Appendix B

Existing Conditions Inventory and Analyses

City of Springfield
Transportation System Plan

Technical Memorandum #3
August 25, 2011

Prepared for the City of Springfield by CH2M HILL, Kittelson & Associates, and Alta Planning and Design

Existing Transportation Conditions and Deficiencies Technical Memorandum

This memorandum describes and analyzes the existing (2010) transportation system in the City of Springfield, including existing conditions and deficiencies. The analysis evaluates the existing roadway system and conditions; traffic conditions; safety; bicycle and pedestrian system; transit system, and rail, waterways, pipelines, and airports. This memorandum also describes general land use patterns and major activity centers that generate traffic. Figure 1 illustrates the City of Springfield urban growth boundary, the study area for this analysis. This study area serves as the area for potential system improvements considered for the 20-year time horizon of the Springfield Transportation System Plan (TSP).

The information gathered and presented in this memorandum will serve, with input from project stakeholders and the broader community, as the basis for developing the goals and policies for the Springfield TSP. This memorandum will also serve as the basis for developing and evaluating project alternatives.

Contents

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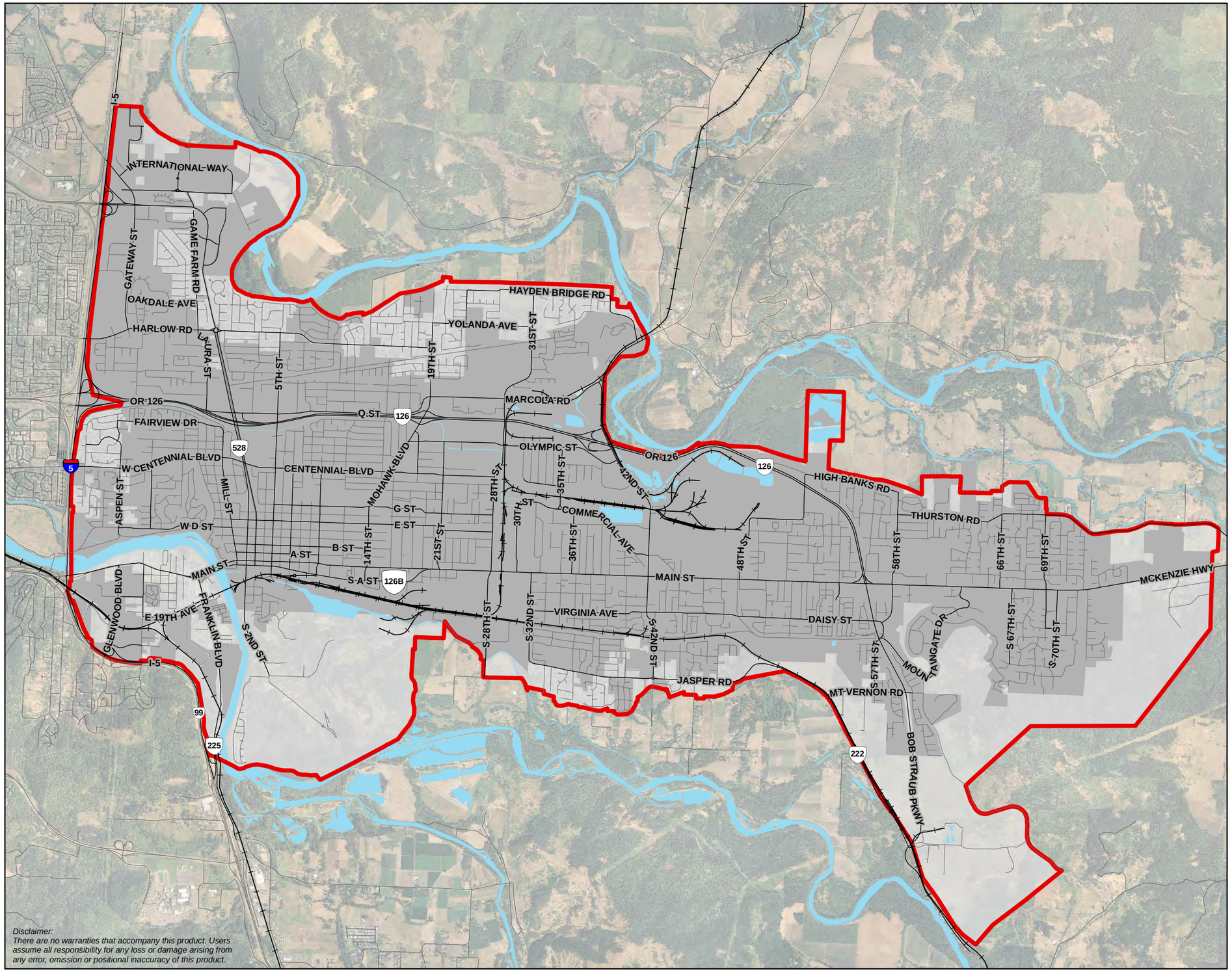

Legend

- Railway
- Street
- TSP Study Area
- City Limits
- Urban Growth Boundary

Source:
Base Map Data - City of Springfield, 2010
City Limits Data - City of Springfield, 2011

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FIGURE 1
Study Area
Springfield TSP
Springfield, Oregon

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1 Land Use

This section provides a cursory analysis of existing zoning to understand development patterns, traffic generators, and origins and destinations within Springfield (Figures 2 and 3). This section is not intended to serve as a comprehensive land use inventory. This section also includes a demographic analysis from the 2000 U.S. Decennial Census and the 2006–2008 American Community Survey.

1.1 Land Use Areas

The City of Springfield was divided into four land use areas for the purposes of the land use analysis:

- Area 1 – Northwest (NW) Springfield–Gateway/Hayden Bridge
- Area 2 – Central Springfield
- Area 3 – Central/East Springfield
- Area 4 – East Springfield

These areas were based on the geographic districts identified in the 2002 TransPlan, the adopted regional transportation plan for the Eugene–Springfield area. Figure 2 illustrates the boundaries of these four land use areas.

1.1.1 Area 1 – NW Springfield–Gateway/Hayden Bridge

Figure 2 illustrates zoning within Area 1.

Low-density residential zoning composes a majority of Area 1. The northwestern portion of the area consists of medium-density residential, campus industrial, medical services, mixed-use commercial, and community commercial zoning. In the southern portion of Area 1, along the north side of Oregon 126 (OR 126), there are other zones, including medium- and high-density residential, light-medium industrial, and community commercial. North of OR 126 and west of 42nd Street are light-medium, campus, and heavy industrial zones.

Area 1 has six parks and four schools (Figure 3). The parks in Area 1 are Robin Park, Royal Delle Park, Page Park, Game Bird Park, Guy Lee Park, and Pierce Park. Elizabeth Page Elementary School, Yolanda Elementary School, Guy Lee Elementary School, and Briggs Middle School are the schools located in Area 1.

Other traffic generators in Area 1 include the Gateway Mall, Sacred Heart Medical Center–Riverbend, Gateway Post Office, Cinemark 17 movie theater, Cinemark 12 movie theater, Symantec, Royal Caribbean, and OM Labs (Figure 3).

1.1.2 Area 2 – Central Springfield

Figure 2 illustrates zoning within Area 2.

Low-density residential zoning composes a majority of Area 2. Other zones within Area 2 include public land and open space; low-, medium-, and high-density residential; mixed-use residential and commercial; community commercial; light-medium industrial; and office

space. Historic downtown Springfield has a variety of zoning types along Main Street and the Pioneer Parkway. Zones in this area include mixed-use, medium-density, and high-density residential; mixed-use and community commercial; and public land and open space. Government facilities, such as Springfield City Hall, the Springfield Post Office, and the Springfield Public Library, are located in downtown Springfield. The area west of the Willamette River is primarily light-medium industrial zoning and low-density residential with some limited community commercial, office space, and public land and open space zones.

A variety of recreational amenities are located in Area 2, including 11 parks, an art center, a museum, and an adult activity center. Hamlin Sports Complex, Alton Baker/Eastgate Woodlands, Island Park, Willamalane Park, and the By Gully Biking and Jogging Path are the larger recreational facilities in this area. Other, smaller parks include Kelly Butte Park and Overlook, Millrace Park, Menlo Park, James Park, Meadow Park, and the West D Street Greenway (Figure 3).

Area 2 has five schools: Centennial and Moffit Elementary Schools, Hamlin and Springfield Middle Schools, and Springfield High School (Figure 3).

1.1.3 Area 3 – Central/East Springfield

Figure 2 illustrates zoning within Area 3.

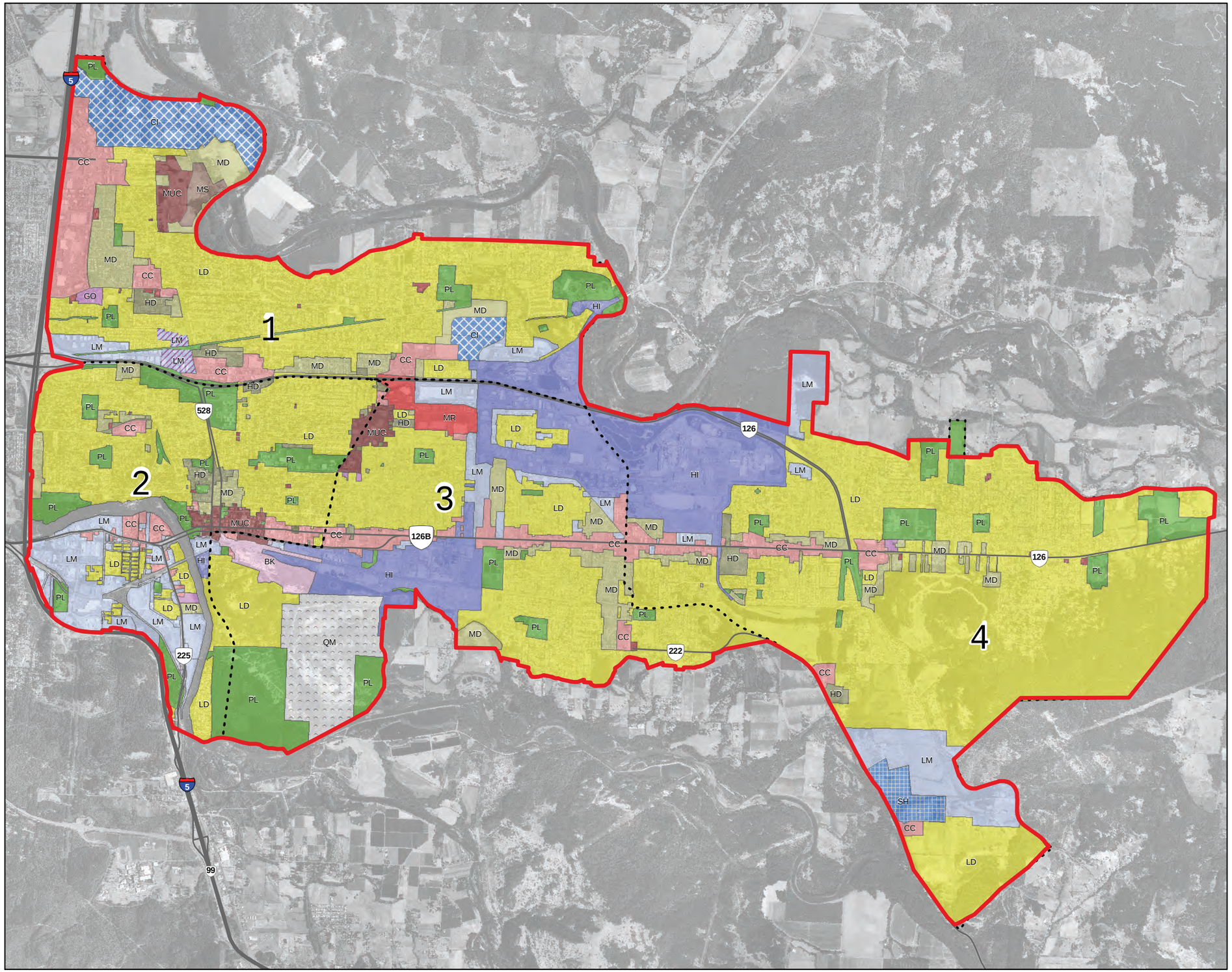
Area 3 is zoned primarily low- and medium-density residential, community and mixed-use commercial, and heavy industrial. Other zoning within Area 3 includes high-density residential, mixed-use residential, general office, major retail commercial, neighborhood commercial, light-medium industrial, quarry and mine operations, and public land and open space. The parcels along Main Street (OR 126 Business) in Area 3 are zoned primarily community commercial. The existing land uses are a combination of residential and low-density commercial. A large quarry is located in Area 3, north of the Middle Fork Willamette River. McKenzie Willamette Medical Center is also within Area 3.

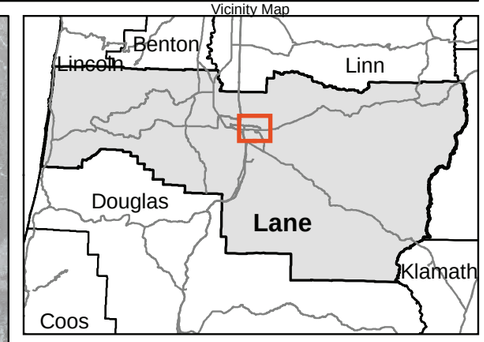
Area 3 has seven parks and four schools (Figure 3). Dorris Ranch Living History Farm and South 32nd Street Community Sports Park are larger parks, while Volunteer Park, Tyson Park, Pride Park, Willamette Heights, and Douglas Gardens Park are smaller parks. The schools located in Area 3 are Mount Vernon Elementary School, Douglas Gardens Elementary School, Maple Elementary School, and Agnes Stewart Middle School.

1.1.4 Area 4 – East Springfield

Figure 2 illustrates zoning within Area 4.

The zoning in Area 4 is primarily low-density residential with pockets of community and neighborhood commercial; high- and medium-density residential; light-medium, heavy, and special-heavy industrial; and public land and open space. The heavy industrial zones are concentrated in the northern portion of this area. Community commercial zoning is located along Main Street. The area along Bob Straub Parkway south of the Springfield city limits (but within the urban growth boundary) is zoned light-medium industrial, special-heavy industrial, and community commercial. Currently, only a portion of the special-heavy industrial zone is developed.





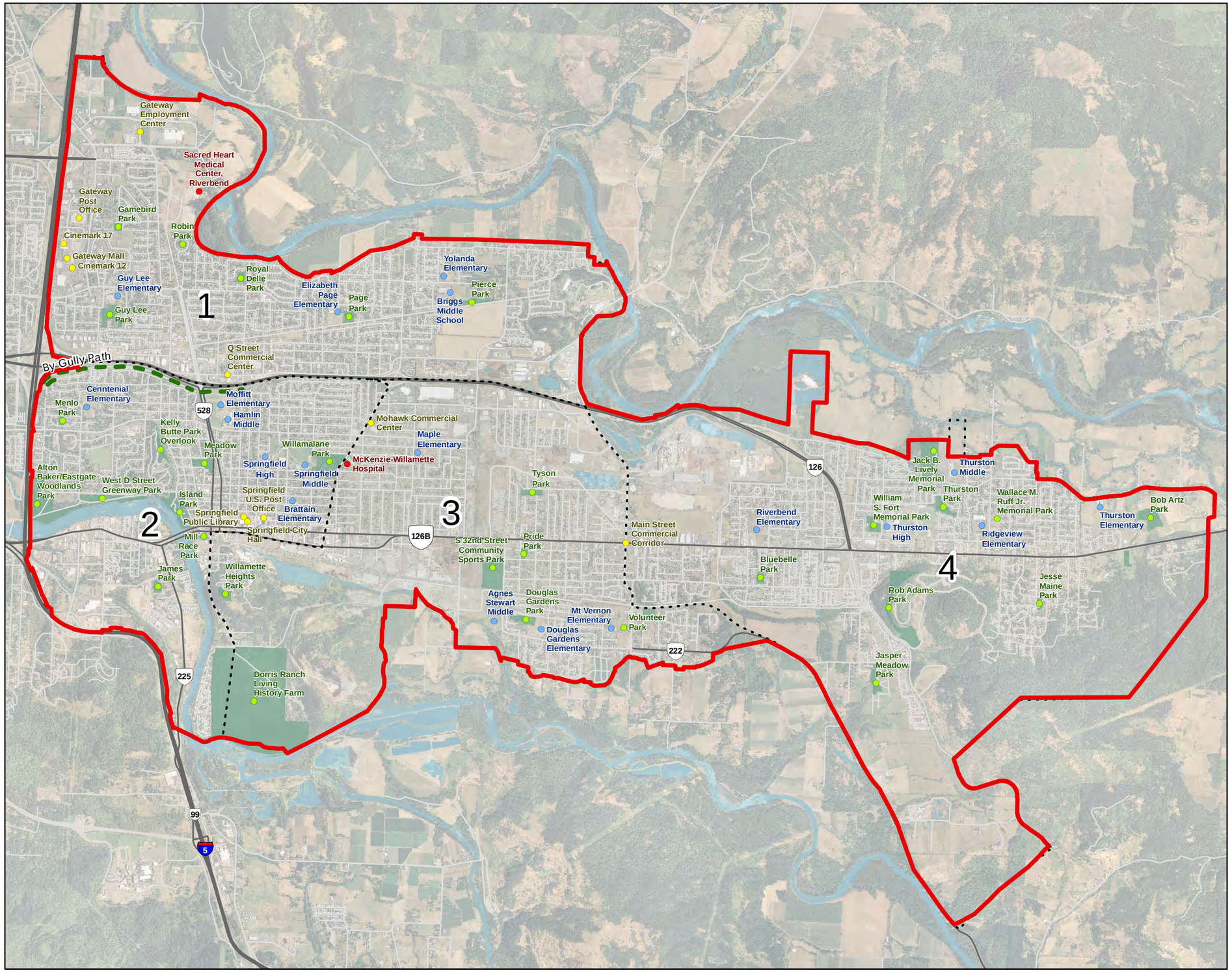
LEGEND

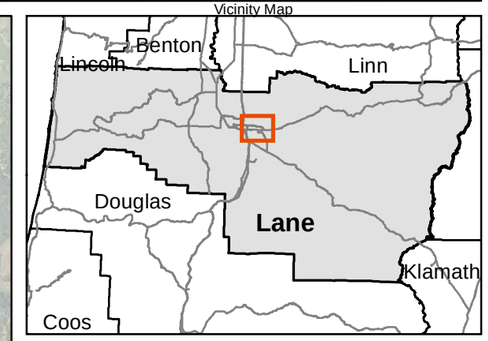
- Land Use Area Boundary (With Area Number)
- Springfield UGB

