

# JOPLIN CONNECTED

## ACTIVE TRANSPORTATION PLAN FOR THE CITY OF JOPLIN, MISSOURI

*January 24, 2022*




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# SECTION ONE

# INTRODUCTION

Transportation systems help define the way in which we interact with our surrounding environment. Transportation infrastructure dictates how we can move around a city; it decides what modes of travel are possible, the fastest way to get from point A to point B, where we can or cannot cross a street, and more. Transportation also goes beyond vehicular traffic to include any way we may travel from place to place, whether by car, foot, bike, scooter, or boat. A healthy transportation system strikes a balance between viable modes of travel, not only for the sake of congestion, but also to provide equal and comfortable mobility options for every person in a community regardless of age, ability, or vehicle ownership. ***JOPLIN CONNECTED*** provides a blueprint to achieve just that.

This section introduces the Joplin Connected Plan (Plan) and provides an overview of the planning process that developed this Plan.

# PURPOSE AND BACKGROUND

The Joplin Area Transportation Study Organization (JATSO), the designated Metropolitan Planning Organization (MPO) for the Joplin region, recently updated the region's Metropolitan Transportation Plan (MTP). The MTP is a blueprint for the region's transportation planning process for the next 25 years and considers all modes of transportation, including trails, pedestrian and bike facilities, transit, railroads, and airports. Extensive public outreach and engagement was conducted for the MTP update, during which the public expressed a strong desire for pedestrian and bike facility improvements. Residents recorded that safe, efficient, and well-connected pedestrian and bike facilities were increasingly important and should be prioritized as future improvements.

After analyzing public input, the City of Joplin began preparing the Active Transportation Assessment Study (ATA). The ATA specifically focuses on pedestrian and bike facility improvements for the City of Joplin.

Although the city has implemented trails and some on-street bike lanes, the city still lacks robust pedestrian and bike connectivity. The most popular mode of transportation in Joplin is vehicles, but most vehicle trips are three miles or less. If active transportation facilities and connections are increased within the city, there is potential for shorter vehicular trips to shift to other modes of transportation.

## WHAT IS AN ACTIVE TRANSPORTATION PLAN?

Active transportation is any self-propelled, human-powered mode of transportation, such as walking and bicycling. An active transportation plan focuses on the following:

- **Assessing existing pedestrian and bike facilities.** Existing conditions assessment should include a comprehensive inventory of any existing facilities and their location relative to each other and to points of interest, safety, accessibility, and quality.
- **Engaging community residents.** Public engagement should gauge if residents are interested in increasing opportunities for walking and biking as a recreation activity or commuting option, and if so, what destinations should have improved non-motorized accessibility.
- **Educating about active transportation.** Public officials and residents should be educated on the different types of walking and bicycling facilities that could be implemented in their community.
- **Recommending solutions.** Recommendations should include safe and efficient active transportation solutions that reflect the goals of the community and support the overall transportation network.

Active transportation facilities provide a variety of benefits to overall quality of life, including:

- **Health benefits.** Active transportation options encourage active lifestyles, which results in improved physical and mental health.
- **Social benefits.** Active transportation options provide increased social interactions with other walkers and bicyclists.
- **Environmental benefits.** Active transportation options increase outdoor recreation opportunities and foster meaningful connections to the natural environment.
- **Economic benefits.** Active transportation options provide a high return on investment to the community, adjacent land uses, tourism, and employee recruitment and retention.

An active transportation plan also promotes the various design elements of Smart Growth America's Complete Streets initiative. Complete streets are designed and operated to provide safe, accessible, and healthy travel for all users of the street, including pedestrians, bicyclists, transit users, and motorists. The complete streets approach leverages existing street networks and right-of-way into safe corridors that offer multimodal and multipurpose options of the space between the buildings on either side of the street.

# OUR VISION

***Joplin's active transportation network exists to provide safe and comfortable connections for people of all ages and abilities; it is a place where people, places, and progress intersect.***

# OUR GUIDING PRINCIPLES



## CONNECTIVITY

Joplin's active transportation system will be purposeful and useful for transportation and recreation.



## SAFETY

Joplin's active transportation system will prioritize user safety and comfort through context-sensitive design.



## JOYFUL EXPERIENCE

Joplin's active transportation system will be designed and programmed to maximize the user experience by creating opportunities for fun and play.



## WELL-BEING

Joplin's active transportation system will promote and encourage an active lifestyle and a focus on the whole person – physically, emotionally, and



## RESILIENCY

Joplin's active transportation system will respond to community and environmental needs by providing and maintaining viable transportation alternatives.



## INCLUSIVITY

Joplin's active transportation system will be open and inviting for all.



## ECONOMIC DEVELOPMENT

Joplin's active transportation system will strengthen our economy through tourism and further community investment.

# PLANNING AREA

***Figure 1.1*** shows the project planning area, which includes the entire City of Joplin. Trail or bike linkages that extend beyond city limits will consider regional connections and destinations.

**FIGURE 1.1**
**PLANNING AREA**



# SECTION TWO

# SETTING THE STAGE

Active transportation networks must meet the specific needs of a community to be successful, which in this case means that the system is frequented enough to improve the balance of all transportation modes across the city. ***Section 2 - Setting the Stage*** presents an overview of bike and pedestrian facility typologies, a summary of local codes applicable to active transportation, a review of existing policies applicable to active transportation, active transportation best practices, and bicycle and pedestrian network development criteria. This section is a resource guide and provides technical information to help pilot active transportation project implementation within Joplin.

# BIKE AND PEDESTRIAN FACILITY TYPOLOGIES

Implementation of an active transportation network must be unique to the community it serves. A variety of on- and off-road facilities should be used in conjunction with each other. The following section overviews various bike and pedestrian typologies.

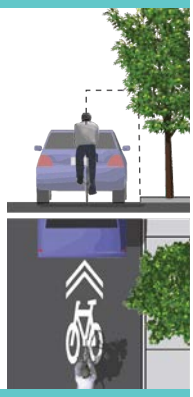
## ON-ROAD FACILITIES

Bike facilities may be located on the street alongside vehicular traffic. This model can be implemented in a variety of settings and is presented on the following pages in order of least to most protection offered for bicyclists.

### SHARED LANE MARKINGS - "SHARROWS"

LOW PROTECTION

- Positions bicyclists in the travel lane
- Alerts motorists to the presence of bicyclists
- Encourages bicyclists to ride an appropriate distance away from the "door zone" on streets with parking
- Should never be used as a replacement for bike lanes



### BIKE LANE

- Allows for exclusive bike travel lane
- Increases safety and promotes proper riding
- Reduces possibility that motorists will stray into bicyclists' path
- Reminds drivers visually of bicyclists' right to the road
- Recommended to be six feet wide and five feet wide in constrained locations (bike lanes wider than seven feet may encourage vehicle loading in bike lane)



### BUFFERED BIKE LANE

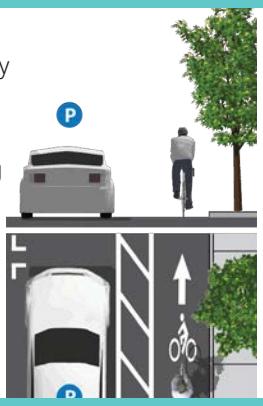
- Provides cushion of space to mitigate friction with motor vehicles on streets with frequent or fast motor vehicle traffic
- Allows bicyclists to pass one another or avoid obstacles without encroaching into the travel lane
- Increases motorist shy distance from bicyclists in the bike lane
- Requires additional roadway space and maintenance
- Reduces risk of hitting a car door, or "dooring," compared to a bike lane



MEDIUM PROTECTION

## AT-GRADE CYCLE TRACK WITH PARKING PROTECTION

- Dedicates and protects space for bicyclists and improves perceived comfort and safety
- Reduces risk of "dooring" compared to a bike lane, and eliminates the risk of a doored cyclist being struck by a motor vehicle
- Requires a lower implementation cost through use of existing pavement, using parking lane as a barrier
- Use along roadways with high motor vehicle volumes and/or speeds
- Best on streets with parking lanes with a high occupancy rate



## AT-GRADE CYCLE TRACK WITH BOLLARD PROTECTION

- Provides similar benefits to a cycle track with an on-street parking buffer
- Best used on roads with high speeds and long distances between intersections and driveways
- Requires innovative bike-friendly design at intersections to reduce conflicts between turning motorists and bicyclists
- Width should never be taken from the pedestrian zone to make room for a cycle track



## RAISED CYCLE TRACK WITH CURB SEPARATION

- Clearly demarcates space for different users due to change in level and reduces conflicts between bicyclists and pedestrians
- Where bicyclists may enter or leave the cycle track, or where motorists cross at a driveway, the curb should be mountable with a small 45-degree ramp allowing cyclist turning movements



HIGH PROTECTION

## RAISED AND PROTECTED CYCLE TRACK

- Should be two or three inches above street level, and the sidewalk should be an additional two to three inches above the cycle track
- Maintenance of the cycle track requires specialized sweepers
- Where opportunities exist, the buffer zone may be expanded to include bike parking



## ROAD-ADJACENT FACILITIES

Bike and pedestrian facilities may be located adjacent to roadways and typically fall under the following categories:

### WIDE SHARED-USE TRAIL

**DESCRIPTION**
Paved surface primary trail adjacent to roadways that provides safe arterial connectivity.

**TRAIL MATERIALS**
Asphalt or concrete paving.

**SHOULDER MATERIALS**
Decomposed granite or similar permeable material.

**PERMITTED USES:**



WALK RUN BIKE SKATE







### NARROW SHARED-USE TRAIL

**DESCRIPTION**
Non-hardened surface trail adjacent to roadways that typically used along roads with constrained right-of-way or topographical challenges.

**TRAIL MATERIALS**
Decomposed granite or similar permeable material.

**PERMITTED USES:**



WALK RUN BIKE SKATE



## OFF-ROAD FACILITIES

Facilities located away from vehicular corridors are typically categorized as follows:

### WIDE SHARED-USE TRAIL

**DESCRIPTION**
Paved surface trail in gently sloping areas and utility easements.

**TRAIL MATERIALS**
Asphalt or concrete paving.

**SHOULDER MATERIALS**
Decomposed granite or similar permeable material.

**PERMITTED USES**







### WIDE SHARED-USE TRAIL (NON-HARDENED SURFACE)

**DESCRIPTION**
Non-hardened surface trail in gently sloping areas and utility easements.

**TRAIL MATERIALS**
Decomposed granite or similar permeable material.

**PERMITTED USES**







### NARROW SHARED-USE TRAIL

**DESCRIPTION**
Narrow natural surface trail typically found in areas with high drainage levels, steep topography, and/or environmental sensitivity.

**TRAIL MATERIALS**
Native surface, such as bare earth or pine needles.

**PERMITTED USES**






## HIKING TRAIL

**DESCRIPTION**
Narrow natrual surface trail typically found in any type of offroad condition but restricted to pedestrian uses.

**TRAIL MATERIALS**
Native surface, such as bare earth or pine needles.



WALK RUN HIKE




## MOUNTAIN BIKE TRAIL

**DESCRIPTION**
Narrow natrual surface trail typically found in any type of off-road condition but restricted to mountain biking, typically one-way.

**TRAIL MATERIALS**
Native surface, such as bare earth or pine needles.



BIKE



# EXISTING CODES AND POLICIES

A review of existing codes and policies in Joplin is helpful to place the existing active transportation system in context. The section that follows overviews local regulations and summarizes policies on the local, state, and federal level that assist and encourage the implementation of active transportation systems.

## LOCAL CODES

Regulations pertaining to bicyclists and pedestrians within the City of Joplin are set forth in Chapter 14 of the Code of Ordinances (Code). The regulations are largely within the context of vehicular traffic and the current roadway system.

### PEDESTRIANS

Pedestrian regulations are outlined in Chapter 114, Article IX of the Code.

**PEDESTRIANS AND ROADWAY CROSSINGS.** The Code states that pedestrians must follow traffic control signals where applicable. If traffic signals are not in place, drivers must yield the right-of-way to pedestrians crossing the road at a marked crossing. When crossing at any other point than within a marked crosswalk, pedestrians must yield to the right-of-way to vehicular traffic. Roadways with crossing points should not be crossed at any other place. If a pedestrian must cross a road with no crosswalks available, they should not suddenly walk into the path of a vehicle where it is not possible for the driver to react in a timely manner.

**PEDESTRIANS AND WALKWAYS.** Pedestrians cannot walk along or upon a roadway with adjacent sidewalks provided for foot traffic. If a sidewalk is not provided, pedestrians can only walk on the left side of the roadway or face incoming traffic.

### BICYCLISTS

Bike regulations are outlined in Chapter 114, Article VI of the Code.

**BICYCLES AND ROADWAYS.** Bicyclists in the roadway must obey vehicular traffic rules and signals. If they dismount from their bike, then the person must follow regulations applicable to pedestrians. Bicyclists on the road must ride as close to the right side of the road as possible. Pedestrians have the right-of-way when bicyclists approach any sidewalk or sidewalk area and vehicles have the right-of-way when approaching a roadway.

**BICYCLES AND PATHWAYS.** Bicyclists must use a path instead of the roadway where adjacent facilities are provided. Bikes may be ridden on sidewalks under certain conditions so long as bicyclists yield the right-of-way of pedestrians. Bikes may not be ridden on sidewalks within a business district or wherever else prohibited by the Chief of Police.

### TRAFFIC CONTROL DEVICES

Chapter 114 of the Code also contains regulations for the placement of and interaction with traffic control devices. Traffic control devices are under the authority of the City Traffic Engineer. This authorization includes crosswalks and safety zones, which the engineer may place in any place where he or she assumes potential danger for pedestrians. Additionally, the engineer may establish play streets, which are sections of roadway closed to vehicular traffic for the purpose of recreation space. Play streets are typically found in residential or business districts with high pedestrian traffic.

## POLICY REVIEW

The development of a policy focused on active transportation formalizes and strengthens the commitment to providing multimodal transportation options for a community. This section provides educational and background information on how a new policy can be formed, what types of policy examples exist regionally, and what policies the City of Joplin currently has in place.

### LOCAL

**CITY OF JOPLIN NEIGHBORHOOD TRAFFIC CALMING POLICY.** An ordinance was added to Chapter 114, Article X of the Code in 2019 to establish a policy for neighborhood traffic calming devices. The policy is designed to ensure that each neighborhood with a proven traffic problem identified by traffic analyses has access to traffic calming measures. The policy is meant to address residential concerns in a timely manner by relying on city staff to address a perceived problem. Traffic control measures must be reviewed by the Traffic Commission, approved by City Council, and are subject to available funding. Program success depends on a high level of citizen involvement.

The process begins with a complaint from an individual resident or group of residents and generally involves a perception that a significant number of motorists are violating the law in some way. City staff then conduct a field review and will respond to the complaint within 15 working days. In the case of speeding, staff will request additional traffic enforcement, either by increased police coverage or a radar speed trailer. The Traffic Engineer will bring the issue to the Traffic Commission during a scheduled bimonthly meeting, which provides the neighborhood with an opportunity to express their concerns and for staff and the commission to compare neighborhood conditions to the reasonable expectations of traffic volumes, speeds, etc.

If the commission determines that the construction of a traffic calming device may be appropriate, city staff will prepare a petition for the neighborhood and allow residents to circulate the petition in the affected area. The size and definition of the affected area will be determined by the City Traffic Engineer. If the petition is signed by 60 percent of the residents within the affected area, city staff will conduct additional traffic analysis and prepare a report, which will be made public to concerned residents and reviewed by the Public Works Department, Fire Department, Police Department, and Planning, Development, and Neighborhood Services Department.

If the Traffic Commission approves the request to construct a traffic calming device during the bimonthly meeting, a second petition will be circulated that describes the specific measures recommended for the neighborhood. Plans will be developed, reviewed by the city staff, and approved by the Traffic Commission.

The following improvements are considered approved neighborhood traffic calming devices:

**Higher visibility crosswalks.** Improving the visibility of crosswalks by using paving blocks of contrasting colored concrete or painting the crosswalk with "zebra" stripes between the outer boundary stripes.

**Entrance treatments.** Entrance treatments consists of physical and textural changes to streets, located at key entryways into a neighborhood to create visual cues to tell drivers they are entering a local residential area.

**Speed humps.** Speed humps are pavement undulations installed along a roadway for the purpose of regulating traffic speed. They are different than speed bumps, which is an abrupt pavement feature that is only 1 to 3 feet in length at the base. A speed hump is at least twelve feet in length and meant to be installed in groups of three humps, minimum, spaced 300 to 400 feet apart.

**Curb extensions or chokers (bulb-outs).** Curb extensions or chokers narrow the street by widening the sidewalk or the landscaped parking strip. They are designed to make pedestrian crossings easier by reducing crossing distance and improving sight distance. They also influence driver behavior by changing the appearance of the street.

**Traffic circles.** Traffic circles are three or more road intersections with raised islands placed at the center of the intersection, requiring drivers to slow to a speed that allows them to comfortably maneuver around them.

**Roundabouts.** Like a traffic circle, roundabouts require approaching traffic to slow down to maneuver in a circular motion through an intersection. The island on a roundabout is larger than a traffic circle and surrounded by a marked turning lane.

**One-way streets.** Designating neighborhood streets as one-way will redefine traffic patterns within the area.

**Median barriers.** Concrete curbs or islands located along centerlines of streets reduce traffic volumes by controlling locations of left turns from through and cross streets.

**Semi-diverters or half closures.** Semi-diverters or half closures are located at intersections and limit access to a street by blocking

the "receiving" lane of the street. They prevent drivers from entering certain legs of an intersection.

**Diagonal diverters.** Diagonal diverters place a barrier diagonally across an intersection, disconnecting the legs of the intersection.

**Cul-de-sac or street closures.** Either closing a street at an intersection or at a mid-block location creates a cul-de-sac, which eliminates through traffic and/or reduces speeding on long, interrupted sections of roadway.

**Traffic calming signs.** Traffic calming signs are not speed limit signs. They are signs with friendly messages to motorists reminding them that they are entering a residential neighborhood. These signs are most effective when rotated periodically to keep the message fresh and continue to attract the attention of drivers familiar with the neighborhood.

## REGIONAL

**COMPARATIVE COMPLETE STREETS POLICIES.** Three cities near Joplin and of similar size have implemented a Complete Streets policy. A brief description of each policy and its organization is provided as follows.

- **Complete Streets Policy, Springfield, Missouri (2014).** Springfield adopted an ordinance in 2014 with a vision for every public street, walkway, and trail to be planned and fully used as feasible. Action items include stating the responsibility of the City Traffic Engineer and Director of Public Works to ensure that new projects meet Complete Streets principles as much as possible.

- **Master Street Plan, Fayetteville, Arkansas (2011).** The Master Street Plan for Fayetteville designates streets by location and typology and provides design guidelines for each. Additionally, the policy outlines guidelines for alleyways, recognizing their potential as multimodal corridors in commercial and residential areas.

- **Topeka Complete Streets Design Guidelines, Topeka, Kansas (2019).** These guidelines represent the latest initiative from the City of Topeka to support multimodal transportation, which formally began in 2009 with the city's Complete Streets resolutions. The document establishes categories for street and sidewalk types and provides design guidelines for each. It also contains recommendations for transit stop location and design, bike facilities, wayfinding, and landscaping.

## NATIONAL

**POLICY CHECKLISTS.** Over 1,600 communities across the nation have adopted Complete Streets policies, including 46 cities and counties within the State of Missouri. These include a range of policy types including:

- Council-driven ordinances and policies;
- Plans, policies, and design guidelines that are typically, but not always council-approved;
- Executive orders issued by the mayor, or;
- Ballot measures or tax ordinances voted on by citizens.

Each policy type includes all or most of the principles recommended by the National Complete Streets Coalition (NCSC) in addition to other key components and best practices related to policy implementation (e.g., design guidelines, selection of multimodal facilities, and target speeds based on street type, network development, and funding strategies). The following key items are important for a Complete Streets policy to contain.

**Checklists.** Many communities with Complete Streets policies have developed a checklist that includes items to help ensure multiple modes of transportation are being considered in the given street's design, to ensure multiple departments have input in the process, and to document how decisions were made, and trade-offs determined.

**Design guidance.** Having clear and flexible design guidance is critical to implementing a community's Complete Streets policy. The best design guidance recognizes the need to shift from design based on traffic volumes and capacity to design based on sensitivity to adjacent land use context, while balancing the needs of multiple users, including vehicular traffic.

**Network development.** Even when street networks are well-connected, many communities have developed supplemental plans providing additional details for pedestrians, bike, and transit.

# BEST PRACTICES - THE 5 E'S

The national Bicycle Friendly Community program recommends a multi-faceted approach based on the five E's, detailed below. The recommendations in this Plan are based on addressing each of these categories at the local level.

## EQUITY, DIVERSITY, AND INCLUSION

Equity for active transportation networks is the provision of barrier-free access to bike and pedestrian facilities for areas that include underserved, isolated, underrepresented populations. The active transportation network must serve a community's diverse population and allow for the participation of all residents. The active transportation network must be open and inviting to all residents.

## ENGINEERING

Designing, engineering, operating, and maintaining quality roadways and pedestrian and bike facilities is a critical element in producing a pedestrian friendly and bike friendly environment. This category may include adding new bike and pedestrian specific infrastructure, improvements to street crossings, traffic calming, trail design, traffic management, the addition of school zones, or other related strategies (e.g., adopting a complete streets policy). Example recommendations could include the incorporation of bike and pedestrian facilities in engineering documents, plans, or drawings.

## EDUCATION

Providing bike and pedestrian educational opportunities is critical for bike and pedestrian safety. Education should span all age groups and abilities and include motorists, as well as bicyclists and pedestrians. The focus of an educational campaign can range from information about the rights and responsibilities of road users to tips for safe behavior, from Safe Routes to School programs to technical training for city staff. Example recommendations could include the implementation of a Safe Routes to School Program that would promote walking and biking to school as safe alternatives for getting students to and from school. Multimodal safety campaigns educate drivers, bicyclists, and pedestrians to all the safety issues for all modes to share the road. Both Safe Routes to School Programs and safety campaigns reach out to all community residents and, through education and awareness, increase walking and biking.

## ENCOURAGEMENT

Encouragement programs should address all ages and user groups, as well as underserved populations, and address recreation and transportation users. Programs can include workplace commuter incentives, group walks or rides, bike and walk friendly route maps, and a regional walking and bike website. Example recommendations could include the creation of a website that focuses on Joplin's biking, walking, and trails infrastructure. The website could include maps, descriptions, and points of interest. Promotional campaigns specific to Joplin's active transportation network are a way to encourage residents to enjoy the facilities. Promotional events could include arts and crafts festivals along the trails, open streets festivals where on-street bike facilities are located, fun runs, family rides, and slow rolls.

## EVALUATION

Evaluation methods can include quarterly or annual meetings, the development of an annual performance report, an update of bike and pedestrian infrastructure databases, pedestrian and bike counts, assessments of new facilities, and plan updates. The city will monitor implementation of this Plan on a regular basis and establish policies that ensure long-term investment in the bike and pedestrian network. Joplin should anticipate adopting policies that promote investment in and improvements to the bicycling and walking environment in accordance with the recommendations of this Plan. Example recommendations for the Evaluation category could include the establishment of a City of Joplin Active Transportation Committee (ATC, a standalone committee, not a subcommittee of the Planning Commission or City Council. The ATC's responsibilities would include overseeing the implementation of this Plan's recommendations. The city should evaluate the need for a full-time Bicycle-Pedestrian Coordinator to chair the ATC and represent the city on all active transportation projects.

**THE FIVE E'S ARE IMPORTANT FOR A COMMUNITY'S ACTIVE TRANSPORTATION PLAN BECAUSE:**

- Addressing each of the five categories confirms that the plan is comprehensive and thorough in its approach;
- Having a plan with recommendations for each of the five categories is included in the criteria for a community to achieve Bike Friendly Community status through the League of American Bicyclists; and
- Being recognized as a Bike Friendly Community is an asset and criteria to meet for additional funding applications.

# BICYCLE NETWORK DEVELOPMENT CRITERIA

## BICYCLE LEVEL OF TRAFFIC STRESS (BLOTS)

Bike riding and walking are no different than any other activity in one's life – stress is encountered. Each person deals with stress in different ways. For bike riders and walkers, when various levels of stress are encountered on their ride or walk, the individual will adjust their route to avoid stress or completely abandon walking and bike riding as a form of recreation or travel.

For vehicles, it is typical to analyze a roadway's Level of Service (LOS). A roadway's LOS is measured like a report card – A to F – with "A" being the best and "F" being the worst. For bikes, some communities also use this type of system but over time it has become clear that measuring stress is a better indicator for bicyclists. BLOTS uses the following four levels of traffic stress LTS) indicators:

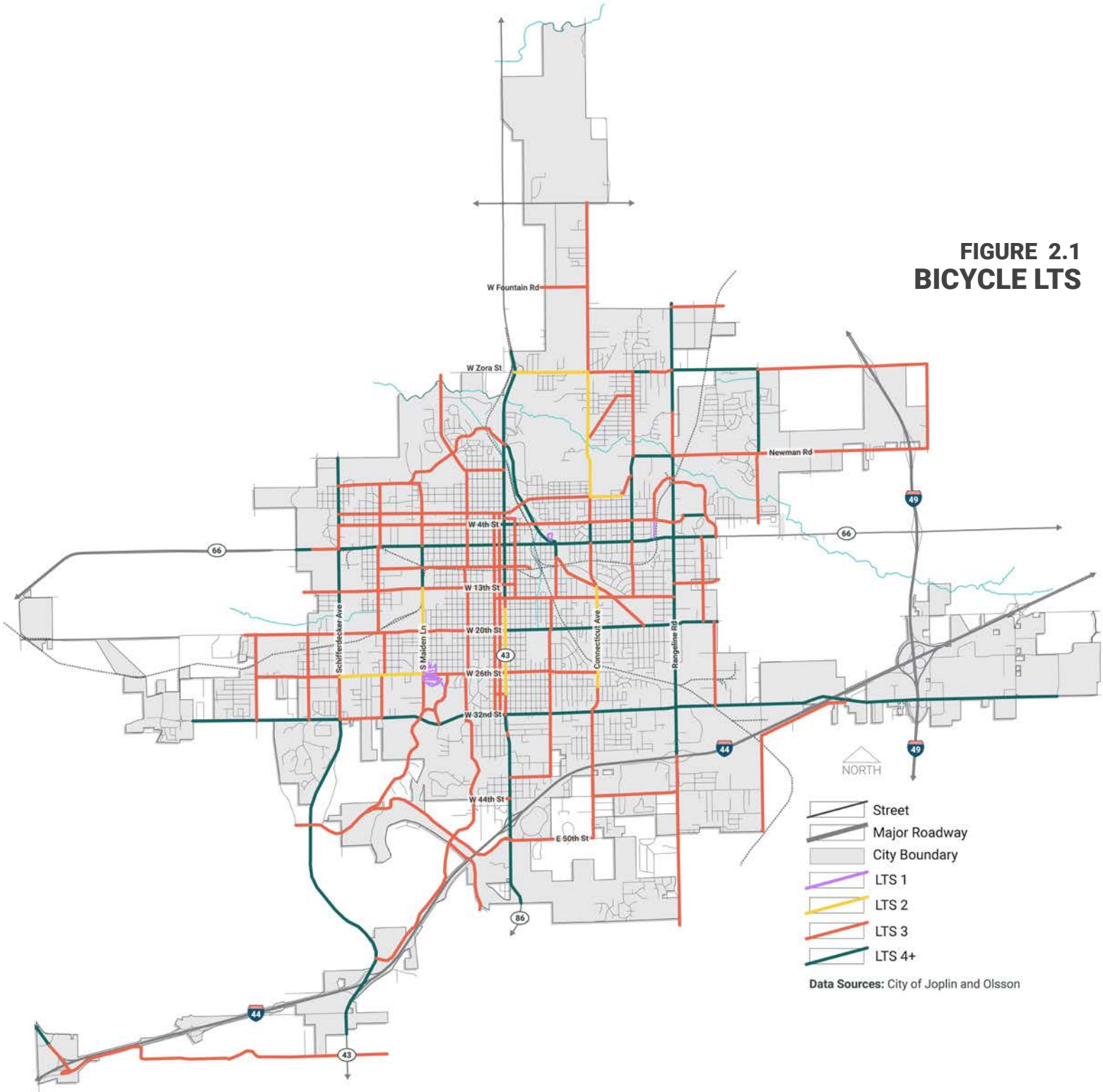
- **LTS 1.** Very low stress, in fact most children easily tolerate a roadway with an LTS 1 rating.
- **LTS 2.** Level of stress that is tolerated by the "Interested but Concerned" bike rider.
- **LTS 3.** Level of stress that is tolerated by the "Enthused and Confident" bike rider, typically a higher volume and higher speed roadway with dedicated space for bike riding.
- **LTS 4.** Level of stress that is tolerated by the "Strong and Fearless" bike rider – basically any roadway, anywhere.

Roadway conditions that impact the level of bike traffic stress include:

- Traffic volumes
- Speed limits
- Parallel parking
- Curb cuts
- Number of intersections
- Signalized
- Four-way stops
- Two-way stops
- Number of travel lanes
- Width of travel lanes
- Adjacent land uses
- Sight distances
- Grades (steep or flat)
- Sidewalks
- Crosswalks
- Pavement markings
- Traffic safety signage
- Roundabouts

Joplin's recommended bike network will largely focus on LTS 1 and LTS 2 corridors to provide as much connectivity as possible throughout Joplin. ***Figure 2.1*** illustrates the LTS of Joplin's streets.

## FIGURE 2.1
## BICYCLE LTS



## TYPE OF BIKE RIDER

To understand a bike network for various types of users, a group of four generalized bicyclist typologies was developed originally by Roger Geller for the City of Portland, Oregon. The typologies break a population down into groups based on their comfort level with riding a bike in an urban environment. These four types include:

- **Strong and Fearless.** Bicyclists who are comfortable riding on non-residential streets without bike lanes.
- **Enthused and Confident.** Bicyclists who are comfortable riding on non-residential streets with bike lanes but have concerns when riding on streets with high volumes and speeds.
- **Interested but Concerned.** Bicyclists who are not comfortable riding on non-residential streets and prefer a side path.
- **No Way, No How.** People unwilling to ride a bike.

According to Geller, roughly one percent of adults identify as "Strong and Fearless," seven percent identify as "Enthused and Confident," 60 percent identify as "Interested but Concerned," and 33 percent identify as "No Way, No How." A safe and efficient bike network must accommodate the largest share of bike riders, which are the "Interested but Concerned."

## BARRIERS

Anything that interrupts the safe and efficient connection of the bike network is considered a barrier. Barriers include:

- **Natural features.** Such features include watercourses, topography, and vegetation.
- **Man-made features.** Such features include roads, buildings, development patterns, railroads, and bridges.
- **Major vehicular corridors that are stressful to cross**. Such corridors include interstates, major and minor arterials, and roadways with high traffic volumes and speeds.
- **Gaps that occur between neighborhood street networks.** Neighborhood streets are typically walking and biking friendly, though, unfortunately, recent neighborhood development patterns lack interconnectivity – a design feature that discourages through traffic. The lack of interconnectivity forces pedestrians and bicyclists to leave the neighborhood street network and venture onto a vehicular corridor that has higher traffic volumes and speeds.

## ROAD DIETS AND LANE DIETS

In communities across the country, cities have over-built roadways to promote efficient flow of vehicular traffic. Prior to the involvement of transportation advocates and the implementation of active transportation facilities, the multimodal value of a street's right-of-way had been largely ignored. Expansive rights-of-way and pavement widths offer a prime opportunity to add active transportation facilities within existing corridors.

The following "diets" can be easily determined when analyzing potential corridors for a community's bike and pedestrian network.

- **Road Diet.** This sort of "diet" refers to the removal of one travel lane and allocating the width of the travel lane for on-road bike facilities. Typically, road diets occur on four-lane, undivided roadways. The roadway is converted to a three-lane section, with two travel lanes and a center left/right turn lane.
- **Lane Diet.** This sort of "diet" refers to the reduction of travel lanes to accommodate on-road bike facilities. Travel lanes of 12 feet or wider can easily be reduced to 10 feet. If transit routes occur on the roadway, a travel lane of 11 feet is typically required.

Road diets and lane diets are considered traffic calming techniques that reduce traffic speeds, do not interfere with existing traffic volumes, and provide for the inclusion of alternative modes of transportation within the existing right-of-way.

# PEDESTRIAN NETWORK DEVELOPMENT CRITERIA

## SAFETY

The primary goal of any sidewalk network is to reduce the number and severity of pedestrian/vehicle crashes. Planning, designing, and implementing a safe sidewalk network requires attention to:

- **Street design.** Consider the value of the entire right-of-way and the provision of all modes of travel.
- **Street connectivity.** Provide access to and from adjacent land uses and neighborhoods to avoid forcing pedestrians to walk adjacent to high-volume, high-speed roadways.
- **Site design.** Provide safe and efficient connections from the development to the sidewalk.
- **Land use.** Mixed use developments are ideal destinations for pedestrians.
- **Access management.** Minimize curb cuts and promote a safer pedestrian zone.

## ACCESSIBILITY

All pedestrians, including the mobility impaired, should be able to reach their desired destinations. Sidewalks are recommended to be a minimum of five feet in width. ADA minimum width for a sidewalk is three feet and requires a passing space every 200 feet. A five-foot sidewalk allows for passing and two-way pedestrian movements. In addition, sidewalks should be located a minimum of two feet from the back of the curb, and many communities require a three-foot setback from the back of the curb. Intersections also need to have ramps, highly visible pavement markings, signage, and lighting.

## AESTHETICS

Pedestrian amenities such as landscaping, lighting, benches, trash receptacles, wayfinding, and adequate space at street corners encourage walking and improve a community's quality of life.

## EQUITY

Investing in pedestrian infrastructure in low income and underserved areas is critical in developing a sidewalk network. Areas of low car ownership need to be provided safe and efficient sidewalks that connect the residents to various destinations, such as shopping, employment, healthcare, schools, libraries, and more.

## CONNECTIVITY

A sidewalk network needs to provide reasonably direct walking routes between destinations, including transit. Connectivity also should consider the safe and efficient connection between the sidewalk and the adjacent land uses.

