane for bicyclists as well, but may not be specifically marked. Shared roadways require bicyclists and autos share the same travel lanes, including a wider outside lane and/or bicycle boulevard treatment (priority to through bikes on local streets). Multi-use paths are generally off-street routes (typically recreationally focused) that can be used by several transportation modes, including bicycles, pedestrians and other non-motorized modes (i.e. skateboards, roller blades, etc.). The term bikeway is used in this plan to represent any of the bicycle accommodations described above. The bicycle plan designates where bike lanes and multi-use paths are anticipated. Other bikeways are expected to be bike accommodations (i.e. shared with motor vehicles), although as land use and traffic patterns change, bike lanes should be added to any new or reconstructed facilities where average daily traffic exceeds 3,000 motor vehicles.

Bikeways should be constructed to be consistent with the standards defined in the *Oregon Bicycle and Pedestrian Plan*. Bicycle lanes adjacent to the curb are preferred to bicycle lanes adjacent to parked cars or bicycle lanes combined with sidewalks. Six-foot bicycle lanes are recommended. Provision of a bicycle lane not only benefits bicyclists but also motor vehicles which gain greater shy distance/buffer/emergency shoulder area and pedestrians which gain buffer between walking areas and moving vehicles. On reconstruction projects, bicycle lanes of five feet may need to be considered. Widening the curb travel lane (for example, from 12 feet to 14 or 15 feet) can provide bicycle accommodations. This extra width makes bicycle travel more accommodating and provides a greater measure of safety. Off-street trails and sidewalks that are constructed should be planned for 12 feet in width, which is desirable for mixed-use activity (pedestrian and bike). Signing and marking of bicycle lanes should follow the *Manual on Uniform Traffic Control Devices*. Design features in the roadway can improve bicycle safety. For example, using curb storm drain inlets rather than catch basins significantly improves bicycle facilities.

Strategies

Bikeway improvements are aimed at closing the gaps in the bicycle network along arterial and collector roadways, in addition to providing multi-modal links to improve livability. The strategies identified below help to address bicycle system needs and to guide project prioritization. This prioritization process helps to focus community investment on those projects that are most effective at meeting critical needs, while deferring other projects of lesser value.

The strategies for bicycle facilities (listed in order of importance) are:

- Connecting key bicycle corridors to schools, parks, and activity centers,
- Bicycle corridors that connect neighborhoods,
- Bicycle corridors that connect to major recreational facilities,
- Filling in gaps in the network where some bikeways exist (arterials and collectors),
- Providing a multi-use trail connecting North Regional Park and East Regional Park,
- Arterial Crossing Enhancements,
- Bicycle corridors that commuters might use, and
- Bicycle corridors that access retail areas.

Recommended Bicycle Master Plan

A list of likely actions to achieve fulfillment of the City's priorities was developed into a Bicycle Master Plan. The Bicycle Master Plan is an overall plan and summarizes the list of desired bicycle-related projects in Cottage Grove, providing a long-term map for planning bicycle facilities. From this Master Plan, a more specific, shorter term, Action Plan was developed. The Action Plan consists of projects that the City should actively try to fund. These projects form a basic bicycle grid system for Cottage Grove. The Bicycle Master Plan will require incremental implementation. As development occurs, streets are rebuilt and other opportunities (such as grant programs) arise, projects on the Master Plan should be pursued as well.

Table 6-1 identifies bicycle projects considered to be an important part of the Cottage Grove Transportation System Plan. Bicycle project locations are illustrated in Figure 6-1.

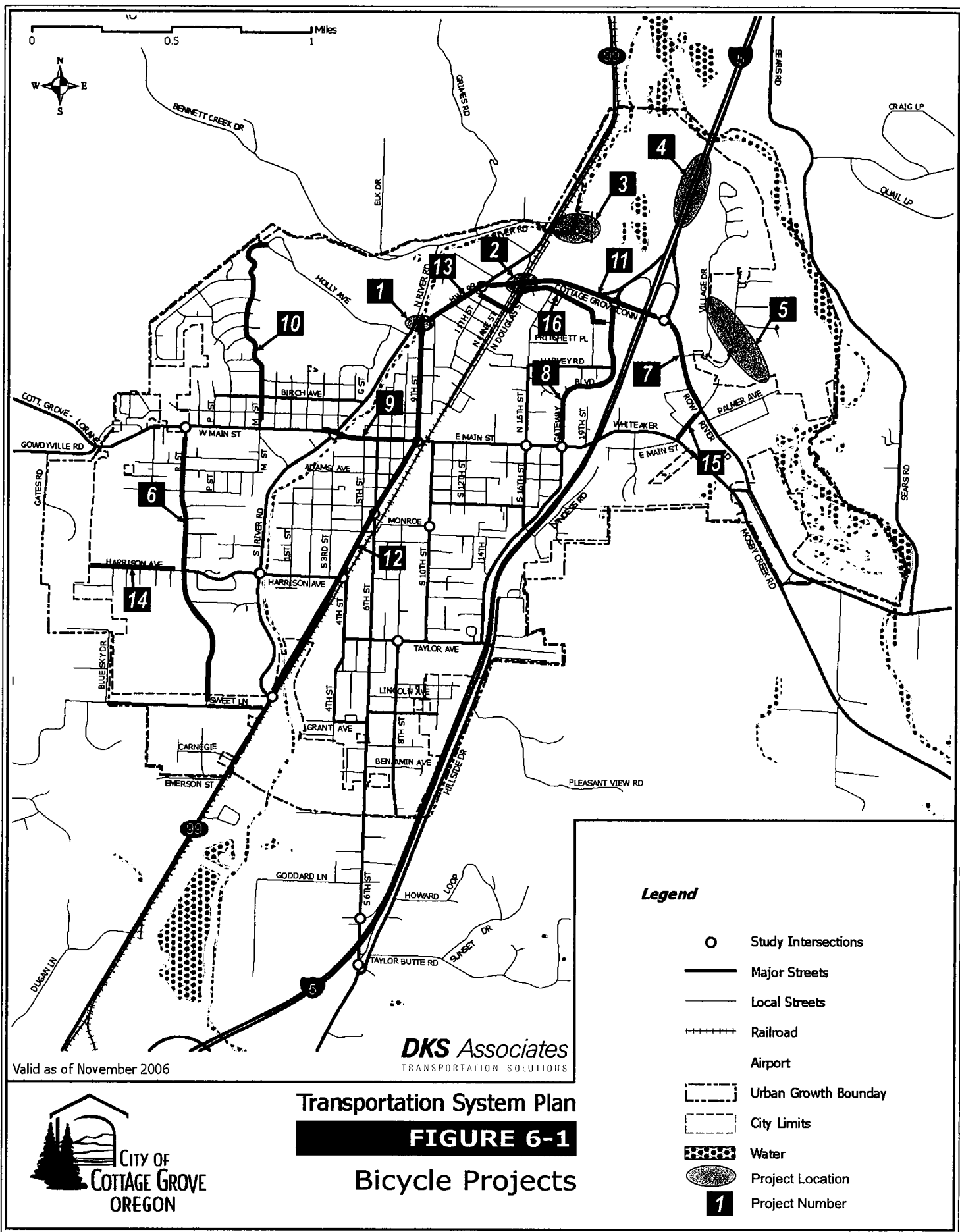
Table 6-1: Bicycle Master Plan Project List