Zoning Classifications (Labeled with Code)

- Mixed Use Residential (MUR)
- High Density Residential (HD)
- Medium Density Residential (MD)
- Low Density Residential (LD)
- Mixed Use Commercial (MUC)
- Neighborhood Commercial (NC)
- Major Retail Commercial (MR)
- Community Commercial (CC)
- Mixed Use Light Medium Industrial and Community Commercial (LM)
- Light Medium Industrial (LM)
- Campus Industrial (CI)
- Heavy Industrial (HI)
- Special Heavy Industrial (SH)
- Booth Kelly Mixed Use (BK)
- General Office (GO)
- Medical Services (MS)
- Quarry & Mine Operations (QM)
- Public Land & Open Space (PL)

FIGURE 2
Zoning Designations
Springfield TSP
Springfield, Oregon





LEGEND

- Land Use Area Boundary (With Area Number)
- Springfield UGB
- Other Traffic Generators
- Hospitals
- Schools
- Parks
- Willamalane Park and Recreation Property

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FIGURE 3
Activity Centers
Springfield TSP
Springfield, Oregon

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Area 4 has nine parks and five schools (Figure 3). Bob Artz Park and Jack B. Lively Memorial Park are the larger recreational facilities in Area 4. Other parks are Bluebell Park, Thurston Park, Jesse Maine Park, Jasper Meadows Park, Wallace M. Ruff Jr. Memorial Park, Rob Adams Park, and William S. Fort Memorial Park. The five schools within Area 4 are Riverbend Elementary School, Ridgeview Elementary School, Thurston Elementary School, Thurston Middle School, and Thurston High School.

1.2 Demographic Analysis

The Springfield economy has become more diverse in the past 20 years. A strong business presence now exists in several industry sectors, including high technology, medical, wood products, tourism, software, and industrial manufacturing. The different needs and demands of this diversified employment market may affect when and how the transportation system in Springfield is used.

Portland State University's Population Center, which serves as the state's census office, estimated Springfield's population as 58,575 persons as of July 2010.

1.2.1 2000 Decennial Census

As of August 2011, the U.S. Census Bureau had published limited data from the 2010 U.S. Decennial Census (2010 Census) for Springfield. For this reason, the following summarizes the data from the 2000 U.S. Decennial Census (2000 Census).

As of the 2000 Census, Springfield had a population of 52,864 persons, with an average household size of 2.48 persons. Table 1 provides a snapshot of demographic statistics from the 2000 Census.

TABLE 1
Selected 2000 U.S. Decennial Census Demographic Characteristics for Springfield

		Percentage of Population (%)		
Demographic Characteristics	**City of Springfield Number**	**City of Springfield**	**Lane County**	**Oregon**
In labor force (population 16 years and older)	27,244	68.1	64.3	65.2
Persons aged 65 years and older	5,423	10.3	13.3	12.8
Presence of a physical disability	10,822	22.4	19.0	18.8
Speak a language other than English at home	3,835	7.9	7.9	12.1
Individuals below poverty level	9,373	17.9	14.4	11.6
Minority population*	7,037	13.3	11.4	16.5

Source: 2000 U.S. Decennial Census

* Total minority population based on those of Hispanic or Latino or of one race besides White, either Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, and some other race.

In 2000, the City of Springfield had a higher proportion of people in the labor force and a lower proportion of people aged 65 years or older than Lane County and the state of

Oregon. Springfield also had a higher proportion of persons with a physical disability and a higher proportion of persons living below the poverty line than the county and the state. The minority population in Springfield was higher than Lane County as a whole, but lower than the state average.

Data from the 2000 Census were used to identify commute and mode characteristics. Mean travel time to work can be used as an indicator for congestion levels and land use patterns. The 2000 Census data showed that the mean travel time to work in Springfield was 19.8 minutes (slightly less than the 20.6 minutes from the 2006-2008 American Community Survey, described in Section 1.2.2). This was slightly lower than the Lane County mean travel time to work (19.9 minutes) and lower than the Oregon mean travel time to work (22.2 minutes).

The primary mode choice for commuting in 2000 was single-occupancy vehicle (73.5 percent), with 14.3 percent carpooling, and lower percentages of individuals using public transit, bicycling, or walking (Table 2). The proportion of carpool and bus modes were higher than Lane County and Oregon.

TABLE 2
2000 U.S. Decennial Census Commute Mode Split for Springfield

		Percentage of Population (%)		
Mode Choice	City of Springfield Number	City of Springfield	Lane County	Oregon
Single-occupancy vehicle	17,987	73.5	71.6	73.2
Carpool	3,489	14.3	12.2	12.2
Bus	1,120	4.6	3.2	3.5
Motorcycle	61	0.2	0.2	0.1
Bicycle	322	1.3	3.0	1.1
Walked	479	2.0	4.2	3.6

Source: 2000 U.S. Decennial Census

1.2.2 2006–2008 American Community Survey

The U.S. Census Bureau conducts the American Community Survey (ACS) to collect more timely demographic information. Depending on the population size of the geography (city, county, state), ACS results are released as 1-, 3-, or 5-year estimates. Three-year estimates are released for communities with 20,000 or more residents but less than 65,000 residents (Springfield falls within this category). Table 3 illustrates demographic characteristics for Springfield from the 2006–2008 ACS. This information supplements the 2000 Decennial Census information provided in the previous section.

The 2006–2008 ACS showed similar comparative labor force characteristics for Springfield, Lane County, and Oregon. Springfield had a lower proportion of individuals aged 65 years and older (10.0 percent) than Lane County (14.1 percent) and Oregon (13.1 percent), but a higher proportion below the poverty level (18.1 percent) than Lane County (15.7 percent)

and Oregon (13.4 percent). The proportion of minorities within Springfield (17.4 percent) was higher than Lane County (13.9 percent) but lower than Oregon (19.6 percent).

TABLE 3
Selected 2006–2008 American Community Survey Demographic Characteristics for Springfield

Demographic Characteristics	Percentage of Population (%)		
	City of Springfield	Lane County	Oregon
In labor force (population 16 years and older)	66.9	63.0	65.0
Persons aged 65 years and older	10.0	14.1	13.1
Speak a language other than English at home	11.6	10.3	14.1
Individuals below poverty level	18.1	15.7	13.4
Minority population	17.4	13.9	19.6

Source: 2006–2008 American Community Survey

The 2006–2008 ACS showed that the mean travel time for commuting in Springfield (20.6 minutes; slightly higher than 19.8 minutes from the 2000 Census) was higher than Lane County (19.4 minutes) but lower than Oregon (22.2 minutes). The 2006–2008 ACS showed similar comparative mode characteristics in Springfield, Lane County, and Oregon (Table 4) as the 2000 Census (Table 2).

TABLE 4
2006–2008 American Community Survey Commute Mode Split for Springfield

Mode Choice	Percentage of Population (%)		
	City of Springfield	Lane County	Oregon
Single-occupancy vehicle	74.9	71.2	72.1
Carpool	11.7	10.7	11.3
Public transportation	3.9	4.2	4.2
Taxicab, motorcycle, bicycle, walked, or other means	5.3	8.9	6.6

Source: 2006–2008 American Community Survey

2 Roadway System and Condition

This section describes the functional classification and condition of roadways in Springfield.

2.1 Functional Classification

The functional classification system for streets within the City of Springfield is generally guided by TransPlan, the Regional Transportation System Plan for the Eugene-Springfield area, the Oregon Highway Plan (OHP), and the City of Springfield Development Code

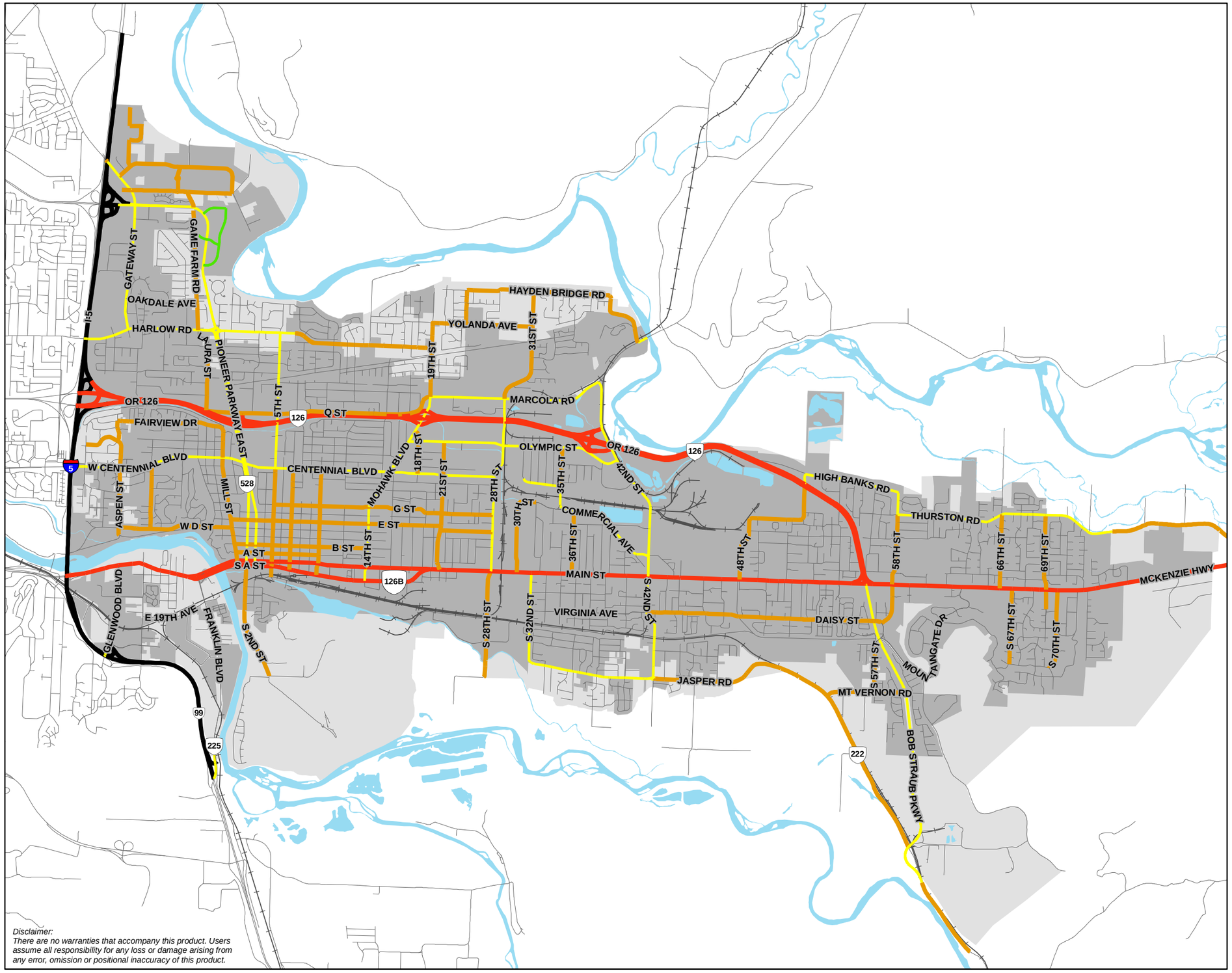
(Chapter 4.2-105). The City's Development Code recognizes the role of the functional classification system in helping to ensure that the transportation system:

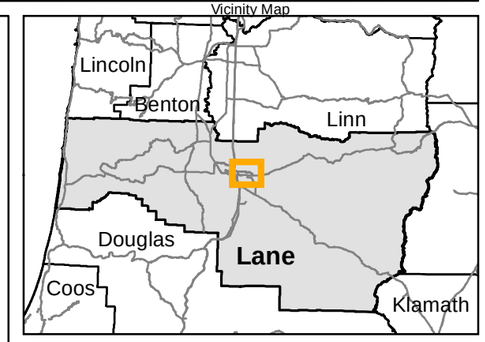
- Can safely and effectively accommodate all modes of travel, including pedestrians, bicyclists, motorists, transit, emergency, fire, and medical service vehicles
- Provides connections between modes
- Provides connectivity options
- Connects major activity centers, such as schools, parks, commercial areas, and employment centers
- Minimizes impacts to waterways and wetlands
- Appropriately and efficiently disperses motor vehicle traffic to the facilities that are appropriate for the type of trip being made (for example, longer distance trips use the arterial system whereas neighborhood trips use the local and collector system)

For each functional classification, the appropriate design, width, right-of-way, pedestrian and bicycle facilities, and other factors (such as slope) are defined. The current street network and functional classification system is depicted in Figure 4. A general description of functional classifications is provided below:

- *Interstate Highways:* Per the OHP, interstate highways provide for travel among major cities, regions of the state, and areas outside the state. The primary objective for interstate highways is mobility. Within urban areas, such as Springfield, the secondary function of interstate highways is to provide for regional trip-making. Interstate 5 (I-5) is the only roadway classified as an interstate highway within Springfield. Within Eugene, I-105 is also classified as an Interstate Highway. OR 126 within Springfield connects to I-105 at I-5.
- *Major/Principal Arterials*[1]*:* These facilities are high capacity urban roads that are intended to serve intra-urban trips and connect collector roadways to the Interstate system. This high-order facility caters to through traffic with an emphasis on mobility. Major arterials provide continuity for intercity traffic through the urban area and are often multi-lane highway facilities. Both OR 126 and Main Street are classified as major arterials. OR 126 is also classified by ODOT as a statewide highway and is designated as an expressway between I-5 and Main Street. Main Street serves as the business route for OR 126 and is designated as a statewide highway.
- *Minor Arterials:* These facilities interconnect with and augment the major arterial system and accommodate trips of somewhat shorter length. Minor arterials interconnect residential, shopping, employment, and recreational activities within the community.
- *Major and Minor Collectors:* These streets provide both land access and movement within residential, commercial, and industrial uses. They gather traffic from local streets and serve as connectors to arterials.

[1] The City of Springfield Development Code refers to Major Arterials. TransPlan refers to Principal Arterials. All references herein will be to Major Arterials per City code.





Legend

- Railway
- City Limits
- Urban Growth Boundary

Functional Classification

- Interstate
- Major Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local Road/Alley

Source:
Base Map Data - City of Springfield, 2010

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FIGURE 4
Functional Classification
Springfield TSP
Springfield, Oregon

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- *Local Streets:* Local Streets have the primary function of providing access to adjacent land uses. These streets often have several driveways along them and are not intended for long-distance trips. Through traffic on local streets is discouraged by street design.
- *Alleys:* These streets provide local access and services for residences and businesses.

The Springfield TSP focuses only on interstate highways, arterials, and collectors. Local streets generally are not addressed through the TSP. The current minimum right-of-way and street width for each type of street are shown in Table 5.

TABLE 5
Street Standards by Classification (per Table 4.2-1 of the Development Code)

Street Type	Minimum Right-of-Way	Minimum Street Width (curb to curb)
Major arterial	100 feet	76 feet
Minor arterial	70 feet	48 feet
Collector	60 feet	36 feet (additional width may be needed for turn lanes)
Local street	40–50 feet	28–36 feet
Alley	20 feet	20 feet (alleys do not have curbs)

Based on the effectiveness of the existing functional classification designations in achieving the objectives described in the guiding documents, the appropriate future functional classifications for the streets within the City will be reviewed as part of the TSP's Future Conditions Analyses.

2.1.1 Federal, State, and Local Freight/Truck Routes

Both TransPlan and the Oregon Transportation Plan recognize the role that an efficient and reliable transportation system plays in supporting the region's economy, growth and quality of life. Within the Eugene-Springfield area, freight mobility is provided by highways, city streets, air, pipeline and railways. Each of these modes must function together to ensure the efficient and timely movement of freight to, within and through the community.

Within Springfield, "through" truck freight travel occurs primarily on I-5 and OR 126. Both OR 126 and I-5 have federal truck route designations and are also identified as state freight routes. For I-5, both the federal and state designations apply throughout the UGB. For OR 126, the federal designation applies throughout the UGB; the state freight designation is applicable from I-5 to the intersection with Main Street. The state and federal freight designations necessitate more stringent design and mobility standards for these facilities to accommodate goods movement.

Within Springfield, truck freight travel occurs primarily on the designated city truck routes. These local truck routes are shown in Figure 5.