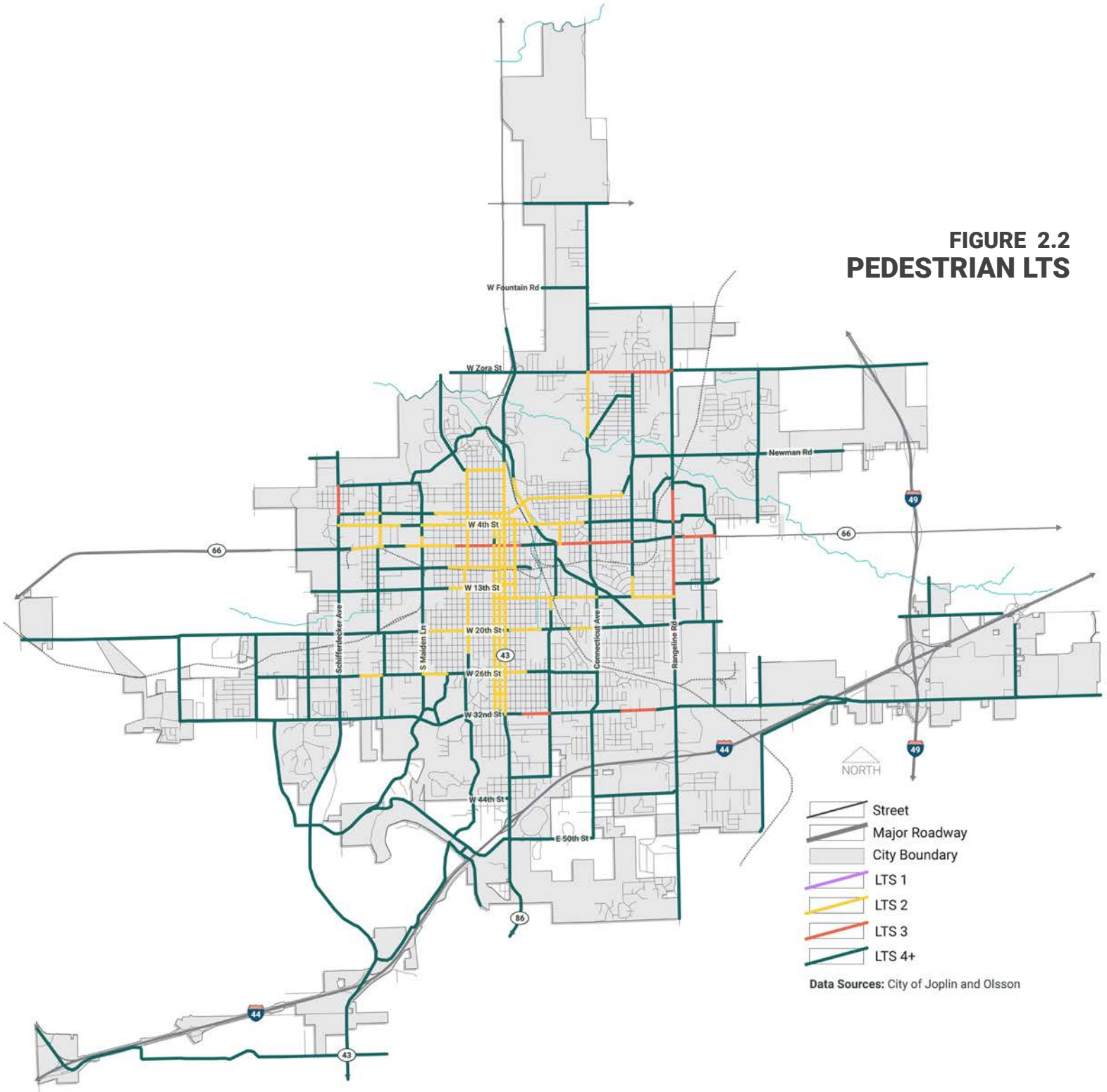
## LEVEL OF STRESS

Just like bicyclists, pedestrians avoid walking next to busy, high-volume, high-speed roads due to the "stress" caused by the traffic on the road. Pedestrian Level of Traffic Stress (PLTS), like BLOTS, uses four levels of measuring stress:

- **PLTS 1**. A roadway/corridor/route with low stress and easily used by all pedestrians.
- **PLTS 2.** A roadway/corridor/route with medium stress; most pedestrians are willing to walk here.
- **PLTS 3.** A roadway/corridor/route with medium to high stress and some pedestrians, mostly adults, are willing to walk here. A PLTS 3 typically has un-repaired sidewalk sections, gaps, and unlevel sidewalks.
- **PLTS 4.** A roadway/corridor/route with high stress and few pedestrians are willing to walk here. Pedestrians walking along a PLTS 4 road have no other choice in their route selection to get to their desired destination.

***Figure 2.2*** shows pedestrian level of traffic stress.

## FIGURE 2.2
# PEDESTRIAN LTS



# SIDEWALK AND RAMP SURVEY

In 2019, a comprehensive sidewalk and ADA ramp survey was conducted using various methodologies, ranging from high definition (HD) video review to manual feet-on-the-ground assessments. A Sidewalk Surface Tester (SST) vehicle was mobilized for sidewalk data collection, along with a mobile LiDAR unit to capture ramp information on 137 miles of city sidewalks.

An SST-based survey was performed by driving each sidewalk to determine if the sidewalks and ramps were compliant with current local standards. The collected attributes included the sidewalk materials, condition assessment, vertical displacements, grade, cross slope, width, passing space and intervals, obstructions, obstacles and protruding objects, and the city's special concerns. The ADA ramp survey included an assessment of the curb ramps, gutters, landings, flares, running slope, cross slope, detectable warnings and other raised tactile surfaces, material, size, and expanded distress types and slope measurements on all city ramps.

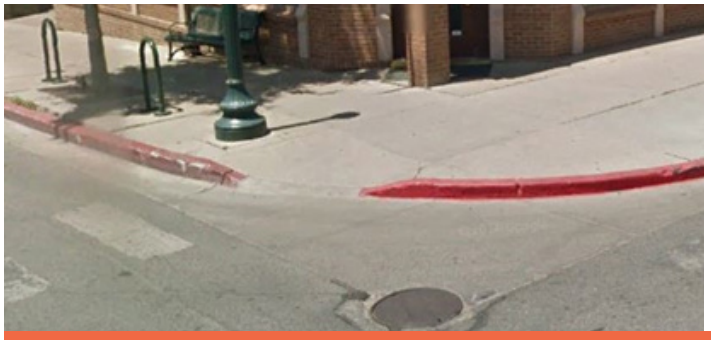
During the survey, the SST operator input and graded specific distresses, such as cracks, slopes, vertical displacements, and obstructions. This information, combined with GPS location data and simultaneous HD video capture, created a "living map" of the sidewalk inventory. As the SST drove the city's sidewalks, a field technician conducted an onsite field assessment of all sidewalks, curb, and ADA ramps using a mobile mapping application called NOMAD. NOMAD was configured with the following series of tabs:

- **SW_PTS TAB:** Contains basic information about the sidewalk, including whether the segment has been surveyed.
- **DISTRESS TAB:** Defines the percentage of actual distress by extent and severity found on a sidewalk segment.
- **RAMP TAB:** Describes ramp attributes such as material, condition, and visual impairment. (Slopes and geometry are measured outside of NOMAD using point cloud data.)
- **OBSTRUCTION TAB:** Defines any obstructions found along a sidewalk.
- **MISCELLANEOUS TAB:** Contains any other useful information.

From the survey data, a report was compiled that categorizes and details sidewalk and ramp deficiencies across the entire network, along with the cost to repair them. Each sidewalk section was given a condition score between zero (indicating that there was no functional sidewalk) and 100 (for a brand-new, perfectly poured sidewalk). The consulting team and the city then created a strategy to prioritize deficiencies and establish an optimal approach to rehabilitation.




SST SIDEWALK CAMERA



ADA NON-COMPLIANCE

## WHAT IS A SIDEWALK SURFACE TESTER?

A Sidewalk Surface Tester (SST) is a purpose-built field data collection unit designed primarily for surveying municipal sidewalks, rights-of-way, and parking lots. The SST is equipped with a front and rear camera, a computer, GPS, and tilt and grade meters. The SST uses NOMAD data collection software to integrate the survey inventory, GPS, and field data collection protocols into a single platform. The vehicle is operated by trained technicians who specialize in reporting sidewalk distresses and obstruction attributes.




## DEVELOPING A REAL-WORLD ADA RAMP PLAN

While ADA ramp compliance is imperative to public safety, it is also a mandated federal requirement that is monitored by the Department of Justice (DOJ). In a March 2013 briefing memo, the DOJ clarified their regulation and specifically defined which street maintenance and rehabilitation activities would trigger ADA alterations and/or maintenance activities.

As a part of this project, the team delivered a comprehensive interactive Excel spreadsheet with a prioritized repair and replacement program for sidewalks and pedestrian ramps. The adjacent image illustrates a non-compliant ADA ramp due to geometrics. The analysis will prioritize sidewalks and ramps in numerical order based on the current funding levels and the severity of the failures, such as high slope on ramps, severe trip hazards, severe obstruction, and more.

The final deliverable for the Sidewalk and ADA Ramp Survey was a spreadsheet database that separated sections of sidewalks and ramps into two categories: compliant and noncompliant.

## ADA MAINTENANCE

- Crack filling and sealing
- Surface sealing
- Chip seals
- Slurry seals
- Fog seals
- Scrub sealing
- Joint crack seals
- Joint repairs
- Dowel bar retrofit
- Spot high-friction treatments
- Diamond grinding
- Pavement patching

## ADA ALTERATIONS

- Open-graded surface course
- Cape seals
- Mill and fill / mill and overaly
- Hot in-place recycling
- Microsurfacing / thin lift overlay
- New layer of asphalt
- Asphalt and concrete
- Rehabilitation and reconstruction
- New construction



## SECTION THREE

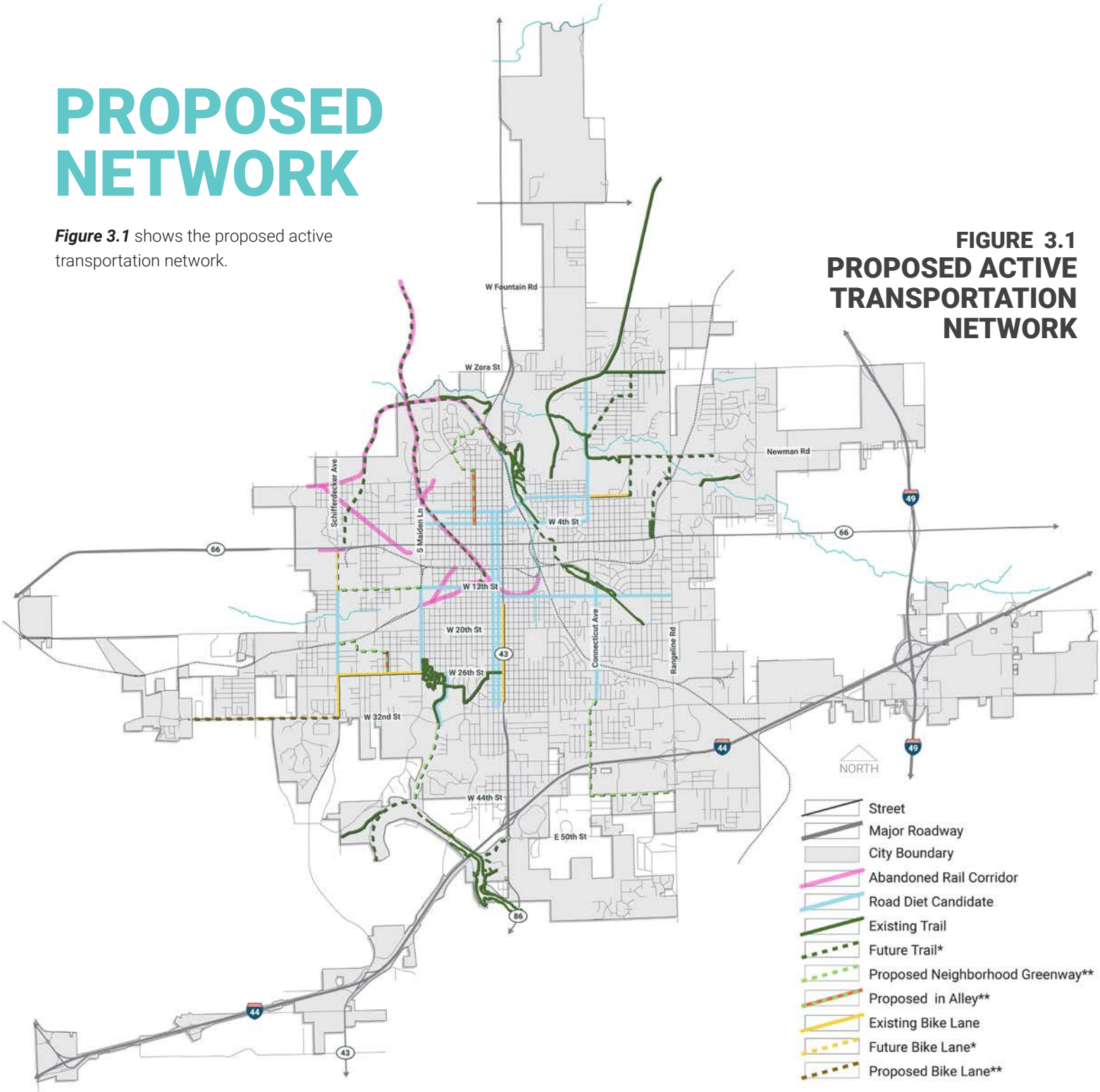
# THE ACTION PLAN

***Section 3 - Action Plan*** includes specific network recommendations for the City of Joplin and descriptions of proposed projects, including cost estimates and potential funding sources. These recommendations are based on an analysis of existing conditions, an assessment of the needs and challenges expressed by the community during public engagement, and addressing the specific needs of the city with technical expertise.

# PROPOSED NETWORK

***Figure 3.1*** shows the proposed active transportation network.

**FIGURE 3.1**
**PROPOSED ACTIVE TRANSPORTATION NETWORK**




*Future Trails and Bike Lanes are facilities that are planned for future construction.
**Proposed Trails and Bike Lanes are ideas that could become future projects.

**Data Sources:** City of Joplin and Olsson

# PEDESTRIAN NETWORK RECOMMENDATIONS

The City of Joplin recently undertook a comprehensive sidewalk and ADA ramp survey in 2019 that resulted in a geographic database of 137 miles of sidewalks and ramps (see the Sidewalk and ADA Ramp Survey subsection in ***Section 2 - Setting the Stage***). The process included the development of a prioritized sidewalk and ADA ramp rehabilitation plan with the following information:

- Sidewalk and ramp location inventory and attribute report;
- Analysis parameters for estimating average sidewalk life;
- A ranking of existing conditions for each section of sidewalk and ramps;
- Cost estimates, including the cost of rehabilitating all ramps and sidewalks to meet ADA compliance requirements; and
- Five-year rehabilitation and sidewalk/ramp plans based on condition, available budget, and level of service constraints.

**The overarching recommendation was the survey is for all improved and proposed sidewalks to connect residential areas with schools, parks, and retail centers to encourage residents to walk for short trips.**

## NORTH/SOUTH CORRIDORS

# BICYCLE NETWORK RECOMMENDATIONS

### JOPLIN AVENUE (BETWEEN 2ND STREET AND 20TH STREET)

**EXISTING CONDITIONS.** Joplin Avenue is a one-way, southbound corridor one block west of Main Street. It has two travel lanes and offers parallel parking on both sides of the street. Joplin Avenue has low traffic volumes and, with a lower posted speed limit, and is a perfect candidate for a road diet.

**PROPOSED CONDITIONS.** Remove the parallel parking along the east curb line and replace it with a protected bike lane, as seen in ***Figure 3.2***. The two travel lanes should be reduced to a width of 11 feet and the parallel parking should be eight feet wide. This change will allow for a four-foot buffer zone and a six-foot south bound bike lane. The recommended speed limit is 25 miles per hour. Plastic, vertical bollards (42 inches tall and 15 feet on center) are recommended in the buffer zone. The bollards should be placed in the middle of the buffer zone and the buffer zone diagonally stripped in accordance with National Association of City Transportation Officials (NACTO) standards. At intersections, the bike lanes should be "green lanes" to provide visibility to the existence of another mode of transportation. Bike lane signs need to be posted adjacent to the street, as well.




**FIGURE 3.2**
**JOPLIN AVENUE AND 2ND STREET**

### JOPLIN AVENUE (BETWEEN 20TH STREET AND 31ST STREET)

**EXISTING CONDITIONS.** In this section of Joplin Avenue, the street transitions in two ways: (1) adjacent land uses become residential rather than business-oriented and (2) the street's cross-section narrows. This section of Joplin Avenue features parallel parking only on the west side of the street and maintains two southbound travel lanes.

**PROPOSED CONDITIONS.** To provide for the continuance of the protected, southbound bike lane, the curb side travel lane should be converted to a protected bike lane, as seen in ***Figure 3.3.*** The low volume of traffic does not warrant two travel lanes. Oftentimes, most cars avoid the curb side lane and travel and even turn from the center travel lane. The recommended cross-section for Joplin Avenue between 20th and 31st is to include an eight-foot-wide parallel parking lane, a 12-foot-wide travel lane, a four-foot-wide buffer zone, and a six-foot-wide bike lane. The recommended




**FIGURE 3.3**
**JOPLIN AVENUE AND 21ST STREET**

speed limit is 25 miles per hour. Plastic, vertical bollards (42 inches tall and 15 feet on center) are recommended in the buffer zone. The bollards should be placed in the middle of the buffer zone and the buffer zone diagonally stripped in accordance with NACTO standards. At intersections, the bike lanes should be "green lanes" to provide visibility to the existence of another mode of transportation. Bike lane signs need to be posted adjacent to the street, as well.

## WALL AVENUE (BETWEEN 2ND STREET AND 20TH STREET)

**EXISTING CONDITIONS.** Wall Avenue is a one-way, northbound corridor located one block west of Joplin Avenue. Wall Avenue has two travel lanes and offers parallel parking on both sides of the street. Wall Avenue has low traffic volumes, a lower posted speed limit, and is an ideal road diet candidate.

**PROPOSED CONDITIONS.** The parallel parking along the west curb line should be removed and replaced with a protected bike lane, as seen in ***Figure 3.4***. The two travel lanes should be reduced to a width of 11 feet; the parallel parking should be eight-feet-wide. This will allow for a four-foot buffer zone and a six-foot northbound bike lane. The recommended speed limit is 25 miles per hour. Plastic, vertical bollards (42 inches tall and 15 feet on center) are recommended in the buffer zone. The bollards should be placed in the middle of the buffer zone and the buffer zone diagonally stripped in accordance with NACTO standards. At intersections, the bike lanes should be "green lanes" to provide visibility to the existence of another mode of transportation. Bike lane signs need to be posted adjacent to the street, as well.

## WALL AVENUE (BETWEEN 20TH STREET AND 31ST STREET)

**EXISTING CONDITIONS**. In this section of Wall Avenue, the street transitions in two ways: (1) adjacent land uses become residential rather than business-oriented and (2) the street's cross-section narrows. This section of Wall Avenue features parallel parking only on the east side of the street and maintains two northbound travel lanes.

**PROPOSED CONDITIONS.** To provide for a protected, northbound bike lane, the curb side travel lane is recommended to be converted to a protected bike lane, as seen in ***Figure 3.5***. The low volume of traffic does not warrant two travel lanes. Oftentimes cars avoid the curb side lane and travel and even turn from the center travel lane. The recommended cross-section for Wall Avenue is an eight-foot-wide parallel parking lane, a 12-foot-wide travel lane, a four-foot-wide buffer zone, and a six-foot-wide bike lane. The recommended speed limit is 25 miles per hour. Plastic, vertical bollards (42 inches tall and 15 feet on center) are recommended in the buffer zone. The bollards should be placed in the middle of the buffer zone and the buffer zone diagonally stripped in accordance with NACTO standards. At intersections, the bike lanes should be "green lanes" to provide visibility to the existence of another mode of transportation. Bike lane signs need to be posted adjacent to the street, as well.




**FIGURE 3.4**
**WALL AVENUE AND 2ND STREET**




**FIGURE 3.5**
**WALL AVENUE AND 21ST STREET**

## ST. LOUIS AVENUE (BETWEEN 2ND STREET AND FRISCO TRAIL)

**EXISTING CONDITIONS.** This section of St. Louis Avenue has been improved to a three-lane section (center turn lane), with curb and gutter and sidewalks on both sides of the street. St. Louis Avenue has low traffic volumes and the adjacent land uses do not warrant the need for a center turn lane. The corridor also has a five-foot-wide bike lane on both sides of the street. The bike lanes are unprotected and, with the current speed limit of 35 miles per hour, are rarely used. The bike lanes "dead end" at the Zora Street intersection.

**PROPOSED CONDITIONS.** It is recommended that the center turn lane be removed and instead allocated to the provision of safe, protected bike lanes, as shown in ***Figure 3.6***. The protected bike lanes would connect to the protected bike lanes recommended for 2nd Street and terminate at the Frisco Trail. By removing the center turn lane, both travel lanes can be 12 feet wide, with a four-foot-wide buffer zone and a six-foot-wide bike lane on both sides of the street. The speed limit should be reduced to 30 miles per hour. Plastic, vertical bollards (42 inches tall and 15 feet on center) are recommended in the buffer zone. The bollards should be placed in the middle of the buffer zone and the buffer zone diagonally stripped in accordance with NACTO standards. At intersections, the bike lanes should be "green lanes" to provide visibility to the existence of another mode of transportation. Bike lane signs need to be posted adjacent to the street, as well.

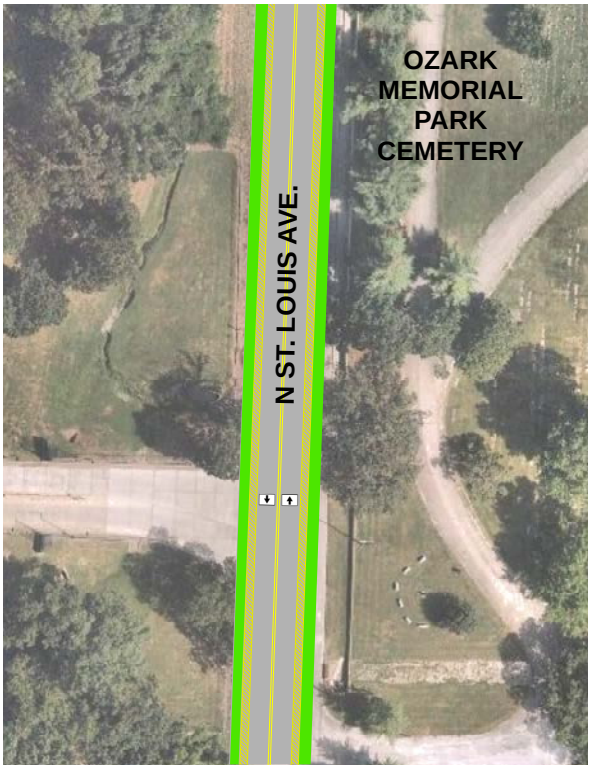



**FIGURE 3.6**
**ST. LOUIS AVENUE**

## CONNECTICUT AVENUE (BETWEEN MURPHY BOULEVARD AND 30TH STREET)

**EXISTING CONDITIONS.** Connecticut Avenue is a five-lane section with a 35-mile-per-hour speed limit. Unprotected, five-foot-wide bike lanes are located on each side of the street. Like the other corridors recommended for a road diet, Connecticut Avenue has low traffic volumes, and a five-lane section is unwarranted.

**PROPOSED CONDITIONS.** The bottom-line recommendation for Connecticut Avenue is the inclusion of protected bike lanes that accommodate a safe and efficient north-south bike alignment, as shown in ***Figure 3.7***. There are two ways the bike lanes could be incorporated, the first of which is to convert the two outside travel lanes to the existing bike lanes. With this configuration, the street cross-section would include a 12-foot-wide center turn lane, two 12-foot-wide travel lanes, and two six-foot-wide bike lanes protected with a four-foot-wide buffer zone. The second option for Connecticut Avenue is a two-way cycle track along the west side of the corridor protected with a four-foot-wide buffer zone next to one




**FIGURE 3.7**
**CONNECTICUT AVENUE AND 17TH STREET**

south bound 12-foot-wide travel lane with two northbound 12-foot-wide travel lanes on the east side of the corridor. Plastic, vertical bollards (42 inches tall and 15 feet on center) are recommended in the buffer zone. The bollards should be placed in the middle of the buffer zone and the buffer zone diagonally stripped in accordance with NACTO standards. At intersections, the bike lanes should be "green lanes" to provide visibility to the existence of another mode of transportation. Bike lane signs need to be posted adjacent to the street, as well.

## SCHIFFERDECKER AVENUE (BETWEEN 26TH STREET AND 13TH STREET)

**EXISTING CONDITIONS.** Schifferdecker Avenue is a five-lane street with two northbound travel lanes, a center turn lane, and two southbound travel lanes. The corridor also has unprotected, five-foot-wide bike lanes on both sides between 26th Street and the railroad. The existing bike lanes do not connect to other bike lanes or bike routes and are rarely used. The traffic volumes on Schifferdecker Avenue are low and allow for the recommendation of a road diet for this section of the corridor.

**PROPOSED CONDITIONS.** Like Connecticut Avenue, the main recommendation for Schifferdecker Avenue is the inclusion of protected bike lanes that accommodate a safe and efficient north-south bike alignment, as shown in ***Figure 3.8***. A two-way cycle track along the east side of the corridor is recommended, which would be protected by a four-foot-wide buffer zone next to one northbound 12-foot-wide travel lane. A 12-foot-wide center turn lane and two southbound 12-foot-wide travel lanes on the west side would complete the section. Plastic, vertical bollards (42 inches tall and 15 feet on center) are recommended in the buffer zone. The bollards should be placed in the middle of the buffer zone and the buffer zone diagonally stripped in accordance with NACTO standards. At intersections, the bike lanes should be "green lanes" to provide visibility to the existence of another mode of transportation. Bike lane signs need to be posted adjacent to the street, as well.

## MAIDEN LANE (BETWEEN 26TH STREET AND JUNGE BOULEVARD)

**EXISTING CONDITIONS.** Maiden Lane is a five-lane roadway with four travel lanes and a center turn lane.

**PROPOSED CONDITIONS.** It is recommended to remove two travel lanes and convert them to protected bike lanes, as shown in ***Figure 3.9***. The proposed cross-section would include two six-foot-wide bike lanes on both sides of the street (protected by a three-foot-wide buffer zone), two 12-foot-wide travel lanes, and a 12-foot-wide center turn lane.




**FIGURE 3.8**
**SCHIFFERDECKER AVENUE AND 24TH STREET**

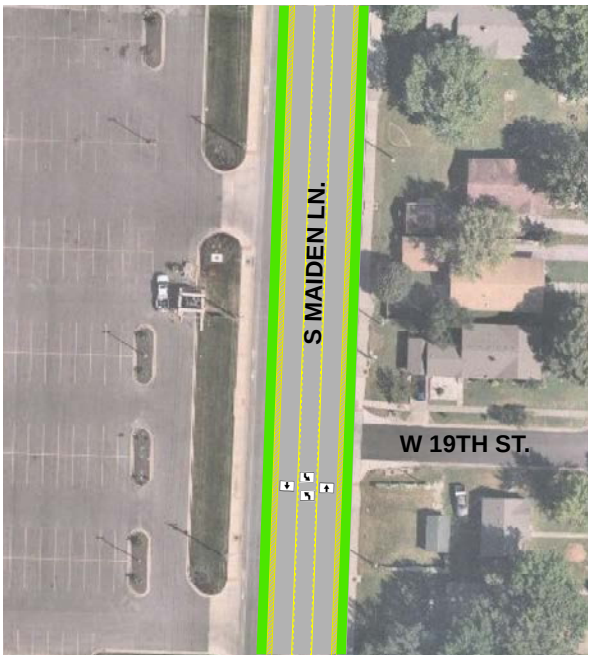



**FIGURE 3.9**
**MAIDEN LANE AND 19TH STREET**

## EAST/WEST CORRIDORS

# BICYCLE NETWORK RECOMMENDATIONS

### BROADWAY STREET/2ND STREET (BETWEEN ST. LOUIS AVENUE AND VIRGINIA AVENUE)

**EXISTING CONDITIONS.** This corridor provides ideal access to downtown Joplin and is one of the few corridors that bridges over the railroad. The lanes vary from two to four lanes, yet the pavement width is consistently 45 feet to 50 feet wide. Between St. Louis Avenue and Division Avenue, both sides of the street have parallel parking and unprotected bike lanes. Traffic volumes are low and with the wide pavement width, this corridor is identified as a road diet candidate.

**PROPOSED CONDITIONS.** The existing unprotected bike lanes are not in a safe location and should be removed, as they are positioned between parallel parking and a travel lane. The parallel parking located along the south curb line is recommended to be removed and replaced with a two-way cycle track, as shown in ***Figure 3.10.*** The proposed cross-section would include an eight-foot-wide parallel parking lane on the north curb line, two 11-foot-wide travel lanes, a three-foot-wide buffer zone, and two six-foot-wide bike lanes along the south curb line. This cross-section would continue across the bridge and to the Main Street intersection.




**FIGURE 3.10**
**BROADWAY STREET AND MINERAL AVENUE**

### BROADWAY STREET/2ND STREET (BETWEEN MAIN STREET AND MAIDEN LANE)

**EXISTING CONDITIONS.** This section of the corridor is a four-lane cross-section. Parallel parking is located on both sides of the street. The street's low traffic volumes and width make it another road diet candidate.

**PROPOSED CONDITIONS.** Remove parallel parking along the corridor and replace it with protected bike lanes. The proposed cross-section includes two 11-foot-wide travel lanes with three-foot-wide buffer zones and six-foot-wide bike lanes on both sides of the street, as shown in ***Figure 3.11.***




**FIGURE 3.11**
**2ND STREET AND SERGEANT AVENUE**

## 4TH STREET (BETWEEN SCHOOL AVENUE AND MAIDEN LANE)

**EXISTING CONDITIONS.** This corridor has two travel lanes and parallel parking on both sides of the street.

**PROPOSED CONDITIONS.** Convert the parallel parking to protected bike lanes. The proposed cross-section would be two 11-foot-wide travel lanes with three-foot-wide buffer zones and six-foot-wide bike lanes on both sides of the street, as shown in ***Figure 3.12***.

## JUNGE BOULEVARD (BETWEEN MAIDEN LANE AND ALLEY WEST OF PEARL AVENUE)

**EXISTING CONDITIONS.** Junge Boulevard is a true boulevard with 20-foot-wide travel lanes on both sides of the boulevard/median.

**PROPOSED CONDITIONS.** Reduce both travel lanes to 11-feet-wide and implement a three-foot-wide buffer zone and six-foot-wide bike lanes on both sides of the street, as shown in ***Figure 3.13.***

## JUNGE BOULEVARD (BETWEEN ALLEY TO PEARL AVENUE)

**EXISTING CONDITIONS.** This section of Junge Boulevard is a wide two-lane road section with very low traffic volumes. Cars occasionally park along the curb lines, but due to the width of the road, this does not impact a "sharrows" recommendation.

**PROPOSED CONDITIONS.** As a narrow, low traffic volume block, a sharrow section is appropriate.

## JUNGE BOULEVARD (BETWEEN PEARL AVENUE AND WALL AVENUE)

**EXISTING CONDITIONS.** This short, one-block section has parallel parking on both sides of the street and wide travel lanes.

**PROPOSED CONDITIONS.** Remove the parallel parking on the south side of the street to allow room for protected bike lanes on both sides of the street. The proposed cross-section would have a six-foot-wide bike lane on the north curb line, next to a three-foot-wide buffer zone, an eight-foot-wide parallel parking lane, two 11-foot-wide travel lanes, a three-foot-wide buffer zone, and a six-foot-wide bike lane along the south curb line.

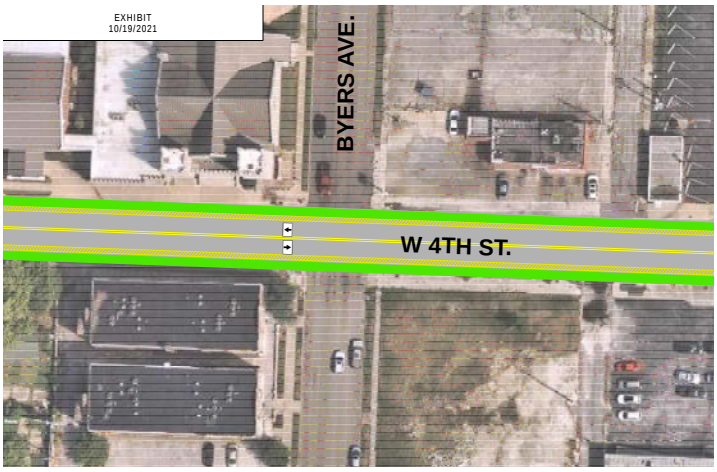



**FIGURE 3.12**
**4TH STREET AND BYERS AVENUE**




**FIGURE 3.13**
**JUNGE BOULEVARD AND PEARL AVENUE**

## 13TH STREET (BETWEEN WALL AVENUE AND MAIN STREET)

**EXISTING CONDITIONS.** Parallel parking is allowed on both sides of the street. Off-street parking is present.

**PROPOSED CONDITIONS.** Remove the parallel parking and install unprotected six-foot-wide bike lanes on both sides of the street.

## 15TH STREET (BETWEEN WALL AVENUE AND RANGELINE ROAD)

**EXISTING CONDITIONS.** 15th Street is a four-lane road with low traffic volumes, making it a road diet candidate.

**PROPOSED CONDITIONS.** Convert two travel lanes to protected bike lanes. The proposed cross-section would include two protected six-foot-wide bike lanes on both sides of the street, protected by a three-foot-wide buffer zone, two 11-foot-wide travel lanes, and a 10-foot-wide center turn lane, as shown in ***Figure 3.14***.

## 26TH STREET (BETWEEN MAIN STREET AND MAIDEN LANE)

**EXISTING CONDITIONS.** This corridor section includes five lanes: four travel lanes and a center turn lane. Several conditions make it a road diet candidate.

**PROPOSED CONDITIONS.** Remove two travel lanes and convert this width to protected bike lanes. The proposed cross-sections would include two six-foot-wide bike lanes on both sides of the street, protected by a four-foot-wide buffer zone, two 12-foot-wide travel lanes, and a 12-foot-wide center turn lane, as shown in ***Figure 3.15.***




**FIGURE 3.14**
**15TH STREET AND NEW HAMPSHIRE AVENUE**

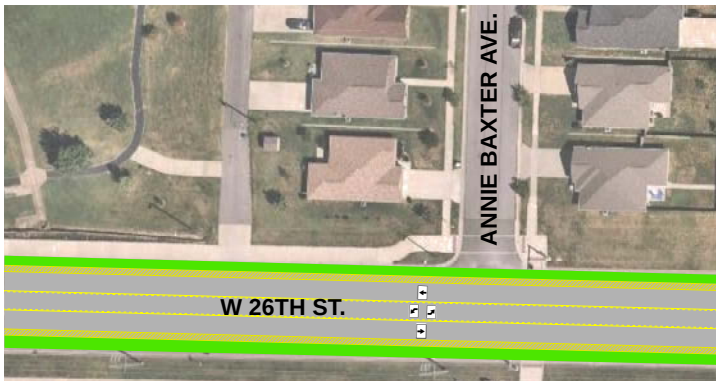



**FIGURE 3.15**
**26TH STREET**

# NEIGHBORHOOD GREENWAYS AND ALLEY CONVERSIONS

## SHARROWS AND ALLEY CONVERSIONS

The following streets are low volume, residential streets that only require pavement painting "sharrows symbol" to provide connections through north Joplin.

- **MURPHY BOULEVARD.** This corridor connects to 4th Avenue and provides an alternate bike route for bicyclists.
- **RICHMOND ROAD.** Murphy Boulevard intersects Richmond Road, creating an ideal connection to Lone Elm Road.
- **LONE ELM ROAD.** This section of Lone Elm Road is ridable and has low traffic volumes.
- **WEST E STREET.** This is a residential road with easy access to an alley that could be converted into a shared use alley.
- **ALLEY.** Between Moffet Avenue and Sergeant Avenue, convert to a shared use alley south to 4th Street.

