

CHAPTER 5: FACILITY INVENTORY AND CONDITIONS

This section provides a detailed inventory of the County's transportation system and a summary of its existing condition. This inventory has been updated from the 1998 Transportation System Plan (TSP) using 2002 and more recent data and serves as the baseline for the planning period for the 2005 TSP Update. The County's TSP covers the areas outside of the urban growth boundaries of incorporated cities. All rural County-maintained facilities have been inventoried for both physical and operational features. In addition, other forms of transportation, including transit, rail service, water service, and pipelines are included in this plan. In some cases, particularly with pipelines and other utilities, specific information is not included for security reasons.

5.1 ROADWAY INVENTORY

There are thousands of miles of public roadway within the boundaries of Marion County. These roads are under the jurisdiction of many different agencies including the State, the County, each of the 20 incorporated Cities, as well as the Forest Service, Bureau of Land Management, and the Oregon State Forestry Department. Of these roads, approximately 1130 miles are maintained by Marion County. Of this total mileage, approximately 140 miles lie within various urban growth boundaries, leaving 990 miles of rural County Roads. In addition, Marion County also has about 79 miles of local access roads that are public roadways, but under Oregon Revised Statutes, are not maintained by the County. In general, maintenance of these roads is the responsibility of adjacent property owners.

5.1.1 Functional Classification

Roadways are grouped into categories, called **functional classifications**. These classifications are based on the character of service that the roadway provides as part of the overall transportation system. The categories used by Marion County are based on the definitions found in the U.S. Department of Transportation document titled *Highway Functional Classification: Concepts, Criteria and Procedures, March 1989*. A summary of these classes and a brief definition can be found in **Table 5-1**. These classifications are designed to be applied to all levels of roadways including interstate freeways, state highways, county roads, and city streets. With permission from the Oregon Department of Transportation, the County has uniformly applied these definitions to both state highways and County roads. With regard to incorporated cities and adjacent counties, Marion County cannot specify what classification system will be used in their planning efforts. However, when comparing the functional class designations used by each of the cities and adjacent counties, it is apparent that all transitions are appropriate based on the guidelines suggested in the USDOT description of the functional classification system.

The importance of the functional class of a road is it assists the jurisdiction in determining how it will be managed, such as the level of maintenance or improvements, how traffic is controlled at its intersections, standards that will be used when the road is reconstructed or improved, the level of access and development activity that is allowed along its length, and the priority of funding improvements among many other competing projects.

Table 5-1

Rural Road Functional Classification Characteristics

Principal Arterial

- Continuous segments with trip length and travel density indicative of statewide or interstate travel; and
- Serve all of the large urban areas and most of the moderate sized cities.

Arterial

- Link cities, larger towns, and other major traffic generators; and provide interstate and inter-county service; and
- Spaced such that all developed areas of the region are within reasonable distance of an arterial; and
- Serve a higher travel density, trip length, and overall travel speed than collector and local systems.

Major Collector

- Provide service to larger towns not directly served by higher classed roads and to other traffic generators of equivalent intra-county importance (including parks, tourist attractions, significant resource areas, etc.); and
- Link these places with nearby towns and cities, or routes of higher classification; and
- Serve the more important intra-county travel corridors.

Minor Collector

- Spaced at intervals to collect traffic from local roads and bring all developed areas within a reasonable distance of a collector road; and
- Provide service to any remaining smaller communities and traffic generators; and
- Link locally important traffic generators with their local constituents.

Local

- Primarily provide access to adjacent lands; and
- Provide relatively short travel distances compared to higher classed facilities.

The original (1998) RTSP included a list of roadways and their functional classification. As part of this 2005 Update, some changes are being made as shown in **Table 5-2**, which better reflect the current and future function of each roadway.

Table 5-2
2005 Revisions to Functional Classification System
 (Note: Road segments are listed generally from north to south)

Road	From	To	Previous Class	New Class
Arndt Rd	Butteville	Bents Rd	Major Collector	Minor Collector
Oregon 219	McKay Rd	Yamhill County	Arterial	Principal Arterial
Ehlen Rd / Yergen Rd / McKay Rd	Interstate 5	Oregon 219	Arterial	Principal Arterial
Boones Ferry Rd	Ehlen Rd	Arndt Rd	Minor Collector	Local
Boones Ferry Rd	Crosby Rd	Ehlen Rd	Major Collector	Minor Collector
French Prairie Rd	Oregon 219	McKay Rd	Major Collector	Minor Collector
Parr Rd	Butteville Rd	Woodburn UGB	Major Collector	Minor Collector
French Prairie Rd	River Rd	Oregon 219	Major Collector	Minor Collector
Marquam Rd / Drake Rd	Meridian Rd	Clackamas County	Local	Minor Collector
Quinaby Rd	River Rd NE	Oregon 99E	Local	Minor Collector
Silverton Rd	Salem UGB	Silverton UGB	Arterial	Principal Arterial
Lardon Rd	Cordon Rd	Howell Prairie Rd	Minor Collector	Local
Kaufman Rd	Howell Prairie Rd	Cascade Hwy	Minor Collector	Local
Center St	Cordon Rd	Hampden Ln	Major Collector	Minor Collector
Hampden Ln	Center St	Fruitland Rd	Major Collector	Minor Collector
Fruitland Rd	Hampden Ln	63 rd Ave	Major Collector	Minor Collector
Skyline Rd	Vitae Springs Rd	Salem UGB	Arterial	Major Collector
Liberty Rd	Hylo Rd	Salem UGB	Arterial	Major Collector
Mill Creek Rd	Marion Rd	Aumsville UGB	Arterial	Major Collector
Mill Creek Rd	Aumsville UGB	Golf Club Rd	Arterial	Major Collector
West Stayton Rd	Shaff Rd	Aumsville UGB	Major Collector	Minor Collector
Cloverdale Rd	Parrish Gap Rd	Ridgeway Dr	Minor Collector	Local
Belden Dr	West Stayton Rd	Stayton Rd	Minor Collector	Local
West Stayton Rd	Stayton Rd	Shaff Rd	Major Collector	Minor Collector
Buena Vista Rd	Polk County	Sidney Rd	Local	Minor Collector
Talbot Rd	Interstate 5	Buena Vista Rd	Minor Collector	Major Collector

The updated functional classification is shown on the map in **Figure 5-1**. State Highways are included on the map at their estimated level of function. These functions are consistent with the State Highway classifications included in the 1999 Oregon Highway Plan and shown on **Figure 5-1a**. Some major roads within cities and urban areas have classifications shown based on the fact that the regional transportation system runs through these urban areas. However, these functional

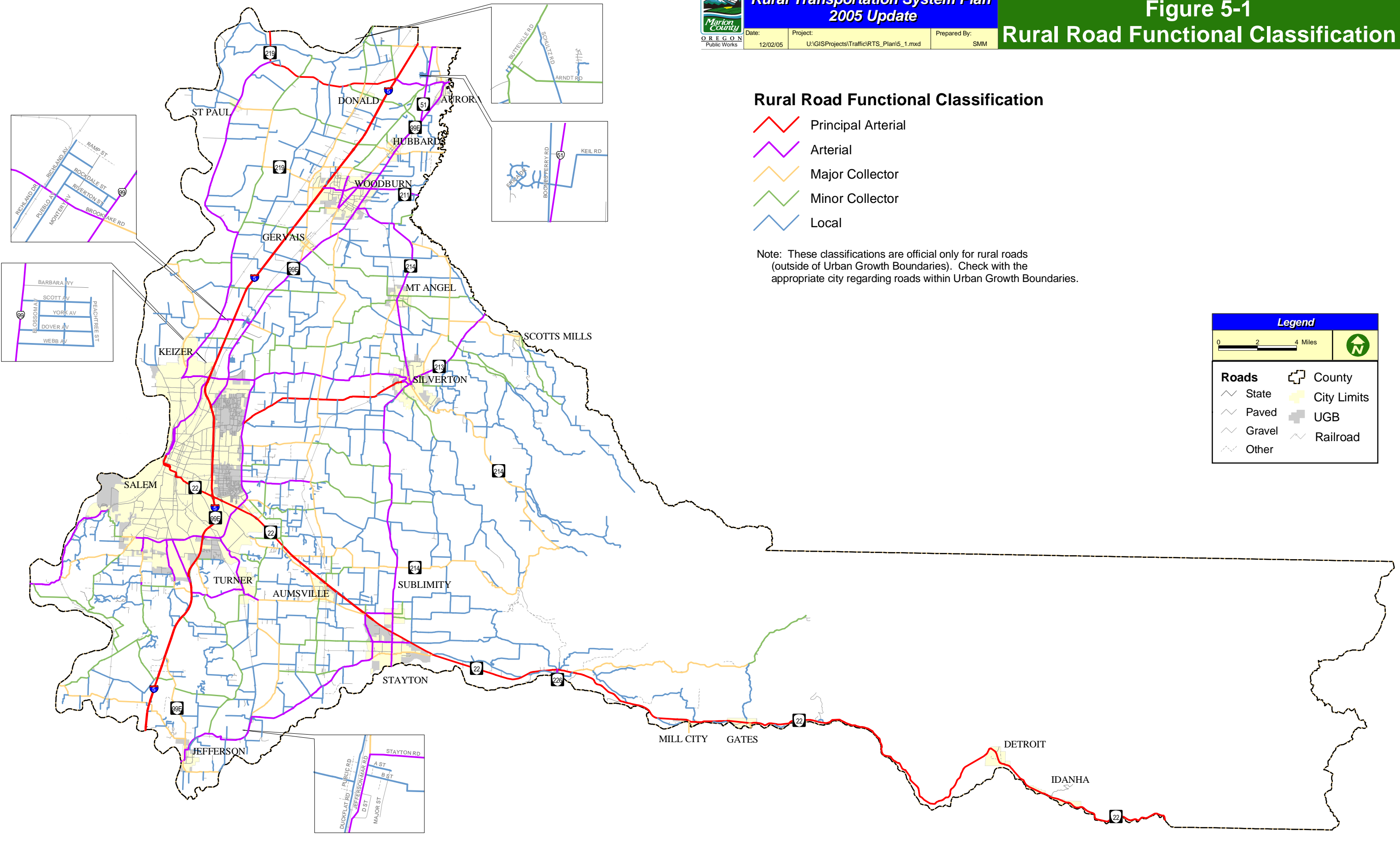
classifications shown are not binding on these cities; refer to the appropriate city's TSP for information on their assignment. If a city expands its Urban Growth Boundary, the formerly rural roadways in that boundary expansion would then be reclassified by the appropriate city to reflect their planned urban usage. This may mean that current rural local roads in these expansion areas may become urban Collectors or Arterials in the future.

The Functional Classification for rural County Roads is adopted at the same time that the RTSP is adopted by the Board of Commissioners. **Table 5-3** provides a breakdown of the rural miles of County roadways by functional class, estimates for State Highways by Functional Class, and combined mileages and percentages.

Table 5-3
Rural Miles of Roads by Functional Class

CLASSIFICATION	COUNTY ROAD MILES	STATE HWY MILES	TOTAL MILES	% COUNTY ROAD MILES	% TOTAL
Principal Arterial	15	81	96	1.5 %	8.3 %
Arterial	74	37	111	7.5 %	9.6 %
Major Collector	114	44	158	11.5 %	13.7 %
Minor Collector	172	0	172	17.4 %	14.9 %
Local	615	0	615	62.1 %	53.4 %
TOTAL	990	162	1152	100 %	100 %

In addition, the Forest Service maintains its own classification of roads: primary routes, secondary routes, and low-standard roads. Primary routes function similarly to a collector, as they collect traffic from various recreation areas, campgrounds, and other sites as they progress toward the statewide highway system. Primary routes are sometimes used for longer trips, particularly of a tourist nature. Secondary routes and low-standard roads function as local roads, primarily providing access to local sites. There is one primary route in Marion County: Route 46 (also known as Breitenbush Road) runs to the northeast from Detroit, past many attractions in the Willamette and Mt. Hood National Forests, then north into Clackamas County after about 30 miles. It then runs generally to the northwest, eventually linking up with Oregon 224. There are hundreds of miles of Bureau of Land Management (BLM) and low-standard Forest Service roads, which primarily provide access to local areas; almost all of these roads are unpaved and likely to remain that way.



