Joplin Area Transportation Study Organization











2036 Metropolitan Transportation Plan

February 2016

Prepared by
CJW Transportation Consultants

Joplin Area Transportation Study Organization (JATSO)

2036 LONG RANGE TRANSPORTATION PLAN UPDATE

FINAL REPORT

FEBRUARY 24TH, 2016

Prepared by: CJW Transportation Consultants, LLC
CBB Transportation Engineers + Planners
Allgeier, Martin and Associates, Inc.

This study was funded by local funds and Consolidated Planning Grant (CPG) funds.

The opinions expressed in this report do not necessarily reflect those of the Federal Highway Administration, Federal Transit Administration, or Missouri Department of Transportation.

TABLE OF CONTENTS
JATSO 2036 METROPOLITAN TRANSPORTATION PLAN

Section 1 ____ ***4***

Background and Introduction ____ **4**

1.1 Purpose of Study/Introduction ____ 4
1.2 Role of Joplin Area Transportation Study Organization (JATSO) ____ 4
1.3 The Metropolitan Transportation Planning Process ____ 6
1.3.1 Public Involvement ____ 6
1.3.2 Review of Existing Documentation ____ 6
1.4 Planning Factors ____ 7
1.4.1 Demographic Trends ____ 7
1.4.2 Environmental Issues ____ 12
1.5 Plan Elements ____ 16
1.5.1 Major Transportation Issues ____ 16
1.5.2 FHWA National Goals for the Transportation System ____ 16
1.5.3 JATSO Goals and Objectives ____ 17
1.6 Plan Implementation ____ 20
1.6.1 Plan Approval Process ____ 20
1.6.2 Plan Use ____ 20

Section 2 ____ ***21***

Existing Conditions Assessment ____ **21**

2.1 Roadway Network ____ 21
2.1.1 Functional Classification ____ 21
2.1.2 Daily Traffic Counts and Level of Service ____ 23
2.1.3 Bridge/Overpass Conditions ____ 25
2.1.4 High Crash Locations ____ 29
2.2 Transit System ____ 31
2.2.1 Existing Transit and Paratransit Services ____ 31
2.2.2 Public Transit Operations ____ 33
2.2.3 Public Transit Facilities ____ 37
2.3 Non-Motorized Circulation ____ 37
2.3.1 Past Plans and Studies ____ 37
2.3.2 Existing Non-Motorized Circulation Facilities ____ 44
2.4 Aviation ____ 47
2.4.1 Past Airport Developments ____ 47
2.4.2 Existing Airport Facilities ____ 47
2.4.3 Commercial Flight Operations ____ 49
2.5 Freight ____ 49
2.5.1 Rail ____ 49
2.5.2 Trucking ____ 50
2.5.3 Industrial Parks ____ 52
2.6 Performance Based Measures ____ 54
2.6.1 Summary of Existing Measures of Performance ____ 54
2.6.2 Crash Rate ____ 54
2.6.3 Pavement Conditions ____ 55
2.6.4 Ozone Levels ____ 55

Section 3 ***57***

2036 Modal Recommendations **57**

3.1 2036 Travel Demand Model 57
3.2 Roadway Recommendations 64
3.2.1 Roadway Construction 64
3.2.2 Transportation System Management 65
3.2.3 Transportation Demand Management 66
3.3 Transit System 67
3.4 Non-Motorized Circulation 68
3.4.1 On-Road Facility Opportunities 69
3.4.2 Off-Road Facility Opportunities 71
3.5 Aviation 71
3.6 Freight 72

Section 4 ***73***

Financial Plan **73**

4.1 Funding Sources 73
4.1.1 Federal Highway Programs 73
4.1.2 Federal Transit Programs 74
4.1.3 Missouri Department of Transportation Programs 74
4.1.4 Local Funding Programs 75
4.1.5 Other Funding Programs 76
4.1.6 Total Projected Funding 2016-2036 78
4.2 Roadway Financial Plan 80
4.2.1 Roadway Improvement Project Costs 80
4.2.2 Project Evaluation and Prioritization 83
4.2.3 Fiscally-Constrained Roadway Improvement Plan 87
4.3 Transit Financial Plan 91
4.3.1 Local Funding 91
4.3.2 Community Match 91
4.3.3 State Funding 91
4.3.4 Federal Funding 91
4.4 Aviation Financial Plan 92
4.5 Non-Motorized Financial Plan 92

LIST OF APPENDICES

Appendix A – Public Input
Appendix B – Non-State Bridge Summary
Appendix C – Project Data Sheets
Appendix D – Benefit/Cost Ratio Methodology & Tabulation
Appendix E – Joplin Capital Improvement Program Summary

LIST OF TABLES

Table 1.1: Joplin Area Estimated Change in Population 8
Table 1.2: Joplin Area Projected Change in Population 8
Table 1.3: Joplin Area Estimated Change in Housing 9
Table 1.4: Joplin MSA Racial Characteristics 11
Table 2.1: Daily Volumes and Levels of Service for Urban Streets 24
Table 2.2: 2015 Traffic Volumes, Capacities, and Level of Service 25
Table 2.3: Bridge/Overpass Rating Definitions 26
Table 2.4: Bridges with Poor Ratings in the Joplin Area 29
Table 2.5: Major Area Trucking Companies 50
Table 2.6: Crash Rates within the JATSO Metropolitan planning area 54
Table 2.7: Percentage of JATSO Pavement in Good Condition 55
Table 2.8: JATSO Area Ozone Design Values 55
Table 3.1: Committed Projects in 2036 E+C Network 57
Table 3.2: 2036 E+C Forecasted Traffic Volumes and Level of Service for Selected Links 60
Table 3.3: Travel Demand Model Output: Summary of Project Comparison 65
Table 4.1: Estimated Funding Projections 79
Table 4.2: Potential Roadway Project Costs 81
Table 4.3: Potential Project Alternative Evaluation Criteria 83
Table 4.4: Comparison of Project Operation Cost Savings 85
Table 4.5: Roadway Project Benefit/Cost Analysis Summary 86
Table 4.6: Recommended Fiscally Constrained 2036 Roadway Improvement Plan 88
Table 4.7: Jurisdictional Financial Summary 89

LIST OF FIGURES

Figure 1.1: JATSO Metropolitan Planning Area 5
Figure 1.2: Joplin MSA Estimated Change in Employment 10
Figure 1.3: 2014 Average Commute Times Within Joplin MPA 11
Figure 1.4: Water Resources 14
Figure 1.5: Man-Made Resources/Features 15
Figure 2.1: Access/Mobility Relationship 21
Figure 2.2: JATSO Functional Classification Map 22
Figure 2.3: Typical Arterial Capacities 24
Figure 2.4: 2015 Base Network 27
Figure 2.5: State Bridge Ratings 28
Figure 2.6: Joplin Traffic Crash Analysis Intersections 30
Figure 2.7: Public Transit Ridership Trends over the Past Ten Years 34
Figure 2.8: Sunshine Lamp Trolley Routes 35
Figure 2.9: Current Purposes of MAPS Transit Trips 36
Figure 2.10: Current Residence of MAPS Riders of Transit 36
Figure 2.11: Freight Network 53
Figure 3.1: 2036 E+C Network 63
Figure 3.2: Paths & Trails 70

SECTION 1
BACKGROUND AND INTRODUCTION

1.1 PURPOSE OF STUDY/INTRODUCTION

A Metropolitan Transportation Plan (MTP) is a document that serves as a guide to a region regarding that region's transportation infrastructure. It presents an evaluation of the current system and that system's future needs to better accommodate the expected changes in demand for transportation services. Although the plan provides an extended outlook – at least 20 years from the present – the plan is also meant to offer strategies and actions that can be implemented in the short-term to begin to address issues as identified and as they arise. The MTP is developed alongside the Transportation Improvement Plan (TIP) and incorporates the funding information provided in the TIP.

For metropolitan areas such as Joplin, the LRTP is required to be updated no less often than every five years. Metropolitan Planning Organizations (MPOs) are setup and given the authority to update these plans by federal legislation. The LRTP was last updated and adopted by JATSO in 2010. This update, once adopted will extend the previous planning horizon from 2030 to 2036.

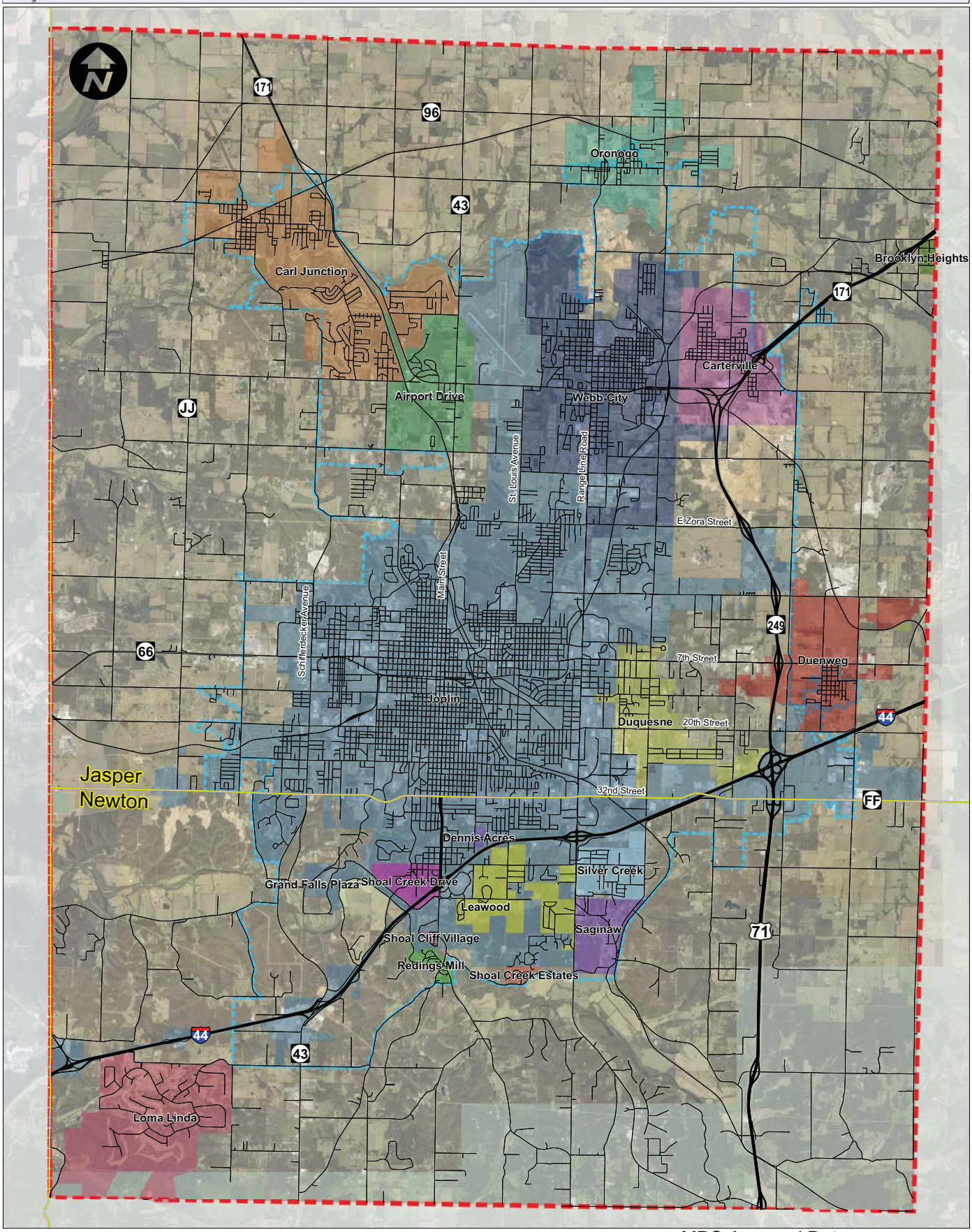
1.2 ROLE OF JOPLIN AREA TRANSPORTATION STUDY ORGANIZATION (JATSO)

The Joplin Metropolitan Planning Area (MPA) is the federally designated MPA for the Joplin metropolitan area. An MPO is required to conduct a "continuing, cooperative, and comprehensive" regional transportation planning and project programming process for the MPO's metropolitan planning area. The JATSO Metropolitan planning area is comprised of many jurisdictions; representatives from municipal, county, and state agencies meet periodically through a policy board that oversees and approves MPO actions. The various agencies represented directly by the voting members of policy board are the City of Joplin (includes MAPS and Sunshine Lamp Trolley transit and Joplin Regional Airport representation), City of Webb City, City of Carl Junction, Jasper County, Newton County, the Southwest District of the Missouri Department of Transportation, and the Harry S Truman Coordinating Council (HSTCC). HSTCC is the Regional Planning Commission that provides community planning services for a four county area in Southwest Missouri; two of those counties are Jasper and Newton. HSTCC is the representative for the smaller municipalities within the Metropolitan planning area including Airport Drive, Brooklyn Heights, Carterville, Cliff Village, Dennis Acres, Duenweg, Duquesne, Grand Falls Plaza, Leawood, Loma Linda, Oronogo, Saginaw, Shoal Creek Drive, Shoal Creek Estates, Silver Creek, and Redings Mill. The Metropolitan planning area including jurisdictional boundaries is shown on ***Figure 1.1***. The blue line represents the existing urbanized area boundary which is defined by the United States Census Bureau as, "50,000 or more people." JATSO is also required to develop transportation plans that include areas that are not currently urbanized, but can be expected to urbanize over the next 20 years. This 20-year area boundary directly corresponds to the extent of the JATSO Metropolitan planning area jurisdiction and is represented by the red line.

As part of the approval process for the MPA, the JATSO and the Missouri Governor must approve it. The MPA was approved by Missouri Governor Christopher Bond on May 20th, 1983.

Joplin Area Transportation Study Organization

Long Range Transportation Plan



MPO Approval Date: Nov 12, 2009

September 2015

CJW

Metropolitan Planning Area

JATSO Boundary

Urbanized Area

Figure 1.1

1.3 THE METROPOLITAN TRANSPORTATION PLANNING PROCESS

The development of the 2036 JATSO Metropolitan Transportation Plan was a joint undertaking of transportation stakeholders in the area, the general public, technical consultants, and community leaders within the JATSO Metropolitan planning area.

1.3.1 PUBLIC INVOLVEMENT

A series of public meetings were held that were advertised through public announcements, utilization of websites, and personal invitations to identified parties. Six of the meetings had a focus topic for specific groups of community stakeholders; however, anyone was welcome to participate in open discussion at each meeting. The six stakeholder input meetings were grouped as follows: emergency responders and social service agencies; educational institutions; transit providers and bicycle interest groups; freight haulers; commercial/employment/TIF districts; and municipal leaders, staff and representatives. After these focused meetings, an open public meeting was held to gather input in a more relaxed open house format. The meeting times, locations and number of attendees is listed below.

Meeting Format	Date/Time	# of Attendees	Location
Emergency Responders and Social Serve Agencies	8:30am August 11, 2015	Nine	Joplin City Hall
Education Institutions	10:30am August 11, 2015	Nine	Joplin City Hall
Transit Providers and Bicycle Interest Groups	1:30pm August 11, 2015	Nine	Joplin City Hall
Freight Haulers	8:30am August 12, 2015	Six	Joplin City Hall
Commercial/Employment/TIF Districts	10:30am August 12, 2015	Seven	Joplin City Hall
Municipal Leaders, Staff & Representatives	1:30pm August 12, 2015	Twelve	Joplin City Hall
General Public Meeting	3pm - 8pm August 18, 2015	Twenty-Seven	Joplin City Hall

In addition to public meetings, public involvement was also provided through other means. Email and phone contacts were made available as well as an area on the JATSO website where pertinent information was posted and documents were displayed. JATSO residents submitted comments via email, survey and at public meetings. Documents were made available on JATSO's website at www.JATSO.net. Public comments collected during this process are available in **Appendix A**.

1.3.2 REVIEW OF EXISTING DOCUMENTATION

A Metropolitan Transportation Plan, much like other planning documents, does not exist in isolation. It incorporates and builds upon the concepts and recommendations from ongoing and previous planning efforts and documentation. With help from JATSO policy board members and staff, a consultant team reviewed and assessed existing plans and studies in order to better understand the context in which this LRTP exists. CJW Transportation Consultants performed a review of the existing documents. The following is a partial list of documents that were reviewed and helped to guide the LRTP process.

- JATSO 2030 Long Range Transportation Plan (LRTP)
- FY 2014-2017 Transportation Improvement Program and amendments

- City of Joplin, Missouri – Comprehensive Plan, 2012 Update
- City of Joplin, Missouri – 2007 Regional Origin and Destination Survey
- HSTCC Regional Transportation Plan, 2009-2013
- JATSO Bicycle and Pedestrian Transportation Plan – Phase I & II, 2009-2013
- HSTCC Public Transit – Human Services Transportation Coordination Plan, 2012
- Joplin Regional Airport Master Plan, 2014 Update
- City of Joplin – Capital Improvement Project program
- Webb City, Missouri – Comprehensive Plan, 2015 Draft
- City of Carl Junction, Missouri – Transportation Plan, 2009
- Carl Junction, Missouri – Comprehensive Plan, 2011 Update
- Joplin West Corridor, Purpose and Need Study, October 2009
- City of Joplin Traffic Signal System Assessment, 2008
- City of Joplin – Intersection Traffic Crash Analysis, July 2010
- Missouri Statewide Bicycle Map, 2004
- City of Joplin, Missouri – Citizens Park Master Plan
- I-44, Purpose and Need Study, November 2008
- South Joplin Area Transportation Study, July 2013
- "On the Move," A Vision for Missouri's Transportation Future, 2014

1.4 PLANNING FACTORS

1.4.1 DEMOGRAPHIC TRENDS

In order to plan for future transportation needs, an understanding of the existing characteristics of the community and an idea of what is changing about those characteristics is necessary. The JATSO Metropolitan planning area is located entirely within the Joplin Metropolitan Statistical Area (MSA), which is comprised of Jasper and Newton Counties in Missouri.

In 2011, an F5 tornado touched down on the western side of Joplin and moved east through the city. It is estimated that the tornado destroyed approximately 7,500 residential dwellings, 5,000 businesses and 9,000 vehicles. 5,000 employees were impacted, 9,000 people were displaced and 17,000 people were affected. The tornado created approximately 3 million cubic yards of residential debris. In general, numerous government resources were lost including vehicles, parks, trolley shelters, lights, signs, communication antennas, traffic signals and a senior citizen center.

Both the Joplin MSA and the JATSO Metropolitan planning area have not changed since the 2010 census. While the boundaries of Jasper and Newton Counties are fixed, the municipalities within are continually annexing more land and development into their respective jurisdictions. The relative fluidity of jurisdictions needs to be acknowledged when comparing demographic and other data from year to year.

As can be seen from ***Table 1.1***, the Joplin MSA has experienced an estimated 0.4% growth between the years 2010 and 2014.

Table 1.1: Joplin Area Estimated Change in Population

Jurisdictional Area*	2010 Census Population	2014 Estimate Population	Net Change in Population	% Change in Population
Joplin MSA	**175,518**	**176,141**	**+623**	**+0.4%**
Jasper County (entire county)	117,404	117,543	139	0.1%
Newton County (entire county)	58,114	58,598	484	0.8%
City of Joplin	50,777	51,789	1,012	0.02%
City of Webb City	10,996	10,989	-7	-0.1%
City of Carl Junction	7,445	7,551	106	1.4%
other MPO municipalities	10,450	10,417	-33	-0.3%
Carthage (non-MPO community)	14,378	14,232	-146	-1.0%
Neosho (non-MPO community)	11,835	12,157	322	2.7%

* Population represents total population within jurisdictional boundaries regardless of JATSO boundary overlap.
Source: U.S. Census Bureau and Joplin Area Chamber of Commerce

The population dropped as a result of the 2011 tornado, but has been steadily increasing ever since. Most of the growth over the years has occurred within the JATSO Metropolitan planning area communities. Also, this growth has been more prevalent in Jasper County than Newton County. Although JATSO encompasses a portion of both counties, the majority of the population and land area of JATSO is within Jasper County. This trend can be expected to continue as can be seen in ***Table 1.2***. According to the Missouri Division of Budget and Planning, Jasper County will continue to see the majority of growth in the area, but both counties together will outpace the average population growth projected through 2036 for the entire State of Missouri, which is expected to be close to twenty percent.

Table 1.2: Joplin Area Projected Change in Population

Jurisdictional Area*	Population		Net Change in Population	% Change in Population
	2010 Census	2035 Projection		
Jasper County	117,404	152,528	35,124	29.9%
Newton County	58,114	66,111	7,997	13.8%
Joplin MSA	**175,518**	**218,639**	**43,121**	**24.6%**

Source: U.S. Census Bureau & Missouri Division of Budget and Planning

Just as population has increased and is expected to continue to increase, the number of housing units continues to rise. To keep up with the expected population demand, housing in the Joplin area will need to outpace the growth of housing in other areas. How and where this housing need is accommodated will affect nearly all aspects of the transportation system. ***Table 1.3*** shows the increase in housing in the Joplin MSA as well as the county components of that change. Once more, Jasper County shows an advantage in both number of units and percent change.

Table 1.3: Joplin Area Estimated Change in Housing

Jurisdictional Area*	Number of Housing Units			Net Change in Housing	% Change in Housing
	2010 Census	2013 Estimate	2014 Estimate		
Joplin MSA	**74,981**	**74,959**	**-**	**-22**	**-0.03%**
Jasper County (entire county)	50,668	-	51,307	639	1.30%
Newton County (entire county)	24,313	-	24,333	20	0.08%

Source: U.S. Census Bureau

The City of Joplin has the largest population in the JATSO area. Thus, the population of Joplin can influence the trends on a regional level if it is significantly impacted. Joplin has seen varying levels of growth in the past five years, but the population was impacted by the 2011 tornado. It is expected that greater trends of growth will emerge in the next five to ten years, but is not indicated in the most recent data, possibly due in part to population fluctuations caused by the tornado.

Historically, the region has experienced extensive growth due to the Joplin area's enriched mineral resources and the resulting economies that sprung up to support the mining. Today, the Joplin area is still the economic center of the southwest Missouri region. According to the Missouri Department of Economic Development, the larger employers entail the healthcare and social service industries, construction trades and manufacturers, retailers and general service providers, transportation and logistics, and educational institutions. In the Joplin MSA, generally one quarter to one third of the employment is in Newton County, and the remaining two thirds to three quarters of the employment is in Jasper County. Furthermore, half of all of the employment is within the city limits of Joplin. ***Figure 1.2*** shows the past ten years of employment estimates for the Joplin MSA. Even with the fluctuations due to the national economy, an estimated three percent gain has been experienced during this decade. The areas of employment growth will most likely occur along corridors that provide good connections within and around the Joplin area. These locations may include existing and proposed businesses and industrial parks, remediated former mining areas, and opportunity infills along established roadways.

The following employment data was provided by the Joplin Area Chamber of Commerce. This data deviates from former employment statistics as reported in the 2030 Long Range Transportation Plan. The primary reason for this change is the difference in the data source. As illustrated by the figure below, there is a decline in employment around the 2010-2011 time period. The majority of this decline is most likely due to the effects of the tornado in 2011. However, the following years have seen a steady increase in employment before the jump in 2015. This suggests that the City of Joplin is returning to its former employment levels.

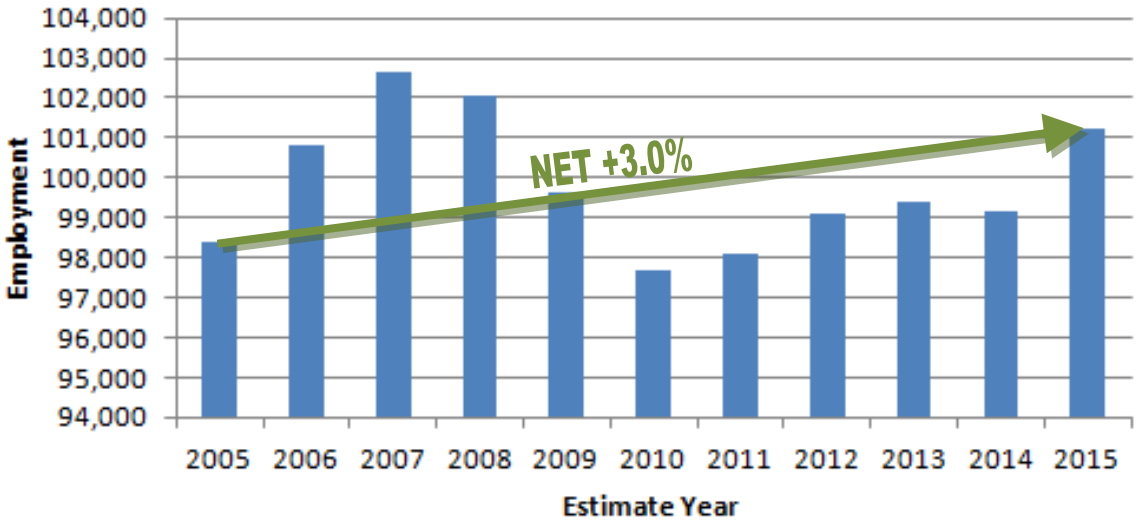


Figure 1.2: Joplin MSA Estimated Change in Employment

Source: Joplin Area Chamber of Commerce

Joplin is located at the center of the MSA and with its strategic location, planning for future development is a vital undertaking in the effort to pursue the regional growth. The Joplin Regional Partnership, a regional economic development organization lists nine (9) industries that do business in the Joplin region. They are logistics, manufacturing, food & beverage, automotive, office services, plastics, energy, technology and tourism. These industries are on the rise and will continue to be considered with respect to regional planning.

The importance of the Joplin area to regional employment and overall economy is evidenced by the large amount of commuting that occurs on a daily basis. The *Regional Origin and Destination Survey* conducted in 2007 revealed that 100,000 additional people travel into the Joplin area for local trips on a typical day. This area was estimated to have a population of approximately 75,000 in 2000. The survey also revealed that the destinations that generated the most trips were predominantly within the city limits of Joplin, which currently has approximately 50,000 residents. These top ten destinations included:

- Northpark Mall
- St. John's Regional Medical Center (No longer in service)
- Missouri Southern State University
- Freeman Health System
- Walmart (South Range Line Road)
- East 32nd Street area
- Range Line Road
- John Q. Hammons Convention Center area
- Southwest Joplin
- Walmart (West 7th Street)

As a result, the City of Joplin's daytime population can be more than triple the resident population, and the current JATSO Metropolitan planning area's population swells to approximately 200,000. None of this includes the population that only passes through the Joplin area without stopping on a daily basis.

Daily, more than 30,000 people travel through the Joplin area without stopping. This study, though several years old, still paints a vivid picture of regional patterns. According to the study, the average travel time to work for JATSO residents was approximately 17 minutes in 2007. While it is desirable that commute times remain low, it is a hard statistic to target for reduction. **Figure 1.3** illustrates the number of commuters and their corresponding commute times as of 2013 according to the U.S. Census Bureau.

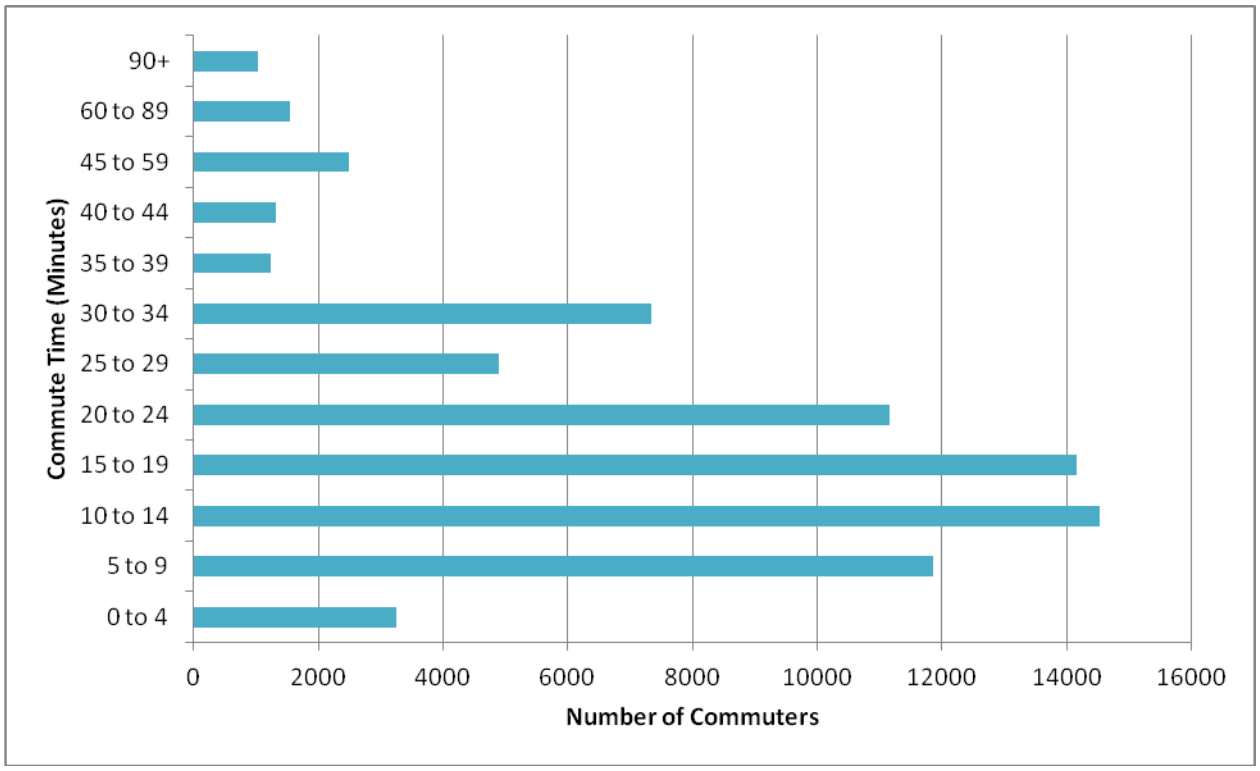


Figure 1.3: 2014 Average Commute Times Within Joplin MPA

Table 1.4 shows the 2013 racial characteristics of the Joplin MSA.

Table 1.4: Joplin MSA Racial Characteristics

	2010 Census Population	2013 Estimate Population	Net Change in Population	% Change in Population
Joplin MSA	**175,518**	**175,355**	**-163**	**-0.1%**
White, not Hispanic	155,510	159,399	3,889	2.5%
Hispanic	10,564	10,884	320	3.0%
Black	2,705	2,876	171	6.3%
American Indian & Alaskan Native	3,117	3,060	-57	-1.8%
Asian	1,937	1,863	-74	-3.8%
Native Hawaiian & other Pacific Islander	800	842	42	5.3%
Two or more races	5,522	5,144	-378	-6.8%

Source: U.S. Census Bureau, prepared by Missouri Census Data Center

1.4.2 Environmental Issues

There are several issues that arise when trying to accommodate the transportation needs of a growing and changing population. While trying to fulfill the society's desire to move goods and people, transportation planners must weigh the other effects that result from the existing and proposed transportation network. Poorly planned transportation networks can result in adverse effects to various elements of the environment, both natural and manmade, and even human populations themselves.

Environmental justice is an ideal that tries to ensure that certain populations, or segments of populations, are not disproportionally effected in a negative way by the actions of others. Federally funded plans and projects are required to follow this ideal and, as a result, the LRTP must not discriminate against or otherwise encourage any adverse effect on minority, low-income, disabled, elderly, and/or youth populations. The burdens and benefits of transportation projects must be balanced between the general population and those traditionally underserved by the transportation network and in the planning and programming process.

Another environmental aspect that can be affected by the transportation network is the natural environment. All types of natural features including bodies of water, delicate ecosystems, and individual species, can be adversely affected. Sometimes, impaired environmental resources such as polluted wells, poor air quality, and soil contamination can negatively affect human populations.