## GREENWAYS AND TRAILS

**SCHIFFERDECKER ROAD AND RAILROAD.** Construct a trail adjacent to the railroad and head east through the wooded area, tying into 23rd Street, just north of Cecil Floyd Elementary School. A neighborhood greenway could be implemented on Roosevelt Avenue (in front of the school) and then utilize an alley between Willard Avenue and Roosevelt Avenue.

**ST. JOHNS BOULEVARD.** St. Johns Boulevard could be a neighborhood greenway. South of 26th Street and west of Freeman Hospital, a greenway trail could be constructed to tie into the existing trails at Wildcat Glades.



**SHARED-USE ALLEY CONVERSION IN ROGERS, ARKANSAS**

# IMPLEMENTATION STRATEGY

The priority projects for implementing the bicycle network will adhere to the defined Project Purpose and Guiding Principles, developed by the Project Steering Committee. Additional prioritization criteria included input from stakeholders, steering committee, residents, and city staff members and analysis of existing conditions of the city's transportation network.

The proposed projects are prioritized in the following order:

- **IMMEDIATE TO SHORT-RANGE:** 1 to 3 years
- **MID-RANGE:** 4 to 6 years
- **LONG-RANGE:** 7 to 10 years

## PHASE 1 - IMMEDIATE TO SHORT-RANGE PROJECTS

**THE DOWNTOWN LOOP.** The first implementation projects will need to create not only a hunger for more active transportation projects throughout the city, but also provide connectivity between destination points. The Downtown Loop, as shown in ***Figure 3.16***, will utilize corridors recommended for road diets and will not require significant infrastructure changes and costs. The road diets will require the corridors to be re-striped to accommodate protected bike lanes. The Downtown Loop will utilize the following corridors:

- **PROJECT 1.1** - Joplin Avenue between 2nd Street and 15th Street
- **PROJECT 1.2** - Wall Avenue between 2nd Street and 15th Street
- **PROJECT 1.3** - 15th Street between Wall Avenue and Connecticut Avenue
- **PROJECT 1.4** - Connecticut Avenue between 15th Street and Campbell Parkway
- **PROJECT 1.5** - St. Louis Avenue between Campbell Parkway and 2nd Street
- **PROJECT 1.6** - St. Louis Avenue between 2nd Street and the Frisco Trail
- **PROJECT 1.7** - Broadway/2nd Street between St. Louis Avenue and Wall Avenue

Implementing the Downtown Loop will provide approximately five miles of protected bike lanes. The parallel projects on Joplin Avenue and Wall Avenue could be an ideal site for events, such as the annual Streets Alive Festival.

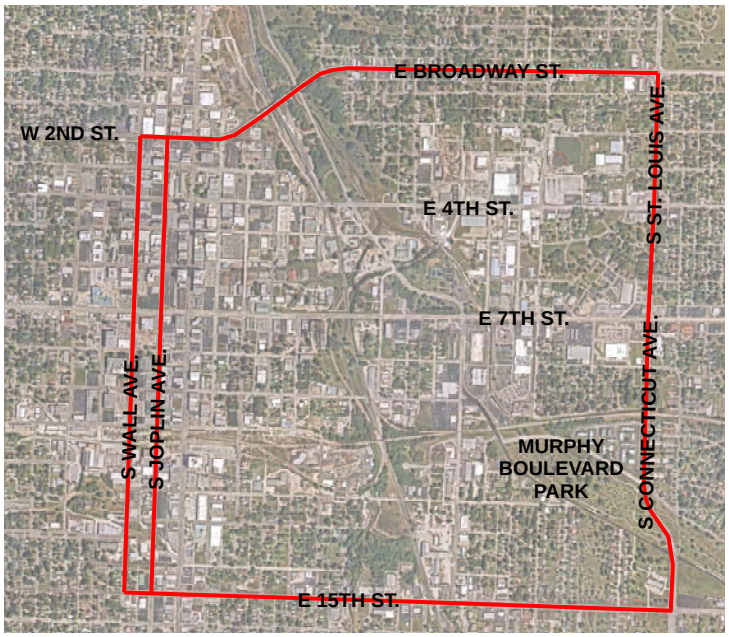



**FIGURE 3.16**
**THE DOWNTOWN LOOP**

## PHASE 2 - MID-RANGE PROJECTS

**BICYCLE NETWORK EXPANSION.** With the successful implementation of the Downtown Loop, momentum for more safe and efficient bike lanes should increase. The mid-range projects shown in ***Figure 3.17*** will be natural extensions from the Downtown Loop and provide increased connectivity.

- **PROJECT 2.1** - Schifferdecker Avenue between 26th Street and 13th Street
- **PROJECT 2.2** - Maiden between 26th and Junge Boulevard
- **PROJECT 2.3** - 26th Street between Maiden Lane and Main Street
- **PROJECT 2.4** - Junge Boulevard between Maiden Lane and Wall Avenue

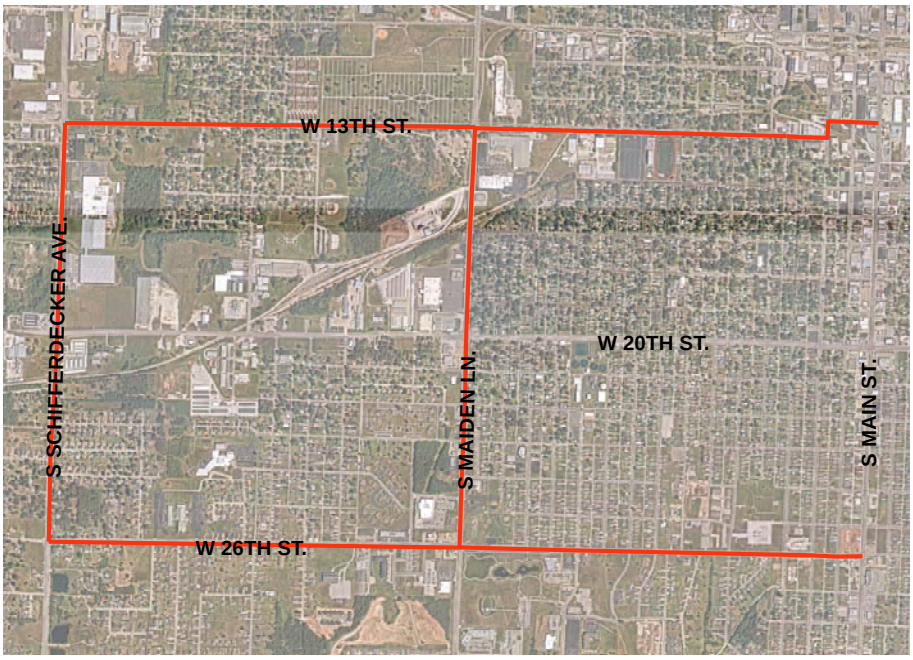



**FIGURE 3.17**
**PHASE 2 PROJECTS**

## PHASE 3 - LONG-RANGE PROJECTS

**INFRASTRUCTURE AND LAND ACQUISITION.** The long-range projects shown in ***Figure 3.18*** include major infrastructure improvements and land acquisition needs. The 4th Street corridor is the exception and is shown as an alternate route for the recommended Broadway/2nd Street corridor protected bike lane.

- **PROJECT 3.1** - 4th Street between Maiden Lane and School Avenue
- **PROJECT 3.2** - North Side Neighborhood Greenway and Alley Conversion (shown in ***Figure 3.19***)
- **PROJECT 3.3** - Cecil Floyd Elementary Trail /Neighborhood Greenway and Alley Conversion (shown in ***Figure 3.20***)
- **PROJECT 3.4** - St. Johns Boulevard Neighborhood Greenway and Trail, south to Wildcat Glades Trail

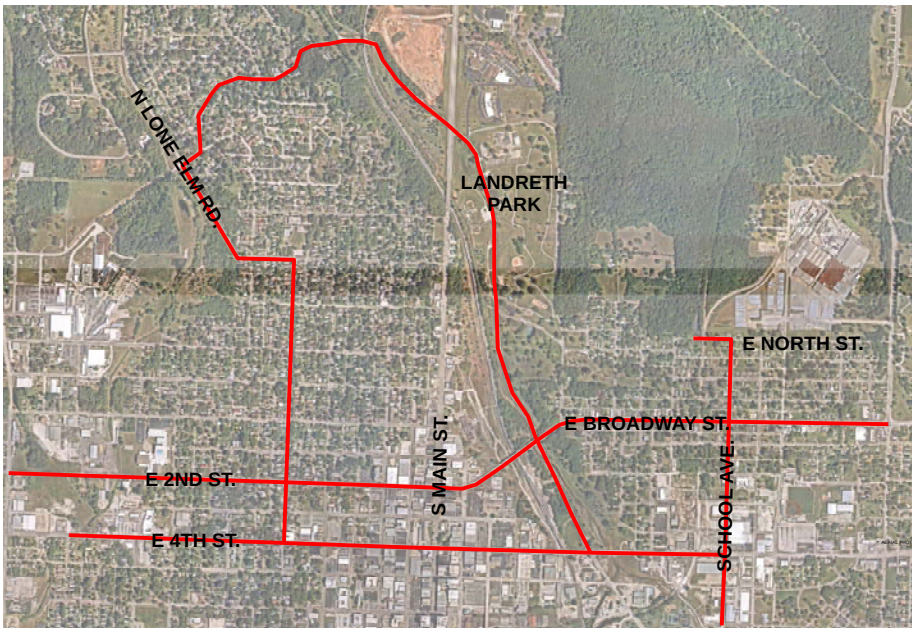



**FIGURE 3.18**
**PHASE 3 PROJECTS**




**FIGURE 3.19**
## NORTH SIDE NEIGHBORHOOD GREENWAY AND ALLEY CONVERSION

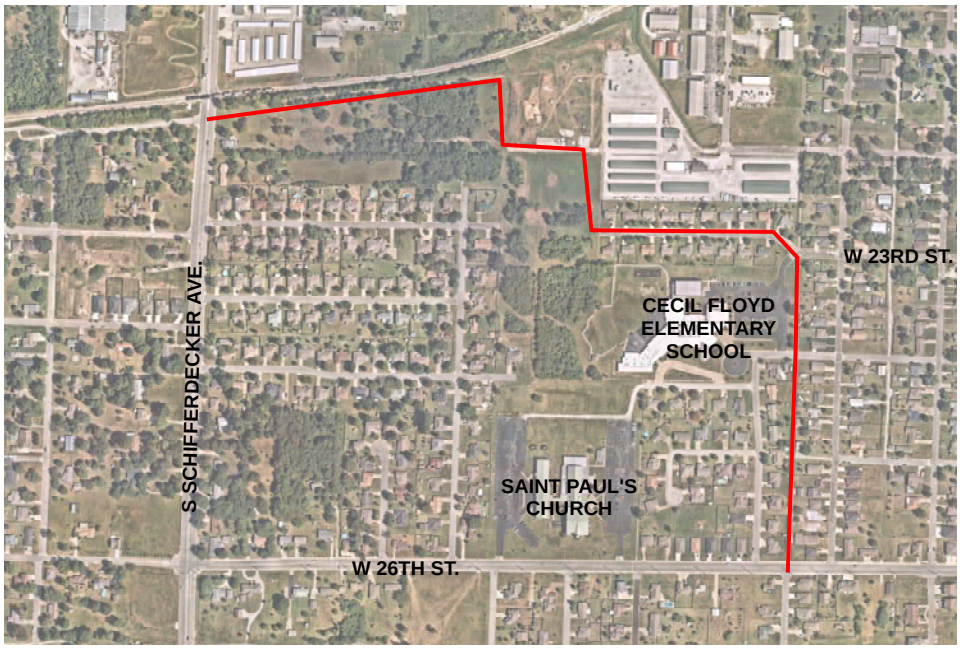



**FIGURE 3.20**
## CECIL FLOYD ELEMENTARY TRAIL/ NEIGHBORHOOD GREENWAY AND ALLEY CONVERSION

# THE DOWNTOWN LOOP PROJECT DESCRIPTIONS

Priority recommendation projects were determined based on need and interest, resulting in a list of projects surrounding downtown Joplin. The Downtown Loop has been identified as phase one priority project. The corridors that make up the Downtown Loop can be easily expanded to provide additional active transportation connectivity throughout Joplin. The following corridors are described in detail: Wall Avenue, Joplin Avenue, 15th Street, Connecticut Avenue, St. Louis Avenue, and Broadway Street/2nd Street.

## WALL AVENUE

**PROJECT DESCRIPTION.** This is a road diet project. Wall Avenue is currently a one-way roadway with north traffic flow and two travel lanes and parallel parking along both curbs.

**PROJECT RECOMMENDATION.** Reduce both travel lanes to 11-feet-wide and remove the parallel parking on the west side of the corridor, replacing it with a protected bike lane. The bike lane should be six-feet-wide with a four-foot-wide buffer zone, diagonally striped 15-foot on center, with 42-inch plastic bollards 45-foot on center.

**PROJECT LOCATION.** The project is located along Wall Avenue between 2nd Street and 15th Street.

**PROJECT LENGTH.** The project is approximately 5,315 linear feet (LF).

**OPINION OF PROBABLE COST**

| | |
|---|---|
| Removal of Existing Striping | **$20,000 +/-** |
| New Striping (includes bike lane and buffer zone) | **$26,000 +/-** |
| Intersection Treatments (includes green lane and pedestrian crosswalk on west side of street); 12 intersections (two signalized) | **$54,000 +/-** |
| Vertical Delineators and Signage (bollards, signs on side of road, and bike symbols) | **$13,000 +/-** |
| **TOTAL** | **$113,000 +/-** |




**FIGURE 3.21**
**WALL AVENUE PROJECT**

## JOPLIN AVENUE

**PROJECT DESCRIPTION.** This is a road diet project. Joplin Avenue is a one-way roadway with south traffic flow, two travel lanes, and parallel parking along both curbs.

**PROJECT RECOMMENDATION.** Reduce both travel lanes to 11-feet-wide and remove the parallel parking on the east side of the corridor, replacing it with a protected bike lane. The bike lane should be six-feet-wide with a four-foot-wide buffer zone, diagonally striped 15 feet on center with 42-inch plastic bollards 45 feet on center.

**PROJECT LOCATION.** This project is along Joplin Avenue between 2nd Street and 15th Street.

**PROJECT LENGTH.** This project is approximately 5,315 linear feet (LF).

**OPINION OF PROBABLE COST**

| | |
|---|---|
| Removal of Existing Striping | **$20,000 +/-** |
| New Striping (includes bike lane, buffer zone) | **$26,000 +/-** |
| Intersection Treatments (includes green lane, pedestrian crosswalk on west side of street); 12 intersections (three signalized) | **$54,000 +/-** |
| Vertical Delineators and Signage (bollards, signs on side of road, bike symbols) | **$13,000 +/-** |
| **TOTAL** | **$113,000 +/-** |




**FIGURE 3.22**
**JOPLIN AVENUE PROJECT**

## 15TH STREET

**PROJECT DESCRIPTION.** This is a road diet project. Fifteenth Street is a five-lane section with two travel lanes (east and west) and a center turn lane.

**PROJECT RECOMMENDATION.** Remove the outer travel lanes and convert them to protected bike lanes. Reduce both travel lanes to 11 feet and reduce the center turn lane to 10-feet-wide. The bike lane should be six-feet-wide with a four-foot-wide buffer zone, diagonally striped 15 feet on center with 42-inch plastic bollards 45 feet on center.

**PROJECT LOCATION.** The project is along 15th Street between Wall Avenue and Connecticut Avenue.

**PROJECT LENGTH.** The project is approximately 6,400 linear feet (LF).

**OPINION OF PROBABLE COST**

| | |
|---|---|
| Removal of Existing Striping | **$28,000 +/-** |
| New Striping (includes bike lane and buffer zone) | **$58,000 +/-** |
| Intersection Treatments (includes green lane, pedestrian crosswalk on both sides of street); 20 Intersections (3 signalized) | **$185,000 +/-** |
| Vertical Delineators and Signage (bollards, signs on side of road, bike symbols) | **$32,000 +/-** |
| **TOTAL** | **$303,000 +/-** |




**FIGURE 3.23**
**15TH STREET PROJECT**

## CONNECTICUT AVENUE

**PROJECT DESCRIPTION.** Road Diet – Connecticut Avenue is a five-lane section, two travel lanes north and south and a center turn lane.

**PROJECT RECOMMENDATION.** Remove the outer travel lanes and convert to protected bike lanes. Reduce both travel lanes to 11' and reduce the center turn lane to 10' wide. Bike lane recommended to be 6' wide with a 4' wide buffer zone, diagonally striped 15' on center with 42" plastic bollards 45' on center.

**PROJECT LOCATION.** Between 15th Street and Murphy Boulevard.

**PROJECT LENGTH.** Approximately 1,600 linear feet (LF)

**OPINION OF PROBABLE COST**

| | |
|---|---|
| Removal of Existing Striping | **$24,000 +/-** |
| New Striping (includes bike lane and buffer zone) | **$15,000 +/-** |
| Intersection Treatments (includes green lane and pedestrian crosswalk on both sides of street); two intersections (one signalized) | **$12,000 +/-** |
| Vertical Delineators and Signage (bollards, signs on side of road, and bike symbols) | **$8,500 +/-** |
| **TOTAL** | **$59,500 +/-** |

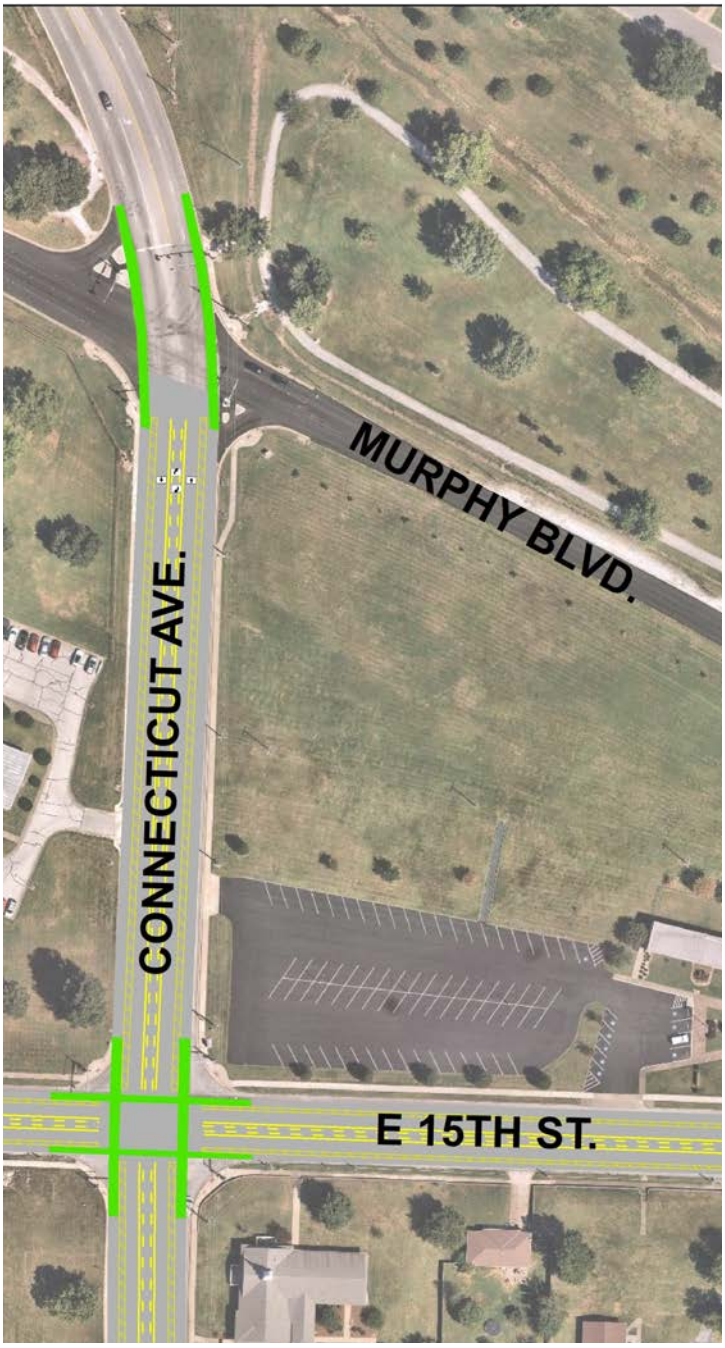



**FIGURE 3.24**
**CONNECTICUT AVENUE PROJECT**

## ST. LOUIS AVENUE #1

**PROJECT DESCRIPTION.** This project will include a road diet, protected bike lanes, and a neighborhood greenway. This section of St. Louis Avenue between Murphy Boulevard and 7th Street will be improved with protected bike lanes and a road diet. The section of St. Louis Avenue between 7th Street and 2nd Street is relatively residential and accomodate a neighborhood greenway with exceptions at the 7th and 4th Street intersections.

**PROJECT RECOMMENDATION.** St. Louis Avenue between Murphy Boulevard and 7th Street has three travel lanes (two northbound and one southbound) and it is recommended to eliminate one travel lane to accomodate the protected bike lanes. The recommended cross-section would include two 11-foot travel lanes, a two-foot buffer zone, and five-foot-wide bike lanes adjacent to each curb line. Between 7th and 2nd Street, it is recommended to use "sharrow" pavement markings for the neighborhood greenway portion. The intersections at 7th and 4th Street will require some pavement marking modifications to accomodate the recommended bike faciliites.

**PROJECT LOCATION.** The project is along St. Louis Avenue between Murphy Boulevard and 2nd Street.

**PROJECT LENGTH.** The project is approximately 4,750 linear feet (LF).

**OPINION OF PROBABLE COST**

| | |
|---|---|
| Removal of Existing Striping | **$28,000 +/-** |
| New Striping (includes bike lane, buffer zones, and sharrows) | **$38,000 +/-** |
| Intersection Treatments (includes bike/ pedestrian combination crosswalks at 4th and 7th Street); six intersections (two signalized) | **$32,000 +/-** |
| Vertical Delineators and Signage (bollards, signs on the side of the road, and bike symbols. | **$24,000 +/-** |
| **TOTAL** | **$122,000 +/-** |




**FIGURE 3.25**
**ST. LOUIS AVENUE PROJECT #1 AT 2ND STREET**




**FIGURE 3.25**
**ST. LOUIS AVENUE PROJECT #1 AT 10TH STREET**

## ST. LOUIS AVENUE #2

**PROJECT DESCRIPTION.** This is a road diet project. St. Louis Avenue is a three-lane section.

**PROJECT RECOMMENDATION.** Remove the center turn lane, reduce the travel lanes to 11-feet-wide, and provide protected bike lanes along each curb. Bike lanes should be six-feet-wide with a four-foot-wide buffer zone, diagonally striped 15 feet on center with 42-inch plastic bollards 45 feet on center. Turn lane accommodation needs to be designed for the Tamko entryway.

**PROJECT LOCATION.** This project is along St. Louis Avenue between 2nd Street and the Frisco Trail.

**PROJECT LENGTH.** This project is approximately 6,800 linear feet (LF).

**OPINION OF PROBABLE COST**

| | |
|---|---|
| Removal of Existing Striping | **$60,000 +/-** |
| New Striping (includes bike lane, buffer zone) | **$40,000 +/-** |
| Intersection Treatments (includes green lane, pedestrian crosswalks); 11 intersections (one signalized) | **$110,000 +/-** |
| Vertical Delineators and Signage (bollards, signs on side of road, bike symbols) | **$27,000 +/-** |
| **TOTAL** | **$237,000 +/-** |




**FIGURE 3.26**
**ST. LOUIS AVENUE #2 PROJECT**

## BROADWAY STREET/2ND STREET

**PROJECT DESCRIPTION.** This is a road diet project. This is a wide corridor with two and sometimes four travel lanes and parallel parking on both sides of the street.

**PROJECT RECOMMENDATION.** Remove the southern parallel parking lane and reduce the travel lanes to 11 feet. Parallel parking on the north curb line should be eight feet wide. Provide a two-way cycle track on the south curb line between St. Louis Avenue and Main Street. Bike lanes should be two six-foot-wide lanes with a four-foot-wide buffer zone, diagonally striped 15 feet on center with 42-inch plastic bollards 45 feet on center. At Main Street, the bike lanes should transition to protected bike lanes on the north and south curb lines. Parallel parking should be removed between Main Street and Wall Avenue.

**PROJECT LOCATION.** This project is along Broadway Street/2nd Street between St. Louis Avenue and Wall Avenue.

**PROJECT LENGTH.** This project is approximately 5,580 linear feet (LF) between St. Louis Avenue and Main Street and approximately 640 linear feet (LF) between Main Street and Wall Avenue.

**OPINION OF PROBABLE COST**

| | |
|---|---|
| Removal of Existing Striping | **$48,000 +/-** |
| New Striping (includes bike lane and buffer zone) | **$38,000 +/-** |
| Intersection Treatments (includes green lane and pedestrian crosswalks); two intersections (one signalized) | **$20,000 +/-** |
| Vertical Delineators and Signage (bollards, signs on side of road, and bike symbols) | **$21,500 +/-** |
| **TOTAL** | **$127,500 +/-** |




**FIGURE 3.27**
**BROADWAY STREET/2ND STREET PROJECT**

# INTERSECTION IMPROVEMENTS

The following three intersections are recommended for improvements, as described below:

## WALL AVENUE AND 7TH STREET

The graphic in ***Figure 3.28*** illustrates a proposed bike lane on Wall Avenue "trading places" with the left-turn lane onto 7th Street, which allows vehicles to make a left turn without crossing over the northbound bike lane at the signalized intersection.

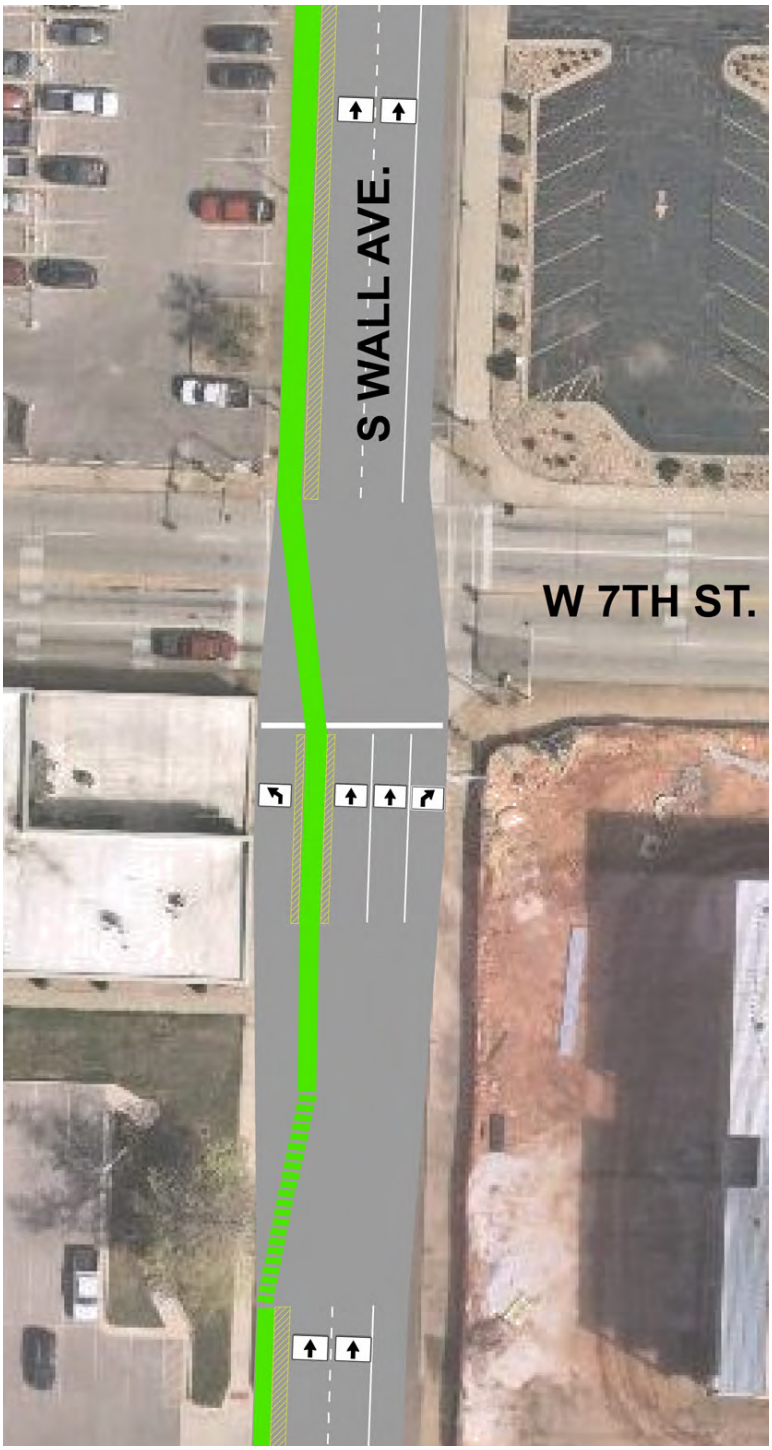



**FIGURE 3.28**
**WALL AVENUE AND 7TH STREET**

## JOPLIN AVENUE AND 15TH STREET

The graphic in ***Figure 3.30*** illustrates a proposed bike lane on Joplin Avenue "trading places" with the left-turn lane onto 15th Street, which allows vehicles to make a left turn without crossing over the southbound bike lane at the signalized intersection.

## BROADWAY STREET AND VIRGINIA AVENUE

The graphic in ***Figure 3.29*** illustrates a two-way cycle track on the south curb line of Broadway Street separating into two bike lanes along the north and south curb line of Broadway Street, west of the signalized intersection at Broadway Street and Virgnia Avenue.

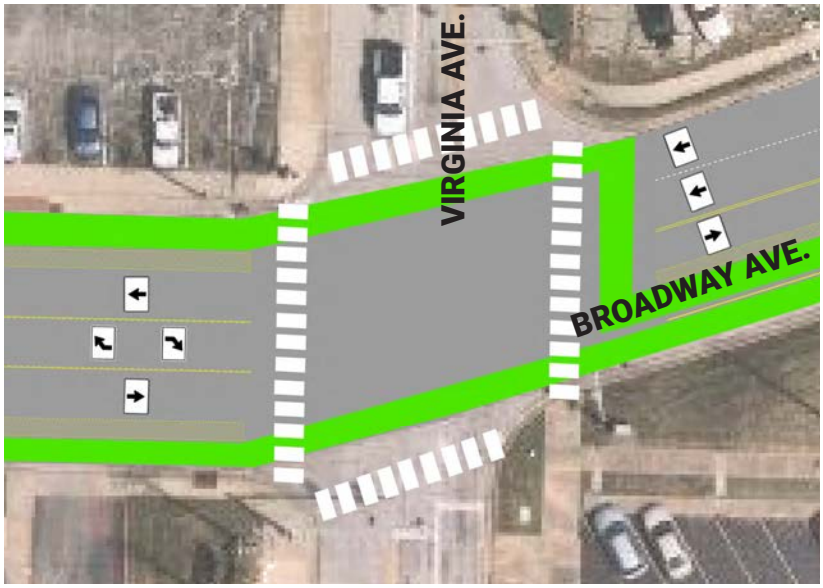



**FIGURE 3.29**
**BROADWAY AVENUE AND VIRGINIA AVENUE**




**FIGURE 3.30**
**JOPLIN AVENUE AND 15TH STREET**

# POTENTIAL FUNDING SOURCES

Funding for bike and pedestrian projects is available from a variety of sources including matching grants, sales tax or other taxes, bond measures, or public/private partnerships. This section identifies federal, state, and non-profit foundation sources for funding planning, design, implementation, and maintenance of bike and pedestrian projects. The information is intended to provide an overview of available options and do not represent a comprehensive list. It should be noted that this section reflects the funding available at the time of writing. The funding amounts, fund cycles, and even the programs themselves are susceptible to change without notice.

## FEDERAL FUNDING SOURCES

Federal transportation funding is typically directed through state agencies to local governments either in the form of grants or direct appropriations, independent from state budgets. Federal funding typically requires a local match. The amount of the local match varies by program but typically ranges from 20 percent to 50 percent.

The Missouri Department of Transportation (MoDOT) and metropolitan planning organizations (MPOs), including the Joplin Area Transportation Study Organization (JATSO), administer most federal monies. Federal funding is intended for capital improvements and safety and education programs. Projects must relate to the surface transportation system. Most, but not all, of these programs are oriented toward transportation versus recreation.

The following is a list of Federal funding sources that could be used to support construction of many bike and pedestrian improvements. Most of these are competitive and involve the completion of extensive applications with clear documentation of the project need, costs, and benefits. However, it should be noted that, in addition to the standalone projects, the Federal Highway Administration (FHWA) encourages the construction of bike and pedestrian facilities as an incidental element of larger ongoing projects, consistent with its 2010 policy statement on bike and pedestrian accommodations.

### FEDERAL AID HIGHWAY PROGRAM

The largest source of federal funding for bike and pedestrian projects is the United States Department of Transportation's (US DOT) Federal Aid Highway Program. The latest legislation includes the *Infrastructure Investment and Jobs Act* ($1 trillion) is on the President's desk for signature.

The other act, *Build Back Better Act* ($1.75 trillion) is to be voted on November 15, 2021. Both acts would provide billions of dollars in funding possibilities for bike and pedestrian projects. The funding provided in both acts will help to meet the growing demand for bikes and safe places to ride and walk. The *Infrastructure Investment and Jobs Act* provides the following funding:

- $550 billion five-year transportation authorization bill after several short-term extensions;
- An average of $1.44 billion/year for the Transportation Alternatives Program (TAP), a nearly 70 percent increase; TAP is the largest source of federal funding for bike infrastructure;
- Authorization of the Active Transportation Infrastructure Investment Program to build connected biking and walking networks;
- A requirement for all states to develop standards for Complete Streets;
- A vulnerable road user assessment (i.e., study how dangerous roads are for people outside of cars); and
- Inclusion of the model three-class electric bike definitions.

Other federal funding sources include:

- Surface Transportation Program (STP)
- Highway Safety Improvement Program (HSIP)
- Congestion Mitigation/Air Quality Program (CMAQ)
- Community Development Block Grants
- Community Transformation Grants (Center for Disease Control)
- Rivers, Trails and Conservation Assistance Program (National Parks Service)

Several federal agencies, including the Bureau of Land Management, the Department of Health and Human Services, the Department of Energy, and the Environmental Protection Agency have offered grant programs amenable to bike and pedestrian planning and implementation, and may do so again in the future. For up-to-date information about grant programs through all federal agencies, see http://www.grants.gov/.

## STATE FUNDING SOURCES

There are a variety of state funding sources that can be used to fund active transportation projects, including the MoDOT Cost Share Program, the MoDOT Transportation Alternatives Program (TAP – funding from FHWA – to be defined more clearly with the Infrastructure Investment and Jobs Act), and the RAISE discretionary grant program (funded through US DOT and subject for clarification through the Infrastructure Investment and Jobs Act). Other state funding sources include vehicle registration fees, state general funds, state gasoline tax, and state sales tax.