2.1.2 Special Transportation Areas

The primary objective of Special Transportation Areas (STA) as defined in the Oregon Highway Plan is: "*to provide access to community activities, businesses and residences and to accommodate pedestrian, bicycle and transit movement along and across the highway in a downtown, business district or community center.*"

One STA is designated within the City of Springfield along Main Street between Mill Street and 10th Avenue. Because this facility is not a designated Freight Route, accessibility, pedestrian, bicycle, and transit modes function as a higher priority than vehicular throughput. With this designation this section of highway allows additional design and management flexibility to cater toward the Main Street goals.

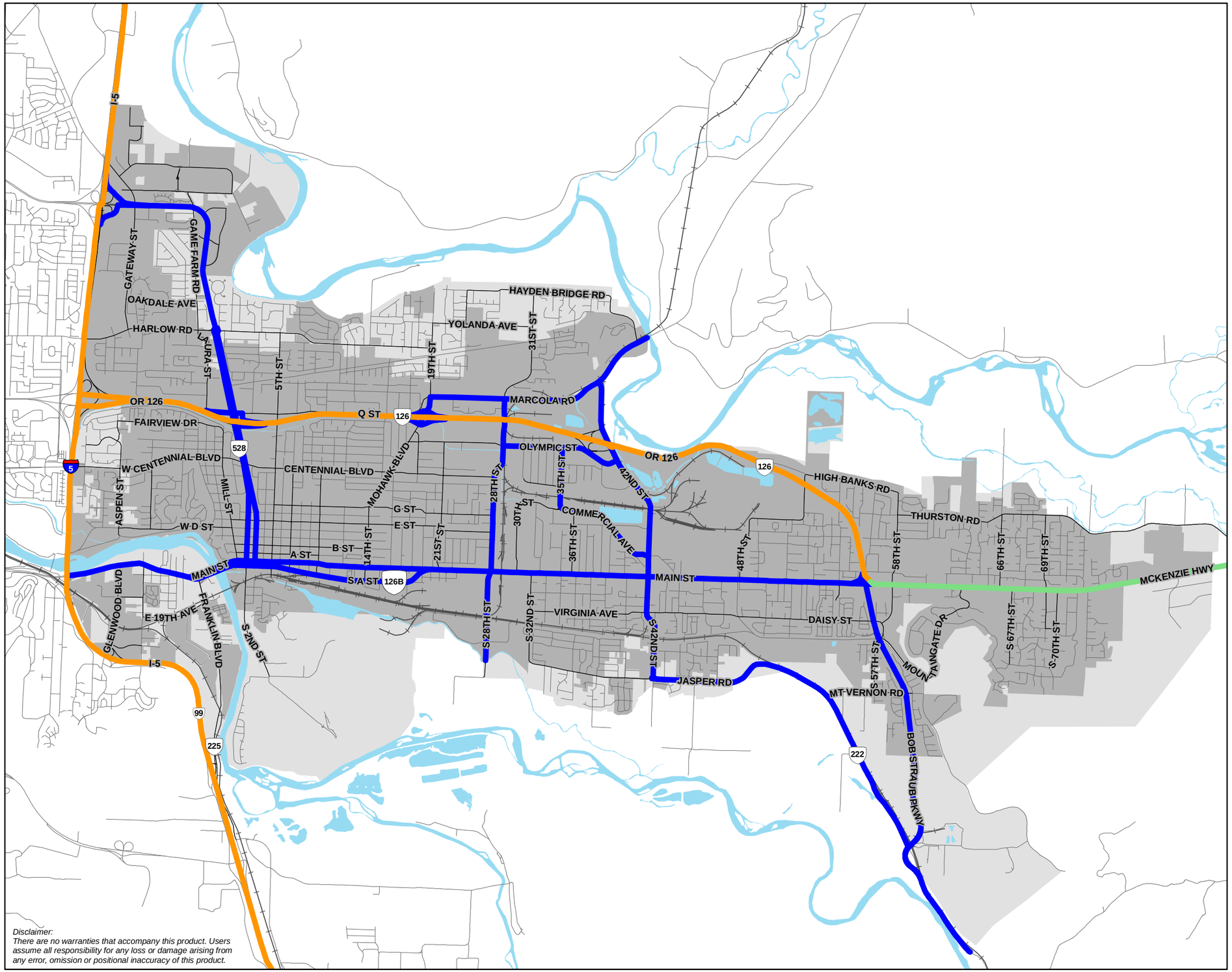
2.2 Roadway Condition

The arterial and collector street system condition is another measure that can be used to assess the quality of service experienced by motorists, freight, and cyclists while traveling along Springfield's street system. The City uses the assessment of the street conditions in order to prioritize maintenance and preservation projects.

The City employs the Hansen Roadway Rating System to assess street condition. This assessment is performed every two years and allows the city to classify an individual street segment as good, fair, or poor. In 2008, the City Council established a target to have 85 percent of streets with a fair or better rating. Per the *Street Conditions Report* (City of Springfield, November 2010), only 50 percent of arterials had a fair or better rating in 2010 whereas only 40 percent of collector streets achieved this rating. In both types of facilities, the percentage of streets achieving a good or fair rating has significantly declined since 2006. This is primarily due to the lack of funding available to keep pace with the maintenance and preservation needs throughout the city.

Figure 6 illustrates the results of the 2010 street condition inventory. Per the 2010 report, there are 31 arterial and collector street segments that were noted as having the highest priority for pavement overlays. The total cost estimate for providing these overlays is approximately $21.3 million. These priorities are based on those streets where an overlay treatment would prevent the individual street segments from needing full reconstruction. The list of priorities was not based on availability of revenues. Within the 31 identified segments, the street sections requiring the highest level of investment included:

- Gateway Street from Harlow Road to Beltline Road ($1.36 million)
- 28th Street from Main Street to Olympic Street ($1.02 million)
- Daisy Street from S 48th Street to Bob Straub Parkway ($1.02 million)
- E Street from Mill Street to 28th Street ($2.12 million)
- G Street from 5th Street to 21st Street ($1.27 million)
- Q Street from 5th Street to 19th Street ($1.49 million)
- Marcola Road from 19th Street to 42nd Street ($1.84 million)
- Thurston Road from 58th Street to 69th Street ($1.31 million)



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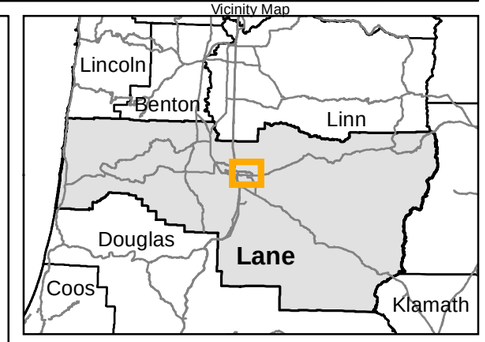


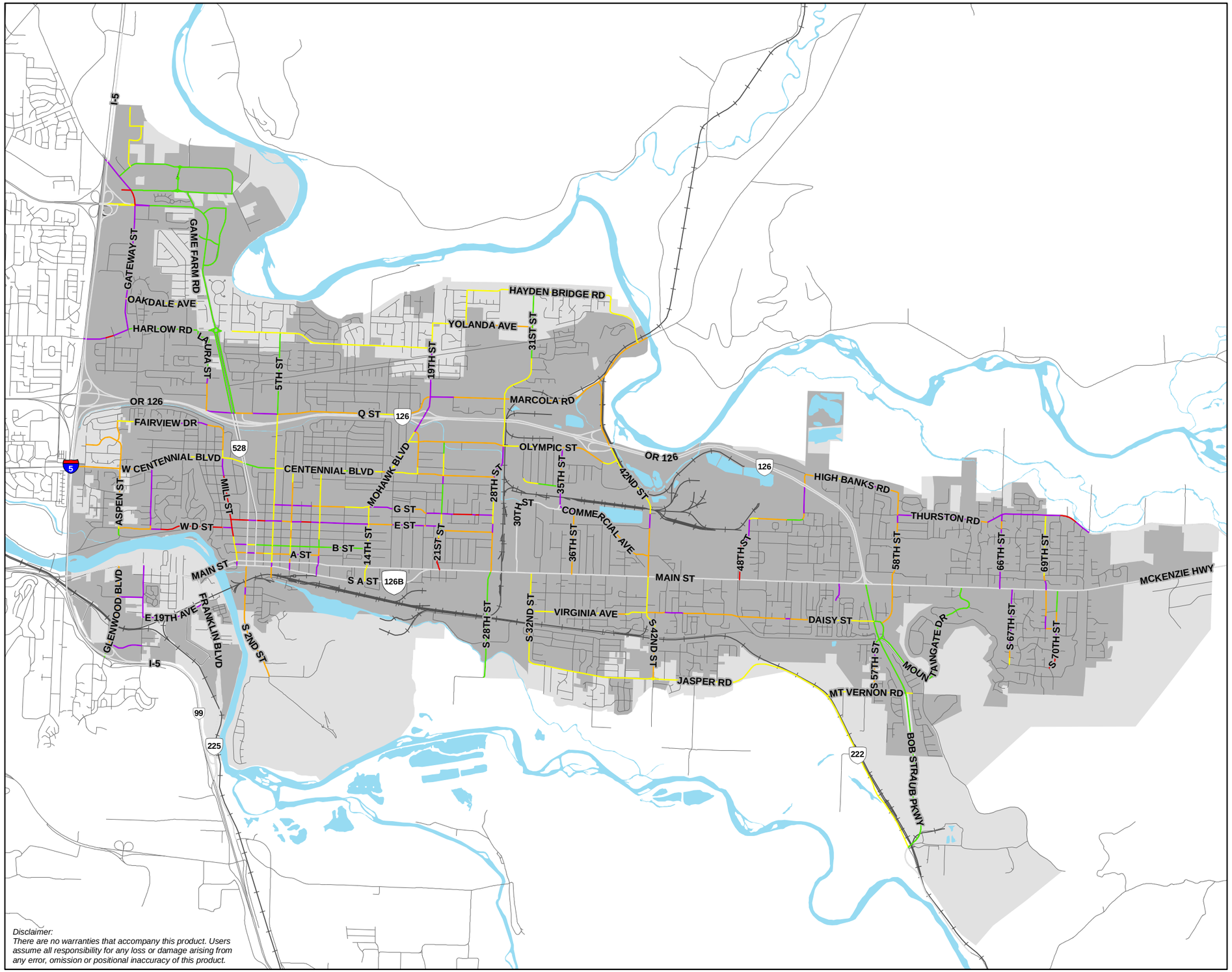
Legend

- City Truck Route
- Federal Truck Route
- Federal and State Truck Route
- Railway
- Street
- City Limits
- Urban Growth Boundary

Note:
City Council action is pending on Beltline Road and Martin Luther King Jr. Parkway truck route.

Source:
Base Map Data - City of Springfield, 2010
City Limits Data - City of Springfield, 2011

FIGURE 5
Truck Routes
Springfield TSP
Springfield, Oregon



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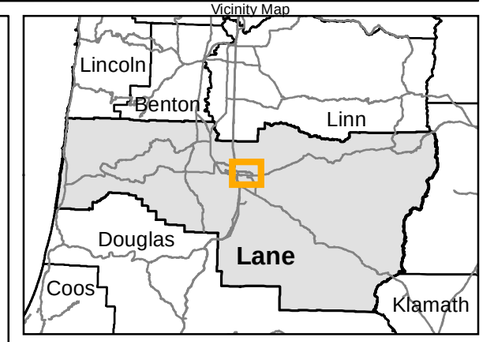


Legend

- Railway
- Street
- City Limits
- Urban Growth Boundary

Pavement Condition

- 5 - Very Good
- 4 - Good
- 3 - Fair
- 2 - Poor
- 1 - Very Poor
- 0 - No Information, Not City Owned

Source:
Base Map Data - City of Springfield, 2010
City Limits Data - City of Springfield, 2011

FIGURE 6
Pavement Condition
Springfield TSP
Springfield, Oregon

3 Operations and Safety Analyses

The operational and safety analyses conducted as part of the TSP is intended to provide an understanding of regional needs and strategies that can guide the management of the City's street system. These analyses are not intended to provide a comprehensive listing of citywide improvement needs, but rather to identify some of the key roadway and intersection needs. To understand system needs, the operational and safety performance of the existing transportation system was reviewed at a number of intersections throughout the City. These intersections were selected to represent the overall performance of the system based on the following criteria:

- Intersections of regionally significant facilities
- Intersections that may require future improvements and could be part of a Capital Improvements Program (as noted through field observations, previous studies, and/or conversations with City staff)
- Intersections that serve employment centers, gateways to neighborhoods, schools, and other major activity centers
- Intersections in areas with land use, environmental, and/or geometric constraints were typically not studied nor were those intersections that are already built out to the degree that may be feasible and/or desirable in the future

As part of the TSP development, safety and operational information was conducted specifically at 44 locations throughout the city. This data was supplemented with information about the operational and safety performance at intersections along Gateway Street, Main Street and OR 126, as summarized in the OR 126 Main Street Safety Study, the I-5/Beltline Interchange Area Management Plan, and the OR 126 Expressway Management Plan. The locations of the selected study intersections are shown in Figure 7.

The following sections discuss a detailed analysis of the operational and safety performance at the intersections. Additional documentation that can assist the reader is provided in the following attachments:

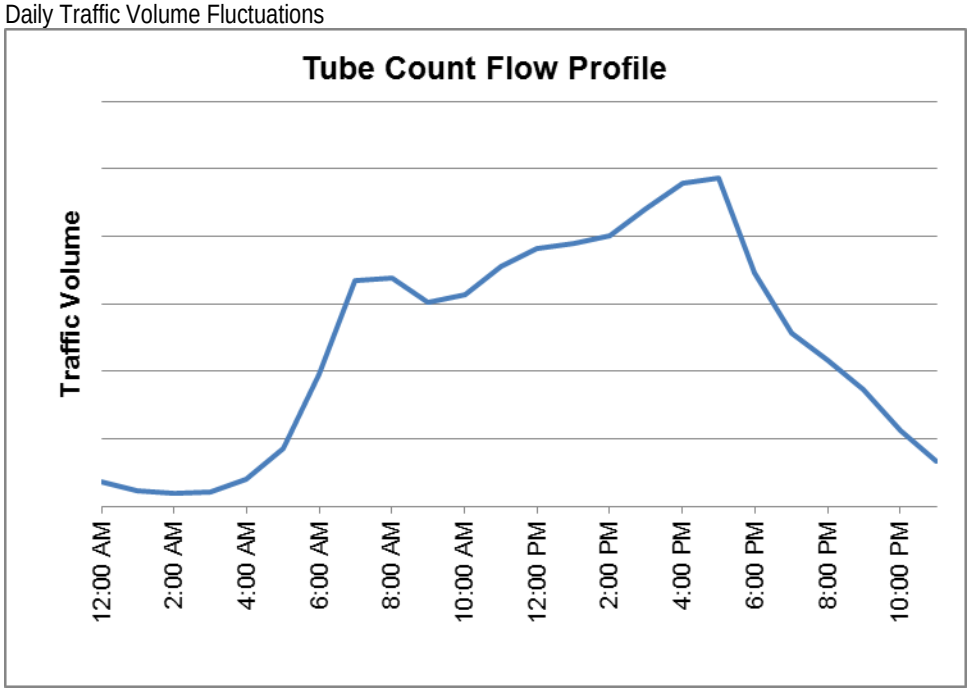
- Attachment 1: Technical Memorandum – Methods and Assumptions (Kittelson & Associates, Inc., September 2010)
- Attachment 2: Traffic Volume Data

3.1 Design Hour Traffic Volumes

Traffic volumes throughout the City of Springfield were reviewed to understand how traffic flows vary on a typical weekday when school is in session. Typically, traffic volumes peak during weekday afternoons when travelers go home from work or school, run errands, and go out to eat. At some intersections, adjacent land uses may cause peak traffic volumes at other times of the day. This typically happens in areas near schools, large employers with shift changes, and recreational areas.

Review of hourly traffic volume patterns at several locations throughout the City confirmed that Springfield traffic volumes typically are highest during the evening commute period. Figure 8 illustrates how traffic volumes vary throughout the day.