Rural Road Functional Classification

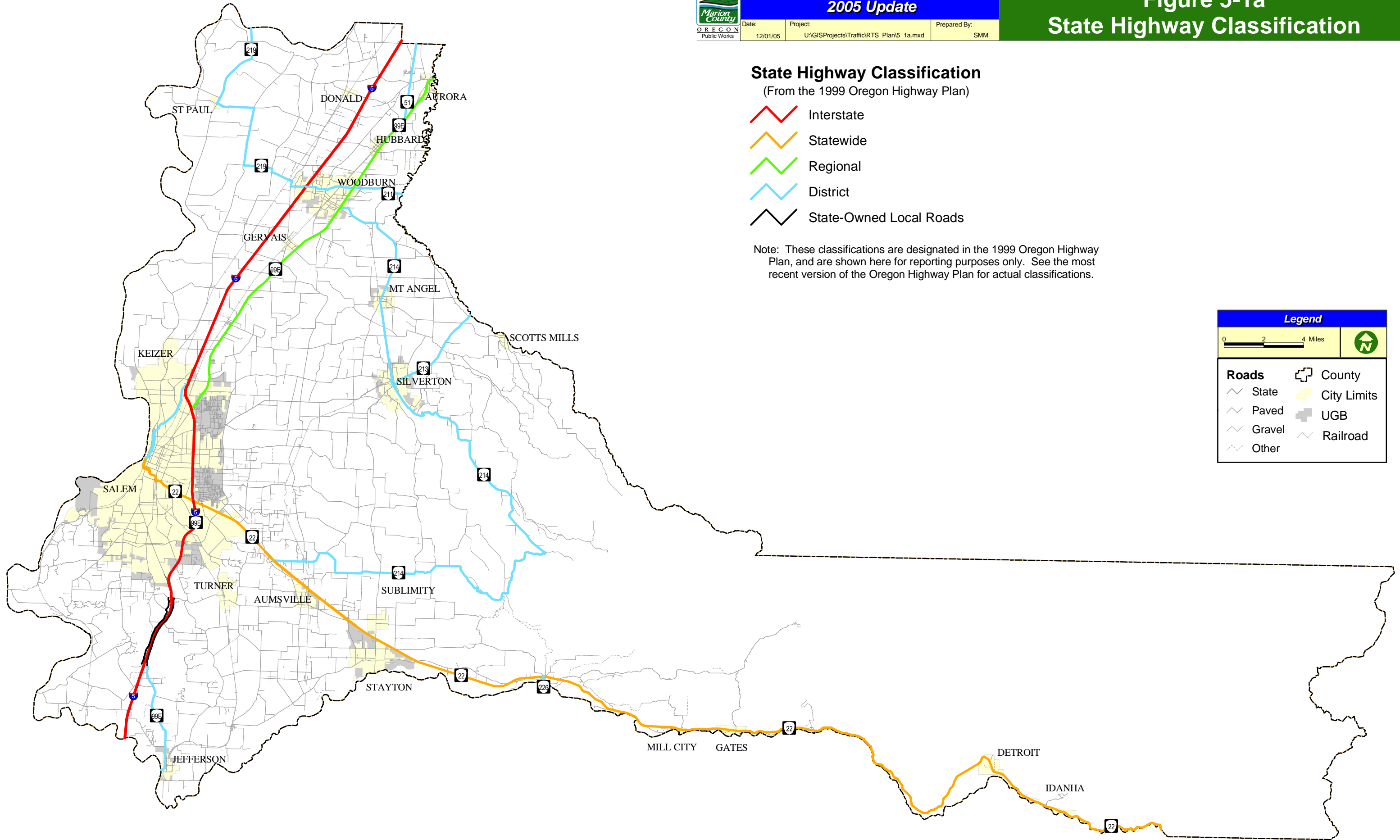
- Principal Arterial
- Arterial
- Major Collector
- Minor Collector
- Local

Note: These classifications are official only for rural roads (outside of Urban Growth Boundaries). Check with the appropriate city regarding roads within Urban Growth Boundaries.

Legend






0 2 4 Miles

Roads	County
State	City Limits
Paved	UGB
Gravel	Railroad
Other	




State Highway Classification










(From the 1999 Oregon Highway Plan)

-  Interstate
-  Statewide
-  Regional
-  District
-  State-Owned Local Roads

Note: These classifications are designated in the 1999 Oregon Highway Plan, and are shown here for reporting purposes only. See the most recent version of the Oregon Highway Plan for actual classifications.

Legend

0 2 4 Miles 

 Roads	 County
 State	 City Limits
 Paved	 UGB
 Gravel	 Railroad
 Other	

5.1.2 Physical Characteristics

This detailed inventory of County-maintained roads includes characteristics such as existing traffic volumes, surface type, pavement width, right-of-way width, pavement condition, and functional class (see **Appendix B**). This section provides a summary of the physical features that were evaluated for each roadway segment listed in the inventory.

Length of the segment and beginning and ending milepoints

Lengths were computed from the milepost system currently in place on the road network.

Number of travel lanes

This is the total number of through travel lanes on a segment regardless of the direction of travel flow.

Widths of the shoulders and travel surface

The total width of the actual travel surface was measured and the respective widths of the left and right shoulders were also recorded.

Surface type of the travel surface and shoulders

The surface type (paved or gravel) was recorded.

Width of the right-of-way (ROW Width)

Right-of-way widths vary considerably along a roadway and from one road to another. Accurate information is difficult to find due to the age of documentation and the number of right-of-way dedications that occurred on individual parcels over the last several years.

The width recorded in the inventory is the best average figure that could be obtained for each segment. This information is used for planning purposes only and should not be used where a high level of accuracy is required. Consult the Marion County Surveyor's Office for official information.

Pavement condition

Marion County has been using a pavement management program since the late 1980s and found it very successful in managing our paved roads. It uses a pavement condition rating system with five categories: very good, good, fair, poor, and very poor. These general ratings are based on a Pavement Condition Index (PCI) that reflects the type, severity, and amount of pavement distress (such as cracking, potholes, etc). The PCI is continually updated and provides us with a rating of a section of pavement as it changes over time.

Figure 5-2 shows the existing pavement condition for Marion County roadways outside of urban areas. The breakdown of mileage in each of the classes of pavement condition is shown in **Table 5-4**. Also included in this table is the mileage of gravel-surfaced roads maintained by the County.

**Table 5-4
Rural Road Surface Types and Conditions**

SURFACE CONDITIONS	PAVEMENT CONDITION INDEX (PCI)	MILES	% OF TOTAL RURAL MILES
Paved Surfaces:			
Very Good	90 to 100	107	11%
Good	70 to 89	392	40%
Fair	50 to 69	199	20%
Poor	25 to 49	90	9.1%
Very Poor	1 to 24	5	0.5%
Gravel Surfaces:		197	20%
TOTAL		990	100%

Note: Pavement condition survey conducted in 2002.

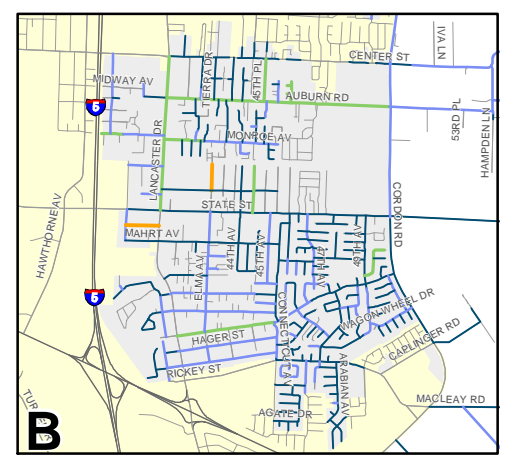
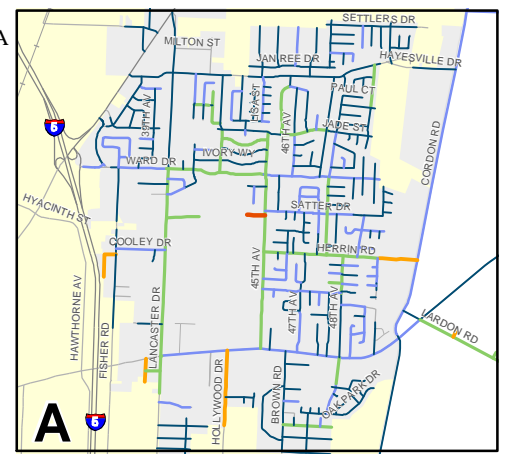
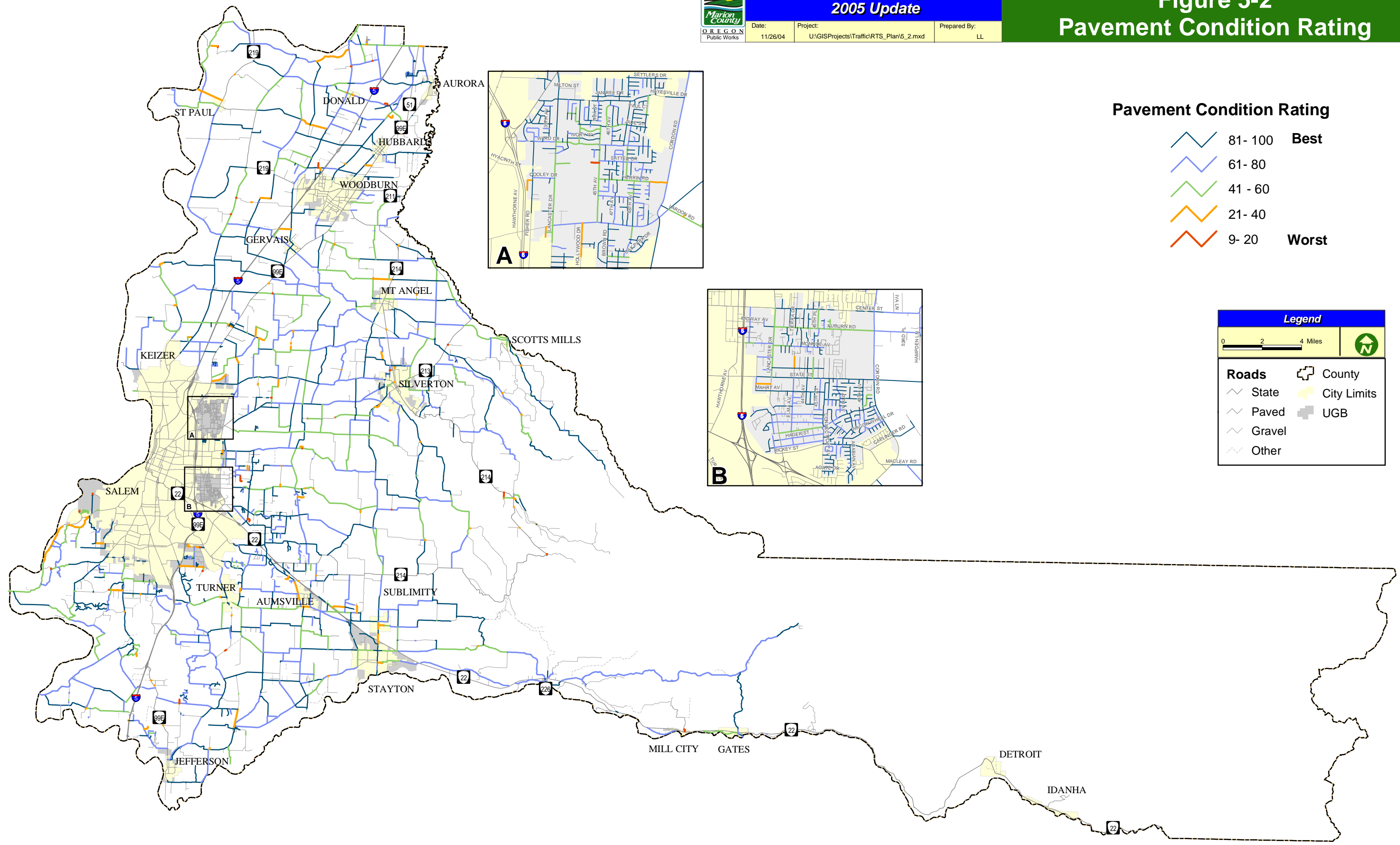
Recognizing that arterials and collectors receive more use than lower-class roadways, separate tables are maintained for these facilities; this data is shown in **Table 5-5**:

**Table 5-5
Pavement Condition for Arterials and Collectors**

PAVEMENT CONDITION (pci)	ARTERIAL MILEAGE	ARTERIAL PERCENTAGE	COLLECTOR MILEAGE	COLLECTOR PERCENTAGE
Very Good (90 to 100)	6	5%	47	15%
Good (70 to 89)	74	63%	141	46%
Fair (50 to 69)	26	22%	90	29%
Poor (25 to 49)	11	10%	31	10%
Very Poor (1 to 24)	1	1%	0	0%

Functional class

The previous and current (2005 Update) functional classification for each segment was recorded as part of the inventory. The Functional Classifications of some roadways are being changed as part of this update. These changes are noted.



Pavement Condition Rating

- 81 - 100 **Best**
- 61 - 80
- 41 - 60
- 21 - 40
- 9 - 20 **Worst**

Legend

0 2 4 Miles

Roads	County
State	City Limits
Paved	UGB
Gravel	
Other	

5.1.3 Truck Routes

There are currently only two truck routes posted in rural Marion County. The first is on the north side of Silverton and includes Monitor Road, Hobart Road, and Mt. Angel Highway. The second connects with a route in Stayton and includes Golf Club Road, Wilco Road, and Shaff Road. Portions of both of these truck routes are inside the urban growth boundaries of these cities. Many cities have designated truck routes within their city. In addition to these posted routes, there are several unofficial routes that are used by truck traffic on a regular basis.