Air quality is of particular interest to transportation planning because cars and light trucks produce approximately one-third of the emissions that lead to the formation of ground-level ozone, a pollutant that periodically exceeds federal standards in the summer. Ozone is known to damage plants, including agricultural crops, and there is increasing scientific evidence linking urban air pollution to asthma and other respiratory problems in both children and adults. Because motor vehicles can affect both the environment and public health, one of the primary objectives of regional transportation planning must be to minimize emissions from mobile sources. Fortunately, the Joplin area currently complies with all national air quality standards.

Air Quality is a primary concern for the Four States Clean Air Alliance, which was formed in cooperation with both JATSO and the Environmental Task Force of Jasper and Newton Counties (ETF). The Alliance works to create policy in their voluntary Clean Air Action Plan (CAAP) that helps to reduce air quality issues in the participating areas.

In 2013, the Environmental Protection Agency (EPA) created the Advance Program as a way to help create collaboration and cooperation between the EPA and states, tribes and local governments. The program is currently divided into the PM Advance and Ozone Advance. PM Advance focuses on goals that reduce particulate matter (PM) while Ozone Advance works to promote Ozone reduction. Agencies can sign up to participate and work to reduce Ozone and/or Particulate Matter in their region. Once participation is initiated, the EPA recommends that an area commit to the program for a 5-year term, with an option to renew. Each area will create a document called a "path forward." At this time, JATSO is not participating in the program.

Certainly, some degradation of natural resources can be avoided by implementing a well-planned transportation network. While not every feature can be identified at the LRTP stage, ***Figure 1.4*** illustrates the vast amount of water resources in the Joplin area that can be impacted if not properly

protected. As recommended programs and projects continue along in the implementation process, a more in-depth impact assessment will be required to sufficiently identify and mitigate environmental issues for individual projects.

Similarly, there are manmade features that need to be considered when planning transportation enhancements. Some are merely cultural resources that need to be protected, such as schools, cemeteries, and other kinds of public facilities. Other manmade features, such as Superfund and other hazardous sites, need to be considered for other reasons entirely. These sites pose some different kinds of challenges when considering development patterns and environmental mitigation techniques. ***Figure 1.5*** illustrates just a fraction of the manmade features in the Joplin area that need to be considered during the transportation planning process, and just as with natural resources, a more in-depth assessment would be required with any individual project to properly evaluate these types of environmental issues.

After environmental features have been identified, there are some safeguards in place that allow for the mitigation of adverse effects due to the transportation network. Some of the processes are described below:

Water Quality: Stormwater management guidelines and the employment of best management practices have been implemented to both improve water quality and protect against flooding downstream of transportation and construction projects.

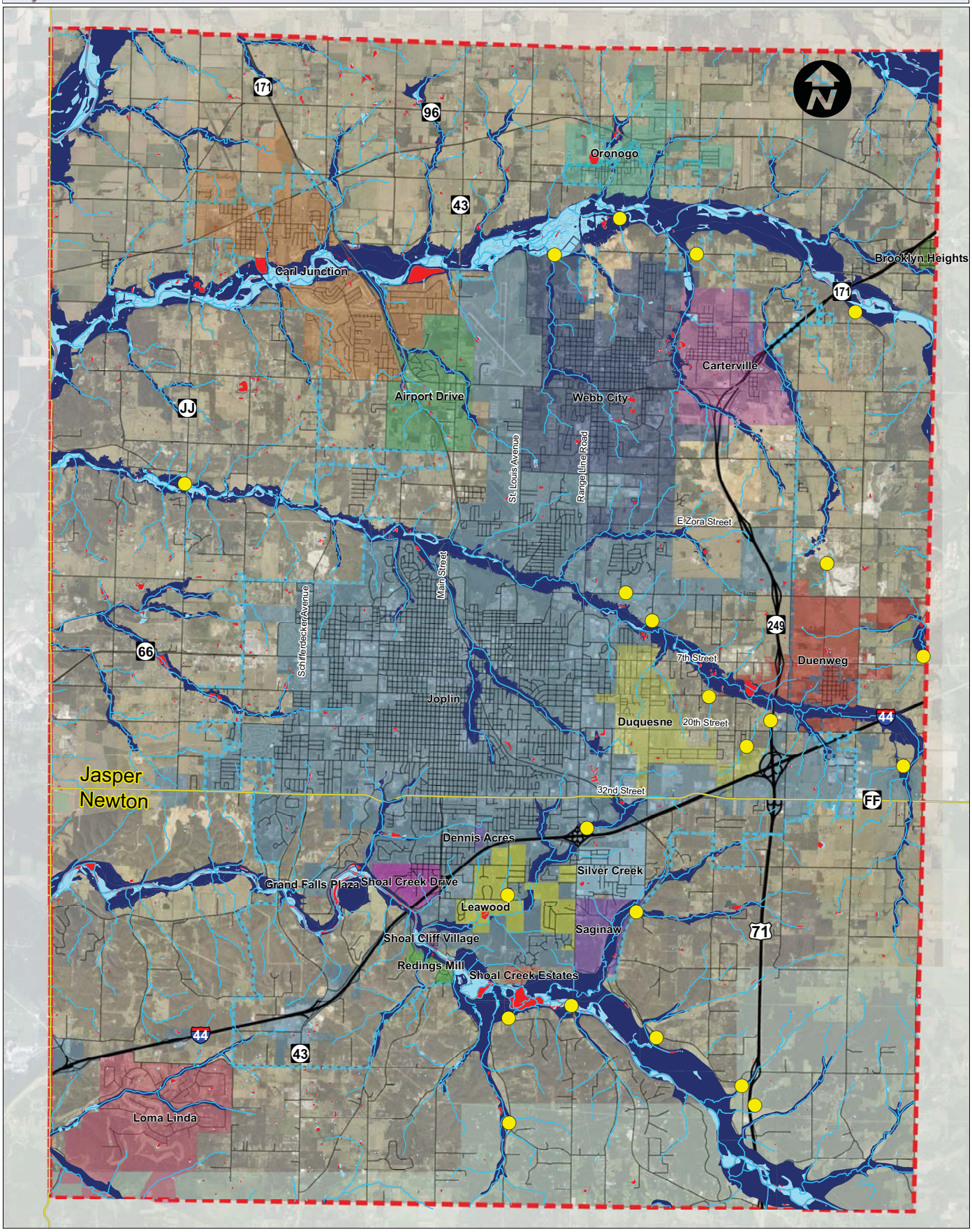
Floodplain Management: Through stormwater management guidelines and flood zoning overlays, floodplain management is regulated and flooding due to increased impervious are is mitigated.

Steep Slopes: Steep slopes are regulated through the City of Joplin's engineering specifications and through the 2012 International Building Code. The preservation of slopes is important to prevent erosion and degradation of water quality, loss of topsoil, changes in natural topography and drainage patterns, and further fragmentation of forest and habitat areas.

Historic Structures: The State Historic Preservation Office within the Missouri Department of Natural Resources protects historic sites and structures by requiring the approval of a Section 106 form prior to the construction of a federally or state funded transportation project. The City of Joplin and Webb City have adopted local ordinances to protect designated historic structures.

Joplin Area Transportation Study Organization

Long Range Transportation Plan



September 2015

CJW

Water Resources

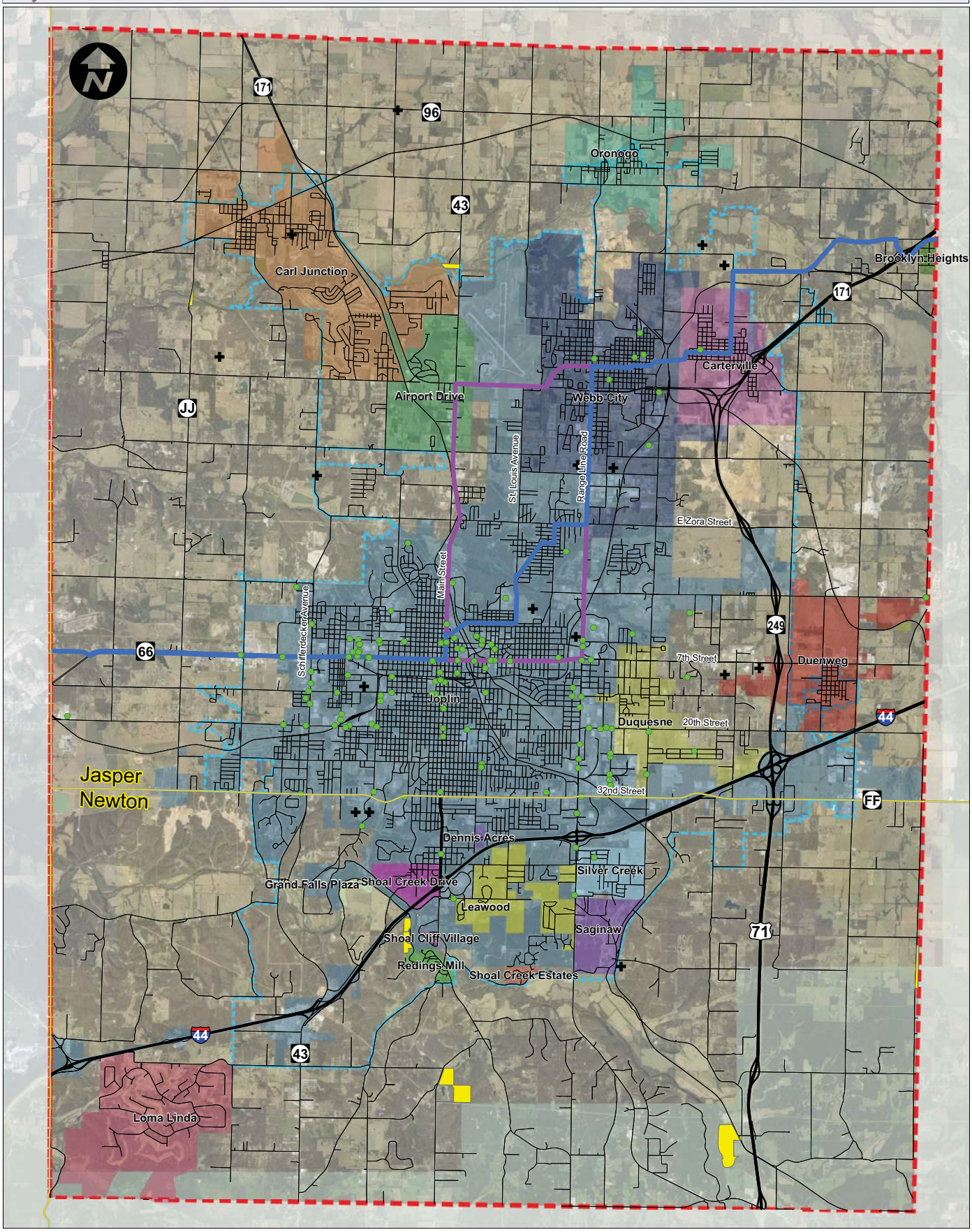
Figure 1.4

JATSO Boundary
Spring River Basin Springs Seeps
Spring River Basin Streams

Spring River Basin Lakes
National Wetlands
100 Year Floodplain

Joplin Area Transportation Study Organization

Long Range Transportation Plan



September 2015

CJW

Man-Made Resources

Figure 1.5

- JATSO Boundary
- Route 66
- Route 66 Alternate
- Cemeteries
- Hazard
- Missouri Department of Conservation

1.5 PLAN ELEMENTS

A Metropolitan Transportation Plan addresses all transportation modes, including automobile, public transit, rail, aviation, bicycle, pedestrian, and the movement of freight. Major plan elements include the following:

- Regional transportation goals, objectives, and policies
- Identification of future needs and priorities for transportation modes
- Identification of federal, state and local revenue sources
- Identification of estimated and anticipated available revenue and rates of revenue growth over the MTP horizon period
- Identification of projects to be awarded over the MTP horizon period
- Estimate of conceptual costs for identified transportation improvements to provide for a fiscally-constrained plan based upon identified goals and priorities
- Identification of designated performance measures for the region
- Background and supporting data

1.5.1 MAJOR TRANSPORTATION ISSUES

As a changing community, the Joplin metropolitan area faces many transportation challenges. Through the planning process, many concerns, desires, ideas, and issues were brought forth for consideration. The following represents a synthesis of the major transportation issues determined through this study:

- Accessibility to metropolitan employment centers, commercial areas, recreational areas, and other amenities.
- Maintaining mobility along Range Line Road, I-44, Route 171 and other important regional corridors.
- Enhancing transit options by continuing to improve the existing transit and paratransit systems.
- Ensuring safe and convenient pedestrian connections throughout the metropolitan area.
- Providing enhanced sidewalk connectivity.
- Balancing land use, transportation, and environmental objectives.
- Considering maintenance implications of future improvements.

1.5.2 FHWA NATIONAL GOALS FOR THE TRANSPORTATION SYSTEM

In association with the "Moving Ahead for Progress in the 21st Century Act" (MAP-21), signed into law in 2012, the Federal Highway Administration requires that MPOs track quantifiable elements within their planning regions in order to not only document performance based measures, but also to help in the prioritization process to plan for future improvements; a set of JATSO performance measures are further identified later in this document.

The FHWA has developed a set of seven (7) national goals for the transportation system that each performance-based approach should support. The National Goals for the Federal-aid Highway program are as follows:

1. **Safety** – To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.

2. **Infrastructure Condition** – To maintain in the highway infrastructure asset system in a state of good repair.

3. **Congestion Reduction** – To achieve a significant reduction in congestion on the National Highway System

4. **System Reliability** – To improve the efficiency of the surface transportation system.

5. **Freight Movement and Economic Vitality** – To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development

6. **Environmental Sustainability** – To enhance the performance of the transportation system while protecting and enhancing the natural environment.

7. **Reduced Project Delivery Delays** – To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

In order to conform to these goals, JATSO will track the performance measures as specified in Section 2.6 to align the MPO with these goals and the goals for the region.

1.5.3 JATSO GOALS AND OBJECTIVES

The goals and objectives are intended to reflect local and regional values outlined in previous and ongoing planning efforts as well as the dialogue resulting from the LRTP process. In addition, goals and objectives provide an objective basis to measure the effectiveness of LRTP recommendations over time. These goals and objectives were developed as part of public outreach process. They were reviewed and updated with JATSO input. These goals are separate from the seven (7) goals outlined by the FHWA, but each planning organization must develop goals for their agencies and their specific areas.

Goals are the broad aspirations that the public have determined are most important for the Joplin area to achieve. Goals should:

- establish priorities for public and private discussion and consideration;
- identify needed public improvements and services; and
- provide benchmarks for public investment.

Objectives are stated purposes within the broader goal. Each objective relates to a goal and represents a more specific purpose. Objectives should:

- be sufficiently quantifiable to gauge the appropriateness of development applications;
- have a general timeframe; and
- be understood by both the decision-makers and the general community.

Together, goals and objectives serve as the basis for development of the LRTP recommendations and policies. These goals, decided upon with JATSO input, were discussed thoroughly in conjunction with public input before final acceptance into the LRTP. As part of the LRTP, the following eight goals were identified:

Goal I: Provide for the development of a transportation system that is supported by and complements land development and enhances community development.
Objectives:

- Maintain and review standards for site development to foster well-planned development.
- Preserve right-of-way for future arterial alignments.
- Preserve the hierarchy of streets within the Joplin area and control driveway access on minor and principal arterials.

Goal II: Provide for the development and maintenance of an efficient and safer transportation system for the movement of people and goods.
Objectives:

- Increase safety by routinely identifying and addressing potential safety hazards and locations.
- Maintain the existing transportation system.
- Utilize transportation system management strategies which address access management to increase the efficiency of traffic signals and intersection operation.

Goal III: Be aware of and able to adapt to technological and federal transportation policy changes.
Objectives:

- Invest in transportation technology.
- Apply emerging and new transportation policies from state and/or Federal levels.

Goal IV: Provide for a balanced transportation system that provides a choice of travel modes for different individuals and activities.
Objectives:

- Continue to examine and secure funding for alternative transportation modes along businesses arterials such as bike paths, linear parks, trails, and public transit.
- Continue to create a system of bicycle routes and trails that provide connectivity between major destinations in the metro area and that are maintainable.
- Improve public transportation in the JATSO metropolitan planning area by:
    - Continuing to obtain local and state funding for improved transit services.
    - Utilizing the knowledge, expertise and equipment of current service provider in the improved system.
    - Identifying transit needs and providing a plan for areas to be served by improved public transportation.

Goal V: Develop transportation improvement projects consistent with budget restraints.
Objectives:

- Utilize all potential funding sources for various improvements.

- Provide additional traffic capacity through low cost improvements such as coordinated signalization and parking restrictions.

Goal VI: Provide a transportation system that enhances the economic vitality in the Joplin metropolitan planning area.
Objectives:

- Continue to improve signage on regional routes to capture through traffic for local business.
- Improve streetscape elements in downtown areas and main streets.
- Improve infrastructure and accessibility to industrial parks.
- Provide infrastructure support for freight facilities to include transfer stations between modes.
- Continue to support development consistent with local zoning and land use policy.
- Support airport development by providing an adequate landside infrastructure to support existing and future needs.
- Support freight movement by providing an adequate infrastructure to support existing and future needs.

Goal VII: Provide a transportation system that addresses the needs of persons without access to automobiles, including persons of low income or persons with disabilities.
Objectives:

- Meet the transportation needs of the elderly population.
- Explore transportation mobility opportunities for youth.
- Meet the transportation needs of the disabled.

Goal VIII: Maintain low environmental impact from the transportation system within the Joplin metropolitan planning area.
Objectives:

- Maintain the Joplin area's air quality standards and encourage methods to reduce emissions.
- Minimize the impact of noise from arterials and freeways by incorporating noise-reducing design.
- Minimize construction of transportation facilitates in environmentally sensitive areas or mitigate transportation impacts of projects through areas of environmental concern.

Goal IX: Develop a future transportation system that encourages energy conservation.
Objectives:

- Support development of high occupancy modes such as public transit, and encourage carpools and vanpools.
- Encourage pedestrian travel by incorporating pedestrian elements into transportation projects.
- Develop street network to provide direct travel between origins and destinations.
- Utilize transportation system management improvements, such as interconnected signals to reduce vehicle delays and energy consumption.

1.6 PLAN IMPLEMENTATION

1.6.1 PLAN APPROVAL PROCESS

The MPA goals, objectives, policies, and recommended actions were all created as a result of an inclusive public process. The approval process for the update included a review by local, state, and Federal agencies including the Missouri Department of Transportation (MoDOT), Federal Highway Administration (FHWA), and the Federal Transit Administration (FTA).

1.6.2 PLAN USE

The LRTP should be consulted by elected and appointed officials when considering development proposals, working on intergovernmental issues, outlining work programs, preparing annual budgets, and reviewing progress toward meeting identified goals. The LRTP provides supporting documentation for pursuing grants for community development activities.

The LRTP is intended to provide guidance for the regional programs and plans based on potential projects identified. This includes providing guidance for projects to program in future Transportation Improvement Plans, which is the allocation of funding resources to the area's projects.

The LRTP should also be used as a resource for residents, property owners, and developers. The document should be reviewed annually and revised as specific actions are achieved and new strategies are identified. LRTP goals should also be reviewed periodically when new circumstances or changing conditions warrant reconsideration.

SECTION 2
EXISTING CONDITIONS ASSESSMENT

There are several modes of transportation that are represented in the Joplin area. An assessment of existing conditions is necessary to establish a starting point upon which assumptions can be built. One of the single largest investments in a community is its transportation infrastructure, and the Joplin area is no different. This assessment begins the process of knowing where and what assets in which to continue to invest. Key assets of the transportation network are not limited to roadways and bridges, but also include the public transit system, bicycle and pedestrian system, aviation system, and freight infrastructure.

2.1 ROADWAY NETWORK

2.1.1 FUNCTIONAL CLASSIFICATION

A roadway network serves the flow of traffic and provides access and connectivity between communities, industries, businesses, major retail centers, and recreational areas. A good roadway network can carry traffic through an area efficiently and provide for access to local land uses. Each street by design provides a level of access to the adjacent properties and a level of traffic mobility. However, access and mobility are competing functions – as one increases, the other decreases. So roadway classifications are developed to define the relative mobility and access, and therefore, role of each street. ***Figure 2.1*** shows the relationship between access, mobility, and the overall function of a roadway.

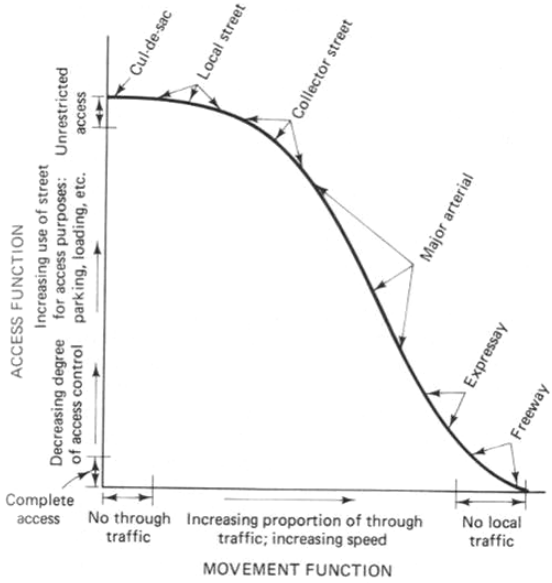
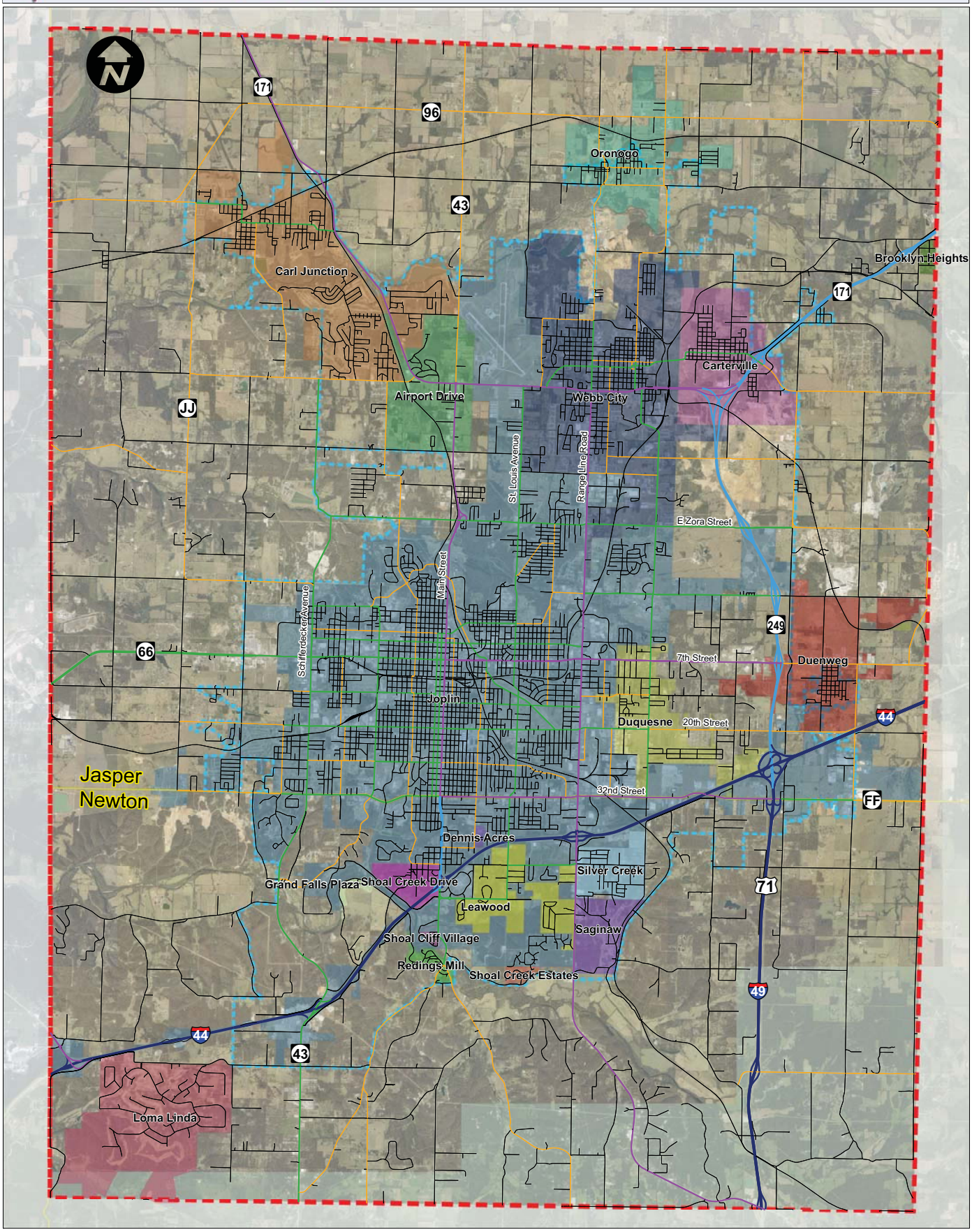


Figure 2.1: Access/Mobility Relationship
Source: Transportation Planning Handbook, ITE (2nd Edition)

As can be seen in ***Figure 2.2***, there are four basic roadway classes in the Joplin area: freeways/expressways, arterials, collectors, and local streets. Freeways and expressways provide very

Joplin Area Transportation Study Organization
Long Range Transportation Plan



September 2015

CJW

Functional Classification

Figure 2.2

- INTERSTATE
- FREEWAY
- PRINCIPAL ARTERIAL
- MINOR ARTERIAL
- LOCAL
- COLLECTOR
- JATSO Boundary

high mobility but very limited access. Arterials have high traffic mobility but low access to adjacent lands. Conversely, local streets have the lowest mobility but allow frequent access to adjacent properties. Collector routes connect arterials and local streets together. Other criteria are also used to distinguish roadway classification such as design speed, operational standards, travel distance, and traffic volumes. By using these criteria, specific roadway classifications can be defined.

Freeways/Expressways: Roadways providing the highest traffic mobility. Access to adjacent land is carefully controlled and limited along freeways and expressways. Freeways typically serve the largest amounts of traffic for long trips and operate at high speeds. Freeways provide limited access to other roadways through the use of grade-separated interchanges but usually provide no direct access to adjacent land uses. Freeways typically include Interstate highways and some other major highways. Expressways usually flow through an urbanized area and connect to major destinations, other cities, and other major highways. Dedicated and auxiliary lanes, medians, and limited at-grade intersections are used on expressways to minimize interference to through traffic movement.

Principal and Minor Arterials: Roadways with an intermediate range of traffic mobility and access that serve moderate levels of traffic volumes, trip lengths, and operating speeds. Arterials link traffic between freeways/expressways and collectors. Access to adjacent properties is usually limited only to consolidated, shared, or larger-scale land uses. Principal arterials typically provide connections between adjacent communities and activity centers. Minor arterials interconnect with and augment the principal arterial system and serve trips of moderate length at a slightly lower level of traffic mobility than do principal arterials. The use of auxiliary lanes is desirable to preserve the traffic mobility on the roadway.

Collectors: Roadways with a low range of traffic mobility that provide more access to adjacent land uses than arterials and serve lower levels of traffic volumes, shorter trip lengths, and lower operating speeds. Collectors usually allow only two lanes of traffic but are typically wide enough to permit on-street parking. Turn lanes are desirable on collectors adjacent to larger developments and at intersections with arterial streets.

Local Streets: Roadways with the lowest range of traffic mobility and traffic volumes. Trip lengths on local streets are short and at slow operating speeds. Local streets provide immediate traffic access to and from abutting properties at the expense of the mobility of through traffic. Local streets usually provide curbs, gutters, and enclosed drainage. Local streets connect blocks within a neighborhood and connect to collector streets.

2.1.2 Daily Traffic Counts and Level of Service

Roadway capacities and levels of service vary as changes in land uses and travel demand are made. To evaluate the operation of roadways in the Metropolitan planning area, two measures are provided: the annual average daily traffic (AADT) volume and level of service (LOS). LOS is based on comparing a roadway's capacity to AADT. That comparison places the roadway into a range from A, meaning very favorable operating conditions, to F, meaning very poor operating conditions. For urbanized areas, LOS D is typically recommended as the worst acceptable volume to capacity threshold. LOS E indicates the roadway is at capacity. ***Table 2.1*** and ***Figure 2.3*** show representative daily capacities for typical urban roadway sections.

Table 2.1: Daily Volumes and Levels of Service for Urban Streets

Type of Street	Maximum Daily Traffic Volume		
	Level of Service C	Level of Service D	Level of Service E
2-Lane Undivided	10,500	12,800	14,400
3-Lane Undivided	12,800	15,600	17,600
4-Lane Undivided	16,300	19,800	22,400
5-Lane Undivided	23,100	28,100	31,700
4-Lane Divided	23,300	28,300	32,000
6-Lane Divided	33,800	41,100	46,400

Assumptions: Peak Hour equals 10 percent of daily volume

Capacities based on signalization set to high priority with high turns

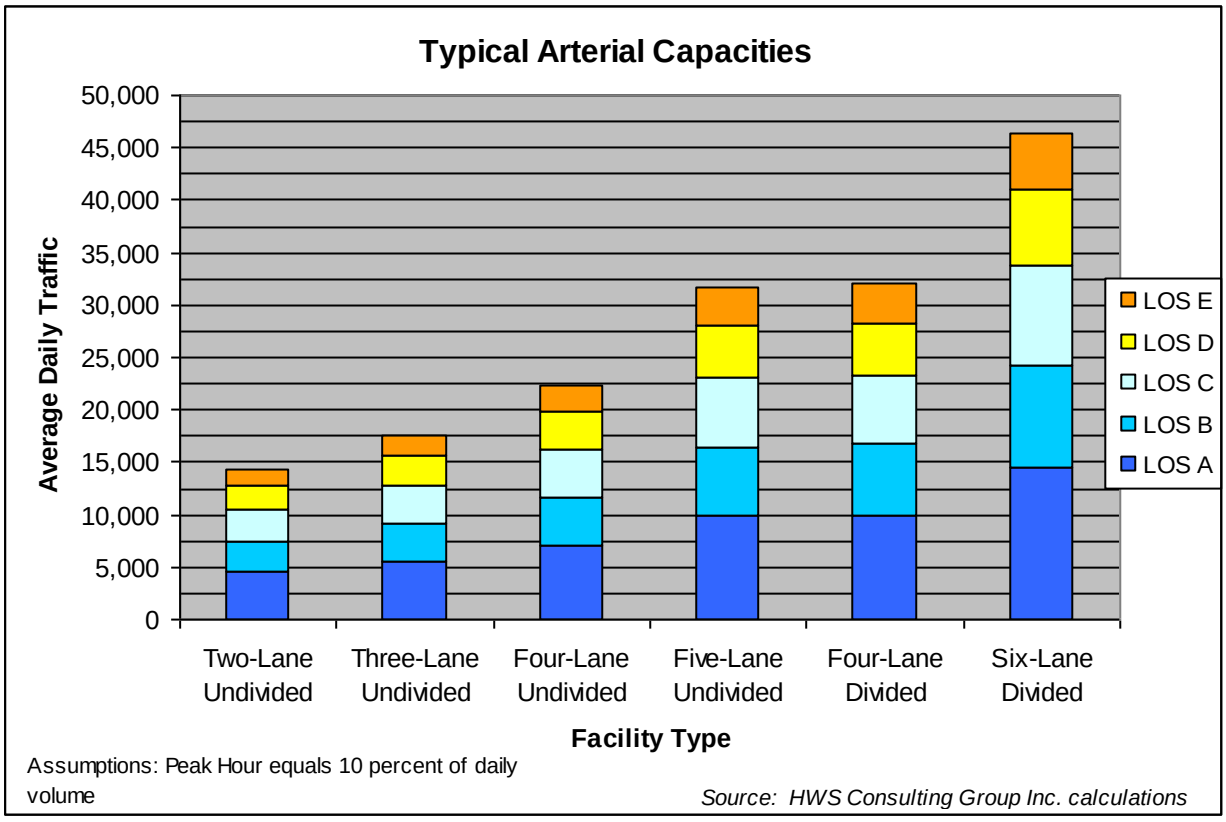


Figure 2.3: Typical Arterial Capacities

Table 2.2 shows estimated roadway LOS and volume to capacity ratios for roadways in the JATSO area. These values are based on outputs from the 2015 Base Travel Demand Model. Included are segments that currently are estimated to operate at LOS D or worse and experience congestion and traffic delay during peak hours.