#	Project	Cost (2007 \$)
<i>New Crossings</i>		
1	Bicycle and Pedestrian Bridge adjacent to Woodson Bridge	*
2	New Cottage Grove Connector bridge for pedestrians and bikes / New Cottage Grove Connector bridge including sidewalks ***	*
<i>Trail Extensions</i>		
3	Multi-use trail connection from North River Road to North Regional Park	*
4	Additional trail connection across I-5 from North Regional Park to Village Drive	*
5	Multi-use trail connection from Village Drive to Palmer Avenue	*
<i>Bike Lanes</i>		
6	Restripe R St. to include bike lanes along entire duration south of Main St.	\$80,000
7	Restripe Row River Road to include bike lanes from I-5 northbound ramps to Thornton Road	\$15,000
8	Restripe four lane section to add bike lanes on Gateway Boulevard between Main Street and the Cottage Grove Connector ***	**
9	Widen to add bike lanes along Main Street from OR 99 to River Road	\$450,000
10	Stripe bike lanes on M Street north of Main Street to Holly Avenue	\$40,000
11	Complete bike lanes on Cottage Grove Connector from OR 99 to I-5 northbound ramps (excludes bridge related costs) ***	\$40,000
12	Widen to add bike lanes along OR 99 from Woodson Bridge to South River Road ***	\$800,000
13	Restripe four lane section to add bike lanes on OR 99 from Woodson Bridge to Cottage Grove Connector***	**
14	Restripe Harrison Avenue west of R Street to include Bike Lanes	\$25,000
15	Widen to add bike lanes on Thornton Road between Mosby Creek Road and Row River Road	\$60,000
<i>Marked Bikeway</i>		
16	Include pavement markings and signage to designate east to west bike connection between OR 99 and Gateway Boulevard along Chamberlain Avenue, Douglass Street, Ostrander Lane, 19 th Street and Oswald West Avenue.	\$25,000

* Costs included in related pedestrian project.

**Costs included in related motor vehicle project.

***Requires ODOT approval.



Bicycle Action Plan

A bicycle system action plan project list was created to identify bicycle projects that are reasonably expected to be funded by the year 2025, which meets the requirements of the updated Transportation Planning Rule². Table 6-2 and 6-3 show the full action plan identified in the TSP update analysis.

The costs outlined to maintain the existing roadway system including operations and capital improvements to existing facilities over 18 years exceed projected revenues, as discussed in Chapter 10. Without additional revenue sources, the expected funding deficit would not allow for any capital improvements projects that provide new bicycle facilities.

Action Plan Projects (Table 6-2) are presented assuming funding equivalent to a doubling of street SDC charges. Refer to Chapter 10 (Financing and Implementation) for details on the financial assumptions. Note that some projects listed in the Bicycle Action Plan are anticipated to be funded by ODOT or private development. Other projects include bicycle facilities as part of total projects costs to capture economies of scale. Such project costs are included in the Motor Vehicle Action Plan (Chapter 8).

Table 6-2: Bicycle Action Plan Projects (2007 Dollars)

Project	Improvement	Estimated City Cost	Priority
City Projects			
Gateway Boulevard Restripe	Restripe Gateway Boulevard to 3 lanes (and bike lanes) from Harvey Road to Cottage Grove Connector	*	Short Term
Cottage Grove Connector - Interchange Area Management Plan	Initiate LAMP for I-5/Cottage Grove Connector/OR 99 Corridor	-	Short Term
Realign OR 99 at Main Street	Realignment of OR 99 and Main Street Intersection as recommended in Downtown Revitalization and Refinement Plan	*	Mid Term
East/West Bicycle Route	Include pavement markings and signage to designate east to west bike connection between OR 99 and Gateway Boulevard along Chamberlain Avenue, Douglass Street, Ostrander Lane, 19 th Street and Oswald West Avenue.	\$25,000	Mid Term
OR 99 Restripe	Restripe OR 99 to 3 lanes (and bike lanes) from Woodson Bridge to Cottage Grove Connector	*	Mid Term
Gates Road Extension	New roadway from Gowdyville Road to Harrison Avenue	**	Long Term
Blue Sky Drive Extension	New roadway from Harrison Avenue to Sweet Ln.	**	Long Term

* Construction costs for bicycle facilities included in Motor Vehicle Plan Projects costs (Chapter 8)

**Construction costs including bicycle facilities to be covered by private development exactions.

² OAR Chapter 660, Department of Land Conservation and Development, Division 012, Transportation Planning, adopted on March 15, 2005, effective April 2005.

