



# Verde Valley Master Transportation Plan

ENTERING  
Verde Valley



Executive Summary  
September 2016



*This report was funded in part through grants from the Federal Highway Administration, U.S. Department of Transportation. The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the data, and for the use or adaptation of previously published material, presented herein. The contents do not necessarily reflect the official views or policies of the Arizona Department of Transportation or the Federal Highway Administration, U.S. Department of Transportation. This report does not constitute a standard, specification, or regulation. Trade or manufacturers' names that may appear herein are cited only because they are considered essential to the objectives of the report. The U.S. government and the State of Arizona do not endorse products or manufacturers.*



# TABLE OF CONTENTS

	<u>Page</u>
<b>STUDY PURPOSE AND NEED</b> .....	<b>1</b>
<b>STUDY PROCESS</b> .....	<b>3</b>
<b>TRANSPORTATION ISSUES SUMMARY</b> .....	<b>4</b>
<b>PLAN FOR IMPROVEMENTS</b> .....	<b>6</b>
Roadway Improvement Recommendations .....	6
Near-Term Improvements.....	6
Mid-Term Improvements.....	12
Long-Term Improvements .....	15
Environmental Considerations .....	17
Congestion Management Strategies .....	18
Pedestrian, Bicycle, and Trail Improvement Recommendations .....	19
Transit Service Recommendations.....	19
Title VI Implications.....	21
<b>IMPLEMENTATION AND FUNDING STRATEGIES</b> .....	<b>22</b>
Funding Sources.....	22
Implementation Strategies .....	23



## LIST OF TABLES

	<u>Page</u>
1: Recommended Near-Term Improvement Projects.....	6
2: Recommended Mid-Term Improvement Projects .....	12
3: Recommended Long-Term (Improvement Projects .....	15
4: Impacts and Advantages of Recommended Projects to Title VI Populations .....	21

## LIST OF FIGURES

	<u>Page</u>
1: Study Area .....	2
2: Study Process.....	3
3: Existing Roadway Issues and Concerns .....	4
4: Existing Multimodal Transportation Issues, Concerns, and Needs.....	5
5: Recommended Near-Term Improvement Projects.....	11
6: Recommended Mid-Term Improvement Projects .....	14
7: Recommended Long-Term Improvement Projects .....	16
8: Recommended Pedestrian, Bicycle, and Trail Improvements.....	20

### STUDY PURPOSE AND NEED

The Verde Valley Master Transportation Plan is a joint effort by Yavapai County, the Verde Valley Transportation Planning Organization (VVTPO), and the Arizona Department of Transportation (ADOT) to identify and address the most critical current and future transportation needs within the Verde Valley. With the ultimate goal of developing a regionally cohesive framework of multimodal transportation improvements, the *Verde Valley Master Transportation Plan* aims to update the 2009 VVMTS in order to provide VVTPO with a guiding document that provides realistic and feasible solutions to the current and future multimodal needs of the area.

In 2009, the *Verde Valley Multimodal Transportation Study* (VVMTS) established a long-range regional transportation plan to guide the implementation of transportation improvements on regionally significant roadways in the Verde Valley. When the VVMTS was developed, economic projections were optimistic and funding levels were high, causing local agencies and the Verde Valley Transportation Planning Organization (VVTPO) to expect significant growth and numerous transportation improvements. Due to the slowing of economic growth, dramatic changes in funding availability, and updated local planning studies, it is essential that VVTPO member agencies have an accurate assessment of the performance of major roads in their respective jurisdictions as well as a planning tool for programming the region's transportation improvements.

The primary purpose of this study was to develop a regionally cohesive, long-range transportation plan that serves as a guide for Verde Valley Transportation Planning Organization's (VVTPO) participating agencies when making future land use and multimodal transportation improvement project decisions. The need for this study stems directly from VVTPO member jurisdiction's need to determine existing system performance, increase economic vitality, improve community livability, and enhance transportation conditions along the regional transportation routes.

Figure 1 provides an illustration of the study area.

### WHY IS THIS PLAN NEEDED?

#### ESTABLISH A REGIONALLY COHESIVE FRAMEWORK

Establish a vision for an efficient, seamless transportation system that links communities in the Verde Valley by all modes of transportation.