FIGURE 8
Daily Traffic Volume Fluctuations



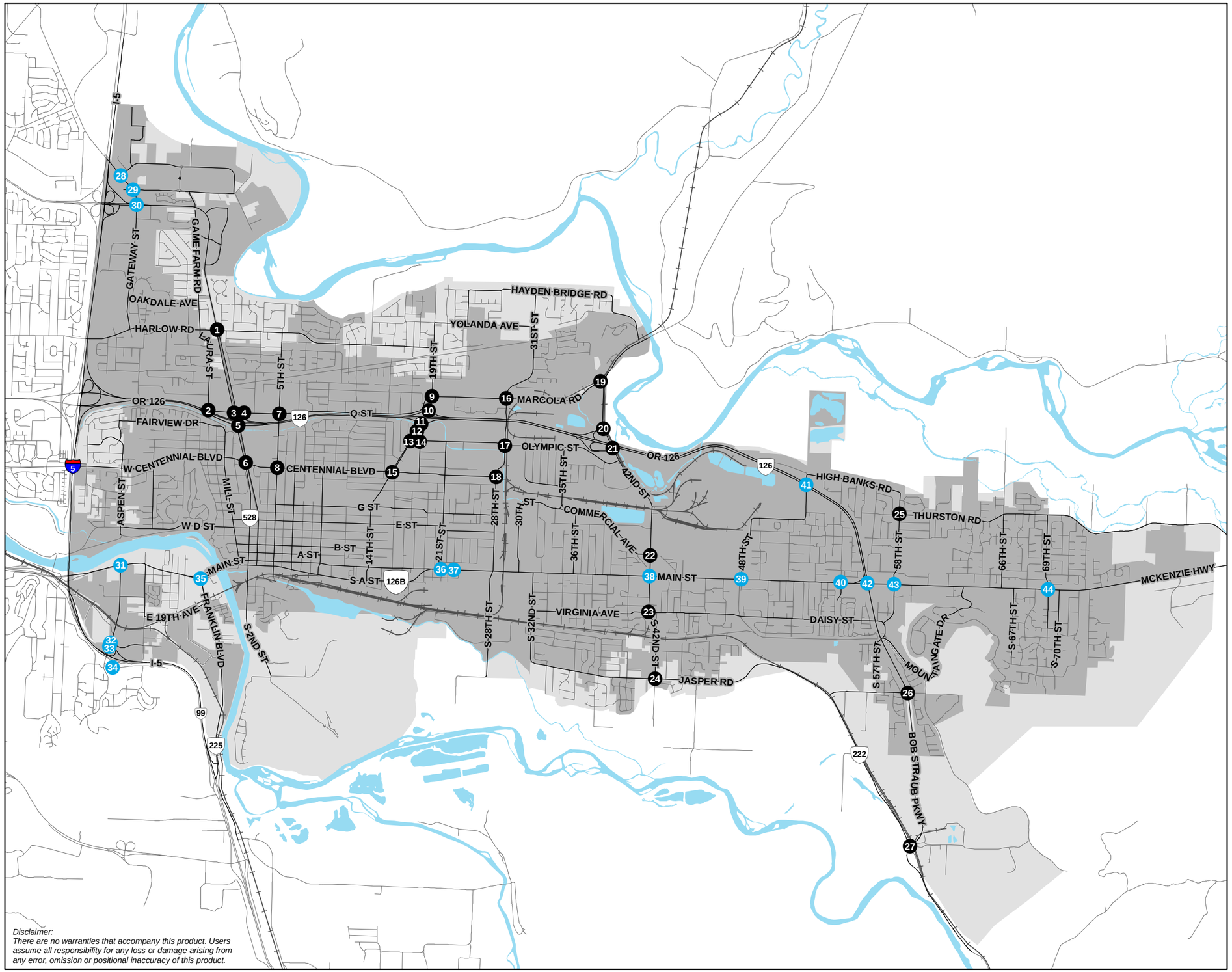
Based on identification of the weekday evening commute period as the critical analysis period, evening peak hour traffic volumes were used as the basis for calculating design volumes for analysis. As discussed in Attachment 1, the existing weekday p.m. peak hour traffic volumes were factored to approximate peak summertime conditions using the Seasonal Trend Methodology. Per ODOT's Analysis Procedures Manual (APM), Springfield can be classified as a "commuter" community reflective of lower fluctuation in traffic volumes throughout the year.

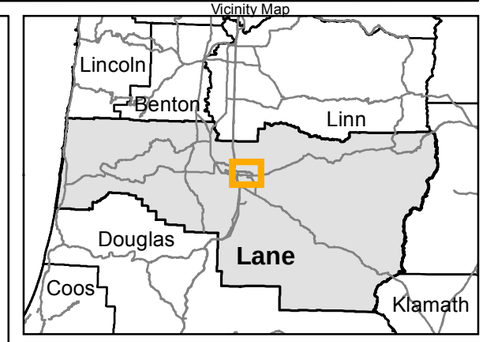
3.2 Intersection Operating Standards

3.2.1 City of Springfield and Lane County

Per TransPlan, the City and County view intersections as operating acceptably if they maintain level of service (LOS) "D" or better conditions. Level of service is a concept developed to quantify the degree of comfort (including such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or roadway segment. Much like a report card, six grades are used to denote the various levels of service from "A" to "F."

At a traffic signal, LOS is based on an average of delays experienced by all users traveling through the intersection. At unsignalized intersections, LOS is based on the delays experienced by only those vehicles at the "critical" stop-controlled approach.





Legend

- TSP Study Intersections
- Referenced Study Intersections
- Railway
- Street
- City Limits
- Urban Growth Boundary

Note:
For the Study Intersections symbology the blue circles represent referenced study intersections. Locations 1-27 are "TSP Study Intersections" and 28 to 44 are "Referenced Study Intersections"

Source:
Base Map Data - City of Springfield, 2010

Disclaimer:
There are no warranties that accompany this product. Users assume all responsibility for any loss or damage arising from any error, omission or positional inaccuracy of this product.

FIGURE 7
Study Intersections
Springfield TSP
Springfield, Oregon

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3.2.2 ODOT Mobility Standards

The OHP outlines specific performance measures to be maintained along ODOT facilities as part of adopted Highway Mobility Standards. These standards are aimed at maintaining mobility along important road corridors and vary according to functional classification, location, posted speed, and role within the NHS. The mobility standards are based on a calculated volume-to-capacity ratio.

Per the OHP, the following intersection performance measures are applicable for facilities within Springfield:

- Volume-to-capacity (v/c) ratio of 0.80 for I-5, because of its classification as an interstate facility within a Metropolitan Planning Organization (MPO). For the I-5 ramp terminals, the applicable volume-to-capacity ratio is dependent on the crossroad standard. If the crossroad requires a volume-to-capacity less than 0.85 than the crossroad dictates the ramp terminal standard; otherwise the applicable ramp terminal standard is a volume-to-capacity of 0.85.
- Volume-to-capacity ratio of 0.80 for OR 126 given its classification as a Statewide, NHS Expressway within a Metropolitan Planning Organization (MPO).
- Volume-to-capacity ratio of 0.85 for the OR 126 ramp termini. This standard also applies to the McKenzie Highway (ODOT Highway No. 15, Main Street).
- Volume-to-capacity ratio of 0.90 for OR 528 (Pioneer Parkway) and OR 225 (McVay Highway) given their classification as District Highways within an MPO.

The highway standards above reflect signalized performance standards. At stop-controlled intersections, the appropriate mobility standard is based on the classification of the intersecting roadway. Although the performance of ODOT facilities is based on the v/c ratio, other parameters (such as delay) are also included as part of the existing conditions analyses.

3.3 Intersection Operations Analyses

Intersection analyses were performed based on the methodologies outlined in Attachment 1. The results of these analyses are summarized in Table 6. As shown, five of the study area intersections do not meet standards today; they are discussed in more detail below.

At other study area locations, there may be times of the day when queuing or congestion is experienced, but the overall intersection operations meet standards today during the peak 15 minutes of the seasonally adjusted weekday p.m. peak hour.

TABLE 6
30th Highest Hour Intersection Performance Summary

Intersection		Performance Standard			Intersection Performance Metrics				
No.	Name	Intersection Control	Jurisdiction	Performance Standard	Critical Movement	LOS	Delay(s)	v/c	Meets Standard?
1	Pioneer Parkway and Hayden Bridge Way	Roundabout	City	LOS D	Northbound	A	8.6	0.42	Yes
2	Laura Street and Q Street	Stop controlled	ODOT	LOS D	Southbound	F	>50	>1.0	**No**
3	Pioneer Parkway and Q Street	Signal	ODOT	v/c of 0.90	Not applicable	C	28.3	0.76	Yes
4	OR 126 westbound off-ramp and Q Street	Signal	ODOT/City	v/c of 0.85	Not applicable	C	27.1	0.59	Yes
5	Pioneer Parkway and OR 126 eastbound ramps	Signal	ODOT	v/c of 0.85	Not applicable	C	29.5	0.86	**No**
6	Pioneer Parkway and Centennial Boulevard	Signal	ODOT	v/c of 0.90	Not applicable	C	27.8	0.62	Yes
7	5th Street and Q Street	Signal	City of Springfield	LOS D	Not applicable	D	39.5	0.83	Yes
8	5th Street and Centennial Boulevard	Signal	City of Springfield	LOS D	Not applicable	C	25.9	0.66	Yes
9	Mohawk Boulevard and Marcola Road	Signal	City of Springfield	LOS D	Not applicable	C	33.4	0.56	Yes
10	Mohawk Boulevard and OR 126 westbound ramps	Signal	ODOT	v/c of 0.85	Not applicable	B	18.9	0.55	Yes
11	Mohawk Boulevard and OR 126 eastbound ramps	Signal	ODOT	v/c of 0.85	Not applicable	D	40.6	0.88	**No**
12	Mohawk Boulevard and 18th Street	Stop controlled	City of Springfield	LOS D	Southbound	C	15.1	0.56	Yes
13	Mohawk Boulevard and Olympic Street	Signal	City of Springfield	LOS D	Not applicable	B	13.2	0.54	Yes
14	18th Street and Olympic Street	Signal	City of Springfield	LOS D	Not applicable	B	10.1	0.51	Yes
15	Mohawk Boulevard and Centennial Boulevard	Signal	City of Springfield	LOS D	Not applicable	C	23.9	0.47	Yes
16	28th Street and Marcola Road	Signal	City of Springfield	LOS D	Not applicable	C	30.2	0.60	Yes
17	28th Street and Olympic Street	Signal	City of Springfield	LOS D	Not applicable	A	9.1	0.54	Yes
18	28th Street and Centennial Boulevard	Stop controlled	City of Springfield	LOS D	Eastbound	C	20.7	0.46	Yes
19	42nd Street and Marcola Road	Stop controlled	City of Springfield	LOS D	Northbound	C	18.0	0.46	Yes
20	42nd Street and OR 126 westbound ramps	Stop controlled	ODOT	v/c of 0.85	Eastbound	F	>50	>1.0	**No**
21	42nd Street and OR 126 eastbound ramps	Signal	ODOT	v/c of 0.85	Not applicable	B	14.2	0.61	Yes
22	42nd Street and Commercial Avenue	Stop controlled	City of Springfield	LOS D	Eastbound	D	73.2	0.35	Yes
23	S 42nd Street and Daisy Street	Stop controlled	City of Springfield	LOS D	Eastbound	E	36.9	0.43	**No**
24	S 42nd Street and Jasper Road	Roundabout	City of Springfield	LOS D	Eastbound	A	5.7	0.36	Yes
25	58th Street and Thurston Road	Roundabout	City of Springfield	LOS D	Southbound	A	8.4	0.48	Yes
26	Bob Straub Pkwy and Mt. Vernon Road	Stop controlled	Lane Co.	LOS D	Eastbound	D	28.7	0.29	Yes
27	Bob Straub Pkwy and Jasper Road	Stop controlled	Lane Co.	LOS D	Eastbound	B	16.3	0.02	Yes
28	Game Farm Road North/International Way[b]	Signal	City of Springfield	LOS D	Not applicable	B	Not	0.56	Yes

TABLE 6
30th Highest Hour Intersection Performance Summary

Intersection		Performance Standard			Intersection Performance Metrics				
No.	Name	Intersection Control	Jurisdiction	Performance Standard	Critical Movement	LOS	Delay(s)	v/c	Meets Standard?
							reported		
29	Gateway Street/Game Farm Road East[b]	Signal	City of Springfield	LOS D	Not applicable	C	Not reported	0.67	Yes
30	Gateway Street/Beltline Road	Signal	City of Springfield	LOS D	Not applicable	D	35.1	0.77	Yes
31	Glenwood Boulevard/Franklin Boulevard	Signal	ODOT	v/c of 0.85	Not applicable	B	18.3	0.69	Yes
32	Glenwood Boulevard/E 22nd Avenue	Stop controlled	City of Springfield	LOS D	Westbound	C	20.7	0.26	Yes
33	Glenwood Boulevard/I-5 NB Ramps	Stop controlled	ODOT	v/c of 0.85	Westbound	D	28.5	0.42	Yes
34	I-5 SB Ramps/Glenwood Boulevard	Stop controlled	ODOT	v/c of 0.85	Southbound	B	12.3	0.44	Yes
35	McVay Highway/Franklin Boulevard	Signal	ODOT	v/c of 0.85	Not applicable	C	23.7	0.72	Yes
36	Main Street/21st Street[c]	Signal	ODOT	v/c of 0.85	Not applicable	B	13.2	0.53	Yes
37	Main Street/32nd Street[c]	Signal	ODOT	v/c of 0.85	Not applicable	C	20.8	0.60	Yes
38	Main Street/42nd Street[c]	Signal	ODOT	v/c of 0.85	Not applicable	D	50.7	0.81	Yes
39	Main Street/48th Street[c]	Stop controlled	ODOT	v/c of 0.85	Northbound left	C	22.5	0.39	Yes
40	Main Street/54thStreet[a]	Signal	ODOT	v/c of 0.85	Not applicable	B	11.0	0.46	Yes
41	52nd Street/OR 126[a]	Signal	ODOT	v/c of 0.80	Not applicable	C	23.3	0.74	Yes
42	Main Street/OR 126[a]	Signal	ODOT	v/c of 0.80	Not applicable	D	42.5	0.79	Yes
43	Main Street/58th Street[c]	Signal	ODOT	v/c of 0.85	Not applicable	D	43.1	0.77	Yes
44	Main Street/69th Street[c]	Signal	ODOT	v/c of 0.85	Not applicable	A	9.1	0.32	Yes

Notes:
[a] As reported in the OR 126 Expressway Management Plan
[b] As reported in the I-5/Beltline Interchange Area Management Plan (ODOT, 2005)
[c] As reported in the OR 126 Main Street Safety Study (DKS Associates, 2010)
LOS = level of service
v/c = volume-to-capacity ratio

3.3.1 Pioneer Parkway/OR 126 Eastbound Ramps

The City is developing a plan to modify the signal timing at a number of intersections, including Pioneer Parkway and OR 126. Signal timing changes can improve intersection and corridor performance while balancing the various travel modes (including the EmX extension). Given that this intersection is operating just beyond the adopted standards, signal timing changes and the resultant intersection performance should be re-evaluated following completion of the reconstruction.

3.3.2 42nd Street/OR 126 Westbound Ramps

The OR 126 westbound off-ramp is controlled by a stop sign at its intersection with 42nd Street. Separate turn lanes are provided for right and left turns from the off-ramp. There is also a northbound left-turn lane for drivers wishing to access the OR 126 westbound on-ramp. As shown in Table 6, the reported v/c ratio for the stop-controlled left-turn movement from the ramp is above 1.0 during the 30th highest hour. Field observations revealed that an adjacent traffic signal at the eastbound ramp provides breaks in the traffic flow that allow drivers to turn onto 42nd Street, resulting in better operations than those summarized in Table 6.

On the basis of the existing traffic volumes, the intersection does not warrant the installation of a traffic signal today (per the volume-based Signal Warrants 1, 2, and 3 contained in the Manual on Uniform Traffic Control Devices (MUTCD). The City and ODOT should continue to monitor intersection operations and safety to determine the appropriate timing for any capacity-based improvements at this location in the future.

3.3.3 S 42nd Street/Daisy Street

At its intersection with 42nd Street, Daisy Street is controlled by stop signs. Although the eastbound Daisy Street approach operates at LOS "E," the movement operates well below capacity and a traffic signal is not warranted. Field observations did not reveal any queuing issues to suggest a need for mitigation today.

While the intersection currently operates acceptably and review of the crash records show no reported crashes over the past five years, it was noted that intersection sight distance is limited due to horizontal curvature to the south.

3.3.4 Laura Street/Q Street

Laura Street serves as a parallel route to Pioneer Parkway to the north of OR 126. It provides access to a number of commercial uses, as well as to neighborhoods between Pioneer Parkway and I-5. The intersection of Laura Street with Q Street occurs within the on-ramp to OR 126 westbound and I-5. At the intersection, separate turn lanes are provided for the southbound right- and left-turn movements on Laura Street. These southbound turning vehicles must find gaps in the accelerating OR 126 on-ramp traffic (whose volume exceeds 700 vehicles during the 30th highest hour today). Currently, 320 southbound vehicles turn left at this intersection and head eastbound towards Pioneer Parkway. The combination of high turning volume and high through volume results in at-capacity conditions for the critical southbound movement.

Potential mitigation measures for this intersection need to be considered carefully within the context of the OR 126 westbound ramp system at Pioneer Parkway, as well as the connectivity and multimodal choices provided to travelers between Harlow Road and OR 126.

3.3.5 Gateway Street/Beltline Road

The Gateway Street/Beltline Highway/Beltline Road intersection serves as a gateway into key retail and employment areas in the northern part of Springfield. This intersection has been the subject of extensive study over the past ten years. In 2010, the City and ODOT began construction of an improvement at this intersection and at the I-5/Beltline interchange. Construction is expected to be complete in summer 2011. The improvement project includes: the expansion of the northbound I-5 off-ramp to eastbound Beltline, a new northbound I-5 on-ramp from westbound Beltline, widening Beltline Highway between I-5 and Gateway Street, and widening Gateway Street to International Way.

3.3.6 Other Study Area Intersection Operational Deficiencies

Several of the studies reviewed identified intersections that are not forecast to meet City and/or ODOT standards under the future year condition (e.g., 2031). These intersections will be highlighted as part of the No Build Conditions task conducted for the TSP.

3.4 Safety

Crash records for the City of Springfield were used to identify regional crash trends that may be addressed through engineering, education, and enforcement strategies. Reportable crashes included in this analysis are those that result in an injury, fatality, or vehicle or property damage in excess of $1,500.