There are also rural locations where “No Through Trucks” prohibitions have been posted to address specific truck-related problems. These include one in the Silverton area (Quall Road, Forest Ridge Road, Madrona Heights Drive, Evans Valley Road, and Valley View Road); and in the northern part of the county in a small residential community (Cessna Street, Piper Street, and Mooney Avenue) between Boones Ferry Road and Wilsonville-Hubbard Hwy.

5.1.4 Bridges

There are 141 bridges maintained by Marion County. Of these, 6 are in urban areas and the remaining 135 are in rural areas. All bridges are thoroughly inspected every two years and given a sufficiency rating. The sufficiency rating is a number on a scale from zero to 100 that represents the overall condition of the structure. The higher the rating, the better the condition of the bridge. The bridges in Marion County span ratings from a low of 43.2 to a high of 100. These ratings are summarized in **Table 5-6**.

Table 5-6
County Bridge Sufficiency Ratings

SUFFICIENCY RATING RANGE	NUMBER OF BRIDGES	PERCENTAGE
90.1 to 100	41	29.1 %
80.1 to 90	34	24.1 %
70.1 to 80	34	24.1 %
60.1 to 70	18	12.8 %
50.1 to 60	9	6.4 %
40.1 to 50	5	3.6 %

Bridges are also assigned an operating rating. This rating is used to determine whether overweight trucks can receive a permit to cross the bridge and if any requirements will be placed on their use of the bridge. A complete inventory of County bridges is shown in **Appendix C**. Six bridges are presently restricted to certain maximum vehicle weights or dimensions. **Table 5-7** lists the weight and/or height restrictions of these bridges and shows the functional class of the roadway crossing that bridge.

**Table 5-7
Restricted County Bridges**

FACILITY	OVER	RESTRICTION	FUNCTIONAL CLASS
Gallon House Road	Abiqua Creek	Weight 20 Ton Height 14' 2" One Lane Bridge	Local
Mt Angel – Gervais Rd	Pudding River	20 to 39 Tons (Depending on Configuration)	Minor Collector
Jefferson-Marion Rd	SP Railroad	Weight 40 Ton	Arterial
Labish Center Road	Little Pudding River	Weight 40 Ton	Minor Collector
Rambler Drive	Little Pudding River	Weight 40 Ton	Local
River Rd S	Willamette River	Weight 40 Ton	Arterial

5.1.5 Other Road Restrictions

There are four other structures that place restrictions on County roads. These are railroad bridges that create height restrictions of 9' 4", 11' 0", 12' 3", and 12' 9". These structures are on Riverdale Road, Riverside Road, River Road S, and River Road S, respectively. All four are on the mainline owned by Burlington Northern-Sante Fe Railroad. In addition to height restrictions, these bridges create very sharp curves and narrow roadways at their undercrossings.

5.2 BICYCLE AND PEDESTRIAN FACILITIES

Due to the rural nature of most of the County, the majority of facilities outside the urban areas do not have bicycle and pedestrian facilities. Commuting along the rural County roadway system by bicycle is fairly rare due to large distances between population and employment centers.

However, Marion County has strived over the last several years to add paved shoulders to many of the County arterials to fill a combined role providing for safety shoulders along with creating areas for bicycle and pedestrian use. In order to extend the number of roadway miles that we place paved shoulder on, due to our limited funds, the County sometimes constructs three- or four-foot paved shoulders rather than the five- foot shoulders that are desirable for bicyclists. This approach has been very popular with cyclists and motorists alike because it is a good compromise between design ideals and cost of construction that maximizes the usefulness of our rural roads. Often, a three-foot shoulder can be relatively easily constructed while construction of a five- or six-foot shoulder would require extensive construction work to move utilities and roadside ditches. The locations of paved shoulders on the rural system are shown on **Figure 5-3**. In addition, one location where a designated bike facility exists in the rural area is also included. This particular facility, on Grim Road, serves a high school, middle school and

elementary school clustered on a half-mile segment of road. **Table 5-8** summarizes the number of miles of County rural roadway that have paved shoulders greater than 2.5 feet in width. Roughly 4 percent of our rural paved roads have shoulders four feet or wider, and almost 13 percent have shoulders 2.5 feet or wider. In recent years, limited resources have constricted our ability to add paved shoulders, and are likely to restrict our ability to add paved shoulders in the near future unless additional funding is located.

Table 5-8
Rural Paved Shoulder Mileage

FUNCTIONAL CLASS	PAVED SHOULDERS 2.5 TO 4 FEET WIDE	PAVED SHOULDERS 4 FEET AND WIDER	TOTAL MILES PAVED SHOULDERS
Arterial	41.5 mi	32.0 mi	73.5 mi
Major Collector	31.6 mi	0.0 mi	31.6 mi
Minor Collector	3.9 mi	0.0 mi	3.9 mi
Local	2.4 mi	0.2 mi	2.6 mi
TOTAL	79.4 mi	32.2 mi	111.6 mi

Sidewalks are even more limited in the rural areas than paved shoulders. Most efforts to add sidewalks and walkways are concentrated in the urban areas. In rural areas, sidewalks appear primarily in a small number of rural residential developments, such as mobile home villages and subdivisions, and in unincorporated communities such as Brooks and Monitor. They generally have been placed by developers only on those roads within the development and typically do not connect with facilities on the higher classed road network. Several pieces of sidewalk are identified on **Figure 5-3** and a detailed inventory can be found in **Appendix D**.

One element of bicycle use that has increased in recent years is recreational cycling, including organized rides and road races. The varied terrain, rural beauty, relatively low traffic volume, and well-maintained roads make this area a top attraction for cycling groups from around the state to hold their annual events. These events attract several thousand cyclists to the County each year as well as thousands of spectators and family members. Pedestrian activities tend to be more limited in scope, though recreational and fitness walks and runs are also very popular in the area.

The Oregon Parks and Recreation Department has designated the Willamette Valley Scenic Bikeway, a 130-mile route along existing roads from Champoeg State Park (in northern Marion County) to Eugene. From its starting point in Champoeg Park, the route follows Champoeg Road, Riverside Drive, Blanchet Road, River Road, Matheny Road, and Wheatland Road to Willamette Mission State Park, then crossing via the Wheatland Ferry into Yamhill County. An alternate route follows River Road from Salem to Independence and Riverside Road and Buena Vista Roads from Independence to the Buena Vista Ferry crossing into Polk County. Marion County portions of the route are shown on **Figure 5-3**.

5.3 TRAFFIC OPERATIONS

A description of traffic operations in the County consists of an inventory of traffic control devices and lane channelization, a survey of traffic volumes and levels-of-service, and a survey of accident locations.

5.3.1 Intersection Traffic Control and Lane Channelization

Intersection traffic control in rural Marion County includes traffic signals (mostly at intersections with state highways), overhead flashers, multi-way stops, two-way stops, and some uncontrolled intersections. **Figure 5-4** shows the location of these traffic control devices in the rural County.

5.3.2 Daily Traffic Volumes

Traffic volume data has been collected on Marion County roadways for several years. As a result, actual counts or estimates are available for all roads in the system. The data is typically collected via road tube, on weekdays, from May to October. The County is counted on a four-year cycle. In addition, vehicle classification counts are taken on most arterials and major collectors in the County and provide valuable data on road usage by different classes of vehicles from motorcycles to multi-axle truck configurations. The Oregon Department of Transportation also conducts regular traffic counts on State Highways. **Figure 5-5** illustrates the weekday daily traffic found on County Roads and State Highways.

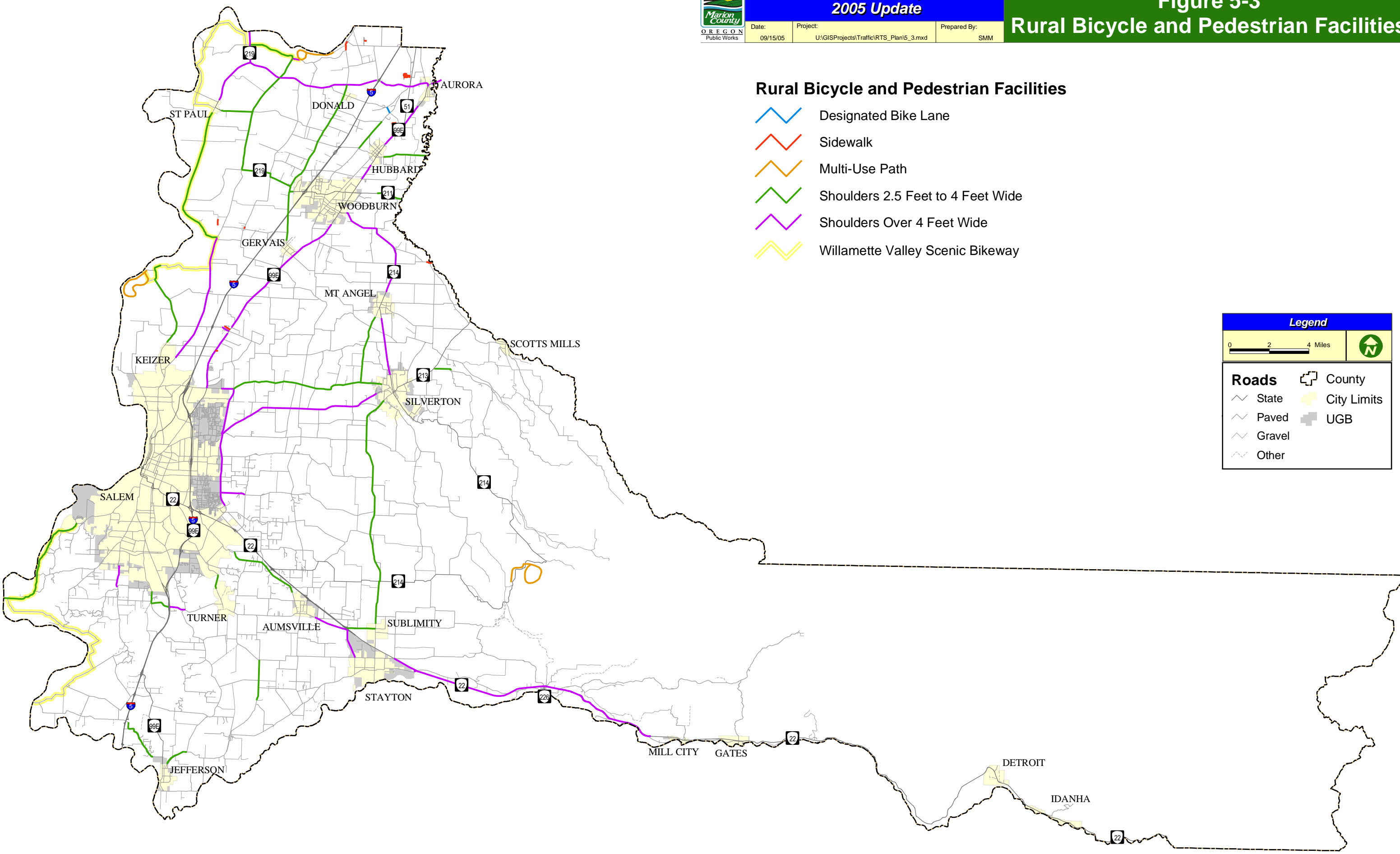
5.3.3 Peak Hour Traffic Volumes

Peak hour turning movement counts were obtained in 1994 and 1996 for most major intersections in the County. These were supplemented for this update with many counts conducted in 2002. The large volume of data precludes including the turning movement count data in this document. However, it is available through the Public Works Department. This count information, along with traffic control and lane configuration detail, was used to evaluate how well those intersections are operating at present.







5.3.4 Capacity: Level-of-Service and Volume to Capacity Ratios

Capacity describes the ability of a transportation facility to carry a certain number of vehicles or people. It is an important tool that allows engineers and planners to determine what potential improvements are likely to become necessary. These improvements will vary, but include such things as adding travel or turning lanes, installing traffic signals, and planning new roadways to accommodate growth in traffic. The capacity of a roadway or intersection is specific to that location and traffic characteristics. It is also important to know the capacity of both a segment of roadway (i.e., between intersections) as well as its intersections, to fully assess the needs of the transportation system.


Level-Of-Service (LOS) is a concept that is used to measure the quality of flow on or through a facility. It attempts to grade the amount of delay that a motorist must experience while traveling through an intersection or the level of congestion on a segment of roadway. This delay includes such elements as travel time, number of stops, total amount of stopped delay, amount of time spent following slower vehicles, and impediments caused by other vehicles. The level of service (LOS) is designated by a letter grade from A to F where LOS A represents free-flowing traffic with little or no delay, and LOS F represents severe congestion. The actual process to determine LOS is quite detailed, and will be applied to road sections as capacity issues become significant. The Levels of Service calculated here are approximate planning-level calculations.