Plan Implementation

It is important that, as new development occurs, connections or accessways are provided to link the development to the existing bicycle and pedestrian facilities in as direct manner as is reasonable. If a development fronts a bikeway or sidewalk (as shown in the Bicycle or Pedestrian Master Plans), the developer shall be responsible for providing the bikeway or walkway facility as part of any street improvement required for project mitigation.

7. TRANSIT

Transit service is provided in Cottage Grove by the Lane Transit District (LTD) and South Lane Wheels (SLW). LTD provides fixed route bus service between Cottage Grove and Eugene. South Lane Wheels provides both deviated schedule route service and demand responsive service to transportation disadvantaged residents and the general public. Chapter 3 details the existing transit service in Cottage Grove, with transit routes and stop locations illustrated in Figure 3-4.

Policies

Several transportation system policies must be considered when planning public transit services in Cottage Grove. These policies are aimed at providing the City with assistance in directing its funds towards transit projects that meet the goals of the City.

The policies related to transit facilities are:

Overall

Policy 1: Develop a well connected transportation system across all modes and locations in the city.

Policy 2: Consider the impact of all land use decisions on the existing and planned transportation facilities.

Policy 4: Develop a street network that provides connections to and from activity centers such as schools, commercial areas, parks, and employment centers.

Standards

Policy 12: Utilize access management spacing standards on all new and/or improved arterial and collector streets to improve safety and promote efficient through street movement.

Policy 17: Require the dedication of additional street right-of-way at the time of land development or land division to ensure adequate street widths.

Multi-Modal

Policy 21: Connect bikeways and pedestrian accessways with local and regional travel routes.

Policy 22: Foster the design and construction of bikeways and pedestrian accessways to minimize potential conflicts between transportation modes.

Policy 23: Consider opportunities for promoting interconnections between road, rail, and air freight transportation facilities.

Policy 24: Encourage demand management programs, such as carpooling and park-and-ride facilities, to reduce single-occupancy auto trips to and from Eugene-Springfield.

Transit

Policy 34: Develop a cost effective accessible transit program that meets the needs of all potential and identified users.

Policy 35: Support provision of basic mobility services for the elderly and people with special needs.

Policy 36: All new development shall be referred to transit service providers for review and comment to determine if new transit stops are appropriate and can reasonably be provided as part of the new development.

Needs

The Oregon Public Transportation Plan Minimum Level of Service Standards for cities with a population between 2,500 and 25,000 call for the following:

- Coordination between intercity senior/disabled serviced and intercity general public bus and van services.
- Connection between local public transportation, senior/disabled services, and intercity bus services.
- Accessibility for rides to anyone requesting service.

Stop locations of SLW's fixed route service are coordinated with all LTD Route 98 stops, resulting in good connections between local services and intercity buses. SLW's paratransit service and special pickup service for transportation disadvantaged riders provide good integration between services and a high level of accessibility to all local residents.

The quality of transit service within Cottage Grove can be characterized by the following indicators:

- Transit route coverage
- Frequency
- Reliability
- User amenities

The following sections present the analysis and findings for each of these service characteristics, and identify potential needs for future transit service improvements.

Transit Coverage

The minimum land use density¹ required to support a fixed route transit bus service with 1-hour scheduled between arrivals is about four housing units per acre or three employees per acre. Between LTD and South Lane Wheels bus service, most areas of higher density are covered. Future developments may require adjustments to the existing routing to meet new demand.

Transit Frequency

In addition to providing service to a geographic area, transit route frequency is a measure of transit quality of service and mode attractiveness.

Table 3-3 summarized the average time between bus arrivals at a stop (headways) and corresponding level of service² for both LTD Route 98 and SLW Route Around Town. Headways were typically around one hour during AM and PM peak periods. While this could be improved, this is an adequate service for a community of the size of Cottage Grove.

Transit Reliability

Transit service reliability is a key performance characteristic for retaining riders. Congested roadways, bottlenecks, and traffic signals can delay transit vehicles and cause transit vehicles to arrive off schedule and close together.

Bus stop consolidation or relocation can also improve transit reliability. Transit stops should be spaced appropriately to provide adequate accessibility to riders while limiting bus delays from frequent stops. Transit stop relocations should be coordinated with pedestrian improvements, such as curb extensions, as they are constructed.

User Amenities

The purpose of transit stop amenities is to improve the convenience and attractiveness of using the transit system. Good public transportation is important to the livability of a community. Accessible transit stops are essential to a useable system. Potential improvements to the overall system include:

- Information kiosks at bus stops – This amenity provides transit riders information such as next bus arrival time forecasts.
- Bus shelters – Improve the convenience of using the transit system by providing a comfortable place to wait for the bus.
- Curb extensions – The extension of the sidewalk area into the parking lane provides a more convenient pedestrian connection to a stopped bus.
- Street lighting – Bus stops should be highly visible locations so pedestrians can easily identify the locations and good security can be provided.

¹ Thresholds for minimum land use density to support fixed-route transit service are based on definitions in the 2000 *Highway Capacity Manual*, Chapter 27 for Transit service analysis methodologies.

² 2000 *Highway Capacity Manual*, Transportation Research Board, 2000, Chapter 27.

One of the most significant user amenities for bus services is a shelter at the transit stop. These user amenity improvements are particularly important at the Park and Ride lot serving both Lane Transit District Route 98 and South Lane Wheels Route Around Town due to the higher volumes of passengers at this location.

The need for bus shelters at bus stops, as well as other user amenities, should be evaluated in conjunction with new commercial or residential development adjacent to a transit route. Typical daily boarding thresholds of 35 patrons or more could be used to support installation of a covered bus shelter and bench.

There is no agreement in place to guarantee the future location of the Park & Ride lot. It is currently provided by Wal-Mart on a volunteer basis. This issue should be addressed so that provision of at least one Park & Ride facility in the City is assured.