Table 2.2: 2015 Traffic Volumes, Capacities, and Level of Service for Segments operating at a V/C Ratio of 0.7 or worse

Street	Location		No. Lanes	V/C	AADT	LOS
	From	To				
COYOTE DR	Apricot Dr	McClelland Park Blvd	2	0.78	9211	C
COYOTE DR	Arbor Rd	32nd St	2	0.74	8909	C
MADISON ST	Intersection w/	MacArthur Dr	2	1.11	14333	E
MADISON ST	MacArthur Dr	Powell Dr	2	0.71	8949	C
N RANGE LINE RD	4th St	Newman Rd	4	0.75	27194	D
N RANGE LINE RD	7th St	4th St	4	0.74	25501	D
RANGE LINE RD	15th St	20th St	4	0.88	31739	F
RANGE LINE RD	7th St	15th St	4	0.83	29663	E
RANGE LINE RD	32nd St	I-44	4	0.74	26883	D
S RANGE LINE RD	20th St	32nd St	4	0.81	29120	E
S RANGE LINE RD	Saginaw Rd	I-44	2	0.73	11840	D
S HEARNES BLVD	50th St	I-44	2	0.80	5907	B
S HEARNES BLVD	River Rd	50th St	2	0.77	7004	B
S HEARNES BLVD	50th St	Glendale Rd	3	0.71	5439	B
S ILLINOIS AVE	Murphy Blvd	7th St	3	0.76	10957	C
SCHIFFERDECKER AVE	Arbor Rd	32nd St	2	0.74	8909	C
STATE HWY HH	State Hwy AA	Gum Rd	2	0.72	8303	C
US HWY 66	Prosperity Ave	Irwin St	2	0.80	9934	C
US HWY 66	Irwin St	Prigmore Ave	2	0.80	9880	C

Figure 2.4 illustrates the estimated roadway LOS for all links in the 2015 Base model.

2.1.3 Bridge/Overpass Conditions

Bridges are the most critical of investments in the roadway network. They are relatively expensive to construct and maintain, but as with transportation infrastructure in general, these costs are offset by the long term economic benefits of the provided connections. They not only function as critical links across features that are otherwise difficult to traverse, but they also pose a very serious safety risk if they are not properly maintained – more so than other aspects of the roadway network. Usually a moderate investment in maintenance over time can save even more in rehabilitation costs that come from a lack of maintenance.

MoDOT provided information including condition ratings on 108 state bridge structures in the JATSO area. Information was also provided for 93 bridges off of the state system. A summary of the condition rating standard is shown in ***Table 2.3***.

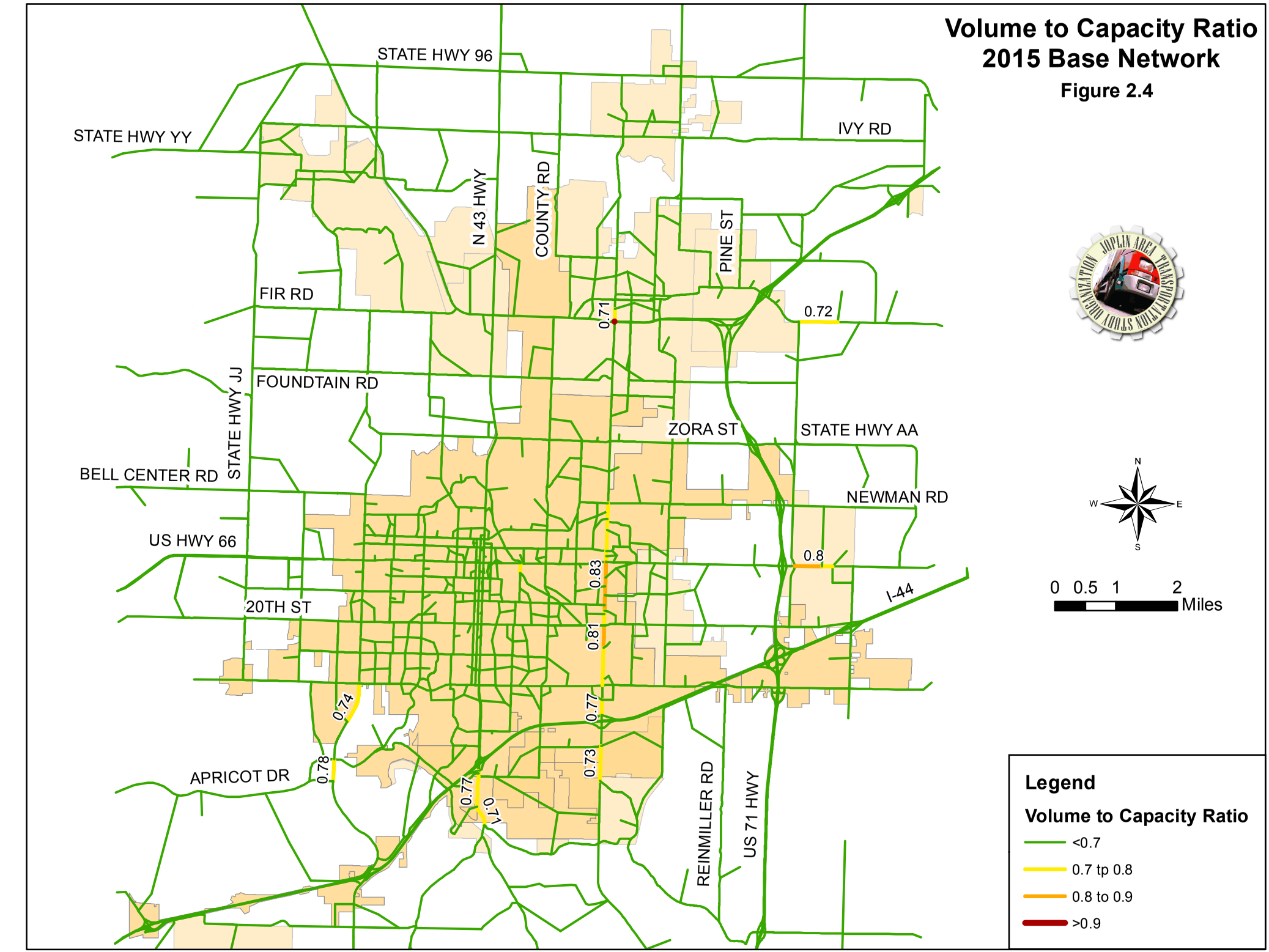
Table 2.3: Bridge/Overpass Rating Definitions

Very Good	No visible defects, near new condition
Good	Some slightly defective or deteriorated components
Fair	Moderately defective or deteriorated components
Poor	Defective or deteriorated components in need of replacement
Very Poor	Seriously damaged components in need of immediate repair

Source: FHWA

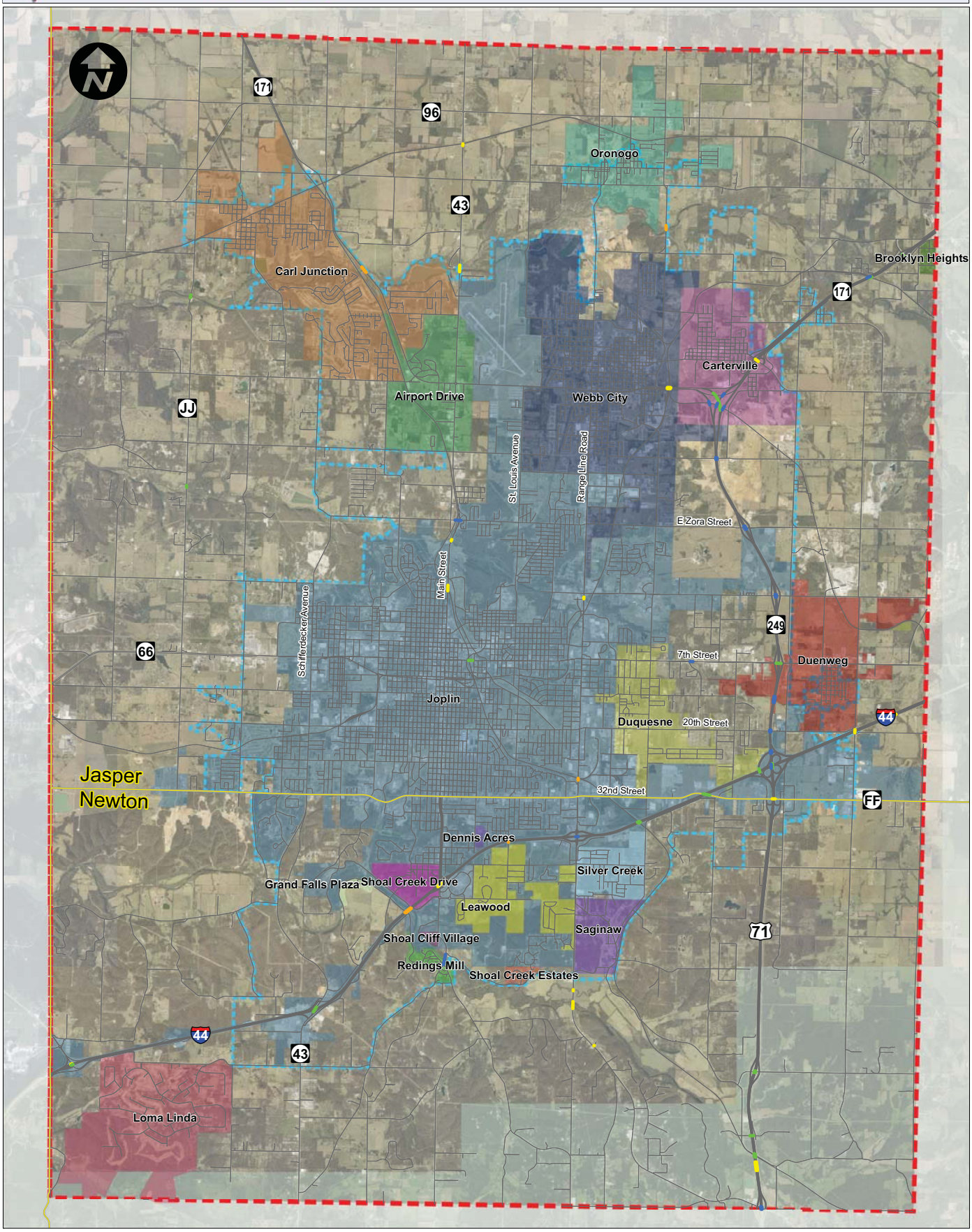
Based upon each condition rating, 28 of the 108 state bridges are in the "Poor" to "Fair" conditions. There are no bridges rated as "Very Poor" at this time. Only six bridges are rated as "Poor". They are the Connecticut bridge overpass over I-44 (bridge no. A1969), the I-44 westbound overpass over Shoal Creek (bridge no. L0799), the I-44 eastbound overpass over Shoal Creek (bridge no. L0798), the bridge at Route D over Center Creek (bridge no. T0425), the bridge along Range Line Road over the KCS railroad (bridge no. L0833) and the bridge along MO 171 over Center Creek (bridge no. K0903). ***Figure 2.5*** illustrates the location and condition of the state structures within the Metropolitan planning area. Some information regarding the "Poor" and "Very Poor" bridges is summarized in ***Table 2.4***. A summary of non-state bridges can be found in **Appendix B**.

Volume to Capacity Ratio
2015 Base Network
Figure 2.4



Joplin Area Transportation Study Organization

Long Range Transportation Plan



September 2015

CJW

State Bridge Ratings

Figure 2.5

VERY GOOD | GOOD | FAIR | POOR | VERY POOR

Table 2.4: Bridges with Poor Ratings in the Joplin Area

Route (Bridge Number)	Feature Crossed	Rating Poor	Year Built (Rebuilt)	Estimated 2014 AADT
Connecticut Avenue (A1969)	Interstate 44	1	1976	4,647
Interstate 44 – westbound (L0799)	Shoal Creek	1	1956 (1986)	36,537
Interstate 44 – eastbound (L0798)	Shoal Creek	1	1956 (1986)	4,920
Route D (T0425)	Center Creek	1	1935	36,537
Range Line Road (L0833)	KCS Railroad	1	1957 (1976)	26,860
Missouri 171 (K0903	Center Creek	1	1955	10,372

Source: MoDOT

The data provided also indicated that there are 18 bridges built/rebuilt on or before 1965. Based upon the assumption that the average bridge has a 50-year lifespan, these bridges have exceeded their expected service life. Also, twenty-four *other* bridges will be 50 years old or more by the year 2036.

Of the 93 non-state bridges, three are in the poor condition. They include the bridge along Jackson Avenue across Shoal Creek (which is planned to be improved under the Capital Improvement Sales Tax Program), the bridge along Old HWY 71 across Shoal Creek and the bridge along Pennsylvania Avenue between 5th Street and 7th Street.

2.1.4 HIGH CRASH LOCATIONS

While functions of access and mobility are forefront concerns in providing an efficient roadway network, roadways have to also be safe in order to be effective. Interruptions of traffic flow, economic activity and, even more so, injury and loss of human lives are the undesirable symptoms of an unsafe roadway network.

The City of Joplin completed a study in 2010 that identified the intersections within the Joplin city limits that have had a high susceptibility to traffic crashes. The study took into account crash numbers, crash severity, and crash rate when selecting the intersections that warranted further investigation. ***Figure 2.6*** shows the intersections that were further studied and analyzed for short-term recommendations in the study. Along with this list of intersections, MoDOT has provided crash data for the Joplin area between 2010 and 2014. Using this data, the high crash locations can also be identified for the areas outside of the City of Joplin.

In addition to the intersections within Joplin that were chosen for further study, there were several additional intersections that were initially reviewed. The locations of this longer list of high crash intersections reveal trends along certain corridors. Range Line Road and 7th Street are the two corridors that had several intersections on this longer list. Outside of the City of Joplin, the trend on Range Line Road continues. High crash density continues along the Madison/Range Line corridor into Webb City. Also, Route 171 generally experiences high crash density north of Joplin. This is especially evident at major intersections such as the intersection of Route 171 and Madison in Webb City. The new roundabout at Route 171 and MO 43 in Airport Drive has experienced an increase in crashes, but a

reduction in the severity of crashes compared to before it was constructed. In recent years, these trends have continued. Other arterials around Joplin do not experience quite the number of crashes as these corridors. Crash rates on the freeways are typically near or below state averages for freeways with the exception of interchanges along I-44. Traffic collisions seemed to have decreased slightly in 2014, with some of the higher crash corridors not experiencing as many accidents in terms of frequency. However, highly travelled corridors such as Range Line Road and Main Street still experience a high number of crashes each year.

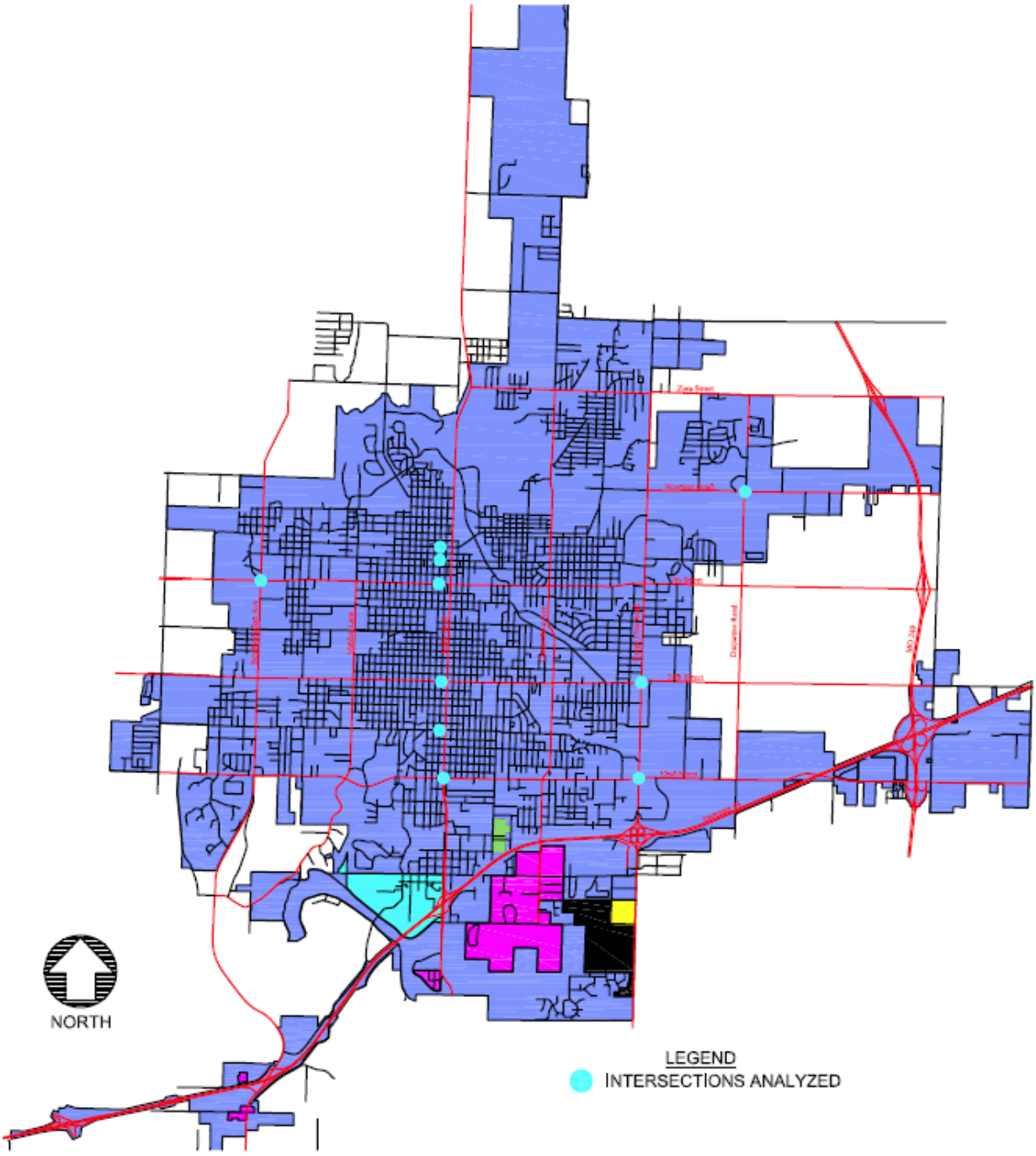


Figure 2.6: Joplin Traffic Crash Analysis Intersections

2.2 TRANSIT SYSTEM

While several types of public transportation exist in Missouri, only a portion of these systems are in place in the Joplin area. The Joplin area has no access to light rail transit as is found in only two metropolitan areas in Missouri, Saint Louis and Kansas City. Federally recognized and funded university transportation services, as found at Missouri State University and Southeast Missouri State University, also do not exist in the Joplin area. However, other forms of public transportation, as recognized by the Missouri Public Transit Association, are present in the Joplin area. Federally classified urban and rural transit systems serve portions of the JATSO Metropolitan planning area as well as a myriad of human service agency systems, elderly and disabled transportation services, and a few taxicab services.

2.2.1 EXISTING TRANSIT AND PARATRANSIT SERVICES

The Joplin area has numerous agencies and services in place to provide both transit and paratransit services to the greater community. According to the HSTCC's *Public Transit – Human Services Transportation Coordination Plan, 2012* these services include:

PRIVATE AGENCIES

Health Care Transit Inc.: This organization serves disabled citizens, senior citizens, low-income citizens, and area youth, including citizens on Medicaid and Medicare, in Barton, Jasper, Newton, Lawrence, Dade, Berry and McDonald Counties in Missouri as well as communities in Southeast Kansas. The provider uses a demand response system, offers a non-emergency medical service, and provides Medicaid and Medicare transport to serve its clients. Health Care Transit employs twenty drivers using a fleet of twenty-three vehicles Monday through Saturday.

AAA Taxi: This organization serves all individuals in a 300 mile radius in the four state area. The provider operates fourteen vehicles twenty four hours a day Sunday through Saturday.

NON-PROFIT AGENCIES

Area Agency on Aging, Region X: This organization serves disabled and senior citizens in the City of Lamar, Carthage, Barton County, Jasper County, Newton County, and McDonald County. The provider uses fixed bus routes and dial-a-ride systems to serve its clients and operates Monday through Friday.

Lafayette House: This organization serves disabled, low-income, and other citizens in unfortunate circumstances in Barton, Jasper, Newton and McDonald Counties. The provider uses a demand response system to serve its clients and operates four vehicles Monday through Friday.

Ozark Center: This organization serves disabled citizens, senior citizens, low-income citizens, and area youth, including citizens on Medicaid, in the City of Joplin, Webb City, Carthage, Lamar, Neosho, Barton County, Jasper County, Newton County and McDonald County. The provider uses a fixed route and route deviation system to serve its clients. The Ozark Center operates twenty-five vehicles Monday through Friday and one weekend per month.

Boys and Girls Club of Joplin: This organization serves area youth in Jasper and Newton Counties. The provider uses a fixed route to serve its clients and operates three vehicles Monday through Friday.

The Independent Living Center, Inc.: This organization serves disabled, senior, and low-income citizens, including those on Medicaid, in the City of Joplin, Barton County, Jasper County, Newton County and McDonald County. The provider uses a demand response system to serve its clients and operates one vehicle Monday through Thursday.

Cerebral Palsy of Tri-County: This organization serves disabled area youth in the City of Joplin, Webb City, Carthage and Jasper County. The provider uses a door to door system to serve children ages 6 months to 6 years and operates two vehicles Monday through Friday.

Metro Emergency Transport System (METS): This organization serves disabled and senior citizens in Jasper County. The provider uses a demand response system and a non-emergency medical service to serve its clients. METS operates seven ambulances during the weekday hours, six during weekend day hours and five during weekend night hours in addition to a single wheelchair van Monday through Friday.

OATS, Inc.: This organization serves disabled citizens, senior citizens, low-income citizens, area youth, and the general public, including citizens on Medicaid, in Barton, Newton, Jasper and McDonald Counties. The provider uses a demand response system to serve its clients and operates eighteen vehicles Monday through Friday. The service also provides contract services on Saturday and Sunday.

Economic Security Corp. of Southwest Area: This organization serves all ages of low-income individuals in Barton, Newton, Jasper and McDonald Counties. The service has fifty-seven programs that serve a broad range of community activities and operates Monday through Friday.

Homebound Services: This organization serves low-income, elderly, homebound individuals in the City of Joplin. The service provides shopping services and delivery of groceries for homebound seniors through volunteers.

PUBLIC AGENCIES

Metro Area PublicTransit System (MAPS): This organization serves disabled citizens, senior citizens, low-income citizens, area youth, and the general public, including citizens on Medicaid, in Jasper and Newton Counties. The provider uses a demand response system to serve its clients and operates twelve vehicles Monday through Saturday. MAPS is the primary provider of transit services to the core of the Joplin area.

Sunshine Lamp Trolley: This service is a companion operation with MAPS. The trolley makes pick-ups and drop-off at designated stops or it can be scheduled to deviate for a pick-up or drop-off within the ¾ mile deviated service area. Our services are both demand response services so there isn't a paratransit zone requirement. Ridership is provided for anyone at trolley stops or within a 3/4 mile distance of one of the trolley routes. The routes run entirely within the Joplin city limits, but a small portion of the Deviated Service Area reaches Webb City. The provider

uses a fixed route system, hourly rides and deviated pickups. The service currently has three vehicles that operate Monday through Friday.

City of Duenweg: This organization serves disabled, low-income, elderly, youth and general public in the City of Duenweg, Barton County and the Joplin MPO Boundary. The city does not offer local transportation services and operates Monday through Saturday.

2.2.2 PUBLIC TRANSIT OPERATIONS

While the Joplin area has numerous agencies and services in place to provide both transit and paratransit to the public, the primary provider of transit services to the Joplin area and its core is MAPS.

MAPS began as a demand response transit system operated by the City of Joplin in 1997. MAPS provided 58,630 rides to the Joplin area in that first year. In 2007, a deviated fixed route service, called the Sunshine Lamp Trolley, was added. The one route and deviated service area was expanded in 2009 with the addition of two new routes. The primary curb-to-curb service provided by MAPS encompasses a geographic area roughly 105 square miles in size generally bounded by Center Creek to the north, the Central City Road/Route JJ corridor to the west, the Douglas Fir/Route V corridor to the south, and the Jasper County Road 200 (Prosperity Avenue)/Jaguar Road/Route AA corridor to the east. This service area encompasses part of Carl Junction and all of the municipalities of Airport Drive, Carterville, Cliff Village, Dennis Acres, Duquesne, Grand Falls Plaza, Joplin, Leawood, Saginaw, Shoal Creek Drive, Shoal Creek Estates, Silver Creek, Redings Mill, and Webb City. The Sunshine Lamp Trolley service routes and the corresponding deviated service area comprise an area that is more compact than the primary MAPS service area, focusing on the more dense population and employment centers in the City of Joplin. Only a few of the other municipalities even partially fall within the deviated service area; these include Duquesne, Webb City, Leawood, and the entirety of Dennis Acres. The Sunshine Lamp Trolley service area is shown in ***Figure 2.8***.

Figure 2.7 shows the total ridership over the past ten years including the separate components of scheduled MAPS ridership and Trolley ridership.

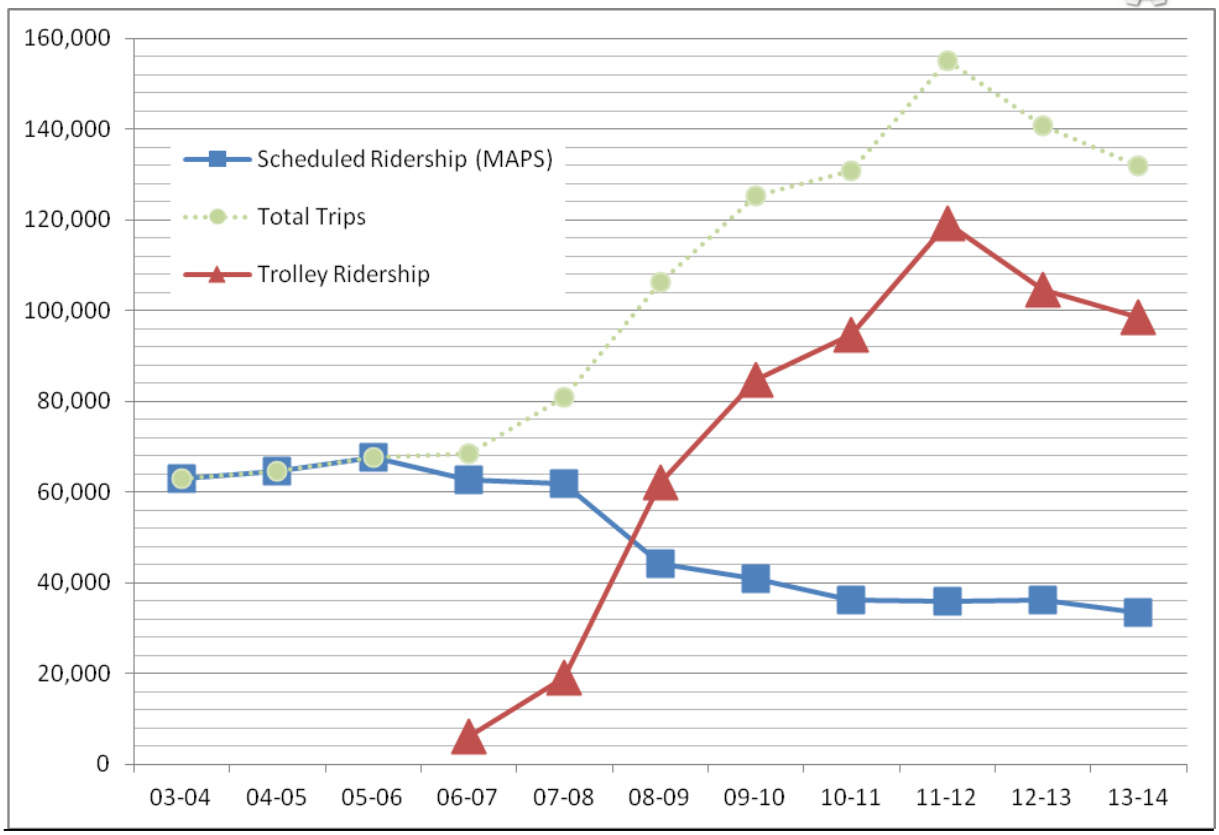


Figure 2.7: Public Transit Ridership Trends over the Past Ten Years

Source: Metro Area Public Transit System, City of Joplin

The MAPS scheduled ridership showed steady growth until the inception of the Sunshine Lamp Trolley. However, this is not a negative point; it may merely indicate the effectiveness of the trolley route system that has been put in place. The trolley rides surpassed scheduled rides for the first time over the 2008-2009 fiscal year. Every vehicle in the MAPS and trolley system is lift-equipped and wheel chair accessible. By providing effect routes and deviated service areas, the trolley system not only serves more of the general public, but also supplants rides that would have had to be scheduled as MAPS paratransit rides in the past. There will always be a need for effective and equivalent paratransit service that is not accommodated by the transit routes already in place, but the effective placement of these transit routes may provide a more cost-effective service than transit service that does not serve the disabled public very well. So far, the trolley service seems to provide the former, a balanced route system that serves both the disabled public and the general public. As can be seen in ***Figure 2.8***, MAPS services accommodate a variety of trip purposes.

While there has been a slight decline in trolley rides over the past couple years, the service is very valuable to the areas it services as voiced by many citizens during the public involvement process. In fact, many suggested that trolley routes be expanded and service hours be lengthened to facilitate more riders that don't currently have access to the trolley. Variations in ridership could stem from relocations of residents who used to have access to a route but no longer do. It is also possible that some of those who chose to use the trolley have acquired reliable transportation or simply cannot because they need expanded hours for things like taking their kids to school before work.