3.4.1 Crash Data

Crash data were obtained from ODOT databases for all reported crashes within the City of Springfield from 2005 through 2009. On the basis of these data, Figure 9 illustrates the number of crashes by year, and highlights an overall decreasing trend in total collisions (reported crashes in 2009 were 13 percent lower than in 2005). In this same period, property damage only (PDO) crashes declined but the proportion of injury crashes increased. In 2009, nearly half of all reported crashes resulted in an injury—a significant increase from 2005, when only one in three crashes was classified as an injury collision. There were 17 fatalities reported in this same period.

Review of weather and roadway surface conditions showed that approximately 69 percent of the crashes occurred during clear weather with dry roadway conditions, approximately 11 percent occurred during cloudy weather, and 18 percent occurred during rainy conditions (23 percent with wet roadways). Approximately 2 percent of the crashes occurred during snow or ice, foggy, or unknown conditions.

Following volume trends throughout the day, approximately three in four collisions occurred in daylight (75 percent), one in five crashes occurred in the dark (20 percent), and one in 20 crashes (5 percent) occurred during either dusk or dawn.

FIGURE 9
City of Springfield Crashes 2005–2009

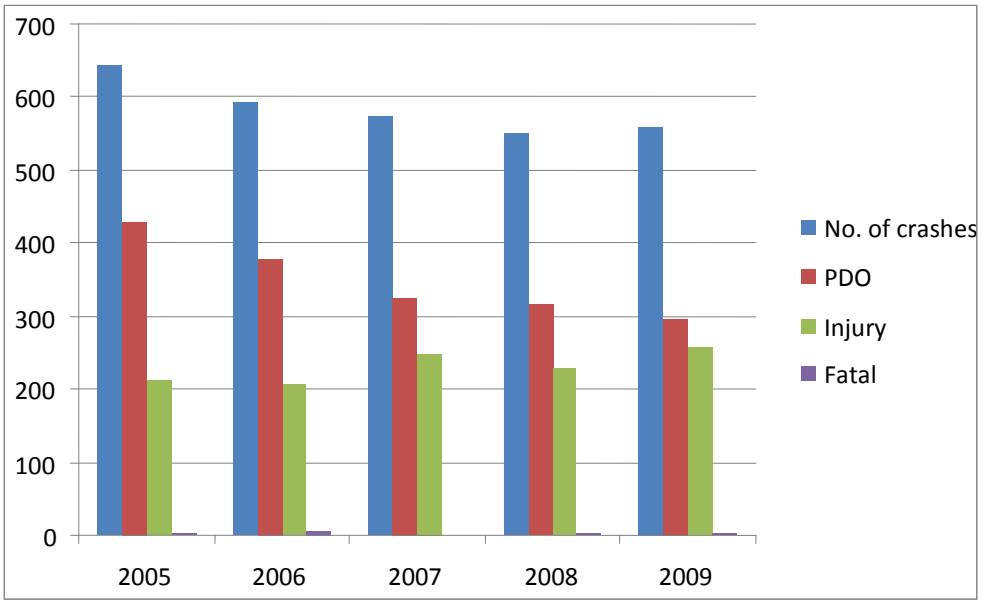


Figure 10 illustrates the types of collisions that occurred from 2005 through 2009. These crash types are defined by ODOT Crash Analysis and Reporting Unit as follows:

- Angle Collision: An angle collision results when vehicles collide while traveling on crossing paths. An angle collision involves one vehicle ON a roadway (i.e. North to south) and another vehicle from another roadway, open access or driveway. (i.e. East to West).
- Head-On Collision – The head-on type of collision results when the drivers of two vehicles traveling in opposite directions on parallel paths attempt to occupy the same position at the same time and find their forward movement impeded.
- Rear-End Collision – A rear end collision results when a vehicle traveling in the same direction or parallel on the same path as another vehicle, collides with the rear end or a second vehicle.
- Sideswipe-meeting Collision – A sideswipe meeting collision results when vehicles traveling in opposite directions on parallel paths collide.
- Sideswipe-overtaking Collision – A sideswipe overtaking collision results when vehicles traveling in the same direction on parallel paths collide.
- Turning movement Collision – A turning movement collision results when one or more vehicles in the act of a turning maneuver is involved in a collision with another vehicle.
- Parking Maneuver Collision – A parking maneuver collision results when a vehicle in the act of entering or leaving a parked position is involved in a collision.

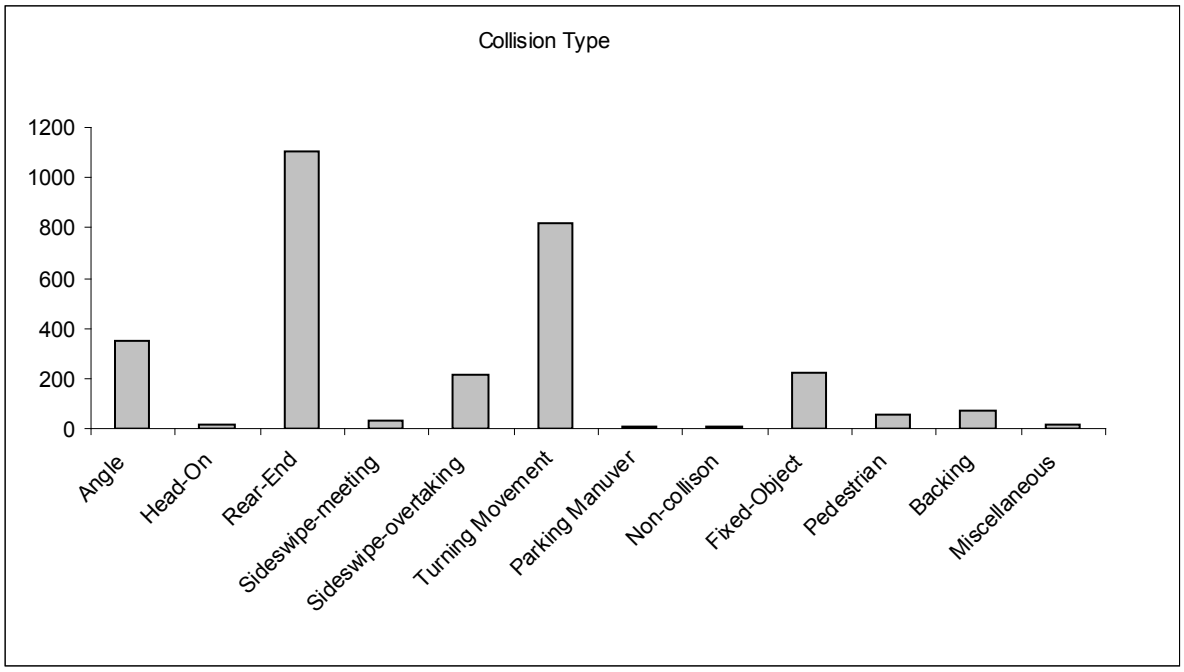
- Non-collision – A non-collision crash is one in which only one vehicle is involved and is not classifiable as another collision; e.g. rollover.
- Fixed Object or Other Object Collision – A fixed or other object collision results when one vehicle strikes a fixed or other object on the roadway or off roadway.
- Pedestrian Collision – A pedestrian collision results when the first harmful event is any impact between a motor vehicle in traffic and a pedestrian.
- Backing Collision – A backing collision results when a vehicle is backing in a traffic lane and strikes another vehicle also in a traffic lane.
- Miscellaneous Collision – Miscellaneous collisions include all animal crashes except animals drawing vehicles, and all crashes not classifiable under the above types.

Further review of the crashes by type shows that all types of collisions generally are declining, with the smallest reduction in crashes associated with turning-movement crashes.

Review of crash factors and crash locations shows that overall, two percent of crashes across the City of Springfield were attributed to drivers under the influence of drugs or alcohol. Excessive speed was cited in 24 percent of the reported crashes, and over 5 percent of the crashes were recorded as hit and run. Nearly 0.4 percent of the crashes occurred within school zones, and 1 percent of the crashes occurred within construction zones.

During the five-year period there were a total of 58 reported pedestrian collisions and 87 bicyclist crashes, comprising nearly 5 percent of the overall crashes throughout the City. Pedestrian-involved crashes declined from 15 crashes in 2005 to 7 crashes in 2009, following an annually declining pattern.

FIGURE 10
Springfield Collision Type 2005–2009



Day-of-week trends show that crashes are highest on Fridays (20 percent) and lowest on Sundays (8 percent). During the course of a day, crash frequencies are similar to hourly fluctuations in traffic volumes. Crash frequencies begin to increase during the morning commute period and decrease significantly after the evening commute period.

3.4.2 Intersection Crash Rates (2005-2009)

Crash frequencies and rates at each of the study intersections were reviewed to gain a more detailed understanding of potential safety deficiencies. Intersection crash rates are commonly reported as the number of crashes per year divided by the number of annual entering vehicles (expressed as Million Entering Vehicles, or MEV). The calculated crash rate[2] for each intersection is shown in Table 7. Intersections experiencing a crash rate higher than 1.0 were reviewed in greater detail to identify any discernible trends or potential links among safety, operational, and geometric issues.

TABLE 7
Intersection Crash Rates (2005–2009)

Intersection No.	Intersection	MEV/Year	Total Reported Crashes (5 Years)	Crash Rate
1	Pioneer Parkway/Hayden Bridge Way	8.55	79[a]	2.91
2	Laura Street/West Q Street	6.41	12	0.37
3	Pioneer Parkway/Q Street	11.15	33	0.59
4	OR 126 westbound off-ramp/Q Street	5.29	0	0.00
5	Pioneer Parkway/OR 126 eastbound ramp	9.16	25	0.55
6	Pioneer Parkway/Centennial Boulevard	9.33	51	1.09
7	N 5th Street/Q Street	6.75	15	0.44
8	5th Street/Centennial Boulevard	5.80	30	1.03
9	Mohawk Boulevard/Marcola Road	8.50	34	0.80
10	Mohawk Boulevard/OR 126 westbound ramp	8.80	10	0.23
11	Mohawk Boulevard/OR 126 eastbound ramp	11.15	21	0.37
12	Mohawk Boulevard/18th Street	9.67	24	0.50
13	Mohawk Boulevard/Olympic Street	7.96	40	1.01
14	18th Street/Olympic Street	5.40	30	1.11
15	Mohawk Boulevard/Centennial Boulevard	8.03	45	1.12
16	28th Street/Marcola Road	5.80	21	0.72
17	28th Street/Olympic Street	6.10	24	0.79
18	28th Street/Centennial Boulevard	4.29	6	0.28
19	42nd Street/Marcola Road	4.53	6	0.26

[2] Crash rates were developed based on crash data provided by ODOT for each of the study intersections. For the rate calculation, annual traffic volumes were approximated from the commute-period, turning-movement counts. The total crash experience summarized in the table was taken directly from queries of the statewide crash database without further distinction between crashes associated with nearby locations.

TABLE 7
Intersection Crash Rates (2005–2009)

Intersectio	Intersection	MEV/Year	Total	Crash Rate
20	42nd Street/OR 126 westbound ramps	5.49	2	0.07
21	42nd Street/OR 126 eastbound ramps	7.15	9	0.25
22	42nd Street/Commercial Avenue	5.40	6	0.22
23	S 42nd Street/Daisy Street	3.72	0	0.00
24	S 42nd Street/Jasper Road	2.88	3	0.21
25	58th Street/Thurston Road	3.61	5	0.28
26	Bob Straub Parkway/Mt. Vernon Road	3.23	0	0.00
27	Bob Straub Parkway/Jasper Road	3.01	0	0.00
28	North Game Farm Road/International Way[c]	5.28	3	0.11
29	Gateway Street/Game Farm Road[c]	6.00	1	0.03
30	Gateway Street/Beltline Road[c]	15.77	30	0.38
31	Glenwood Boulevard/Franklin Boulevard	8.25	1	0.02
32	Glenwood Boulevard/E 22nd Avenue	1.26	1	0.16
33	I-5 NB Ramps/Glenwood Boulevard/	1.51	0	0.00
34	I-5 SB Ramps/Glenwood Boulevard	0.88	1	0.23
35	McVay Highway/Franklin Boulevard	10.29	24	0.47
36	Main Street/21st Street[d]	7.58	6	0.16
37	Main Street/32nd Street[d]	9.56	3	0.06
38	Main Street/42nd Street[d]	10.88	31	0.57
39	Main Street/48th Street[d]	6.52	7	0.21
40	Main Street/54th Street[b]	6.31	12	0.38
41	52nd Street/OR 126[b]	11.04	15	0.27
42	Main Street/OR 126[b]	12.54	18	0.29
43	Main Street/58th Street[d]	10.60	16	0.30
44	Main Street/69th Street[d]	5.9	7	0.24

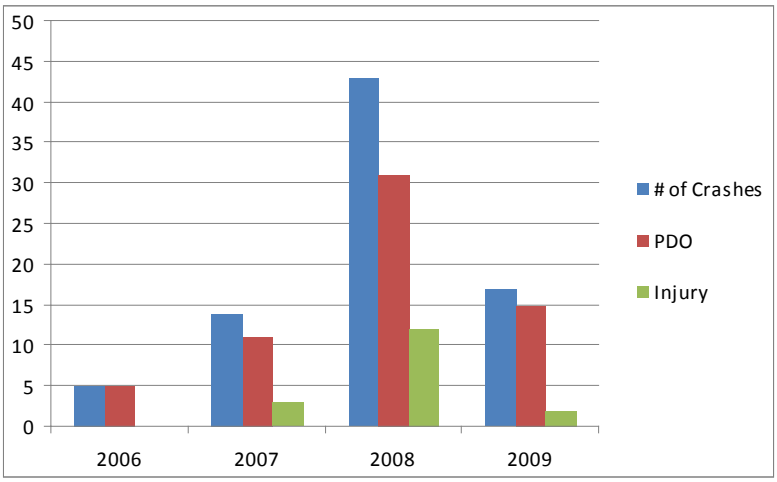
Notes:
[a] Intersection opened October 2006; safety analysis is based on 38 months of data.
[b] As reported in the OR 126 Expressway Management Plan
[c] As reported in the I-5/Beltline Interchange Area Management Plan (ODOT, 2005)
[d] As reported in the OR 126 Main Street Safety Study (DKS Associates, 2010)
MEV = million entering vehicles
Crash rate = crashes per million entering vehicles

As shown in Table 7, 6 of the study intersections experienced a crash rate greater than 1.0 between 2005 and 2009. Further review of the database showed that the intersection crash records also included those crashes that occurred at nearby driveways and public streets.

3.4.2.1 Pioneer Parkway/ Hayden Bridge Way – Harlow Street

At the Pioneer Parkway/Hayden Bridge Way roundabout, 79 crashes were reported from the roundabout opening in October 2006 through 2009. As shown in Figure 11, the crash frequency was fairly low except in year 2008, when 43 crashes were reported.

FIGURE 11
Pioneer Parkway/Hayden Bridge Way Crash Frequency



Note: 2006 data reflects 2 months of crash data due to the roundabout opening in October 2006.

Approximately 80 percent of the reported crashes have been non-injury crashes, which is reflective of the lower speed environment at the roundabout. In addition, 71 percent of the crashes were associated with turning maneuvers and 22 percent were rear-end crashes. There were no reported pedestrian crashes.

The crash experience may be reflective of a number of factors that may lead to driver uncertainty. As illustrated in the aerial photo, these factors include the following:

- This is the only multi-lane roundabout in the City.
- A five-legged intersection is fairly unconventional.
- There is a slip-lane for travelers from eastbound on Harlow road to southbound on Pioneer Parkway that may cause some confusion and differentials in speeds.
- Private driveways in the vicinity of the roundabout may complicate intersection operations.

The City recently installed push-button activated rapid-rectangular flashing beacons at the pedestrian crossings to improve driver yielding behavior. The City may wish to consider conducting a detailed review of the roundabout with the pedestrian enhancements complete

to assess the intersection geometry and design treatments. These efforts could help identify City design standards for future multi-lane roundabouts.

3.4.2.2 Centennial Boulevard Trends

As shown in Table 7, three of the intersections with crash rates above 1.0 are located along Centennial Boulevard near Springfield High School and Hamlin Middle School. In this section, Centennial Boulevard has a posted speed of 35 miles per hour (mph) and the segment adjacent to Hamlin Middle School is marked as a school zone. The crash data among the three study intersections were aggregated to determine whether there were any trends of note for this corridor. Each individual intersection was also reviewed in detail.

The aggregated data show that the highest frequency of crashes occurred between 3:00 and 4:00 p.m. This time period accounts for approximately 14 percent of the crash rates and also coincides with both the high school and middle school release time (3:05 p.m.). As discussed below, each of the three study intersections along Centennial Boulevard also had its highest frequency of crashes during this time.

3.4.2.3 Pioneer Parkway/Centennial Boulevard

At the Pioneer Parkway/Centennial Boulevard intersection, the majority of the crashes were rear-end crashes (53 percent) and turning-movement (33 percent) crashes. The northbound and southbound directions of travel on Pioneer Parkway are separated by an approximately 30-foot-wide green space accommodating an EmX bus rapid transit stop (as shown in the above picture). Hamlin Middle School and Moffitt Elementary School are located in the northeast quadrant of the intersection. The Rosa Parks Path extends north-south through the center of the intersection.

From 2005 through 2009, two pedestrian crashes were reported at this intersection: one in September 2005 and one in February 2007. Each crash involved an 11-year-old pedestrian. The records indicate that the first crash occurred outside the signalized crossing. Although the second pedestrian crash appeared to occur within the intersection, the crash reports show that the pedestrian disregarded the signal and did not have the right-of-way.