Strategies

The strategies to meet the public transit needs of Cottage Grove require coordination with South Lane Wheels and/or Lane Transit District. The strategies (listed in order of importance) include:

- Provide direct/express access to the Eugene bus rapid transit system (EmX)
- Provide access to employment areas
- Provide dedicated park-and-ride lots
- Provide express routes to regional employment centers
- Provide frequent service in peak commute periods
- Provide access to commercial areas
- Provide access to activity and service centers
- Provide bus shelters
- Improve bus stop signage
- Improve service awareness via marketing

Transit system enhancements within the LTD service area are ultimately decided based on regional transit goals. As such, Cottage Grove has limited control over dictating the expansion of LTD local service or increasing route frequency. A similar relationship exists with SLW and the local services it provides. These decisions can be influenced if the proper density is achieved along transit corridors or if roadway infrastructure is built to serve transit routes, a decision over which the City has more control. Another tactic for increasing transit service to Cottage Grove is through inter-governmental agreements and funding strategies between the City and LTD or SLW in order to leverage transit dollars for local projects, providing better connections to transit facilities and supplying transit amenities at transit locations.

As the community continues to grow, the City transit system should continue to be developed as funding becomes available. Transit coverage area should continue to be expanded as demand for services increases. Services should be developed and oriented towards regional employment

centers while also considering access to commercial areas and other activity generators such as hospitals, parks, schools, etc. The transit system should be considered in conjunction with multimodal access to pedestrian and bicycle facilities as well as park and ride locations. Transit agencies should continue to work with the City and Lane County to encourage transit ridership. To attract additional riders, current transit service headways could be reduced. In addition, improved marketing programs could increase awareness and attract higher ridership.

8. MOTOR VEHICLES

This chapter summarizes the motor vehicle system for future conditions in the City of Cottage Grove. It also outlines the strategies to be used in evaluating needs and recommends plans for motor vehicles (automobiles, trucks, buses and other vehicles). The needs, strategies, and recommended plans were identified in working with the City's Technical Advisory Committee for the Transportation System Plan. This group explored automobile and truck needs in the City of Cottage Grove and provided input about how they would like to see the transportation system develop. The Motor Vehicle modal plan is intended to be consistent with other jurisdictional plans including and Lane County's *Transportation System Plan* (TSP) and ODOT's *Oregon Highway Plan* (OHP).

Policies

Several transportation system policies will be considered when planning and constructing roadways for motor vehicles in Cottage Grove. These policies are aimed at providing the City with assistance in directing its funds towards roadway projects that meet the goals of the City.

The policies related to motor vehicle facilities are:

Overall

Policy 1: Develop a well connected transportation system across all modes and locations in the city.

Policy 3: Protect the function of existing and planned transportation systems as identified in the Street Plan, Bicycle Plan and Pedestrian Plan through application of appropriate land use regulations.

Policy 4: Develop a street network that provides connections to and from activity centers such as schools, commercial areas, parks, and employment centers.

Policy 5: Develop a street network that accommodates the safe and efficient movement of emergency service vehicles.

Policy 7: Coordinate with ODOT and/or Lane County on roadway projects impacting land uses outside of city limits or roadways outside of City jurisdiction.

Standards

Policy 10: Consider economic development potential (the extent to which the project relieves congestion and provides land use access to under-utilized and undeveloped urban lands) in evaluating and prioritizing street improvement projects within the existing street system.

Policy 11: Consider the following primary criteria in evaluating and prioritizing street improvement projects within the existing street system – average daily traffic, physical condition of street, street geometrics, and capacity/congestion (level of service).

Policy 12: Utilize access management spacing standards on all new and/or improved arterial and collector streets to improve safety and promote efficient through street movement.

Policy 14: Consider commercial and industrial transportation needs in decisions about access management and in construction or reconstruction of roadways.

Policy 15: Prohibit land development from encroaching on setbacks required for potential street expansion.

Policy 17: Require the dedication of additional street right-of-way at the time of land development or land division to ensure adequate street widths.

Multi-Modal

Policy 22: Foster the design and construction of bikeways and pedestrian accessways to minimize potential conflicts between transportation modes.

Policy 23: Consider opportunities for promoting interconnections between road, rail, and air freight transportation facilities.

Policy 24: Encourage demand management programs, such as carpooling and park-and-ride facilities, to reduce single-occupancy auto trips to and from Eugene-Springfield.

Strategies

To meet performance standards and serve future growth, the future transportation system needs multi-modal improvements and strategies to manage the forecasted travel demand. The extent and nature of the multi-modal improvements for Cottage Grove are significant. The impact of future growth would be severe without investment in transportation improvements. Strategies for meeting automobile facility needs include the following:

- Local Circulation Enhancements
- Regional Circulation Enhancements

- Neighborhood Traffic Management
- Transportation Demand Management Programs to Reduce Peak Traffic for Employers in Cottage Grove
- Additional Traffic Signals on Arterial/Collector Intersections
- Intelligent Transportation Systems (ITS)
- Intersection Modifications
- Transportation System Management (TSM)
- Mitigate all Intersections to Meet or Exceed Applicable Performance Standards (Level of Service and/or V/C) in the PM Peak Hour

The following sections detail the type of improvements that would be necessary as part of a long-range Motor Vehicle Master Plan. Phasing of implementation will be necessary since all of the improvements cannot be done at once. This will require prioritization of projects and periodic updating to reflect current needs. Most importantly, it should be understood that the improvements outlined in the following sections are a guide to managing growth in Cottage Grove as it occurs over the next 20 years. Other improvements will become necessary as development patterns change and new development occurs.

Transportation System Management (TSM)

Transportation System Management (TSM) focuses on low cost strategies to enhance operational performance of the transportation system by seeking solutions to immediate transportation problems, finding ways to better manage transportation, maximizing urban mobility, and treating all modes of travel as a coordinated system. These types of TSM measures include such things as:

- Transit signal priority
- Signal coordination and optimization
- Traffic monitoring and surveillance
- Traffic calming
- Incident management
- Access management
- Local street connectivity
- Functional classifications

TSM measures focus primarily on region wide improvements, however there are a number of TSM measures that could be used in a smaller scale environment such as the Cottage Grove area. Typically, the most significant measures that can provide tangible benefits to the traveling public are traffic signal coordination and systems. The following sections discuss TSM measures that could be appropriate for the Cottage Grove 2025 TSP study area.