#### ENHANCE MOBILITY AND IMPROVE SAFETY

Population growth coupled with increased commuter and tourist traffic has amplified congestion and safety concerns.

#### SUPPORT PLANNED LAND USE AND FUTURE GROWTH

Planned growth will require updated facilities to accommodate traffic and to promote multimodal transportation.

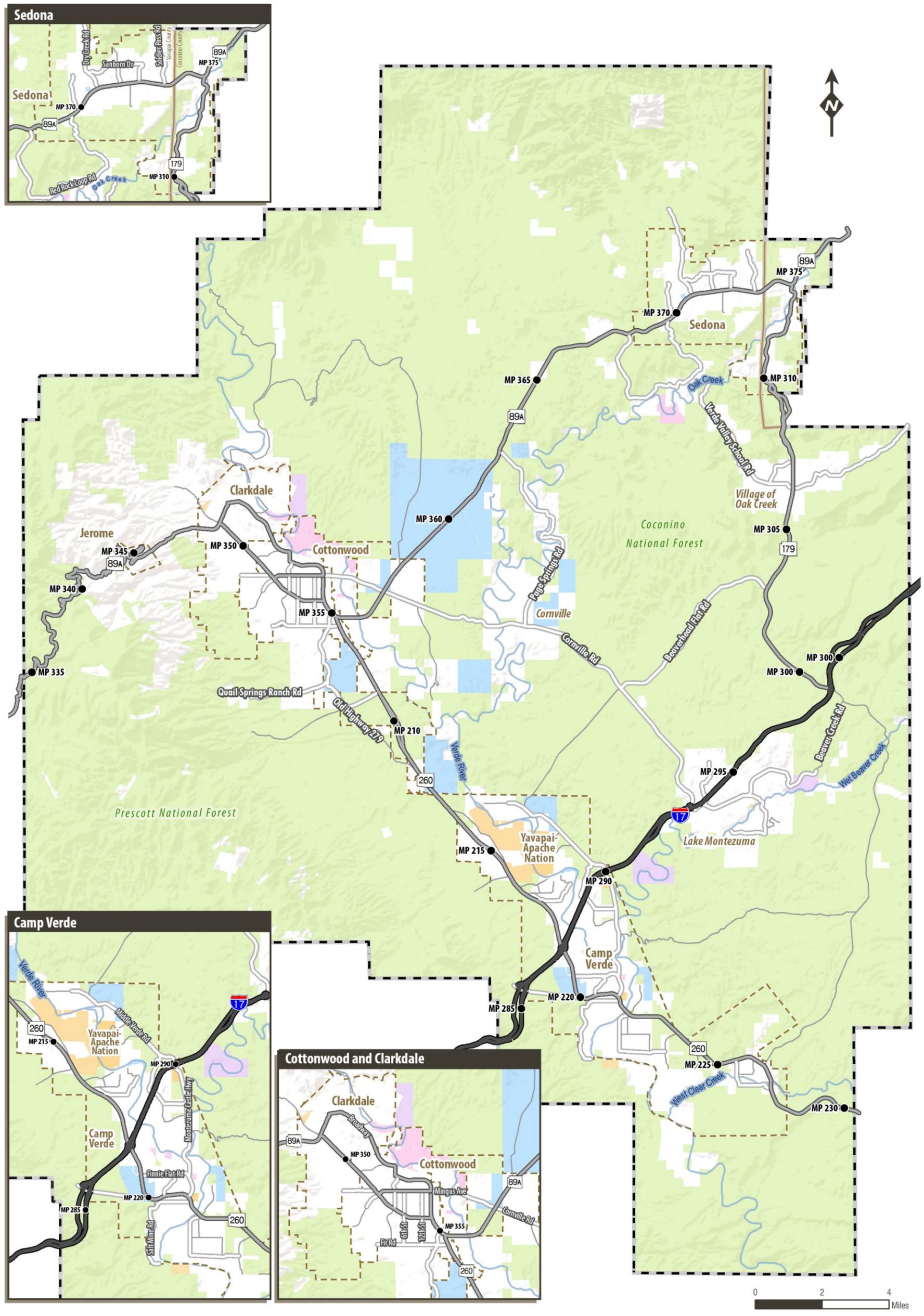
#### ADDRESS SAFETY AND OPERATIONAL NEEDS

The roadway network needs to be evaluated to identify solutions to improve safety, mobility, and to optimize traffic operations.