Rural Bicycle and Pedestrian Facilities

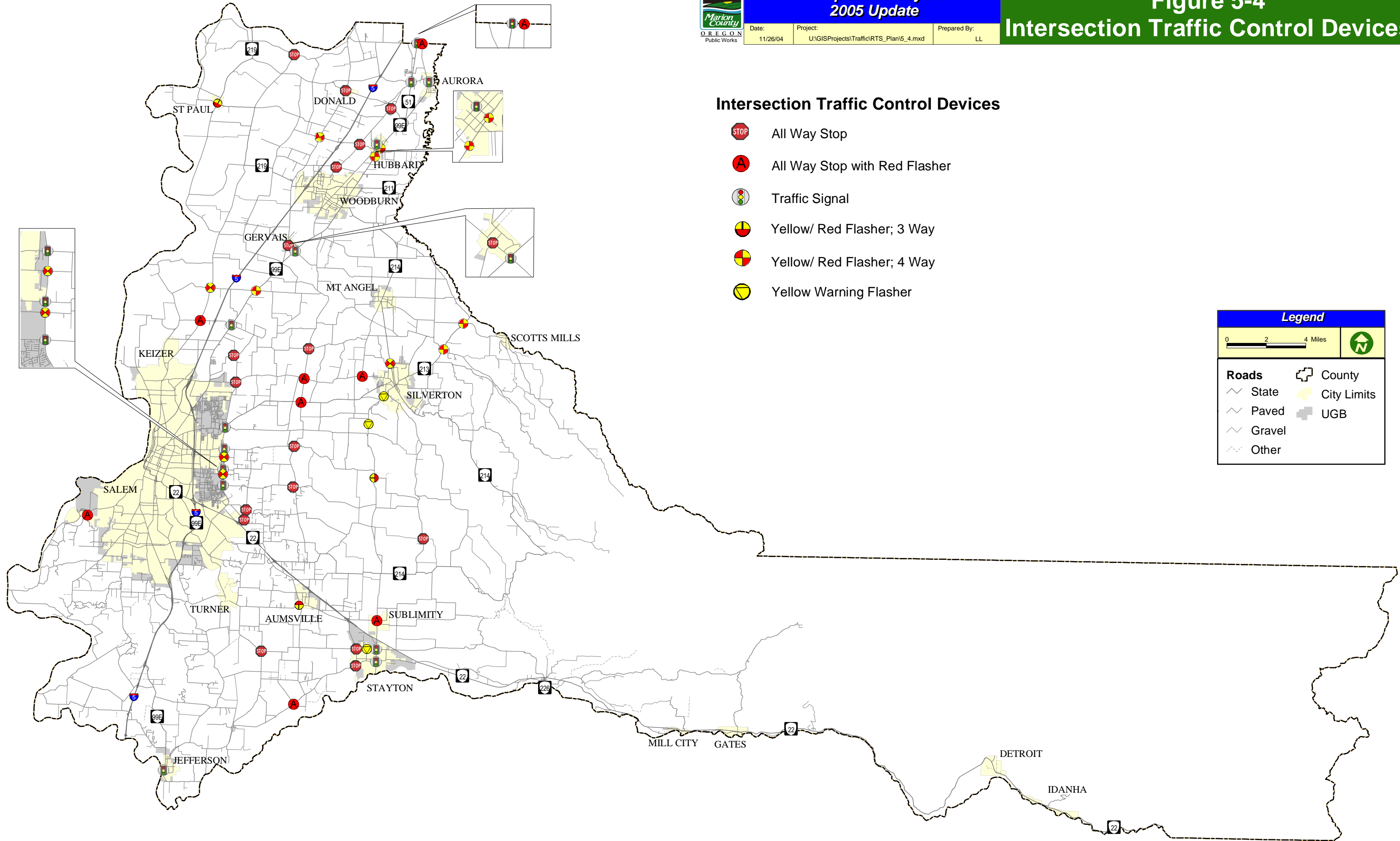
-  Designated Bike Lane
-  Sidewalk
-  Multi-Use Path
-  Shoulders 2.5 Feet to 4 Feet Wide
-  Shoulders Over 4 Feet Wide
-  Willamette Valley Scenic Bikeway

Legend







0 2 4 Miles 

Roads


-  State
-  Paved
-  Gravel
-  Other
-  County
-  City Limits
-  UGB











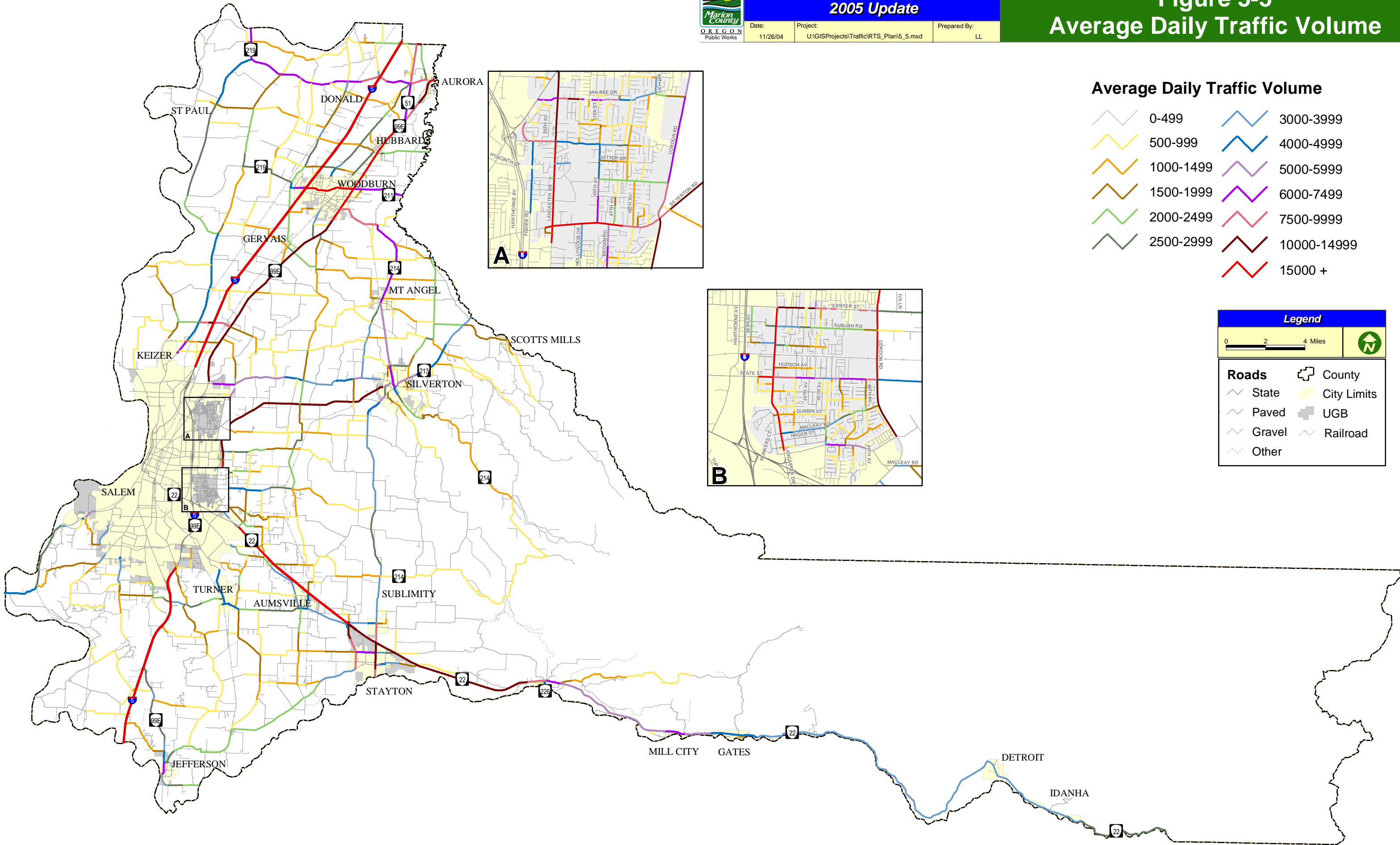
Intersection Traffic Control Devices

-  All Way Stop
-  All Way Stop with Red Flasher
-  Traffic Signal
-  Yellow/ Red Flasher; 3 Way
-  Yellow/ Red Flasher; 4 Way
-  Yellow Warning Flasher

Legend

0 2 4 Miles 

 Roads	 County
 State	 City Limits
 Paved	 UGB
 Gravel	
 Other	



Average Daily Traffic Volume

	0-499		3000-3999
	500-999		4000-4999
	1000-1499		5000-5999
	1500-1999		6000-7499
	2000-2499		7500-9999
	2500-2999		10000-14999
			15000 +

Legend

0 2 4 Miles

	Roads		County
	State		City Limits
	Paved		UGB
	Gravel		Railroad
	Other		

The **Volume-to-Capacity ratio (V/C)** is the ratio of the demand flow to the capacity of a given facility. Essentially, the V/C ratio represents the percentage of the available capacity of the facility that is being used by the traffic.

LOS and V/C are used to measure how well components of the transportation system are functioning. **Table 5-9** lists the range of volume-to-capacity ratios used to estimate the LOS (for two lane highway segments) and provides operational characteristics for each of the six levels-of-service. A thorough description of Level of Service concepts can be found in the Transportation Research Board's *Highway Capacity Manual, 2000* (or subsequent editions).

Table 5-9
Road Segment Level-of-Service Characteristics

LOS	APPROX. V/C	OPERATIONAL CHARACTERISTICS (FOR TWO-LANE ROADWAY)
LOS A	0.00 - 0.12	Motorists are able to drive at their desired speed. Without strict speed limit enforcement, average speeds would approach or exceed 60 mph. Drivers have opportunities to pass other motorists almost on demand. Almost no platoons (groups) of three or more vehicles are observed. Drivers would spend no more than 30 percent of the time following slower vehicles.
LOS B	0.13 - 0.24	Speeds of 55 mph or slightly higher are expected on level terrain. Passing opportunities needed to maintain desired speeds are still available although not as often as LOS A. Some platoons of three or more are observed. Drivers spend up to 45 percent of the time following slower vehicles.
LOS C	0.25 - 0.40	Average speed still exceeds 52 mph on level terrain. Passing starts to become difficult. Platoons begin to get longer or start to link up with one another. While traffic flow is stable, it is becoming susceptible to congestion due to turning traffic and slow-moving vehicles. Drivers are following up to 60 percent of the time.
LOS D	0.41 - 0.60	Traffic flow begins to become unstable although speeds of 50 mph can still be maintained under ideal conditions. Passing becomes extremely difficult. Platoon sizes of 5 to 10 vehicles are common. Turning vehicles or roadside distractions cause major shockwaves in the traffic stream. Drivers are following up to 75 percent of the time.
LOS E	0.61 - 0.90	Speeds will drop below 50 mph, even under ideal conditions. On segments with less than ideal conditions, average travel speeds will be slower, as low as 25 mph on sustained upgrades. Passing is virtually impossible. Platooning becomes intense when slower vehicles or other interruptions are encountered. Drivers are following more than 75 percent of the time.
LOS F	0.91 and above	Represents heavy congestion or breakdowns in traffic flow. Traffic demand exceeds capacity, with traffic volumes lower than capacity and traffic speeds below capacity speed. Drivers are virtually always stuck behind slower vehicles.

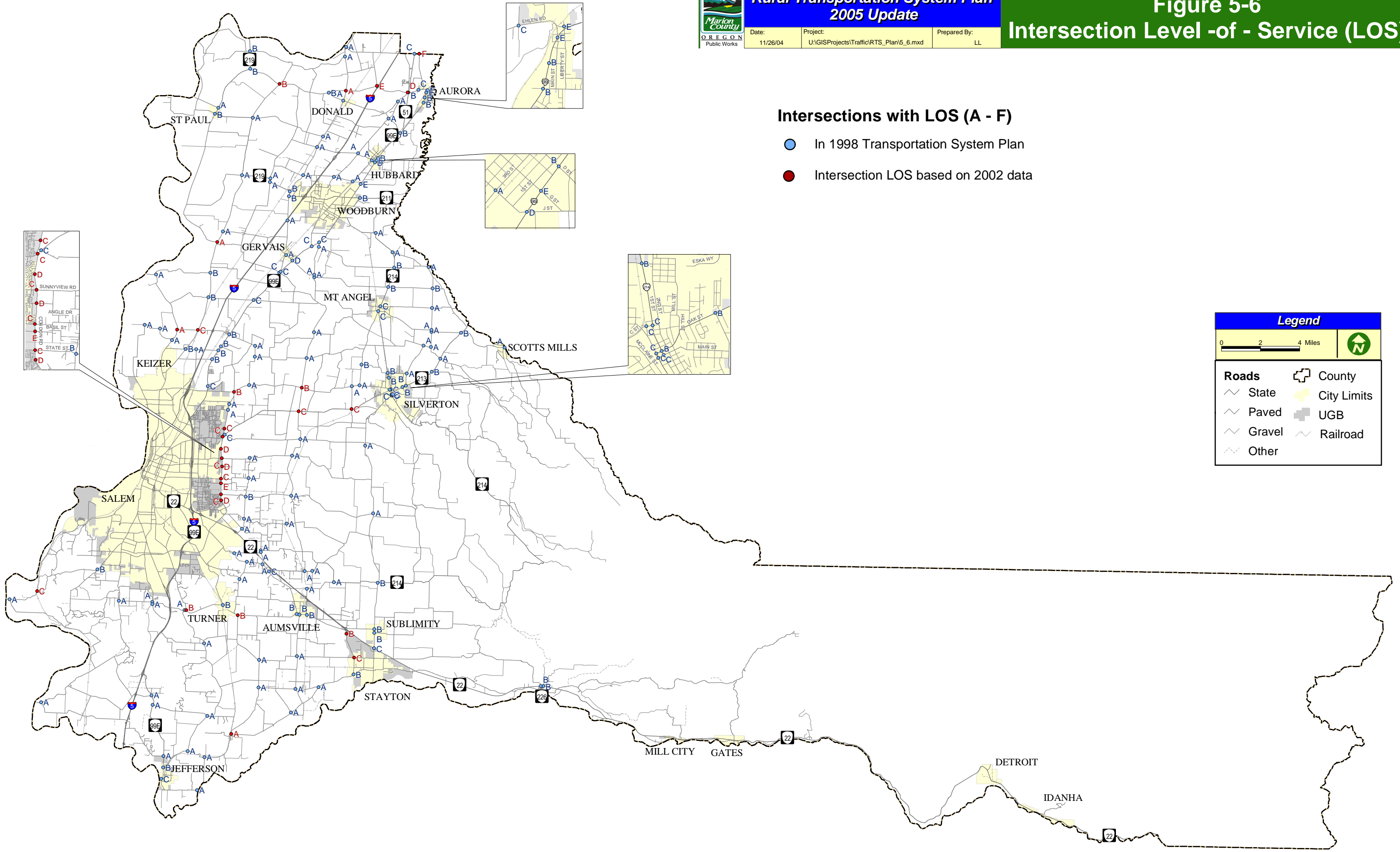
Note: LOS characteristics taken from *Transportation Research Board, Highway Capacity Manual, Special Report 209, 1994* for two-lane highway sections.