Neighborhood Traffic Management (NTM)

The City of Cottage Grove should consider neighborhood traffic management elements, including traffic calming measures such as curb extensions, on streets within the study area. The city should consult with the community to find the traffic calming solution that best meets their needs and maintains roadway function. Table 8-1 lists common NTM applications and suggests which devices may be supported by South Lane County Fire and Rescue. Any NTM project should include coordination with emergency agency staff to assure public safety.

Table 8-1: Traffic Calming Measures by Roadway Functional Classification

Traffic Calming Measure	Roadway Classification		
	Arterial	Collector	Local Street
Curb Extensions	Supported*	Supported*	Traffic calming measures are acceptable on lesser emergency response routes that have connectivity (more than two accesses).
Medians	Supported	Supported	
Pavement Texture	Supported**	Supported**	
Speed Hump	Not Supported	Not Supported	
Roundabout	Supported***	Supported***	
Raised Crosswalk	Not Supported	Not Supported	
Speed Cushion (provides emergency pass-through with no vertical deflection)	Not Supported	Not Supported	
Choker ¹	Supported*	Supported*	
On-Street Parking	Supported	Supported	
Traffic Circle	Supported***	Supported***	
Diverter (with emergency vehicle pass through)	Supported**	Supported**	

* Only supported where poles or other obstructions do not interfere with 20 foot clearances for vehicles.

** Only supported where texturing would not obstruct emergency medical vehicle services.

*** In special cases to be determined by City staff. Only supported when inside radius of 28 feet is maintained.

Note: It is desirable to have all traffic calming measures meet South Lane County Fire and Rescue guidelines including minimum street and travel lane width, emergency vehicle turning radius, and accessibility/connectivity requirements.

NTM projects on state facilities would have to meet ODOT standards. Pavement textures, chokers, on-street parking and traffic circles are prohibited on state highways. Curb extensions would only be supported on state highways in locations designated as Special Transportation Areas.

Access Management

Access Management is a broad set of techniques that balance the need to provide efficient, safe and timely travel with the ability to allow access to individual properties. Proper implementation of access management techniques should support reduced congestion, reduced accident rates, less need for roadway widening, conservation of energy, and reduced air pollution.

Access management is the control or limiting of vehicular access on arterial and collector facilities to maintain the capacity of the facilities and preserve their functional integrity. Access management strives to strike a balance between maintaining the integrity of the facility and providing access to adjacent parcels. Numerous driveways can erode the capacity of arterial and collector roadways. Preservation of capacity is particularly important on higher volume roadways for maintaining traffic flow and mobility. Whereas local and neighborhood streets function to provide access, collector and arterial streets serve greater traffic volume. Numerous driveways or

¹ A choker is a curb extension located at the mid-block or intersection corner that narrows a street by extending the sidewalk or planting strip. Chokers are not supported when they do not shadow parking.

street intersections increase the number of conflicts and potential for collisions and decrease mobility and traffic flow. Cottage Grove, as with every city, needs a balance of streets that provide access with streets that serve mobility.

Several access management strategies with the potential to improve local access and mobility in Cottage Grove are identified:

- Develop, implement and enforce specific access management plans for major and minor arterial streets in Cottage Grove to maximize the capacity of the existing facilities and protect their functional integrity.
- Examine roadways with potential to remove or consolidate access points. Certain streets should be studied to determine if and where access control measures should be implemented. Examples of potential studies are OR 99 corridor through Cottage Grove and Main Street.
- Work with land use development applications to consolidate driveways where feasible.
- Provide left turn lanes where warranted for access onto cross streets.
- Construct raised medians to provide for right-in/right-out driveways as appropriate.
- Develop, implement and enforce city access standards for new developments on collectors and arterials.
- New driveway placement should be in accordance with applicable access spacing standards. Access requirements should be evaluated at the site plan review stage and shared access should be considered where feasible.

Staff should propose revisions to the development code to reflect the standards being developed in the Transportation System Plan. Additional attention should be given to the specific standards and whether exceptions are appropriate to be written into the code or if variances are the action needed. Four access management standards are recommended.

- A restriction of direct access of new single-family units on arterials and collectors (with an exception process that addresses safety and neighborhood traffic management needs).
- An access report requirement as part of the land development application. The report would verify driveway design and spacing, proper on-site circulation, adequate stacking, sight and deceleration distance as set by ODOT (including their approach permitting process), Lane County, the City and AASHTO (utilizing future traffic volumes from this plan as a future base for evaluation). Where possible, new developments should be required to provide “cross-over easements” as a condition of approval, thus insuring shared driveway access points.
- Driveways should not be placed in the influence area of intersections. The influence area is that area where queues of traffic commonly form on the approach to an intersection (typically between 150 to 300 feet). In a case where a project has less than 150 feet of frontage, the site would need to explore potential shared access, or if that were not practical, place driveways as far from the intersection as the frontage would allow (permitting for five feet from the property line).

- Access to arterials from driveways should be limited. When a site that has private access onto a principal arterial is redeveloped, the private access may be eliminated if alternate access exists to the site.

The recommended access spacing standards for city street facilities are identified in Table 8-2. As state facilities, OR 99 and the Cottage Grove Connector are subject to ODOT access management spacing standards, which supersede the City standards. The access spacing standards recommended for district highways are listed in Table 8-3. Lane County spacing standards apply to county facilities and are listed in Table 8-4.

Table 8-2: Access Spacing Standards for City Street Facilities

Street Facility	Maximum spacing of roadways and driveways	Minimum spacing of roadways and driveways
Arterial:	1,000 feet	600 feet*
Collector:	500 feet	200 feet (or 1 per residential lot)
Local:	500 feet	-
Arterials and Collectors:	Require an access report stating that the driveway/roadway is safe as designed meeting adequate stacking, sight distance and deceleration requirements as set by ODOT, Lane County and AASHTO.	

Note: Spacing standards apply to both full access and restricted access intersections (ex. right-in/right-out).