#### PROMOTE ECONOMIC GROWTH AND COMMUNITY LIVABILITY

Develop a plan for investments that strengthens local businesses, spurs business growth, encourages activities, and promotes tourism.

Figure 1: Study Area



- Interstate
- Arterial
- Collector
- Local Roads
- Study Area
- City Boundary
- County Boundary
- National Forest
- Arizona State Trust Land
- State Parks
- Indian Reservation
- National Park

Data Source: Arizona Department of Transportation; Yavapai County; Arizona State Land Resource Information System; Esri

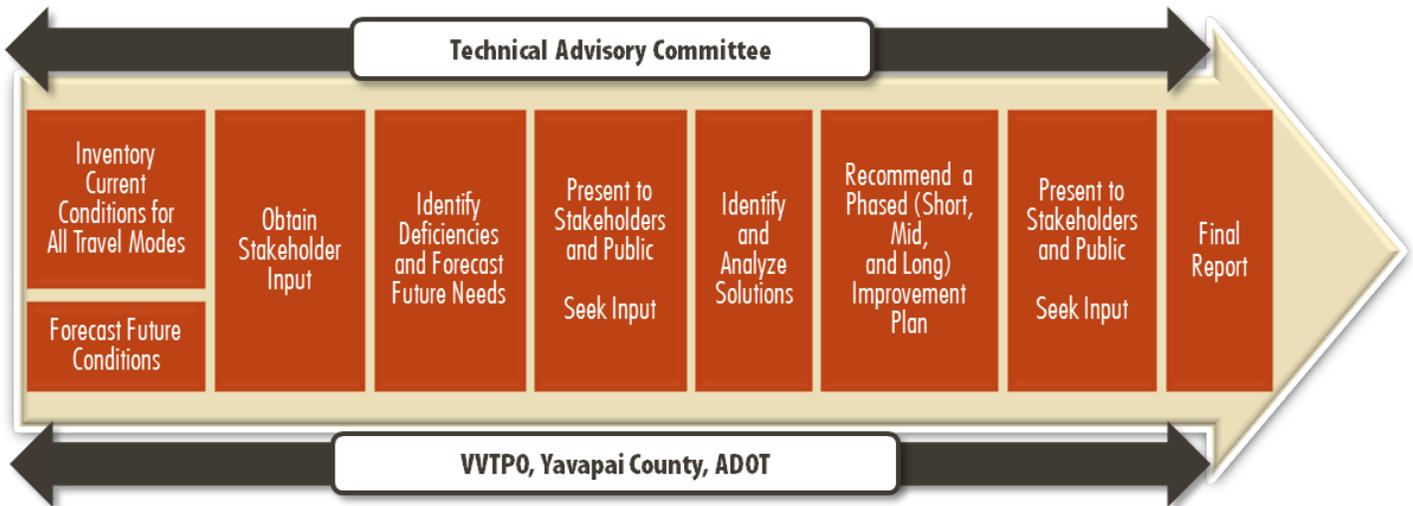
## STUDY PROCESS

The development of a transportation plan is a technical, collaborative process that involves affected parties within the Verde Valley, including local jurisdictions, regional agencies, stakeholders, and the general public. For this study, six key stages are followed in order to ultimately develop a regionally cohesive, fiscally constrained improvement plan. Throughout the process, the study team maintained consistent contact with the TAC, and stakeholders and conducted extensive public outreach efforts. Figure 2 illustrates the process that was utilized for this study.