The detailed crash review did not identify any additional patterns based on time of day, day of week, weather, illumination, or crash type. Given the intersection's proximity to the schools, the City may consider partnering with them to develop educational strategies. In addition, the City may consider extending the school zone to include Pioneer Parkway surrounding Centennial Boulevard. This could be accomplished through the use of speed-reduction "When Flashing" treatments.

3.4.2.4 5th Street/Centennial Boulevard

The annual crash experience at this intersection was fairly consistent over the analysis period, ranging from four to eight crashes per year. Seven of the eight crashes in 2009 resulted in injuries, which is higher than in the previous years. Some of the other patterns at this intersection are as follows:

- A higher proportion of crashes occurred at this intersection during wet weather than experienced on average throughout the City.
- 80 percent of the crashes occurred on Monday, Tuesday, and Wednesday, with virtually no crashes reported on the weekend. The crashes primarily occur during the hours coinciding with school drop-off and pick-up and the evening commute period.
- 52 percent of the reported crashes were rear-end collisions.

The City may wish to evaluate the need to add higher visibility signal heads and backplates, mast arm street signs, or other signing and striping treatments to provide advance warning to drivers at this intersection. In addition, the City may consider partnering with the school district to develop educational strategies and to explore the potential for Safe Routes to School programmatic elements, such as crossing guards or other means to encourage and facilitate walking to school.

3.4.2.5 Mohawk Boulevard/Centennial Boulevard

Mohawk Boulevard intersects with Centennial Boulevard at a nearly 30-degree angle. This intersection is signalized and is near several closely spaced private and public intersections. Sixty percent of the crashes at this location resulted in property damage only. No fatalities were reported.

Based on the reported crash types, relatively low cost improvements the City may consider include higher visibility signal displays, higher visibility signal backplates, "signal ahead" signage, larger street signs, and other signing and striping treatments. In addition, while the five-section signal displays are widely understood, higher compliance has been shown with the flashing yellow arrow left-turn indication. Access management strategies should also be implemented either as a separate project or as properties redevelop near this intersection.

3.4.2.6 Mohawk Boulevard/Olympic Street

Approximately 60 percent of the crashes at the Mohawk Boulevard/Olympic Street intersection resulted in injuries. There was also one reported fatality during the analysis period. Further description of this crash is included in the following section.

Rear-end and turning-movement crashes make up nearly 80 percent of the reported collisions at this location. As with the Mohawk Boulevard/Centennial Boulevard intersection, the City may consider potential near-term improvements that increase visibility of the traffic signal and access management strategies.

3.4.2.7 18th Street/Olympic Street

The striping at the signalized intersection of 18th Street and Olympic Street was modified recently, converting the westbound approach to provide separate through- and right-turn

maneuvers. As such, the crash trends reflect records associated with the previous configuration.

One reported fatality occurred near the intersection. Further description of this incident is included in the following section.

Review of the crash records also highlighted the higher than normal crash occurrences during wet weather conditions. The City may wish to perform a further review of potential drainage issues or striping visibility that could be contributing to the crashes. No other crash patterns were identified at the intersection.

3.4.3 Fatal Crashes at Study Intersections

Two fatal crashes were reported at the study intersections during the period analyzed (2005-2009). Both of these crashes occurred along the Olympic Street corridor at or near the intersections of 18th Street/Olympic Street and Mohawk Boulevard/Olympic Street. A description of each crash is provided below.

- 18th Street/Olympic Street - In November 2006, a collision occurred between a pedestrian and a passenger vehicle approximately 400 feet east of the intersection. It was dark at the time, and alcohol was not cited as a factor in the crash.
- Mohawk Boulevard/Olympic Street – In August 2006, an angle collision occurred between two vehicles within the footprint of the intersection. The cause of the crash was reported to be one vehicle disregarding the traffic signal. Alcohol was cited as a factor.

No other fatal crashes were reported at the study intersections. A total of 17 fatal crashes were reported within the City between 2005 and 2009, comprising 0.6 percent of the overall crashes. Annual crashes have fluctuated throughout this time period with no discernable pattern.

3.4.4 Main Street Safety Study

ODOT and the City of Springfield recently completed the OR 126 Main Street Safety Study (DKS Associates, 2010). The primary focus of this study is on improving pedestrian safety along Main Street, particularly at unsignalized crossing locations. The study focuses on the segment of Main Street between 20th Street and 74th Street.

The study cites the following primary factors affecting pedestrian safety along this corridor:

- High vehicular speeds and volumes
- Wide five-lane cross-section
- Inconsistent roadway lighting (which particularly affects nighttime safety)
- Heavy transit use
- High access density (i.e., closely spaced driveways)
- Absence of pedestrian crossing treatments

The Safety Study analyzes the crash history along segments of Main Street; it does not analyze crash history at specific intersection locations. Per the Safety Study, the overall crash rate for the corridor considered is 3.21 collisions per million vehicle miles (MVM) traveled, which is 40 percent higher than the statewide average for similar facilities. The 1.6 mile

segment between 42nd Street and Bob Straub Parkway is identified as having the highest crash rate in the corridor (4.23 crashes/MVM).

The Safety Study also notes that four fatalities occurred along this corridor between 2004 and 2008. Three of the four fatalities involved pedestrians. The pedestrian fatalities occurred at 41st Street, 44th Street and 50th Place, and all occurred at night. Two additional pedestrian fatalities occurred in 2009: one near 51st Street and one between Bob Straub Parkway and 58th Street and both occurred at night.

3.4.4.1 Near-term Improvements

In the Main Street Safety Study, the following intersections are noted as needing improvements in the near-term (in order of priority):

- 41st Street
- 51st Street[3]
- 43rd Street/44th Street
- 57th Street
- 34th/35th Street
- 40th Street

At each of these intersections, the study recommends installation of rectangular rapid flashing beacons (RRFB), pedestrian refuge medians, additional street lighting, relocation of transit stops, and modifications to existing driveways. The study notes that a RRFB is already installed at 51st Street but recommends supplemental improvements.

The study also recommends the following corridor improvements in the near-term:

- Installation of pedestrian countdown timers at all traffic signals
- Left-turn signal head modification at 69th Street
- Speed feedback sign
- Preparation of an access management plan for the Main Street corridor

The total cost for near-term improvements is estimated at $1.01 million.

3.4.4.2 Mid-Term Improvements

The Main Street Safety Study identified the following intersections as needing improvement in the mid-term:

- Chapman Lane – installation of a RRFB, pedestrian refuge medians, additional street lighting, transit stop relocation and driveway modifications
- 48th Street/49th Street – installation of a RRFB, pedestrian refuge medians, additional street lighting, transit stop relocation and driveway modifications
- 38th Street – additional street lighting.

[3] A center pedestrian refuge island was recently constructed at this location.

The study also recommended additional transit stop relocations, installation of supplemental street lights on utility poles and implementation of the access management plan (with land redevelopment) in the mid-term.

The total cost of mid-term projects is estimated at $0.89 million. This cost excludes the access management plan implementation.

3.4.4.3 Long-term Improvements

Over the long-term, the study recommends the installation of new cobrahead lighting along the corridor, implementation of the access management plan (with land redevelopment), and realignment of 41st Street.

The total cost of long-term projects is estimated at $2.40 million. This cost excludes the access management plan implementation and long-term operation and maintenance.

4 Bicycle and Pedestrian System

4.1 Citywide System

4.1.1 Pedestrian Facilities

According to the Oregon Bicycle and Pedestrian Plan (OBPP), pedestrian facilities are defined as any facilities used by pedestrians or by persons in wheelchairs. These types of facilities include walkways, traffic signals, crosswalks, curb ramps, and other features such as illumination or benches. Springfield's pedestrian network is composed of four primary facility types:

- **Sidewalks –** Sidewalks are located along roadways, are separated from the roadway by a curb and/or planting strip, and have a hard, smooth surface, such as concrete. The unobstructed travelway for pedestrians should be clear of utility poles, sign posts, fire hydrants, vegetation, and other site furnishings.
- **Shared-use paths –** Shared-use paths are used by a variety of nonmotorized users, including pedestrians, cyclists, skaters, and runners. Shared-use paths are typically paved (asphalt or concrete) but may also consist of an unpaved smooth surface as long as they meet Americans with Disabilities Act (ADA) standards. Shared-use paths are usually wider (10–14 feet) than an average sidewalk.
- **Roadway shoulders –** Roadway shoulders serve as pedestrian routes in many rural Oregon communities. On roadways with low traffic volumes (less than 3,000 vehicles per day), roadway shoulders are often adequate for pedestrian travel. These roadways should have shoulders wide enough (usually 6 feet or greater) that both pedestrians and bicyclists can use them.
- **Accessways –** Accessways are short sidewalk or shared-use path segments that provide direct pedestrian and bicycle connections to destinations that otherwise would require

out-of-direction travel on the surrounding street system. Accessways commonly connect cul-de-sac streets with paths, schools, or nearby streets to minimize pedestrian and bicycle travel distance in areas with limited street system connectivity.

Guidance for sidewalks is outlined in Section 1.02.11 of the Springfield Engineering Design Standards and Procedures Manual:

- Sidewalks should be seven (7) feet wide along all arterial class streets, and five (5) feet wide along all collector and local class streets.
- New sidewalk design should be consistent with existing sidewalk design in the same block in relation to width and type, i.e., setback or curbside.
- Local residential streets may have either integral or setback sidewalk, as determined by the developer, engineer, or agency funding and/or designing the street project.

Additional guidance is outlined by street classification in the Springfield Bicycle Plan:

- Urban Arterials. All arterials should include a minimum 6-foot wide sidewalk on both sides of the street, buffered from the street with a planting strip of at least 6 feet located between the sidewalk and the street. In downtown core areas, the sidewalk shall be at least 10 feet wide with no buffer required.
- Urban Collectors. Collectors shall include a 6-foot wide sidewalk with a planting strip of at least 6 feet located between the street and the sidewalk.
- Urban Local Streets. All local streets shall include a 5-foot wide sidewalk buffered from the street with a planting strip of at least 4 feet.

Approximately 60 percent (that is, 53.7 of 89.1 miles) of the arterials and collectors within the City have sidewalks on both sides. An additional 9.6 miles of these streets have sidewalks on at least one side. Some of the principal arterials (such as OR 126) are limited-access facilities; these facilities are not appropriate for sidewalk access and are not included in the calculations.

Figure 11 shows the existing sidewalks, shared-use paths, and accessways along with gaps in the pedestrian network in Springfield. Gaps in the pedestrian network are shown in red with the exception of limited access highways, which are not identified as deficient.

4.1.2 Bikeways

The Springfield Engineering Design Standards and Procedures Manual requires that all bicycle facilities conform to the most updated versions of the American Association of State Highway and Transportation Officials (AASHTO) standards, ODOT standards, and Springfield Bicycle Plan.

According to AASHTO's Guide for the Development of Bicycle Facilities (1999) and the OBPP, there are several different types of bicycle facilities. Bikeways are distinguished as preferential roadways that have facilities to accommodate bicycles. Accommodation can be a bicycle route designation or bicycle lane striping. Shared-use paths are facilities separated

from a roadway for use by cyclists, pedestrians, skaters, runners, and others. Bicycles are allowed on all study area roadways with the exception of limited-access freeways.

The following types of bikeways are recognized by AASHTO and OBPP and are generally consistent with guidelines in the Springfield Bicycle Plan:

- **Bike lane –** Bike lanes are portions of the roadway designated specifically for bicycle travel via a striped lane and pavement stencils. ODOT standard width for a bike lane is 6 feet. The minimum width of a bicycle lane against a curb or adjacent to a parking lane is 5 feet. The Springfield Bicycle Plan recommends a minimum of 6 feet on arterials and 5 feet on collectors. Bike lanes are most appropriate on arterials and collectors and are not recommended in rural locations or on neighborhood streets.
- **Shared roadway / signed shared roadway –** Shared roadways are those in which bicyclists and motorists share the same travel lane. This is the most common type of bikeway. The most suitable roadways for shared bicycle use are those with low speeds (25 mph or less) or low traffic volumes (3,000 vehicles per day or fewer). Signed shared roadways are shared roadways that are designated and signed as bicycle routes and serve to provide continuity to other bicycle facilities (that is, bike lanes) or designate a preferred route through the community and /or between and away from destinations
- **Shoulder bikeway –** Shoulder bikeways are paved roadways that have striped shoulders wide enough for bicycle travel. ODOT recommends a 6-foot-wide paved shoulder to adequately provide for bicyclists, and a 4-foot-wide minimum in constrained areas. Roadways with shoulders less than 4 feet wide are considered shared roadways. Sometimes shoulder bikeways are signed to alert motorists to expect bicycle travel along the roadway.
- **Shared-use path –** Shared-use paths are used by a variety of nonmotorized users, including pedestrians, cyclists, skaters, and runners. Shared-use paths may be paved or unpaved, and they are often wider (10–14 feet) than an average sidewalk. In rare circumstances where peak traffic is expected to be low, pedestrian traffic is not expected to be more than occasional, good passing opportunities can be provided, *and* maintenance vehicle loads are not expected to damage pavement, the width may be reduced to as little as 8 feet.

Additional guidance is outlined by street classification in the Springfield Bicycle Plan:

- **Urban arterials –** All arterials should include marked and signed 6-foot wide bike lanes on both sides of the street.
- **Urban collectors –** All collectors predicted to carry 3,000 average daily traffic or greater shall include bike lanes at least 5 feet wide. Other collectors predicted to carry less than 3,000 ADT shall be constructed to include a wide outer lane of 14 feet to allow a shared bikeway.

There are approximately 58 miles of street bikeways in Springfield (39.2 miles of bike lanes, 16.4 miles of signed bikeways, and 2.2 miles of shoulder bikeways). At present, 62.5 percent

of the arterials and collectors have some form of bikeway. As discussed above, there are 12.9 miles of shared-use paths, which also serve bicycles.

Figure 12 shows existing bikeways and shared-use paths along with gaps in the bicycling network in Springfield. Note again that gaps in the bicycling network are shown in red with the exception of limited access highways, which are not identified as deficient.

4.2 Conditions by Area

4.2.1 Area 1 – NW Springfield–Gateway/Hayden Bridge

The NW Springfield–Gateway/Hayden Bridge area has bike lanes on most of its primary corridors. Harlow Road and the I-5 pedestrian and bicycle bridge are important connections into Eugene. The I-5 bridge is an asset for active modes in this area of Springfield. The major land use destinations around the Gateway Mall and the Sacred Heart Medical Center - River Bend Center attract cyclists and pedestrians from within Springfield and adjacent residential areas of Eugene.

Gateway Street is an arterial with limited controlled-crossing opportunities for bicyclists and pedestrians. Recent investments in the EmX extension have included pedestrian amenities that will benefit both bicyclists and pedestrians alike. A new crossing at Postal Way and additional amenities at Gateway Station improve east-west access.

For bicycles, east-west access between the Gateway Mall area and the Sacred Heart Medical Center - RiverBend is limited to bike lanes on arterials. There are no signed bike routes on lower volume streets in the Gateway area. Likewise, clear pedestrian routes that provide direct east-west connections are limited. Lack of road network connectivity and larger parcels of commercial activity create barriers to direct access for both bicyclists and pedestrians.

Area 1 has five primary shared-use paths: the Rosa Parks Path, a path along a portion of Game Farm Road, a path adjacent to Martin Luther King Jr Parkway , the Lyle Hatfield/McKenzie Gateway Path, and the Eugene Water and Electric Board (EWEB) path, which extends east. The EWEB path is within 0.25 mile of three of the schools in this area. The shared use paths are owned by the Willamalane Park & Recreation District.

Sidewalks are the primary pedestrian facility and bicycle facilities are not present and complete on all arterials and collectors in Area 1. Gaps noted in red on Figures 11 and 12 are summarized in Table 8 for Area 1.