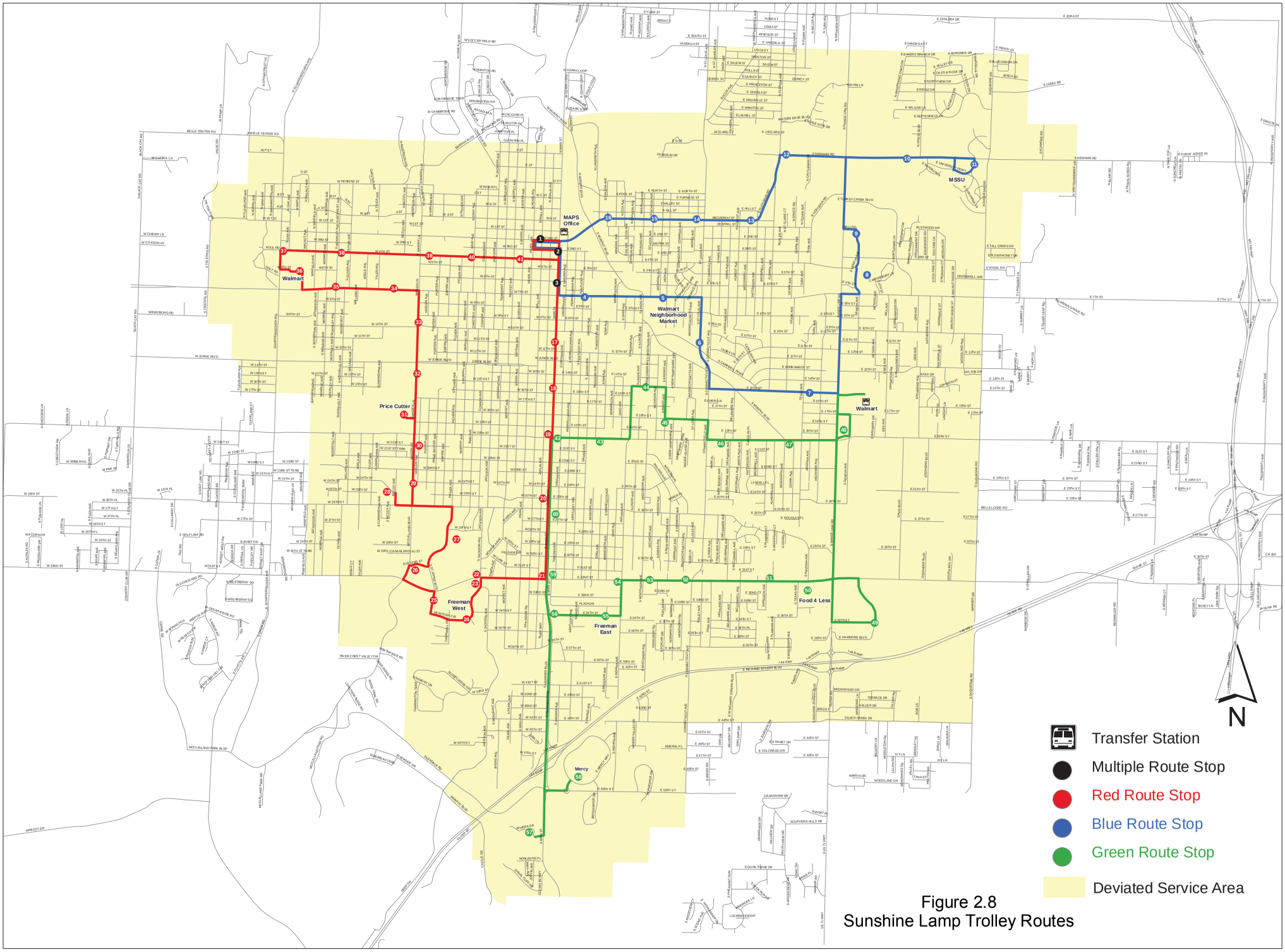


Figure 2.8
Sunshine Lamp Trolley Routes

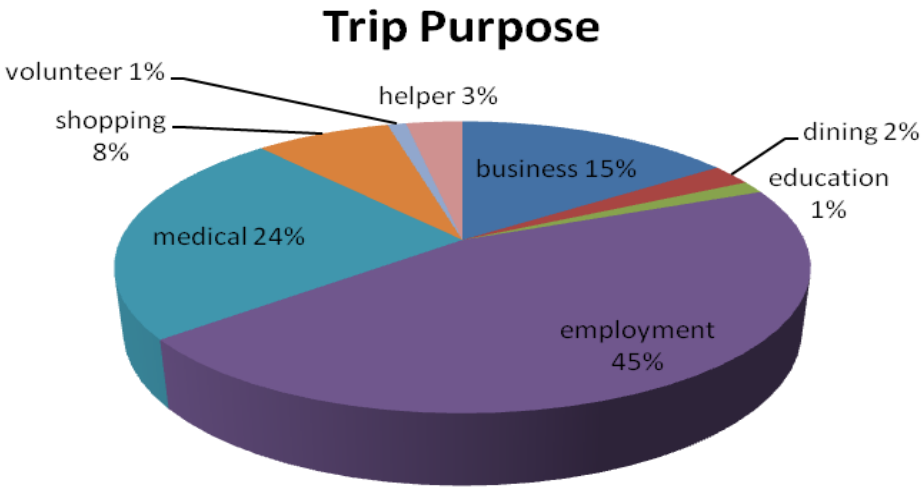


Figure 2.9: Current Purposes of MAPS Transit Trips

Source: Metro Area Public Transit System, City of Joplin

Additionally, even with the focus of service on Joplin, seven percent of rides serve residents from places other than Joplin as shown by ***Figure 2.10***. Over 3,000 residents in Webb City and Carl Junction were served by bus routes.

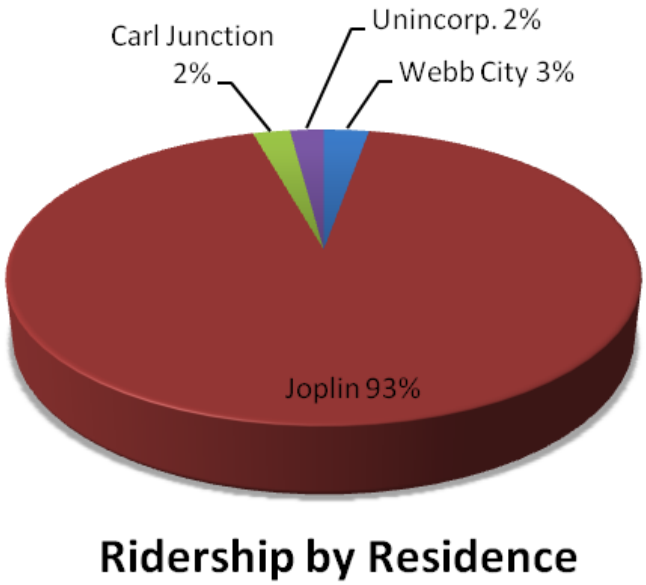


Figure 2.10: Current Residence of MAPS Riders of Transit

Source: Metro Area Public Transit System, City of Joplin

2.2.3 PUBLIC TRANSIT FACILITIES

The Metro Area PublicTransit System has seen many expansions and enhancements over the past few years. In order to accommodate the increase in demand and services, as well as improve the existing system, upgrades in facilities have been necessary. MAPS now operates and maintains fourteen (14) vehicles between its on-demand and trolley route services, but operates nine (9) vehicles during peak hours. MAPS regularly utilizes federal Section 5307 funds to upgrade and replace vehicles and systems as needed. The typical service life for the current transit fleet is five (5) years and can vary depending on several factors. According to recent data, there are seven (7) vehicles that are past their expected useful life. According to the JATSO 2014-2017 TIP, MAPS receives $4,761 from MoDOT annually for transit operations. There are two (2) ongoing transit projects that utilize Section 5307 funds and will include the replacement of existing trolleys and vans, and provide annual operational expenses of the MAPS.

In addition, JATSO has three (3) Section 5310 applications, one of which will provide a new transit van for Preferred Family Healthcare (formerly Alternative Opportunities), an organization that provides services in the areas of developmental disabilities, mental health, substance abuse, employment services and foster care. The 5310 applications will also provide two (2) new transit vans for the Ozark Center, and one (1) new transit van for Cerebral Palsy of Tri-County Missouri.

The transit department is currently working to identify a location for a new transfer station. Once a station is identified, the department will work to secure funding to construct a new facility that will allow the transit department to expand services and further improve mobility through transit.

2.3 NON-MOTORIZED CIRCULATION

Alternative (non-motorized) modes of circulation such as bicycling and walking continue to be popular with many metropolitan area residents. These modes are low impact on the environment, efficient, low cost, healthy, and available to nearly everyone. While generally perceived as primarily a recreational activity, non-motorized circulation modes are also used for work-related trips.

These non-motorized modes provide communities with the opportunity to reduce transportation-related environmental impacts, mobile emissions, and noise while also achieving larger quality of life goals such as developing and maintaining more livable communities and neighborhoods. There is also growing interest in encouraging walking and bicycling as a way to improve public health. Increasingly, public health organizations are looking to metropolitan and state transportation plans to create more walkable and bikeable communities that encourage healthier lifestyles.

2.3.1 PAST PLANS AND STUDIES

The JATSO area has a long tradition of effectively planning for the long term in regards to its non-motorized transportation/circulation needs at the state, metropolitan, and local levels. To ensure consistency between these past efforts and the most recent JATSO Long Range Transportation Plan, the available plans were reviewed and a summary of their key recommendations are provided below.

Bicycle and Pedestrian Transportation Plan (Phases 1 & 2):
JATSO supports the long range planning efforts for non-motorized facilities in the metropolitan area. In 1999, metropolitan Joplin began a two-phased bicycle and pedestrian plan. The first

phase completed in December of 1999 developed a Vision Statement and Conceptual Facilities Map. The vision in the 1999 plan was to:

- Encourage increased pedestrian and biking activity.
- Develop a comprehensive and balanced pedestrian and bicycle network for the metropolitan area.
- Emphasize "neighborhood" connections to the parks and boulevard system.
- Provide a safe and pleasant means of pedestrian and bicycle travel.
- Be practical in implementation.

Phase two, completed in 2001, built upon the Phase 1 Conceptual Facilities Map and identified development and implementation strategies for both on-road and off-road non-motorized facilities through four distinct phases which included:

- Concept development
- Concept refinement
- Recommended priority projects
- Community input

The recommendations provided in the Phase 2 study were used as the basis for implementation of a series of off-road, on-road, rails-to-trails, and sidewalk improvements since 2001.

Missouri Statewide Bicycle Route Map

In 2004, the State of Missouri prepared its 2nd version of the proposed cross-state bicycle routes. Using the Missouri Department of Transportation's (MoDOT) 10 service districts, bicycle routes were designated for the State's rural areas based on average daily traffic and general topography. Individual metropolitan areas (e.g. Joplin) as represented by the Joplin Area Transportation Study Organization are expected to develop their own respective bicycle route map that will interconnect with the proposed cross-state bicycle routes.

Three route classifications are demarcated on the map and include:

- Cross-state routes
- Connector routes
- Off-road multi-user paths

Within the current boundaries of the JATSO metropolitan planning area three (3) connector routes are envisioned. These include one route from the north along Rt 43 and two from the south along Highway NN and Highway C. These connector routes, when linked with the existing and proposed routes in the metropolitan area will provide greater access to municipalities throughout southwestern Missouri.

Carl Junction Transportation Plan

In 2009, Carl Junction undertook the preparation of a comprehensive transportation plan for the community. As part of this planning initiative, Carl Junction identified that promoting non-motorized travel is essential for the community to cater to needs of all its citizens. This may be

achieved by building an interconnected network of pedestrian accessible transportation systems that promote social, physical and economical health of the community.

Following a cursory review of non-motorized facilities in the city, it was found that, generally, city arterials and collectors do not have sidewalks even on one side of the road. As a result, connections to local neighborhoods, schools, and parks/trails are significantly limited for community pedestrians and bicyclists.

To help to overcome this limitation, Carl Junction identified that the following factors should be considered when prioritizing sidewalk/trail needs in conjunction with pending and future roadway enhancement projects:

- Roadway Classification – Depending on the roadway classification, typical cross-sections were recommended. Sidewalks on both sides of the street are recommended for the arterials and collectors. Sidewalks on at least one side of the road are recommended for local streets.

- Pedestrian Activity – Generally, the land use surrounding the streets dictates the level of pedestrian activity. For example, streets leading to schools and parks have a high potential for pedestrian activity and therefore, priority should be given to incorporate sidewalk facilities in these areas.

- Traffic Volume on Adjacent Streets – As the traffic on a street increases, the safety of pedestrians and bicyclists decreases unless good sidewalks and crosswalks are provided.

- Connectivity – Good connectivity between different pedestrian and bicyclist destinations is important to encourage regular walking or biking. Connectivity between housing developments, schools and commercial centers including the downtown core center should be a priority.

In addition, Carl Junction's Transportation Plan addressed the operational needs of the community. Specifically, the transportation priorities outlined included improvements to Fir Road, improvements to Pennell Street, development of non-motorized corridors and the development of a new north-south connector for the city.

Carl Junction Comprehensive Plan

Carl Junction has since added to its planning documentation by creating the Carl Junction Comprehensive Plan (updated most recently in 2011) to help provide direction in the planning process based on the requirements of a comprehensive plan. In the document, the following series of goals & objectives were identified based on public input, "to help outline the overall needs and desires of the community for the next 20 years:"

- Create Community Cohesion – Develop Linkages that Better "Tie" the Community Together, Coordinate Land Use Pattern to Make Physical Features More Functional and Create More Social Gathering Points to Encourage Face-to-Face Interaction.

- Expand Transportation Capacity for Automobiles in an Effort to Sustain Community Growth – Promote Projects Planned for Principal Arterials, Plan Projects for Expansion of Minor Arterials and Make Improvements to Collector and Minor Streets.

- Develop Non-motorized Modes of Transportation – Interconnect Existing Neighborhoods through New Linkages and Encourage Multi-modal Forms of Development.

- Diversify and Enhance Tax Base – Promote/Increase Commercial/Retail Development and Create New Streams of Revenue that Will Enhance Existing Revenue Sources.

- Diversify Employment Sector – Encourage Professionals Living in Community to Also Work in Community and Support Development of Small Business Start Ups.

- Sustain and Encourage Growth – Provide Adequate Infrastructure for Anticipated Development and Provide Adequate Health and Human Services for Anticipated Development.

- Expand Community Services – Improve and Expand Parks & Recreation Amenities and Improve Communication within Community

- Maintain Neighborhoods as they Age – Properly Enforce City Maintenance Codes

- Diversify the Housing Stock – Increase Rental Housing Stock and Increase Availability of Owner-occupied Affordable Housing

In anticipation for future improvements, the city has taken steps to provide roundabouts in the city to help ease congestion and encourage improved traffic flow by attaining conceptual plans for roundabouts at strategic locations. In this update, Carl Junction also identified several major projects that align with its goals and objectives. Some of these projects include:

The city would like to create a new north-south transportation corridor west of Highway 171 and east of Joplin Street to better serve the needs of the community.

The city plans to encourage and support improvements at the intersection of Highway 171 and Highway Z (Pennell). The city is also planning to promote improvements to Highway 171 from Highway 43 to the Kansas State Line as a priority for state funding. In addition, the city wants to pursue the scoping process with MoDOT for necessary expansion improvements along Pennell Street.

The city of Carl Junction continues to support the regional west bypass project promoting that it should connect Highway 171 to Interstate 44.

City of Joplin – Citizens Park Master Plan

The City of Joplin's 2000 *Citizens Park Master Plan* identified citizens' strong interest in trails that connect parks and points of interest. This document places trails as a high community

priority as well as the expansion of the existing park system, including the Nature Center in Wildcat Park.

City of Joplin Comprehensive Plan

The City of Joplin published its comprehensive plan in 2012. This more recent document builds on the work done by the Citizens Advisory Recovery Team (CART) in response to the 2011 tornado. Much of the planning in Joplin had to shift due to the enormous changes to local economy after 2011. Recovery planning has been an important key to Joplin's restoration over the last several years. This plan outlines the goals and objectives important to Joplin and its citizenry.

Part of this planning included the Joplin Neighborhood Housing Infill Recovery. Joplin planned to revitalize the tornado affected area by promoting projects along key corridors and in "opportunity areas." These areas consist of 2 to 5 acre sites acquired for "affordable housing infill."

Joplin's transportation vision includes setting policies and strategies for new ways of defining transportation in Joplin as "multimodal." The comprehensive plan specifically identifies the need to "expand transportation options by improving opportunities for non-motorized travel and by providing greater connectivity in the street network."

The plan looked at five (5) transportation elements to address Joplin's need for expanding transportation options. They are summarized below:

1. Prioritize Capital Improvement Program projects for Transportation/Utilities – Promote the 2014 Capital Improvement Program (CIP) that would prioritize street, sidewalk and trail improvements and the education of the public on multimodal priorities.

2. Complete Streets – Begin to develop standards for "Complete Streets" that encourage multimodal travel. Standards should be adopted that focus on motorists; pedestrians, bicyclists and trolley riders.

3. Neighborhood Connectivity – Incorporate planning elements that encourage connectivity between parks and community nodes using bike lanes and trails as key components of Complete Streets and including shared-road bike lanes on Principal Streets as part of the consideration.

4. Street Standards Sections – Adopt standard street sections that accurately portray Principal Street Standards which include Complete Street concepts and strategies and are implemented utilizing the 2014 CIP and Future Land Use Plan.

5. Trail System – Make it a priority to extend the Joplin trail system to the High School and to all Joplin School District facilities through the current and future CIP projects. Following the connection between school district priorities are improved, future extensions of trails should extend to other parts of the community.

In addition, the comprehensive plan also made several recommendations for future strategies to be implemented with respect to the long range goals for Joplin.

The city is planning to coordinate with MoDOT to perform operations studies along Main Street and Range Line Road. These studies are intended to analyze the current state of the corridors in general, while taking note of specific locations where improvements need to be made (eg. possible on-street parking, possible parking structure, possible trolley stops etc.).

Once the five (5) transportation elements mentioned above are addressed, Joplin is intended to promote the following projects as part of the CIP monies.

1. Install Main Street intersection improvements, in accordance with the new South Main Street Overlay District and Corridor Development Standards.
2. Define alignments and construct local thoroughfare streets as identified by the LRTP 2010.
3. In coordination with MoDOT, determine the proper location of a future state highway system connection in the I-249 Bypass corridor arterial streets, such as at 32nd Street.
4. Install sidewalks on Principal Street Planned Corridors as identified by the CIP.
5. Extend the City's trail system along Turkey Creek at the MSSU Campus and construct pedestrian bridge.
6. Install appropriate streetscape enhancements down South Main Street.
7. Study the West Bypass Corridor alignment along J-Highway.

In keeping with the purpose of a Metropolitan Transportation Plan, the "longer-term" project recommendations were reviewed from the 2012 plan and listed below with the intent to maintain foresight on future transportation needs and financial allocations.

The plan focuses primarily on infill redevelopment in:

- The Recovery Area (the area impacted by the 2011 tornado)
- Historic neighborhoods of Joplin outside of the Recovery Area, and
- Fringe development areas, such as the Joplin area business parks and industrial districts where roads need to be extended and improved in support of private sector development.

Joplin also believes multimodal improvements near Missouri Southern State University (MSSU) is a critical future project that will make the educational institution more attractive to potential college students, thus bringing more students to the area.

City of Joplin Comprehensive Plan – Future Land Use Plan

Joplin's Future Land Use Plan is intended to provide planning criteria and characteristics for developers and city planners to use in the attempt to anticipate future growth throughout the City of Joplin. It is also meant to establish preferred development standards in the Joplin community.

The Plan designated several key guidelines for new developments. These guidelines serve to steer developments in Joplin toward aligning with its regional multimodal goals as mentioned previously. Some of these principles include:

- Site improvements must include sidewalks at various locations on the site.
- Off-street parking will be included based on the proposed density.
- Open space areas should be integrated into the site for public gathering and recreational activities.

- Traffic calming should be practiced on crosswalks

The Joplin Land Use Plan in Chapter 5 of the 2012 Joplin Comprehensive Plan should be consulted for future planning purposes according to the auspices of regional goals.

Harry S Truman Coordinating Council Regional Transportation Plan

The HSTCC 2009-2013 Regional Transportation Plan outlines the goals and objectives for transportation improvements for communities within southwestern Missouri including the counties of Barton, Jasper, Newton, and MacDonald. The overarching goals for the 2009-2013 plan generally include:

– System preservation and safety
– Access and mobility
– Sustaining the environment
– Maintaining accountability and planning

Within each of these goals a series of specific objectives have been identified to guide the effectiveness of implementation initiatives in regards to transportation improvements within the metropolitan planning area.

Harry S Truman Coordinating Council – Public Transit-Human Services Transportation Coordination Plan

MoDOT has contracted with HSTCC to create the Human Services Transportation Coordination Plan. It is intended to improve the coordination and cooperation of transportation providers within the region. The plan analyzes current commute times, demographics, specific group needs (eg. Seniors) and many other elements related to transit. The HSTCC conducted a public forum for input from public transit providers, human service providers and the public. The survey collected data that helped prioritize plan strategies. The following strategies are listed based on the priority level of each goal according to their findings.

Ranked High

- Maintain existing service levels of viable operations
- Utilizing transportation investments more efficiently through coordination
- Enhancing mobility within and between communities
- Promoting new types of transit opportunities

Ranked Medium

- Preserving individual independence and enhancing quality of life
- Doing more with limited resources
- Increasing access to jobs and job training
- Utilize local resources to generate data and identify community needs where regional resources could expand

Ranked Low

- Respond to growth within existing services
- Respond to emerging community needs
- Be adaptable and ready to respond to short-term needs in the community

Webb City Comprehensive Plan 2015 Draft

The Webb City Comprehensive Plan was still in draft form when reviewed, but a number of suggested projects are listed in the draft. These projects include both street improvements and new streets in and around Webb City.

- Widening of Hall Street from railroad right-of-way to Zora Street.
- The improvement of the Madison and MacArthur Intersection
- Widening Madison from MacArthur to 10th Street
- Widening Madison from Daugherty North to the city limits

- Extending Fountain Road from Madison east to Oronogo Street
- Improving & extending Fountain from Hall Street east to and intersecting with Highway 249
- Extending Stadium Drive from Madison east to Main
- Extending East Road south from Aylor to Highway 171.
- Extending Pennsylvania Avenue north to Stadium Drive
- Extending Sharon Road west from East Road to Main and then southwesterly to connect to Stadium Drive at or near Pennsylvania

Municipal Stakeholder Comprehensive Plans

To ensure a broad based understanding of the overall goals and objectives of the diversity of communities within the JATSO area, a cursory review of the available comprehensive plans was undertaken. Where appropriate and feasible, bicycle/pedestrian circulation-specific desires and opportunities have been incorporated into the recommendations of the non-motorized circulation section of the JATSO Metropolitan Transportation Plan.

2.3.2 *Existing Non-Motorized Circulation Facilities*

The Joplin metropolitan area has made significant efforts to expand the availability of non-motorized circulation facilities each year. These improvements have typically been implemented concurrently with planned roadway enhancement and reconstruction projects. The following is a general description of the types and locations of the various non-motorized facilities throughout the metropolitan area. It is not intended to be an all encompassing inventory by mileage, condition, width, or compliance to current regulations or design standards.

The non-motorized circulation modes are divided into two types of facilities. These include on-road facilities and off-road facilities. A brief description of each type of non-motorized facility is provided below.

On-Road Facilities:

These facilities include bicycle lanes, shared roadways, designated bike routes, and sidewalks. A bicycle lane is that portion of roadway that has been designated by signs, striping, and/or pavement markings for the sole use of bicyclists. A *Shared Roadway* is any roadway on which bicycle travel is legally allowed, although it may or may not be accompanied by corresponding signage. A designated bike route is specifically signed and often published on a supporting route map. A sidewalk is specifically designed and reserved for pedestrian use.

Off-Road Facilities:

These facilities include either separated bicycle and pedestrian facilities (such as sidewalks) or the common combined use facility referred to as a multi-use path. Off-road facilities are separated from motor vehicles by an open space or physical barrier. Off-road facilities can be provided either within a highway or street right-of way or within its own independent right-of-way, such as within vacated railroad rights-of-way (e.g. Rails-to-Trails).

Pedestrian circulation has historically been perceived and provided primarily through sidewalks abutting existing roadways. Downtown areas within municipalities have traditionally provided the most extensive network of sidewalks to facilitate the non-motorized circulation needs of employers, employees, shoppers, and residents, where appropriate. Extending outside of the downtown area, the provision of sidewalks within commercial corridors and abutting residential areas appears to be largely dependent upon what year and where the particular area was developed or in some cases redeveloped. At the time of development, regulations requiring the provision of sidewalks within these areas may have been non-existent and/or poorly enforced by the municipality.

Commercial areas located along major rights-of-way such as Range Line Road appear to provide sidewalks in some areas but often lack important continuity along the length of the right-of-way as well as connections to abutting neighborhoods and land uses. Residential developments constructed over the last decade appear to be designed as more pedestrian friendly neighborhoods with continuous sidewalks required and provided along one or both sides of the street. Older residential subdivisions, such as those built immediately following World War II appear to lack sidewalks in higher concentrations and/or possess larger numbers of "gaps" in overall connectivity.

The 2011 tornado impacted the extent of sidewalks through the central area of Joplin. Much of the existing sidewalks were damaged and/or destroyed, leaving gaps in walkable areas that had previously provided refuge for pedestrians and cyclists. The City of Joplin has since attempted to utilize Federal funding provided as part of Joplin's recovery to help restore areas where existing infrastructure was impacted. This process is already underway and is expected to be completed by 2019.

As of 2015, designated on-road/shared facilities exist in six separate locations within the City of Joplin. These routes run a combined total of approximately 7 miles, including:

- Along 2nd Avenue/Broadway Street from Main Street on the west to School Avenue on the east, south to Jasper Street, and east to High Avenue terminating at Joe Becker memorial Stadium Park. (1 mile)

- Along 5th Street from Main Street on the west to Kentucky Avenue on the east, north to 4th Street, and east to Murphy Boulevard terminating at Landreth Park. ($^1/_2$ mile)

- Along Schifferdecker Avenue from 32nd to 20th Street. (1 mile)

- Along Connecticut Avenue between 32nd Street and 15th Street. ($1^1/_3$ mile)

- Along Zora Street between Missouri Avenue and the Frisco Greenway Trail. (1 mile)

- Along Murphy Boulevard from 4th Street to 20th Street and along 20th Street from Murphy Boulevard to Range Line Road. ($2^1/_4$ mile)

While the extent of existing on-road/shared facilities is limited, it should be noted that all public streets are legally available for bicyclists who must adhere to the same rules of the road as all other motorists.

Since 2010, the extent of off-road facilities and "rails to trails" has grown within the JATSO boundaries. There are three key off-road facilities, the Frisco Greenway Trail, Ruby Jack Trail, and Thom Station which are connected to and supported by a growing network of park trail facilities including but not limited to King Jack Park Trail, Murphy Park Trail and others.

- **Frisco Greenway Trail** – The Frisco Greenway Trail is owned and operated by the Jasper County Parks Department with maintenance assistance from the Joplin Trails Coalition, a volunteer organization. The trail is approximately 3.5 miles traversing through the cities of Joplin and Webb City from North Street in Joplin to Hwy 171 in Webb City. The trail consists of firmly compacted gravel on top of the original railroad bed foundation. Improvements to the trail have included extensions to the south such as the Turkey Creek Trail and Ozark Memorial Park Trail as well as new designated parking areas for trail users and trailhead signs and miles markers along its extents. There are several at-grade roadway crossings along the route which require caution for riders and passing automobiles. Riders desiring to cross Route 171 are encouraged to use the signalized intersection of Madison (Route D) and Missouri Route 171.

- **Ruby Jack Trail** – The Ruby Jack Trail is approximately 16 miles in overall length, beginning in Carthage and traveling through the towns of Oronogo, Carl Junction, and onward to the Kansas State Line. Some portions of the trail are primitive in materials, but approximately 10 miles consist of firmly trail surface. While completely open to the public its rough substrate along the majority of the route make it best suited for hiking and mountain biking purposes. Improvements along the tail include a new bridge and trailhead signage in Carthage as well as mile marker signs along the entire length of the route.

- **Thom Station Trail** – The Thom Station Trail is Carl Junction's newest walking/biking trail providing linkages between downtown Carl Junction and the Briarbrook area. As planned, the trail will ultimately provide connections between the Ruby Jack Trail in Carl Junction and the Frisco Greenway Trail trailhead in the heart of the City of Joplin. Approximately ¾ of a mile of the trail has been completed by the City of Carl Junction with plans to extend the trail to the south as funding becomes available.

In addition to the off road/rails-to-trails facilities listed above, stakeholder communities with the JATSO area also provide a network of park trail facilities within their diversity of municipality owned and operated open spaces. These include but are not limited to the McClelland Park, Dover Park, Schifferdecker Park, McIndoe Park, Ozark Memorial Park Trail, King Jack Park Trail, and Murphy Boulevard Park Trail. The King Jack Park Trial consists of an 8-foot wide asphalt trail within the park along with connections to the Frisco Greenway Trail. The Murphy Boulevard Park Trail is a popular walking trail in central Joplin. The trail is an 8 foot wide firmly packed gravel surface traversing the park with a length of approximately 1.5 miles.

2.4 AVIATION

The latest update to the *Joplin Regional Airport Master Plan* was in 2015, and JATSO's metropolitan transportation planning process retains the recommendations that the airport plan put forth and summarizes subsequent implementations of those recommendations.

The Joplin Regional Airport, owned and operated by the city of Joplin, serves the commercial, military, cargo, general aviation and corporate aviation demands for much of southwestern Missouri. The airport is located directly to the north of Route 171 and east of Route 43. The management of the airport falls within the City of Joplin's Public Works Department. An Airport Manager is responsible for the oversight of the daily operations. An Airport Advisory Board, consisting of seven members appointed by the Joplin City Council, is in place to provide guidance and direction to the Airport Manager. Other airport staff consists of one airfield operations manager, four operations shift personnel, one seasonal assistant and one part-time clerk. Airport staff is cross-trained to perform operations and maintenance duties.

2.4.1 PAST AIRPORT DEVELOPMENTS

- 2003: A $500,000 federal grant was received and matched by a $100,000 commitment from the Joplin Business Development and Industrial Corporation (JBDIC) in support of the airport's growth. Airport officials utilized the grant monies to offer new incentives to commercial carriers to help bring additional services to Joplin.
- 2004: Federal funding was received to plan and design a new terminal to replace the nearly 60-year-old terminal building that had become an obstruction to accommodating larger jets (proximity to main runway), a security concern (proximity to general aviation facilities), and too inefficient in daily operations. In general, expansion of airside and landside facilities was not possible at this terminal.
- 2008: Construction of the new $15 million terminal was completed in addition to a new $3.5 million traffic control tower. 90% of the costs were covered through the Federal Aviation Administration; the remaining funds were supplied by the City of Joplin.
- 2009: Airside and landside improvements continued including an airfield electric vault, generator, and lighting project and a parking lot improvement.
- 2011: American Eagle begins service to Dallas-Fort Worth
- 2011: Airport offers 62 acres of land to temporarily house tornado victims. Second fixed-base operator initiates service at airport. New vault building and airfield electrical re-routing.

2.4.2 EXISTING AIRPORT FACILITIES

The Airport's facilities consist of two categories: airside and landside. The airside facilities include areas on airport property directly associated with aircraft operations, such as the runways, taxiways, navigational aids, and airport lighting. The landside areas include those facilities that provide a transition from surface to air transportation such as the passenger terminal building. Support facilities include the air traffic control tower and aircraft maintenance facilities.

AIRSIDE FACILITIES

Runways: The Airport uses a three-runway system. The primary runway (Runway 18/36), is 6,500 feet long and 100 feet wide. The secondary runway (13/31 or Crosswind) is 6,503 feet long and 150 wide. The third runway (Runway 05/23) is 3,604 feet long and 75 feet wide. Runway 18/36 is paved with asphalt and is in mostly good condition with a stretch of pavement in fair condition. Runway 05/23 is paved with asphalt and is in fair condition. Runway 13/31 has grooved asphalt in good condition.

Aprons: The airport has approximately 72,800 square yards of concrete. This concrete is separated amongst three different aprons: the GA Apron, the Commercial Apron and the Industrial Apron. There are currently 37 tie-downs available for aircraft parking.

Lighting and Visual Aids: The airport is identified by a rotating beacon located to the northeast of the intersection of Runways 18/36 and 13/31. This beacon projects one green and one white light, 180 degrees apart. The runway ends, or thresholds, are equipped with standard threshold lighting to assist approaching aircraft identifying the runway environment. Runways 13/31 and 18/36 are equipped with high intensity runway lights. Runway 5/23 is equipped with medium intensity runway lights.