*Working Paper 1: Existing Conditions* presented an inventory and analysis of current socioeconomic and transportation conditions in the study area. The existing conditions inventory and analysis presented in Working Paper 1 assisted in identifying existing transportation system deficiencies, issues, and needs. *Working Paper 2: Future Conditions*, documented population, housing, and employment forecasts and the impacts of potential growth on the area’s transportation system. Working Paper 2 assessed the potential strain on the study area’s transportation system for the 2025 and 2040 horizon years *if no transportation improvements are implemented*. The first set of Public Open Houses were conducted in July 2015 to present existing and project transportation conditions and issues.

*Working Paper 3: Draft Transportation Improvement Plan* presented improvement concepts to address future multimodal travel demand which was developed utilizing deficiencies and needs identified in Working Papers 1 and 2. The second set of Public Open House s was conducted in November 2015 to present the Draft Transportation Improvement Plan.

**Figure 2: Study Process**

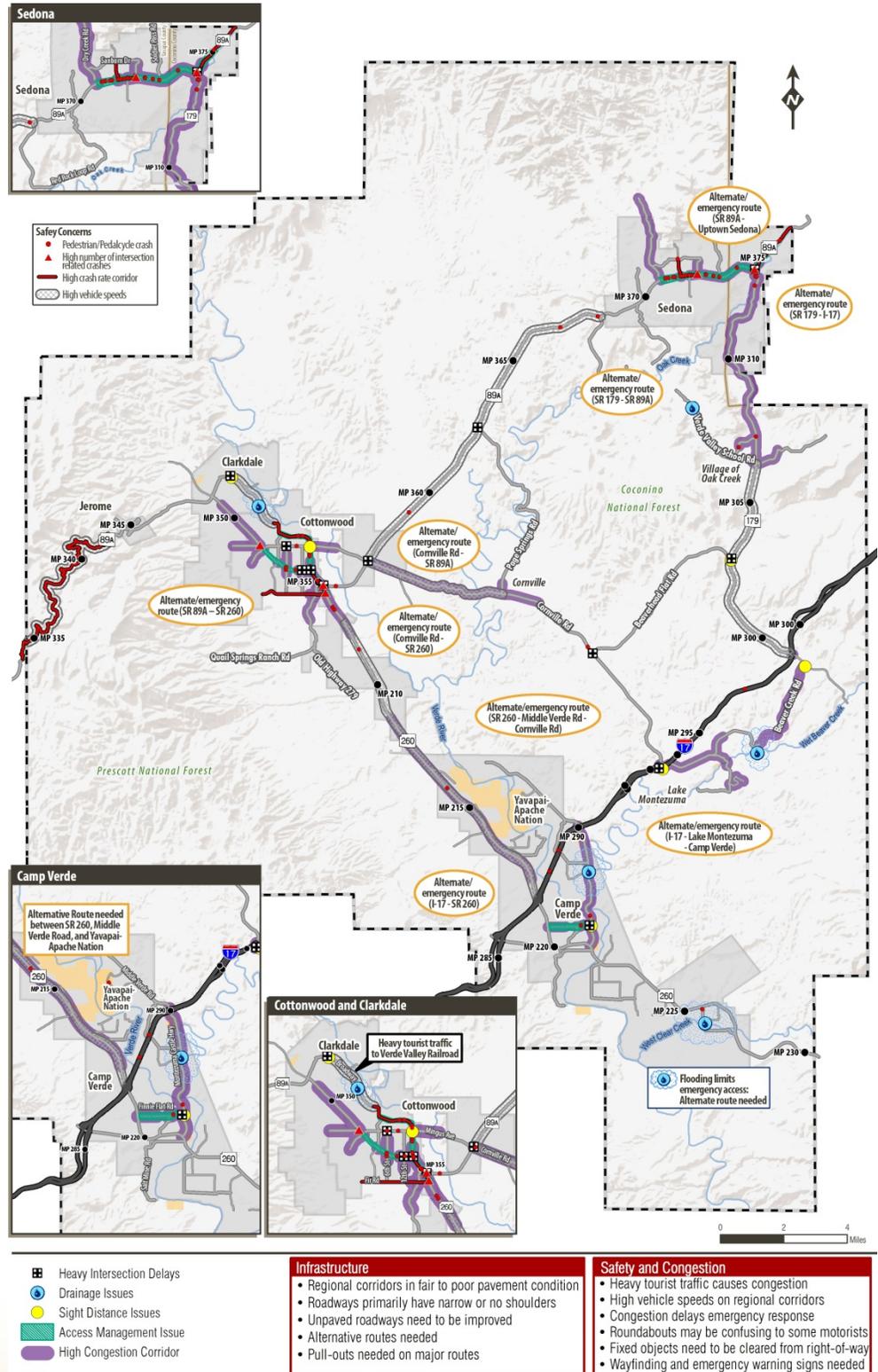


## TRANSPORTATION ISSUES SUMMARY

Based on an inventory and analysis of existing conditions, transportation system deficiencies and issues were identified. These issues and deficiencies form the basis for the next phase of the study which is the development of the long range transportation plan. Figures 3 and 4 display the current major transportation issues in the study area.