*Arterials located where existing block spacing is approximately 400 feet (such as seen downtown) would be exempt from the 600 foot minimum spacing standard and instead be subject to a 400 foot minimum spacing.

Table 8-3: District Highway Access Spacing Standards

<i>Posted Speed (miles per hour)</i>	<i>Access spacing (feet)</i>
55 or more	700
50	550
40, 45	500
35 or less	350

Source: 1999 Oregon Highway Plan

Table 8-4: Lane County Approach Spacing Standards

Facility	Posted Speed Limit (MPH)				
	55 or greater	50	40, 45	30, 35	25 or less
Principal Arterial	700'	550'	500'	400'	400'
Minor Arterial or Major Collector	475'	475'	400'	275'	200'
Minor Collector	325'	325'	325'	220'	150'

Source: Lane County Code, Chapter 15 - Roads, Lane Code 15.138

Access management is not easy to implement and often requires long institutional memory of the impacts of short access spacing – increased collisions, reduced capacity, poor sight distance and greater pedestrian exposure to vehicle conflicts. The most common opposition response to access control is that “there are driveways all over the place at closer spacing than mine – just look out there”. These statements are commonly made without historical reference. Many of the pre-existing driveways that do not meet access spacing requirements were put in when traffic volumes were substantially lower and no access spacing criteria were mandated. With higher and higher traffic volume in the future, the need for access control on all arterial and collector roadways is critical – the outcome of not managing access properly is additional wider roadways which have much greater impact than access control.

Traffic Signal Spacing

Traffic signals that are spaced too closely on a corridor can result in poor operating conditions and safety issues due to the lack of adequate storage for vehicle queues. A minimum traffic signal spacing of 1,000-feet may be required for arterial and collector facilities. Different signal spacing standards may be applied to lower classifications of roadways. ODOT identifies ½ mile as the desirable spacing of signalized intersections on regional and statewide highways but recognizes that shorter signal spacing may be appropriate due to a number of factors including existing road layout and land use patterns.

Local Street Connectivity

Much of the local street network in Cottage Grove is built but, in some cases, is not well connected. Multiple access opportunities for entering or exiting neighborhoods are limited. There are a number of locations where neighborhood traffic is funneled onto one single street. Examples include the residential area along South 6th Street (south of Taylor Avenue) and the area north of Main Street and west of River Road.

This type of street network results in out-of-direction travel for motorists and an imbalance of traffic volumes that impact residential frontage. The outcome can result in the need for wider roads, traffic signals and turn lanes (which can negatively impact traffic flow). By providing connectivity between neighborhoods, out-of-direction travel and vehicle miles traveled (VMT) can be reduced, accessibility between various travel modes can be enhanced and traffic levels can be balanced out between various streets. Additionally, public safety response time is reduced.

Some of these local connections can contribute with other street improvements to mitigate capacity deficiencies by better dispersing traffic. Several roadway connections will be needed within neighborhood areas to reduce out of direction travel for vehicles, pedestrians and bicyclists. This is most important in the areas where a significant amount of new development is possible.

Figure 8-1 shows the proposed Local Street Connectivity Plan for Cottage Grove. In most cases, the connector alignments are not specific and are aimed at reducing potential neighborhood traffic impacts by better balancing traffic flows on neighborhood routes. The arrows shown in the figures represent potential local connections and the general direction for the placement of the connection. In each case, the specific alignments and design will be better determined upon development review. New street approaches to OR 99 and the Cottage Grove Connector must be reviewed and permitted by ODOT.

To protect existing neighborhoods from potential traffic impacts of extending stub end streets, connector roadways should incorporate neighborhood traffic management into their design and construction. Stub streets may include signs indicating the potential for future connectivity. Additionally, new development that constructs new streets, or street extensions, must provide a proposed street map that:

- Limits use of cul-de-sacs and other closed-end street systems to situations where barriers prevent full street connections
- Includes no close-end street longer than 200 feet or having no more than 25 dwelling units
- Includes street cross-sections demonstrating dimensions of ROW improvements, with streets designed for posted or expected speed limits

The arrows shown on Figure 8-1 indicate priority connections only. Topography, railroads and environmental conditions limit the level of connectivity in several areas of Cottage Grove. Other stub end streets in the City's road network may become cul-de-sacs, extended cul-de-sacs or provide local connections. Pedestrian connections from the end of any stub end street that results in a cul-de-sac should be considered mandatory as future development occurs. The goal would continue to be improved city connectivity for all modes of transportation.

Figure 8-1 illustrates recommended motor vehicle and pedestrian and bicycle connections to local streets to encourage accessibility throughout the roadway network.