LANDSIDE FACILITIES

Terminal Building: The new airport terminal encompasses approximately 22,000 square feet. The 2-story, 3-gate terminal includes public lobby, airline operations and ticket counter areas, a private luggage screening area, a covered baggage claim area, restrooms, canopied rental car areas, a business center, offices, a training facility, board room, and storm shelters. The new terminal also accommodates future growth.

Fixed Base Operator (FBO) Facilities: The Airport presently has two Fixed Base Operator (FBO), Mizzou Aviation and Alpha Air Center, to service the general aviation activities. These FBOs provide aircraft fuel, parking, hangars, flight training, aircraft rentals, charter fights, maintenance, parts and accessories and aircraft sales. Mizzou Aviation's facility is located in the 7,200 square foot general aviation terminal. They perform maintenance in the adjacent 150'x100' shop hanger, provide overnight covered storage for aircrafts in a separate itinerant hangar and provide tie-downs for 23 aircraft west of the general aviation terminal. Alpha Air operates in a centralized hangar that is 5,500 square foot space, with 1,000 square feet of finished floor space and 6,500 square feet of maintenance and overnight storage. There is also transient parking for both FBOs between their respective facilities and Taxiway "D."

Industrial Buildings: The airport campus also houses two industrial building with landside and airside interface. The first contains approximately 2,500 square feet of finished office floor space, 17,500 square feet of open floor space and a 3,500 square yard apron. The facility is currently leased to CD Aviation, an aircraft engine maintenance and overhaul provider. The second offers 1,200 square feet of finished office floor space, 10,500 square feet of heavy machining equipment, eight (8) truck docks and a 4,000 square yard apron. This facility is owned by Wyandotte Precision Manufacturing and currently operates on a land lease with the airport. Both facilities are connected by means of Taxiway "K."

Hangars: The airport owns several T-hangar facilities and several privately owned single T-hangar units are located on the airport campus as well.

2.4.3 COMMERCIAL FLIGHT OPERATIONS

The airport is served by one passenger airline, American Eagle Airlines, which provides federally-subsidized carrier commercial passenger service between Joplin Regional Airport and Dallas/Fort Worth Airport. They offer two (2) daily flights departing from Joplin and two flights departing from Dallas/Fort Worth seven days a week. The operational contract with American Eagle Airline does not currently have an expiration.

Commercial air service in Joplin has been intermittent since the deregulation of the airline industry. The inconsistency of air service, combined with the residual effects of the 9/11 terrorist attacks, proximity to larger airports, rising fuel costs, and other economic factors, has led to a decline of enplanements since a peak of over 40,000 annual enplanements in the 1990s. The last fifteen years have seen a number of commercial carriers try to maintain a presence in the Joplin market despite the downward trend. According to the Federal Aviation Association, the Joplin Regional Airport produced 3,776 enplanements in 2009. However, the airport produced 23,329 enplanements in 2013. Thus, in only four years, the enplanements for the airport have risen approximately 518%.

Interest in the Joplin market is still strong as evidenced by the bids to replace Great Lakes Airlines as Joplin's carrier in 2010. The bids for the service came from American Eagle and Air Choice One. Both proposed to offer flights to airports with larger markets than the current connection does, Dallas-Fort Worth and St. Louis respectively. American Eagle won the bid and began its contract in late 2010.

2.5 FREIGHT

Across the United States and the world, goods (freight) are moved using many modes of transportation. These modes can be grouped into four categories: boat, plane, train and truck. As the Joplin region is not connected by navigable waters, freight is not moved by boat. None of the major product air shipping companies, such as UPS and Fed-Ex, operate out of the Joplin Regional Airport limiting the amount of air cargo within the region. Rail and trucking are the two major sources of regional freight transportation.

2.5.1 RAIL

The Joplin area moves freight by rail through service of three railroads:

- Kansas City Southern (KCS)
- Burlington Northern Santa Fe (BNSF)
- Missouri Northern Arkansas (MNA)

KCS and BNSF are Class I railroads, meaning they have annual gross revenues of more than $250 million. MNA is a Class II railroad, which means it has annual gross revenues of at least $20 million but no more than $250 million. KCS runs north-south in direction and connects Kansas City and Dallas. BNSF connects regions throughout the country including Chicago, Texas, California and the Pacific Northwest. MNA is primarily a regional railroad that connects to local areas throughout Southwestern Missouri and Northern Arkansas.

2.5.2 TRUCKING

The Joplin region is historically known for being a leader in the trucking industry on a per capita basis and continues to thrive as a centrally located Midwest hub with great Interstate and highway access. The major routes connecting the Joplin region are I-44 and I-49 (formerly US-71). Increased freight opportunities are being made possible by the current push through KC SmartPort to make Kansas City an international inland port. The Joplin region will benefit from both the roadway improvements and the increase in freight being shipped from the Midwest.

According to the Joplin Area Chamber of Commerce, the Joplin region experiences significant trucking activity and is home to 181 trucking companies. In total, it is estimated the Joplin trucking companies gross over ½ billion dollars annually and employ over 5000 people, locally. Con-Way Truckload Inc., Tri-State Motor Transit Co., Active Transportation Co LLC, Bed Rock Inc, Tri-State Motor Transit Co., D & D Sexton Inc., and Transport Distribution Company TDC are the area's largest trucking companies. ***Table 2.5*** lists the major trucking companies in the Joplin region.

Table 2.5: Major Area Trucking Companies

	Company Name	City	Local Employees	Location Type	Annual Sales Volume
1	Con-Way Truckload Inc	Joplin	3,050	HQ	$352,400,000
2	Tri-State Motor Transit Co	Joplin	1135	HQ	$62,900,000
3	D & D Sexton Incorporated	Carthage	218	Single Location	$25,400,000
4	Transport Distribution Company	Joplin	190	HQ	$22,800,000
5	Frontier Leasing Inc	Joplin	100	Single Location	$10,500,000
6	Dyno Nobel Transportation	Carthage	60	Branch	$6,300,000*
7	USF Holland Inc	Joplin	59	Branch	$6,195,000*
8	Fedex Freight Inc	Joplin	35	Branch	$3,500,000*
9	Ruan Transport Corporation	Carthage	27	Branch	$2,700,000*
10	Buesing Bulk Transport Inc	Carthage	25	Branch	$2,500,000*
11	C & C Fleet Service	Joplin	22	Single Location	$2,200,000
12	Ruan Trnsp MGT Systems Inc	Carthage	18	Branch	$1,800,000*
13	Active Transportation Co LLC	Joplin	15	Branch	$36,000,000
14	Fleenor Bros Enterprises Inc	Carthage	14	Single Location	$1,400,000
15	Certified Express Inc	Neosho	12	HQ	$1,100,000
16	Huntington Woods Logistics Inc	Neosho	10	Single Location	$930,000
17	McAllister Delivery Inc	Webb City	10	Single Location	$630,000
18	Longs Truck Service	Joplin	10	Single Location	$600,000

19	Neosho Trucking Inc	Neosho	10	Single Location	$540,000
20	Servant Enterprises Inc	Joplin	10	Single Location	$375,000
21	Michael W Baker Trucking	Joplin	10	Single Location	$50,000
22	Above Par Leasing Inc	Webb City	9	Single Location	$1,000,000
23	ABF Freight System Inc	Joplin	9	Branch	$1,000,000*
24	Above Par Transportation Inc	Webb City	8	HQ	$890,000
25	Reynolds Warehouse Inc	Joplin	8	Single Location/ HQ	$870,000
34	Price Trucking LLC	Neosho	7	Single Location	$640,000
Total Estimated Local Employees & Annual Sales Volume					**$521,225,000**

This information was provided by the Joplin Chamber of Commerce.
*Annual Sales Volumes not reported - estimated based on similar number of local employee.

At a regional level, the major freight corridors, as depicted in ***Figure 2.11***, in the Joplin metropolitan area are:

- Interstate 44;
- Range Line Road/I-49 Business Route;
- MO Rte. 249;
- Interstate 49;
- 32nd Street;
- 7th Street/MO Rte. 66;
- Main Street/MO Rte. 43;
- McArthur Blvd./MO Rte. 171;
- Schifferdecker Avenue
- 20th Street
- Duquesne Road

These regional freight corridors serve the Range Line commercial area, the Joplin Regional Airport, downtown Joplin, the Freeman West medical area, the Mercy Hospital area, the Joplin Airpark & Industrial Park, the Crossroads Center Business Park, the Joplin Southern Industrial Park, the Joplin – Webb City Industrial Park, Cedar Grove Industrial Park, and the Joplin Western Industrial Park.

2.5.3 INDUSTRIAL PARKS

There are several major industrial areas in the Joplin metro area:

- Crossroads Center Business Park
- Joplin Airpark & Industrial Park
- Joplin Southern Industrial Park
- Joplin Webb City Industrial Park
- Joplin Western Industrial Park
- Cedar Grove Industrial Park

The largest industrial park, Crossroads Center Business Park, is located southeast of the metropolitan area. It covers the area just south of I-44, north of Route FF (32nd Street) and to the eastside of Jasper County Road 190 (Prigmore Avenue). The Crossroads Industrial Park has 670 acres, and has been noted as one of the top sites for expansion in the country. Some of the industries located in the Park presently include Communication Solutions and Technology (CST), Great Outdoor, Component Packaging, Bruner Fabrication, and Standard Transportation. This industrial park has excellent access to I-44 and I-49.

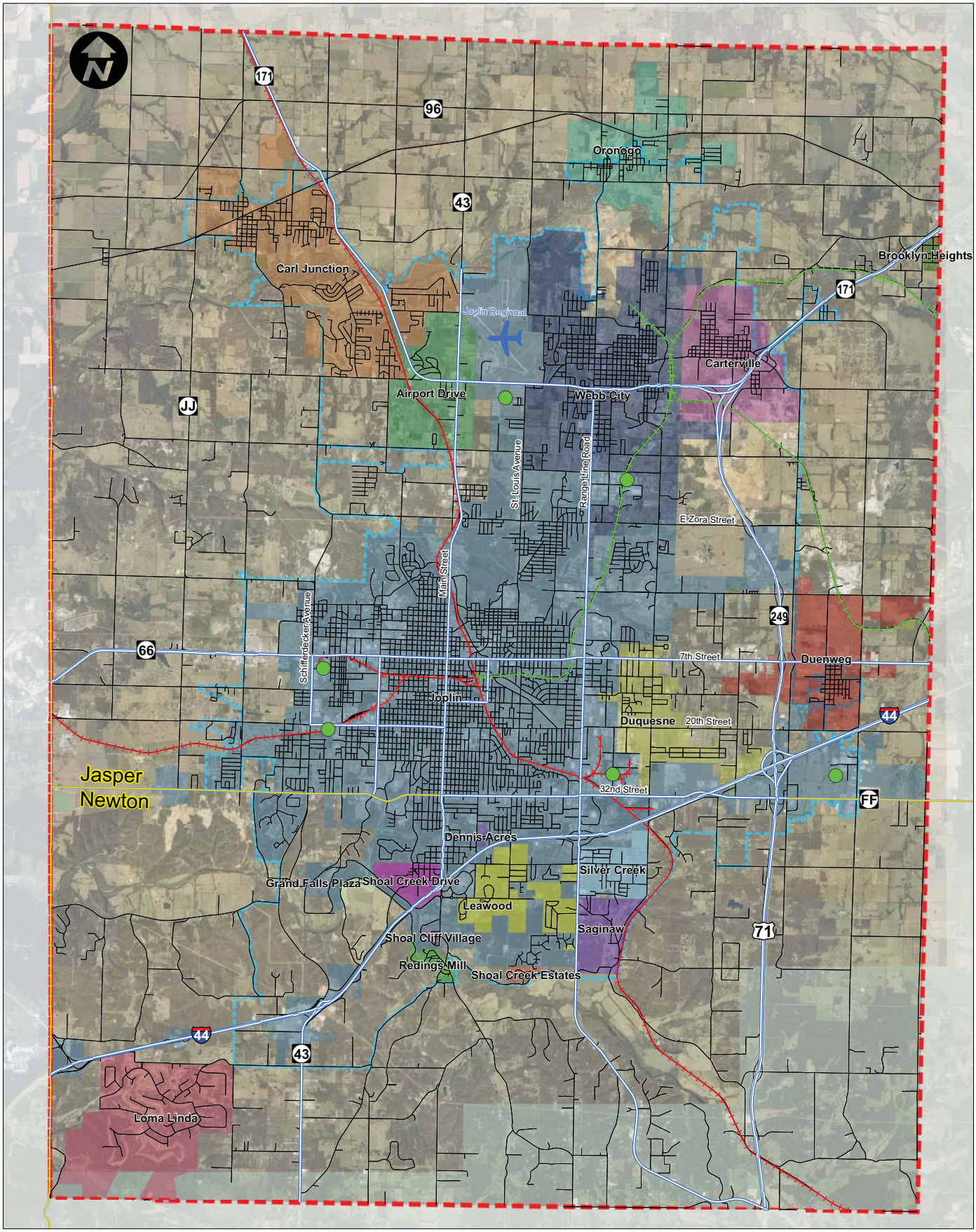
Located south of the Joplin Regional Airport and Missouri Route 171, the Joplin Air Park & Industrial Park sits just west of St. Louis Avenue. In addition to being close to the airport, this location has great access to Route 171 providing connections to the regional Interstate and highways.

One of the larger industrial parks, Joplin Southern Industrial Park, is located in the southeast portion of the metropolitan area. It covers the area just north of Route FF, south of 20th Street, and east of Davis Boulevard. It includes Gulf States Paper Company and the Pillsbury Company. Nearby on Route FF is the distribution center of Conway Freight Trucking.

Another industrial area located in the northeast part of the metropolitan area is the Joplin – Webb City Industrial Park. The park is located generally north of Zora Street, south of Cardinal Road, east of Range Line Road, and west of Duquesne Road. It includes such freight forwarders as Federal Express and XPEDX.

Two smaller industrial areas, Joplin Western Industrial Park and Cedar Grove Industrial Park, are located on the west side of the Joplin area east of Schifferdecker Avenue at 7th Street and 20th Street, respectively. Both of these locations provide rail access and will see growth potential with the proposed West Corridor improvements.

In and around these industrial areas, there are a number of large manufacturing firms that are responsible for significant goods movement activity. Some of the largest include: Eagle-Pitcher, a maker of chemicals, batteries, fabricated metal products and auto parts; Able Body Corporation, a maker of truck bodies; Pillsbury, a maker of frozen foods; and Tamko Roofing Products.



September 2015

CJW

Freight Network

Figure 2.11

Major Freight Corridors
Roads
Railroad (class1)
Railroad (non-class1)
Industrial Parks
JATSO Boundary
Joplin Regional

2.6 Performance Based Measures

2.6.1 Summary of Existing Measures of Performance

JATSO is aligning to the MAP-21 standards by tracking the performance of its transportation system with different criteria. Those criteria are as follows:

- Crash rates
- Pavement Conditions
- Ozone Levels

These measures specifically address the requirement to create performance based methods of tracking progress as specified by MAP-21. The following sections show the current state of each of the performance measures in addition to future targets and, where applicable, the plan to achieve said targets.

2.6.2 Crash Rate

In 2010, Joplin published the Intersection Traffic Crash Analysis report. Since then, no similar traffic crash studies have been completed for the area. MoDOT provided crash data for the past five years within the JATSO metropolitan planning area.

Crash rates are often utilized when evaluating crash statistics in a given area. This is often accomplished by determined the total vehicles miles traveled (VMT) and then comparing the number of crashes that occur compared to the total VMT.

A summary of the last 5 years of crash data is shown in **Table 2.6**. A lower value is better.

Table 2.6: Crash Rates within the JATSO Metropolitan planning area

Year	VMT	Total Disabling Injury & Fatality Crashes	Disabling Injury & Fatality Crashes Per MVMT
2010	3,069,210**	83	27.04
2011	3,127,331*	76	24.30
2012	3,185,451*	80	25.11
2013	3,243,572*	49	15.11
2014	3,301,692	64	19.38

*Assumed value, assigned based on differential increase from 2010 to 2014.
**From JATSO 2030 Long Range Transportation Plan.
Million Vehicle Miles Traveled = MVMT

Within the years of 2010 and 2014, there was an average of 2374 crashes/year maxing out at 2,545 in 2011. Fatal crashes averaged 11.6/year with a max of 15 also in 2011.

JATSO's goal

Set the goal to continue the downward trend of crashes in the JATSO metropolitan planning area.

2.6.3 Pavement Conditions

The condition of the pavement in the JATSO area is tracked by MoDOT. They provided pavement condition data for the years between 2010 and 2014 on all state roadways within JATSO's metropolitan planning area. The pavement on these roadways has been ranked in "good" or "not good" condition. That designation is based on physical damage, appearance and overall smoothness of pavement. MoDOT's goal is to maintain state roadway such that 85% of them are in good condition. Overall, the pavement conditions in the JATSO area are above the state average. The roadways with ratings applied to them include interstates, freeways, principle arterials, major collectors, minor arterials and even a few local streets that parallel I-44 and MO 171.

Pavement conditions are described in **Table 2.7** below. A higher value is better.

Table 2.7: Percentage of JATSO Pavement in Good Condition

Year	% of Pavement in Good Condition
2010	85
2011	84
2012	85
2013	87
2014	89

JATSO's goal

JATSO will work to maintain pavement in good condition as budgetary constraints allow.

2.6.4 Ozone Levels

The National Ambient Air Quality Standards (NAAQS) sets levels for acceptable amounts of ground level Ozone for given areas. The Clean Water Act specifies that Ozone levels for a given region not exceed 75 ppb. The amount of Ozone for a region is measured at various Air Quality System sites (AQS) around the country. The closest site to the JATSO area is the Alba AQS Site located in Alba Missouri. The site is approximately fifteen miles from the center of the JATSO area.

Ozone is measured based on a three year design value that is determined based on the fourth highest Ozone value measured within those three years. The Ozone Design value is reported by the AQS sites on a two year basis. The current Ozone Design Values are shown in **Table 2.8**. A lower value is better.

Table 2.8: JATSO Area Ozone Design Values

Years	Ozone Design Value
2009-2011	0.075
2010-2012	0.078
2011-2013	0.077
2012-2014	0.072

JATSO's goal

Set the goal that the regional plans, programs and projects conform to established National Ambient Air Quality Standards.

The purpose of tracking these elements is to not only provide a goal that agencies aim for in their planning processes, but to also provide a model that can be measured in the future to help track successfully reached goals and also track those areas where performance needs to be improved. These measures will help guide area agencies in future planning and should be considered when new projects are proposed for the JATSO area.

SECTION 3
2036 MODAL RECOMMENDATIONS

A Metropolitan Transportation Plan provides guidance and recommendations on needs and improvements that can affect the region's transportation system. These enhancements can be varied in nature and scope. They can range in size from multi-million dollar capital improvement projects that provide or enhance connectivity across the region to traffic signal upgrades to altering a transit route to include an additional stop. Some recommendations may require only a policy change to implement, and some may not come to fruition until closer to the 2036 planning horizon. Furthermore, some may be completed over a short duration, but some may require a continual effort by JATSO, MoDOT, and municipal staff to implement and maintain.

There are several viable mobility options that can be utilized to improve operation and performance of the transportation system. Some ways to improve the efficiency of the transportation network along a corridor that is projected to experience traffic congestion include:

- Roadway construction
- Transportation System Management
- Transportation Demand Management
- Public Transportation

3.1 2036 TRAVEL DEMAND MODEL

JATSO staff provided a travel demand model that was used to forecast travel demand for various scenarios for the year 2036. In long range planning studies, travel demand models are used to determine future travel volumes on the roadway system given anticipated growth. Existing traffic conditions were determined by comparing the most recent available traffic counts with street and highway capacity. After the existing conditions are assessed, a common practice in assessing future transportation conditions is to examine what transportation problems could be expected if no additional improvements to the roadway system were made beyond what is currently funded or currently under construction. This is called an existing plus committed network (E + C). The committed projects that were included are those projects contained in the Transportation Improvement Program (TIP) or included in dedicated local funding such as the Joplin 10-Year Transportation Program that is funded by a 10-year transportation tax. A list of committed projects included in the 2036 E+C network is shown in ***Table 3.1***.

Table 3.1: Committed Projects in 2036 E+C Network

Roadway	From	To	Description	Cost (2016)
City Wide			Neighborhood Transportation Improvements	$1,500,000
City Wide			Intersection Improvements	$2,500,000
City Wide			Street Surface Repair	$2,500,000
6th Street	Intersection w/ Virginia Ave.		Parking Garage modifications	$2,687,000
Connecticut	Intersection w/ I-44		Overpass at I-44 - Improve overpass to 4	$5,374,000

Avenue			lane	
Projects that require partners				
Jackson Avenue	Intersection w/ Shoal Creek		Bridge Replacement	$973,000
Schifferdecker Avenue	Intersection w/ Turkey Creek		New Bridge	$600,000
Connecticut Avenue	32nd Street	44th Street	Improve from 2 lane to 5 lane	$8,085,000
32nd Street	Schifferdecker Avenue	Country Club Road	Improve from 2 lane to 3 lane	$5,939,000
32nd Street	Country Club Road	Central City Road	Improve from 2 lane to 3 lane	$6,220,000
44th Street	Range Line Road	Connecticut Avenue	Improve from 2 lane to 5 lane	$6,135,000
Zora Street	Range Line Road	MO 249	Improve from 2 lane to 3 lane	$3,308,000
20th Street	Schifferdecker Avenue	Country Club Road	Right of Way	$720,000
20th Street	Schifferdecker Avenue	Country Club Road	Improve from 2 lane to 3 lane	$5,112,000
TIP Projects				
Route Z			Transportation Alternatives Program - Sidewalk Improvements - Phase 3	$357,500
Madison Street			roadway improvements from Rte. 171 to 13th Street (Scoping)	$6,000
I-49			roadway improvements from Rte. V near Carthage to Rte. FF (Scoping)	$6,000
7th Street (Route 66)			roadway improvements from 0.5 mi west of Rte. P to 0.1 mi west of Loop 49 (Scoping)	$6,000
Newman Road			ped imprvmts. and ADA accom. from Loop 49 to Duquesne and on Range Line (Scoping)	$6,000
Harley Street			ped improvements and ADA accommodations from Harley St to Karen Dr (Scoping)	$6,000
Route 43			roadway improvements from Rte. FF (32nd Street) to I-44 (Scoping)	$6,000
Interstate 44			pavement improvements from Loop 49 (Range Line Road) to east of Rte. 37 (Scoping)	$6,000
Range Line Road			intesection and outer road improvements on Range Line Road at 36th Street (Scoping)	$6,000
Southwest District			pedestrian improvements and ADA accommodations along various routes (Scoping)	$6,000

Southwest District			safety improvements at various locations in the rural Southwest District (Scoping)	$6,000
Southwest District			bridge improvements at various locations in the rural Southwest District (Scoping)	$6,000
Southwest District			bridge preventive maintenance at various locations (Scoping)	$6,000
Southwest District			pavement improvements on primary routes in the rural Southwest District (Scoping)	$45,000
Route 43			Pavement improvements from south of Rte. 171 in Airport Drive to Murphy Boulevard	$814,000
Various			Job Order Contracting for pvmt. repair from the Ok State line to Rte. 360 in Greene Co.	$216,000
Southwest District			Job Order Contracting for guard cable and guardrail repair at various locations	$568,000
Southwest District			Job Order Contracting for guard cable and guardrail repair at various locations	$586,000
Southwest District			Job Order Contracting for guard cable and guardrail repair at various locations	$553,000
Southwest District			Payback beginning SFY 2008 for Safe and Sound bridges in the rural Southwest District	$181,000/year
Southwest District			Safety improvements at various locations in the rural Southwest District	$173,000
Southwest District			On call work zone enforcement at various locations in the rural Southwest District	$34,000
Southwest District			On call work zone enforcement at various locations in the rural Southwest District	$21,000
Southwest District			ITS Operations and Management in the rural Southwest District	$38,000
Southwest District			ITS Operations and Management in the rural Southwest District	$38,000
Transit Vehicles			2016: Replace 3 MAPS Vans. 2017: Replace 1 MAPS Van. 1018: Replace 2 MAPS Vans.	$390,000
Pedestrian Shelters			Two (2) pedestrian waiting shelters and one (1) pedestrian waiting bench.	$25,000
Operator Training			Transit Operator Training Development Course.	$10,000
Operations & Maint.			Annual Transit Operating Expenditures.	$1,207,537
Transfer Station			Transfer Station at 15th Street and Connecticut Avenue.	$2,548,744

The primary purpose of performing forecasts of future traffic patterns is to be able to identify where breakdowns or capacity problems in the transportation system will occur or worsen. While one can look at individual segments that are anticipated to be congested, perhaps the more appropriate action is to look at the anticipated condition of the overall corridor. ***Table 3.2*** tabulates the projected volumes, capacities and levels of service for roadway segments included in the Year 2036 E+C network.

Table 3.2: 2036 E+C Forecasted Traffic Volumes and Level of Service for Selected Links

Street	Location		No. Lanes	V/C	AADT	LOS
	From	To				
BRIARBROOK DR	Briar Meadow Dr	Fir Rd	2	0.79	10187	C
CENTRAL CITY RD	20th St	Newton Rd	2	0.89	11467	D
CENTRAL CITY RD	20th St	Junge Blvd	2	0.75	9421	C
CENTRAL CITY RD	Junge Blvd	US Hwy 66	2	0.72	8995	C
N SCHIFFERDECKER AVE	Belle Center Rd	Midway to Zora	2	0.74	9314	C
N SCHIFFERDECKER AVE	Midway to Belle Center	Zora St	2	0.72	9049	C
COYOTE DR	Apricot Dr	McClelland Park Blvd	2	0.90	11221	D
COYOTE DR	Interstate 44	Apricot Dr	2	0.82	9675	C
COYOTE DR	Arbor Rd	32nd St	2	0.79	9723	C
COYOTE DR	McClelland Park Blvd	Arbor Rd	2	0.74	9065	C
CR 190	I-44 EB Ramp	I-44 WB Ramp	2	0.97	10461	C
E 20TH ST	Michigan Ave	New Hampshire Ave	4	0.76	19438	C
E 32ND ST	US Hwy 71	Prigmore Avenue	2	0.80	10003	C
E 32ND ST	Indiana Ave	Ferguson Rd	4	0.71	25113	D
E 7TH ST	Northpark Ln	Walnut Ridge St	4	0.71	25079	D
FIR RD	Briarbrook Dr	Lone Elm Rd	2	0.73	9294	C
FLORIDA AVE	15th St	7th Street	2	0.70	8608	C
MADISON ST	Broadway Street	MO Hwy 171	2	0.76	9464	C
N 43 HWY	Harmony Ln	State Hwy 171	2	0.78	9515	C
N LONE ELM AVE	Hickory Hills Dr	Zora St	2	0.74	9624	C
N MAIN ST	Zora St	Eaglewood Rd	4	0.73	26367	D
N MAIN ST	Eaglewood Rd	Easter Ln	4	0.77	27839	D
S MAIN ST	River Rd	Norledge Rd	2	0.87	8590	C
S HEARNES BLVD	I-44 EB Ramp	Glendale Rd	1	0.94	7000	C
S HEARNES BLVD	Riviera Dr	50th St	2	0.93	9220	C
S HEARNES BLVD	50th St	Glendale Rd	3	0.83	6355	B
NB US 71 RAMP	Intersection w/	32nd St	2	0.74	8953	C
OLD 66 BLVD	Overpass at	State Hwy 171	2	0.73	5386	C

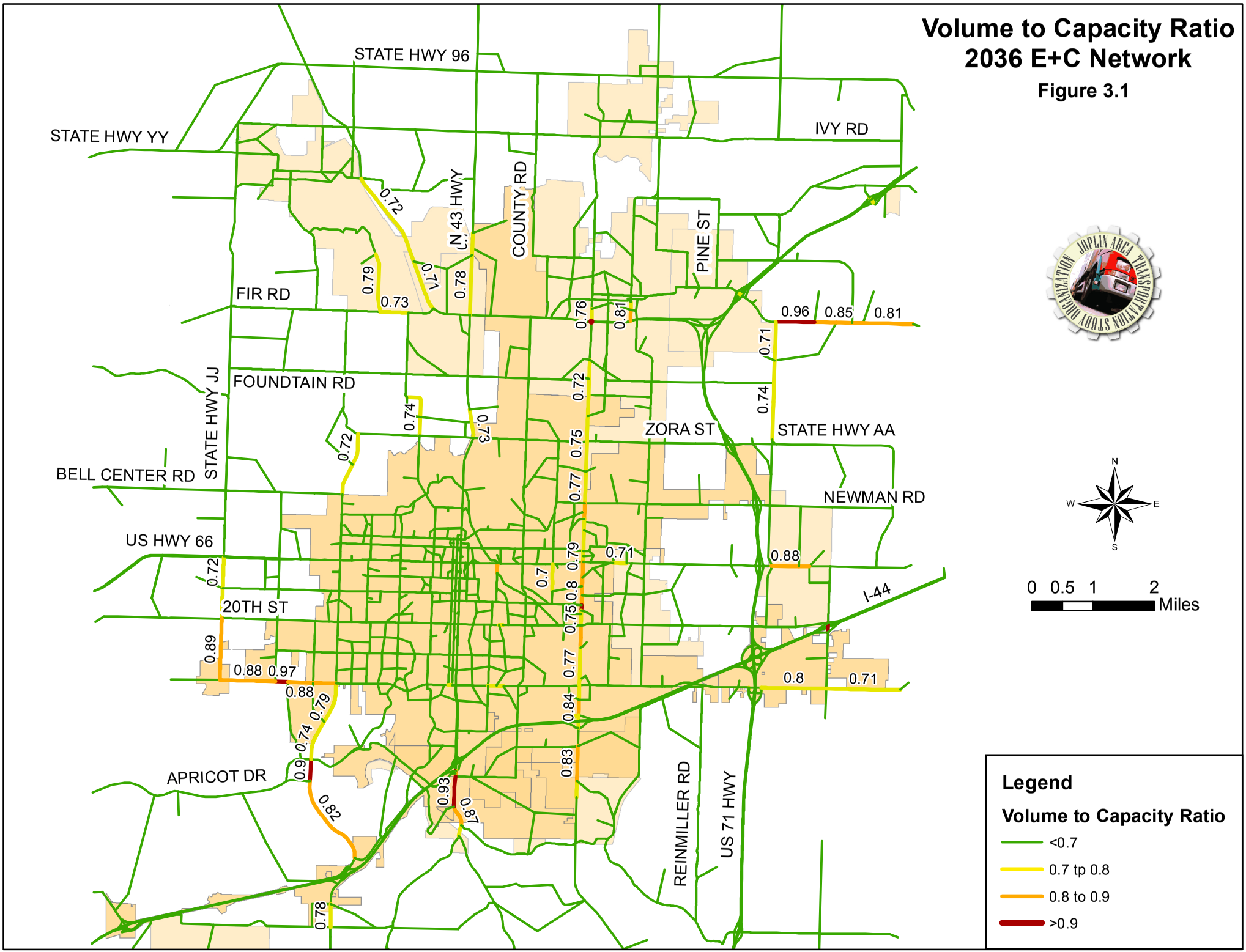
N RANGE LINE RD	Hodgdon Rd	Newman Rd	4	0.81	29377	E
N RANGE LINE RD	Northpark Ln	Hodgdon Rd	4	0.78	28089	D
N RANGE LINE RD	Newman Rd	Waters Edge Blvd	4	0.77	27956	D
N RANGE LINE RD	Mall Rd	Northpark Ln	4	0.76	27576	D
N RANGE LINE RD	Waters Edge Blvd	Zora St	4	0.75	27451	D
N RANGE LINE RD	Zora St	Enterprise Ave	4	0.75	26916	D
N RANGE LINE RD	4th St	Mall Rd	4	0.72	25909	D
N RANGE LINE RD	Enterprise Ave	Cardinal Dr	4	0.71	25370	D
RANGE LINE RD	17th St	15th St	4	0.91	32709	F
RANGE LINE RD	24th St	20th St	4	0.84	30063	E
RANGE LINE RD	11th St	9th St	4	0.82	29696	E
RANGE LINE RD	15th St	13th St	4	0.82	29627	E
RANGE LINE RD	9th St	7th St	4	0.82	29638	E
RANGE LINE RD	13th St	11th St	4	0.80	28963	E
RANGE LINE RD	7th St	4th St	4	0.79	28494	E
RANGE LINE RD	18th St	17th St	4	0.76	27126	D
RANGE LINE RD	20th St	18th St	4	0.75	27184	D
S RANGE LINE RD	I-44	Plaza Dr	4	0.84	29891	E
S RANGE LINE RD	44th St	Saginaw Rd	2	0.83	13805	E
S RANGE LINE RD	32nd St	24th St	4	0.77	27676	D
S RANGE LINE RD	Plaza Dr	32nd St	4	0.74	26759	D
S RANGE LINE RD	I-44 EB Ramp	I-44 WB Ramp	4	0.72	22679	C
S ILLINOIS AVE	Murphy Blvd	7th St	3	0.86	12681	C
S MADISON AVE	17th Street	14th St	4	0.75	26775	D
S MADISON AVE	Cardinal Dr	17th St	4	0.72	26059	D
S US 71 HWY	McCutcheon St	Saginaw Rd	2	0.70	11807	D
SB US 71 RAMP	Intersection w/	32nd St	2	0.75	8768	C
STATE HWY 171	Gum Rd	Hawthorne Rd	2	0.72	13010	D
STATE HWY 171	Fir Rd	Gum Rd	2	0.71	12824	D
STATE HWY 43	Douglas Fir Rd	Start of 3-lanes	2	0.78	13205	D
STATE HWY 86	State Hwy NN	River Rd	2	0.72	8208	C
STATE HWY AA	Elm Rd	Foothill Ln	2	0.74	8279	C
STATE HWY AA	Eden Rd	Elm Rd	2	0.74	8193	C
STATE HWY AA	State Hwy AA	Eden Rd	2	0.74	8193	C
STATE HWY AA	Foothill Ln	Fir Rd	2	0.71	7871	C
STATE HWY D	MO 171	E 1st St	2	0.81	9975	C
STATE HWY D	E 1st St	Broadwat St	2	0.76	9292	C
STATE HWY HH	State Hwy AA	Split Rail Dr	2	0.96	10944	D

STATE HWY HH	Split Rail Dr	Prigmore Ave	2	0.85	9476	C
STATE HWY HH	Gum Rd	Country Lane 183	2	0.85	9466	C
STATE HWY HH	Prigmore Ave	Gum Rd	2	0.85	9458	C
STATE HWY HH	Country Lane 183	Farm Road 170	2	0.81	9001	C
STATE HWY HH	MO 171 SB Ramp	MO 171 NB Ramp	2	0.74	6186	B
US HWY 66	Prosperity Ave	Wolfe Dr	2	0.89	10865	D
US HWY 66	Prosperity Ave	Wolfe Dr	2	0.88	10792	D
STATE HWY FF	Prigmore Ave	Lark Rd	2	0.71	9054	C
W 32ND ST	Central City Rd	Ashwood Ln	3	0.88	15522	D
W 32ND ST	Ashwood Ln	Country Club Dr	3	0.88	17769	E
W 32ND ST	Country Club Dr	Crane Dr	3	0.97	15477	D
W 32ND ST	Crane Dr	Schifferdecker Ave	3	0.88	15477	D
W 32ND ST	Wall Ave	Joplin Ave	4	0.73	24629	D

The locations where traffic volumes would approach or exceed capacity for a Year 2036 E+C network is shown in ***Figure 3.1***. These locations identified where future traffic congestion is anticipated include:

- Range Line Road – Many sections of Range Line Road are projected to approach capacity in the year 2036.
- Schifferdecker Avenue south of 32nd Street (Coyote Drive) is expected to experience increased volume and is anticipated to near capacity over the next 20 years.
- State Highway HH is expected to undergo enough growth to reach over 80% of its capacity.
- 32nd Street is expected to near its capacity in certain segments.
- Analysis indicated that with expected increased growth along various segments of Main Street, roadway capacity would rise above 80% utilization and would near its full capacity in specific areas.