For the road segments in rural Marion County, LOS and V/C were calculated for the base year of 1995. These parameters have been recalculated to reflect 2003 conditions in this 2005 update and have been included in the roadway inventory (see **Appendix B**). With few exceptions, most segments of roadway in the rural areas operate acceptably with LOS B or better. The typical V/C ratios are well under 0.24, which indicates the facilities could easily carry more traffic. A total of 20.9 miles of road have LOS C and 4.6 miles have LOS D. No roadway segments had level-of-service worse than LOS D, although some are close. **Table 5-10** includes those roads that have LOS C or LOS D. The County considers LOS D or better to be acceptable for roadway segments in rural areas. It should be noted that the levels-of-service on the segments are based on peak hour volumes that have been estimated based on 24-hour volumes.

Table 5-10
Rural Roadway Segments with LOS C or LOS D

LOS C	SEGMENT	MILES
Brooklake Road	River Road to West of I-5	0.7
Brooklake Road	East of I-5 to Oregon 99E	0.6
Cascade Hwy	Stayton UGB to Sublimity UGB	0.9
Cordon Road	Silverton Road to Hayesville Road	1.4
Ehlen Road	Boones Ferry Road to Aurora City Limits	1.0
Ehlen/Yergen/McKay Roads	West of I-5 to Oregon 219	7.0
Golf Club Road	Oregon 22 to Stayton UGB	0.5
Silverton Road	Cordon Road to Silverton UGB	8.8
	TOTAL	20.9
LOS D	SEGMENT	MILES
Arndt Road	Wilsonville-Hubbard Hwy to Airport Road (Clackamas Co. Line)	0.3
Cordon Road	Salem City Limits (near Caplinger Rd.) to Silverton Road	3.7
Brooklake Road	Vicinity of I-5 interchange	0.3
Ehlen Road	Vicinity of I-5 Interchange	0.3
	TOTAL	4.6

LOS has also been calculated at 181 intersections throughout the County and the results are shown on **Figure 5-6**. Of the total number of locations examined, 43 were within urban areas and 138 were rural. **Table 5-11** summarizes the results for both urban and rural intersections. The LOS calculated for the 1998 TSP is reported here in most cases. However updated calculations based on 2002 data were completed for some selected intersections on county roads (particularly those intersections with higher traffic volumes). In rural areas, the County considers LOS D or better to be acceptable for signalized and four-way stop intersections and LOS E or better for other unsignalized intersections.



Intersections with LOS (A - F)

- In 1998 Transportation System Plan
- Intersection LOS based on 2002 data

Legend

0 2 4 Miles

Roads	County
State	City Limits
Paved	UGB
Gravel	Railroad
Other	

Table 5-11
Intersection Level-of-Service (LOS)

LOS	A	B	C	D	E	F
Urban	8	17	12	2	4	0
Rural	86	31	14	4	3	1

These numbers show that most major rural intersections perform very well with almost 84 percent operating at LOS A or B. Of the 22 rural locations that operate at LOS C or lower, seven involve State Highways. For the fifteen that are on the County system, nine are immediately adjacent to the Salem urban area (i.e., on Cordon Road). The one intersection at LOS F is the intersection of Arndt Road with Airport Road in the northeast corner of the county; the County is currently (2005) constructing a capacity improvement project at that location.

When comparing the LOS information from this 2005 update with the original 1998 TSP, the traffic situation (as described by LOS) is getting worse. Traffic volumes are increasing, in some cases quite rapidly, throughout rural Marion County. Some intersections are starting to exhibit capacity issues associated with these increasing traffic volumes. Recent funding levels have not been sufficient to 'keep up' with these increasing capacity issues, and the County has had to prioritize improvements to use its limited resources on the most pressing needs. If current rates of traffic volume growth continue and funding remains at current levels, we will see many more intersections with capacity issues. While intersections with LOS C or D are considered to meet standards, their performance is not as good the LOS A or B that residents and drivers have become accustomed to in many locations. Thus, if current traffic volume growth and transportation funding patterns continue, drivers can expect to encounter much more traffic and delay in their travels.

Table 5-12 shows eight rural intersections currently operating at LOS D or worse (up from four intersections in 1995). Although this is considered to be an acceptable level-of-service, LOS D is considered the point at which capacity-related issues begin to occur. Four of these operate at worse than LOS D (up from none in 1995). One, Arndt Road at Airport Road, is experiencing capacity issues beyond acceptable levels, and the County (along with Clackamas County and ODOT) is constructing a project to address traffic flow issues along the entire Arndt Road corridor.

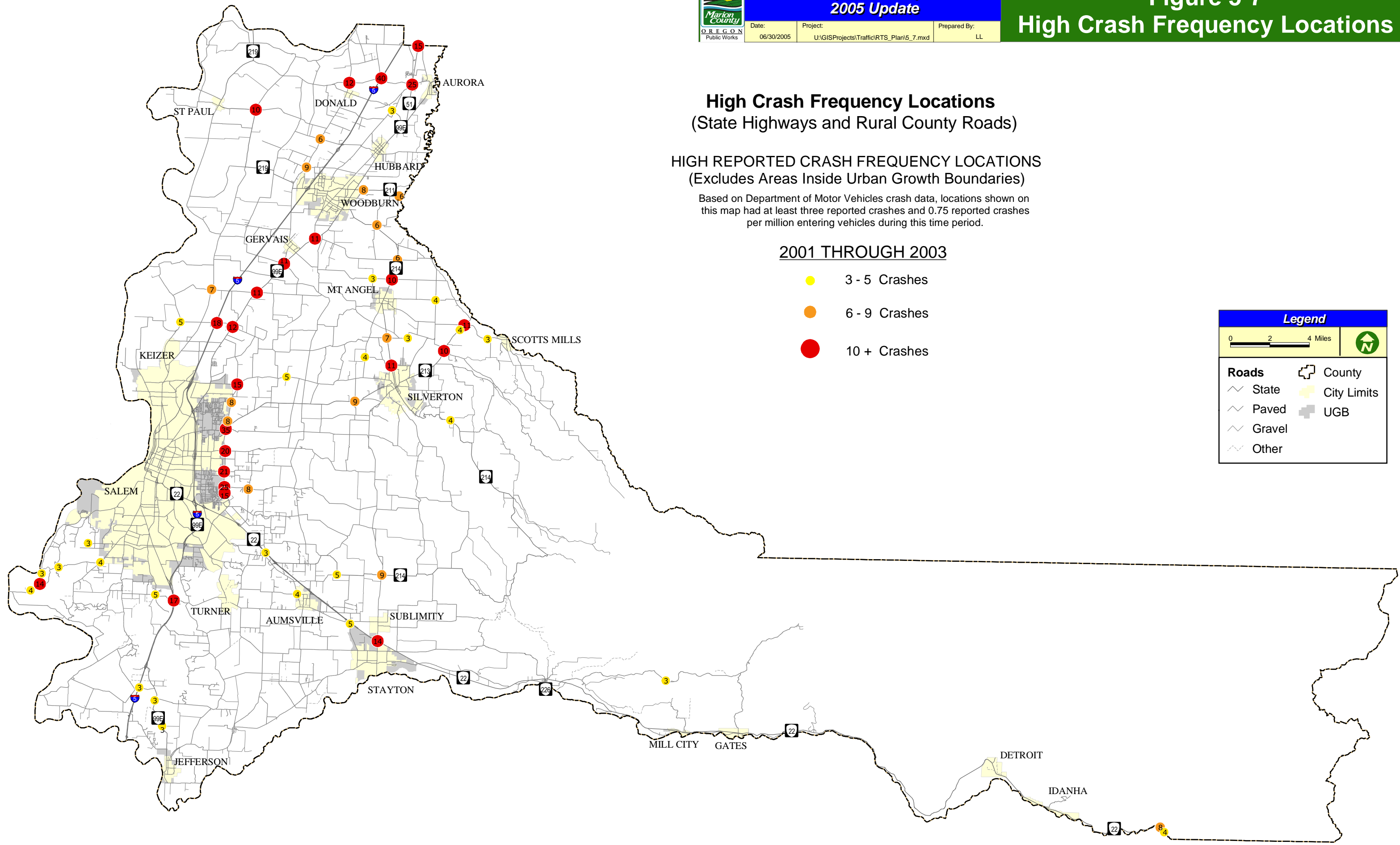
Table 5-12
Intersections Operating at LOS D or worse

FACILITY	INTERSECTION	2002 LOS
Arndt Rd	Airport Rd	F
Cordon Rd	Auburn Rd	E
Ehlen Rd	Bents Rd	E
Silverton Rd	Howell Prairie Rd	E
Cordon Rd	Swegle Rd	D
Ehlen Rd	Boones Ferry Rd	D
Cordon Rd	Pennsylvania Ave	D
Cordon Rd	Carolina Ave	D

Note: All of these intersections are unsignalized.

5.3.5 Crash Experience

The frequency of crashes on or involving rural County Roads and State Highways was evaluated to help determine possible problem areas. The number of crashes that occurred at each intersection was counted for the three-year period from January 1, 2001 through Dec 31, 2003. Crash severity did not receive special consideration in this analysis, but is considered in more detail at specific locations when projects are identified and evaluated. **Table 5-13** provides a summary of the number of locations with three or more crashes and a crash rate greater than 0.75 crashes per million entering vehicles over that three-year period. Sixteen locations on rural County Roads had from three to five crashes, while seven locations had between six and nine crashes, and eight locations had ten or more crashes in that same time period. Six of these locations were on Cordon Road, which is to be expected since the traffic volumes on Cordon Road are much higher than most rural County Roads. Fifteen State Highway locations had ten or more crashes and are identified in **Table 5-13**. A map showing the locations with three or more crashes (and a crash rate higher than 0.75 crashes per million entering vehicles) in the study period is provided in **Figure 5-7**. Although not all of these locations could be improved by a safety project, this map provides a useful tool in identifying locations that should, at least, be evaluated for possible safety improvements. It should also be noted that improvements have already been made at some of these locations and that future accident data is necessary to evaluate the full benefits of these improvements.



High Crash Frequency Locations (State Highways and Rural County Roads)

HIGH REPORTED CRASH FREQUENCY LOCATIONS (Excludes Areas Inside Urban Growth Boundaries)

Based on Department of Motor Vehicles crash data, locations shown on this map had at least three reported crashes and 0.75 reported crashes per million entering vehicles during this time period.

2001 THROUGH 2003

- 3 - 5 Crashes
- 6 - 9 Crashes
- 10 + Crashes

Legend

0 2 4 Miles

Roads	County
State	City Limits
Paved	UGB
Gravel	
Other	

Table 5-13
Rural County Road High Crash Frequency

NO. OF CRASHES (JAN 2001 - DEC 2003)	NO. OF LOCATIONS
3 to 5	16
6 to 9	7
10 or more	8
<u>Locations with 10 or more crashes</u>	<u>Number of Crashes in Last 3 Years/ # of Crashes per million entering vehicles</u>
Cordon Rd and Silverton Rd ¹	35 / 1.36
Cordon Rd and State St	25 / 0.99
Cordon Rd and Center St	21 / 0.96
Cordon Rd and Sunnyview Rd	20 / 0.93
Cordon Rd and Pennsylvania Ave	15 / 1.03
Cordon Rd and Hazelgreen Rd	15 / 1.36
River Rd S. and Orville Rd and BNRR Bridge	14 / 3.16
Ehlen Rd and Butteville Rd	12 / 1.28

¹ Signal modifications made in 2002.