TABLE 8
Gaps in the Pedestrian and Bicycle Network on Arterials and Collectors in Area 1

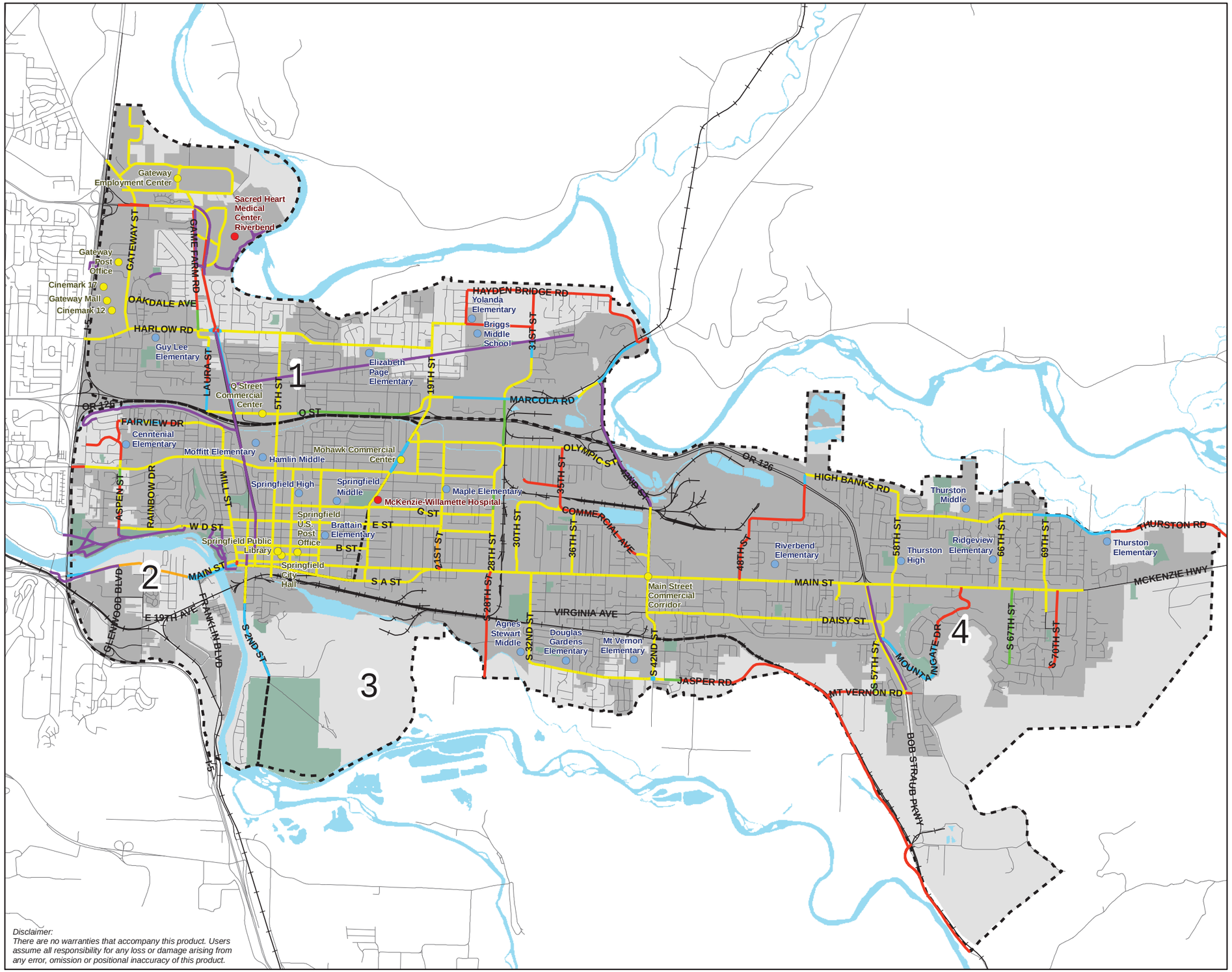
Location	Street Type	Description
Pedestrian		
Game Farm Road from Beltline to Harlow Road	Collector	No sidewalk
Yolanda from 23rd to 31st	Collector	No sidewalk; access to two schools
23rd Street from Yolanda to Hayden Bridge Road	Collector	No sidewalk; school access
31st Street from the EWEB path to Hayden Bridge Road	Collector	No sidewalk; school access
Hayden Bridge Road from 23rd to Marcola Road	Collector	No sidewalk
Marcola Road from 42nd to Hayden Bridge Road	Minor Arterial	Sidewalk one side
EWEB path	Not applicable	No connection on the east side to other facility
Bicycle		
Hayden Bridge Road from 5th to 19th Street	Minor Arterial	No bicycle Lane (lane extends to 5th from the western city limits)
Game Farm Road South from Beltline to Harlow Road	Collector	No bicycle facility
Yolanda from 23rd to 31st	Collector	No bicycle facility; school access
23rd Street	Collector	No bicycle facility; school access
31st Street	Collector	No bicycle facility; school access

Notable gaps in the network in Area 1 include the roadways around the Yolanda Elementary and Briggs Middle Schools. Access to these schools is enhanced by the EWEB path; however, the adjacent roadways lack basic bicycle and pedestrian facilities.

4.2.2 Area 2 – Central Springfield

Central Springfield has a combination of bike lanes and signed bike routes that compose the on-street network. East of Pioneer Parkway, the grid roadway pattern and lower volume neighborhood streets with signed bike routes provide connections to destinations. West of Pioneer Parkway, direct connections within the neighborhoods and to destinations are more challenging because of a disconnected street network.

Centennial Boulevard has bike lanes along its entire length. This roadway serves as the spine of the network connecting all the way through from the commercial node at Mohawk Boulevard and into Eugene. There are six schools within 0.5 mile of the Centennial Boulevard corridor. Signed bike routes on lower traffic streets provide direct routes on 5th, 10th, and G streets.



Disclaimer:
There are no warranties that accompany this product. Users assume all responsibility for any loss or damage arising from any error, omission or positional inaccuracy of this product.

Legend

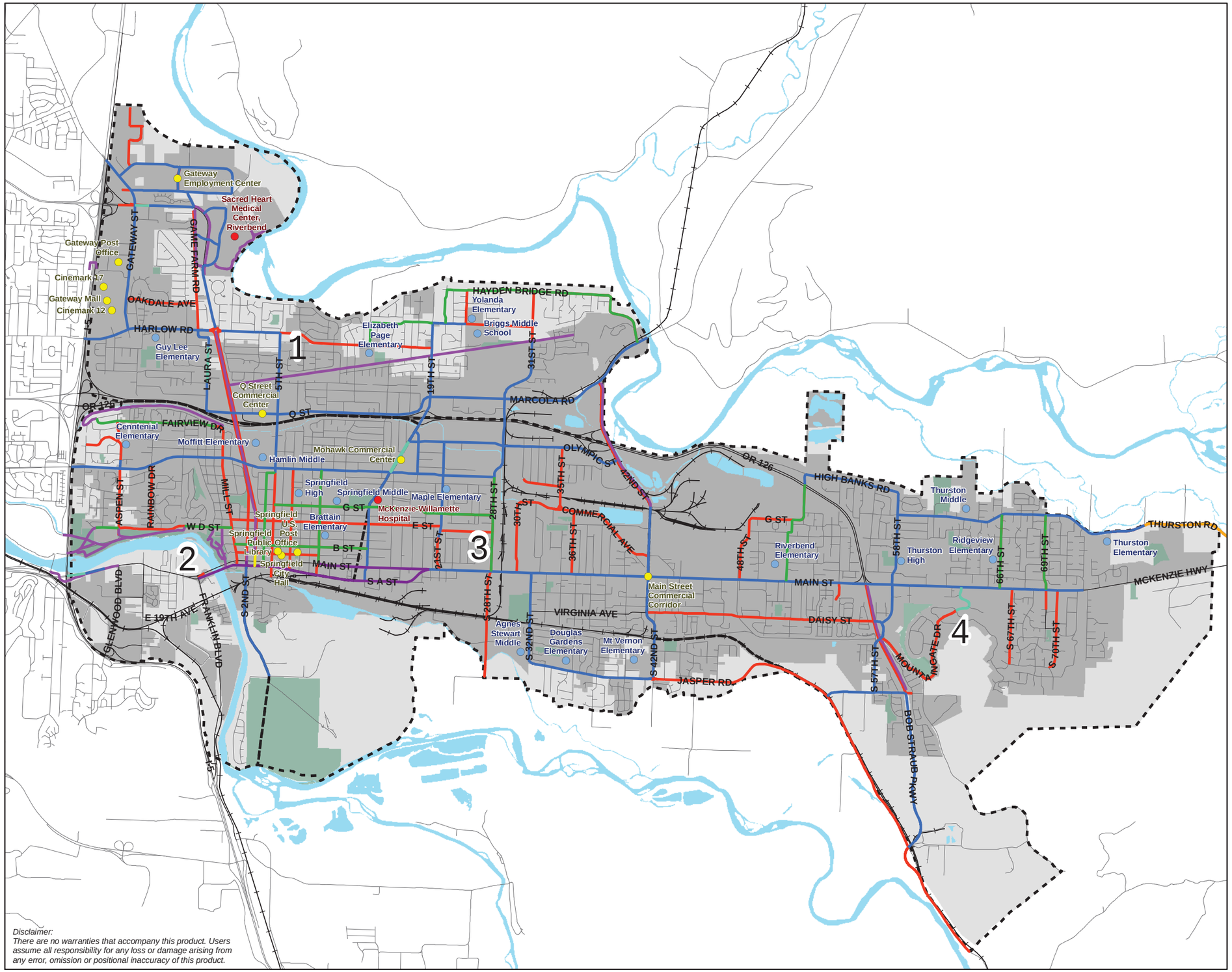
- No Sidewalk
- Sidewalks - 1 to 4 Foot Wide
- Sidewalks 5 to 10 Foot Wide
- Sidewalk - Left Side Only
- Sidewalk - Right Side Only
- Shared-Use Paths
- Other Traffic Generators
- Hospitals
- Schools
- Railway
- Street
- City Limits
- Urban Growth Boundary
- Willamalane Park and Recreation Property
- Water Body
- Land Use Area Boundary (With Area Number)

Note:
Left and right side only for two-way streets are defined as:
- North-south streets: The user is looking northbound
- East-west streets: The user is looking eastbound

One-way streets are right side only.
Areas with sidewalk width less than 5 feet are considered deficient

Source:
Bikeways Data - Alta Planning, 2010
Base Map Data - City of Springfield, 2010

FIGURE 12
Pedestrian Network Existing Conditions
Springfield TSP
Springfield, Oregon



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Legend

- Bike Lane - Right Side Only
- One Way Bike Lane - Left Side
- One Way Bike Lane - Right Side
- Shoulder Bikeway
- Shared Use Path
- Bike Lane
- Signed Bike Route
- No Bike Facility
- Hospitals
- Schools
- Other Traffic Generators
- Railway
- Street
- City Limits
- Urban Growth Boundary
- Willamalane Park and Recreation Property
- Water Body
- Land Use Area Boundary (With Area Number)

Note:
Left and right side only for two-way streets are defined as:
- North-south streets: The user is looking northbound
- East-west streets: The user is looking eastbound

Source:
Bikeways Data - Alta Planning, 2010
Base Map Data - City of Springfield, 2010

FIGURE 13
Bicycle Network
Existing Conditions
Springfield TSP
Springfield, Oregon

Signed bike routes on B and E streets provide connections to the shared-use path system and access to the Willamette River, nearby parks, City Hall, the Justice Center, the senior center, the downtown depot, and Eugene.

Area 2 has three primary shared-use paths: the By Gully Biking and Jogging Path, the southern portion of the Rosa Parks Path on Pioneer Parkway East, and the West D Street Greenway.

The Glenwood area currently has limited facilities for pedestrians and bicycles. There is recent interest in improving access to the river and access for residents into both greater Springfield and Eugene. Table 9 summarizes gaps in facilities on arterials and collectors in all of Area 2. Note that the Pioneer Parkway is shown on Figure 13 as lacking facilities for both pedestrians and bicyclists, however, it is not considered significant gap as the Rosa Parks Path provides a separated facility.

TABLE 9
Gaps in the Pedestrian and Bicycle Network on Arterials and Collectors in Area 2

Location	Street Type	Description
Pedestrian		
Centennial from Anderson Lane to City Limits	Major Arterial	No sidewalk
Aspen Street from Sequoia to Tamarack	Collector	No sidewalks; school and path access
Tamarack Street from Aspen to Fairview	Collector	No sidewalk
Menlo LP	Collector	No sidewalk
Fairview Drive from Tamarack to Prescott	Collector	No sidewalk
Franklin Blvd from Brooklyn to Glenwood Blvd	Major Arterial	Sidewalk substandard width
Bicycle		
Mill Street	Collector	No bicycle facility
Aspen Street from Sequoia to Tamarack	Collector	No bicycle facility
Tamarack Street from Aspen to Fairview	Collector	No bicycle facility
Menlo Loop	Collector	No bicycle facility
5th Street from Centennial to A Street	Collector	No bicycle facility
7th Street from Centennial to A Street	Collector	No bicycle facility
A Street from 10th to Mill Street	Collector	No bicycle facility
Franklin Blvd from Brooklyn to Glenwood Blvd	Major Arterial	No bicycle facility

4.2.3 Area 3 – Central/East Springfield

The Central/East Springfield area has bike lanes on most primary corridors. The notable exception is 28th Street between Centennial Boulevard and Main Street. This section of 28th Street also has narrow sidewalks (1 to 4 feet) or no sidewalks.

Large parcels in this area break-up the road network for all users. North-south out-of-direction travel is common. This presents a particular challenge when users try to access

locations between 28th Street and 42nd Street. This long-distance out-of-direction travel is particularly onerous for pedestrians and bicyclists.

Bike lanes on Main Street/OR 126B have improved conditions for cycling in the corridor significantly in recent years. However, high traffic volumes and speeds make it a less than ideal corridor for bicyclists. The pedestrian environment is challenging, with large crossing distances and the previously noted traffic conditions. The 32nd Street Community Sports Park is a major community destination in Area 3 with two primary access points on 32nd Street. Accessing from the north requires crossing of Main Street/OR 126.

Area 3 includes access to the McKenzie Levee shared-use path and will soon have access to a new pathway system along the Willamette River via Clearwater Lane and Clearwater Park. The path will connect to the Corry Creek Bridge, Phase II will connect to the Dorris Ranch Living History Farm.

Three schools are in the far south of this area, near bike lanes on 32nd Street, 42nd Street, and Jasper Road. All three of these roadways are minor arterials and may have too much traffic to serve schoolchildren who may wish to bike to school.

Table 10 summarizes gaps in sidewalks and bicycle facilities on arterials and collectors in Area 3. Deficiencies on Jasper Road are included in the discussion of Area 4.

TABLE 10
Gaps in the Pedestrian and Bicycle Network on Arterials and Collectors in Area 3

Location	Street Type	Description
Pedestrian		
28th Street from E Street to southern extent	Collector	Substandard and no sidewalk
Commercial Avenue	Minor Arterial and Collector	No sidewalk
35th Avenue from Commercial to Olympic Street	Collector	No sidewalk
30th Street from 35th to Main	Collector	No sidewalk
Bicycle		
28th Street from Centennial Blvd to southern extent	Collector	No bicycle facility (one route sign exists)
Commercial Avenue	Minor Arterial and Collector	No bicycle facility
35th Avenue from Commercial to Olympic Street	Collector	No bicycle facility
36th Street from Commercial to Main	Collector	No bicycle facility
30th Street from 35th to Main	Collector	No bicycle facility

4.2.4 Area 4 – East Springfield

As in the Central/East Springfield area, large parcels create significant barriers for network connectivity in East Springfield. The Weyerhaeuser and Sierra Pine property between 42nd

and 48th streets pushes all pedestrians and bicyclists south to move east or west. To access Area 4 from the west, pedestrians and bicycles must use Main Street/OR 126 or travel farther south to use Virginia/Daisy Street.

Major destinations along Thurston Road, such as the Lively Park Swim Center and Thurston Middle School, generate bicycle and pedestrian trips. Crossing of Thurston Road can be challenging for pedestrians during peak traffic periods. Thurston High School and Ridgeview Elementary School are also in close proximity to the Thurston corridor and Main Street, both of which have bike lanes and generally high travel speeds and volumes. Bike lanes on 58th Street serve the high school, while a signed bike route serves the elementary school on 66th Street.

Residents of Area 4 have access to one shared-use path along the Bob Straub Parkway.

Main Street in Area 4 has a notably poor safety record for pedestrians and bicyclists. From 1999 through 2009, nine pedestrian fatalities occurred along Main Street. Seven of the nine fatalities occurred in the section of Main Street between 42nd and 58th streets. Recent studies have shown that lighting on all of the primary intersections is below the desired standard.

Additional gaps in the pedestrian and bicycling network on arterials and collectors are shown in Table 11 for Area 4. Note that the Bob Straub Parkway is shown on Figure 12 as lacking facilities for bicyclists, however, it is not considered significant gap as the shared use path provides a separated facility.

TABLE 11
Gaps in the Pedestrian and Bicycle Network on Arterials and Collectors in Area 4

Location	Street Type	Description
Pedestrian		
48th Street from Main to High Banks Road	Collector	No sidewalk
70th Street	Collector	No sidewalk
Jasper Road from S 44th Street to southern extent	Minor Arterial and Collector	No sidewalk
Bicycle		
42nd from near Olympic Street to Marcola Road	Collector	Bike lane drops to no bicycle facility (adjacent shared use facility on McKenzie Levee)
Daisy Street from 42nd to 57th	Collector	No bicycle facility
48th Street from Main to High Banks Road	Collector	No bicycle facility
67th Street from Main Street/OR 126 to end	Collector	No bicycle facility
69th Street from Thurston Road to Bluebelle Way	Collector	No bicylce facility
70th Street from Main Street/OR 126 to Ivy Street	Collector	No bicycle facility
Jasper Road from S 42nd Street to southern extent	Minor Arterial and Collector	No bicycle facility

5 Transit System

This section summarizes the existing transit system within Springfield—bus services, park and ride locations, nonfixed route services, and ridership surveys.

5.1 Bus Service

Lane Transit District (LTD) provides public transportation services within the Eugene–Springfield area and surrounding communities. Nine bus routes serve the City of Springfield (Table 12).