Volume to Capacity Ratio
2036 E+C Network
Figure 3.1



3.2 ROADWAY RECOMMENDATIONS

3.2.1 ROADWAY CONSTRUCTION

Building new roads or widening existing roads can help alleviate congestion by providing increased roadway capacity for all types of motorized vehicles. In some cases, new or improved roads also improve access to a particular area within the region.

A number of roadway needs and projects were identified through analysis of the forecasted future traffic, stakeholder interviews, and public input. Some of the projects identified that involve adding through lane capacity include:

- Construction of a new West Corridor near/along Central City Road connecting Route 171 to I-44 to reduce through traffic and truck traffic on city routes.
- Widening of Route 171 from Fir Drive to the west past Carl Junction.
- Widening of Zora Street to five lanes from MO 249 to Proposed West Corridor
- Widening of the Duquesne/Hall corridor from 32nd Street north through Webb City.
- Widening of 32nd Street from Schifferdecker Avenue to Central City Road to include five lanes.
- Widening of Black Cat Road from Route 66 (7th Street) to 32nd Street to include a center two-way left-turn lane.
- Widening St. Louis Ave. from Zora St. to Route 171 to include a center two-way left-turn lane.

A large portion of the funding in any given region is always devoted to maintenance and system preservation. Planning for future improvements does not exclude investing in existing infrastructure. Programs like FHWA's National Highway Performance Program fund project that keep bridges, intestates and highways maintained. Consideration should always be given to the ongoing maintenance of key transportation features in the JATSO region.

One of the overarching topics discussed with stakeholders was the need for city sidewalks. Many members of the community felt that the connectivity of sidewalks in Joplin was below par in terms of safety. Most of the input focused on the need for safe routes to schools, colleges and businesses. This theme was prevalent throughout the majority of communications with community stakeholders.

In terms of transit, those who participated in public input meetings held by JATSO had specific feedback in several areas. They included the need for increased transit connections between businesses, constructing trolley stops off major roadways and instead placing them within residential areas to reduce congestion, extending early morning hours so that parents who utilize the service can take their children to school and still have time to get to work, extending evening hours so that college students can not only get to their classes, but also return home from them.

A summary of potential roadway improvement projects is listed in ***Table 4.2.***

Of the roadway improvement projects given consideration, fourteen (14) projects were evaluated in the 2036 E+C travel demand model to compare the effects of each on the regional roadway network. ***Table 3.3*** summarizes the output from separate model runs with each project added to the network by itself. Model data used for comparison includes the change in vehicle miles traveled and vehicle hours traveled, which is a measure of delay.

Table 3.3: Travel Demand Model Output: Summary of Project Comparison

2036 Alternative	Vehicle Miles Traveled (VMT)	Vehicle Hours Traveled (VMT)	Daily Δ Delay (Hours)	Daily Δ Miles
E+C	3301692	225+95	0	0
101a	3300431	114031	-1261.49	-653
101b	3301720	114571	-39.51	-113
102b	3301789	114647	96.96	-37
102c	3301694	114683	1.70	-2
104	3301720	114669	27.51	-15
105a	3301955	114635	262.52	-49
106b	3301681	114679	-11.49	-5
106c	3301652	114659	-40.71	-25
107	3301742	114676	49.51	-8
134a	3301742	114681	45.51	-3
144	3301690	114683	-2.49	-1
145	3301640	114511	-52.97	-173
146	3301651	114679	-41.49	-5
147	3301733	114677	40.47	-7

More information is provided on these fourteen (14) projects in **Appendix C**.

3.2.2 Transportation System Management

Transportation System Management (TSM) looks at improving traffic operations within a given corridor or location by examining solutions other than adding lane capacity. This can include a variety of options including traffic signal improvements, limiting or consolidating driveways and intersections, and monitoring to respond to incidents.

Traffic signal timing has a greater impact on transportation system efficiency than any other operational measure available to the JATSO jurisdictions. Delays experienced in roadway travel have been steadily increasing during the past 25 years. Delays at traffic signals contribute an estimated 25 percent to this total. Therefore, focusing on traffic signal timing is tremendously beneficial to regional mobility.

Traffic professionals have long recognized the value of designing effective signal timing and maintaining that timing to meet changing travel patterns and characteristics. Fifteen years ago, the U.S. General Accounting Office reported, “Properly designed, operated, and maintained traffic control signal systems

yield significant benefits along the corridors and road networks on which they are installed. They mitigate congestion and reduce accidents, fuel consumption, air pollutants and travel times. These benefits are documented in numerous evaluations, provided to us (the GAO) by FHWA, states, cities and other sources, that compared before-and-after results when signal systems were installed expanded, or retimed… For example, the state of Washington recently completed studies quantifying the benefits of upgrading and coordinating signal control equipment and retiming existing signals for six signal systems. These studies showed an annual fuel reduction of 295,500 gallons and annual reduction in vehicle delays of 145,000 vehicle hours." Another agency noted that a program of regular signal timing updates has a benefit/cost ratio of 55:1, with an estimated annual user savings of $64 million. (*Source: National Transportation Operations Coalition)*

The City of Joplin and MoDOT's Southwest District continue to make advances in improving and maintaining the traffic signal system(s). MoDOT has implemented adaptive traffic signal operation along Range Line (Business 71). MoDOT reviews and updates signal timing along its corridors on a regular basis and quantifies the effects of such improvements through its *Tracker* performance measuring initiative. The City and MoDOT also collaborate to provide cross-coordination where their routes intersect, including timing improvements to Main Street (MO 43) and 7th Street (MO 66) that were implemented in spring of 2010.

For example, implementation of intelligent transportation systems (ITS) is a specific TSM strategy that improves transportation safety and mobility and enhances productivity through the use of advanced communications technologies. ITS technologies encompass a broad range of wireless and wire line communications-based information and electronics technologies.

Another TSM approach is access management. Access management is the systematic control of the location, spacing, and operation of driveways, median openings, interchanges, and street connections to a roadway. The purpose of access management is to provide access to land developments in a way that still preserves the safety and traffic movement of the transportation system.

Potential TSM projects include but are not limited to:

- Intersection improvements and access management to Route 43 from Zora Street to Joplin Regional Airport.
- Intersection improvements and access management to Route 171 from Route 43 to Hall Street.
- Intersection improvements and access management to Range Line Road/Madison Street from I-44 to Route 171
- Addition of turn lanes and additional access management to Route 66 (7th Street) from Schifferdecker Avenue to Range Line Road.
- Continued traffic signal timing and coordination review and updates, especially along arterial roadways.

3.2.3 TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) is an approach that seeks to reduce the number of vehicles that use the transportation system. The most common way is to encourage commuters to share their rides so that more people can move through a roadway segment with the same for fewer numbers of

vehicles. Other strategies include encouraging telecommuting or variable work hours that allow persons to avoid traveling during the commuter peaks. Businesses are encouraged to support TDM strategies.

3.3 TRANSIT SYSTEM

The existing transit system in the Joplin area has been successful in providing travel options for both the disadvantaged public and commuters in general. Human service agencies have been successful in obtaining funding through federal Section 5310 funds to pay for transit vehicles. Similarly, the Metro Area PublicTransit System (MAPS) has utilized a variety of funding sources to supplement other revenue streams. MAPS has implemented or is currently implementing most of the recommendations provided in previous LRTPs. These recommendations include:

- Replacement program for vehicles: even with expansion of services and increase in the number of vehicles, MAPS has a program in place to continually replace and upgrade vehicles as needed.
- Upgrades to facilities: the new construction of vehicle storage and maintenance facilities as well as the upgrades to transit stops will prove beneficial to both the operators and users of MAPS.
- Joplin's Sunshine Lamp Trolley currently has a little over two (2) million dollars in Federal Transit Administration (FTA) Funds to build a new Passenger Transfer Station. However, the 20% local match is not available.
- Expansion of transit service: both the introduction of deviated fixed routes and the adjustment of service times have led to an increase in riders served by MAPS.

The successes of the past several years aside, MAPS needs to continue to provide quality transit and paratransit service to the Joplin area. Opportunities exist to increase these services. Some recommendations are vital to the continued success of MAPS while others are suggested only if they continue to be desired by the general public and are feasible for implementation.

CONTINUAL RECOMMENDATIONS

Vehicle Operations, Replacement, and Maintenance: The maintenance and replacement program for transit vehicles needs to be continued. At the current level of twelve vehicles, an average of two to three vehicles needs to be replaced every year. MAPS has been successful in keeping the age of its transit fleet to a recommended level. However, seven vehicles are currently past their useful service life. No matter how desired a certain service becomes, no expansion or otherwise change in service should be allowed to inhibit the ability of MAPS to properly maintain and replace transit vehicles. If any service expansion outpaces MAPS operational capabilities, undesirable financial or liability situations may arise.

SHORT TERM RECOMMENDATIONS

Expansion of Service Hours: The existing service hours of both the trolley system and the curb-to-curb service have been expanded and encompass standard work hours, but there may be potential riders that have nonstandard work hours. Some industries, such as the medical field, have shift work that encompasses all hours of the day and every day of the week. Based on public input, there may be other activities that are underserved by public transit, such as weeknight and weekend religious services, early-morning child drop-off and night classes at

educational facilities. This was a specific request from public involvement to include earlier and later hours of operation. For these and other various reasons, MAPS should investigate these potential needs to explore potential demand and review the feasibility of providing these services to better serve the public.

Turnout Improvements to Trolley Stops: Many of the existing trolley stops have benefited from enhancements such as shelters and benches. These enhancements certainly make the existing riders more comfortable and may attract more riders because residents tend to notice stops that they did not know existed before the enhancements and/or are more willing to engage public transit as a result of those improvements. As certain trolley stops continue to be used more heavily than others, some should be identified for other potential enhancements such as vehicle turnouts. Public input confirmed the desire for this type of improvement. Turnouts provide a refuge for the transit vehicle while passengers load and unload. This not only increases safety and setback from the roadway of the transit stop, but also provides decreases in traffic delay along the adjacent roadway. This was also specifically requested during stakeholder meetings with the public.

LONG TERM RECOMMENDATIONS

Expansion of Service Areas: The trolley system has been beneficial in the effective consolidation of services into more cost-effective deviated fixed-route service. Further increases in ridership may be experienced with the addition of trolley routes that serve other areas in the JATSO Metropolitan planning area. In recent years and in this round of public comments, input encountered during public meetings suggested that there may be interest in expanded routes that serve the southwest portion of Joplin as far south as 32nd Street and as far west as Schifferdecker Avenue. It was requested during stages of public input that more service be provided to Carl Junction and Webb City. Additionally, expansion to specific activity centers were suggested including industrial parks, safe after-school destinations, and more Range Line Road destinations. Furthermore, other cities may benefit from trolley service. All of these options should be considered and reevaluated as the Joplin area grows and needs arise. Regarding trolley stops on Range Line, the use of turnouts or stops along frontage roads such as Geneva Avenue may allow this corridor to be more fully utilized without hindering other vehicular traffic.

3.4 NON-MOTORIZED CIRCULATION

Based upon the foundations of the 2001 *Bicycle and Pedestrian Transportation Plan* as well as the goals, desires, and recommendations collected from stakeholder interviews and review of the various municipal plans/programs, a series of non-motorized (pedestrian/bicycle) opportunities have been identified. These opportunities build upon and complement the existing framework of non-motorized facilities currently located throughout the JATSO area. The opportunities are divided into on-road and off-road classifications. Existing and proposed trails in the JATSO area are depicted in ***Figure 3.2***.

3.4.1 On-Road Facility Opportunities

- Evaluate the potential to include pedestrian sidewalks in conjunction with the various planned/proposed roadway and intersection improvements within the JATSO metropolitan planning area. A list of planned/proposed improvement projects with potential to include pedestrian sidewalk enhancements is included under the roadway section of this report.

- Consider sidewalk enhancement and/or installation at/near existing and proposed education institutions to continue to provide and promote safe trips to/from school. The Safe Routes to School program was also suggested by various stakeholders to possibly be a good program to pursue.

- Consider installation of bicycle/pedestrian actuation and signal at the intersection of 13th Street and Madison Street in Webb City to enhance pedestrian safety.

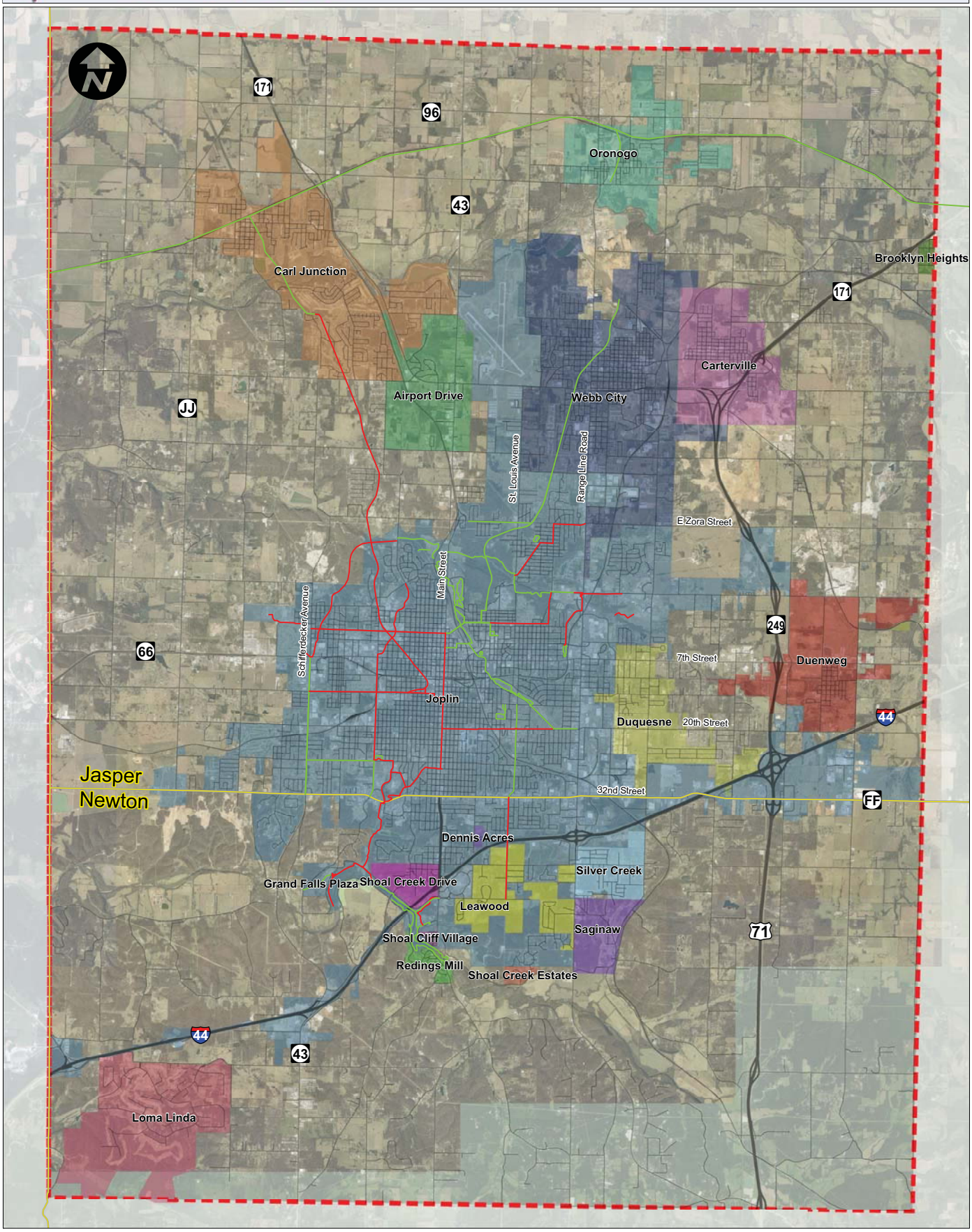
- Where currently missing, install sidewalks along commercial corridors (e.g. Range Line Road between 13th Street and I-44) to facilitate pedestrian circulation and enhance safety. Consideration should be given to installation of a pedestrian overpass near the intersection of Range Line and Hammons Boulevard to enhance pedestrian crossings and to the installation of a pedestrian overpass on Route 171 near Oronogo Street in Webb City.

- Evaluate the potential to, where feasible, encourage the installation of shared bicycle facilities in conjunction with planned/proposed roadway improvements. These may include but are not limited to:

  - Zora Street from West Corridor to Main Street
  - Schifferdecker Road from MO 66 to Zora Street
  - Duquesne Road/Hall Street from 7th Street to 17th Street in Webb City
  - 32nd Street from Schifferdecker Road to Country Club Drive
  - Black Cat Road from Newton Road to MO66
  - Duquesne Road at the I-44 Overpass
  - Connecticut Avenue at the I-44 Overpass
  - Duquesne Road from 32nd Street to 7th Street
  - Peace Church Avenue from Zora Street to Fir Road

- Consider additional shared road lanes along Main Street and Joplin Avenue between A Street and 7th Avenue to provide enhanced north-south connections within the downtown core.

- Consider linking the designated State bicycle connector routes south of Redings Mill along Highway NN and Highway C via a shared road routes along Redings Mill Road/Main Street. Connection to the off-road bike route in Spiva Park should also be considered.



September 2015

CJW

Paths & Trails

Figure 3.2

JATSO Boundary
Existing Trail
Proposed Trail

3.4.2 Off-Road Facility Opportunities

- Coordinate with the Missouri Department of Transportation (MoDOT) to enhance regional bicycle connections by linking the Ruby Jack Trail to the designated State bikeway connector route along Route 43.

- Assist Carl Junction where feasible in the continued extension and enhancement of the Thom Station Trail further south toward Joplin.

- Continue enhancement of the Ruby Jack Trail through the installation of firmly packed gravel riding/hiking material. These efforts should be focused within areas of high usage.

- Establish connections between the trails in McClelland Park, McIndoe Park, and Shoal Creek to increase circulation alternatives for area bicyclists and walkers.

- Consider the inclusion of trail facilities as part of future roadway improvements to Hall Street between 17th Street and Hawthorne Road.

- Consider the inclusion of trail facilities as part of future roadway improvements to Fir Road between Peace Church Avenue and MO 171.

- Consider the inclusion of trail facilities as part of future roadway improvements to 17th Street between Oronogo Street and Range Line Road.

- Enhance signage at trail/roadway crossing areas such as Zora Street and the Frisco Trail to enhance pedestrian/rider safety.

- Continue to encourage land donations where geographically appropriate to facilitate future connections/extensions of existing trail facilities as well as development of new facilities within the JATSO metropolitan planning area.

- Extension of Frisco Trail to Ruby Jack and extension of Thom Station to Downtown Joplin.

- Update of the Joplin Bicycle and Pedestrian Transportation Master Plan. This is a much desired plan update for the region. Developing a new master plan will help direct funding and also investigate the plausibility of bicycle and pedestrian paths along specific routes throughout the JATSO metropolitan planning area. Study should be devoted to ensuring that bike lanes and pedestrian trails are not constructed in unsafe locations.

3.5 Aviation

Commercial airline service and enplanements have continued to decline over the past two decades. However, Joplin Regional Airport has seen significant upgrades over the past decade and is positioned well to accommodate an increase in demand for services. An extensive program of both airside and landside improvements consistent with the *Joplin Regional Airport Master Plan* have been implemented.

Preservation of the existing infrastructure and addressing needs as they arise should be an ongoing effort for the airport. Continuation of the maintenance recommendations and smaller upgrades as

stated in the *Joplin Regional Airport Master Plan* will be necessary until the planning horizon for that study comes closer. At that time, a new master plan update will be needed.

At this time, the Joplin Regional Airport should take advantage of Federal Aviation Administration grants to supplement ongoing costs and provide funding for unique opportunities as they come available.

Additionally, the airport should continue its effort to connect to larger hubs in the expectation that enplanement numbers can increase – even to the point that Joplin Regional Airport may be able to come out from under the federal Essential Air Service program and provide a more sustainable commercial air service to the Joplin area.

3.6 FREIGHT

The regional freight hauling community has provided input into this plan directly through the stakeholder public input process. Stakeholder participants shared a number of signal coordination, roadway widening and intersection improvement projects that would be beneficial to the freight hauling community. Many of the projects suggested by the freight stakeholders are within the scope of projects suggested as part of the LRTP process.

Improving Duquesne Road, Zora Street, Schifferdecker Avenue and 20th Street were identified as key routes to improve the efficiency of moving freight. These routes are all included in the recommended projects. Duquesne from 7th to 17th Street is recommended for widening from 2 to 4 lanes; Zora is recommended to be widened to five lanes from Range Line to MO 249 and to 3 lanes from the future West Corridor to Main (widening to 3 lanes along Zora from Range Line Road to MO 249 is currently under design); and Schifferdecker is recommended to be widened from MO 66 to Zora.

Grade separation with the Kansas City Southern (KCS) RR on 20th Street was noted as a needed improvement and is included in the recommended projects. The new interchange on I-44 at CR 190 (Prigmore Avenue) was considered a critical project for the trucking community, providing better access and improving the safety of all motorists by removing a large percentage of the truck traffic from the existing MO 249 and I-44 interchange. There is a high volume of trucks in this area serving the Crossroads Industrial Park. The interchange is currently under construction and expected to be completed by the end of 2015.

An item discussed in past stakeholder meetings that is not part of a traditional infrastructure improvement is creating a designated truck route network and signing them accordingly.

One of the recommendations from JATSO's 2025 Long Range Transportation Plan was to form a Freight Advisory Committee (FAC) to review and rate the region's TIP regarding potential improvements to freight mobility and access. Since the 2005 update there has been a group formed called the Joplin Industrial Development Authority (JIDA) to review and approve requests for industrial area permits.

The overall stakeholder comments are included in **Appendix A**.

SECTION 4
FINANCIAL PLAN

The financial plan addresses existing and potential funding resources available for implementation of the transportation plan. The needs and projects identified in a Metropolitan Transportation Plan should not be viewed as an unfunded wish list. The recommendations provided should be encompassed in a feasible, financially-constrained plan that can realistically be implemented over the next 20 years.

The first step is to identify funding sources and mechanisms available for transportation improvements in the Joplin region along with their potential value. The next step is to prepare cost estimates for the roadway, public transit, non-motorized, and other enhancements recommended in the plan and evaluate the potential benefits of each. Once the recommended projects are prioritized based on cost/benefit analysis and tempered by revenue streams that the metropolitan area can reasonably expect over the next 20 years, a fiscally sound plan with the most benefit to the Joplin regional transportation system can be produced.

4.1 FUNDING SOURCES

Anticipated revenues through the year 2036 come primarily from federal, state, and local governments. Most federal and state funding programs are generally administered by MoDOT through allocation to local jurisdictions or implementation of projects on the state highway system. Many new roadway improvements can be financed through shared expenditures from the private sector and from public means. MoDOT, county and local jurisdictions should continue working together to partner in funding transportation projects and seek opportunities to leverage private funding to share in implementing improvements that benefit all parties.

4.1.1 FEDERAL HIGHWAY PROGRAMS

There are several funding programs available through the Federal Highway Administration (FHWA) that could be applicable for funding projects in the Joplin area. These programs include the following:

- **National Highway Performance Program (NHPP)** funds are used for multiple purposes. The program consolidated the former National Highway System (NHS), Interstate Maintenance (IM) and Bridge (BR) funds into the NHPPP. These funds are available for use on designated NHS routes including freeways, expressways, and most principal arterial highways. They are used for substantial maintenance and reconstruction of Interstate highways and cannot be used for capacity improvements. The funds are also used for bridge rehabilitation and replacement projects. A portion of these funds are sub-allocated to counties in Missouri for use on local bridge projects.
- **Surface Transportation Program (STP)** funds can be used for a variety of transportation improvement projects including roads, bridges, public transportation, bicycle and pedestrian facilities, and other transportation improvements. Metropolitan areas with a population greater than 200,000 such as the Kansas City, St. Louis and Springfield metropolitan areas, receive a minimum amount that must be used on projects within the region. These funds are allocated by MoDOT to each of the Missouri Non-TMS; including JATSO

- **STP-Safety Program (STP-S)** funds are available to all cities and counties to implement improvements that reduce the number of accidents at high accident locations. Projects are prioritized at the state level.
- **STP-Small Urban Program (STP-U)** funds are allocated to the Joplin Urbanized Area and can be used for any surface transportation project. The city of Joplin receives an allocation of approximately $269,560.97
- **Rail-Highway Grade Crossing Program (STP-RR)** is a statewide program for grade crossing improvements and is based on a prioritized ranking of grade crossings in the state.
- **Transportation Alternatives Program (TAP)** provides funds for three project categories: 1) Historic, 2) Scenic and Environmental, and 3) Bicycle and Pedestrian Facilities. The funds are distributed within Southwest Missouri through a competitive process.
- **Highway Safety Improvement Program (HSIP)** funds can be used for any strategy, activity or project on a public road that is consistent with the data-driven State Strategic Highway Safety Plan (SHSP) and corrects or improves a hazardous road location or feature or addresses a highway safety problem.
- **Highway Bridge Program (HBP)** funds are for replacement or rehabilitation of deficient bridges on local roads. Each Missouri County receives an amount each year based on its cost to replace its share of square footage of deficient bridge decks relative to the rest of the state.

4.1.2 Federal Transit Programs

There are several funding programs available through the Federal Transit Administration that could be applicable for funding projects in the Joplin area. These programs include the following:

- **Section 5303-05 Program** provides funding for the planning of transit projects.
- **Section 5307 Program** provides funds to urban areas for transit capital and operating expenses.
- **Section 5339 Program** provides funds and discretionary grants for fixed guideway capital improvements. It also provides capital assistance for new and replacement buses and related equipment and facilities.
- **Section 5310 Program** provides capital funding for transportation programs serving elderly and disabled customers.
- **Section 5311 Program** provides capital and operating funds to rural public transportation programs. These funds cannot be used in urban areas.

4.1.3 Missouri Department of Transportation Programs

There are several funding programs available through the Missouri Department of Transportation (MoDOT) that could be applicable for funding projects in the Joplin area. These programs include the following:

- **State Road Fund:** MoDOT's transportation revenues are derived from several sources, including motor fuel taxes, transportation related fees including vehicle taxes, licenses and fees, federal-aid funds, bond issues and other miscellaneous sources. The Major categories for highway expenditures include:
    - Maintenance – Regular, routine roadway and bridge treatments that sustain existing highway conditions.
    - Preservation – Activities that protect the infrastructure and extend facility service life.
    - Modernization – Upgrades to system safety, functionality and overall operational efficiency, without adding physical capacity.



- Expansion – Activities focused on adding capacity or new facilities/services.

These funds can be allocated by MoDOT for use on highway and bridge projects in the Joplin area.

- **State Road Bonds:** MoDOT is authorized to issue debt backed by State Road Fund revenues, with borrowing limits established by the legislature through amendments to the State Highway Act.
- **Other State and Federal Funds:** MoDOT also administers funds from a variety of state and federal sources for other modal activities. These include allocations and discretionary grants from the Federal Transit Administration (FTA) under various programs for transit capital, operating and/or planning assistance in non-urban areas; allocations and discretionary grants from the Federal Aviation Administration (FAA); funding from the State Aviation Trust Fund; and annual State General Fund appropriations for the Missouri Elderly and Handicapped Transportation Assistance Program (MEHTAP). MoDOT also provides a small amount of state funding for transit operations.

  The remaining funding for other modes comes from state sources, which include the Aviation Trust Fund, General Fund appropriations, and allocation of motor fuel and vehicle user fees.