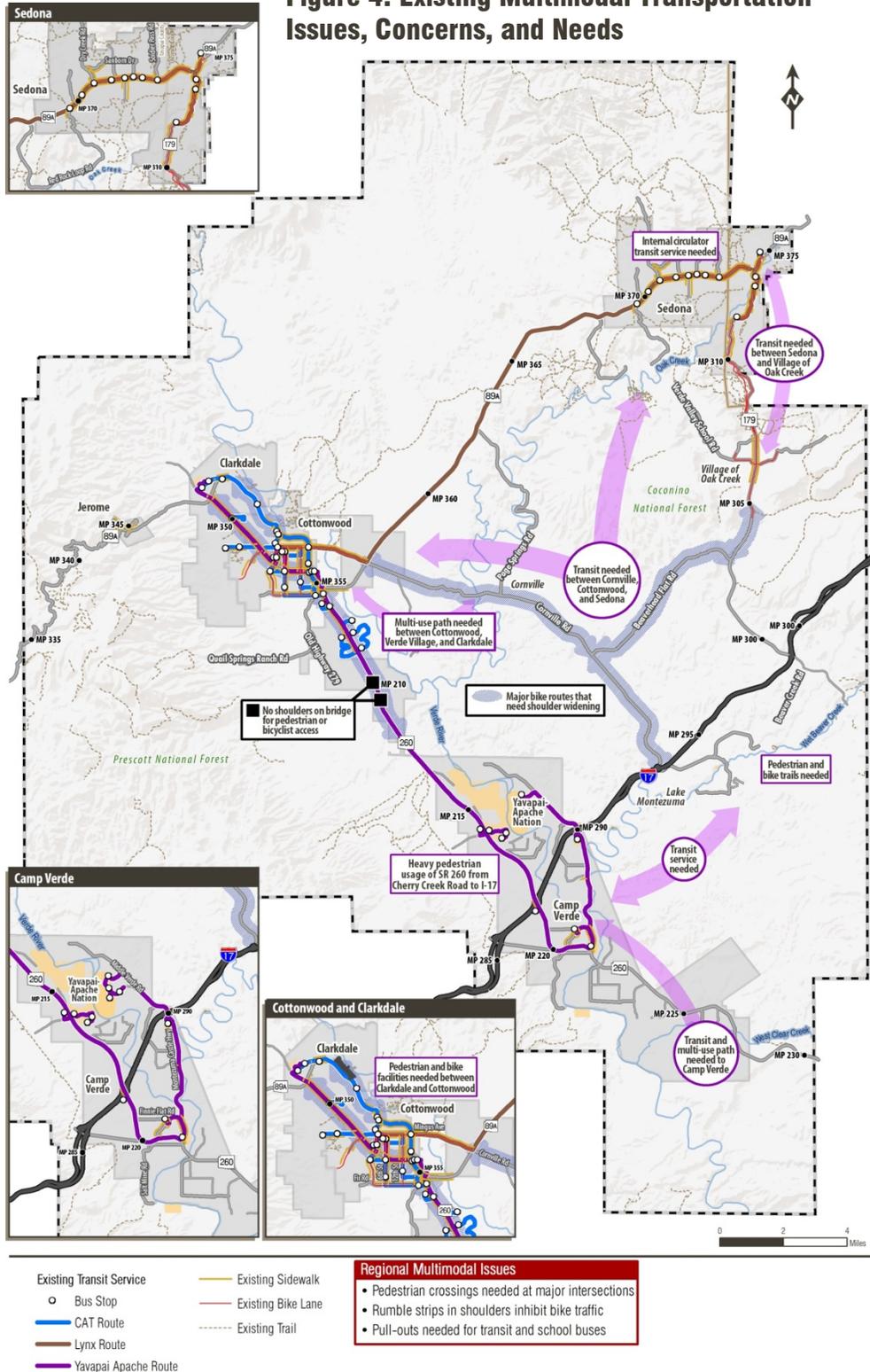
- Current and projected roadway congestion occurs along SR 89A (Cottonwood and Sedona), SR 179 (Verde Valley School Road to SR 89A), SR 260 (Cottonwood and Camp Verde), Cornville Road, Beaver Creek Road, within the Village of Oak Creek, and arterials in Cottonwood and Sedona.
- Numerous intersections within the study area experience congestion issues and are in need of operational and safety improvements.
- Regional corridors are generally in fair to poor pavement condition.
- Roadways generally do not have shoulders or have narrow shoulders. Shoulders need to be reconstructed to roadway design standards to allow for vehicles to safely pull over.
- Climbing lane on I-17 southbound (General Crook to MP 282) is needed.
- High vehicle speeds on SR 260 north of I-17, SR 89A west of Jerome, SR 89A from Cornville Road to Upper Red Rock Road, SR 179 south of the Village of Oak Creek, and on Cornville Road from SR 89A to Page Springs Road.
- Unpaved roadways may need to be paved to accommodate growth and mitigate existing congestion: Ogden Ranch Road, Beaver Creek Road, Verde Valley School Road, and Old Highway 279.
- Access Management is needed on: SR 89A (Mingus Avenue to SR 260), SR 89A (Cornville Road to MP 358), SR 89A (Dry Creek Road to Uptown