Table 5-14
Rural State Highway High Crash Frequency

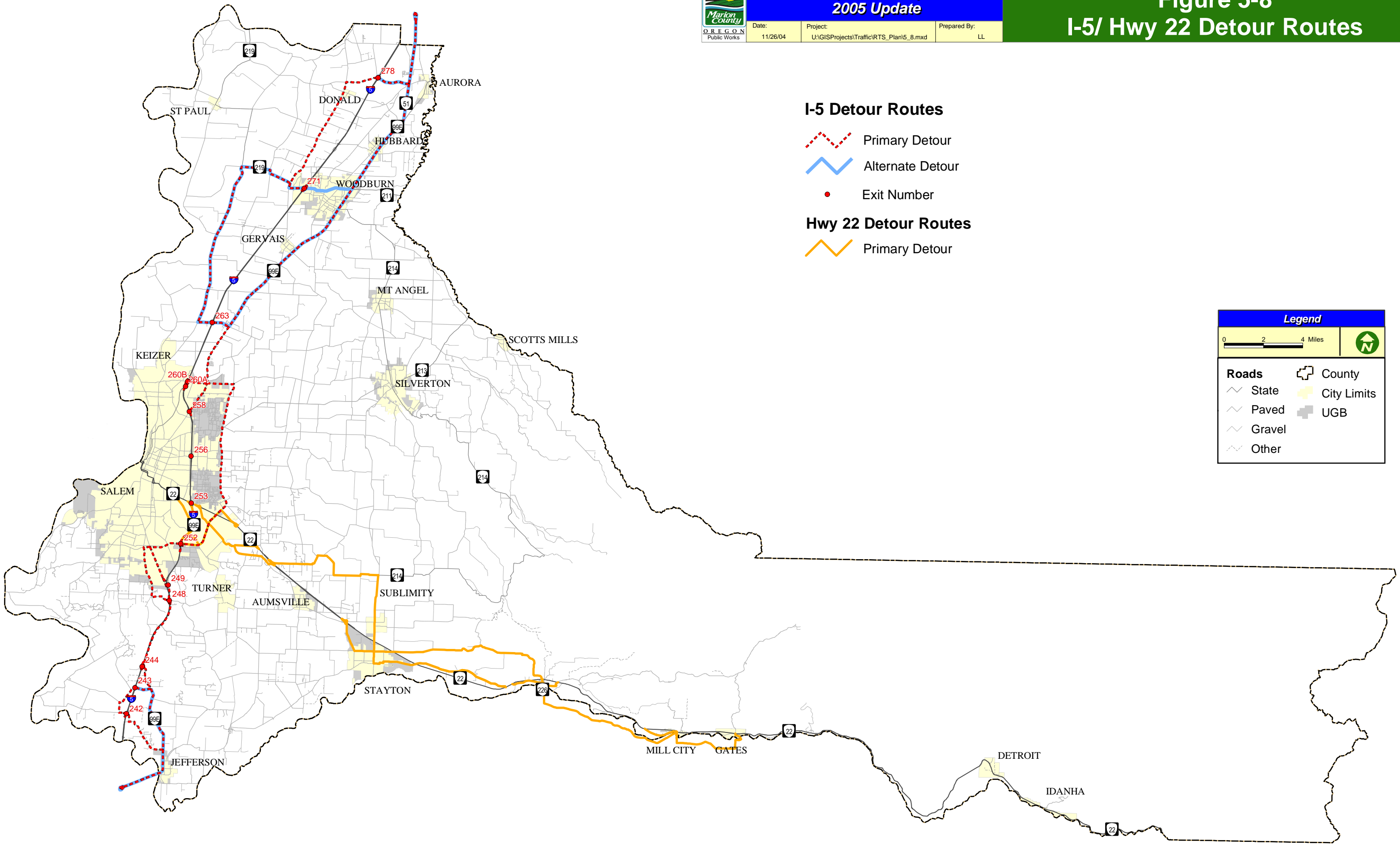
Note: many State Highway locations had more than three crashes in three years; however, since for many the rate of these crashes was lower than 0.75 per million entering vehicles, they are not included in this table

NO. OF CRASHES (JAN 1999 - DEC 2001)	NO. OF LOCATIONS
3 to 5	9
6 to 9	7
10 or more	15
<u>Locations with 10 or more crashes</u>	<u>Number of Crashes in Last 3 Years/ # of Crashes per million entering vehicles</u>
I-5 at Ehlen Rd Interchange	40 / 2.37
Wilsonville-Hubbard Hwy and Ehlen Rd and Boones Ferry Rd	25 / 1.29
I-5 at Brooks Interchange	18 / 0.77
I-5 at Delaney Rd Interchange	17 / 2.30
Wilsonville-Hubbard Hwy and Arndt Rd	15 / 0.83
Oregon 22 at Cascade Hwy Interchange	14 / 0.80
Oregon 99E and Brooklake Rd	12 / 0.76
Oregon 213 and Mt. Angel – Scotts Mills Rd	11 / 1.65
Oregon 214 and Hobart Rd	11 / 1.30
Oregon 99E and Checkerboard Rd	11 / 0.84
Oregon 99E and Waconda Rd	11 / 0.83
Oregon 99E and Boones Ferry Rd	11 / 0.77
Oregon 219 and St. Paul Hwy and French Prairie Rd	10 / 2.44
Oregon 213 and Abiqua Rd	10 / 1.81
Oregon 214 and Dominic Rd	10 / 1.21

5.3.6 Interstate 5 and Oregon 22 Detour Routes

Interstate 5, a major national and state transportation corridor, passes through Marion County. Average annual daily traffic volumes on this portion of I-5 range from 57,000 to 83,000. These traffic volumes are ten to twenty times higher than typical traffic volumes on County Arterials. Unfortunately, emergencies do occur that make it necessary to close I-5 and divert traffic onto other State Highways and County Roads. Detour routes are shown on **Figure 5-8**. When one of these detour routes is used, it is typically for relatively short time periods in which far more traffic temporarily uses these smaller roads than in normal conditions. This detouring of traffic often has a significant detrimental affect on communities surrounding the detour route during and immediately after the detour. When identifying, evaluating, and prioritizing potential projects, the use of it for a detour route is taken into consideration. Some minor improvements (such as signs, alternate signal timing, and gravel aprons to help trucks turn) have already been made on these routes because they serve as detour routes.

Detour routes have also been identified for Oregon 22, a major state highway of 'Statewide' significance. While these detours do not involve the magnitude of traffic that an I-5 detour would, they do cause times of unusually high traffic volume on the detour routes. Some of these detour routes are also used on a regular basis by trucks (classified as heavy haul loads), which must detour around weight-restricted bridges on Oregon 22. Currently, there are 3 bridges between Aumsville and Salem that are weight-restricted. Due to these restrictions, heavy haul traffic that would otherwise use Oregon 22 is using Aumsville Hwy, resulting in increased wear on this County Road.



I-5 Detour Routes

- Primary Detour
- Alternate Detour
- Exit Number

Hwy 22 Detour Routes

- Primary Detour

Legend

0 2 4 Miles

County	City Limits
State	UGB
Paved	
Gravel	
Other	

5.4 PUBLIC TRANSPORTATION PROVIDERS

In 1996, the Mid-Willamette Valley Council of Governments performed a study for Marion County with the purpose of making recommendations regarding a rural County public transportation system. Some updates have been made to that list to reflect changes that have occurred since then. **Table 5-15** lists transportation providers that have service within Marion County.

Table 5-15
Public Transportation Providers

<p>INTER-CITY FIXED ROUTE SYSTEMS</p> <p style="padding-left: 40px;">Chemeketa Area Regional Transportation System South Metro Area Rapid Transit</p> <p>INTRA-CITY FIXED ROUTE SYSTEMS</p> <p style="padding-left: 40px;">Salem Area Mass Transit System Woodburn Transit System (with paratransit dial-a-ride)</p> <p>PARATRANSIT PROVIDERS</p> <p style="padding-left: 40px;">Wheels - Oregon Housing & Associated Services Wheels of Joy (Dial-A-Ride in Sublimity/Stayton area) Mt. Angel Training Center Program Silverton Hospital Program (Dial-A-Ride for medical purposes only) Twenty-three providers in Salem/Keizer area</p> <p>OTHER PUBLIC TRANSPORTATION PROVIDERS</p> <p style="padding-left: 40px;">Betty's To and Fro Charter Bus Evergreen Stage Lines Charter Bus HUT Airport Shuttle Valley Shuttle Greyhound Bus Lines Amtrak Rail Service Amtrak Thruway Bus Service Taxi Service in Woodburn, Silverton, and Salem/Keizer</p>
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*Sources: Draft Marion County TSP Public Transportation Element by MWVCOG, 1996
SKATS Regional Transportation System Plan 2002 Update*

In addition to these providers, two programs exist that promote public or shared transportation. The two existing programs are the Regional Rideshare Program (Mid-Valley Rideshare), administered by the City of Salem, and the Regional Park-and-Ride/Pool System.

The Regional Rideshare Program originated in 1975 and continues to serve potential ridesharing customers that live within a 60-mile radius of the Salem-Keizer urban area. One of the main resources this program provides is a matching service for individuals interested in carpools and/or vanpools. They also offer preferential parking in some cases, and assist organizations in developing their own rideshare

programs.

The Regional Park-and-Ride/Pool System is a collection of locations at which individuals can park their vehicles or be dropped off. From there, individuals can transfer to a transit system, carpool, or vanpool. In some instances, individuals can even bike or walk to their destination from a park-and-ride/pool location. These locations can be either designated with signs and various other amenities, or they may be very informal. Those located in, or close to, the Salem urban area may be served by transit whereas those in the rural areas tend to serve long distance commuters who participate in carpools or vanpools. These rural locations tend to be located near intersections with freeways or other major facilities that are easily accessed by commuting traffic.

In 1994, the Mid-Willamette Valley Council of Governments inventoried all the significant park-and-ride/pool facilities that serve the greater Salem area. Of the 16 sites inventoried, they found two rural designated sites and three rural informal sites in Marion County. The two designated sites are at Delaney Road at Interstate 5, and Cascade Highway at Oregon 22. The three informal sites include Brooklake Road at Interstate 5, Silver Falls Highway at Oregon 22, and Joseph Street at Oregon 22. The Joseph Street site was recently upgraded as part of a construction project on Oregon 22.

A third program that was proposed (in 1996) for a commuter shuttle program providing public transportation during the morning and afternoon peak hours from the Stayton/Sublimity area to Salem has since been established and is being operated by Chemeketa Area Regional Transportation System (CARTS).

5.4.1 CARTS (Chemeketa Area Regional Transportation System)

The Chemeketa Area Regional Transportation System (CARTS) is a recently-formed ORS 190 agency, assembled to provide for the regional planning and support of transportation services for elderly and/or disabled persons as well as the general public, in Marion, Polk, and Yamhill Counties. The Board is comprised of commissioners from each of the three counties and the Salem Area Transit District. The CARTS service is provided by the Wheels Community Transportation Program (Wheels), and began operating in 2000.

CARTS provides weekday public transit service connecting Salem with the cities of Aumsville, Gates, Gervais, Hubbard, Mt. Angel, Silverton, Stayton, Sublimity, Turner, and Woodburn in Marion County; Dallas, Independence, and Monmouth in Polk County; and Lyons and Mill City in Linn County. Annual rider ship is broken down by region in **Table 5-16**. The program has seen a 21.9% increase in ridership in the past fiscal year to a total ridership of 175,000 trips. These transit services are currently offered on fixed routes as shown on **Figure 5-9**.

Funding for the CARTS program comes from four different sources; Federal, State, Local and STF funds. The annual budget is approximately \$1.25 million. The majority of the funding for service provided within the Salem area comes from local (Salem) sources. Primary funding for service in rural Marion County is from Federal and STF funds. Riders pay donations to use the system, which work on a monthly pass system that is \$20 for adults and \$10 for seniors. All day passes are \$2 for adults and seniors and \$1 for youths. Donations currently comprise about 3 percent of revenues (according to the Salem Area Transit District).