4.1.4 Local Funding Programs

Local funding for transportation improvements in the Joplin metropolitan area comes primarily from sales taxes. The City of Joplin currently has two transportation sales taxes for funding improvements to the transportation system. Joplin has a 1/2 cent transportation tax that generates approximately $6.4 million annually. The tax is used for aviation, transportation projects, maintenance of the current system and transit. The Transportation Sales Tax is a permanent sales tax with no sunset clause.

In addition, Joplin passed a 3/8-cent sales tax for capital improvements for street projects in 2014. It is estimated that this tax will generate approximately $3.1 million annually. The capital improvement tax funds specific projects within the Joplin area as detailed in **Appendix E**.

The two sales taxes are available for projects listed in the fiscally constrained element of the 2036 MTP and programmed in the JATSO TIP. These taxes also maintain and operate the locally owned and/or operated portions of the Federal-aid system. It's projected that the two taxes will generate approximately $9.5 million for this fiscal year.

The City of Carl Junction currently has a 1/2 cent transportation sales tax and a ½ cent Capital Improvement Plan Sales Tax. Both generate approximately $156,000 annually and do not have a sunset date. The tax revenues primarily provide funding for the city's street maintenance program and capital improvements.

The City of Webb City also has a 1/2 cent transportation sales tax program that generates approximately $560,000 and a 3/8-cent capital improvements sales tax that generates approximately $750,000 annually. With approximately $981,500 committed for operations, maintenance, and debt service, it is estimated the two programs will generate approximately $328,500 for roadway capital improvements. Neither tax has a sunset date.

4.1.5 OTHER FUNDING PROGRAMS

In addition to municipal sales tax programs, other means of financing transportation improvements are available through the following programs.

- **Community Improvement Districts (CID):** A community improvement district (CID) may be created for the purpose of financing a wide range of public facilities, improvements or services within a municipality. A CID is either a separate political subdivision with the power to impose a sales tax, a special assessment or a real property tax, or a nonprofit corporation with the power to impose special assessments. A CID may fund public facilities or improvements within its boundaries, including, but not limited to, the following: sidewalks, streets, alleys, bridges, ramps tunnels, overpasses and underpasses, traffic signs and signals, utilities, drainage, water, storm and sewer systems and other site improvements.

  A CID is created by filing with the municipality where the proposed district will be located a petition signed by property owners that (1) collectively own at least 50% of the assessed value of the real property within the proposed district and (2) are more than 50% per capita of all owners of real property within the proposed district. The petition must include a five-year plan that describes the purposes of the proposed district, the services it will provide, the improvements it will make and an estimate of the costs of the project. Once the petition is filed, the governing body of the municipality shall hold a public hearing and may approve the creation of the proposed district by ordinance. A CID may be created as either a political subdivision or a nonprofit corporation.

  Once created, a CID that is created as a nonprofit corporation can finance the costs of a project through the imposition of special assessments for those improvements that specifically benefit the properties within the district. A CID that is created as a political subdivision can finance the costs of a project through the imposition of (1) special assessments for those improvements that specifically benefit the properties within the district; (2) property taxes; or (3) a sales tax up to a maximum of 1%. Either type of CID may finance the costs of a project through the imposition of fees, rents and charges for district property or services or grants, gifts and donations.

  A CID may also issue bonds, notes and other obligations and may secure any of such obligations by mortgage, pledge, assignment or deed of trust of any or all of the property and income of the district. However, the bonds or other obligations of a CID that is created as a nonprofit corporation will not be tax-exempt.

- **Transportation Development District (TDD):** A transportation development district ("TDD") is a separate political subdivision that may be created to fund, promote, plan, design, construct, improve, maintain and operate one or more transportation-related projects or to assist in such activity. A TDD can finance any transportation-related improvement, including any bridge, street, road, highway, access road, interchange, intersection, signing, signalization, parking lot, bus stop, station, garage, terminal, hangar, shelter, rest area, dock, wharf, lake or river port, airport, railroad, light rail, or other mass transit and any similar or related improvement or infrastructure. However, before construction or funding of any project, a TDD is required to submit the proposed project, together with the proposed plans and specifications, to the Missouri Highways and Transportation Commission and/or the local transportation authority for their prior approval.

A "local transportation authority" is a county, city, town, village, county highway commission, special road district, interstate compact agency, or any local public authority or political subdivision having jurisdiction over any bridge, street, highway, dock, wharf, ferry, lake or river port, airport, railroad, light rail or other transit improvement or service. A TDD may be created by petition of (1) at least fifty registered voters within the proposed district, (2) if there are no registered voters within the district, the owners of all of the real property located within the proposed district or (3) the governing body of any local transportation authority in which a proposed project may be located. In addition, two or more local transportation authorities may adopt resolutions calling for the joint establishment of a district and then file a petition requesting its creation. In all cases, the petition is filed in the circuit court of the county in which the proposed project is to be located.

Once the petition is filed, the circuit court will certify the petition for voter approval by the qualified voters within the boundaries of the proposed district. A "qualified voter" means (1) any registered voter residing within the proposed district or (2) if no persons eligible to be registered voters reside within the proposed district, the owners of real property located within the proposed district.

Once created, a TDD can finance the costs of a project through the imposition of (1) special assessments for those improvements that specifically benefit the properties within the district; (2) a property tax in an amount not to exceed $0.10 per $100 of assessed valuation; (3) a sales tax up to a maximum of one percent; or (4) tolls and fees for use of the project. A TDD may also issue bonds, notes and other obligations and may secure its obligations by mortgage, pledge, assignment or deed of trust of any or all of the property and income of the district.

A transportation development district (a "TDD") can only finance transportation-related improvements, while a CID can finance a wide-array of public improvements and services. A TDD can finance improvements that benefit the property within its boundaries; a CID generally cannot spend money on projects outside of its boundaries. TDD bonds can have a 40-year maturity, while CID bonds are limited to 20 years. A TDD property tax cannot exceed $0.10; there is no limit on the CID property tax.

- **Community Development Block Grant (CDBG):** The CDBG is provided by the U.S. Department of Housing and Urban Development (HUD) and is intended to aid in a vast array of unique community development needs. The grant flexibly provides funding resources to help those areas designated as "entitlement communities," larger cities and urban counties develop viable communities through housing and economic opportunities, areas that are recovering from a presidentially declared disaster, communities that have been greatly affected by foreclosures and delinquencies to purchase through rehabilitation and redevelopment of homes, and several other specific needs. The city of Joplin has been declared an entitlement community and thus receives funding as part of a CDBG grant.

- **Transportation Corporations:** A transportation corporation may be created to fund, promote, plan, design, construct, maintain or operate any transportation-related project in connection with the Missouri highways and transportation system. A transportation corporation can only be used for projects that are owned by the State. Any city, county or private party may create a transportation corporation by filing an application and preliminary plans and specifications for a

proposed project with the Missouri Highways and Transportation Commission (the "Commission").

Following the submission of the application, the Commission will hold a public hearing and the governing body of each county, city, town or village in which all or part of the project is located must approve the project. Upon approval at the local level, the corporation's articles of incorporation must be approved by the Commission and filed with the Secretary of State. The corporation may issue bonds, notes or other obligations to pay all or any part of the cost of a project. The obligations may be payable out of any of the property and revenues of the corporation. Such revenues may include payments derived from other entities pursuant to an intergovernmental cooperation agreement and fees, tolls and charges charged by the corporation for use of the project. Unlike a TDD, a transportation corporation has no ability to impose special assessments, property taxes or sales taxes.

Source: *Missouri's Economic Development Tools: A Practical Guide to Building a Better Missouri*

4.1.6 TOTAL PROJECTED FUNDING 2016-2036

On June 6th, 2012, President Obama signed the Moving Ahead for Progress in the 21st Century Act into law. Often referred to as "MAP-21", this provision provided agencies with funds for surface transportation programs. Roughly $105 billion of total funding was provided for the fiscal years of 2013 and 2014. The bill expired on October 1st, 2014 and was extended to May of 2015 by the Highway and Transportation Funding Act of 2014. It was again extended to July of 2014 by the Highway and Transportation Funding Act of 2015. The next extension was to October 29th, 2015 through the Surface Transportation and Veterans Health Care Choice Improvement Act of 2015.

On December 4th, 2015, the Fixing America's Surface Transportation Act (FAST ACT) was signed into law. The FAST ACT authorizes $305 billion over fiscal years 2016 through 2020.

Of the local funding sources, the City of Joplin's and City of Webb City's Transportation Sales Tax and Capital Improvement Sales Tax programs are anticipated to make the greatest contribution toward funding the identified roadway improvement projects that are identified in the fiscally constrained 2036 horizon period.

Of the local funding sources, the City of Joplin's and City of Webb City's Transportation Sales Tax and Capital Improvement Sales Tax programs are anticipated to make the greatest contribution toward funding the identified roadway improvement projects that are identified in the fiscally constrained 2036 horizon period.

Table 4.1 provides a summary of projected funding available for roadway capital improvements over the next 20 years.

TABLE 4.1

ESTIMATED FEDERAL, STATE AND LOCAL REVENUE FOR FUNDING ROADWAY AND TRANSIT O&M, NEW AND PROGRAMMED PROJECTS

Funding Agency	Program	Carryover Funds	Projected 2016 Revenues	Funds Available for O&M, New and Programmed Projects			
				TOTAL 2016-2020	TOTAL 2021-2025	TOTAL 2026-2036	20 Year Total
	ROADWAY FUNDING						
FHWA	STP Small Urban Funds (City of Joplin)	$539,122	$269,561	$2,011,905	$1,657,630	$4,199,673	**$7,869,208**
	BRO (Jasper)	$900,377	$252,443	$2,279,633	$1,552,365	$3,932,980	**$7,764,978**
	BRO (Newton)	$2,257,551	$232,229	$3,526,365	$1,428,062	$3,618,052	**$8,572,480**
	Trans. Altern. Program (TAP) Funds	$0	$357,500	$1,953,250	$2,198,400	$5,569,734	**$9,721,383**
	Highway Safety Improvement Program	$0	$310,500	$1,696,459	$1,909,379	$4,837,489	**$8,443,327**
	National Highway Performance Program	$0	$2,450,000	$13,385,906	$15,065,955	$38,170,202	**$66,622,062**
	Surface Transportation Program (STP)	$0	$2,450,000	$13,385,906	$15,065,955	$38,170,202	**$66,622,062**
	FHWA Total	*$3,697,050*	*$6,322,233*	*$38,239,423*	*$38,877,746*	*$98,498,330*	***$175,615,499***
MoDOT	State Trans. Revenues - Operations	$0	$3,044,762	$16,635,468	$18,723,366	$47,436,400	**$82,795,234**
	State Trans. Revenues - Program	$0	$1,131,500	$6,182,103	$6,958,011	$17,628,401	**$30,768,516**
	MoDOT Total	*$0*	*$4,176,262*	*$22,817,571*	*$25,681,377*	*$65,064,801*	***$113,563,750***
Joplin	1/2 Cent Transportation Sales Tax	$5,299,114	$5,760,452	$34,101,374	$28,802,260	$57,604,520	**$120,508,154**
	3/8 Cent CIP	$0	$3,100,000	$15,500,000	$15,500,000	$31,000,000	**$62,000,000**
	State Revenues to Cities	$0	$1,966,277	$9,831,385	$9,831,385	$19,662,770	**$39,325,540**
	Joplin Total	*$0*	*$10,826,729*	*$59,432,759*	*$54,133,645*	*$108,267,290*	***$221,833,694***
Carl Junction	1/2 Cent Transportation Sales Tax	$0	$156,000	$780,000	$780,000	$1,560,000	**$3,120,000**
	1/2 Cent CIP	$0	$156,000	$780,000	$780,000	$1,560,000	**$3,120,000**
	State Revenues to Cities	$0	$288,321	$1,441,606	$1,441,606	$2,883,212	**$5,766,423**
	Carl Junction Total	*$0*	*$600,321*	*$3,001,606*	*$3,001,606*	*$6,003,212*	***$12,006,423***
Webb City	1/2-cent Transportation Sales Tax	$0	$560,000	$2,800,000	$2,800,000	$5,600,000	**$11,200,000**
	3/8-cent CIP	$0	$750,000	$3,750,000	$3,750,000	$7,500,000	**$15,000,000**
	State Revenues to Cities	$0	$425,840	$2,129,200	$2,129,200	$4,258,400	**$8,516,800**
	Webb City Total	*$0*	*$1,735,840*	*$8,679,200*	*$8,679,200*	*$17,358,400*	***$34,716,800***
Jasper County	State Revenues to Counties	$0	$1,442,937	$7,214,685	$7,214,685	$14,429,370	**$28,858,740**
	Jasper County Total	*$0*	*$1,442,937*	*$7,214,685*	*$7,214,685*	*$14,429,370*	***$28,858,740***
Newton County	State Revenues to Counties	$0	$1,230,336	$6,151,680	$6,151,680	$12,303,360	**$24,606,720**
	Newton County Total	*$0*	*$1,230,336*	*$6,151,680*	*$6,151,680*	*$12,303,360*	***$24,606,720***
	TRANSIT FUNDING						
FTA	Prior Section 5307 Bus Formula Funds	$3,058,277	$289,771*	$3,058,277	$0	$0	**$3,058,277**
	Prior Section 5339 Bus Formula Funds	$361,428	$0	$361,428	$0	$0	**$361,428**
	Grant MO-90-X297	$290,130	$0	$290,130	$0	$0	**$290,130**
	Grant MO-90-X309	$569,997	$0	$569,997	$0	$0	**$569,997**
	Future Section 5307 Bus Formula Funds	$0	$1,019,282	$5,568,984.81	$6,267,941	$15,880,081	**$27,717,008**
	Future Section 5339 Bus Formula Funds	$0	$121,032	$661,274.67	$744,270	$1,885,639	**$3,291,184**
	Future Section 5310 Funds	$0	$20,000	$109,272.70	$122,987	$311,593	**$543,854**
	FTA Total	$4,279,832	$1,160,314	$10,619,364	$7,135,199	$18,077,314	**$35,831,878**
MoDOT	MoDOT Public Transit Operating Assist.	$0	$8,221	$41,105	$41,105	$82,210	**$164,420**
	MoDOT Total	$0	$8,221	$41,105	$41,105	$82,210	**$164,420**
Joplin	Fare Revenue	$0	$127,596	$637,980	$637,980	$1,275,960	**$2,551,920**
	1/2 Cent Transportation Sales Tax**	$0	$639,548	$3,197,740	$3,197,740	$6,395,480	**$12,790,960**
	Joplin Total		$767,144	$3,835,720	$3,835,720	$7,671,440	**$15,342,880**
	ROADWAY REVENUE TOTAL:			**$145,536,925**	**$143,739,939**	**$321,924,763**	**$611,201,626**
	TRANSIT REVENUE TOTAL:			**$14,496,189**	**$11,012,024**	**$25,830,964**	**$51,339,178**

- No inflation rate was utilized for funding values estimated in future years for the local projects.
- 3% inflation rate was utilized for funding values estimated in future years for the state and federal MoDOT projects.
- Carryover balance was added to 2016 - 2020 funding band as an assumption to show full revenue potential.

* Carryover funds to be converted to grant.

** Includes additional alocation for Joplin Transit "Transfer Station" Project through Joplin Transportation Sales Tax.

4.2 ROADWAY FINANCIAL PLAN

4.2.1 ROADWAY IMPROVEMENT PROJECT COSTS

In order to determine the financial feasibility of the potential roadway improvement projects, a planning level cost estimate was developed for each project as itemized in ***Table 4.2*** on the following page. The table also includes projects already committed in the current JATSO Transportation Improvement Program that are programmed for 2016 and beyond. The project identification numbers have been assigned arbitrarily and do not reflect any prioritization. Project evaluation and prioritization as part of the 2036 MTP is described in Section 4. Committed projects are identified by their TIP number. Projects included in the previous LRTP have retained their identification number for traceability purposes. In some cases, such projects have been broken down in shorter segments and are identified by number and letter.

Project estimates are based on a number of sources including previous estimates for programmed projects, input from JATSO and the Missouri Department of Transportation, and the range of incremental costs from similar construction projects throughout the Joplin region and southwest Missouri. Given a range of incremental costs, further evaluation of each potential project was performed to assign an appropriate level of cost as low, medium, or high based on availability of existing rights-of-way, number of existing points of access, number of and location of existing utilities, geographic constraints, etc. Cost estimates will need to be refined as JATSO agencies begin scoping and project development for each.

The total estimated cost for identified potential roadway improvement projects is nearly $743 million (based on the project costs in **Table 4.2**) with an additional $8 million to be spent on projects already programmed. Operations and maintenance requirements expected in the next 20 years total approximately $126 million. The portion of estimated funding resources summarized in Section 4.1 that are available over the 20 year period totals over $611 million. Prioritization of projects is necessary to develop the fiscally constrained long range project list.

Projects that are already committed to through the Joplin 3/8 cent CIP Program make up approximately $62 million dollars of improvements scheduled for the next 20 years but the current 3/8 cent tax will only fund $31 million of those improvements. Thus, some projects may be delayed, construction may be dedicated to funds from the next CIP or project partnership may occur.

Expenses are comprised of capital costs and operational costs. Capital costs include any new project that builds onto the current system. Examples would be constructing additional roadways or bridges, building new buildings or purchasing new equipment (eg. transit vehicle) to name a few. On the roadway side, operational costs include items such as maintenance crew salaries, staff training, office supplies, roadway repair, technical equipment repair and snow plowing. On the transit side, operational costs could include vehicle fuel, driver and dispatcher salaries, training materials/conferences, route brochure/map printing, publication of legal notices/DBE Goals/Public Participation Notices, and dispatch center utilities/office supplies.

TABLE 4.2
POTENTIAL ROADWAY PROJECT COSTS

	No.	Sponsor	Route	From	To	Description	Cost (2016)
Potential Roadway Projects	148	Joplin	City Wide			Traffic Signal Upgrades	$250,000
	149	Joplin	City Wide			Municipal Building Improvements	$400,000
	150	Joplin	Pennsylvania Avenue	Pennsylvania Ave. Viaduct		Demo/Replace	$2,447,000
	143	Joplin	Maiden Lane	Perkins Street	Murphy Boulevard	Roadway extension (includes roundabout at new intersection)	$1,815,000
	151	Joplin	Florida Avenue	Zora Street	Turkey Creek Bridge	Improve 2 lane to 3 lane	$2,460,000
	152	Joplin	Perkins Street	Shifferdecker Avenue	Maiden Lane	Improve 2 lane to 3 lane	$2,426,000
	153	Joplin	4th Street	4th Street Viaduct		4th Street Viaduct	$17,610,000
	154	Joplin	North Park Lane	Turkey Creek Road	Newman Road	Roadway Extension (3 lane)	$4,369,000
	155	Joplin	McClelland Blvd	32nd Street	City Limit	Improve to Super 2	$4,227,000
	156	Joplin	Central Street	Florida Road	Range Line Road	Roadway Extension	$2,847,000
	116a	MoDOT	7th Street (MO 66)	Maiden Lane	Schifferdecker Avenue	Access Management and intersection improvements (improve 4 to 5 lanes)	$9,672,000
	116b	MoDOT	7th Street (MO 66)	Maiden Lane	Range Line Road	Access management and intersection improvements	$7,164,000
	105b	Joplin	Schifferdecker Avenue	7th Street (MO 66)	Bell Center Road	Widen road (2 to 4 lanes w/ median & turn lanes)	$4,410,000
	134a	MoDOT	32nd Street	Intersection w/ KCS		Railroad Overpass at Davis (with Intersection Realignment)	$12,000,000
	126	Joplin	44th Street	Intersection w/ I-44		Overpass at I-44	$3,940,000
	157	MoDOT	Range Line Road	Cardinal Drive/Mount Hope Road		New Traffic Signal (Need to Partner with Webb City)	$1,746,000
	158	Joplin	Indiana Avenue	Intersection w/ I-44		Overpass at I-44	$4,494,000
	159	Joplin	32nd Street	Intersection w/ McConnell Avenue		Intersection Improvements	$1,053,000
	105c	Joplin	Schifferdecker Avenue	Bell Center Road	Zora Street	Improve to Super 2	$2,861,000
	115	Joplin	Newman Road	Duquesne Road	MO 249	Improve from 2 lane to 3 lane	$4,507,200
	106e	Joplin	Duquesne Road	Newman Road	Zora Street	Improve from 2 lane to 3 lane	$2,068,000
	160	Joplin	44th Street	Main Street (MO 43)	Connecticut Avenue	Improve from 2 lane to 3 lane	$2,590,000
	161	Joplin	Perkins	Schifferdecker Avenue	Country Club Road	Improve to Super 2	$4,901,000
	162	Joplin	Duquesne Road	7th Street	Newman Road	Sidewalk Improvements	$328,000
	106a	Joplin	Duquesne Road	7th Street	Newman Road	Improve from 4 lane to 4 lane w/ median & left turn lanes	$2,504,000
	163	Joplin	50th Street	Connecticut Avenue	Range Line Road	Roadway Extension / Improve from 2 lane to 3 lane	$6,318,200
	138	Joplin	Connecticut Avenue	50th Street	Highlander Drive	Roadway Extension / Improve from 2 lane to 3 lane	$5,463,000
	164	Joplin	Loop 49	Route 171	13th Street	Roadway Improvements	$4,500,000
	165	MoDOT	Interstate 49	Route V	Interstate 44	Roadway Improvements	$44,000,000
	166	Joplin	Newman Road	Bus 71/49 (Range Line Road)	Duquesne Road	Pedestrian Improvement & ADA Accommodations	$600,000
	167	Joplin	Route Z	Harley Street	Karen Drive	Pedestrian Improvements	$2,250,000
	168	MoDOT	Range Line Road	Intersection w/ 36th Street		Intersection & Out Road Improvements	$2,250,000
	169	MoDOT	Southwest District			Pedestrian Improvements	NA - Engineering Only
	170	MoDOT	Southwest District			Safety Improvements	NA - Engineering Only
	171	MoDOT	Southwest District			Bridge Improvements	NA - Engineering Only
	172	MoDOT	7th Street (MO 66)	Schifferdecker Avenue	Range Line Road	Roadway Improvements	$25,500,000
	173	MoDOT	Southwest District			Bridge Preventative Maintenance	NA - Engineering Only
	174	Joplin	Main Street (RTE D)	Intersection w/ MacArthur Drive		Intersection Improvements	$325,000
	175	MoDOT	Hearnes Noulevard	32nd Street	Interstate 44	Pedestrian Improvements	$8,625,000
	176	MoDOT	Southwest District			Minor Routes Improvements	$2,000,000
	177	Joplin	City of Joplin			ADA and Pedestrian Improvements	$2,500,000
	178	MoDOT	Hearnes Boulevard	Intersection w/ 32nd Street		Intersection Improvements	$1,150,000
	179	Joplin	Connecticut Avenue	Intersection w/ 32nd Street		Intersection Improvements	$1,400,000
	180	MoDOT	Range Line Road	Intersection w/ KCS Railroad		Pedestrian Crossing Improvements	$900,000
	101a	Joplin	West Corridor	I-44	7th Street (MO 66)	New highway construction w/ limited access (Scoping TIP #09HS-10)	$65,625,000
	101b	Joplin	West Corridor	7th Street (MO 66)	MO 171	New highway construction w/ limited access (Scoping TIP #09HS-10)	$96,320,000
	102b	MoDOT	MO 171	Fir Road	RTE Z/Pennell Street	Improve from 2 lane to 4 lane divided (Scoping TIP# 09HS-12)	$41,850,000
	102c	MoDOT	MO 171	RTE Z/Pennell Street	MO 96	Improve from 2 lane to 4 lane divided (Scoping TIP# 09HS-12)	$18,780,000
	102d	MoDOT	MO 171	MO 96	MPO Boundary	Improve from 2 lane to 4 lane divided	$3,960,000
	147	Joplin	Zora Street	Range Line Road	MO 249	Improve from 3 lane to 4 lane w/ median & left turn lanes	$25,065,000
	104	Joplin	Zora Street	West Corridor	Main Street (MO 43)	New Roadway Construction	$38,837,000
	105a	Joplin	Schifferdecker Avenue	7th Street (MO 66)	Zora Street	Improve from 2 lane to 4 lane w/ median & left turn lanes	$19,298,750
	106b	Joplin	Duquesne Road/Hall	Newman Road	17th Street (W.C.)	Improve from 2 lane to 4 lane w/ median & left turn lanes	$16,872,500
	106c	Joplin	Duquesne Road/Hall	7th Street (MO 66)	20th Street	Improve from 2 lane to 4 lane w/ median & left turn lanes	$8,546,000
	107	Webb City	Hall	17th Street (W.C.)	Hawthorne	New roadway construction & Intersection at Centennial	$7,015,500
	145	Joplin	32nd Street	Schifferdecker Avenue	Central City Road	Improve from 3 lane to 5 lane	$8,965,000
	146	Joplin	20th Street	Duquesne Road	Prigmore Interchange	Improve from 3 lane to 4 lane w/ median & left turn lanes	$18,200,000
	113a	Joplin	Fir Road	Peace Church	MO 171	Improve and add center turn lane and roundabouts	$4,445,600
	113b	Joplin	Fir Road	Joplin Avenue	Peace Church	Improve and add center turn lane and roundabouts	$1,652,000
	117	Joplin	20th Street	West Corridor	Schifferdecker Avenue	Improve and add center turn lane	$7,204,000
	118b	Joplin	32nd Street	Country Club Road	West Corridor	Improve and add center turn lane and roundabouts	$3,602,000

TABLE 4.2
POTENTIAL ROADWAY PROJECT COSTS

	No.	Sponsor	Route	From	To	Description	Cost (2016)
Potential Roadway Projects	119	Joplin	St. Louis/Prairie Flower	Zora Street	MO 171	Improve and add center turn lane	$7,204,000
	122	Joplin	Black Cat Road	Newton Co / 32nd Street	7th Street (MO 66)	Improve and add center turn lane	$7,204,000
	124	Joplin	17th Street	Oronogo	Range Line Road	New roadway construction	$800,000
	127	Joplin	Route Z	Route YY	MO 171	Improve and add center turn lane and roundabouts	$13,530,000
	137	Joplin	Madison Street	Daugherty Street	Stadium Drive	Improve and add center turn lane	$2,820,000
	139	Joplin	Duquesne Road	Intersection w/ I-44		Overpass at I-44	$5,200,000
	141	Joplin	20th Street	Duquesne Road	MO 249	Improve and add center turn lane	$6,483,600
	184	Joplin	Douglas Fir Road	State Line	Range Line Road	Preserve corridor for east/west arterial	$35,700,000
	106d	Joplin	Duquesne Road	32nd Street	7th Street (MO 66)	Improve from 2 lane to 5 lane	$9,600,000
	109b	Joplin	Main Street (MO 43)	MO 171	Carl Junction City Limit	Improve and add center turn lane	$4,682,600
	181	MoDOT	7th Street (MO 66)	Prosperity Avenue	County Road 190	Improve and add center turn lane	$3,602,000
	182	Joplin	Zora Street	Main Street (MO 43)	Range Line Road	Improve to 5 lanes	$2,000,000
	183	Joplin	20th Street	Intersection w/ KCS		Grade Separation	$15,000,000
	110	MoDOT	MO 171	Hall	Main Street (MO 43)	Access Management and intersection improvements	$480,000
	111a	Joplin	Madison Street	MO 171	13th Street (W.C.)	Access Management and intersection improvements	$300,000
	111b	MoDOT	Range Line Road	13th Street (W.C.)	15th Street	Access Management and intersection improvements	$2,000,000
	111d	MoDOT	Range Line Road	15th Street	Interstate 44	Access Management and intersection improvements	$950,000
	121	Joplin	Peace Church	Zora Street	Fir Road	Improve roadway	$3,150,000
	125	Webb City	Carl Junction Road	Madison Street	Route D	New roadway construction	$1,800,000
	130a	MoDOT	MO 96	Route JJ	Route D	Access Management and intersection improvements	$2,000,000
	130b	MoDOT	MO 96	Intersection w/ Route D		Turn lane improvements	$550,000
	131	MoDOT	Route D	Hawthorne	MO 96	Improve and construct new bridge	$3,000,000
	132	MoDOT	Route D	Intersection w/ Ivy		Intersection improvement	$550,000
	133	MoDOT	Route FF	Intersection w/ Reinmiller		Intersection improvement	$550,000
	185	Joplin	Old 71 (Tipton Ford)	Bridge at Shoal Creek		Bridge replacement	$1,200,000
	144	Webb City	Madison Street	Intersection w/ MacArthur		Intersection Improvements	$1,396,650
	181	Joplin	Connecticut Avenue	Interchange @ I-44		New Interchange	$9,500,000
						Subtotal	$742,564,100
Projects Already Programmed							
	TIP #01TAP-16	Carl Junction	Route Z			Transportation Alternatives Program - Sidewalk Improvements - Phase 3	$357,500
	TIP #07HS-12	MoDOT	Madison Street			Scoping for roadway improvements from Rte. 171 to 13th Street	$6,000
	TIP #08HS-12	MoDOT	I-49			Scoping for roadway improvements from Rte. V near Carthage to Rte. FF	$6,000
	TIP #06HS-12	MoDOT	7th Street (Route 66)			Scoping for roadway improvements from 0.5 mi west of Rte. P to 0.1 mi west of Loop 49	$6,000
	TIP #09HS-12	MoDOT	Newman Road			Scoping for ped imprvmts. and ADA accom. from Loop 49 to Duquesne and on Range Line	$6,000
	TIP #11HS-12	MoDOT	Harley Street			Scoping for ped improvements and ADA accommodations from Harley St to Karen Dr	$6,000
	TIP #05HS-14	MoDOT	Route 43			Scoping for roadway improvements from Rte. FF (32nd Street) to I-44	$6,000
	TIP #04HS-16	MoDOT	Interstate 44			Scoping for pavement improvements from Loop 49 (Range Line Road) to east of Rte. 37	$6,000
	TIP #14HS-12	MoDOT	Range Line Road			Scoping for intesection and outer road improvements on Range Line Road at 36th Street	$6,000
	TIP #22HS-12	MoDOT	Southwest District			Scoping for pedestrian improvements and ADA accommodations along various routes	$6,000
	TIP #20HS-12	MoDOT	Southwest District			Scoping for safety improvements at various locations in the rural Southwest District	$6,000
	TIP #21HS-12	MoDOT	Southwest District			Scoping for bridge improvements at various locations in the rural Southwest District	$6,000
	TIP #33HS-11	MoDOT	Southwest District			Scoping for bridge preventive maintenance at various locations	$6,000
	TIP #14HS-14	MoDOT	Southwest District			Scoping for pavement improvements on primary routes in the rural Southwest District	$45,000
	TIP #07HS-12	MoDOT	Route 43			Pavement improvements from south of Rte. 171 in Airport Drive to Murphy Boulevard	$814,000
	TIP #01HS-16	MoDOT	Various			Job Order Contracting for pvmt. repair from the Ok State line to Rte. 360 in Greene Co.	$216,000
	TIP #20HS-12	MoDOT	Southwest District			Job Order Contracting for guard cable and guardrail repair at various locations	$568,000
	TIP #20HS-14	MoDOT	Southwest District			Job Order Contracting for guard cable and guardrail repair at various locations	$586,000
	TIP #21HS-14	MoDOT	Southwest District			Job Order Contracting for guard cable and guardrail repair at various locations	$553,000
	TIP #01SS-12	MoDOT	Southwest District			Safe and Sound Bridge Program (Est. for JATSO area portion only; 3 bridges out of 125)	$181,000/year
	TIP #23HS-14	MoDOT	Southwest District			Safety improvements at various locations in the rural Southwest District	$173,000
	TIP #02HS-16	MoDOT	Southwest District			On call work zone enforcement at various locations in the rural Southwest District	$34,000
	TIP #03HS-16	MoDOT	Southwest District			On call work zone enforcement at various locations in the rural Southwest District	$21,000
	TIP #01ITS-14	MoDOT	Southwest District			ITS Operations and Management in the rural Southwest District	$38,000
	TIP #01ITS-15	MoDOT	Southwest District			ITS Operations and Management in the rural Southwest District	$38,000
	TIP #04T-16	Joplin	Transfer Station			Transfer Station at 15th Street and Connecticut Avenue	$2,548,744
	TIP #01T-16	Joplin Transit	Transit Vehicles			16: Replace 3 MAPS Vans. '17: Replace 1 MAPS Van. 2018: Replace 2 MAPS Vans.	$390,000
	TIP #02T-16	Joplin Transit	Pedestrian Shelters			Two (2) pedestrian waiting shelters and one (1) pedestrian waiting bench.	$25,000
	TIP ###X-##	Joplin Transit	Operations & Maint.			Annual Transit Operating Expenditures.	$1,207,537
	TIP #03T-16	Joplin Transit	Operator Training			Transit Operator Training Development Course.	$10,000
						Subtotal	$7,877,781

4.2.2 PROJECT EVALUATION AND PRIORITIZATION

In order to compare the projects objectively, an evaluation process was developed that accounts for traffic operations, project costs and socio-economic factors. The project alternative evaluation criteria are shown below in ***Table 4.3***.