**Figure 3: Existing Roadway Issues and Concerns**



Sedona), SR 260 (SR 89A to Fir Street), Main Street (SR 89A to Willard Street), and Finnie Flat Road.

**Figure 4: Existing Multimodal Transportation Issues, Concerns, and Needs**



- Alternative/emergency routes are needed: SR 260 to the Yavapai Apache Nation, Village of Oak Creek to Sedona, Uptown Sedona, Clarkdale to Cottonwood, Lake Montezuma, and Verde Lakes.
- Pull-outs on major corridors needed to allow school buses, transit buses, and tourists to safely pull-off the roadway.
- Fixed objects within roadway's clear zone need to be relocated to allow for unobstructed recovery areas for vehicles.
- Overhead electronic message signs on SR 89A, SR 260, and I-17 would be able to warn motorists of emergency situations, safety issues, and the area's roadway conditions.
- High crash rates on SR 89A (west of Jerome, Main Street to SR 260, Dry Creek Road through Uptown Sedona), SR 179 (Schnebly Hill Road to SR 89A), SR 260 (South of SR 89A), Main Street (Cottonwood), Fir Street, Mingus Avenue, 12<sup>th</sup> Street, Upper Red Rock Loop Road, Coffee Pot Drive, and Andante Drive.
- Highest number of intersection related crashes occurred at SR 89A/SR 179, SR 89A/SR 260, and Fir Street/SR 260 intersections.
- Continuous network of pedestrian and multi-use paths connecting the communities would enhance residents' quality of life and promote economic development.

- Additional transit service is needed: Cornville to Sedona and Camp Verde; circulator route within Sedona; Village of Oak Creek to Sedona; Lake Montezuma to Camp Verde, Cottonwood, and Sedona; and Verde Lakes to Camp Verde.
- Bus pull-outs are needed along SR 89A and SR 260 to reduce congestion and provide a safe location for passenger to board/alight.

## PLAN FOR IMPROVEMENTS

This section presents the Multimodal Transportation Plan for the Verde Valley area for the near-term, mid-term, and long-term implementation phases. The timeframe of each project in this chapter is intended to be used as a guide for future planning. **The Improvement Plan is intended to serve as a guide for future planning and programming and unless otherwise noted projects are not yet funded.** Together these projects will strengthen the study area's existing roadway network; provide a network of pedestrian, bicycle, and transit facilities; support economic development; and improve safety and operations.