## LOCAL FUNDING SOURCES

Many communities use locally generated funds to support active transportation. Joplin has the following revenue streams for active transportation projects: (1) one-half cent transportation sales tax; (2) three-eighths cent capital improvement project sales tax; and (3) one-quarter cent parks and stormwater improvements tax.



4

# SECTION FOUR

# DESIGN GUIDELINES

Design guidelines are an important aspect of implementing and sustaining an active transportation system. Even application of these guidelines ensure continuity for projects recommended in this Plan and beyond. ***Section 4 - Design Guidelines*** includes guidelines for on-street bike facilities, on-street pedestrian facilities, and shared use facilities.

# HOW TO USE THESE GUIDELINES

The bike and pedestrian networks proposed in this Plan include a variety of off-street and on-street facilities suitable for bicycling, walking, or both. Each of these key facilities are defined, unique, have dimensional characteristics that account for different types (age and skill) and volumes of users and the variable-built environments in which they are located.

When using these design guidelines, it should be noted that they are rudimentary in nature and do not offer final design solutions. Rather, the design guidelines should help locate facilities throughout Joplin.

The design guidelines focus on three active transportation facility categories:

- **ON-STREET BICYCLE FACILITIES.** Facilities designed to be used exclusively by bikes and located primarily within the street right-of-way. The types of facilities include bike lanes, buffered bike lanes, protected bike lanes, and shared lane markings.

- **ON-STREET PEDESTRIAN FACILITIES.** Facilities designed to be used exclusively by pedestrians and located primarily within the street right-of-way (i.e., sidewalks).

- **SHARED USE FACILITIES.** Facilities alternatively located outside of or within the street right-of-way that can be used by both pedestrians and bikes (i.e., shared use paths and sidepaths).

Finally, the design guidelines reflect the guidance and direction adopted by both the American Association of State Highway and Transportation Officials (AASHTO) and the National Association of City Transportation Officials (NACTO).

# THE GUIDELINES

Identifying the appropriate type of bike or pedestrian facility for a particular location represents only a small part of the challenge of building an active transportation network. The facility must be integrated into the community's overall transportation system – and in such a way that potential conflicts with motor vehicles are reduced. This often requires incorporating a bike or pedestrian facility into an existing street right-of-way. The principles presented in the design guidelines assist in anticipating and recognizing potential challenges to active transportation facility design.

Neighborhood streets can and should be ideal places to walk or ride a bike. Such streets are often characterized by low traffic volumes and speeds at or under 30 miles per hour. As such, many should be supreme places to walk or ride a bike. Unfortunately, many streets in Joplin neighborhoods are narrow, have on-street parking, and lack continuous sidewalks. Many also rely on traffic calming measures to slow vehicular speeds and "cut-through" traffic.

## TRAFFIC CALMING AND NEIGHBORHOOD GREENWAYS

Communities install traffic calming devices on public streets to reduce vehicle speeds, improve the environment and livability of a neighborhood, and provide real and perceived safety improvements for pedestrians and bicyclists. Traffic calming devices that are used by many cities include speed humps or tables, traffic circles, chicanes, semi-diverters, and curb extensions – as well as other devices identified by the FHWA. One or more of these treatments might be considered on neighborhood streets to create specific bike corridors.



**TRAFFIC CIRCLE EXAMPLE**

## INTERSECTION CONSIDERATIONS

Intersection, driveways, and roadway crossings are locations with the highest potential for crashes between motorized vehicles, bicyclists, and pedestrians. Enhancing crossing locations is particularly important for bicyclists. Bicyclists prefer to flow as much as possible and stopping requires additional effort to get moving again, therefore, bicyclists may be tempted to disobey traffic signals and signs.

Each crossing location requires its own specific design to consider unique conditions of the area. Note that improvement requirements at each intersection should be developed as each facility is designed and implemented. The following techniques represent some of the guidelines that can be used to improve crossings.

- **HIGHLY VISIBLE CROSSWALK MARKINGS.** Ladder style crosswalks have been shown to be more visible to approaching vehicles than a more typical double striped line crossing. The crosswalk markings must be perpendicualr to the travel lane and not angled, but offset if the crossing ramps on either side of the street do not align (see "Highly Visible Crosswalk Example" image on the following page).
- **MEDIAN REFUGE.** On wider streets that take longer to cross on foot, a refuge provides a protected mid-crossing location. These can be installed as part of curbed medians (i.e., Frisco Trail crossing on Zora).
- **RAISED CROSSWALKS.** Typically used at mid-block crossing locations, raised crosswalks can enhance the visibility of pedestrians crossing a street and help slow vehicle speeds when approaching the crossing.
- **PEDESTRIAN CROSSWALK SIGNALS.** timed pedestrian crosswalk signals help guide pedestrians crossing the street at intersections.
- **PAINTED OR PAVER CROSSWALKS.** In areas with a high volume of turning vehicles, enhancement of the crossing area using paint or highly visible pavers should be considered. This can be effective where sidepaths cross driveways into private businesses.
- **ACCESS MANAGEMENT.** Reducing the number of driveways or access points may help reduce the number of conflict zones along on-street and off-street facilities. Amendments to local land development regulations may be necessary.
- **PROHIBIT RIGHT TURN ON RED.** At intersections with a higher frequency of pedestrian crossings – and where traffic volumes permit – a right turn on red may be prohibited to enhance pedestrian safety.
- **SIDEPATH OR TRAIL "DEVIATORS" TO SLOW USERS AT INTERSECTIONS.** The path deviates to focus the pedestrians' line of sight on approaching traffic and to reduce the bicyclists' speed.
- **PEDESTRIAN/BICYCLE CROSSING WARNING SIGNS.** Additional warning signs that follow the Manual on Unform Traffic Control Devices (MUTCD) may be appropriate to further alert motorists to the presence of pedestrians and bicyclists.
- **CURB EXTENSIONS.** At intersections, an outward extension of the pedestrian area may be installed to reduce the crossing distance to the opposite curb. These extensions also help reduce the speeds of motorized vehicles traveling through the intersection.
- **REDUCING TURNING RADII AT INTERSECTIONS.** Smaller turning radii at intersections can reduce the speed of vehicles turning right at intersections, increasing reaction times and creating safer crossings for pedestrians and bicyclists.
- **ENHANCED VISIBILITY BY RELOCATING LANDSCAPING OR SIGNS.** Landscaping, signs, and in some cases, trees may be relocated or adjusted to increase visibility.
- **ENHANCED PAINTED SYMBOLS AT INTERSECTION CROSSINGS.** Additional dashed bike lane striping and bike symbols may be used across intersections to guide bikes and to further alert motorists as to the direction of bike traffic.
- **TRANSITION FROM ON-STREET TO OFF-STREET FACILITIES.** In some instances, an on-street bike lane may need to transition to an off-street sidepath or shared use path.
- **GREEN LANES.** Green painted bike lanes can be used to mark bike lanes or mark the extension of a bike lane through intersections and other traffic conflict zones.

## RAILROAD CROSSINGS

Pedestrian and bike enhancements at railroad crossings include the following:

- **LOCATION OF PEDESTRIAN FACILITY.** When a pedestrian facility crosses railroad tracks, the facility should be located outside of the railroad gate arms that block vehicles in the roadway, as the gate arms are counter weighted and can be manually raised by pedestrians if they passed under the gate.
- **CROSS AT A PERPENDICULAR ANGLE TO THE TRACKS.** To reduce the potential for narrow bike or stroller wheels getting caught in the tracks, bike lanes and sidewalks crossing the tracks should do so at a 90-degree angle.
- **CONCRETE PLANKING.** Concrete planking that meets the rail line owner's specifications should be installed. The planking for the road and the pedestrian/bike facility should be continuous, which allows for better drainage and prevents debris buildup that would occur in a "gap" between roadway and pedestrian/bike planking.
- **SEPARATE PEDESTRIAN CROSSING ARMS OR GATES.** Consideration could be given to installing separate pedestrian barrier gates or arms. Triggered to close when a train is approaching, these may be appropriate at a double track condition. However, a separate gate at sidewalks or sidepaths is generally unnecessary as pedestrians and bicyclists can go around the gates easily.
- **PEDESTRIAN LEVEL SIGNALS.** Visual signals, such as flashers specifically designed to alert pedestrians, should be considered. These enhance safety for users who are hearing impaired. Warning signs should be installed that direct pedestrians and other users to look both ways before crossing the tracks.

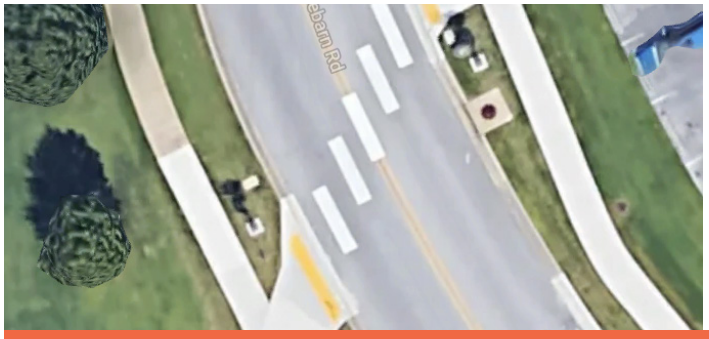
A combination of these treatments as well as others designed for a specific location may be considered. Each individual crossing should be separately designed to consider the unique constraints of the area.



GREEN LANE EXAMPLE



CROSSING WARNING SIGN EXAMPLE



HIGHLY VISIBLE CROSSWALK EXAMPLE



HAWK SIGNAL EXAMPLE

## FACILITY COST RANGES

***Table 4.1*** provides estimate cost ranges for each type of active transportation facility. These numbers are estimates calculated at the time of drafting the Plan and represent a general pre-design cost. The estimates should be treated as a starting point for establishing budgets and identifying funding sources.

**TABLE 4.1**
**FACILITY COST RANGES**

| FACILITY TYPE | DETAILS | POTENTIAL COST RANGE |
|---|---|---|
| Bike Lane | Lane striping and pavement marking in both directions | $50,000 to $55,000 per mile |
| Buffered Bike Lane | Buffer zone striping, vertical delineators, pavement markings both directions, and green lanes at conflict zones | $85,000 to $90,000 per mile |
| Separated Bike Lane | Barrier curb, pavement markings, and two-way cycle track | $150,000 to $300,000 per mile |
| Shared Lane Marking | Pavement marking in both directions, 20 bike symbols per mile | $7,500 to $10,000 per mile |
| Shared Use Path (Trail) | 12-foot-wide concrete | $1,000,000 to $2,000,000 per mile |
| Sidepath | 10-foot-wide concrete within existing right-of-way | $450,000 to $850,000 per mile |
| Route Signage | Placed every 250 linear feet +/- | $10,000 to $15,000 per mile |
| Lane Diet | Reduce lane widths to add bike lane | $90,000 to $180,000 per mile |
| Road Diet | Remove travel lanes to add bike lane | $90,000 to $180,000 per mile |

# APPENDIX A

# EXISTING CONDITIONS

A good plan must be founded on an understanding of a community's past and present. ***Appendix A - Existing Conditions*** presents a summary of the analysis of the current state of the City of Joplin's transportation system. This section acknowledges the importance of well-informed recommendations and strategies that properly respond to existing realities.

Appendix A overviews existing plans and studies and current transportation conditions in the City of Joplin.

# EXISTING PLANS AND STUDIES

The following summaries offer a glimpse into relevant plans, studies, and projects that have already been completed in the City of Joplin. The purpose of summarizing these relevant documents is to understand the multimodal and active transportation efforts within the city's transportation network.

## JOPLIN AREA TRANSPORTATION STUDY ORGANIZATION (JATSO) BICYCLE AND PEDESTRIAN TRANSPORTATION PLAN (2018)

The previous active transportation plan for the region was created around a vision to "provide safe bike and pedestrian connectivity within, between, and beyond the Joplin area communities". Plan initiatives based on the vision statement and multimodal analysis were categorized into four groups: safety, connectivity, on-road facilities, and off-road facilities. The plan calls for improving pedestrian infrastructure along key corridors (including Americans with Disabilities Act [ADA] accommodations and curb cuts to allow accessibility for people of all abilities), railroad crossings, and coordinating with the Joplin Trails Coalition to improve roadway crossings along the Frisco Greenway Trail and Ruby Jack Trail.

Connectivity improvements were recommended to be made in alignment with a Complete Streets approach. On-road facilities should be improved with short-term road diet options, such as shared lanes and designated bike lanes, or long-term construction of multi-use paths that are physically separated from the roadway.

Main Street, Joplin Avenue/Wall Avenue, Broadway Street/2nd Street, 4th Street, Junge Boulevard/13th Street, and 26th Street were identified as priority corridors for improvement.

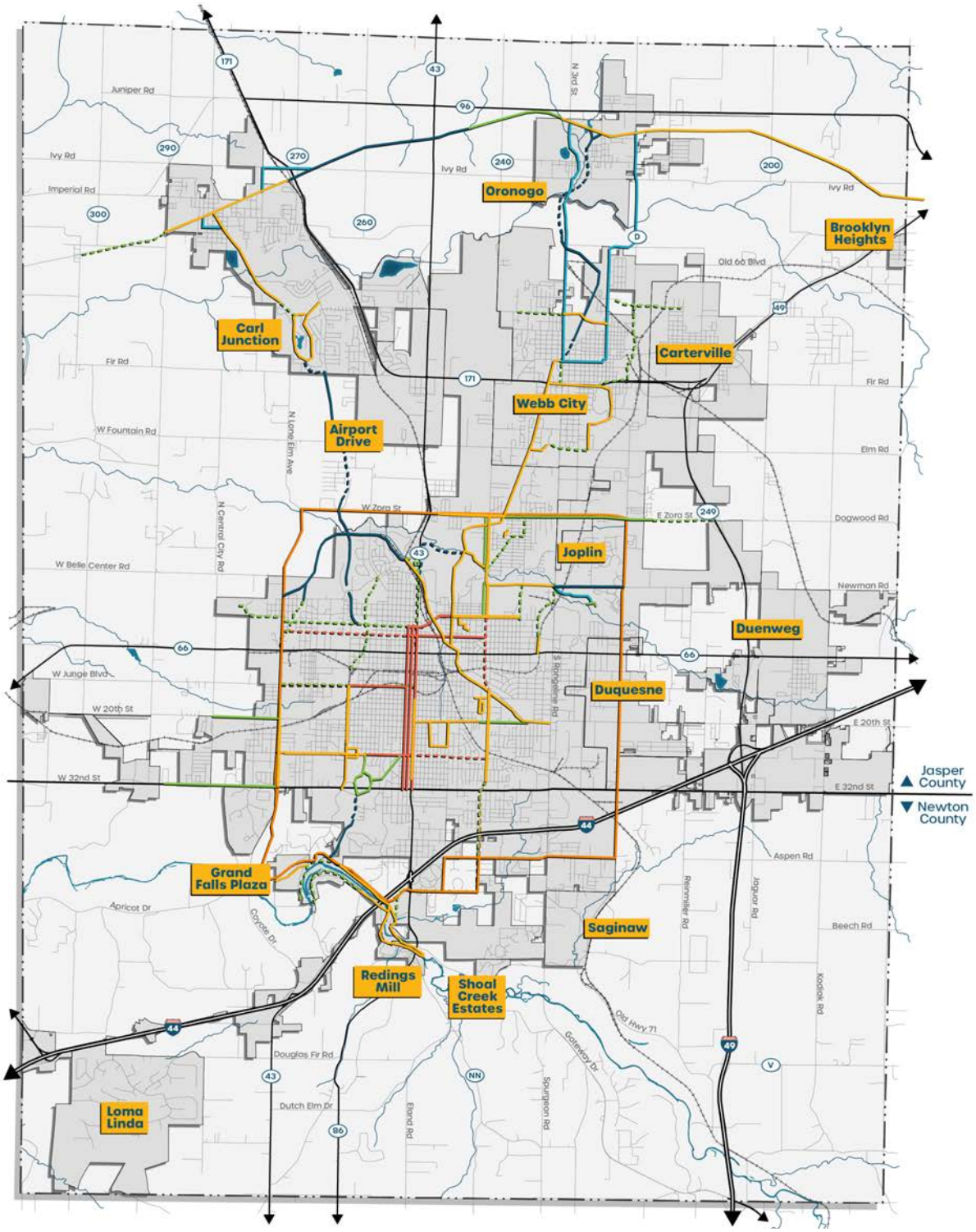
The following trails were identified as priority corridors for improvement:

- **TIN CUP TRAIL.** Construct a 1.1-mile trail to connect the existing Shoal Creek Trail system with the Mohaska Trail.
- **TURKEY CREEK TRAIL.** Extend the existing trail to the west to connect to Ozark Christian College, Landreth Park, and Dover Hill Park.
- **FRISCO GREENWAY TRAIL.** Extend the existing trail to follow the former railroad corridor while continuing to provide connections to Oronogo and the Ruby Jack Trail.
- **RUBY JACK TRAIL.** Continue the trail restoration by completing improvements between Oronogo and Carl Junction.
- **NORTH RAIL TRAIL.** Construct a 5.1-mile trail on the former St. Louis-San Francisco Railway corridor from Fir Road in Carl Junction to 2nd Street in Joplin.
- **KATY TRAIL.** Construct a 2.6-mile trail on the former Missouri-Kansas-Texas Railroad corridor from Murphy Boulevard near Dover Hill Park to Schifferdecker Avenue.

## JATSO 2045 METROPOLITAN TRANSPORTATION PLAN UPDATE (2021)

As the region's designated Metropolitan Planning Organization (MPO), the Joplin Area Transportation Study Organization (JATSO) updates a regional long range metropolitan transportation plan (MTP) approximately every five years. This MTP provides a blueprint for the area's transportation planning efforts and investments for the next 25 years, addressing goals, objectives, and strategies to address the communities' vision for the future. Two of the nine goals in the MTP specifically pertain to active transportation: improving safety in all modes of transportation and expanding the connectivity of active transportation options, including bike and pedestrian infrastructure, to encourage linkages to activity centers.

The MTP identified the need for increased active transportation connectivity and investments. The public feedback revealed overwhelming support for active transportation investments. The proposed bike and pedestrian network identified in the MTP is shown in ***Figure A.1***. The purpose of this network was to provide a foundation for the Joplin Active Transportation Assessment to build upon.




## FIGURE A.1 MTP PROPOSED BICYCLE AND PEDESTRIAN NETWORK

**Data Sources:** City of Joplin, Harry S. Truman Coordinating Council, and Ochsner Hare & Hare, the Olsson Studio, Bicycle and Pedestrian Transportation Plan (2018)

- Plan / JATSO Boundary
- Incorporated Area
- Railroad
- Existing Bicycle Lane

**On-Road Network**

- Potential Road Diet Candidate
- Potential Extension Candidate
- Potential Long-Term Loop Vision

**Off-Road Network**

- Committed Bicycle Lane
- Potential Bicycle Lane
- Potential Right-of-Way Defined
- Potential Right-of-Way Undefined
- Potential Alternate Option

## JATSO 2020-2023 TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

The JATSO Federal Fiscal Year 2020-2023 Transportation Improvement Program (TIP) is a federally required document that programs transportation projects in the region utilizing federal-aid funds. One of the TIP categories is the Transportation Alternatives Program (TAP), a federally funded program related to active transportation. Since the region has a population of less than 200,000 people, JATSO is not guaranteed TAP funding; rather, MoDOT administers the funds as part of a competitive process. As a result, the JATSO TIP is amended if a TAP project is awarded is in the region. The only TAP project in the JATSO region included in the most recent MoDOT TAP award announcement in March 2021 was "Route Z/Pennell St. Sidewalk Improvements - Phase V" in Carl Junction.

The JATSO 2020-2023 TIP provides sidewalk and trail projects, funded either by TAP or other federal funds; however, all but one is shown as a 2020 project. The only other upcoming federally funded active transportation project shown in the JATSO 2020-2023 TIP is MoDOT Project No. 7P2193B, project development for new sidewalks on Route TT (Newman Road) and Loop 49 (Range Line Road).

## JOPLIN CAPITAL IMPROVEMENT PROGRAM (CIP) (2020)

The Joplin CIP designates a portion of the City's sales tax to prioritized projects. This 10-year 3/8 cent capital improvement sales tax was approved by Joplin voters in 2014 for the following projects:

- 32nd Street improvements
- Neighborhood transportation, street surface, and intersection improvements
- Increasing Connecticut at 32nd to 44th Street from 2 to 5 lanes
- Increasing 44th Street at Rangeline to Connecticut from 2 to 5 lanes
- Increasing Zora at Rangeline to MO 249 from 2 to 3 lanes
- Increasing the I-44 overpass at Connecticut to 4 lanes
- Modifications to the 6th Street and Virginia Parking Garage
- Increasing 20th Street at Shifferdecker to Country Club Road to 3 lanes
- Replacing the bridge on Jackson at Shoal Creek
- Building a bridge on Shifferdecker at Turkey Creek

## JOPLIN PARKS AND RECREATION ROAD MAP (2021)

The City's 10-year 1/4 cent parks and stormwater sales tax, renewed by Joplin voters in 2012, funds park maintenance, updates and renovations. It also funds park projects such as trails.

As part of the City's consideration to ask voters to renew this tax, a 10-year project plan was developed. In addition to park specific projects, the 2021-2031 project plan includes the following connectivity projects:

- Katy Trail West segment from West Perkins Street to North Lone Elm Road
- Katy Trail East segment from North Lone Elm Road to Northwest Murphy Boulevard
- Dover Outdoor Recreation to Landreth Park connector
- Landreth Park underpass at Main Street
- Landreth Park connector to Frisco Trailhead
- Creekside Plaza Riverwalk
- Spring Greenway Trail
- Parr Hill Park underpass at 15th Street
- Shared use path on East 44th Street
- Shared use path on South Main Street
- Tin Cup Trail Phase 2
- Tin Cup Trail underpass at 32nd Street
- Shared use path on West Junge Blvd
- Shared use path on North Schifferdecker Avenue
- Shared use path on West Perkins Street
- Install trail wayfinding signage package
- Install or replace benches across trail network

## JOPLIN SIDEWALK INVENTORY AND ASSESSMENT STUDY (2021)

A study is currently underway to assess the City's sidewalk network, primarily with respect to ADA compliance, and to provide recommendations to prioritize improvements. The City has been actively improving its sidewalk system and most of the "city core" is well connected by sidewalk.

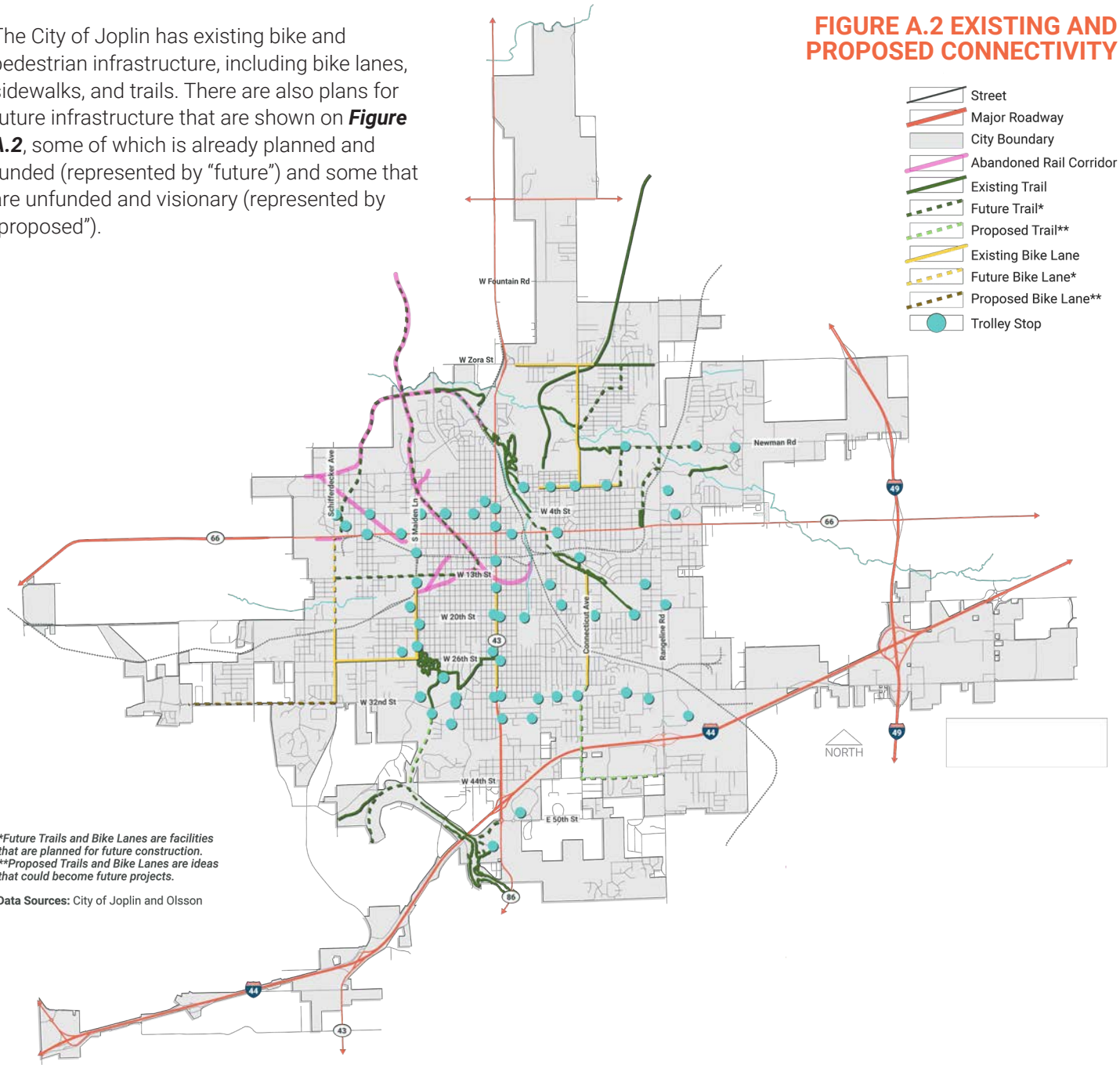
The study will provide the City with a sidewalk and street assessment. This effort also includes a spreadsheet tool for developing and managing a multi-year sidewalk rehabilitation program. Deliverables included GIS data, the spreadsheet tool, and an updated ADA transition plan.

# EXISTING BIKE AND PEDESTRIAN FACILITIES

An onsite analysis of Joplin's existing bike and pedestrian facilities was conducted. ***Figure A.2*** shows the location of current, future, and potential bike lanes and trails. Trolley stops are shown to illustrate existing connectivity to public transportation. Additionally, railroad corridors that are no longer in use have been highlighted to show opportunities for potential rail-trail conversions. Joplin's existing bike network includes two types of infrastructure: on-street bike lanes and multi-use trails/ paths.

The City of Joplin has existing bike and pedestrian infrastructure, including bike lanes, sidewalks, and trails. There are also plans for future infrastructure that are shown on ***Figure A.2***, some of which is already planned and funded (represented by "future") and some that are unfunded and visionary (represented by "proposed").

## FIGURE A.2 EXISTING AND PROPOSED CONNECTIVITY




**Future Trails and Bike Lanes are facilities that are planned for future construction.*
***Proposed Trails and Bike Lanes are ideas that could become future projects.*

**Data Sources:** City of Joplin and Olsson

## ON-STREET BICYCLE LANES

Since 2010, Joplin has installed on-street bicycle lanes on the following roadways:

- St. Louis Avenue
- Zora Street
- Broadway Street/2nd Street
- Main Street
- Schifferdecker Road
- 26th Street
- Maiden Lane
- Connecticut Avenue

The existing bicycle lanes as described on the following pages provide limited connections to destinations (illustrated on ***Figure A.2***). They are somewhat sporadic in location and do not provide commuting opportunities to community members. The existing bicycle lanes were installed in 2010 and consist primarily of sharrows and/or unprotected bicycle lanes. Bicycle lane facility design and placement has evolved since then.

The unprotected bicycle lanes in Joplin are not providing the safe and efficient bicycle lanes that accommodate all ages and all abilities of riders. For the most part, the bicycle lanes are in corridors that have multiple travel lanes, relatively high traffic volumes, speed limits that are uncomfortable for riders, parked cars, narrow bicycle lane widths, and limited pavement markings to alert drivers of the presence of bicyclists, especially at intersections.

The following pages provide details on the existing bicycle lanes in Joplin using the metrics in the sidebar to the right.

### POSTED SPEED LIMIT
Speed limit for vehicular traffic in miles per hour (MPH).

### TOTAL NUMBER OF LANES
Number of vehicular travel lanes.

### CENTER TURN LANE
The presence of a center turn lane on the road is indicated with a **YES** or **NO.**

### SIDEWALKS
The presence of a sidewalk on either or both sides of the road is indicated with a **YES** or **NO** and details on location.

### LOCATION
The general location of the bicycle lane on the road is noted here.

### BICYCLE LANE WIDTH
The width of the bicycle lane, including curb and gutter, is noted here.

### ANNUAL DAILY TRAFFIC (ADT)
ADT is the measurement of daily traffic moving in both directions along a roadway. ADT is measured in vehicles per day.



## ST. LOUIS AVENUE

**POSTED SPEED LIMIT:** 35 mph

**TOTAL NUMBER OF LANES:** 3

**CENTER TURN LANE:** Yes

**SIDEWALKS:** Yes, both sides

**LOCATION:** Between Broadway Street and Zora Street

**BICYCLE LANE WIDTH:** 5’

**ANNUAL DAILY TRAFFIC (ADT):** 5,000 to 9,999 vehicles per day




## ZORA STREET

**POSTED SPEED LIMIT:** 40 mph

**TOTAL NUMBER OF LANES:** 5

**CENTER TURN LANE:** Yes

**SIDEWALKS:** Yes, both sides

**LOCATION:** Between Highway 43 and the Frisco Greenway

**BICYCLE LANE WIDTH:** 5’

**ANNUAL DAILY TRAFFIC (ADT):** 5,000 to 9,999 vehicles per day west of St. Louis Avenue; 10,000 to 14,999 vehicles per day east of St. Louis Avenue



## BROADWAY STREET / 2ND STREET (1/2)

**POSTED SPEED LIMIT:** 35 mph

**TOTAL NUMBER OF LANES:** 2

**CENTER TURN LANE:** No

**SIDEWALKS:** Yes, both sides

**LOCATION:** St. Louis Avenue west to Division Street

**BICYCLE LANE WIDTH:** 3’ - adjacent to parallel parking, no buffers

**ANNUAL DAILY TRAFFIC (ADT):** 5,000 to 9,999 vehicles per day



## BROADWAY STREET / 2ND STREET (2/2)

**POSTED SPEED LIMIT:** 35 mph

**TOTAL NUMBER OF LANES:** 3

**CENTER TURN LANE:** Yes

**SIDEWALKS:** Yes, both sides

**LOCATION:** St. Louis Avenue east to Florida Avenue

**BICYCLE LANE WIDTH:** 5'

**ANNUAL DAILY TRAFFIC (ADT):** 5,000 to 9,999 vehicles per day




## ZORA STREET

**POSTED SPEED LIMIT:** 40 mph

**TOTAL NUMBER OF LANES:** 5

**CENTER TURN LANE:** Yes

**SIDEWALKS:** Yes, both sides

**LOCATION:** Between Highway 43 and the Frisco Greenway

**BICYCLE LANE WIDTH:** 5'

**ANNUAL DAILY TRAFFIC (ADT):** 5,000 to 9,999 vehicles per day west of St. Louis Avenue; 10,000 to 14,999 vehicles per day east of St. Louis Avenue



## ST. LOUIS AVENUE

**POSTED SPEED LIMIT:** 35 mph

**TOTAL NUMBER OF LANES:** 3

**CENTER TURN LANE:** Yes

**SIDEWALKS:** Yes, both sides

**LOCATION:** Between Broadway Street and Zora Street

**BICYCLE LANE WIDTH:** 5'

**ANNUAL DAILY TRAFFIC (ADT):** 5,000 to 9,999 vehicles per day



## MAIN STREET

**POSTED SPEED LIMIT:** 40 mph

**TOTAL NUMBER OF LANES:** 4

**CENTER TURN LANE:** No

**SIDEWALKS:** Yes, both sides

**LOCATION:** Between 15th Street and 32nd Street

**BICYCLE LANE WIDTH:** 0' - sharrows on roadway

**ANNUAL DAILY TRAFFIC (ADT):** 10,000 to 14,999 vehicles per day



## SCHIFFERDECKER ROAD

**POSTED SPEED LIMIT:** 45 mph

**TOTAL NUMBER OF LANES:** 5

**CENTER TURN LANE:** Yes

**SIDEWALKS:** Yes, both sides

**LOCATION:** 32nd Street north to the railroad

**BICYCLE LANE WIDTH:** 5'

**ANNUAL DAILY TRAFFIC (ADT):** 15,000 to 24,999 vehicles per day



## 26TH STREET

**POSTED SPEED LIMIT:** 35 mph

**TOTAL NUMBER OF LANES:** 3

**CENTER TURN LANE:** Yes

**SIDEWALKS:** Yes, both sides

**LOCATION:** Between Maiden Lane and Schifferdecker Road

**BICYCLE LANE WIDTH:** 5'

**ANNUAL DAILY TRAFFIC (ADT):** 15,000 to 24,999 vehicles per day



## MAIDEN LANE

**POSTED SPEED LIMIT:** 35 mph

**TOTAL NUMBER OF LANES:** 5

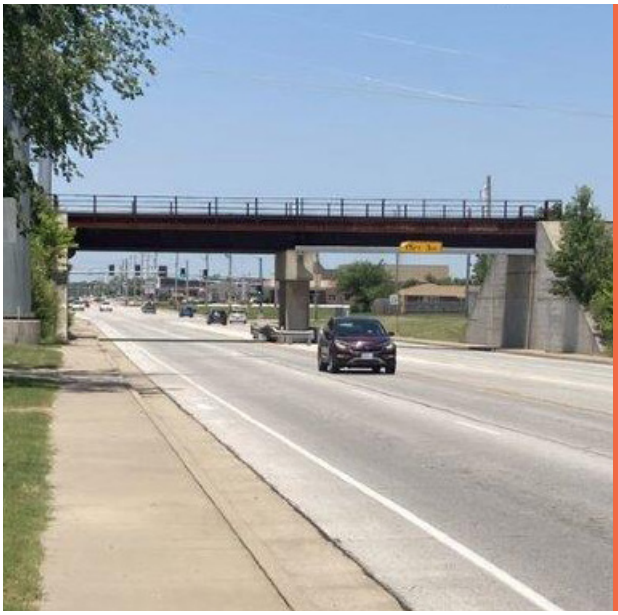
**CENTER TURN LANE:** Yes

**SIDEWALKS:** Yes, both sides

**LOCATION:** 26th Street to Junge Boulevard

**BICYCLE LANE WIDTH:** 5'

**ANNUAL DAILY TRAFFIC (ADT):** 10,000 to 14,999 vehicles per day



## CONNECTICUT STREET

**POSTED SPEED LIMIT:** 35 mph

**TOTAL NUMBER OF LANES:** 5

**CENTER TURN LANE:** Yes

**SIDEWALKS:** Yes, both sides

**LOCATION:** 30th Street to north of 20th Street at Parr Hill Park

**BICYCLE LANE WIDTH:** 5'

**ANNUAL DAILY TRAFFIC (ADT):** 5,000 to 9,999 vehicles per day south of the railraod; 10,000 to 14,999 vehicles per day north of the railroad

## OVERALL ASSESSMENT

While the City of Joplin does have on-road bicycle facilities, the unprotected bicycle lanes are not in compliance with current national standards.