Table 4.3: Potential Project Alternative Evaluation Criteria

ISSUES	METHOD OF MEASUREMENT	UNITS
Traffic Operation Factors		
Traffic Flow and Congestion	VHT statistics from travel demand model	Daily vehicle hours traveled (VHT)
Reduced Trip Length	VMT statistics from travel demand model	Daily vehicle miles traveled (VMT)
Project Costs		
Construction Costs	Estimated cost of construction in 2016 dollars	Dollars
Socio-Economic Factors		
Roadway User Economic Analysis	Use VMT and VHT statistics to determine benefits compared to construction costs	B/C Ratio

Notes on the above evaluation criteria are as follows:

- **Traffic Operation Factors –** the traffic operations factors included analysis of the traffic flow, congestion and trip length.
    - In order to analyze the traffic flow and congestion for each potential project alternative, the Travel Demand Model (TDM) was used to determine the change in daily Vehicle Hours Traveled (VHT) for each individual alternative compared to the 2036 E+C Network. For the intersection and interchange alternatives, the change in VHT was calculated using the intersection average delay calculations as described in the Highway Capacity Manual.
    - The projected change in trip length was calculated for each alternative by using the TDM, which calculated the change in Vehicle Miles Traveled (VMT) for each alternative.
- **Project Costs** – planning level construction costs were developed for each potential project alternative using year 2016 dollars.
- **Socio-Economic Factors** – an important criterion in evaluating each potential project alternative is roadway user economic values. The benefits are compared with the costs (B/C ratio) to determine the economic feasibility over a 20-year period.
    - The cost takes into account for depreciation, which includes constructing the proposed improvement minus the residual values based on the useful lives of the various construction elements. The assumed life cycle for pavement and structures is 30 years and 50 years, respectively. The portion of total estimated construction cost allocated to pavement and structures was estimated for each project and ranged from 20 to 25 percent for pavement costs and 20 to 40 percent for structures.
    - The benefit includes the economic benefit to the roadway user by the change in travel time and travel distance as determined by the TDM. For each alternative, benefits were

estimated for the same two analysis years, 2016 and 2036, consistent with the analysis years of the TDM.

- To include time savings in the evaluation, it is necessary to place a monetary value on the time saved. For the purpose of this study, values of time were based on the US Department of Transportation TIGER Benefit-Cost Analysis Resource Guide. The value of time used is $12.98/hour for auto drivers/passengers and $25.75/hour for truck drivers.
- The savings in Vehicle Miles Traveled for each project alternative was determined using a cost of $0.50 per mile, which is the current estimated average vehicle cost per mile allowed by the Internal Revenue Service for tax purposes.

Of the 85 roadway and bridge projects considered, 14 projects were evaluated individually to determine the system-wide impact of each in the Travel Demand Model. These 14 projects were identified by JATSO staff and the consulting team during an initial screening of uncompleted projects that were included in the current JATSO 2030 LRTP and projects identified through the stakeholder and public involvement process. Projects with the greatest perceived benefit to the region, which could most effectively be evaluated by the macro gravity travel demand model previously developed by JATSO. The remaining proposed projects were prioritized through other means by comparing volume/capacity ratios, project costs, traffic crash data, potential impact to economic development, relation to other phased improvements, and relative potential to be funded.

The quantified benefit based on travel demand model output for each of the potential project alternatives included in the model analysis is listed in ***Table 4.4***.

A summary of benefit/cost evaluation for the projects included in the model is presented in ***Table 4.5.*** These projects have been listed in order of priority.

In addition to project benefit-cost ratio calculation tables, the process for determination of the benefit-cost ratio is summarized in **Appendix D**.

TABLE 4.4
COMPARISON OF PROJECT OPERATIONAL COST SAVINGS

Alternative	2036 (Horizon Year)					
	Vehicle Miles Traveled (VMT)	Vehicle Hours Traveled (VHT)	Daily Δ Miles	Daily Δ Delay (Hours)	Daily Fuel Savings	Daily Time Savings
E+C	3,301,692	114,684	0	0	0	0
134a	3,301,738	114,681	45.5	-3.3	$115	-$46
145	3,301,640	114,511	-53.0	-173.1	-$134	-$2,468
107	3,301,742	114,676	49.5	-8.3	$125	-$118
144	3,301,690	114,683	-2.5	-1.3	-$6	-$18
147	3,301,733	114,677	40.5	-6.8	$102	-$96
101a	3,300,431	114,031	-1261.5	-653.3	-$3,180	-$9,314
102b	3,301,789	114,647	97.0	-37.4	$244	-$533
146	3,301,651	114,679	-41.5	-5.3	-$105	-$75
105a	3,301,955	114,635	262.5	-48.8	$662	-$696
106c	3,301,652	114,659	-40.7	-25.4	-$103	-$362
106b	3,301,681	114,679	-11.5	-5.3	-$29	-$75
104	3,301,720	114,669	27.5	-15.3	$69	-$218
102c	3,301,694	114,683	1.7	-1.8	$4	-$25
101b	3,301,732	114,571	39.5	-113.3	$100	-$1,615

TABLE 4.5
ROADWAY PROJECT BENEFIT/COST ANALYSIS SUMMARY

No.	Route	From	To	(mi)	Description	Total Savings	Benefit/Cost	Project Cost
134a	32nd Street	Intersection w/ KCS	-	-	Railroad Overpass at Davis (with Intersection Realignment)	$42,745,522	3.56	-$12,000,000
145	32nd Street	Schifferdecker Avenue	Central City Road	0.9	Improve from 3 lane to 5 lane	$31,152,060	3.48	-$8,965,000
107	Hall	17th Street (W.C.)	Hawthorne	3.0	New roadway construction & Intersection at Centennial	$21,676,987	3.09	-$7,015,500
144	Madison Street	Intersection w/ MacArthur	-	-	Intersection Improvements	$4,249,591	3.06	-$1,396,650
147	Zora Street	Range Line Road	MO 249	1.3	Improve from 3 lane to 4 lane w/ median & left turn lanes	$48,105,172	1.92	-$25,065,000
101a	West Corridor	I-44	7th Street (MO 66)	7.0	New highway construction w/ limited access (Scoping TIP #09HS-10)	$91,898,411	1.40	-$65,625,000
102b	MO 171	Fir Road	RTE Z/Pennell Street	2.5	Improve from 2 lane to 4 lane divided (Scoping TIP# 09HS-12)	$73,502,708	1.76	-$41,850,000
146	20th Street	Duquesne Road	Prigmore Interchange	3.0	Improve from 3 lane to 4 lane w/ median & left turn lanes	$31,113,989	1.71	-$18,200,000
105a	Schifferdecker Avenue	7th Street (MO 66)	Zora Street	2.1	Improve from 2 lane to 4 lane w/ median & left turn lanes	$29,371,025	1.52	-$19,298,750
106c	Duquesne Road/Hall	7th Street (MO 66)	20th Street	1.0	Improve from 2 lane to 4 lane w/ median & left turn lanes	$12,051,342	1.41	-$8,546,000
106b	Duquesne Road/Hall	Newman Road	17th Street (W.C.)	2.0	Improve from 2 lane to 4 lane w/ median & left turn lanes	$20,596,279	1.22	-$16,872,500
104	Zora Street	West Corridor	Main Street (MO 43)	4.4	New Roadway Construction	$38,846,953	1.00	-$38,837,000
102c	MO 171	RTE Z/Pennell Street	MO 96	2.1	Improve from 2 lane to 4 lane divided (Scoping TIP# 09HS-12)	$15,618,350	0.83	-$18,780,000
101b	West Corridor	7th Street (MO 66)	MO 171	9	New highway construction w/ limited access (Scoping TIP #09HS-10)	$40,201,032	0.42	-$96,320,000

Notes/Assumptions:
1. Passenger Driver Value of Time = $12.98/hr
2. Truck Driver of Time = $25.75/hr
3. Inflation Rate = 3%

4.2.3 FISCALLY-CONSTRAINED ROADWAY IMPROVEMENT PLAN

As previously discussed, the portion of estimated funding resources summarized in Section 4.1 that are available for street and highway improvements over the 20 year period total $611 million. As part of developing the fiscally constrained long range roadway improvement plan, the projected revenue streams have been grouped in three analysis periods: Short-Term (2016-2020), Mid-Term (2021-2025), and Long-Term (2026-2036). The roadway improvement projects were then grouped into these analysis periods to match anticipated funding levels based on project costs and the prioritization process described in Section 4.2.2. The resulting 20-year fiscally constrained roadway improvement plan is summarized in ***Table 4.6***. The projects are listed in relative order of priority based on the criteria described in ***Table 4.3***.

Although the remaining proposed projects should be considered visionary long-term unfunded needs, agencies whose jurisdictions in which these projects would exist should look for additional funding opportunities as future land use (re)development occurs or through creative financing programs as described in Section 4.1.4.

The full list of potential projects can be found in **Table 4.2**. **Table 4.6** contains projects that are planned based on current available funding and can be formally amended as additional funding is secured and more projects may be pursued.

In order to demonstrate fiscal constraint, funding for each jurisdiction was separated into distinct funding groups specific to each agency. Total revenue, operational & maintenance spending and anticipated cost for new projects were compared to determine the actual final balance for each jurisdiction. These values were separated into three "funding bands" where the first two bands have a duration of five years and the final band has a ten year duration. The expected financial summary for each jurisdiction analyzed is shown in **Table 4.7**.

TABLE 4.6

RECOMMENDED FISCALLY-CONSTRAINED 2036 ROADWAY AND TRANSIT IMPROVEMENT PLAN

	No.	Sponsor	Route	From	To	Description	Cost per year (2016)	2016-2020	2021-2025	2026-2036	20 Year Total
Proposed Projects						**ROADWAY PROJECTS**					
	NA	MoDOT	Pavements and Bridges	-	-	MoDOT Pavement and Bridges Program	$4,000,000	$21,854,540	$24,597,477	$62,318,697	**$108,770,714**
	NA	MoDOT	ITS Operations and Management		-	MoDOT ITS Operation and Management	$20,000	$109,273	$122,987	$311,593	**$543,854**
	NA	MoDOT	Safety Projects	-	-	MoDOT Safety Projects	$300,000	$1,639,091	$1,844,811	$4,673,902	**$8,157,804**
	NA	MoDOT	ADA Transition Plan	-	-	MoDOT ADA Transition Plan	$200,000	$1,092,727	$1,229,874	$3,115,935	**$5,438,536**
						Subtotal	**$4,520,000**	**$24,695,630**	**$27,795,149**	**$70,420,127**	**$122,910,907**
	147	Joplin	Zora Street	Range Line Road	MO 249	Improve from 3 lane to 4 lane w/ median & left turn lanes	$25,065,000	$1,327,663	$6,149,369	$29,367,686	**$36,844,718**
	101a*	Joplin	West Corridor	I-44	7th Street (MO 66)	New highway construction w/ limited access (Scoping TIP #09HS-10)	$65,625,000	$40,321,626	$18,325,121	$21,538,900	**$80,185,646**
	145	Joplin	32nd Street	Schifferdecker Avenue	Central City Road	Improve from 3 lane to 5 lane	$8,965,000		$11,025,819		**$11,025,819**
	146*	Joplin	20th Street	Duquesne Road	Prigmore Interchange	Improve from 3 lane to 4 lane w/ median & left turn lanes	$31,113,989			$18,695,609	**$18,695,609**
						Subtotal	**$99,655,000**	**$41,649,290**	**$35,500,309**	**$69,602,194**	**$146,751,793**
	107	Webb City	Hall	17th Street (W.C.)	Hawthorne	New roadway construction & Intersection at Centennial	$7,015,500			$10,929,920	**$10,929,920**
	144	Webb City	Madison Street	Intersection w/ MacArthur	-	Intersection Improvements	$1,396,650		$1,717,703		**$1,717,703**
						Subtotal	**$8,412,150**		**$1,717,703**	**$10,929,920**	**$12,647,624**
	NA	Various	ADA, Bike & Ped	-	-	ADA, Bicycle and Pedestrian improvements.	$250,000	$1,365,909	$1,537,342	$3,894,919	**$6,798,170**
	NA	Various	Off-System Bridge			Off-System Bridge Improvements	$502,145	$1,395,739	$3,087,875	$7,823,255	**$12,306,870**
						Subtotal	**$752,145**	**$2,761,648**	**$4,625,217**	**$11,718,174**	**$19,105,039**
						TRANSIT PROJECTS					
	NA	Joplin Transit	Pedestrian Shelters	-	-	Replacement of pedestrian waiting shelters.	$0	$218,545	$184,481	$467,390	**$870,417**
	NA	Joplin Transit	Transit Vehicles	-	-	Replacement of transit vehicles.	$0	$229,473	$959,302	$2,025,358	**$3,214,132**
						Subtotal	**$0**	**$448,018**	**$1,143,783**	**$2,492,748**	**$4,084,549**
Projects Already Programmed						**ROADWAY PROJECTS**					
	NA	Varies	Varies	-	-	Joplin CIP Program Projects funded through Joplin 3/8 cent Sales Tax	$51,653,000**	$15,496,534	$15,463,081	$30,812,915	**$61,772,530**
						Subtotal	**$51,653,000****	**$15,496,534**	**$15,463,081**	**$30,812,915**	**$61,772,530**
	TIP #01TAP-16	Carl Junction	Route Z	-	-	Transportation Alternatives Program - Sidewalk Improvements - Phase 3	$357,500	$357,500			**$357,500**
						Subtotal	**$357,500**	**$357,500**			**$357,500**
	NA	Jasper	Off-System Bridge	-	-	Schifferdecker Bridge at Turkey Creek	$252,443	$1,760,000			**$1,760,000**
						Subtotal	**$252,443**	**$1,760,000**			**$1,760,000**
	NA	Newton	Off-System Bridge			Jackson Avenue Bridge Replacement	$232,229	$2,698,200			**$2,698,200**
						Subtotal	**$232,229**	**$2,698,200**			**$2,698,200**
	TIP #07HS-12	MODOT	Madison Street	-	-	Scoping for roadway improvements from Rte. 171 to 13th Street	$6,000	$6,182			**$6,182**
	TIP #08HS-12	MODOT	I-49	-	-	Scoping for roadway improvements from Rte. V near Carthage to Rte. FF	$6,000	$6,182			**$6,182**
	TIP #06HS-12	MODOT	7th Street (Route 66)	-	-	Scoping for roadway improvements from 0.5 mi west of Rte. P to 0.1 mi west of Loop 49	$6,000	$6,182			**$6,182**
	TIP #09HS-12	MODOT	Newman Road	-	-	Scoping for ped imprvmts. and ADA accom. from Loop 49 to Duquesne and on Range Line	$6,000	$6,182			**$6,182**
	TIP #11HS-12	MODOT	Harley Street	-	-	Scoping for ped improvements and ADA accommodations from Harley St to Karen Dr	$6,000	$6,182			**$6,182**
	TIP #05HS-14	MODOT	Route 43	-	-	Scoping for roadway improvements from Rte. FF (32nd Street) to I-44	$6,000	$6,182			**$6,182**
	TIP #04HS-16	MODOT	Interstate 44	-	-	Scoping for pavement improvements from Loop 49 (Range Line Road) to east of Rte. 37	$6,000	$6,182			**$6,182**
	TIP #14HS-12	MODOT	Range Line Road	-	-	Scoping for intesection and outer road improvements on Range Line Road at 36th Street	$6,000	$6,182			**$6,182**
	TIP #22HS-12	MODOT	Southwest District	-	-	Scoping for pedestrian improvements and ADA accommodations along various routes	$6,000	$6,182			**$6,182**
	TIP #20HS-12	MODOT	Southwest District	-	-	Scoping for safety improvements at various locations in the rural Southwest District	$6,000	$6,182			**$6,182**
	TIP #21HS-12	MODOT	Southwest District	-	-	Scoping for bridge improvements at various locations in the rural Southwest District	$6,000	$6,182			**$6,182**
	TIP #33HS-11	MODOT	Southwest District	-	-	Scoping for bridge preventive maintenance at various locations	$6,000	$6,182			**$6,182**
	TIP #14HS-14	MODOT	Southwest District	-	-	Scoping for pavement improvements on primary routes in the rural Southwest District	$45,000	$46,364			**$46,364**
	TIP #07HS-12	MODOT	Route 43	-	-	Pavement improvements from south of Rte. 171 in Airport Drive to Murphy Boulevard	$814,000	$814,000			**$814,000**
	TIP #01HS-16	MODOT	Various	-	-	Job Order Contracting for pvmt. repair from the Ok State line to Rte. 360 in Greene Co.	$216,000	$216,000			**$216,000**
	TIP #20HS-12	MODOT	Southwest District	-	-	Job Order Contracting for guard cable and guardrail repair at various locations	$568,000	$584,980			**$584,980**
	TIP #20HS-14	MODOT	Southwest District	-	-	Job Order Contracting for guard cable and guardrail repair at various locations	$586,000	$621,504			**$621,504**
	TIP #21HS-14	MODOT	Southwest District	-	-	Job Order Contracting for guard cable and guardrail repair at various locations	$553,000	$553,000			**$553,000**
	TIP #01SS-12	MODOT	Southwest District	-	-	Safe and Sound Bridge Program (Est. for JATSO area portion only; 3 bridges out of 125)	$181,000/year	$905,000	$905,000	$362,000	**$2,172,000**
	TIP #23HS-14	MODOT	Southwest District	-	-	Safety improvements at various locations in the rural Southwest District	$173,000	$183,012			**$183,012**
	TIP #02HS-16	MODOT	Southwest District	-	-	On call work zone enforcement at various locations in the rural Southwest District	$34,000	$34,990			**$34,990**
	TIP #03HS-16	MODOT	Southwest District	-	-	On call work zone enforcement at various locations in the rural Southwest District	$21,000	$21,000			**$21,000**
	TIP #01ITS-14	MODOT	Southwest District	-	-	ITS Operations and Management in the rural Southwest District	$38,000	$39,140			**$39,140**
	TIP #01ITS-15	MODOT	Southwest District	-	-	ITS Operations and Management in the rural Southwest District	$38,000	$38,000			**$38,000**
						Subtotal		**$4,131,171**	**$905,000**	**$362,000**	**$5,398,171**
						TRANSIT PROJECTS					
	TIP #01T-16	Joplin Transit	Transit Vehicles	-	-	2016: Replace 3 MAPS Vans. 2017: Replace 1 MAPS Van. 2018: Replace 2 MAPS Vans.	$390,000	$399,867			**$399,867**
	TIP #02T-16	Joplin Transit	Pedestrian Shelters	-	-	Two (2) pedestrian waiting shelters and one (1) pedestrian waiting bench.	$25,000	$25,000			**$25,000**
	TIP #03T-16	Joplin Transit	Operator Training	-	-	Transit Operator Training Development Course.	$10,000	$10,000			**$10,000**
	TIP #04T-16	Joplin Transit	Transfer Station	-	-	Transfer Station at 15th Street and Connecticut	$2,548,744	$2,785,081			**$2,785,081**
						Subtotal		**$3,219,948**			**$3,219,948**
						ROADWAY REVENUES		**$145,536,925**	**$143,739,939**	**$321,924,763**	**$611,201,626**
						ROADWAY TOTAL EXPENSE		**$93,549,972**	**$86,006,460**	**$193,845,331**	**$368,943,564**
						TRANSIT REVENUES		**$14,496,189**	**$11,012,024**	**$25,830,964**	**$51,339,178**
						TRANSIT TOTAL EXPENSE		**$3,667,966**	**$1,143,783**	**$2,492,748**	**$7,304,497**

- Project costs were inflated by 3% to central year of funding group.

* Allocation of funding for Projects 101a & 146 reflect funds for right of way, utility relocation, engineering and a phased construction schedule to match future available funds.

** Appendix E shows project cost breakdown. Costs were inflated at 3% for all CIP projects.

Table 4.7 - Jurisdictional Financial Summary

City of Joplin	FY2016-2020	FY2021-2025	FY2026-2036	20 Year Total
Total Revenue (1/2 cent transp. sales tax; 3/8 cent CIP; STP Small Urban Funds; State Revenues to Cities)	$61,444,664	$55,791,275	$112,466,963	**$229,702,902**
O&M	($4,209,878)	($4,738,255)	($12,004,560)	($20,952,693)
Total Revenue Available for Funding new Projects	$57,234,786	$51,053,020	$100,462,403	$208,750,209
Project Cost Estimate	($57,145,823)	($50,963,390)	($100,415,110)	($208,524,323)
Remaining Available Revenue	**$88,962**	**$89,630**	**$47,294**	**$225,886**
Webb City	**FY2016-2020**	**FY2021-2025**	**FY2026-2036**	**20 Year Total**
Total Revenue (1/2-cent transp. sales tax; 3/8-cent CIP; State Revenues to Cities)	$8,679,200	$8,679,200	$17,358,400	$34,716,800
O&M	($767,182)	($863,470)	($2,187,636)	($3,818,287)
Total Revenue Available for Funding new Projects	$7,912,018	$7,815,730	$15,170,764	$30,898,513
Project Cost Estimate	$0.00	($1,717,703)	($10,929,920)	($12,647,624)
Remaining Available Revenue	**$0**	**$6,098,027**	**$4,240,844**	**$18,250,889**
Carl Junction	**FY2016-2020**	**FY2021-2025**	**FY2026-2036**	**20 Year Total**
Total Revenue (1/2-cent transp. Sales tax; 1/2-cent CIP; State Revenues to Cities)	$3,001,606	$6,003,212	$6,003,212	$15,008,030
O&M	($99,744)	($112,263)	($284,423)	($496,430)
Total Revenue Available for Funding new Projects	$2,901,862	$5,890,949	$5,718,789	$14,511,600
Project Cost Estimate	($357,500)	$0.00	$0.00	($357,500)
Remaining Available Revenue	**$2,544,362**	**$5,890,949**	**$5,718,789**	**$14,154,100**

MoDOT (State & Federal Revenue (Highway Safety, NHPP, STP)

MODOT (STATE & FEDERAL REVENUE)	FY2016-2020	FY2021-2025	FY2026-2036	20 Year Total
Total Revenue (State & Federal Safety,NHPP, STP)	$51,285,841	$57,722,666	$146,242,693	$255,251,200
O&M	($15,685,107)	($16,321,985)	($35,348,742)	($67,355,833)
Total Revenue Available for Funding new Projects	$35,600,734	$41,400,681	$110,893,951	$187,895,367
Project Cost Estimate	($20,564,459)	($26,890,149)	($70,058,127)	($117,512,736)
Remaining Available Revenue	**$15,036,275**	**$14,510,532**	**$40,835,824**	**$70,382,631**

Jasper County	FY2016-2020	FY2021-2025	FY2026-2036	20 Year Total
Total Revenue (State Revenues to Counties and BRO)	$9,494,318	$8,767,050	$18,362,350	$36,623,718
O&M (includes all federal-aid miles)	($53,369)	($60,067)	($76,091)	($189,527)
Total Revenue Available for Funding new Projects	$9,440,949	$8,706,983	$18,286,259	$36,434,191
Project Cost Estimate	($1,760,000)	$0.00	$0.00	($1,760,000)
Remaining Available Revenue	**$7,680,949**	**$8,706,983**	**$18,286,259**	**$34,674,191**

Newton County	FY2016-2020	FY2021-2025	FY2026-2036	20 Year Total

Table 4.7 - Jurisdictional Financial Summary

Total Revenue (State Revenues to Counties and BRO)	$9,678,045	$7,579,742	$15,921,412	$33,179,199
O&M (includes all federal-aid miles)	($60,280)	($67,846)	($85,945)	($214,072)
Total Revenue Available for Funding new Projects	$9,617,765	$7,511,896	$15,835,467	$32,965,127
Project Cost Estimate	($2,698,200)	$0.00	$0.00	($2,698,200)
Remaining Available Revenue	**$6,919,565**	**$7,511,896**	**$15,835,467**	**$30,266,927**

TRANSIT PROGRAM	**FY2016-2020**	**FY2016-2020**	**FY2026-2036**	**20 Year Total**
Total Revenue	$14,496,189	$11,012,024	$25,830,964	$51,339,178
O&M	($6,597,541)	($7,425,591)	($18,813,033)	($32,836,165)
Total Revenue Available for Funding new Projects	$7,898,648	$3,586,433	$7,017,931	$18,503,012
Project Cost Estimate	($3,667,966)	($1,143,783)	($2,492,748)	($7,304,497)
Remaining Available Revenue	**$4,230,681**	**$2,442,651**	**$4,525,183**	**$11,198,515**

4.3 TRANSIT FINANCIAL PLAN

Funding for the Metro Area PublicTransit System comes from a variety of sources including fares, the Transportation Sales Tax (T.S.T), state funds, Community Match and Federal funds. Information from MAPS and the TIP provide the following estimates of current funding for transit.

The total estimated cost over the next 20 years for identified transit improvement projects is nearly $4 million (based on the projects in **Table 4.6**) with an additional $3.2 million to be spent on projects already programmed. The portion of estimated funding resources summarized in Section 4.1 that are available for transit improvements over the 20 year period totals approximately $43 million.

4.3.1 LOCAL FUNDING

Local non-federal matching funds for transit operations and capital expenses come from the City of Joplin's transportation sales tax. The tax is dedicated to funding transit and improvements to the transportation system. The ½ cent transportation sales tax generates approximately $6.4 million annually, which approximately $639,548 is expected to be used for the transit system. The transportation sales tax is a permanent tax and does not have an expiration date.

4.3.2 COMMUNITY MATCH

In addition to local funding provided by the City of Joplin, the four largest communities within MAPS service area provide funding for operations. This includes the communities of Webb City, Carl Junction, Duquesne, and Carterville. At the end of MAPS fiscal year, each community is invoiced for the number of rides provided. For every pick-up ride provided to each community, one dollar is billed to that respective community. It is assumed each participating community will continue to provide funding through the next 20 years.

4.3.3 STATE FUNDING

The MAPS will receive $8,221 from MoDOT for transit operations annually. It is assumed MAPS will continue to receive this same level of funding for the next 20 years for transit operations.

4.3.4 FEDERAL FUNDING

FTA Section 5307 Assistance aids local government by reimbursing 80% of the cost for eligible capital and planning expenditures and 50% for operating expenditures. FTA Section 5310 Assistance is a program that provides aid for the elderly and individuals with disabilities. Capital assistance to organizations providing specialized services for the elderly and disabled are eligible for 80% reimbursement for the cost of vehicles. It is estimated that MAPS will receive $1,160,314 annually in Federal funding.

Funding estimates are based upon information contained in the Transportation Improvement Program (TIP) and information provided by JATSO, MoDOT and MAPS. If additional local or state revenue sources are created or funding levels from current sources increase in the future, the City of Joplin would be able to use these funds to match a larger amount of federal funds to be used for transportation projects. Funding and expenses for transit and roadway operations appear to remain balanced throughout the

next 20 years assuming current funding levels. A funding deficit is expected between 2026 and 2036, but funding estimates predict that carryover from prior years will occur and should be able to cover the expected funding deficits.

4.4 AVIATION FINANCIAL PLAN

The annual operating expenses estimated in American Eagle's proposal was $6.5 million dollars. Significant financing sources for the airport come from the City of Joplin transportation sales tax, service charges and user fees, and federal grants. The federal grant funds fluctuate from year to year and typically pay for capital improvements.

The airport currently receives funding through the Airport Improvement Plan (AIP), MoDOT programs such as the State Aviation Trust Fund Program, the State Transportation Assistance Revolving (STAR) fund, numerous bonds and local funding.

At current funding levels, the airport is expected to receive $1 million dollars per year from their capital improvement program.

4.5 NON-MOTORIZED FINANCIAL PLAN

It is recognized that implementation of all of the potential non-motorized improvement opportunities identified previously may be beyond the financial feasibility of JATSO and its member communities during the anticipated life of this plan (i.e. 2036). As a result, it is imperative that JATSO and its member municipalities strategically assess the benefit of each improvement concurrent with identification and solicitation of the necessary funding for the project. This will require a coordinated and sustained effort. The guiding objective is to efficiently package non-motorized transportation improvement with the funding for other planned transportation infrastructure improvement projects thereby gaining an economy of scale in execution of each project above what would have been possible if implemented individually.

In addition to the various funding methods available for motorized transportation improvements, a series of targeted funding options are also available for non-motorized improvements. These funding options will require a more detailed evaluation prior to project implementation to determine their specific applicability to the desired non-motorized improvements.

Transportation Enhancement Program:
The Transportation Enhancement Program requires each state to reserve 10 percent of its Federal Surface Transportation Program funds annually for designated Transportation Enhancement activities to ensure transportation spending supports more than just roads. This program provides funding through a competitive selection process for transportation related activities other than routine highway and bridge construction. Transportation Enhancement funds are available for a variety of project types, that are located in both rural and urban communities. These projects help create more travel choices by providing funding to construct sidewalks, bike lanes and to convert abandoned railroad rights of way to trails. Communities may also use the Transportation Enhancement Program to revitalize local regional

economies by restoring historic buildings, renovating streetscapes or providing transportation museums and visitor centers.

Recreational Trails Program - Department of Natural Resources:
The Recreational Trails Program was authorized in the 2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The Recreational Trails Program is a federal-aid assistance program that helps states provide and maintain recreational trails for both motorized and non motorized recreational trails uses. Annual funding for this program is approximately $1,000,000. The program provides funds for many recreational trail uses, such as pedestrian (hiking, running, wheelchair use), bicycling, inline skating, equestrian, cross-country skiing, off-road motorcycling, all-terrain vehicle riding and four-wheel driving. The Department of Natural Resources holds a competitive grant round each year and distributes the funding in response to recreational trail needs within the state. The Recreational Trails Program encourages trail enthusiasts to work together to provide a wide variety of recreational trail opportunities.

Missouri Safe Routes to School Program:
Missouri Safe Routes to School Program (SRTS) was created by Section 1404 of the SAFETEA-LU in 2005. The Highway Safety Division is responsible for administration of SRTS federal funds. The funding is used to provide safer biking and walking accommodations for children in kindergarten through eighth grade, including those with disabilities. There are two areas eligible for funding, behavioral and infrastructure. Behavioral activities may be used for public awareness and outreach campaigns, traffic education, and enforcement efforts. Infrastructure projects include engineering and construction efforts such as sidewalks, crosswalks, lighting and bike racks. State, local, and regional agencies, schools, and non-profit organizations may submit applications to MoDOT to receive a grant from federal safe routes to school funds.

Source: MRPC Regional Transportation Plan Chapter 7