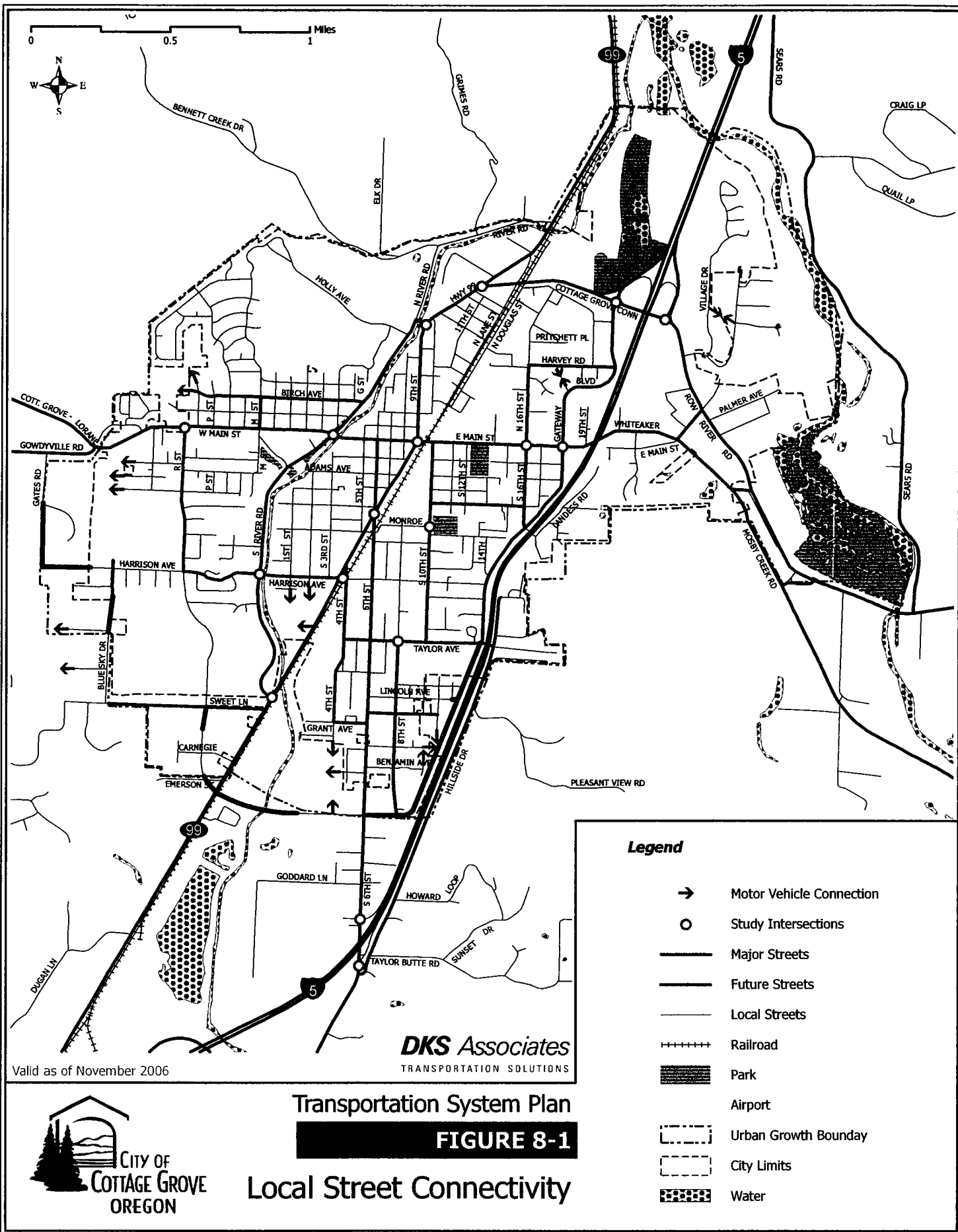
Functional Classification

The 1998 TSP established a functional classification for Cottage Grove that included arterials, collectors, and local streets. The background document review completed for the TSP included a comparison of the Cottage Grove functional classification to designations made by ODOT and Lane County. A desire has been expressed to revise the Cottage Grove functional classification map in order to maintain consistency with these other jurisdictions and reflect the changing characteristics of roadways in the City.

The criteria used to assess functional classification have two components: the extent of connectivity and the frequency of the facility type. Maps can be used to determine regional, city/district and neighborhood connections. The frequency or need for facilities of certain classifications is not routine or easy to package into a single criterion. While planning textbooks

call for arterial spacing of a mile, collector spacing of a quarter to a half-mile, and neighborhood connections at an eighth to a sixteenth of a mile, this does not form the only basis for defining functional classification.

Changes in land use, environmental issues or barriers, topographic constraints, and demand for facilities can change the frequency for routes of certain functional classifications. While spacing standards can be a guide, they must consider other features and potential long term uses in the area (some areas would not experience significant changes in demand, where others will). It is acceptable for the city to re-classify street functional designations to have different naming conventions, however, the general intent and purpose of the facility, whatever the name, should be consistent with regional, state and federal guidelines.



Functional Classification Definitions

Interstate Highways are access controlled national roadways that also serve regional needs.

Principal Arterials are typically state highways that are access controlled and provide a high level of connectivity. These routes connect over the longest distance (sometimes miles long) and are less frequent than other arterials or collectors. These roadways generally span several jurisdictions and often have statewide importance (as defined in the State Highway Classification System).² In Cottage Grove, OR 99 and the Cottage Grove Connector are both designated as principal arterials.

Minor Arterial streets serve to interconnect and support the principal arterial highway system. These streets link major commercial, residential, industrial and institutional areas. Arterial streets are typically spaced close enough together to assure accessibility and reduce the incidence of traffic using collectors or local streets for through traffic in lieu of a well placed arterial street. Access control is the key feature of an arterial route.

Several city streets are designated as minor arterial streets including Main Street, River Road and Gateway Boulevard

Collector streets provide both access and circulation within and between residential and commercial/industrial areas. Collectors differ from arterials in that they provide more of a citywide circulation functionality, do not require as extensive control of access (compared to arterials) and penetrate residential neighborhoods, distributing trips from the neighborhood and local street system. Harrison Avenue, South 10th Street, and South 16th Street are examples of collectors.

Local Streets have the sole function of providing access to immediate adjacent land. Service to “through traffic movement” on local streets is deliberately discouraged by design.

All other city streets in Cottage Grove not designated as collector streets or arterial streets are considered to be local streets, with the exception of I-5 which is classified as an Interstate Highway.

Proposed Functional Classification Changes

A revised functional classification map is illustrated in Figure 8-2. The recommended changes to the functional classification defined in the 1998 TSP are summarized below.