The recommended width for bicycle lanes are five to seven feet. No bicycle lane within the City is over five feet in width, and in the case of Broadway / 2nd Street, the bicycle lane is three feet wide.

The speed limit on each of the streets is at least 35 miles per hour, which poses safety concerns for bicyclists in unprotected bike lanes and shared lane markings. Increased speeds increase safety concerns. Average annual daily traffic (AADT) levels in each case is at least 5,000 vehicles per day, which is a high level for unprotected bicycle lanes. Risk increases with higher AADT levels.

The current facilities present both recreational and experienced bicyclists with a significant level of safety concerns.

## MULTI-USE TRAILS AND PATHS

Although there are over 50 miles of multi-use trails in the greater Joplin area, there are only 15 miles of multi-use trails within Joplin's city limits. The following trails are available for community members. The trails that are located within city parks are identified as walking trails.

Multi-use trails that have been implemented are high-quality community amenities; however, they lack integration with one another and destinations in the city. To use the trails, the user must drive to a trailhead. The trails are in various locations throughout Joplin which is beneficial when considering the trails as an entire system. Walking trails dispersed throughout the City's parks provide neighborhood recreation opportunities. Similar to the multi-use trails, though, they are not connected to one another, which limits their purpose to solely recreational.

### FRISCO GREENWAY

The Frisco Greenway is approximately 5.6 miles long and has a trailhead at North Street. The trail follows the old Frisco Railroad corridor and is a true rails-to-trails conversion. The trail is crushed gravel and approximately 10 feet wide. The Frisco Greenway is currently a standalone trail network that is not integrated into other city trails.

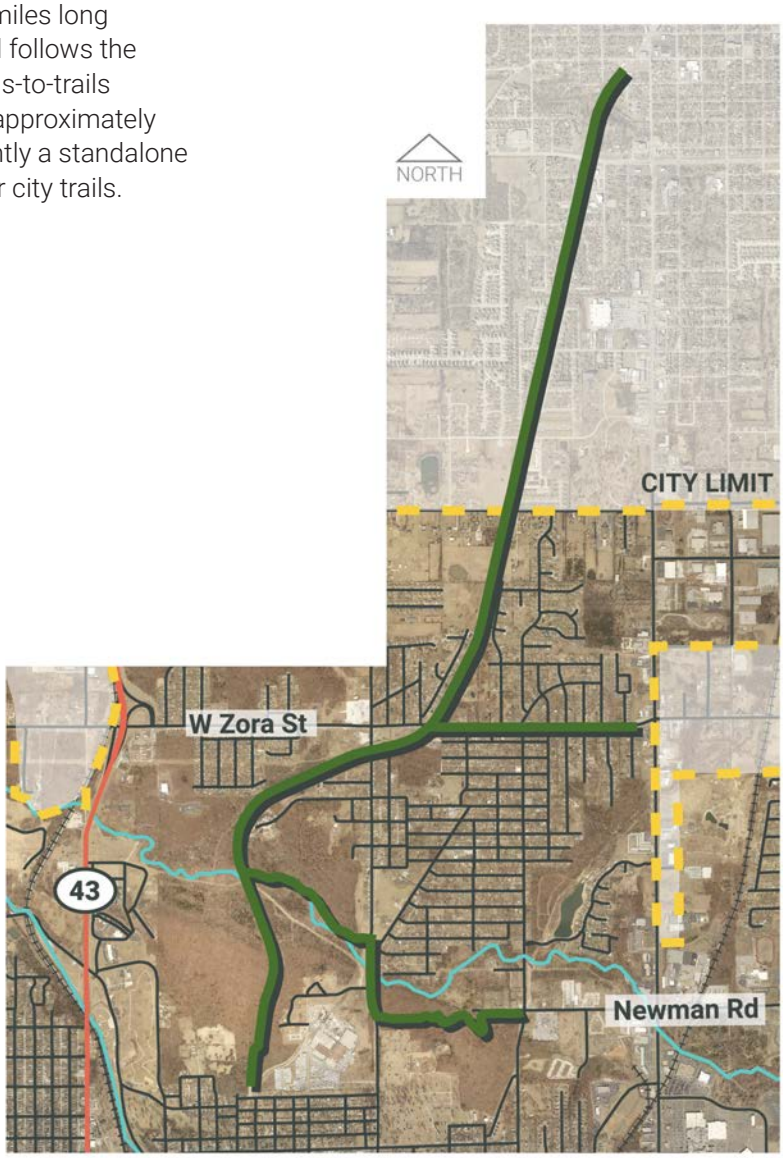



FIGURE A.3 FRISCO GREENWAY




**MURPHY BOULEVARD PARK**

Located on the north side of Joplin, Murphy Boulevard Park has approximately 1.3 miles of walking trails. The trails also connect to the south to Parr Hill Park. The Connecticut Avenue bike lanes are located three blocks to the east and terminate at 20th Street, which is two blocks to the south.

**FIGURE A.4 MURPHY BOULEVARD PARK**



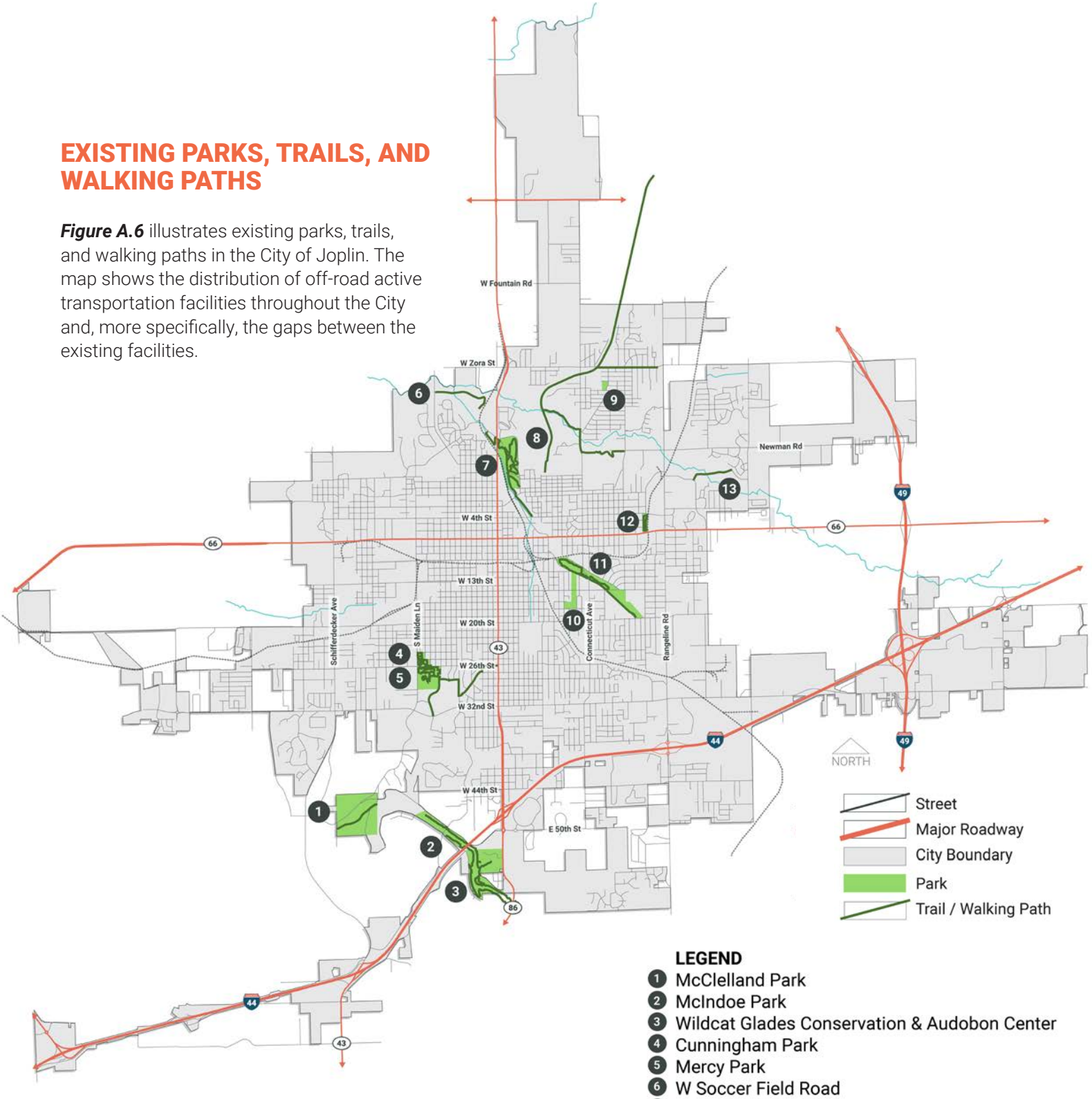

**FIGURE A.5 WILDCAT GLADES TRAIL SYSTEM**

**WILDCAT GLADES TRAIL SYSTEM**

Located on the south side of Joplin and on both sides of I-44, this trail system has approximately 2 miles of multiuse, paved trail. Trailheads are located on both sides of Shoal Creek, one on Murphy Boulevard, the other on Glendale Road.

## EXISTING PARKS, TRAILS, AND WALKING PATHS

***Figure A.6*** illustrates existing parks, trails, and walking paths in the City of Joplin. The map shows the distribution of off-road active transportation facilities throughout the City and, more specifically, the gaps between the existing facilities.




**LEGEND**

1. McClelland Park
2. McIndoe Park
3. Wildcat Glades Conservation & Audobon Center
4. Cunningham Park
5. Mercy Park
6. W Soccer Field Road
7. Landreth Park
8. Frisco Greenway
9. Humphrey Park
10. Parr Hill Park
11. Murphy Boulevard Park
12. Leonard Park
13. Path to Missouri State Southern University

**Data Sources:** City of Joplin and Olsson

**FIGURE A.6 EXISTING PARKS, TRAILS, AND WALKING PATHS**

# VEHICULAR TRAFFIC AND CRASHES

This section reviews crash data (2015-2020) involving bicyclists and pedestrians in Joplin, as reported by the Joplin Police Department and the Missouri State Police.

### BICYCLE CRASHES

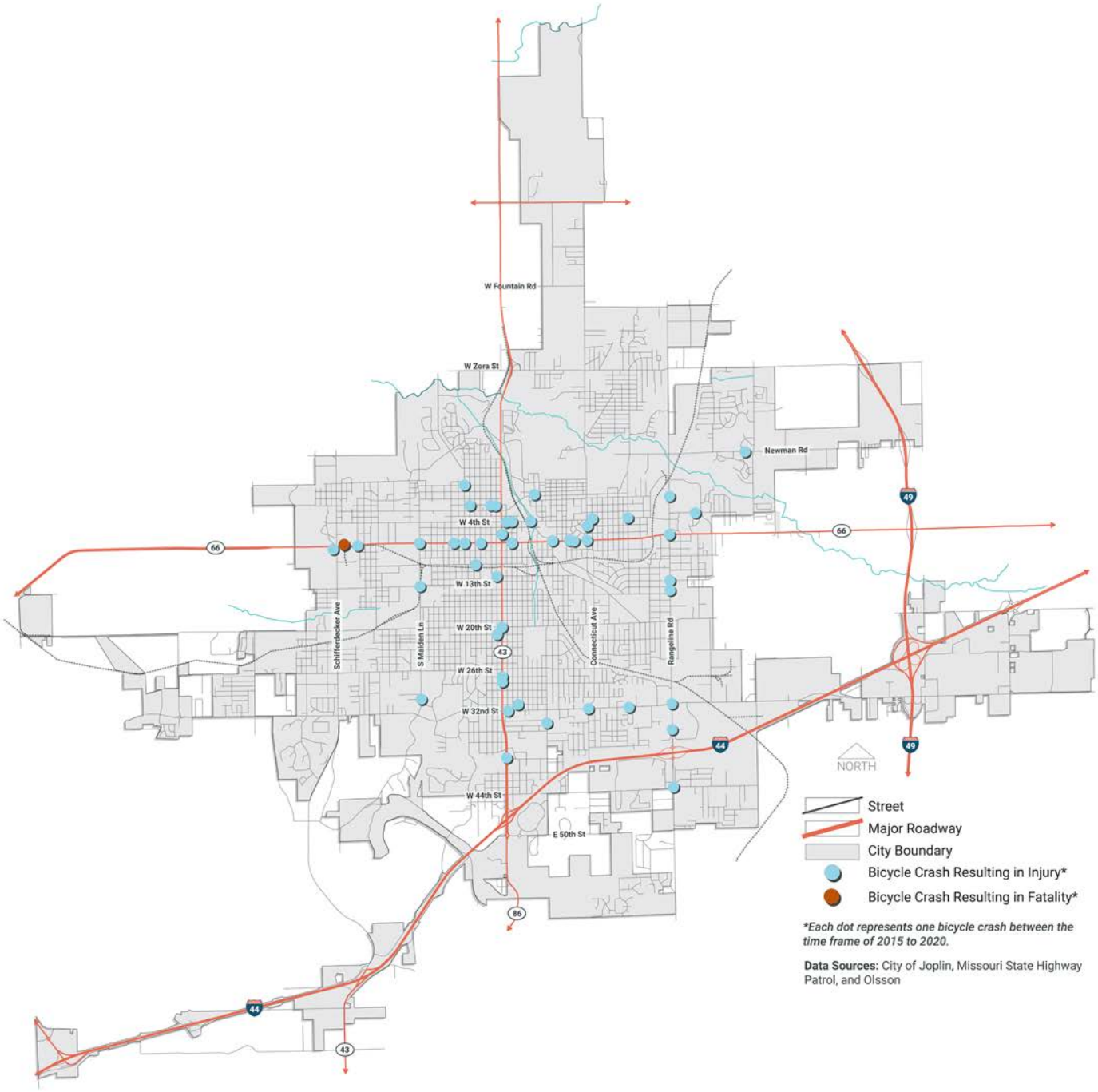
***Figure A.7*** shows the location of bike crashes between 2015 and 2020. During the time period analyzed, there were 66 crashes between bikes and vehicles, one of which was fatal, occurring in June of 2019. On a national level, bike fatalities have increased 37 percent over the past 10 years.

***Table A.1*** shows the year-by-year breakdown of bike crashes.

During the time period analyzed, most crashes occurred on Mondays, followed closely by Tuesdays and Thursdays. Crash times typically occurred during the morning peak, noon peak, and afternoon peak. Crashes occurring during these peak travel times indicated the bicyclists are commuting to and from work and are not likely recreational riders. The one fatality that occurred in 2019 was the result of a bicyclist riding the wrong way on 7th Street and then losing control of the bike and

**TABLE A.1 BICYCLE CRASHES**

| YEAR | CRASHES - BICYCLE/VEHICLE | FATALITIES |
|---|---|---|
| **2015** | 17 | 0 |
| **2016** | 12 | 0 |
| **2017** | 6 | 0 |
| **2018** | 11 | 0 |
| **2019** | 15 | 1 |
| **2020** | 6 | 0 |




## FIGURE A.7 BICYCLE CRASHES

# PEDESTRIAN CRASHES

***Figure A.8*** shows the location of pedestrian crashes between 2015 and 2020. Pedestrian crash data highlights where the network fails to safely provide transportation corridors for all modes of transportation. There were 82 crashes, including two fatalities during this time frame, both in 2020.

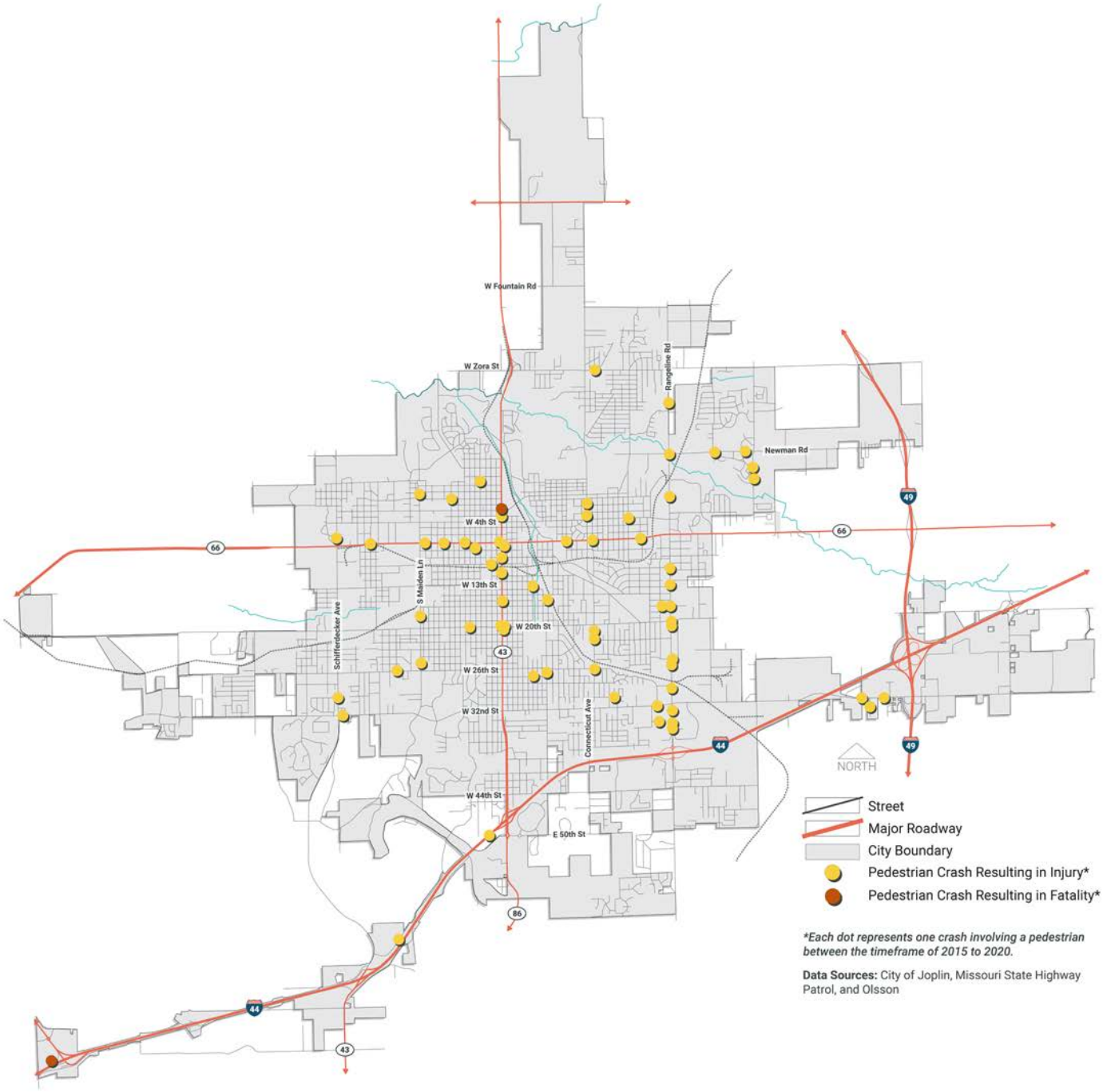
Nationally, pedestrian fatalities have increased 45 percent over the past three decades, with the past three years being the deadliest of the 30-year timeframe.

***Table A.2*** shows the year-by-year breakdown of pedestrian crashes.

Pedestrian crashes tended to occur all through the week, but Tuesdays were the most common day each year. Like bikes, pedestrian/vehicle crashes mostly occurred during the morning peak and afternoon peak hours. There were several crashes during the late evening (8:00 p.m. - 10:00 p.m. and 10:00 p.m. - 12 a.m.) indicating pedestrians walking home in the dark after leaving work. Two fatalities occurred in 2020; one at Main Street and 2nd Street and the other on I-44 when a pedestrian was walking in a travel lane.

## TABLE A.2 PEDESTRIAN CRASHES

| YEAR | PEDESTRIAN/VEHICLE CRASHES | FATALITIES |
|---|---|---|
| **2015** | 15 | 0 |
| **2016** | 17 | 0 |
| **2017** | 10 | 0 |
| **2018** | 10 | 0 |
| **2019** | 20 | 0 |
| **2020** | 12 | 2 |




## FIGURE A.8 PEDESTRIAN CRASHES

# SPEED LIMITS

The map in ***Figure A.9*** shows the posted speed limits for roadways. Generally, higher speed limits increase risk for bicyclists and pedestrians.

Level of Stress is an indicator that uses the speed or volume of vehicles to determine stress levels of users. In the case of bicyclists and pedestrians, Level of Stress is as follows for speed of travel:

**LOW FOR ALL:** 25 miles per hour or less
**LOW FOR ADULTS:** 25 to 35 miles per hour
**MODERATE:** 35 miles per hour
**CAUTION:** 35 to 45 miles per hour
**HIGH:** 45 to 55 miles per hour

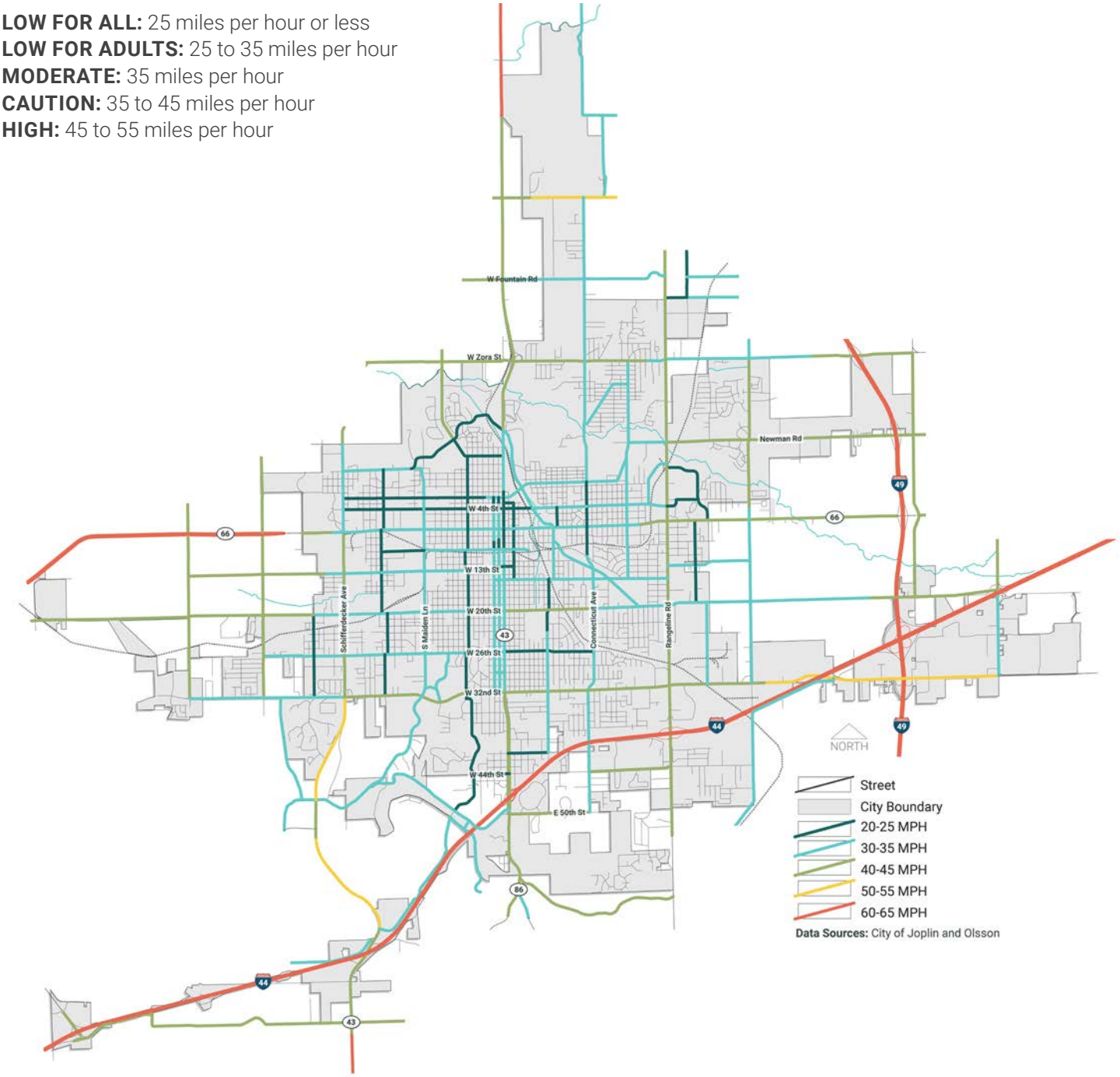



**FIGURE A.9 SPEED LIMITS**

# TRAFFIC VOLUMES

The map in ***Figure A.10*** shows the volume of daily traffic, measured by using annual average daily traffic (AADT) data for Joplin roadways.

Generally, an increase of traffic will increase the Level of Stress of bicyclists and pedestrians. The existing bike lanes in Joplin are on corridors of "Caution" to "High" Levels of Stress.

**LOW FOR ALL.** 1,000 or less vehicles per day.
**LOW FOR ADULTS.** 3,000 or less vehicles per day.
**MODERATE.** 3,000 to 6,000 vehicles per day.
**CAUTION.** 6,000 to 15,000 vehicles per day.
**HIGH.** 15,000 to 30,000 vehicles per day.

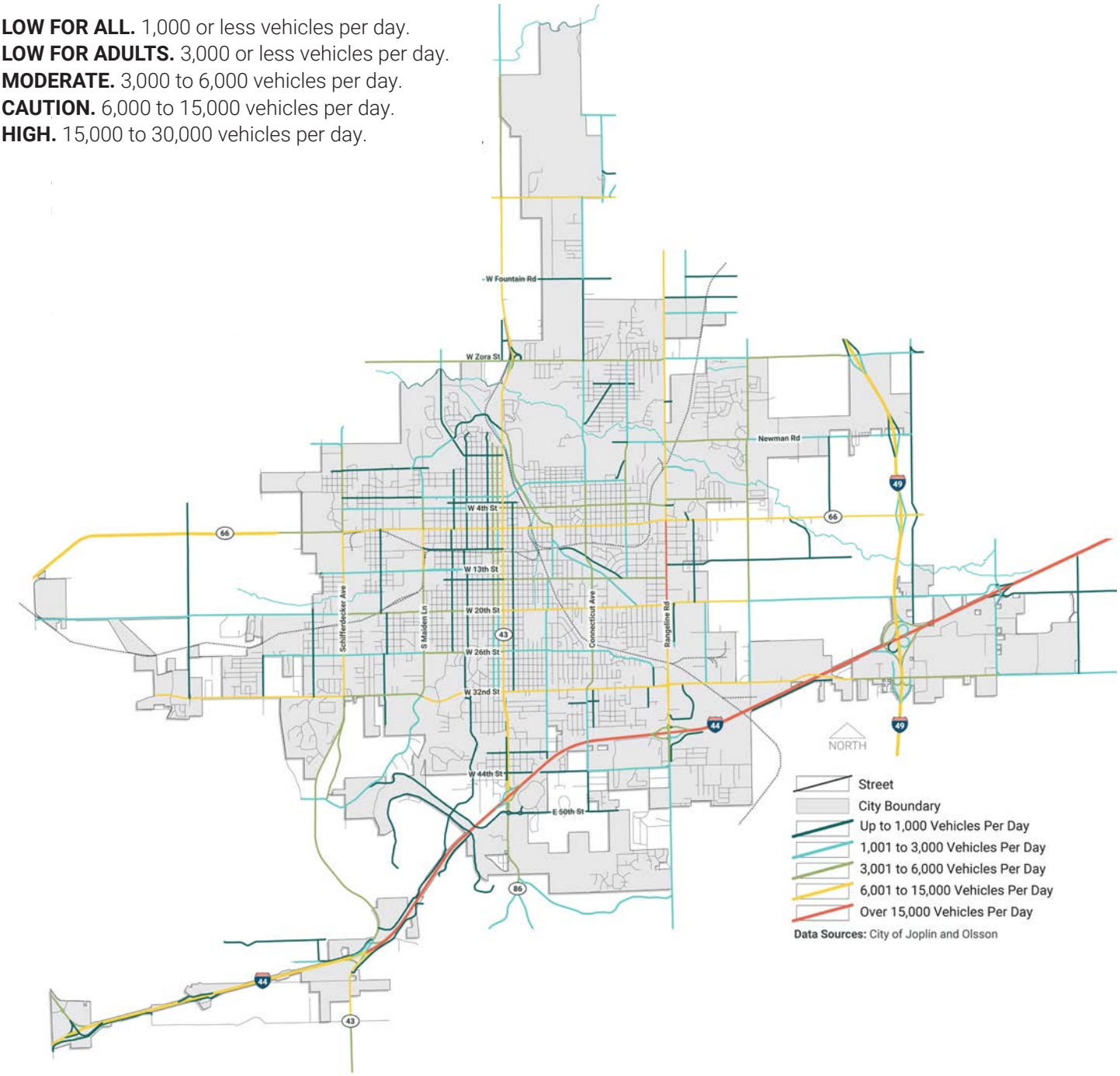



**FIGURE A.10 TRAFFIC VOLUMES**

# ALLEYS

The map in ***Figure A.11*** shows the location of alleyways. Alleys can be valuable transportation corridors, providing connections throughout cities while remaining separated from main thoroughfares. Joplin has several north/south alleyways that run through neighborhoods and downtown. These could be utilized as active transportation facilities.

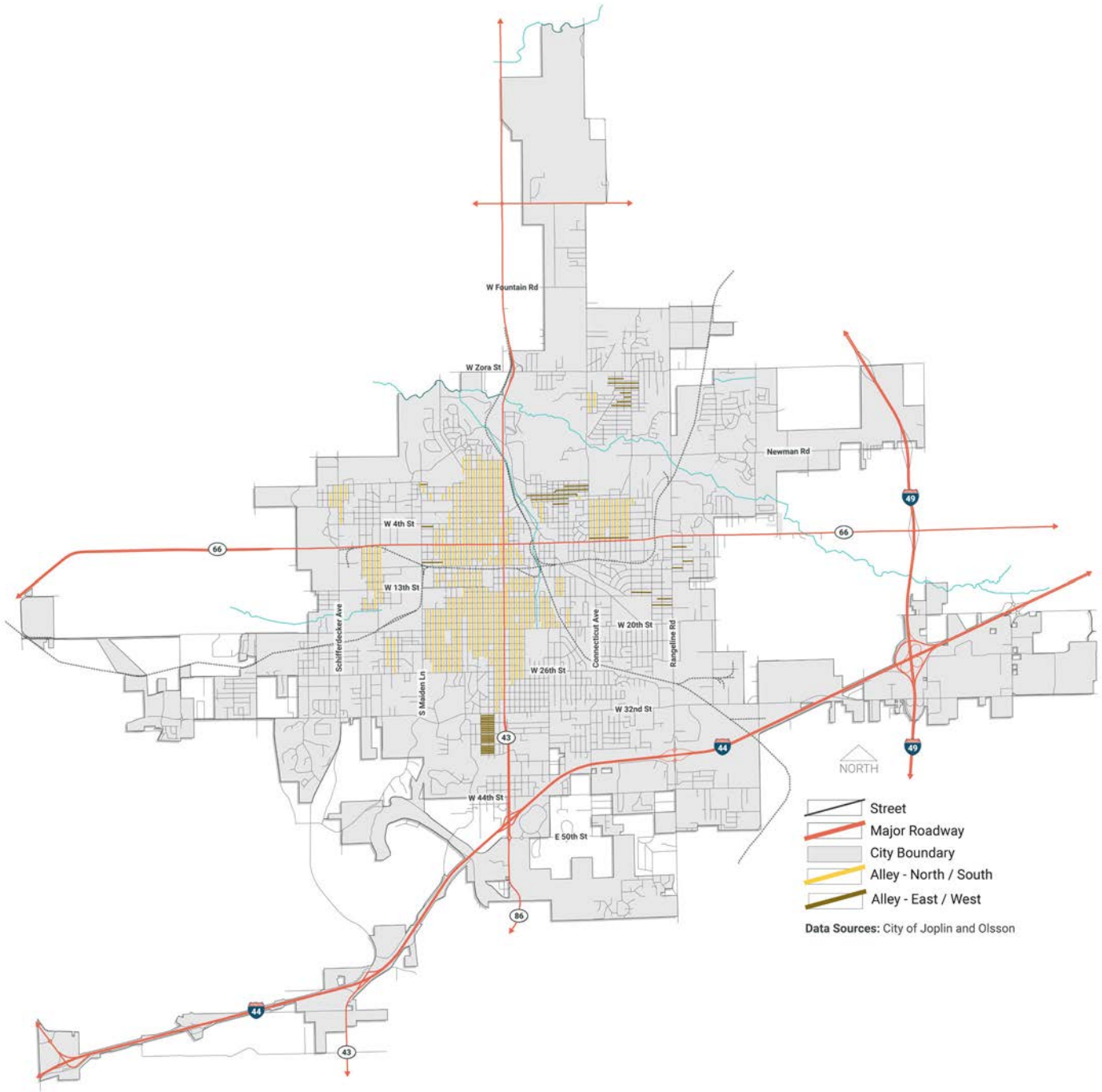
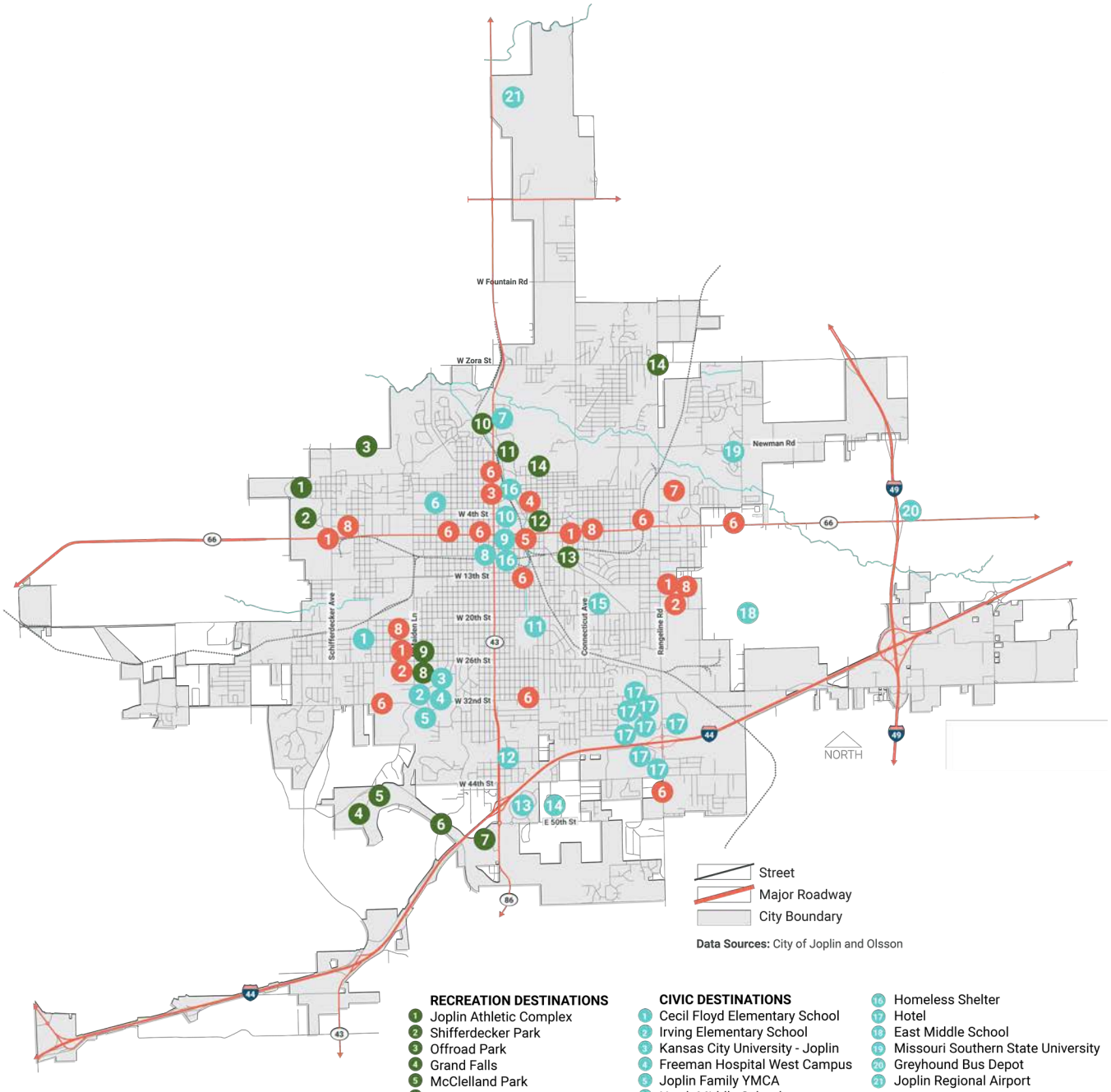



**FIGURE A.11 ALLEYS**

# DESTINATIONS

During the first steering committee meeting, members of the committee indicated destination points on a map using sticky dots. ***Figure A.12*** shows the destinations indicated by the committee by category. The goal of a robust transportation network is to provide safe and efficient connections to these destinations.