The major CARTS effort will initially focus on the establishment of a transportation brokerage for non-emergency medical trips in the area. A contract with the State of Oregon has been executed for the provision of these services. Salem Area Transit District is the designated service agent to establish the brokerage and staff the CARTS executive council. The longer-range goal of the Regional Transportation Enhancement Plan is to expand the scope of the brokerage to the coordination of all public transportation trips in the three-county area. (from SKATS 2002 RTSP)

Table 5-16
CARTS Ridership in 2000-1 and 2001-2

<u>Route</u>	2001-2002 Year to Date Trips	2000-2001 Year to Date Trips	Percentage Increase
Polk County Rt. 1	19,659	15,391	27.7%
Polk County Rt. 2	33,401	23,143	44.3%
Polk Dial-A-Ride	8,163	4,203	94.2%
Canyon Connector	6,655	5,223	27.4%
City Loop	9,105	4,393	107.3%
North County Connector	9,694	9,514	1.9%
Salem/Silverton Shuttle	8,977	6,421	39.8%
Tri-City Connector	10,581	8,504	24.4%
Salem/Keizer Dial-A-Ride	68,913	66,860	3.1%
TOTAL	175,148	143,652	21.9%

5.4.2 SMART (South Metro Area Rapid Transit)

Service to Wilsonville, in Clackamas County, is provided by SMART (South Metro Area Rapid Transit), which runs two buses southbound in the peak periods and three buses northbound in the morning and two in the evening. Service is between Wilsonville and the Courthouse Square transit center. While this service is mainly targeted at the work commuter going between Wilsonville and Salem-Keizer, SMART does provide a link to the rest of the Portland Metropolitan Area with its service to the Barbur Transit Center in Portland, where it meets several Tri-Met bus routes. SAMTD (Salem Area Mass Transit District) is working with SMART and recently added four bus trips between Salem-Keizer and Wilsonville. The trips, which started in fiscal year 2002-3, target work trips in the opposite direction of the existing service. This effort is contingent on a JARC (Job Access Reverse Commute) grant. (from SKATS 2002 RTSP).

5.4.3 Public Rideshare Programs – Mid-Valley Rideshare

The Mid-Valley rideshare program is a transportation information, referral, and carpool matching service provided by the City of Salem Public Works Department, in conjunction with the Oregon Department of Transportation and the Federal Highway Administration. As quoted from their Annual Report:

“Mid-Valley Rideshare is here to promote alternatives to the single-occupant automobile as a way of reducing traffic congestion and air pollution. We are here to help individuals and employers in any way we can to find out about carpooling, vanpooling, walking, transit, and telecommuting. Individuals can receive customized matchlists based on their home and work locations, schedules, and driving preferences. City staff are also available to help employers with transportation and parking problems at their worksites. We can also provide assistance to people who are interested in commuting by bicycle. We have information on bicycling routes and free bike maps.” They can be reached by calling (888) 323-POOL (outside the Salem area) or (503) 371-POOL.

This group affects the transportation system by facilitating more efficient movement of people; getting people where they want to go with less vehicle-trips. Some of the ways they do this include: matching people to carpool together, facilitating the formation of vanpools (many people commuting together), educating people about the benefits of more efficient transportation, providing for emergency rides home for carpoolers, and many other methods that help people out of their single-occupant vehicle.



Chemeketa Area Regional Transit System (CARTS)

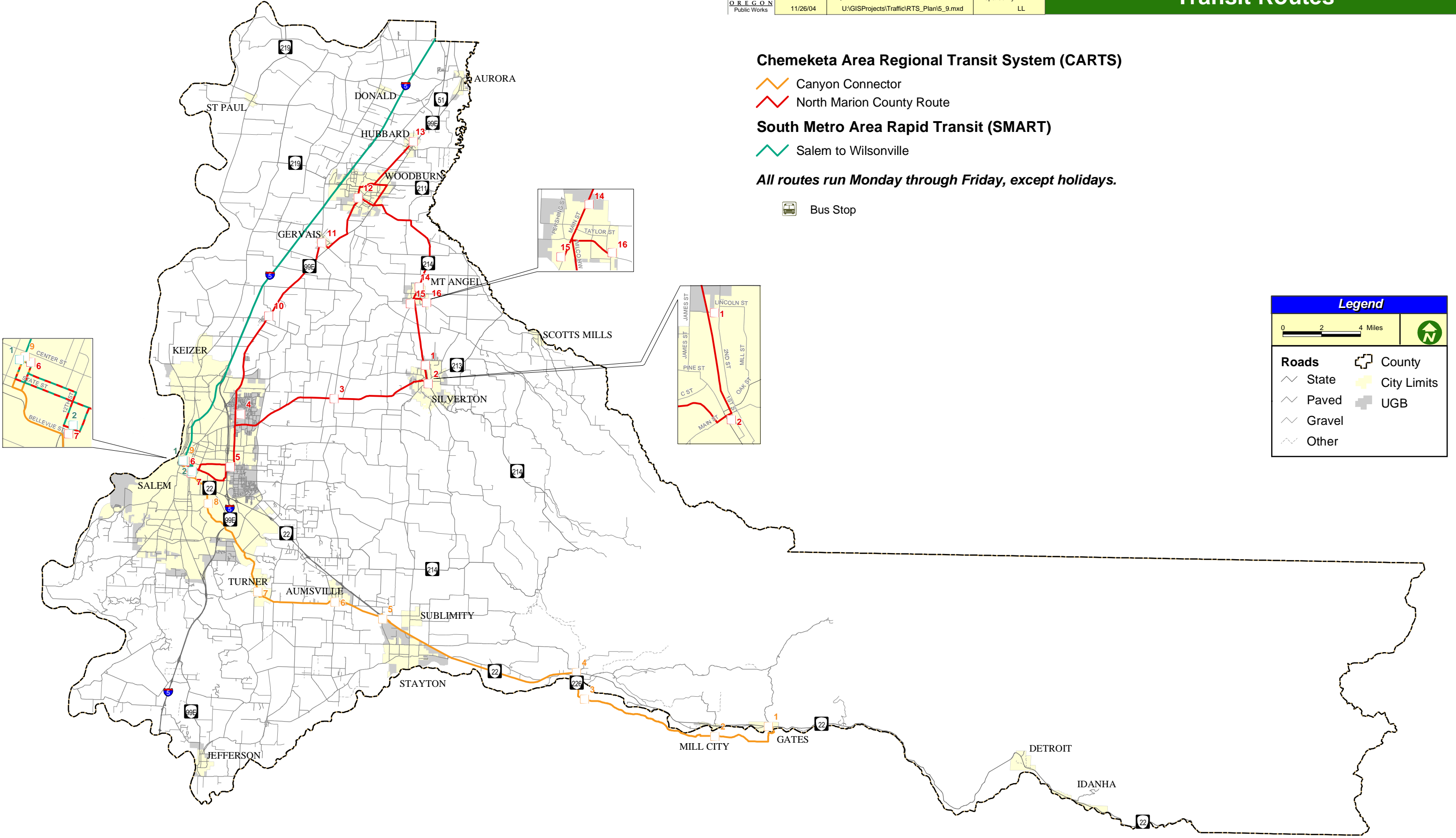
- Canyon Connector
- North Marion County Route

South Metro Area Rapid Transit (SMART)

- Salem to Wilsonville

All routes run Monday through Friday, except holidays.

Bus Stop



Legend

0 2 4 Miles

Roads	County
State	City Limits
Paved	UGB
Gravel	
Other	

5.5 RAIL SERVICE AND GRADE CROSSINGS

There are two major railroad mainlines and two short lines in Marion County. These lines and their ownership are shown on **Figure 5-10**. One of these mainlines is the primary north-south line along the West Coast, and is owned by Union Pacific Railroad (UPRR). This line runs south out of Portland along the east side of the Willamette River through Oregon City and Canby, has 45 miles in Marion County, passing through Aurora, Hubbard, Woodburn, Gervais, Salem, Turner, and Jefferson, and continues south through the Willamette Valley, crosses the Cascade Mountains, and continues south through California. It is very heavily used for freight shipments, with long freight trains running at frequent intervals. This line is primarily used for long-distance freight movement, as the high volume of rail traffic along this line severely reduces the feasibility of serving individual shippers along it. This rail line also carries three northbound and southbound Amtrak passenger trains daily. Amtrak also runs 'throughway' bus service along this corridor to supplement the frequency of service provided by the trains.

The second line has 42.4 miles in Marion County and is leased and operated by Portland & Western Railroad (which is owned by the Genessee & Wyoming Railroad). This line crosses the Willamette south of Wilsonville, enters Marion County near Butteville, then runs through Donald, west of Woodburn, through Keizer and Salem, then south along the Willamette River into Linn County. North of Perkins Road, the line is owned by Portland & Western Railroad; south of Perkins Road the line is owned by the BNSF Railway Company (formerly Burlington Northern – Santa Fe). This line is currently only used for freight movements, and this freight traffic is increasing. It is pertinent to note that commuter rail service is planned to start in 2008 on this rail line from Wilsonville (approx 3 miles north of Marion County) to Beaverton. A new spur line runs west from this line to the Morse Brothers gravel operation north of Keizer.

Willamette Valley Railway Company (WVRC) leases two short lines from Union Pacific Railroad (UPRR). The first short line runs south from the UPRR mainline in Woodburn, running 30.8 miles through Mt. Angel, Silverton, and Aumsville to the Norpac food-packaging plant in Stayton. Other shippers include Wilco Farm Supply and Trus-Joist in Stayton and Mt. Angel Beverage in Mt. Angel. In addition, WVRC has fielded inquiries from several other potential shippers. This line originally went south into Linn County but no tracks currently exist south of the point where the present track turns east into Stayton. This line currently operates in an 'excepted track' status, which minimizes maintenance costs, but means that passenger travel is not allowed on this line and freight movements must be made at very low speeds (maximum 10 mph). Freight activity on this line has been increasing in recent years, and is anticipated to continue increasing. Willamette Valley Railway is seeking to improve this line for faster track speeds, and is also considering the possibility of running excursion or passenger trains along this line.

The second short line is called the Geer Branch and runs 3.5 miles west off the first short line towards (but no longer into) the Salem urban area. A portion of this line inside the City of Salem has been abandoned and removed. This line is currently only used for rail car storage.

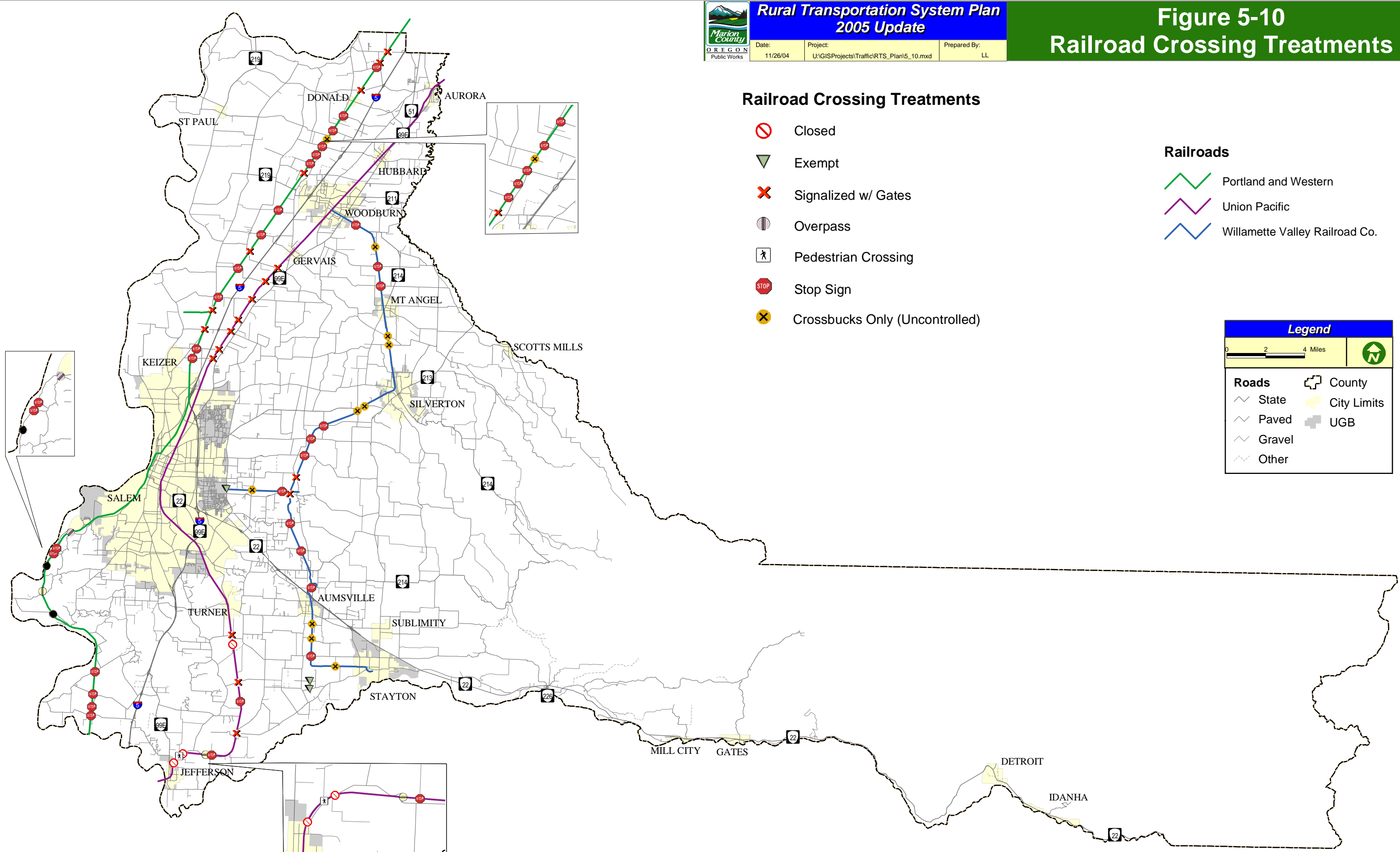
The 2001 Oregon Rail Plan has identified several funding needs on the Portland & Western and Willamette Valley Railways, to be met by the appropriate railroad, with possible assistance through grant funding. These needs include rail renewal, bridge repair, cross tie renewal, and turnout renewal on the Portland & Western line, and rail, cross tie, and turnout renewal on the Willamette Valley Railway. Completion of a substantial amount of these improvements would allow faster train speeds along these tracks, and could allow for passenger travel.