New Roadways:

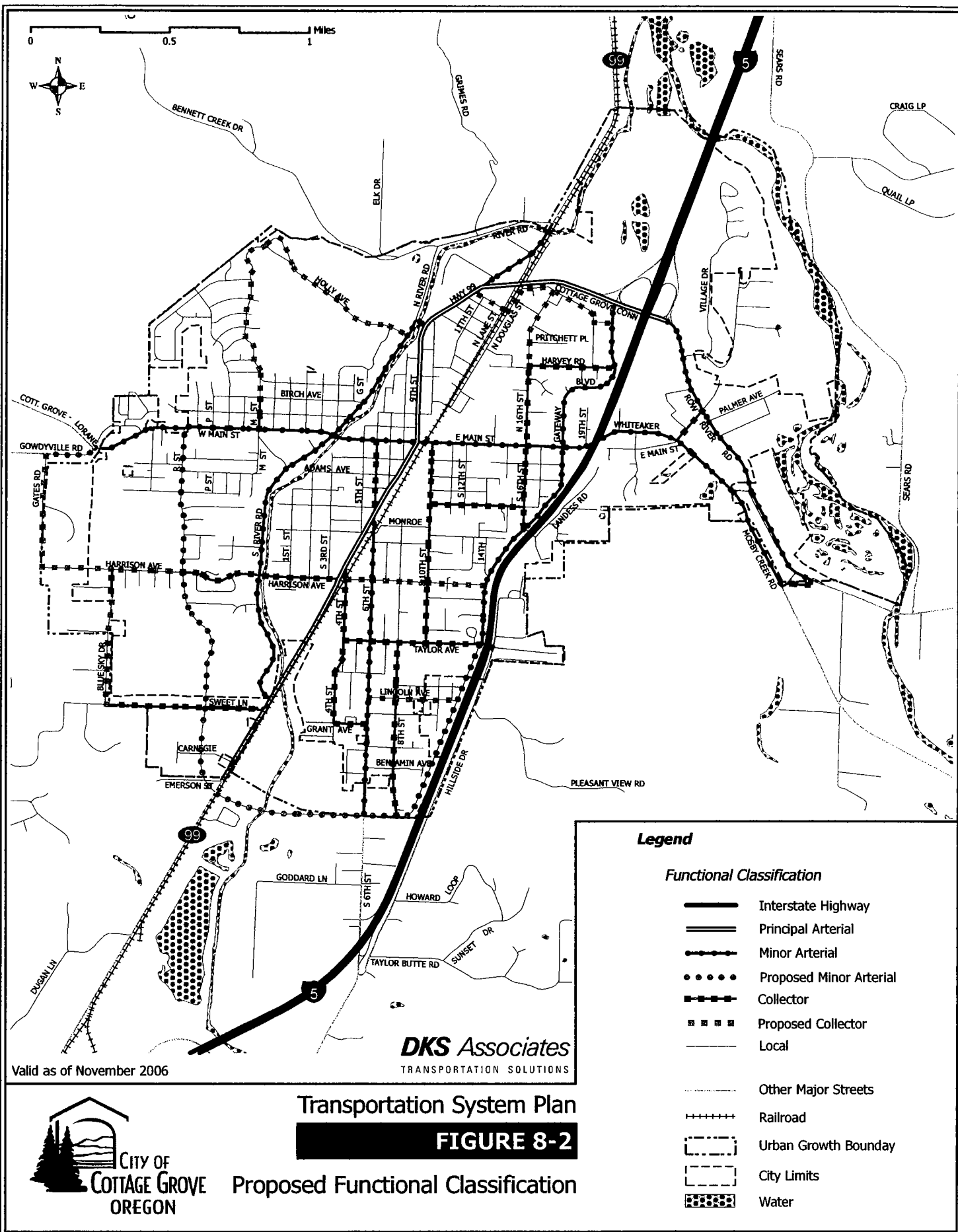
- R Street extension, Cleveland Avenue extension and Gateway Boulevard extension added as minor arterials
- Gates Road extension, Harrison Avenue extensions, and Blue Sky Drive extension added as collectors

Existing Roadways:

- Gowdyville Road becomes a minor arterial and is incorporated as a city street from Main Street to Gates Road
- R Street changes from a collector to a minor arterial

² 1999 Oregon Highway Plan, An Element of the Oregon Transportation Plan, Adopted by the Oregon Transportation Commission, March 18, 1999.

- Harrison Avenue becomes a collector west of R Street
- Lincoln Avenue is extended to Gateway Boulevard as a collector (requires new roadway construction)
- M Street is reclassified as a collector from Main Street to Holly Avenue
- Holly Avenue is reclassified as a collector pending incorporation as a public roadway and if structural improvements are made
- 16th Street is reclassified as a collector between Harvey Road and Ostrander Lane
- Chamberlain Avenue is reclassified as a collector from OR 99 to Douglas Street
- Douglas Street is reclassified as a collector from Chamberlain Avenue to Ostrander Lane
- Ostrander Lane is reclassified as a collector from Douglas Street to 19th Street
- 19th Street is reclassified as a collector from Ostrander Lane to Oswald West Avenue
- Oswald West Avenue is reclassified as a collector from 19th Street to Gateway Boulevard
- Johnson Avenue is reclassified as a local street
- Birch Avenue is reclassified as a local street
- Blue Sky Drive is reclassified as a local street north of Harrison Avenue and as a collector south of Harrison Avenue to Sweet Lane



Roadway Cross-Section Standards

The design characteristics of city streets in Cottage Grove were developed to meet the function and demand for each facility type. Because the actual design of a roadway can vary from segment to segment due to adjacent land uses and demands, the objective was to define a system that allows standardization of key characteristics to provide consistency, but also to provide criteria for application that provides some flexibility, while meeting the design standards.

Figure 8-3 illustrates the resulting cross-sections for city arterials, collectors, and local streets in Cottage Grove. Roadways under state or country jurisdictions will be subject to design standards of those agencies. ODOT requires lane widths of 12 feet for roadways under its jurisdiction.

Planning level right-of-way needs can be determined utilizing these figures. Specific dimensions for roadways with various lane and parking characteristics are detailed in the Cottage Grove Development Code (Section 3.4.100) and Table 8-5 for each street classification. These street standards are compliant with the Oregon Transportation Planning Rule³ which specifies that local governments limit excessive roadway widths (OAR 660-012-0045 Item 7).

Under some conditions a variation to the adopted street cross-sections may be requested from the City Engineer. Typical conditions that may warrant consideration of a variation include (but are not limited to) the following:

- Infill sites
- Innovative designs (roundabouts)
- Severe topographic or environmental constraints
- Existing developments and/or buildings that make it extremely difficult or impossible to meet the design standard

³ Oregon Transportation Planning Rule, Land Conservation and Development Department, OAR 660-012-0000