**RECREATION DESTINATIONS**
1. Joplin Athletic Complex
2. Shifferdecker Park
3. Offroad Park
4. Grand Falls
5. McClelland Park
6. McIndoe Park
7. Wildcat Glades Conservation & Audubon Center
8. Mercy Park
9. Cunningham Park
10. Dover Hill
11. Landreth Park
12. Ewert Park
13. Murphy Boulevard Park
14. Frisco Greenway Trailhead

**CIVIC DESTINATIONS**
1. Cecil Floyd Elementary School
2. Irving Elementary School
3. Kansas City University - Joplin
4. Freeman Hospital West Campus
5. Joplin Family YMCA
6. North Middle School
7. Ozark Christian College
8. Joplin Memorial Hall
9. Joplin City Hall
10. Joplin Municipal Court
11. Joplin High School
12. Stapleton Elementary School
13. Mercy Hospital Joplin
14. South Middle School
15. Joplin Public Library
16. Homeless Shelter
17. Hotel
18. East Middle School
19. Missouri Southern State University
20. Greyhound Bus Depot
21. Joplin Regional Airport

**COMMERCIAL DESTINATIONS**
1. Walmart
2. Aldi
3. Downtown Joplin
4. Joplin Empire Market
5. Salvation Army
6. Dollar General / Dollar Tree
7. Northpark Mall
8. Walmart

**FIGURE A.12 DESTINATIONS**

# EXISTING BIKE AND PEDESTRIAN SAFETY EDUCATION PROGRAMS

In addition to providing appropriate infrastructure to facilitate biking and walking, education and enforcement actions can play a significant role in the safety of bicyclists and pedestrians. As part of the planning process, Joplin city staff members were invited to complete a survey of existing practices based on the Walk Friendly Community and Bike Friendly Community assessment surveys. Each of the surveys is based on best practices across the United States. The following is a summary of the programs or activities that are practiced in Joplin.

## EDUCATION AND ENCOURAGEMENT

***Has your community implemented Safe Routes to School (STRS) programs in any of the local schools within the last 18 months? Does it include both bike and pedestrian education?*** NO

***Are there bicycling education courses available for residents in the community?*** NO

***Does your community educate motorists, pedestrians, and bicyclists on their rights and responsibilities as road users (e.g., as part of driver's education curriculum, test manual, or bus driver training)?*** NO

***Does your community have an up-to-date bike map?*** YES

***Does the community celebrate bicycling during national Bike Month with community rides, Bike to Work Day, or media outreach?*** NO

***Is there an active bike or pedestrian advocacy group in the community?*** YES (including Chamber's Trails and Connectivity Workgroup, Bike Joplin, and Joplin Trails Coalition; there is no city-sponsored bike/pedestrian advisory committee)

***Has your community implemented any education and training programs related to pedestrian education, safety, or design for city staff members?*** NO, but education and training was included in the consultant's scope of work for the city's Active Transportation Plan (this Plan)

***Does your community promote the health and environmental benefits of walking?*** YES, through the hospitals and the Health Department

***Does your community offer walking route maps, guides, or tours for residents and visitors?*** YES

***Does your community host any events that promote walking (such as car-free streets)?*** YES

## EVALUATION AND PLANNING

***Is there a Bicycle Advisory Committee or Pedestrian Advisory Committee that meets regularly?*** NO

***Is there a specific plan or program to reduce cyclist/motor vehicle crashes?*** NO

***Does your community have an ongoing pedestrian/bike counting and/or survey program that allows for long-term benchmark analysis of walking and bicycling mode share?*** NO

***Does your community collect data related to pedestrian/bike-vehicle crashes, traffic volumes, and motor vehicle speeds on existing or future corridor improvement projects?*** YES (to an extent, data is collected for new projects)

***Does your community have a pedestrian master plan or pedestrian safety action plan?*** YES (JATSO 2018 Bicycle and Pedestrian Plan)

***Does your community have a bike master plan?*** YES (JATSO 2018 Bicycle and Pedestrian Plan)

***Has your community adopted an ADA Transition Plan for the public right-of-way?*** YES (in process of being updated and adopted)

***Does your community have a policy requiring sidewalks on both sides of arterial streets?*** YES (required on both sides of new arterial/collector streets)

***Has your community established a connectivity policy, pedestrian-friendly block length standards, and connectivity standards for new developments, or convenient pedestrian access requirements?*** NO

***Does your community have a trails plan?*** YES (included in the parks and stormwater sales tax)

***Do you have a Pedestrian Coordinator or staff person responsible for pedestrian-related issues?*** NO

***Does your community have a bike program manager?*** NO

***Is your community served by public transportation?*** YES



# APPENDIX B

# BIKE AND PEDESTRIAN DEMAND AND BENEFITS

The increased walking and bicycling opportunities proposed in this Plan will result in quantifiable benefits, as described in ***Appendix B - Bike and Pedestrian Demand and Benefits Analysis***. As more people walk and bike more often, Joplin will enjoy economic, health, and environmental benefits, such as those that have been carefully documented in many cities and regions known for their high quality of life.

## BENEFITS OF WALKING AND BIKING

Monetizing the benefits of walking and biking projects demonstrates the financial return on investment realized by active transportation projects. Studies show that investing in active transportation projects attracts economic development, employee recruitment and retention, and overall increased quality of life. Currently, Joplin has limited data and will need to collect data as active transportation projects are implemented. The data from the implemented active transportation projects can then be input into various economic development/health benefit models to monetize the positive impacts active transportation will bring to Joplin. The following items all contribute to benefits derived from active transportation projects:

- Reduction in Vehicle Miles Traveled (VMT)
- Reduced Hydrocarbons (pounds/year)
- Reduced Particulate Matter (pounds/year)
- Reduced Nitrous Oxide (pounds/year)
- Reduced Carbon Monoxide (pounds/year)
- Reduced Carbon Dioxide (pounds/year)
- Reduced Vehicle Emissions
- Reduced Traffic Congestion
- Reduced Vehicle Crashes
- Reduced Maintenance Costs
- Household Transportation Savings
- Reduced Health Care Costs

The positive impact of active transportation facilities on each of the previously mentioned items is significant when summed. As an example, in Northwest Arkansas, the economic benefit of the implemented active transportation projects for the region is $137 million per year. Of this total, $87 million was attributed to reduced health care costs due to increased physical activity.

## JOPLIN'S ESTIMATED MODE SHARE

Currently, commuting in Joplin relies heavily on the automobile, as in most cities across the United States. The approximate mode share breakdown is (pre-Covid):

- **AUTOMOBILE:** 93.8 percent
- **WORK FROM HOME:** 3.4 percent
- **WALK:** 1.4 percent
- **BICYCLE:** 0.5 percent
- **TRANSIT, TAXI, AND MOTORCYCLE:** 0.9 percent

By creating active transportation facilities in Joplin, economic benefits associated with active transportation facilities will increase and improve Joplin's walking and bicycling rates. ***Table B.1*** below shows such rates from comparable cities/regions.

Research by the National Household Travel Survey (NHTS) identifies that the national average for daily trips for walking and bicycling to be:

- **WALKING:** 11 percent of daily trips
- **BICYCLING:** 1 percent of daily trips (central portion of United States is only 0.8 percent of daily trips)

Research by FHWA, Rails-to-Trails, and the NHTS shows that 50 percent of all car trips in the United States are within a 20-minute bike ride and 25 percent of all car trips are within a 20-minute walk. These studies also show that the average trip length for walking is 0.7 miles, with an average travel time of 14.9 minutes. Likewise, the average trip length for bicycling is 2.3 miles and the average travel time is 19.4 minutes. In order to convert these trips to bicycling and walking, safe and efficient active transportation facilities need to be made available.

### TABLE B.1

| CITY | BIKE MODE SHARE | WALK MODE SHARE | COMBINED |
|---|---|---|---|
| **JOPLIN, MO** | 0.5% | 1.4% | 1.9% |
| **NORTHWEST ARKANSAS** | 0.25% | 3.75% | 4% |
| **LITTLE ROCK, AR** | 0.09% | 1.24% | 1.33% |
| **COLOMBIA, MO** | 0.88% | 4.81% | 5.69% |

## SAFETY NEEDS ANALYSIS

People walking and biking account for a growing share of total United States traffic fatalities while fatalities for people inside a vehicle has been decreasing. Crashes between a driver and a pedestrian or bicyclist typically occur due to a complex set of factors. Roadway design, vehicle design, environmental conditions, and other factors may all contribute to a life-threatening event. The most effective approach to preventing crashes is to eliminate or minimize exposure to crash risk and develop accessible spaces to walk and bike through roadway design and engineering.

In the meantime, there are actions road users can take to help people move around safely. While pedestrians and bicyclists should practice safe behaviors while walking and biking, it is important to note that a driver's behavior has more of an impact on people who walk and bike. In a crash, pedestrians and bicyclists are at a higher risk of serious injuries and deaths than vehicle occupants.

Safe infrastructure for walking and biking has not been prioritized within transportation design, which has historically focused on accommodating motor vehicle-based travel. This has led to barriers and challenges that prevent people from walking and biking safely. This can be seen quite literally, for instance, in areas with few or no sidewalks, or disconnected sidewalks. Other challenges may be harder to visually see, such as in the case of when poor design and planning encourages unsafe behaviors. Speeding, for example, is an unsafe behavior that is enabled when road design supports high motor vehicle speed and strategies to decrease speed are not employed.

## BIKING AND PUBLIC HEALTH

The health benefits of regular physical activity include reduced risk of chronic diseases, lower health care costs, and improved quality of life for people of all ages. The Centers for Disease Control and Prevention (CDC) recommends that adults ages 18 and up get 150 minutes of moderate activity or 75 minutes of vigorous activity per week to reduce the risk of chronic health conditions such as heart disease, Type-II diabetes, and some cancers. Currently, less than 10 percent of Americans reach the recommended amount. Health benefits of bicycling also come from improved social capital and reduced car use, including improved air quality, reduced noise pollution, and reduced greenhouse gas emissions. As the focus shifts from the treatment to the prevention of disease, public health professionals are partnering with urban planners and engineers to create bike-friendly communities that promote greater amounts of bicycling for leisure and for transportation.

Bike commuting provides an opportunity for people to incorporate physical activity into daily life. Since cycling is accessible, affordable, and achievable by people of all ages, the challenge is to find ways to increase cycling in the population. Bicycle commuting has been shown to be an activity that meets recommended intensity levels and to be related to lower rates of obesity. Since nearly half of all daily trips made in the United States are three miles or less in length, the potential to switch trips from driving to bicycling is significant.

## TRAFFIC AND BIKING

A bike can be ridden on almost any kind of roadway, yet certain traffic conditions create a sense of discomfort, even for a skilled bicyclist. High traffic volumes are one of those conditions and can affect a bicyclist's perception of safety and comfort, especially when bicyclists are required to share space with automobiles.

Motor vehicle traffic speed is equally critical to the safety and comfort of bicyclists. Not only are higher speed roadways less comfortable for bicyclists, but when a crash does occur, these higher speeds significantly increase the chance of serious injury and death. Additionally, at higher speeds, motorists are less likely to stop in time to avoid a crash due to driver response times and braking distance. A simple way to address this issue is to reduce the roadway's posted speed limit. A motor vehicle stopping distance could be reduced from approximately 250 feet to 150 feet, given a speed reduction from 35 miles per hour to 25 miles per hour, respectively.

Many streets are designed to accommodate higher motor vehicle traffic volumes and speeds to better handle peak hour congestion. Most bicyclists will try to avoid these streets, if possible, but issues arise where bicycling corridors overlap high-volume and high-speed roadways. As motor vehicle traffic volume and speed increase, providing space for bicyclists through bike lanes or separate facilities like cycle tracks becomes more important. Sometimes a separate bike path may be necessary to provide a more comfortable option for less experienced bicyclists.

New streets can also be configured for lower design speeds with little impact on their capacity. Speed reductions can increase bicycling safety and comfort considerably. On

slow speed city streets and lightly traveled roadways, bicyclists feel safer riding in the traffic lanes. However, on heavily traveled streets, bicyclists have less safety because motorists need room to overtake a bicyclist. Safe bicycling space can be provided with bike lanes, paved shoulders (at least six feet wide), or wide curb lanes, and these facilities can often be created by narrowing traffic lanes through restriping (e.g., reducing traffic lanes from 12 feet to 10 or 11 feet), as appropriate.

## LAND USE AND BIKING

The nature of the built environment is important not only for walking but also for bicycling. Features that encourage walking and bicycling include:

- Having destinations close to each other
- Choosing sites for schools, parks, and public spaces appropriately
- Allowing mixed use developments
- Having sufficient densities to support transit
- Creating commercial districts that people can access by bike (or foot and wheelchair)
- Providing adequate, visible, and secure parking

According to a national survey, the average bicycling trip is 3.9 miles and about 58 percent of bicycling trips are less than two miles. When residents are separated from sites such as parks, offices, and stores, there will be fewer biking trips because destinations are not close enough for bicycling. While numerous studies have shown that bicycling levels are higher in dense, mixed use areas where households are close to destinations like offices and stores, single-use, low-density residential land use patterns can discourage biking and walking, especially if the connecting roads to other destinations have high speeds and traffic volumes and inadequate bike and walking facilities. Bicyclists in suburban areas are more likely to feel their personal safety is compromised compared to those in urban or rural areas.

More communities are considering the connection between land use planning and transportation planning. Integrating land use and transportation planning allows new developments to implement these strategies from the onset.

In established communities, many of these goals can be met with infill development that increases density and improves community viability. In addition, providing appropriate biking and walking facilities between desirable destinations will result in more bike and pedestrian trips. The facility may be as simple as a normal-width shared lane on a street or new sidewalks, on low traffic volumes and slow motor vehicle speeds. More cities in the United States are designating low-volume neighborhood streets with traffic calming measures that encourage low stress biking and walking. These routes give priority to bikes and pedestrians over motor vehicles and are especially attractive to less experienced bicyclists and walkers.

## TRANSIT AND BIKING

Biking and transit are complementary. Connections to transit stops are important for the usefulness of a transit network, so users must be able to access transit stops not just on foot or by car, but also by bike. Transportation officials and advocates are paying increasing attention to the "last mile" by conducting audits and improving routes that lead to transit stations, so they are safer and more appealing for bicyclists and pedestrians. Transit facilities that support bike and pedestrian access are important in creating a comprehensive transportation network.

Many public transportation agencies are providing bike racks on buses, enabling what might be a long biking trip to be shortened by using transit for part of the journey. In 2001, only 32 percent of buses in the United States had exterior racks for bikes, but that figure rose to 72 percent by 2010. Bike parking is another key aspect for integrating bicycling with public transit. Bicyclists have a strong preference for secure, sheltered parking that deters theft and protects bikes from inclement weather.

Friendly and comfortable transit stops are also a plus. Some consideration needs to be given to the on-street riding conditions around transit stops frequented by bicyclists making use of bus racks and bike parking. Feeling unsafe on the bike for even a short distance will discourage use of a combined bike-transit trip. For some municipalities, the presence of transit stations or stops is considered in demand models and/or project prioritization criteria. For example, Chicago's Bicycle 2015 Plan considers transit stations as priority destinations for establishing bikeways and the plan includes a transit chapter with multiple performance measures related to increasing bike-transit trips. In Boulder, Colorado, the Bicycle System Plan requires that all transit centers and park and rides be serviced by primary and secondary bike corridors.

# APPENDIX C

# PUBLIC ENGAGMENT SUMMARY

In the end, a good plan is developed with the community, and not just for it. This Plan was developed with the community and stakeholders. Through a series of online and in-person workshops, surveys, meetings, open houses, and interviews, the planning team was able to collaborate with the community on the thoughts, ideas, and comments that became the recommendations put forth in this Plan; the Plan is better for it. ***Appendix C - Public Engagement Summary*** summarizes both that process and its outcomes.

Each engagement opportunity allowed participants to share their ideas for the future of Joplin's active transportation system After each engagement opportunity, the planning team analyzed the comments and graphics and documented the formal and informal conversations that took place. This information then shaped and reshaped the Plan's priorities and recommendations.

## GETTING THE WORD OUT



### SOCIAL MEDIA

Social media outlets helped spread the word on project status and events. The planning team designed graphics to match project branding and wrote captions for the posts, which were then posted by the City of Joplin on their city social media accounts. Community businesses and residents were able to share the posts on their personal accounts to generate awareness of the project and ways to get involved.



### FLYERS

In order to capture a broad range of community members, flyers were posted at various places around the city to spread awareness about the project and ways to get involved. Distribution sites included the Frisco Trailhead, Walmart stores, Joplin Public Library, the YMCA, Minnie Hackney Community Center, Schifferdecker Aquatic Center, and Joplin Public Schools summer meal distribution.



### TABLING

City staff members took an active role in engagement by tabling at community events. This gave members of the public an opportunity to have conversations with city staff members, ask questions, and generate excitement for the project. City staff members were present at Empire Market on Saturday mornings, the Downtown Joplin Alliance Third Thursdays from April through September, and the monthly Food Not Bombs lunch at Ewert Park from April through September.



### MEDIA RELEASES

Multiple media releases were sent out by the city throughout the project timeline. Information was sent on current project status and any action that was currently available for public involvement, such as the public survey or open houses.



### EMAIL BLASTS

A project email list was generated to quickly spread project information throughout the planning process. Periodic emails were sent sharing news such as current project status and engagement events. Emails were also sent to distribution lists for other organizations, such as the Dogwood Trailblazers Walking Group.

## BICYCLE TOURS

Successful integration of bike infrastructure over the past few decades has made Northwest Arkansas into a hub for cyclists. At the beginning of the planning process, the project team hosted two bike tours for Joplin city staff members to experience various types of active transportation infrastructure first-hand. The bike tours took place on March 3 and March 10, 2021. There were six attendees at each tour.





## ACTIVE TRANSPORTATION WORKSHOPS

The planning team hosted a total of four educational workshops on active transportation during the beginning of the planning process. These workshops were to ensure that everyone involved in the project had a chance to learn about bike and pedestrian infrastructure before diving into specific existing conditions and recommendations for Joplin. Two workshops took place on April 22 and 28, 2021 and two webinars took place online on May 4 and May 18, 2021.

## PUBLIC SURVEY

The public was asked to respond to a survey about active transportation in Joplin as one of the first steps to set priorities for the future of bike and pedestrian transportation within the city. The public survey was open online from June 2 to July 30, 2021. Paper copies of the survey were also available and distributed at Third Thursdays and Empire Market. Between that timeframe, 150 responses were collected in both the online and paper formats.

In order to capture people in Joplin who use public transportation, a paper copy of the public survey was distributed to Sunshine Lamp Trolley riders. Staff members rode all three trolley routes during peak times for a week in July to distribute surveys. A total of 15 completed surveys were collected from trolley riders.

Surveys were also distributed to the residents at the Joplin Senior Center. A total of three completed surveys were collected.

The graphics on the next page show results from surveyed residents.

## PUBLIC OPEN HOUSE #1

The first public open house was hosted online from August 6 to August 23, 2021 through a dedicated project website (www.JoplinConnected.com). The webpage gave an overview of the project, presented the existing conditions analysis to date, shared the results of the public survey, and asked for feedback on the materials presented.

Comments received are recorded in ***Table C.1 Public Open House #1.***

## MOBILITY IMPARIED FOCUS GROUP

A mobility impaired focus group was held on August 5, 2021 to talk about daily challenges faced while getting around Joplin. During the meeting, a paper survey was passed around for participants to complete and talk through as a group. A full record of survey responses is recorded in ***Table C.2 Mobility Impaired Focus Group.***

## PUBLIC OPEN HOUSE #2

The second public open house was held on October 21, 2021 at the Joplin Senior Center (2616 South Picher Avenue, Joplin, Missouri 64804). The event included a brief presentation of project progress to date and gave the public the opportunity to ask questions and give feedback on developed draft concepts. A total of 36 attendees came to the event to share their thoughts and feedback, which have been recorded in ***Table C.3 Public Open House #2.***

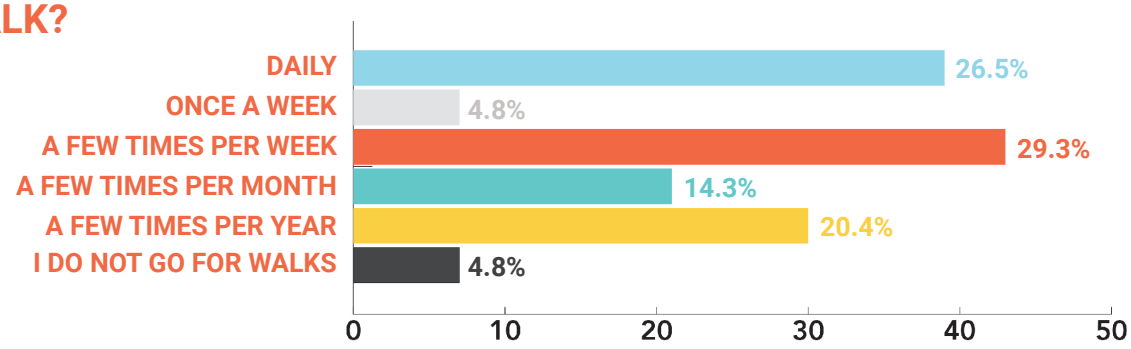
## WHAT WOULD YOU CONSIDER YOUR PRIMARY MODE OF TRANSPORTATION?

**89.3%**
ONLINE SURVEY
PERSONAL VEHICLE

**58.0%**
TROLLEY RIDERS
PUBLIC TRANSIT

**100.0%**
SENIOR CENTER
PERSONAL VEHICLE

## HOW OFTEN DO YOU GO FOR A WALK?




## THE TOP THREE REASONS PEOPLE WALK ARE:

1. RECREATION OR FUN
2. EXERCISE
3. TRANSPORTATION

## THE TOP THREE REASONS PEOPLE RIDE A BIKE ARE:

1. RECREATION OR FUN
2. EXERCISE
3. TRANSPORTATION

## THE TOP THREE OBSTACLES TO WALKING ON A MORE REGULAR BASIS ARE:

1. DESTINATIONS ARE TOO FAR
2. NOT FEELING SAFE
3. NOT ENOUGH TIME

## THE TOP THREE OBSTACLES TO RIDING A BIKE ON A MORE REGULAR BASIS ARE:

1. NOT FEELING SAFE
2. DESTINATIONS ARE TOO FAR
3. DIFFICULT TO CARRY BELONGINGS

## DO YOU OWN A PERSONAL BIKE?

**66.4%**
"YES"
ONLINE SURVEY

**26.7%**
"YES"
TROLLEY RIDERS

**0%**
NO SENIOR CENTER RESPONDANTS OWNED A BIKE

# TABLE C.1 PUBLIC OPEN HOUSE #1 RESPONSES

**What did we miss in existing conditions?**

- Some bike trails present challenges for users. For example, for the Turkey Creek Trail east of St. Louis, there is no safe entry for north bound riders. For the trail at Main & Murphy Blvd, the entry just east of the creek is a little better but still pretty bumpy for a road bike. For the Landreth Park trail just west of main, the hairpin turn at the crosswalk signal is dangerous for cyclists. Also, where the city's Turkey Creek Trail meets Joplin Trails Coalition's Frisco Greenway Trail, it might be a good idea to have a sign with the name of each trail.

- The focus on biking infrastructure and mixed use trails/paths is to be lauded. However, sidewalks and other measures to improve walkability seem to be missing from the plan. For example, the area on St. Louis between Campbell Pkwy and 7th (one could actually extend this to Broadway) needs sidewalks. It also needs bike lanes, but wasn't included in the existing conditions section - presumably because it does not already have bike lanes. I am certain there are other areas that need basic pedestrian infrastructure. It just seems the focus was on biking with scant attention given to walkability.

- Most of the existing unprotected bike lanes are labeled as 5 feet, but NTSB standards state that the gutter is not considered part of the bike lane, therefore, they are all 3 feet lanes.

- The information for Main St. between 15th and 32nd states the speed limit is 40mph. That cannot be correct.

**What did we miss overall?**

- Excellent job everyone!

- I don't know if this is within the scope of this project, but planning and zoning are a big part of a walkable, bikeable, and transit-oriented community. Zoning code could be updated to allow limited commercial development within residential neighborhoods, minimize or end parking minimums, and allow more multifamily housing options connected to commercial developments. We need to make Rangeline safer, for sure, but a big part of that is making it possible for people to meet their daily needs in their neighborhoods without having to walk to Rangeline, or other auto-oriented commercial strips. The city needs to ask how planning and transportation work together, and what planning decisions could complement the development of the transportation network.

- I do no like or support the bike lanes or shared use lanes. We need to separate the bikes from the vehicle traffic. bikes should not be allowed on city streets with mixed traffic.

- I appreciate the focus on infrastructure - it is certainly a crucial component. However, to truly build a walkable city, zoning reform has to be a part of the conversation. Euclidian zoning has to give way to form-based zoning, so that mixed use neighborhoods can be built. As a first step, let's do away with parking minimums so we can build gentle density - which is good for both public transportation and active transportation. I'd like to know what specific actions are being proposed. The review of the existing conditions and public responses are nice, but what do we propose to do about it? What are the next steps.

# TABLE C.2 MOBILITY IMPAIRED FOCUS GROUP

**What is your mobility impairment?**

- Eyesight
- Walking; Balance

**What mobility device do you use most often when you participate in community activities?**

- Scooter; Walker
- Do not use any type of mobility device
- Do not use any type of mobility device
- Do not use any type of mobility device

**In Joplin, do any of the following influence your participation in activities? If so, which ones and why/how?**

- Gravel surfaces; Paved surfaces; Weather conditions; Noise; Crowds; My mother uses cane/walker and doesn't stop at a place with gravel or uneven surfaces. I am her main surfaces. I personally struggle with crowds.
- Ramps; Gravel surfaces; Noise
- Automatic doors; Elevators

**Community accessibility - are the following destinations accessible? If not, how could they be improved?**

- Grocery store, Place of worship, Trails
- Grocery store, Doctors office

**Do you sometimes need to ask for help from strangers due to accessibility issues?**

- Yes
- No
- No
- No

**Is public transit accessible?**

- Yes
- Yes
- Yes
- Yes, but at set times.

**Are sidewalks and trails accessible?**

- Those not deep in the woods.
- Not always
- Yes
- Yes

**How would you describe a safe environment for your mobility impairment?**

- Wide openings, clear paths, no carpet.
- Not needed

**What is the most unsafe environment in Joplin for your mobility impairment?**

- Gravel.
- Crossing busy streets on foot for disabled.
- Construction zones.

# TABLE C.3 PUBLIC OPEN HOUSE #2 RESPONSES

- Consider Indiana from 32nd to 20th
- Is it possible to have an underpass at 7th and Illinois?
- Agree with road diet for 26th – do the road diet from Main to McClelland
- Like the protected bike lanes! Prefer a physical barrier too.
- What about a 2-lane cycle track on Maiden?
- Yay, protected bike lanes are being recommended!
- Love the protected bike lanes!
- Two-way cycle track on Broadway is awesome!
- (Smiley Face was drawn on the Junge Blvd protected bike lanes.)
- Implementing these recommendations would be fantastic!

# APPENDIX D

# WALK FRIENDLY AND BIKE FRIENDLY COMMUNITY

At the beginning of the planning process, city staff members were invited to complete an audit that asked specific questions about programs and infrastructure currently in place for pedestrians and bicyclists. The purpose of the audit was to understand what efforts had been made for active transportation in the city and to locate gaps in the system. ***Appendix D - Walk and Bike Friendly Community Audit*** contains scans of the completed audits.

**Name:** Dakota Rusk **Representing: Engineering (Traffic Engineer)**

*Thank you for completing this survey to help us understand bicycle and pedestrian planning in your community to inform the development of the Active Transportation Assessment Plan. The survey is based on the Bike Friendly Community and Walk Friendly Community application process.* ***Please answer yes or no to the following questions in this editable PDF file.*** *Where the answer is yes, please provide additional detail. We anticipate that many of the questions will be relatively quick to answer without additional research. You may need to contact staff in other departments to answer some of the questions (e.g., department of public works for engineering question, local police or sheriff for enforcement question, planning or community development department for planning questions).*

**Bike and Walk Friendly Community Scorecard**

| I. Engineering | Yes | No | Description |
|---|---|---|---|
| 1.1 Does your community have a complete streets policy or other policy that requires the accommodation of pedestrians and cyclists in all new road construction and reconstruction projects? | ☐ | ☒ | Joplin currently does not however is in the process of adopting a complete streets policy. It should be implemented by the end of 2021. |
| 1.2 Does your community have guidelines for pedestrian and bicycle facility design or provide regular training to engineers and planners regarding pedestrian and bicycle facility design? | ☐ | ☒ | We do not have specific guidelines outside of using other national recognized guidelines. I have been to a couple conferences but have not received specific training. |
| 1.3 Does your community have a comprehensive, connected and well-maintained bicycling network? | ☐ | ☒ | There is a bicycled network, but it is not connected well and has large gaps. |
| 1.4 Do you have a connected network of sidewalks, trails, and/or paths in the city? | ☒ | ☐ | There is a network of trails that is growing, and many sections are connected. That being said, it still needs a lot of work. |
| 1.5 Does your community have a sidewalk condition and curb ramp inventory process? | ☒ | ☐ | The city just recently hired a consultant to do an inventory and condition analysis of the entire city sidewalk and ramp system. It will be present to council in June. |
| 1.6 Is bike parking readily available throughout the community? | ☐ | ☒ | There are very few bike racks/stalls. |

get this!

do a Tool Box

Olsson



D2

| | | | |
|---|---|---|---|
| 1.7 Are all bridges accessible to pedestrians and bicyclists? | ☐ | ☒ | Some of the newer bridges have bike lanes but most older bridges have little or no bike accessibility. sidewalks? |
| 1.8 Are crosswalks provided at all street intersections and at areas with high demand for pedestrian traffic? | ☐ | ☒ | Most of the signalized intersections and many other intersections with higher ped. traffic have crosswalks, however there are many that do not. hit or miss |
| 1.9 Are accommodations for persons with disabilities, such as curb ramps or audible signals, provided in your community? | ☐ | ☒ | Ramps are installed on all new projects however there a lot of areas that are lacking and some signals do not have ADA accessible buttons at this time. any audible signals |
| 1.10 Does the City employ traffic calming measures to slow motor vehicle traffic on city streets (such as road diets, ≤20 mph speed limits, speed tables, etc.)? | ☒ | ☐ | The city does have a traffic calming policy in place. It contains multiple methods for addressing speeding issues. Get a copy of this |
| **2. Education & Encouragement** | **Yes** | **No** | **Description** |
| 2.1 Has your community implemented Safe Routes to School (STRS) programs in any of the local schools within the last 18 months? Does it include both bicycle and pedestrian education? | ☐ | ☒ | As far as I know, we have not done this. |
| 2.2 Are there bicycling education courses available for residents in the community? | ☐ | ☒ | Again, not 100% sure on this. |
| 2.3 Does your community educate motorists, pedestrians and cyclists on their rights and responsibilities as road users (e.g., as part of drivers education curriculum, test manual or bus driver training)? | ☐ | ☐ | I do not know on this as I did not grow up in Joplin |
| 2.4 Does your community have an up-to-date bicycle map? | ☒ | ☐ | Yes, as part of the active transportation program, an up to date map was developed. Get a copy |
| 2.5 Does the community celebrate bicycling during national Bike month with community rides, Bike to Work Day or media outreach? | ☐ | ☒ | As far as I know, we do not. I am not involved in the cycling community though so I might just be unaware. |
| 2.6 Is there an active bicycle or pedestrian advocacy group in the | ☒ | ☐ | There are a couple groups in the community that represent trails, |

Many

but no Joplin BPAC

| | | | |
|---|---|---|---|
| community? | | | biking, and walking. |
| 2.7 Has your community implemented any education and training programs related to pedestrian education, safety, or design for city staff? | ☐ | ☒ | Speaking as someone from engineering, there has not been a lot of training. I have been to some conferences but would not say that I have been fully trained. |
| 2.8 Does your community promote the health and environmental benefits of walking? | ☒ | ☐ | The local hospitals and the health department do promote this. |
| 2.9 Does your community offer walking route maps, guides, or tours for residents and visitors? | ☐ | ☒ | Maps could probably be obtained from either the CVB or the city website, but I do not know if they are up to date. I do not know of any guides or tours. |
| 2.10 Does your community host any events that promote walking (such as car-free streets)? | ☐ | ☒ | There are probably a few events such as runs/memorial walks but nothing on a regular basis that I am aware of. |
| **3. Enforcement** | **Yes** | **No** | **Description** |
| 3.1 Does your community have Traffic Safety officers that are trained in traffic law as it applies to pedestrians and bicyclists? | ☐ | ☐ | I am unsure of whether we do not. |
| 3.2 Does your community have law enforcement or other public safety officers on bikes? | ☐ | ☐ | Not sure. |
| 3.3 Do local ordinances treat bicyclists equitably? | ☒ | ☐ | From my perspective, yes, however I do not cycle in town so someone who actually bikes in town may disagree. |
| 3.4 Does your community use targeted enforcement programs to promote pedestrian safety in crosswalks (such as a "crosswalk sting", media campaign regarding pedestrian-related laws, progressive ticketing, etc.)? | ☐ | ☐ | My immediate guess is no but PD may have something in place. |
| 3.5 Does your community have a systematic strategy for selecting locations and countermeasures for traffic and pedestrian safety? | ☒ | ☐ | Typically areas with high crash/accident rates are prioritized. PD and I (traffic engineer) try to communicate some about issues. |