TABLE 12
Lane Transit District Bus Routes in Springfield

Route No.	Route Name	Monday–Friday Schedule	Saturday Schedule	Sunday Schedule
11	Thurston	5:00 a.m. – 11:26 p.m.	6:25 a.m. – 11:26 p.m.	7:25 a.m. – 8:11 p.m.
12	Gateway	5:45 a.m. – 11:25 p.m.	6:44 a.m. – 11:27 p.m.	7:45 a.m. – 8:11 p.m.
13	Centennial	5:55 a.m. – 11:17 p.m.	6:56 a.m. – 11:17 p.m.	7:58 a.m. – 7:59 p.m.
18	Mohawk/Fairview	6:05 a.m. – 6:41 p.m.	8:10 a.m. – 9:58 p.m.	8:15 a.m. – 6:50 p.m.
19	Fairview/Mohawk	6:36 a.m. – 7:04 p.m.	9:38 a.m. – 6:13 p.m.	None
85	LCC/Springfield	6:41 a.m. – 7:13 p.m.	None	None
91	McKenzie Bridge	4:47 a.m. – 7:04 p.m.	8:30 a.m. – 5:53 p.m.	
98	Cottage Grove	5:50 a.m. – 7:55 p.m.	8:33 a.m. – 7:22 p.m.	
101	EmX Green Line	5:40 a.m. – 11:01 p.m.	7:10 a.m. – 11:01 p.m.	8:10 a.m. – 8:05 p.m.

The EmX Green line is a bus rapid transit (BRT) system that opened in January 2007. BRT provides service that is similar to light rail or streetcar service in many ways, including exclusive bus right-of-way, less frequent stops, improved stations, signal priority, level boarding, and off-board fare collection. The line runs from the LTD downtown Eugene station to the Gateway area (International Way and Sacred Heart). Buses run every 10 minutes during weekday peak travel periods. During off-peak hours and weekends, the service frequency is every 20 minutes. LTD has recently implemented a transit information text messaging service called Route Shout. Route Shout enables riders to access information about the next scheduled bus arrival time at all major bus stops.

TABLE 13
Lane Transit District Fares

Fares	Cash	Day Pass	Monthly Bus Pass	3-Month Bus Pass
Adult 19–64	$1.50	$3.00	$48	$130
Youth 6–18	$0.75	$1.50	$24	$85
EZ Access	$0.75	$1.50	$24	$85
Children (5 and under)	Free	Free	Free	Free
Honored Rider (65 and older)	Free	Free	Free	Free

Source: LTD Riders Digest 2010, www.ltd.org

LTD offers EZ Access for limited mobility, blind/low vision, and deaf/hard of hearing passengers. This includes features on LTD routes such as illuminated stop requests (for deaf/hard of hearing), audio service (for blind/low vision), ramps and lifts (for limited mobility), and much more. Passengers can also apply for Honored Rider status, which provides free travel for senior citizens or persons with a mental or physical disability.

5.2 Park and Ride Locations

There are five park and ride facility locations in Springfield, summarized in Table 14. Figure 14 illustrates the locations of these facilities.

TABLE 14
Lane Transit District Park and Ride Locations in Springfield

Park and Ride Name	Location	Number of Spaces	Lane Transit District Routes
First Baptist Church	1175 G Street	10	13, 18, 19
Springfield Station and Overflow	355 South A Street	42 (60 at overflow)	EmX, 11,12, 13, 18, 19, 85, 91
Thurston Station	Main Street at OR 126	100	11, 91
Fred Meyer	5th Street at Q Street	25	12, 18, 19
Rite Aid	2130 Marcola Road	16	13, 18, 19

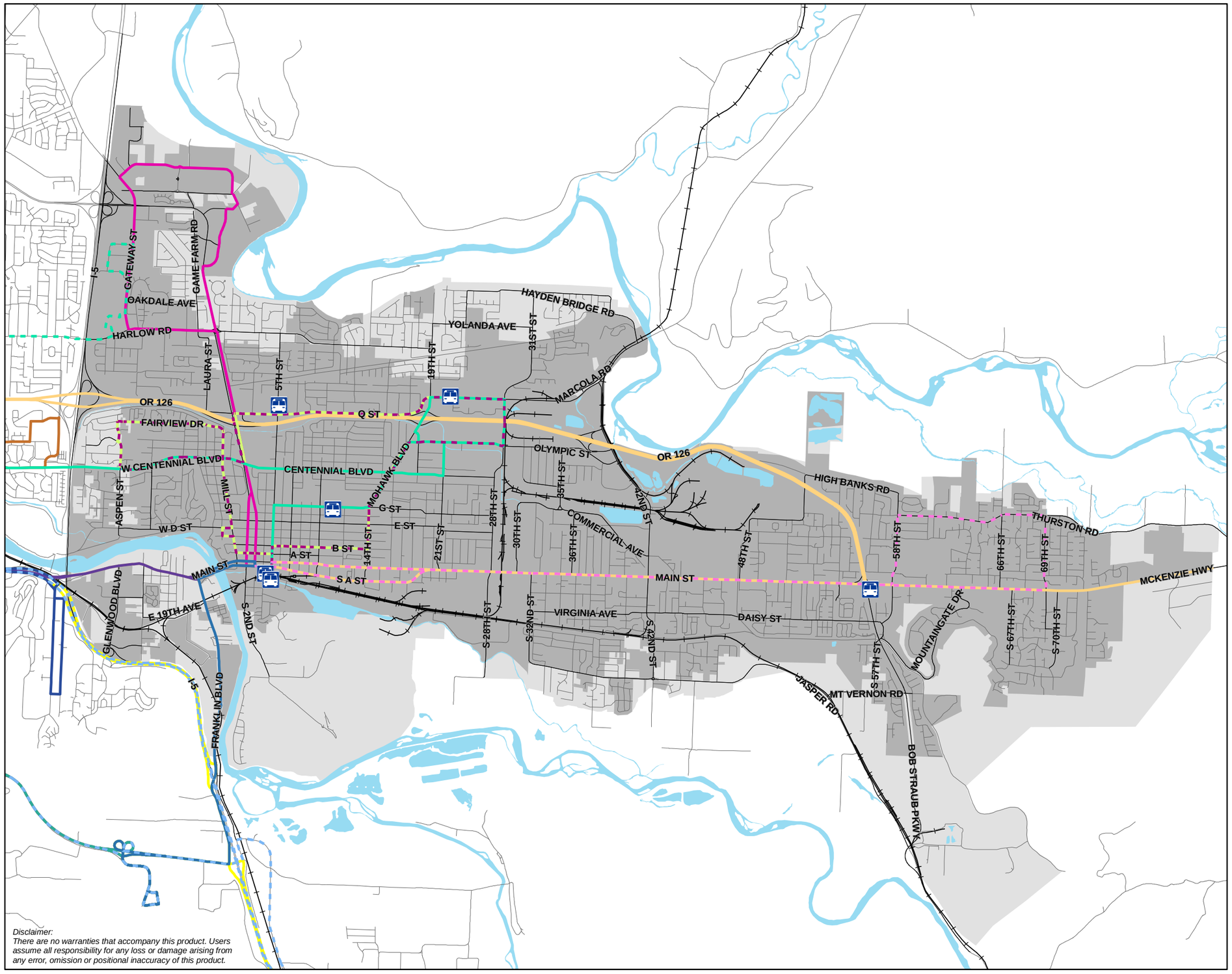
Source: http:/www.ltd.org

5.3 Non-fixed Route Services

5.3.1 RideSource

Lane Transit District operates RideSource throughout its service area, including Springfield, to provide public transportation to individuals who cannot use regular bus service due to a disability. RideSource provides curb-to-curb service, a weekly grocery shopping service called RideSource Shopper, and a door-to-door service called RideSource Escort. Most RideSource trips occur on small buses with wheelchair lifts, although some rides are provided by volunteers or taxis.

RideSource service is provided Monday–Friday 5:30 a.m. to 10:30 p.m., Saturday 7 a.m. to 10:30 p.m., and Sunday 8 a.m. to 7:30 p.m. Service is not provided on New Year's Day, Memorial Day, 4th of July, Labor Day, Thanksgiving Day, or Christmas Day. RideSource customers are required to schedule their trips at least 24 hours and up to 14 days before the trip. Return trips can be arranged at the time the ride is scheduled or on an "on-call" basis.



Disclaimer:
There are no warranties that accompany this product. Users assume all responsibility for any loss or damage arising from any error, omission or positional inaccuracy of this product.

Legend

- Park and Ride Location
- Railway
- Street
- City Limits
- Urban Growth Boundary

2010 System Service Route

- 11
- 12
- 13
- 18
- 19
- 27
- 79x
- 81
- 82
- 85
- 91
- 92
- 98
- EmX
- G-EmX

Source:
Bus Route Data - Lane Transit District, 2010
Base Map Data - City of Springfield, 2010

FIGURE 14
Bus Route / Transit Routes
Springfield TSP
Springfield, Oregon

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5.3.2 Carpool and Vanpool

Lane Transit District's Point2point Solutions provides a variety of carpool matching services to residents in the Eugene–Springfield area. The application form for these matching services is provided on the Point2point Solutions Web site. Employers can sign up as a partnering agency with Point2point Solutions for the Emergency Ride Home Program (ERHP). This program provides individuals who carpool with a method for getting home in an emergency situation. Employees of partnering agencies are signed up automatically for ERHP when they apply for carpool matching services through the Point2point Solutions Web site.

There are no vanpool providers within Springfield. Valley VanPool provides vanpool services between Eugene-Springfield, Corvallis, and Salem. The cost for this service depends on the average number of monthly miles and other costs associated with van operations, depreciation, insurance, and maintenance. Participants can register for the service on Valley VanPool's website.

5.4 Ridership Surveys

Lane Transit District conducts ridership surveys throughout its service area. Approximately 14 percent of LTD trips were within Springfield. The most recent surveys were conducted in October 2007 and are documented in the LTD 2007 Origin/Destination Study, which includes general demographic information for riders of EmX and all routes at the district level. Demographic findings for LTD riders are summarized below:

- A majority of LTD riders are young – 29 percent are 20 years old or younger and 63 percent of riders are 30 years or younger.
- A majority of riders are lower-income – 59 percent have annual household incomes equal to or less than $25,000.
- Approximately one-half of riders are students – 34 percent are students only and 21 percent are students and employed.
- Approximately one-third of riders are transit dependent - 37 percent are transit dependent and 16 percent share a vehicle with another individual in their household.

The 2007 study also evaluated ridership trends within LTD. Trips within Springfield increased from 10.0 to 14.2 percent between 2004 and 2007. Other ridership trends include:

- 21 percent of trips were between Springfield and Eugene (Springfield to Eugene 12 percent and Eugene to Springfield 9 percent).
- 26 percent of all trips originated in Springfield.
- 34 percent of EmX riders traveled between Springfield and Eugene (began their trip within one city and ended in the other city).

The 2007 study also asked riders about their satisfaction with LTD service and desired service improvements. The majority of riders were satisfied with LTD service. The overall service quality rating was 5.6 out of 7. Approximately 23 percent of riders indicated that the

service was excellent (the highest rating); this represents a slight decrease from 25 percent in 2004. EmX riders generally were more satisfied with the frequency of transit service, schedule reliability, and the speed of service than other routes. Additionally, riders noted that their most desired service improvements are increased service frequency on weekends and service later into the evening.

6 Rail, Waterways, Pipelines, and Airports

This section summarizes the rail, waterways, pipelines, and airports within Springfield.

6.1 Rail

There are two freight rail service providers in Springfield: Central Oregon & Pacific (COPR), and Union Pacific (UP). COPR provides freight service on track running east-west, located just south of Main Street on the east side of Springfield, and crossing over to slightly north of Franklin Boulevard on the west side. UP operates freight service on a north-south line to the east of I-5 that intersects with the CORP line near the OR 126/OR 225 junction. The tracks run north to the Portland metropolitan area and southeast to Oakridge, Klamath Falls, and into California. UP operates approximately 20 freight trains per day along these tracks.

Amtrak also provides passenger service through Springfield to the Eugene station in downtown Eugene. Amtrak provides intercity passenger rail service between the City of Eugene and cities north and south of the city. The Amtrak Cascades route travels from Eugene to Vancouver, Canada and the Coast Starlight route travels from Seattle to Los Angeles. Amtrak operates on the UP line.

6.2 Waterways and Pipelines

Waterways and pipelines also provide transportation opportunities in Springfield. Because the Willamette River and McKenzie River are not navigable waterways, there are no ports or navigational facilities within Springfield. These waterways are used primarily for recreational purposes, as neither river is a major stream for commercial activity. The McKenzie River is frequented by fishermen and rafters. Neither of these waterways provides direct access to the ocean.

Springfield has no major pipelines. Natural gas is available to residential and commercial sites throughout the community on a regular service-line basis.

6.3 Airports

There are no public or private airports in Springfield. The Eugene Airport at Mahlon Sweet Field (EUG), the closest airport that provides commercial service, is located near Oregon Highway 99 about 11 miles northwest of downtown Springfield.

7 Summary of Deficiencies

7.1 Operations and Safety

The operational and safety review suggests that the following issues may merit further consideration as part of the TSP process or by the City, county, and ODOT as part of ongoing maintenance and system monitoring:

- There are 31 arterial and collector street segments that the City has identified as as having the highest priority for pavement overlays. The total cost estimate for providing these overlays is approximately $21.3 million.
- The effectiveness of planned signal timing changes at the Pioneer Parkway/OR 126 eastbound ramps should be monitored to ensure that this intersection operates acceptably.
- The need for a traffic signal or other capacity improvements at the OR 126 westbound ramp termini intersection with 42nd Street should be monitored. This stop-controlled off-ramp movement is currently operating at capacity. This issue has been identified in the OR 126 EMP.
- The southbound movement at the Laura Street/Q Street intersection is operating at capacity today. Potential mitigation measures for this intersection need to be carefully considered within the context of the OR 126 westbound ramp system at Pioneer Parkway, as well as the connectivity and multimodal choices provided to travelers between Harlow Road and OR 126.
- The Pioneer Parkway/ Hayden Bridge Road intersection has experienced a high rate of crashes since its reconstruction as a roundabout in 2006. The City may wish to perform a more detailed review of the intersection geometry and operations as it considers signalizing the pedestrian crossings at this location. This assessment could also be used to help identify City design standards for future multi-lane roundabouts.
- The City is currently working with Point2point Solutions on starting a regional Safe Routes to School program. This program should prioritize the Centennial Road corridor.
- The City may wish to consider modifying the left-turn phasing at the 18th Street/ Olympic Street intersection to protected phasing, given the crash history at this location.
- The future functional classification of streets within the City will be assessed as part of the Future Conditions analyses for the TSP.
- The City and ODOT should continue to prioritize the funding and implementation of the pedestrian safety improvements identified along the Main Street corridor.

7.2 Bicycle and Pedestrian Deficiencies

Sidewalk coverage is one way to track how well a city's roadway system serves pedestrians. It can be a metric to track, over time, if or how sidewalk coverage is improving through new projects. Identified gaps in the arterial and collector sidewalk network can be used in developing projects for the future proposed pedestrian system in Springfield. The percentage of roadway miles with sidewalks is also a stated performance measure in TransPlan and is intended to be tracked over time. Overall, the City has good sidewalk coverage on arterials and collectors. However, quality and gaps should be reviewed on major routes. For example, the preferred minimum for a sidewalk width is 5 feet, but some sidewalks in the Glenwood area are narrower. In addition, sidewalk gaps on routes that provide direct access to schools, such as Yolanda Road, are notable deficiencies in the network.

Total miles of bikeway and bikeway coverage on major streets provide a method to track how well a city's primary roadway system serves bicyclists, and they can be a useful metric to track, over time, how bikeway coverage is improving through new projects. As noted earlier, just more than half of the City's arterials and collectors have some form of bikeway such as bike lanes or signed bicycle route. Additional primary roadways are served by parallel shared use paths. All signed bicycle routes should be evaluated to determine whether increased traffic on the roadways warrant bicycle lanes or other improvements. Notable gaps include a lack of facilities on Game Farm Road, sections of Harlow Road, 28th Street, 30th Street/Commercial and Jasper Road. The Glenwood area also has minimal bicycle facilities. The most significant gaps are along Franklin and Glenwood boulevards.

In general, complete facilities on the primary roadway network of arterials and collectors will only serve a portion of the total travel needs of cyclists in Springfield. Facilities on local streets with lower traffic volumes and speeds play an important role in creating a connected network for diverse cycling skill levels and travel needs. For example, less experienced cyclists and families may prefer to travel on lower volume streets and need additional accommodations at crossings and conflict points. Springfield currently has limited bicycle connectivity established on local streets.

The shared-use path system is an asset to the community for both pedestrian and bicycle travel and recreation. However, connections to and between paths could be improved Citywide. Limited wayfinding at critical points (such as from the I-5 Pedestrian and Bicycle Bridge) limits usefulness. A connection between the eastern terminus of the EWEB path and the McKenzie Levee could expand access to both paths and provide a separated facility to improve east/west travel.

Large parcels and disconnected streets in Central/East Springfield limit the network to major roadways for connecting between neighborhoods. Clear pedestrian routes that provide direct east-west connections are limited. Lack of road network connectivity and larger parcels of commercial/industrial activity, create barriers to direct access for both bicyclists and pedestrians.

The limited connectivity forces bicyclists and pedestrians to cross and travel along routes with high traffic volume and speeds, such as Main Street. These routes with high motorized traffic volume are the least desirable for pedestrian and bicyclists.

7.3 Transit Deficiencies

The LTD 2007 Origin/Destination Study surveyed riders to identify transit deficiencies. The survey found that "time buses stop running" and "comfort of waiting at the bus stop" scored the lowest among riders surveyed. According to the study, there has been an increasing demand for bus routes to run later in the evening, and the weather in the area makes sheltered stops important. Areas that scored average and could be possible improvements include "how often the bus runs on schedule," "how often the bus runs," and "speed of service." The study also surveyed riders to identify the most important service improvements. The results showed that 54 percent of riders wanted bus service to continue later into the evening, followed by 52 percent who supported more frequent weekend service.