The opportunity exists for multimodal shipping terminals that would better connect rail with other modes of transportation (such as trucking) by allowing goods to be transferred between trains and trucks, and thus improve the efficiency of the Marion County freight transportation network.

With almost 122 miles of track, there are nearly 200 public rail crossings and numerous other private crossings within the boundaries of Marion County. Well over half of these public crossings are within the various urban areas or on State highways, leaving 66 crossings in the rural areas that are maintained by Marion County. **Table 5-17** summarizes the number of crossings on each line and the type of traffic control that is present at each. Each crossing is also identified on **Figure 5-10**.

Table 5-17
Traffic Control at Rural Railroad Crossings

TRAFFIC CONTROL	BNSF/P&W	UPRR	WVRR	TOTAL
Signals With Gates	7	11	2	20
Stop Signs	16	2	11	29
Crossbucks Only	1	0	9	10
Exempt	0	0	1	1
Ped-Only Crossing	0	1	0	1
Bridges	4	1	0	5
TOTAL	28	16	23	66



Railroad Crossing Treatments

- Closed
- Exempt
- Signalized w/ Gates
- Overpass
- Pedestrian Crossing
- Stop Sign
- Crossbucks Only (Uncontrolled)

Railroads

- Portland and Western
- Union Pacific
- Willamette Valley Railroad Co.

Legend

0 2 4 Miles

Roads	County
State	City Limits
Paved	UGB
Gravel	
Other	

5.6 AIR SERVICE

Facilities in Marion County that accommodate air travel include two public airports (Salem and Aurora), fifteen private airstrips, one Army National Guard heliport, and seven private heliports. **Table 5-18** contains a full listing of these facilities along with their location, runway dimensions, surface type, number of based aircraft, and public/private status.

Table 5-18
Airports and Heliports in Marion County

AIRPORT / HELIPORT	LOCATION	RUNWAY DIMENSIONS	RUNWAY SURFACE	PUBLIC / PRIVATE	# OF AIRCRAFT
Army National Guard Heliport	East Side of McNary Field	NA	Asphalt	Private	25
Art Brandt Airport	2 MI N of Jefferson	2000' x 80'	Turf	Private	0
Aurora State Airport	1 MI NW of Aurora	5004' x 100'	Asphalt	Public	387
Basl Hill Farms Airstrip	6 MI NE of Stayton	2000' x 50'	Turf	Private	0
Davidson Field Airport	6 MI NW of Jefferson	2500' x 100'	Turf	Private	4
Elkins Heliport	5 MI S of Salem	50' x 50'	Turf	Private	1
Finney Lake Airport	10 MI N of Salem	2200' x 100'	Turf	Private	1
Flying E Aerodrome	3 MI W of Aumsville	2300' x 45'	Turf	Private	2
Gilmour Agricultural Airport	5 MI NW of Jefferson	1800' x 60'	Turf	Private	3
Harchenko Industrial Airport	2 MI N of Brooks	2290' x 75'	Asph-Gravel	Private	8
Hatch Airport	4 MI SW of Stayton	2500' x 50'	Gravel	Private	4
Hollin Airport	3 MI NE of Brooks	1750' x 80'	Turf	Private	1
Iron Crown Airport	3.5 MI SE of Silverton	2000' x 50'	Turf	Private	1
Landsem Air Field Airport	6 MI NE of Salem	2000' x 70'	Turf	Private	8
McGee Airport	2 MI W of Donald	1900' x 60'	Turf	Private	1
PGE Salem Heliport	N edge of Salem	48' x 48'	Asphalt	Private	0
Reforestation Services Heliport	S Edge of Salem	100' x 40'	Gravel	Private	5
Salem Municipal-McNary Field	SE Edge of Salem	5811' x 150	Asphalt	Public	205
Santiam Memorial Hospital Heliport	1 MI NE of Stayton	75' x 75'	Asphalt	Private	0
Smith Private Airport	1 MI S of Brooks	2500' x 60'	Turf	Private	0
South Hill Heliport	1 MI S of Brooks	60' x 60'	Asphalt	Private	1
Stuart's Airport	6 MI S of Salem	1000' x 30'	Turf	Private	1
Wagoner Airport	7 MI S of Salem	800' x 75'	Turf	Private	0
Wenger's Flying W Airport	5 MI NE of Salem	1500' x 30'	Turf	Private	3
Weyerhaeuser-Jefferson Heliport	6 MI E of Jefferson	112' x 100'	Gravel	Private	0

5.7 WATER TRANSPORTATION

The Willamette River, along the west boundary of Marion County, is the only waterway considered, or potentially, navigable in or adjacent to the County. The County has approximately 66 miles of frontage on the Willamette. The current regulatory status of the Willamette is an authorized six-foot channel of unspecified width extending from Oregon City to the mouth of the Santiam River. All of the County's frontage lies within this section. While the authorized channel indicates the potential for navigability, this channel has not been maintained for quite some time. Dredging ceased many years ago because its cost was greater than the resulting benefit. Extensive additional sedimentation has occurred since then, making dredging even more costly. Thus, while the potential does exist for the Willamette to be used for freight and passenger transportation, such navigability is not likely to be maintained by a government agency.

During the 1970s, waterborne commerce on the Willamette River between Portland and the Yamhill River (mile 56, just south of Newberg) increased, particularly below Oregon City, while traffic above the Yamhill River (such as towards the Salem area) decreased significantly. As a result, in 1973, the U.S. Army Corps of Engineers reduced dredging activity above the Yamhill River to minimal maintenance dredging and commercial traffic has not moved above the Yamhill River since that time. There has been no maintenance dredging above the Yamhill River since 1977. There are presently no immediate plans to use this portion of the Willamette River for commercial navigation, although there is an existing authorized Federal Navigation Channel extending as far as Corvallis. However, waterborne commerce on the Willamette below the Yamhill subsequently decreased, and is virtually nonexistent today.

A U.S. Army Corps of Engineers study was conducted in 1979 to determine the feasibility of maintaining a 3.5-foot deep channel from the Yamhill River to Corvallis. The annual cost of this dredging would be \$1.2 million (1979 dollars), and it was determined that the project would not produce a net national benefit. The lack of clamoring by potential shippers for maintenance of such a channel reinforces the lack of economic feasibility of this channel maintenance. Environmental concerns are also a factor.

However, the possibility of waterborne freight and passenger movement on the Willamette does exist. It is possible that, during the timeframe of this plan, one or several commercial operations may become interested in the economic benefits that barge transportation offers. It is also possible that one or several commercial operations may become interested in operating excursion boats on large portions of the Willamette. It is possible that these economic benefits and opportunities may outweigh the costs of dredging such that maintaining a channel on part of the Willamette along Marion County becomes cost effective for them. Marion County would be supportive of such efforts to privately fund channel maintenance, provided environmental and other issues can be reasonably satisfied.

While there are shoals (portions of shallow water) and bars that block vessels during low water times (typically during the peak summer boating season), portions of the river between these bars are navigable.

A sternwheeler excursion boat, the Willamette Queen, operates lunch, dinner, and sightseeing cruises in the vicinity of Salem. These cruises operate between Keizer (approx. river mile 81) and Eola (Western edge of West Salem, approx. river mile 88). Extensive recreational use of the river occurs near the various launching ramps and docks available at either side. However, the existence of shoaling and gravel bars makes use of the Willamette difficult for extended trips, such as those trips that would be necessary for freight transport to be feasible. Vessels (such as the excursion boat) can be brought upstream and/or sent downstream during the high water times that typically occur during the winter. However, since shoaling

precludes long-distance travel by these vessels during most of the peak summer boating season, they sometimes must wait for a few months if repairs become necessary.

Construction of dams upstream has been effective for flood control, but limits the natural flow of spring floodwater that would naturally flush accumulated sediment out of the channel. While it is possible to move boats when flow levels are high, this is not a dependable mode of travel. Any dredging done to accomplish the opening of a channel would likely need to be repeated on a yearly basis as sediment accumulates. Thus, dredging would be quite costly to maintain, and these costs would likely be compounded by environmental impacts and issues that would need to be dealt with. At this time, dredging would not be an efficient use of County funds.

5.7.1 Ferries

Waterway crossings into the County consist of two ferries that provide shuttle service to the public: the Wheatland Ferry and the Buena Vista Ferry. **Table 5-19** describes each of these ferries.

Table 5-19
Marion County Ferries

OPERATION	WHEATLAND FERRY	BUENA VISTA FERRY
Operation:	360 days of the year (closed on Christmas and Thanksgiving)	April to October
Hours:	Daily: 5:30 am to 9:45 pm	Wed-Fri: 7:00 am to 5:00 pm Sat-Sun: 9:00 am to 7:00 pm
Capacity:	9 cars - 80,000 lbs max	4 vehicles - 60,000 lbs max
Crossing Time (roundtrip):	10 min	10-15 min

The Wheatland Ferry is the larger of the two ferries and provides service to and from rural Yamhill County. It is mutually owned by Marion and Yamhill Counties but is operated by Marion County.

It crosses the Willamette River and is located at the end of Matheny Road approximately five miles north of the City of Keizer. The ferry is operated by two on-board electric motors powered by a 100 kW diesel generator. The ferry is also attached to a steel cable system overhead to keep the ferry in its intended path. The ferry operates daily for most of the year. It does not operate on Christmas day and Thanksgiving Day, closes for a number of days in the winter due to high water, and is also sometimes closed due to weather conditions or maintenance requirements. The capacity is nine cars and 50 passengers per trip. Annual ridership of the ferry is approximately 225,000 vehicles and a small number of cyclists and foot passengers.

The Buena Vista Ferry, in southwest Marion County, provides service to and from rural Polk County south of the town of Independence. It also crosses the Willamette River and is located at the end of Buena Vista Road. The ferry is operated by on-board electric motors powered by a

diesel generator. This ferry is also attached to a steel cable system to keep the ferry on an appropriate path. The Buena Vista Ferry has significantly lower vehicle use than the Wheatland Ferry and typically operates Wednesday through Sunday from April to October. Its operation is also susceptible to the impacts of the weather, river, and maintenance operations. The capacity of the Buena Vista Ferry is four cars and 28 passengers. Annual ridership is approximately 8,500 vehicles and a very small number of cyclists and pedestrians. The Oregon Department of Transportation provides some assistance to keep the ferry operating to serve farms in the local area.

There is at least one privately operated, low-budget ferry that transports goods and people to an island in the river near Newberg. There are also several powerlines and pipelines crossing the river at various locations.

5.8 PIPELINE SERVICE

There are two major pipelines running through Marion County; a petroleum distribution line belonging to Sante Fe Pipeline Inc. and a natural gas distribution line belonging to Northwest Pipeline Corp. Both pipelines run generally north and south through the County east of I-5. Northwest Natural Gas has a small network running through Salem to meet their customers' needs as well as a recently constructed pipeline extension connecting to their Mist, OR reservoirs. All three companies have metering stations throughout the county. Details of each of the pipelines, including maps of their specific locations, are not provided for security reasons, as requested by the pipeline companies. Information about these pipelines is provided in **Table 5-20**.

Table 5-20
Pipelines in Marion County

FEATURES	SANTE FE PIPELINE INC	NORTHWEST PIPELINE CORP	NORTHWEST NATURAL GAS
Type:	Petroleum Distribution	Natural Gas Distribution	Natural Gas Distribution
Capacity:	40,000 barrels/day	60 million cu ft. / yr	375 million standard cubic feet per year
Pipeline Users:	Chevron, Exxon, Texaco, others	Northwest Natural Gas Co,	Northwest Natural Gas Co.
Starting Points:	Portland	Portland	Mist, OR storage fields
Ending Points:	Albany and Eugene	Grants Pass	Molalla Gate on Williams Energy System Pipeline
General Route:	Generally parallel to I-5 on the eastside of I-5	Generally parallel to I-5 on the eastside of I-5	Generally along the north east corner of the county line.
Future Expansion Plans:	Possibly add another pipeline N of Salem to Bend depending on future demand	No specific plans at this time	No specific plans at this time

5.9 UTILITY/COMMUNICATIONS SERVICE

There are nine companies that provide telephone service to various areas of Marion County and seven companies that provide cable television service. **Appendix E** provides maps showing the coverage areas of telephone and cable television service providers in the County. In addition, four major telephone companies have fiberoptics lines running through County: MCI, AT&T, GTE, and Qwest. The locations of the primary fiberoptic lines are not shown for security reasons, as requested by the utility companies. The entire fiberoptic network is quite extensive and mapping all of the fiberoptic lines would be an extremely difficult task as many existing phone lines are in the process of being upgraded. As a result, the fiberoptic network is being expanded on a continuous basis.