D4

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| 3.6 Do police work regularly with traffic engineers and planners to review sites in need of safety? | ☒ | ☐ | Sergeant Delzell and I communicate on occasion for areas that seem to need review. It is tough though as PD is under staffed and I am the only Traffic Eng. |
| **4. Evaluation & Planning** | **Yes** | **No** | **Description** |
| 4.1 Is there a Bicycle Advisory Committee or Pedestrian Advisory Committee that meets regularly? Need to establish | ☐ | ☒ | There are some local committees that meet but there is not an official city committee. |
| 4.2 Is there a specific plan or program to reduce cyclist/motor vehicle crashes? | ☐ | ☒ | Not that I am aware of. |
| 4.3 Does your community have an ongoing pedestrian/bicycle counting and/or survey program that allows for long-term benchmark analysis of walking and bicycling mode share? Need to implement | ☒ | ☐ | I know that some of the local organizations do sometimes track these numbers, however in engineering, we have not done any counts/surveys recently. |
| 4.4 Does your community collect data related to pedestrian/bicycle-vehicle crashes, traffic volumes and motor vehicle speeds on existing or future corridor improvement projects? | ☒ | ☐ | Yes, to an extent. Vehicle traffic counts and speeds are usually studied before and after a project. Crash data is also looked at, but I do not know how much it is differentiated between vehicle-vehicle and vehicle-ped/bike accidents. |
| 4.5 Does your community have a pedestrian master plan or pedestrian safety action plan? 2018 Plan | ☒ | ☐ | Yes, through the local MTP (JASTSO) we have a bike and ped transportation plan. It was last updated in 2018. |
| 4.6 Does your community have a bicycle master plan? | ☒ | ☐ | Same as above. |
| 4.7 Has your community adopted an ADA Transition Plan for the public right of way? | ☒ | ☐ | We currently have a plan adopted but it needs updated. The city is in the process of updating the existing plan to make it more comprehensive and more up to date. |
| 4.8 Does your community have a policy requiring sidewalks on both sides of arterial streets? | ☒ | ☐ | Yes, Planning and Zoning requires sidewalks on both sides of new Arterial/Collector Streets and on road widening projects, sidewalk or a 10' shared use path is almost always incorporated unless it is not |

Olsson

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| | | | feasible due to ROW issues. |
| 4.9 Has your community established a connectivity policy, pedestrian-friendly block length standards and connectivity standards for new developments, or convenient pedestrian access requirements? | ☐ | ☒ | I think planning and zoning has some elements of this in their code but I do not believe it is comprehensive. |
| 4.10 Does your community have a trails plan? | ☒ | ☐ | Yes, as part of the parks and stormwater sales tax, there is a trails plan to plan out future projects under this sales tax. |
| 4.11 Do you have a Pedestrian Coordinator or staff person responsible for pedestrian-related issues? | ☐ | ☒ | No. |
| 4.12 Does your community have a bicycle program manager? | ☐ | ☒ | Not that I am aware of. |
| 4.13 Is your community served by public transportation? | ☒ | ☐ | Yes, there is a transit system in Joplin that serves popular destinations and you can also request to be picked up from a location off the route I believe. |

verify

get copy of this

| 5. Do you see any of the above items as being particularly important for increasing opportunities for walking and bicycling in your community? |
|---|
| I think more staff training could be helpful but it would also be helpful to have ~~one or two staff~~ dedicated particularly to trails, bike/ped, etc. Also, I think there needs to be a bigger push from the community to see projects like these. Most projects are funded by sales taxes and these projects are usually decided on by recommendation of the city and a consultant, then narrowed down by a citizen committee and then voted on every ten years whether to extend the sales tax. I think the main funding for these types of projects will be funded through the parks and Stormwater Sales Tax and the Capital Improvement Sales Tax. I do believe that there has been an increase in the want for this type of infrastructure which should help get it into those programs. |



D6

| 6. Has your community experienced economic benefits as a result of bicycle and pedestrian improvements (e.g., construction of new buildings or occupancy of vacant buildings near or adjacent to a multi-use trail)? Please provide details such as the name, location, size and/or estimated value of any developments, newly occupied spaces, etc. |
|---|
| I think the main area that I could see that has grown would be downtown and especially Main Street. With the streetscape projects that revitalized the sidewalks, I believe that more businesses started to locate along Main Street. I am not sure the estimated value of the development. I am sure there are other but I have only lived in Joplin for a couple years so I do not have the historical knowledge to know when most things developed. |
| 7. The walking and bicycling network will focus on connecting various destinations within the city and region. Please list local/regional destinations in your community (e.g., town center, large parks or recreational areas, employment zones, etc.). |
| Downtown Joplin, Mercy and Freeman Hospitals, the three large industrial areas around town (Enterprise Avenue, Davis Blvd. and Prigmore Avenue), city parks (especially Cunningham Park, the athletic complex, Schifferdecker pool/park, McClelland Park, Landreth Park, and Ewert Park), the Joplin Schools, MSSU, the courthouse, the future arts center, Alorica and Teleperfomance (call centers with lots of LMI employees), Walmart or other grocery stores. I am sure there are many more but this is what came to mind. |

**Name:** Carla Bond **Representing:** Parks & Recreation

*Thank you for completing this survey to help us understand bicycle and pedestrian planning in your community to inform the development of the Active Transportation Assessment Plan. The survey is based on the Bike Friendly Community and Walk Friendly Community application process.* ***Please answer yes or no to the following questions in this editable PDF file.*** *Where the answer is yes, please provide additional detail. We anticipate that many of the questions will be relatively quick to answer without additional research. You may need to contact staff in other departments to answer some of the questions (e.g., department of public works for engineering question, local police or sheriff for enforcement question, planning or community development department for planning questions).*

**Bike and Walk Friendly Community Scorecard**

| 1. Engineering | Yes | No | Description |
|---|---|---|---|
| 1.1 Does your community have a complete streets policy or other policy that requires the accommodation of pedestrians and cyclists in all new road construction and reconstruction projects? | ☐ | ☐ | I do not know. |
| 1.2 Does your community have guidelines for pedestrian and bicycle facility design or provide regular training to engineers and planners regarding pedestrian and bicycle facility design? | ☐ | ☐ | I believe we are in the initial stages of training. I am unsure if we have guidelines in place. |
| 1.3 Does your community have a comprehensive, connected and well-maintained bicycling network? | ☐ | ☒ | |
| 1.4 Do you have a connected network of sidewalks, trails, and/or paths in the city? | ☐ | ☒ | |
| 1.5 Does your community have a sidewalk condition and curb ramp inventory process? | ☐ | ☐ | I do not know if the City does this. |
| 1.6 Is bike parking readily available throughout the community? | ☐ | ☒ | |

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| 1.7 Are all bridges accessible to pedestrians and bicyclists? | ☐ | ☒ | The bridge over the railroad at 28th & Range Line and just south of Murphy Blvd & Main Street are prime examples of how we're not accessible. |
| 1.8 Are crosswalks provided at all street intersections and at areas with high demand for pedestrian traffic? | ☐ | ☐ | I believe this is a continuous project, but I don't know if "all" have been addressed. |
| 1.9 Are accommodations for persons with disabilities, such as curb ramps or audible signals, provided in your community? | ☐ | ☐ | I don't think it's city-wide. Unsure though. |
| 1.10 Does the City employ traffic calming measures to slow motor vehicle traffic on city streets (such as road diets, ≤20 mph speed limits, speed tables, etc.)? | ☐ | ☒ | |
| **2. Education & Encouragement** | **Yes** | **No** | **Description** |
| 2.1 Has your community implemented Safe Routes to School (STRS) programs in any of the local schools within the last 18 months? Does it include both bicycle and pedestrian education? | ☐ | ☐ | Unsure. |
| 2.2 Are there bicycling education courses available for residents in the community? | ☐ | ☐ | Parks and Recreation would like to offer programming. It's a matter of finding available instructors, equipment, and curriculum. |
| 2.3 Does your community educate motorists, pedestrians and cyclists on their rights and responsibilities as road users (e.g., as part of drivers education curriculum, test manual or bus driver training)? | ☐ | ☐ | Unsure if this is offered. |
| 2.4 Does your community have an up-to-date bicycle map? | ☐ | ☒ | |
| 2.5 Does the community celebrate bicycling during national Bike month with community rides, Bike to Work Day or media outreach? | ☐ | ☒ | There is a grassroots effort trying to start this. Nothing community-wide though. |
| 2.6 Is there an active bicycle or pedestrian advocacy group in the community? | ☒ | ☐ | |

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|---|---|---|---|
| 2.7 Has your community implemented any education and training programs related to pedestrian education, safety, or design for city staff? | ☐ | ☐ | Unsure. |
| 2.8 Does your community promote the health and environmental benefits of walking? | ☐ | ☐ | Not a community wide endeavor. |
| 2.9 Does your community offer walking route maps, guides, or tours for residents and visitors? | ☐ | ☒ | |
| 2.10 Does your community host any events that promote walking (such as car-free streets)? | ☐ | ☐ | Parks and Recreation started a movement challenge over the holiday season. We want to start more community recreation programs that promote activity (fitness in the park type programs). |
| 3. Enforcement | Yes | No | Description |
| 3.1 Does your community have Traffic Safety officers that are trained in traffic law as it applies to pedestrians and bicyclists? | ☐ | ☐ | Unsure. |
| 3.2 Does your community have law enforcement or other public safety officers on bikes? | ☐ | ☐ | I do not believe we have dedicated officers. |
| 3.3 Do local ordinances treat bicyclists equitably? | ☐ | ☐ | I'm unsure if we have ordinances that even mention bicyclists. |
| 3.4 Does your community use targeted enforcement programs to promote pedestrian safety in crosswalks (such as a "crosswalk sting", media campaign regarding pedestrian-related laws, progressive ticketing, etc.)? | ☐ | ☐ | I do not believe so, but not 100% sure. |
| 3.5 Does your community have a systematic strategy for selecting locations and countermeasures for traffic and pedestrian safety? | ☐ | ☐ | I would hope so, but I do not know if there is an actual strategy. |
| 3.6 Do police work regularly with traffic engineers and planners to review sites in need of safety? | ☐ | ☐ | Unsure. |
| 4. Evaluation & Planning | Yes | No | Description |

| | | | |
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| 4.1 Is there a Bicycle Advisory Committee or Pedestrian Advisory Committee that meets regularly? | ☐ | ☐ | Unsure |
| 4.2 Is there a specific plan or program to reduce cyclist/motor vehicle crashes? | ☐ | ☐ | I'm not aware of a plan/program. |
| 4.3 Does your community have an ongoing pedestrian/bicycle counting and/or survey program that allows for long-term benchmark analysis of walking and bicycling mode share? | ☐ | ☐ | Do not believe so. |
| 4.4 Does your community collect data related to pedestrian/bicycle-vehicle crashes, traffic volumes and motor vehicle speeds on existing or future corridor improvement projects? | ☐ | ☐ | I would assume JPD captures this metric, but I do not know for certain. |
| 4.5 Does your community have a pedestrian master plan or pedestrian safety action plan? | ☐ | ☐ | Maybe? |
| 4.6 Does your community have a bicycle master plan? | ☐ | ☐ | Do not believe so. |
| 4.7 Has your community adopted an ADA Transition Plan for the public right of way? | ☐ | ☐ | I'm not aware of a plan. |
| 4.8 Does your community have a policy requiring sidewalks on both sides of arterial streets? | ☐ | ☐ | I am not aware of a policy. |
| 4.9 Has your community established a connectivity policy, pedestrian-friendly block length standards and connectivity standards for new developments, or convenient pedestrian access requirements? | ☐ | ☐ | I do not believe a policy is in place. I believe what is required currently is a commercial development is required to install a sidewalk, which has created sidewalks in front of businesses that aren't connected to anything. |
| 4.10 Does your community have a trails plan? | ☒ | ☐ | I believe Public Works has a trails plan, but clarification needs to be made what is a trail and what is a sidewalk. |
| 4.11 Do you have a Pedestrian Coordinator or staff person responsible for pedestrian-related issues? | ☐ | ☐ | I am unaware if this position exists. I'm afraid if it does, the person probably has more on their plate and this becomes an afterthought. |

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|---|---|---|---|
| 4.12 Does your community have a bicycle program manager? | ☐ | ☒ | |
| 4.13 Is your community served by public transportation? | ☒ | ☐ | Joplin offers public transportation, but I think there is room for improvement. What we offer is a start. |

5. Do you see any of the above items as being particularly important for increasing opportunities for walking and bicycling in your community?

**I think we need a lot of the items above in place for the infrastructure to grow. We must be proactive if we want to increase the walking/cycling opportunities by taking action and building the initiative from the ground up.**

**The City all too often takes on a reactive approach to projects which typically leads to having to backtrack once a program/initiative is rolled out. This is an opportunity for the City to change the conversation. Educating policymakers (i.e. City Council, city staff, etc) will help get the right steps in place at the beginning.**

6. Has your community experienced economic benefits as a result of bicycle and pedestrian improvements (e.g., construction of new buildings or occupancy of vacant buildings near or adjacent to a multi-use trail)? Please provide details such as the name, location, size and/or estimated value of any developments, newly occupied spaces, etc.

**Projects around the Mercy Park area. I think it's a symbiotic relationship more than a cause/effect relationship.**

7. The walking and bicycling network will focus on connecting various destinations within the city and region. Please list local/regional destinations in your community (e.g., town center, large parks or recreational areas, employment zones, etc.).

Main Street, Hotel District, MSSU, Bedroom communities of Joplin (Webb, CJ, Galena, Carterville, Oronogo), Industrial Parks (North & Southeast), Hospitals, Joplin Athletic Complex, Parks: Humphrey, Leonard, Parr Hill, Landreth, Cunningham, Mercy, Schifferdecker

**Name:** Suzan Morang **Representing:** Joplin Health Department

*Thank you for completing this survey to help us understand bicycle and pedestrian planning in your community to inform the development of the Active Transportation Assessment Plan. The survey is based on the Bike Friendly Community and Walk Friendly Community application process.* ***Please answer yes or no to the following questions in this editable PDF file.*** *Where the answer is yes, please provide additional detail. We anticipate that many of the questions will be relatively quick to answer without additional research. You may need to contact staff in other departments to answer some of the questions (e.g., department of public works for engineering question, local police or sheriff for enforcement question, planning or community development department for planning questions).*

**Bike and Walk Friendly Community Scorecard**

| 1. Engineering | Yes | No | Description |
|---|---|---|---|
| 1.1 Does your community have a complete streets policy or other policy that requires the accommodation of pedestrians and cyclists in all new road construction and reconstruction projects? | ☐ | ☐ | Yes |
| 1.2 Does your community have guidelines for pedestrian and bicycle facility design or provide regular training to engineers and planners regarding pedestrian and bicycle facility design? | ☒ | ☒ | Yes |
| 1.3 Does your community have a comprehensive, connected and well-maintained bicycling network? | ☐ | ☐ | Not that I'm aware of |
| 1.4 Do you have a connected network of sidewalks, trails, and/or paths in the city? | ☐ | ☐ | Not that I'm aware of |
| 1.5 Does your community have a sidewalk condition and curb ramp inventory process? | ☐ | ☐ | Not that I'm aware of |
| 1.6 Is bike parking readily available throughout the community? | ☐ | ☐ | Not that I'm aware of |

| | | | |
|---|---|---|---|
| 1.7 Are all bridges accessible to pedestrians and bicyclists? | ☐ | ☐ | Not that I'm aware of |
| 1.8 Are crosswalks provided at all street intersections and at areas with high demand for pedestrian traffic? | ☐ | ☐ | Not that I'm aware of |
| 1.9 Are accommodations for persons with disabilities, such as curb ramps or audible signals, provided in your community? | ☐ | ☐ | Yes |
| 1.10 Does the City employ traffic calming measures to slow motor vehicle traffic on city streets (such as road diets, ≤20 mph speed limits, speed tables, etc.)? | ☐ | ☐ | Not that I'm aware of |
| 2. Education & Encouragement | Yes | No | Description |
| 2.1 Has your community implemented Safe Routes to School (STRS) programs in any of the local schools within the last 18 months? Does it include both bicycle and pedestrian education? | ☐ | ☐ | Not that I'm aware of |
| 2.2 Are there bicycling education courses available for residents in the community? | ☐ | ☐ | Not that I'm aware of |
| 2.3 Does your community educate motorists, pedestrians and cyclists on their rights and responsibilities as road users (e.g., as part of drivers education curriculum, test manual or bus driver training)? | ☐ | ☐ | Not that I'm aware of |
| 2.4 Does your community have an up-to-date bicycle map? | ☐ | ☐ | Not that I'm aware of |
| 2.5 Does the community celebrate bicycling during national Bike month with community rides, Bike to Work Day or media outreach? | ☐ | ☐ | Not that I'm aware of |
| 2.6 Is there an active bicycle or pedestrian advocacy group in the community? | ☐ | ☐ | Not that I'm aware of |
| 2.7 Has your community implemented any education and training programs related to pedestrian education, safety, or design for city staff? | ☐ | ☐ | Not that I'm aware of |

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|---|---|---|---|
| 2.8 Does your community promote the health and environmental benefits of walking? | ☐ | ☐ | Not that I'm aware of |
| 2.9 Does your community offer walking route maps, guides, or tours for residents and visitors? | ☐ | ☐ | Not that I'm aware of |
| 2.10 Does your community host any events that promote walking (such as car-free streets)? | ☐ | ☐ | Yes |
| 3. Enforcement | Yes | No | Description |
| 3.1 Does your community have Traffic Safety officers that are trained in traffic law as it applies to pedestrians and bicyclists? | ☐ | ☐ | Not that I'm aware of |
| 3.2 Does your community have law enforcement or other public safety officers on bikes? | ☐ | ☐ | Yes |
| 3.3 Do local ordinances treat bicyclists equitably? | ☐ | ☐ | Not that I'm aware of |
| 3.4 Does your community use targeted enforcement programs to promote pedestrian safety in crosswalks (such as a "crosswalk sting", media campaign regarding pedestrian-related laws, progressive ticketing, etc.)? | ☐ | ☐ | Not that I'm aware of |
| 3.5 Does your community have a systematic strategy for selecting locations and countermeasures for traffic and pedestrian safety? | ☐ | ☐ | Not that I'm aware of |
| 3.6 Do police work regularly with traffic engineers and planners to review sites in need of safety? | ☐ | ☐ | Not that I'm aware of |
| 4. Evaluation & Planning | Yes | No | Description |
| 4.1 Is there a Bicycle Advisory Committee or Pedestrian Advisory Committee that meets regularly? | ☐ | ☐ | Not that I'm aware of |
| 4.2 Is there a specific plan or program to reduce cyclist/motor vehicle crashes? | ☐ | ☐ | Not that I'm aware of |

| | | | |
|---|---|---|---|
| 4.3 Does your community have an ongoing pedestrian/bicycle counting and/or survey program that allows for long-term benchmark analysis of walking and bicycling mode share? | ☐ | ☐ | Not that I'm aware of |
| 4.4 Does your community collect data related to pedestrian/bicycle-vehicle crashes, traffic volumes and motor vehicle speeds on existing or future corridor improvement projects? | ☐ | ☐ | Not that I'm aware of |
| 4.5 Does your community have a pedestrian master plan or pedestrian safety action plan? | ☐ | ☐ | Not that I'm aware of |
| 4.6 Does your community have a bicycle master plan? | ☐ | ☐ | Not that I'm aware of |
| 4.7 Has your community adopted an ADA Transition Plan for the public right of way? | ☐ | ☐ | Not that I'm aware of |
| 4.8 Does your community have a policy requiring sidewalks on both sides of arterial streets? | ☐ | ☐ | Not that I'm aware of |
| 4.9 Has your community established a connectivity policy, pedestrian-friendly block length standards and connectivity standards for new developments, or convenient pedestrian access requirements? | ☐ | ☐ | Not that I'm aware of |
| 4.10 Does your community have a trails plan? | ☐ | ☐ | Yes |
| 4.11 Do you have a Pedestrian Coordinator or staff person responsible for pedestrian-related issues? | ☐ | ☐ | Not that I'm aware of |
| 4.12 Does your community have a bicycle program manager? | ☐ | ☐ | Not that I'm aware of |
| 4.13 Is your community served by public transportation? | ☐ | ☐ | Yes |

| 5. Do you see any of the above items as being particularly important for increasing opportunities for walking and bicycling in your community? |
| --- |
| Absolutely |
| 6. Has your community experienced economic benefits as a result of bicycle and pedestrian improvements (e.g., construction of new buildings or occupancy of vacant buildings near or adjacent to a multi-use trail)? Please provide details such as the name, location, size and/or estimated value of any developments, newly occupied spaces, etc. |
| Possibly, but no specific examples come to mind |
| 7. The walking and bicycling network will focus on connecting various destinations within the city and region. Please list local/regional destinations in your community (e.g., town center, large parks or recreational areas, employment zones, etc.). |
| Schifferdecker Park, Cunningham/Mercy Park, Landreth Park, MSSU, OCC, FTC/JHS, Freeman Hospital, Mercy Hospital, Joplin City Hall, Joplin Library, Food 4 Less, Walmart Supercenter on 7th St, Walmart on 15th St, Walmart Neighborhood Market on 26th, Walmart Neighborhood Market on 7th St, Aldi on 26th St, Aldi on 26th St, south end of Range Line ("hotel row"), intersection/area of 7th and Range Line, Northpark Mall and area south to 7th St, the bulk of Range Line between 7th St to I-44, intersection/area of Range Line and 32nd St, intersection/area of 7th and Main St, industrial parks, intersection/area of McClelland and 32nd (medical offices), |

**Name:** Sgt. Jared Delzell **Representing: Police**

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**Bike and Walk Friendly Community Scorecard**

| 1. Engineering | Yes | No | Description |
|---|---|---|---|
| 1.1 Does your community have a complete streets policy or other policy that requires the accommodation of pedestrians and cyclists in all new road construction and reconstruction projects? | X☐ | ☐ | |
| 1.2 Does your community have guidelines for pedestrian and bicycle facility design or provide regular training to engineers and planners regarding pedestrian and bicycle facility design? | ☒X | ☒ | |
| 1.3 Does your community have a comprehensive, connected and well-maintained bicycling network? | X☐ | ☐ | Several trail systems that connect to pedestrian friendly roads. |
| 1.4 Do you have a connected network of sidewalks, trails, and/or paths in the city? | X☐ | ☐ | |
| 1.5 Does your community have a sidewalk condition and curb ramp inventory process? | ☐ | ☐ | Unknown, however all new arterial roads provide sidewalks and designated bicycle egress. |
| 1.6 Is bike parking readily available throughout the community? | ☐ | X☐ | |

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|---|---|---|---|
| 1.7 Are all bridges accessible to pedestrians and bicyclists? | ☐ | X☐ | |
| 1.8 Are crosswalks provided at all street intersections and at areas with high demand for pedestrian traffic? | X☐ | ☐ | Most streets, particularly new streets are. |
| 1.9 Are accommodations for persons with disabilities, such as curb ramps or audible signals, provided in your community? | X☐ | ☐ | Most intersections have curb ramps. Some have audible crosswalks. |
| 1.10 Does the City employ traffic calming measures to slow motor vehicle traffic on city streets (such as road diets, ≤20 mph speed limits, speed tables, etc.)? | X☐ | ☐ | Yes ad no. Pedestrian safety is a factor when discussing with traffic commission. |
| **2. Education & Encouragement** | **Yes** | **No** | **Description** |
| 2.1 Has your community implemented Safe Routes to School (STRS) programs in any of the local schools within the last 18 months? Does it include both bicycle and pedestrian education? | ☐ | X☐ | unknown |
| 2.2 Are there bicycling education courses available for residents in the community? | ☐ | X☐ | Perhaps some private programs, but none publicly to my knowledge. |
| 2.3 Does your community educate motorists, pedestrians and cyclists on their rights and responsibilities as road users (e.g., as part of drivers education curriculum, test manual or bus driver training)? | ☐ | X☐ | unknown |
| 2.4 Does your community have an up-to-date bicycle map? | ☐ | X☐ | unknown |
| 2.5 Does the community celebrate bicycling during national Bike month with community rides, Bike to Work Day or media outreach? | ☐ | X☐ | No clue |
| 2.6 Is there an active bicycle or pedestrian advocacy group in the community? | X☐ | ☐ | There are several groups that advocate. |
| 2.7 Has your community implemented any education and training | ☐ | X☐ | unknown |

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|---|---|---|---|
| programs related to pedestrian education, safety, or design for city staff? | | | |
| 2.8 Does your community promote the health and environmental benefits of walking? | X☐ | ☐ | |
| 2.9 Does your community offer walking route maps, guides, or tours for residents and visitors? | ☐ | X☐ | |
| 2.10 Does your community host any events that promote walking (such as car-free streets)? | ☐ | X☐ | |
| 3. Enforcement | Yes | No | Description |
| 3.1 Does your community have Traffic Safety officers that are trained in traffic law as it applies to pedestrians and bicyclists? | X☐ | ☐ | |
| 3.2 Does your community have law enforcement or other public safety officers on bikes? | X☐ | ☐ | |
| 3.3 Do local ordinances treat bicyclists equitably? | X☐ | ☐ | |
| 3.4 Does your community use targeted enforcement programs to promote pedestrian safety in crosswalks (such as a "crosswalk sting", media campaign regarding pedestrian-related laws, progressive ticketing, etc.)? | X☐ | ☐ | |
| 3.5 Does your community have a systematic strategy for selecting locations and countermeasures for traffic and pedestrian safety? | X☐ | ☐ | |
| 3.6 Do police work regularly with traffic engineers and planners to review sites in need of safety? | X☐ | ☐ | |
| 4. Evaluation & Planning | Yes | No | Description |
| 4.1 Is there a Bicycle Advisory Committee or Pedestrian Advisory Committee that meets regularly? | ☐ | ☐ | Unknown |

| | | | |
|---|---|---|---|
| 4.2 Is there a specific plan or program to reduce cyclist/motor vehicle crashes? | X☐ | ☐ | |
| 4.3 Does your community have an ongoing pedestrian/bicycle counting and/or survey program that allows for long-term benchmark analysis of walking and bicycling mode share? | ☐ | ☐ | unknown |
| 4.4 Does your community collect data related to pedestrian/bicycle-vehicle crashes, traffic volumes and motor vehicle speeds on existing or future corridor improvement projects? | X☐ | ☐ | |
| 4.5 Does your community have a pedestrian master plan or pedestrian safety action plan? | X☐ | ☐ | |
| 4.6 Does your community have a bicycle master plan? | ☐ | ☐ | Unknown |
| 4.7 Has your community adopted an ADA Transition Plan for the public right of way? | X☐ | ☐ | I believe so |
| 4.8 Does your community have a policy requiring sidewalks on both sides of arterial streets? | X☐ | ☐ | |
| 4.9 Has your community established a connectivity policy, pedestrian-friendly block length standards and connectivity standards for new developments, or convenient pedestrian access requirements? | ☐ | ☐ | unknown |
| 4.10 Does your community have a trails plan? | X☐ | ☐ | |
| 4.11 Do you have a Pedestrian Coordinator or staff person responsible for pedestrian-related issues? | X☐ | ☐ | |
| 4.12 Does your community have a bicycle program manager? | ☐ | X☐ | |
| 4.13 Is your community served by public transportation? | X☐ | ☐ | |

| 5. Do you see any of the above items as being particularly important for increasing opportunities for walking and bicycling in your community? |
| --- |
| **Designated bicycle lanes and pedestrian areas. This gives extra room for safety at a distance to vehicles.** |
| 6. Has your community experienced economic benefits as a result of bicycle and pedestrian improvements (e.g., construction of new buildings or occupancy of vacant buildings near or adjacent to a multi-use trail)? Please provide details such as the name, location, size and/or estimated value of any developments, newly occupied spaces, etc. |
| **Unknown** |
| 7. The walking and bicycling network will focus on connecting various destinations within the city and region. Please list local/regional destinations in your community (e.g., town center, large parks or recreational areas, employment zones, etc.). |
| |

**Name:** Taylor Cunningham _____ **Representing: JATSO**_____

*Thank you for completing this survey to help us understand bicycle and pedestrian planning in your community to inform the development of the Active Transportation Assessment Plan. The survey is based on the Bike Friendly Community and Walk Friendly Community application process.* ***Please answer yes or no to the following questions in this editable PDF file.*** *Where the answer is yes, please provide additional detail. We anticipate that many of the questions will be relatively quick to answer without additional research. You may need to contact staff in other departments to answer some of the questions (e.g., department of public works for engineering question, local police or sheriff for enforcement question, planning or community development department for planning questions).*

**Bike and Walk Friendly Community Scorecard**

| 1. Engineering | Yes | No | Description |
|---|---|---|---|
| 1.1 Does your community have a complete streets policy or other policy that requires the accommodation of pedestrians and cyclists in all new road construction and reconstruction projects? | ☐ | ☒ | We are working on this one. |
| 1.2 Does your community have guidelines for pedestrian and bicycle facility design or provide regular training to engineers and planners regarding pedestrian and bicycle facility design? | ☐ | ☒ | |
| 1.3 Does your community have a comprehensive, connected and well-maintained bicycling network? | ☐ | ☒ | |
| 1.4 Do you have a connected network of sidewalks, trails, and/or paths in the city? | ☒ | ☒ | There are large sections that are connected along with large sections that are disjointed. |
| 1.5 Does your community have a sidewalk condition and curb ramp inventory process? | ☒ | ☐ | Public Works is completing this now. |
| 1.6 Is bike parking readily available throughout the community? | ☐ | ☒ | |

| | | | |
|---|---|---|---|
| 1.7 Are all bridges accessible to pedestrians and bicyclists? | ☐ | ☒ | |
| 1.8 Are crosswalks provided at all street intersections and at areas with high demand for pedestrian traffic? | ☐ | ☒ | Not provided at **all** intersections, but they are in most of high pedestrian traffic areas. |
| 1.9 Are accommodations for persons with disabilities, such as curb ramps or audible signals, provided in your community? | ☒ | ☐ | |
| 1.10 Does the City employ traffic calming measures to slow motor vehicle traffic on city streets (such as road diets, ≤20 mph speed limits, speed tables, etc.)? | ☐ | ☒ | |
| 2. Education & Encouragement | Yes | No | Description |
| 2.1 Has your community implemented Safe Routes to School (STRS) programs in any of the local schools within the last 18 months? Does it include both bicycle and pedestrian education? | ☐ | ☒ | |
| 2.2 Are there bicycling education courses available for residents in the community? | ☐ | ☒ | |
| 2.3 Does your community educate motorists, pedestrians and cyclists on their rights and responsibilities as road users (e.g., as part of drivers education curriculum, test manual or bus driver training)? | ☐ | ☒ | |
| 2.4 Does your community have an up-to-date bicycle map? | ☒ | ☐ | The bike lane map is available, but there are very few bike lanes. |
| 2.5 Does the community celebrate bicycling during national Bike month with community rides, Bike to Work Day or media outreach? | ☐ | ☒ | |
| 2.6 Is there an active bicycle or pedestrian advocacy group in the community? | ☒ | ☐ | Joplin Chamber's Trails and Connectivity Working Group; Bike Joplin; Joplin Trails Coalition |
| 2.7 Has your community implemented any education and training programs related to pedestrian education, safety, or design for city staff? | ☒ | ☐ | Complete Streets Consortium; Active Transportation Assessment. We |

| | | | |
|---|---|---|---|
| | | | are budgeting for Complete Streets training for FY22. |
| 2.8 Does your community promote the health and environmental benefits of walking? | ☒ | ☐ | |
| 2.9 Does your community offer walking route maps, guides, or tours for residents and visitors? | ☐ | ☒ | |
| 2.10 Does your community host any events that promote walking (such as car-free streets)? | ☐ | ☒ | |
| 3. Enforcement | Yes | No | Description |
| 3.1 Does your community have Traffic Safety officers that are trained in traffic law as it applies to pedestrians and bicyclists? | ☐ | ☐ | I'm not sure. |
| 3.2 Does your community have law enforcement or other public safety officers on bikes? | ☐ | ☒ | The Police Department has this capability but they are not implementing it visibly in the community. |
| 3.3 Do local ordinances treat bicyclists equitably? | ☐ | ☒ | |
| 3.4 Does your community use targeted enforcement programs to promote pedestrian safety in crosswalks (such as a "crosswalk sting", media campaign regarding pedestrian-related laws, progressive ticketing, etc.)? | ☐ | ☒ | |
| 3.5 Does your community have a systematic strategy for selecting locations and countermeasures for traffic and pedestrian safety? | ☐ | ☒ | |
| 3.6 Do police work regularly with traffic engineers and planners to review sites in need of safety? | ☐ | ☒ | |
| 4. Evaluation & Planning | Yes | No | Description |
| 4.1 Is there a Bicycle Advisory Committee or Pedestrian Advisory Committee that meets regularly? | ☐ | ☒ | |

| | | | |
|---|---|---|---|
| 4.2 Is there a specific plan or program to reduce cyclist/motor vehicle crashes? | ☐ | ☒ | |
| 4.3 Does your community have an ongoing pedestrian/bicycle counting and/or survey program that allows for long-term benchmark analysis of walking and bicycling mode share? | ☐ | ☒ | |
| 4.4 Does your community collect data related to pedestrian/bicycle-vehicle crashes, traffic volumes and motor vehicle speeds on existing or future corridor improvement projects? | ☐ | ☒ | |
| 4.5 Does your community have a pedestrian master plan or pedestrian safety action plan? | ☒ | ☐ | JATSO's 2018 Bicycle and Pedestrian Transportation Plan. |
| 4.6 Does your community have a bicycle master plan? | ☒ | ☐ | JATSO's 2018 Bicycle and Pedestrian Transportation Plan. |
| 4.7 Has your community adopted an ADA Transition Plan for the public right of way? | ☐ | ☒ | I'm not sure if this is included in the scope of Public Works current ADA transition plan efforts. |
| 4.8 Does your community have a policy requiring sidewalks on both sides of arterial streets? | ☐ | ☒ | |
| 4.9 Has your community established a connectivity policy, pedestrian-friendly block length standards and connectivity standards for new developments, or convenient pedestrian access requirements? | ☐ | ☒ | |
| 4.10 Does your community have a trails plan? | ☐ | ☒ | |
| 4.11 Do you have a Pedestrian Coordinator or staff person responsible for pedestrian-related issues? | ☐ | ☒ | |
| 4.12 Does your community have a bicycle program manager? | ☐ | ☒ | |
| 4.13 Is your community served by public transportation? | ☒ | ☐ | |

| 5. Do you see any of the above items as being particularly important for increasing opportunities for walking and bicycling in your community? |
|---|
| Yes. I think that a Complete Streets Policy and a designated Active Transportation staff person would be an excellent start to building a robust Active Transportation program. Bringing in specialized training for staff would also be a huge bonus. These things would lay the ground work for staff to begin building a program and implementing from within. |
| **6. Has your community experienced economic benefits as a result of bicycle and pedestrian improvements (e.g., construction of new buildings or occupancy of vacant buildings near or adjacent to a multi-use trail)? Please provide details such as the name, location, size and/or estimated value of any developments, newly occupied spaces, etc.** |
| I'm not sure. The Senior Center, KCUMB, and their future development of a Dental School and student housing will all be near the Mohaska Trail. |
| **7. The walking and bicycling network will focus on connecting various destinations within the city and region. Please list local/regional destinations in your community (e.g., town center, large parks or recreational areas, employment zones, etc.).** |
| - Downtown Joplin<br>- All City parks, but especially Schifferdecker, Cunningham, Mercy, Landreth, and Ewert.<br>- Public Schools<br>- Freeman and Mercy hospitals<br>- MSSU, Ozark Christian College, KCUMB<br>- Joplin Public Library |



# APPENDIX E

# BIKE AND PEDESTRIAN POLICY PEER COMMUNITY COMPARISON

The data provided in ***Appendix E*** gives an overview of policies found in Joplin compared to peer communities in South Carolina regarding active transportation, including the City of Barnwell,  Orangeburg County, and Barnwell County. This data is included to give an overview of how policies related to bikes and pedestrians can be organized and implemented on a local level.

## BICYCLE AND PEDESTRIAN POLICY

| Topic | Jurisdiction | | | | Comments/Recommendations |
|---|---|---|---|---|---|
| | City of Joplin | City of Barnwell | Orangeburg County | Barnwell County | |
| **1. DEFINITIONS** | | | | | |
| 1.1. Does "Street" definition include pedestrian and cyclist reference? | No, only refers to street in terms of vehicular traffic (JOPLIN, MO., CODE OF ORDINANCES Ch. 114 § 39, Article I) | Makes reference to pedestrian traffic: "A public thoroughfare for vehicular and pedestrian travel which provides the principal means of access to abutting property, but not including an alley." (City Zoning Ordinance (CZO) p. 1-7) **Needs Improvement** | No, only refers to street in terms of vehicular traffic (County Land Development Regulations (LDR) p. 36:7) **Inadequate** | References FHA definition: "Local streets are separated from other types because they carry significant volumes of foot and bicycle traffic and are used by children. (County Zoning Ordinance" (CZO) p. 5-4) **Needs Improvement** | Definition of a street should include consideration for pedestrian and bicycle traffic and safety. |
| 1.2 Definition of Sidewalk | "Sidewalk means that portion of a street between the curblines, or the lateral lines of a roadway, and the adjacent property lines, intended for use of pedestrians." (JOPLIN, MO., CODE OF ORDINANCES Ch. 114 § 39, Article I) | Sidewalk. The term "sidewalk" means any portion of a street between the curbline, or the lateral lines of a roadway where there is no curb and the adjacent property line intended for the use of pedestrians. (Section 1-5 City Code of Ordinances (CO)) **Inadequate** | *Sidewalk.* The word "sidewalk" shall mean any portion of a street or road between the curbline, or the lateral lines of the roadway where there is no curb, and the adjacent property line intended for the use of pedestrians. (Section 1-2 County Code of Ordinances (CO)) **Inadequate** | None **Inadequate** | "Sidewalks have a hard, smooth surface (e.g., concrete), with separation from the roadway typically consisting of a curb and/or planter strip."[1] |
| 1.3 Definition of Bicycle | "Bicycle means every device propelled by human power upon which any person may ride, having two tandem wheels, either of which is over 20 inches in diameter." (JOPLIN, MO., CODE OF ORDINANCES Ch. 114 § 39, Article I) | None **Inadequate** | None **Inadequate** | None **Inadequate** | Bicycles should be defined as a type of vehicle requiring its own specialized facilities and regulations for safe operation. |
| **2. STREET ELEMENTS AND CONFIGURATION** | | | | | |
| 2.1. Pedestrian accommodations (sidewalks, crosswalks, etc) required during new or redevelopment | Not required. | Only mentions mid-block crosswalks for Blocks over 600ft. (City Land Development Regulations (LDR), p. 8-5) **Inadequate** | References State Regulations, but no specific guidelines are presented. (LDR, p. 36:19) **Inadequate** | Consideration for Pedestrian accommodations included in Large-scale development regulations (p. 5-27, CZO)<br><br>Pedestrian crosswalks, not less than ten (10) feet wide, may be required in blocks longer than six hundred (600) feet to provide reasonable circulation or access to schools, playground, shopping centers, transportation, and other community facilities. (p. 8-5, County Land Development Regulations (LDR)) **Inadequate** | "Pedestrian travel is accommodated and enhanced by walkways, traffic signals, crosswalks, curb ramps, and amenities such as lighting, landscaping, and places to rest (e.g. benches)."[1] |
| 2.2. Bike accommodations (bike lanes, shoulders, racks, etc) required during new or redevelopment | Not required. | No **Inadequate** | No **Inadequate** | No **Inadequate** | "Generally, as traffic volumes exceed 3,000 vehicles per day and traffic speeds exceed 25mph, facilities to separate bicycle and motor vehicle traffic are recommended. Multi-lane roads are typically more dangerous for all users because of the increased traffic volume, the potential for higher speeds, and the additional number of conflict locations due to turning vehicles."[1]<br><br>In addition, bicycle parking helps to promote bicycling as a viable transportation option. |

| Topic | Jurisdiction | | | | Comments/Recommendations |
|---|---|---|---|---|---|
| | City of Joplin | City of Barnwell | Orangeburg County | Barnwell County | |
| 2.3. Sidewalks or bike accommodations required by roadway type | Not required. | No<br>**Inadequate** | No<br>**Inadequate** | No<br>**Inadequate** | A better standard would be one that requires or provides sidewalks on both sides of all collector and arterial streets and on at least one side of local streets where warranted by density and/or system connectivity. |
| 2.4. New sidewalks, bike lanes, greenways, etc., connect to existing facilities | Not required. | No<br>**Inadequate** | Encouraged, but not required when providing Greenways under new development open space requirements: "Connecting greenways between residences and recreational areas are encouraged." (LDR p. 5-3, CZO p. 63) **Needs Improvement** | No<br>**Inadequate** | Connectivity is an important consideration when trying to improve walking and biking conditions. New development should be required to connect to or extend existing facilities bicycle and pedestrian facilities. |
| 2.5. Cross-Access between adjacent land parcels | Not required. | No<br>**Inadequate** | No<br>**Inadequate** | No<br>**Inadequate** | Requiring cross-access between adjacent parcels of land is a great tool for reducing the amount of traffic on major roads while increasing connectivity for pedestrians, bicycles, and cars. |
| 2.6. Block size | No size regulation.<br>"Block: A piece or parcel of land entirely surrounded by public highways or streets, other than alleys. In cases where the platting is incomplete or disconnected, the Planning and Community Development Manager shall determine the outline of the block." (City of Joplin, Missouri Zoning Regulations) | Size requirements for residential blocks: "Blocks for residential use shall not be longer than twenty-four hundred (2,400) feet, and shall not be less than four hundred (400) feet in length, measured along the road centerline of the block. (LDR 8-5) **Needs Improvement** | No, "In general, blocks used for residential purposes should be of sufficient width to allow for two tiers of lots of appropriate depth except where pre vented by topographical conditions or other inherent conditions of property, in which case the approval of the planning commission is required." (p. 36-22, LDR) **Inadequate** | Yes, "Blocks for residential use shall not be longer than twenty-four hundred (2,400) feet, and shall not be less than four hundred (400) feet in length, measured along the road centerline of the block., Blocks should be of sufficient width to allow for two (2) tiers of lots of appropriate depth." (LDR, 8-5) **Inadequate** | "Development density should determine the length of a block, with shorter blocks being more appropriate in areas of higher density. Maximum block length in any situation should not exceed 800-1000 feet. In areas with blocks as long as 800 feet or greater, a pedestrian and bicycle path of 6-8 feet in width should be required, with an easement of 15-20 feet wide."[1] |
| 2.7. Dead end streets | No guidelines. Cul-de-sacs are a recommended traffic calming device in the Joplin Neighborhood Traffic Calming Policy (2019). | "Proposed streets shall be coordinated with the street system in the surrounding area and provide for the continuation of principal streets." (LDR, p. 8-2)<br><br>Dead end streets designed to be permanently terminated shall not exceed six hundred (600) feet in length, except where no other access is practical due to topographic reasons. Such streets shall be provided at the end with a circular turnaround. A minimum turnaround shall have a radius of not less than fifty (50) feet at the property line and not less than forty (40) feet at the curb line. (LDR, p. 8-3) **Inadequate** | "Cul-de-sac shall not extend more than 1,500 feet in length without intermediate turnarounds and under unusual conditions approved by the planning commission and shall provide a turnaround having a roadway diameter of at least 80 feet and a right-of-way diameter of at least 100 feet. Temporary dead-end streets shall be provided with a turnaround having a 60-foot diameter." (LDR, p. 36:20) **Inadequate** | "Cul-de-sac - Dead end streets designed to be permanently terminated shall not exceed six hundred (1,200) feet in length, except where no other access is practical due to topographic reasons. Such streets shall be provided at the end with a circular turnaround. A minimum turnaround shall have a radius of not less than fifty (50) feet at the property line and not less than forty (40) feet at the curb line." (LDR p. 8-3) **Inadequate** | Dead end streets or Cul-de-sacs, while good at limiting vehicular traffic in an area are a severe hindrance to connectivity for pedestrian and bicycle users. Consider requiring other traffic calming measures that allow for connectivity and improve the pedestrian and biking environment such as street trees, narrow street width standards, and T intersections.<br><br>Make the maximum length for Cul-de-sacs 250-300 feet to limit their use in new development. |
| **3. PEDESTRIAN FRIENDLY BUILDING AND SITE DESIGN STANDARDS** | | | | | |
| 3.1. Off-street motorized vehicle parking is behind or to side of buildings | Not required. | No<br>**Inadequate** | No<br>**Inadequate** | No, except encouraged in Limited Development Districts (CZO, 4-16) **Inadequate** | Having buildings close to the street instead of parking lots creates a more pedestrian friendly environment by bringing building entrances closer to the sidewalk. It also creates a human-scaled street that's more pleasurable for walking— for example: consider the differences in the walking environment of a downtown versus that of a strip shopping area. |

| Topic | Jurisdiction | | | | Comments/Recommendations |
|---|---|---|---|---|---|
| | City of Joplin | City of Barnwell | Orangeburg County | Barnwell County | |
| 3.2. Maximum automobile parking requirements defined | No maximum parking requirements. | No<br>**Inadequate** | No<br>**Inadequate** | No<br>**Inadequate** | Requiring parking-lot maximums and reducing the number of required off-street parking spaces for new development creates a more pedestrian friendly environment, prevents overbuilt and unsightly parking lots, and reduces parking construction costs.<br><br>"Tie parking standards to transect/land use context. For example, fewer spaces may be required in CBD and other pedestrian oriented areas. Parking maximums only should be considered in such districts."[1] |
| 3.3. Bicycle parking requirements | No bicycle parking requirements. | No<br>**Inadequate** | No<br>**Inadequate** | No<br>**Inadequate** | "Bicycles should receive equal consideration when calculating parking needs with specific calculations provided for determining the amount of bicycle parking provided by district type. Design and location standards for bicycle parking should be clearly stated to provide for safe and convenient access to all commercial areas. Furthermore, different standards of bicycle parking are needed for short-term visitors and customers and for longer term users like employees, residents, and students."[1]<br><br>Good standards for bicycle parking can be found through the Association of Pedestrian and Bicycle Professionals Website (www.apbp.org) |
| 3.4. Other place-supportive parking regulations (On-street parking, shared parking, pricing, employer incentives/programs, etc.) | No place-supportive parking regulations. | No<br>**Inadequate** | Yes, shared parking. "Up to 50 percent of the parking spaces required for (1) theaters, public auditoriums, bowling alleys, dance halls, clubs, churches and religious institutions may be provided and used jointly by (2) financial institutions, offices, retail stores, repair shops, service establishments, and similar uses not normally open, used, or operated during the same hours as those listed in (1); provided however, that written agreement thereto is properly executed and filed with the County." (CZO, p. 81) **Needs Improvement** | Yes, shared parking. "Up to fifty (50) percent of the parking spaces required for (1) theaters, public auditoriums, bowling alleys, dance halls, clubs, churches and religious institutions may be provided and used jointly by (2) financial institutions, offices, retail stores, repair shops, service establishments, and similar uses not normally open, used, or operated during the same hours as those listed in (1); provided however, that written agreement assuring their retention for such purposes shall be properly drawn and executed by the parties concerned, approved as to form and content by the county attorney, and shall be filed with the application for a building permit." (CZO, p. 5-34, 5-35) **Needs Improvement** | Shared parking is a good start. Other policies that reduce the need for parking and have economic benefits are parking pricing (such as parking meters), allowing on-street parking spaces to count towards parking requirements, and promoting employee carpool programs. |

| Topic | Jurisdiction | | | | Comments/Recommendations |
|---|---|---|---|---|---|
| | City of Joplin | City of Barnwell | Orangeburg County | Barnwell County | |
| 3.5. Form-based or design-based codes are used | Yes, there are three overlay districts: Planned Development (PD), Historical Preservation (HP), and Floodway Overlay / Floodway Fringe Overlay District. Reductions in required lot size, dimensions, and/or setback requirements of the underlying zoning district may be granted based on bonuses for providing pedestrian features, trail connectivity, park space, neighborhood improvements, gateway enhancements, and beautification (City of Joplin, Missouri Zoning Code). | Permitted in Planned Development District (CZO, p. 4-39) **Needs Improvement** | Permitted in Zones designated as Planned Unit Development (CZO, p.4) **Needs Improvement** | Yes and No, "Limited Use District" limits types of development and states "Overall design should be harmonious in terms of landscaping, relationships of buildings and structures, and traffic movement," but little else is specified (CZO, p. 4-13) **Needs Improvement** | Integrating form-based codes into the building code and zoning ordinance allows a city to define the type of development they would like to see in their community.<br><br>This can be a powerful tool that allows residents to shape their cities as they see fit. |
| 3.6. Pedestrian entrances required on street frontage (regardless of parking location) | No pedestrian entrance regulations. | Yes, under General Provisions "**§ 3-101 Street access required.** Except as otherwise specifically provided, no building shall be located, used or occupied on a lot without direct vehicular and pedestrian access to a publicly dedicated, accepted or maintained street with a right-of-way of not less than fifty (50) feet." (CZO, p. 3-1) **Good** | No guidance or regulations<br>**Inadequate** | Yes, under General Provisions"**§ 3-101. Street access required.** Except as otherwise specifically provided, no building shall be located, used or occupied on a lot without direct vehicular and pedestrian access to a public street." (CZO, p. 3-1) **Good** | These are good standards; buildings should have direct access to the street and sidewalk to promote pedestrian connectivity. |
| 3.7. Setback or build-to requirements | Single and multi-family residential including townhouses: 25'minimum, apartment house district: 35' minimum, mixed use commercial: 30' minimum, non-retail commercial: 25' minimum, commercial including neighborhood commercial: 15' minimum, central business district: none required, industrial: 30' minimum (City of Joplin, Missouri Zoning Code). | Single family residential development 35' standard, neighborhood commercial development 25' minimum, highway and core commercial development 50' minimum. (CZO, Ch. 4)<br>**Inadequate** | Not less than 30' for Residential Development, 50' for Commercial and Industrial. (LDO, p. 36:30)<br>**Inadequate** | 30' minimum for all land uses except Industrial/Warehouse, which is a 50' minimum. If higher density is specified in a planned development, it can be as low as 10' (CZO, p. 4-3, 4-4) **Inadequate** | Large setback minimums reduce the walkability of neighborhoods and commercial areas. Consider reducing minimums for residential areas to 10-15 ft. and allowing 0 ft. setbacks for commercial development. |
| 3.8. Buffer requirement between adjacent buildings or uses | Yes; required between commercial / industrial and residential uses; May also be required by the Planning Commission between dissimilar uses, to protect environmentally sensitive areas, or to counterbalance any reduction in lot area, yard size, or bulk limitations (City of Joplin, Missouri Zoning Code). | Yes, for many conflicting land-uses (CZO, p. 5-11)<br>**Inadequate** | Yes, between residential and commercial/uses (LDO, p. 36:30) **Inadequate** | Yes, in section 5-103. However, standards are vague and self-described as "flexible" (CZO)<br>**Inadequate** | In general, bufferyard and street buffer requirements are a characteristic of auto-oriented development—the presence of buffers severely reduces access for pedestrians and bicyclists. Alternatives such as minimizing street and land-use buffer size, allowing commercial buildings with 0 ft. setbacks, and allowing development without buffers between compatible land uses promotes pedestrian and bicycle connectivity. |
| 3.9. Mixed use buildings and blocks | Yes; encouraged with a designated zoning district for mixed use commercial (City of Joplin, Missouri Zoning Code). | No specific guidelines except mixed use permitted in Planned Development District and on upper levels of Commercial Core zoned buildings. (CZO, p. 2-2, 2-3) **Good, but could use improvement** | No specific guidelines provided, However different, compatible uses are permitted in some zoning districts (CZO, p. 2-4) **Good, but could use improvement** | No specific guidelines provided<br>**Inadequate** | Mixed use should be encouraged in most zoning districts. This increases the number of destinations that can be reached by walking or biking. |
| 3.10. Active ground floor uses with engaging architecture | Somewhat, the mixed use commercial district states that "all retail establishments shall be located within an professional office building, shall be on the first floor of the building and shall be oriented towards the interior of the building" (City of Joplin, Missouri Zoning Code). | No specific guidelines<br>**Inadequate** | No specific guidelines<br>**Inadequate** | No specific guidelines<br>**Inadequate** | Setting standards for ground floor uses and engaging architecture helps support economically successful and pedestrian friendly commercial districts. Examples of this are requiring commercial uses on the ground floor, as well as pedestrian accommodations such as building awnings and large storefront windows. |

| Topic | Jurisdiction | | | | Comments/Recommendations |
|---|---|---|---|---|---|
| | City of Joplin | City of Barnwell | Orangeburg County | Barnwell County | |
| 3.11. Site Amenities for Cyclists and others (Showers, Changing areas, etc) | No site amenities required. Recommendations are made in the Joplin Area Bicycle and Pedestrian Transportation Plan (2018). | No<br>**Needs Improvement** | No<br>**Needs Improvement** | No<br>**Needs Improvement** | This can be an effective method of promoting cycling in a community, especially in areas with hot climates. |
| 3.12. Human-scale lighting (< 15' tall) required along paths and in parking areas | Human-scale lighting not required. | Lighting required in parking areas, but no maximum height requirements (CZO, p. 5-13)<br>**Needs Improvement** | No specific guidelines<br>**Inadequate** | Lighting required in parking areas, but no maximum height requirements (CZO, p. 5-34)<br>**Needs Improvement** | "Pedestrian-scale lighting should not exceed eighteen (18) feet in height over the sidewalk and should be located at key intersections or crossings and along preferred pedestrian routes. Pedestrian-scale lighting also enhances the illumination of bicycle facilities since the lighting is located closer to the sidewalk and roadway."[1] |
| **4. PEDESTRIAN FACILITY DESIGN** | | | | | |
| 4.1. ADA Standards | No specific guidelines. | No specific guidelines<br>**Inadequate** | No specific guidelines<br>**Inadequate** | No specific guidelines<br>**Inadequate** | "Despite the current lack of enforceable standards, 'public and private entities that design and construct sidewalks and trails are still obligated under ADA to make them accessible to and usable by people with disabilities.'"[1]<br><br>A good guideline is a report developed by the Public Rights of Way Access Committee called *Accessible Public Rights of Way: Planning and Designing for Alterations*. A copy can be found through the Access Board's website: (http://www.access-board.gov/prowac/alterations/guide.pdf) |
| 4.2. Minimum sidewalk width by context | No minimum sidewalk width. | No specific guidelines<br>**Inadequate** | No specific guidelines<br>**Inadequate** | No specific guidelines<br>**Inadequate** | "Five foot wide sidewalks along local streets and six foot wide sidewalks along collectors and arterials are preferred widths and should be required along both sides of the roadway. Five feet is the minimum width required for two adults to walk side-by-side. In areas of higher density and mixed-use development, the minimum required width for sidewalks should be six feet or more. The land use context and density of development necessitates a greater level of requirement for sidewalk specifications. In areas such as downtown with buildings at the back of the sidewalk and ground level retail, sidewalks should be as wide as 10-18 feet wide."[1] |
| 4.3. Street Trees | No street tree guidelines. | No specific guidelines<br>**Inadequate** | No specific guidelines<br>**Inadequate** | No specific guidelines<br>**Inadequate** | "In addition to their aesthetic value, street trees can slow traffic and improve safety for pedestrians. Trees add visual interest to streets and narrow the street's visual corridor, which may cause drivers to slow down."[1] |

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| 4.4. Mid-Block Crossings | Mid-block crossings are not addressed but may be considered a viable option for a traffic calming device according to the Joplin Neighborhood Traffic Calming Policy (2019). | Pedestrian crosswalks, not less than ten (10) feet wide, may be required in blocks longer than six hundred (600) feet to provide reasonable circulation or access to schools, playground, shopping centers, transportation, other community facilities, or where deemed necessary. (LDR, p. 8-5) **Needs Improvement** | Crosswalks defined, but not addressed: "**Crosswalks** means a right-of-way, within any block, ten feet or more in width dedicated for public use and intended for pedestrian access to adjacent land areas." (LDO, 36:4) **Inadequate** | Yes, "Pedestrian Crosswalks - Pedestrian crosswalks, not less than ten (10) feet wide, may be required in blocks longer than six hundred (600) feet to provide reasonable circulation or access to schools, playground, shopping centers, transportation, and other community facilities."(CLDR, p. 8-5)<br><br>Also, under large-scale projects: "Pedestrian access, where provided, shall be safe and convenient routes. Where there are crossings or pedestrian ways and vehicular routes at edges of the project, such crossings shall be safely located, marked and controlled; and where such ways are exposed to substantial automotive traffic, safeguards including fencing may be required to prevent crossings except at designated points." (CZO, p. 5-28) **Needs Improvement** | According to the ADA: "The use of Mid Block Crossing shall be discouraged and used only when diversion to other crosswalks is unlikely. The elimination of existing Mid Block Crossings shall be a priority of the designer, since non-intersection pedestrian crossings are generally unexpected by the motorist and unprotected by a signal or stop control."[2]<br><br>A better standard is to reduce the maximum allowed block-size and provide pedestrian crossing provisions at street intersections, reducing the need for mid-block crossings. |
| **5. BICYCLE FACILITY DESIGN** | | | | | |
| 5.1. Types of Facilities Specified or Allowed | Trails and sidewalks are detailed in the Code of Ordinances; no specific guidelines found on bike lanes, only for sharing the road with vehicles. | No guidance found **Inadequate** | No guidance found **Inadequate** | Only mention greenways as an acceptable option for fulfilling open space requirements: "c. *Greenways* are linear greenbelts linking residential areas with other open space areas. These greenways may contain bicycle paths, footpaths, and bridle paths. Connecting greenways between residences and recreational areas are encouraged. Maintenance is limited to insuring that there exists no hazards, nuisances, or unhealthy conditions." (CZO, p. 5-3) **Inadequate** | Need to define bicycle facilities and require certain facility types based on street size, speed, and traffic volume. |
| 5.2. Minimum Shoulder Width | No guidance found | No guidance found **Inadequate** | No, only that "(a) The county council shall maintain only those improvements offered for public dedication and accepted for public maintenance by the county. All streets offered for dedication and accepted shall have shoulders, side slopes, valley gutters or ditches prepared in conformance with the latest edition of the standard specifications for highway construction, state department of transportation." (CZO, p. 36-27) **Inadequate** | No guidance found **Inadequate** | "Roadway shoulders often serve as pedestrian routes in rural areas. On roadways with low traffic volumes (e.g., less than 3,000 Average Daily Traffic (ADT) volumes), roadway shoulders may be adequate for pedestrian travel. Also used as "shoulder bikeways", these facilities should be wide enough to accommodate both pedestrians and bicyclists. Because of typical cross slopes, however, these facilities do not typically meet ADA standards."[1] |
| 5.3. Bicycle accommodations at intersections | No guidance found | No guidance found **Inadequate** | No guidance found **Inadequate** | No guidance found **Inadequate** | Defining how cyclists should move through busy intersections is an important safety consideration. Good intersection design guidelines can be found in the *NACTO Urban Bikeway Design Guide*: (http://nacto.org/cities-for-cycling/design-guide/) |

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| **6. FACILITY MAINTENANCE** | | | | | |
| 6.1. Sidewalk maintenance policy | "It shall be unlawful for any person to sweep any dirt or litter of any kind whatsoever out of any building or private premises or on any sidewalk space or into any street, alley, avenue or public highway. All sidewalks and sidewalk space shall be kept clean from all dirt or litter by the owners or occupants of the property fronting thereon." (JOPLIN, MO., CODE OF ORDINANCES Ch. 106 § 37, Article I) | No specific guidelines<br>**Inadequate** | No specific guidelines<br>**Inadequate** | No specific guidelines<br>**Inadequate** | "Sidewalk surfaces that have settled or heaved over time can be a significant barrier for pedestrians. Surfaces that are smooth when newly installed may not stay that way, particularly where masonry units are installed without an adequate sub base. Knowledgeable design, wise material selection, good construction practices, and regular maintenance procedures can help ensure that differences in level between adjacent units do not exceed the limits of usability. Surface provisions for an accessible route limit allowable vertical differences in level between abutting surfaces."[1] |
| 6.2. Trail and greenway maintenance policy | No specific guidelines for maintenance. | No specific guidelines<br>**Inadequate** | In required common open space, upkeep of landscaped areas and removing obstacles from greenways is required. (CZO, p. 63, 64)<br>**Needs Improvement** | In required common open space, upkeep of landscaped areas and removing obstacles from greenways is required. (CZO, p. 5-3)<br>**Needs Improvement** | In addition, these guidelines should include considerations for repair when trail or greenway surfaces become damaged with age. |
| 6.3. Vegetation management (trimming, pruning, mowing, etc) | No guidelines found for vegetation management. | No guidelines or regulations found<br>**Inadequate** | In required common open space, upkeep of landscaped areas and removing obstacles from greenways is required. (CZO, p. 63, 64)<br>**Good** | In required common open space, upkeep of landscaped areas and removing obstacles from greenways is required. (CZO, p. 5-3)<br>**Good** | This is a good standard. |
| 6.4. Street sweeping schedule | No street sweeping schedule found. | As needed<br>**Needs Improvement** | As needed<br>**Needs Improvement** | As needed<br>**Needs Improvement** | This should include clearing of bike lanes as well. Impediments such as rocks, glass, and sand, which generally don't affect motorists, can be huge obstacles for skinny bike tires. Often these impediments get swept off of car lanes and into bike lanes. |
| 6.5. Pothole maintenance | Responsibility of pothole maintenance is not specified; potentially covered by MoDOT. | Covered by SCDOT for state roads | Covered by SCDOT | Covered by SCDOT for state roads | Regular maintenance of roads is important for pedestrian, bicycle, and vehicular safety. |
| **7. SUPPORTING POLICIES AND MANUALS** | | | | | |
| 7.1. Complete Streets Policy | Some guidelines included in the Joplin Area Bicycle and Pedestrian Transportation Plan (2018). | No specific guidelines<br>**Inadequate** | No specific guidelines<br>**Inadequate** | No specific guidelines<br>**Inadequate** | The National Complete Streets Coalition provides great guidelines for designing streets that cater to all users: (http://www.completestreets.org/resources/complete-streets-best-practices/).<br><br>A complete streets policy allows cities to work towards creating a street network that encourages pedestrian and bicycle travel. |
| 7.2. Design Manual for Pedestrian and/or Bicycle Facilities | Some guidelines included in the Joplin Area Bicycle and Pedestrian Transportation Plan (2018). | No specific guidelines/references<br>**Inadequate** | No specific guidelines/references<br>**Inadequate** | No specific guidelines/references<br>**Inadequate** | This is an important step in creating a more pedestrian and bicycle friendly community. A design manual will give guidelines for bicycle and pedestrian consideration in new development. |

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| 7.3. Complete Street Design Guidelines for a variety of contexts | Some guidelines included in the Joplin Area Bicycle and Pedestrian Transportation Plan (2018). | No specific guidelines **Inadequate** | No specific guidelines **Inadequate** | No specific guidelines **Inadequate** | The National Complete Streets Coalition provides great guidelines for designing streets that cater to all users: (http://www.completestreets.org/resources/complete-streets-best-practices/). |
| 7.4. General and Pedestrian Connectivity Requirements | No specific requirements for connectivity. | "Proposed streets shall be coordinated with the street system in the surrounding area and provide for the continuation of principal streets." (LDR, p. 8-2) **Good start, but needs Improvement** | No specific guidelines **Inadequate** | "Proposed streets shall be coordinated with the street system in the surrounding area and provide for the continuation of principal streets." (LDR, p. 8-2) **Good start, but needs Improvement** | Connectivity is a key component of a pedestrian and bike friendly environment. Its benefits include: "decreased traffic on arterial streets, continuous and more direct routes for travel by walking and biking, greater emergency vehicle access, Improved utility connections, easier maintenance, and more efficient trash and recycling pick up."[3]<br><br>Limiting block size and requiring a minimum connectivity index are two tools that can be employed to promote connectivity. More info on these measures can be found here: (http://congestion.kytc.ky.gov/connectivity/WSDOT%20Connectivity%20Model%20Ordinance.pdf) |
| 7.5. Existence of street hierarchy plan by context | Joplin Area Bicycle and Pedestrian Transportation Plan (2018) includes functional classification of roads by vehicular transportation and details their compatibility with bicycle and pedestrian transportation; Joplin Moving Forward: Comprehensive Plan 2012 describes street typologies. However, streets are defined primarily in terms of vehicular circulation. | The Land Development Regulations define different street typologies by context, but no reference to pedestrian uses is made. However, streets are defined primarily in terms of vehicular circulation. (LDR 2-2) **Needs Improvement** | Different street typologies are described in the definitions section of the Land Development Regulations. However, streets are defined primarily in terms of vehicular circulation. (LDR, p. 36:7) **Needs Improvement** | The Land Development Regulations define different street typologies by context, but no reference to pedestrian uses is made. (LDR 2-2) **Needs Improvement** | Streets should be defined in terms of pedestrian and bicycle levels of service as well. |
| 7.6. Existence of bicycle and pedestrian plan(s) | Yes; Joplin Area Bicycle and Pedestrian Transportation Plan (2018). | None cited **Inadequate** | None cited **Inadequate** | None cited **Inadequate** | A bike and pedestrian plan will create a roadmap for moving towards a more bike and pedestrian friendly community. |
| 7.7. Consideration of pedestrian and bicycle concerns in Site Planning | No specific guidelines for site planning; consideration not required. Resources are found in the Joplin Area Bicycle and Pedestrian Transportation Plan (2018). | No specific guidelines **Inadequate** | No specific guidelines **Inadequate** | No specific guidelines **Inadequate** | Requiring pedestrian and bicycle concerns in site planning is an important step towards achieving a more bike and pedestrian friendly community. |
| 7.8. Consideration of pedestrian and bicycle concerns and Level of Service (LOS) in Traffic Impact Analyses and other engineering studies | Yes; included in the process for traffic calming device implementation. Engineering studies must be completed to analyze traffic patterns and safety issues for pedestrians. | No specific guidelines **Inadequate** | No specific guidelines **Inadequate** | No specific guidelines **Inadequate** | Consideration of bicycle and pedestrian levels of service assure adequate facilities for bicyclists and pedestrians. This also helps promote walking and bicycling as a legitimate means of transportation. |

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| 7.9. Traffic Calming programs, policies, and/or manuals | Yes; Joplin Traffic Calming Policy (2019). | When referring to the new construction of residential streets: "Residential streets shall be laid out so their use by through traffic will be discouraged in that 3-way intersections ("T" intersections) shall be used as much as possible." (LDR, p. 8-2) **Good Standard, additional measures needed as well** | None cited<br>**Inadequate** | When referring to the new construction of residential streets: "Residential streets shall be laid out so their use by through traffic will be discouraged in that 3-way intersections ("T" intersections) shall be used as much as possible." (LDR, p. 8-2) **Good Standard, additional measures needed as well** | The National Complete Streets Coalition provides good guidelines for traffic calming through their best practices manual: (http://www.completestreets.org/resources/complete-streets-best-practices/). |
| 7.10. Access management program or policy | None cited. | None cited<br>**Inadequate** | None cited<br>**Inadequate** | None cited<br>**Inadequate** | Requiring cross-access between adjacent parcels of land is a great tool for reducing the amount of traffic on major roads while increasing connectivity for pedestrians, bicycles, and cars. |
| 7.11. Sidewalk retrofit/infill program or policy | None cited. | None cited<br>**Inadequate** | None cited<br>**Inadequate** | None cited<br>**Inadequate** | Orangeburg and Barnwell should consider developing sidewalk infill and maintenance program "where City staff periodically inventory the street network to identify sidewalk gaps, and develop strategies, project prioritization criteria and funding for completing these gaps. Potential project prioritization criteria include filling gaps along key pedestrian routes, near major pedestrian trip generators like schools, and along streets with high vehicle volumes."[1] |
| **8. ITEMS REVIEWED** | | | | | |
| 8.1. Names of Resources | GUIDELINES AND REGULATIONS<br>1. City of Joplin, Missouri Code of Ordinances (1977)<br>2. City of Joplin, Missouri Zoning Code (2004)<br>3. Joplin Moving Forward: Comprehensive Plan 2012<br>4. Joplin Area Bicycle and Pedestrian Transportation Plan (2018)<br>5. Joplin Neighborhood Traffic Calming Policy (2019) | GUIDELINES AND REGULATIONS<br>1. City of Barnwell Land Development Regulations (2010)<br>2. Barnwell, SC CBD Master Plan (2006)<br>3. City of Barnwell Zoning Regulations (2009) | GUIDELINES AND REGULATIONS<br>1. Subdivision and Land Development Regulations (2000)<br>2. County Comprehensive Plan (1994)<br>3. Orangeburg County Zoning Ordinance (2008)<br>4. Orangeburg County Code of Ordinances | GUIDELINES AND REGULATIONS<br>1. Barnwell County Comprehensive Plan (2007)<br>2. Barnwell County Land Development Regulations (2007)<br>3. Barnwell County Zoning Ordinance (2007) | REFERENCED DOCUMENTS<br>1. Easley, SC Pedestrian and Bicycle Master Plan: http://www.bikeeasley.com/Pedestrian-Bike-Plan/<br>2. ADA guidelines for Mid-Block Crossings: http://www.sha.state.md.us/Index.aspx?PageId=122<br>3. Commonwealth of Kentucky Congestion Toolbox: *MODEL STREET CONNECTIVITY STANDARDS ORDINANCE.* *http://congestion.kytc.ky.gov/connectivity/WSDOT%20Connectivity%20Model%20Ordinance.pdf* |