### Roadway Improvement Recommendations

#### Near-Term Improvements

Near-term projects are typically projects needed to address the most critical needs and deficiencies and have a reasonable potential for obtaining funding. Table 1 and Figure 5 presents a comprehensive list of the transportation recommendations for this phase, as well as the project number, location, and description each project. *Each project is assigned a unique project number; project numbering does not represent the priority of the project but rather it is an identification number to track project progress. Unless otherwise noted, funding has not been secured for additional studies, design, purchase of right-of-way, or construction. As each project progresses into the concept and design phase, close coordination with the Prescott and Coconino Forests should occur to assess if there are available solutions on non-federal land. All federally funded projects are also subject to the National Environmental Policy Act (NEPA) process, which identifies projects potential environmental impacts and ensures that subsequent mitigation measures are addressed and implemented appropriately through construction.*

*Planning level cost estimates were developed based on typical per-mile/foot construction costs. Estimated costs for each project are expressed in 2015 dollars and do not include costs associated with right-of-way acquisitions, design, utility relocation, environmental clearance, etc. Actual costs for projects could vary at the time of implementation; therefore, a detailed analysis should be performed on a case-by-case basis to determine actual costs. Unless otherwise noted, the recommended projects are not yet funded.*

**Table 1: Recommended Near-Term Improvement Projects**

ID	Project Location and Description	Project Benefits	Cost Estimate
<b>Bridge Improvement Projects</b>			
<b>Arizona Department of Transportation</b>			
N-1	<b>I-17 (MP 293.3) - Bridge #652 (Cornville Rd)</b> Replace bridge <i>Projected funded (Tracs H863201C)</i>	Upgrades structurally deficient bridge to national standards; improves safety	\$3,500,000
N-2	<b>SR 179 (MP 302.5) - Bridge #736 (Dry Beaver Creek)</b> Rehabilitate bridge	Prevents increased deterioration; extends life of bridge; improves safety	\$800,000
N-3	<b>SR 89A (MP 375.66) - Bridge #232 (Wilson Canyon)</b> Rehabilitate bridge	Prevents increased deterioration; extends life of bridge; improves safety	\$800,000
N-4	<b>SR 260 (MP 215.05) - Bridge #966 (Cherry Creek)</b> Rehabilitate bridge	Prevents increased deterioration; extends life of bridge; improves safety	\$800,000
<b>Yavapai County</b>			
N-5	<b>Cornville Rd - Bridge #9100 (Oak Creek)</b> Rehabilitate bridge	Prevents increased deterioration; extends life of bridge; improves safety	\$800,000



**Table 1: Recommended Near-Term Improvement Projects (Continued)**

ID	Project Location and Description	Project Benefits	Cost Estimate
<b>Intersection Safety Improvements</b>			
<b>Arizona Department of Transportation</b>			
<b>N-6</b>	<b>State Route 89A/State Route 260</b> Conduct a traffic study to evaluate performance and operation of intersection. Study should also: – Evaluate traffic control options - signal vs roundabout; identify alternate routes to reroute traffic to reduce intersection congestion	Improves intersection operation and safety; reduces congestion	\$75,000
<b>N-7</b>	<b>State Route 89A/State Route 179</b> Conduct a traffic study to evaluate performance and operation of intersection. Study should also: – Assess the need for channelized right turns at the roundabouts; identify methods to slow down approaching traffic; Identify alternate routes to reroute traffic to reduce intersection congestion	Improves intersection operation and safety; reduces congestion	\$75,000
<b>N-8</b>	<b>State Route 260/Fir St</b> Conduct a traffic study to evaluate performance and operation of intersection. Study should also: – Evaluate need to reduce speed limit on SR 260; modify signal phasing to safely accommodate pedestrians and left turn movements	Improved intersection safety and operation	\$30,000
<b>N-9</b>	<b>State Route 89A/Cornville Rd</b> Conduct a traffic study to evaluate performance and operation of intersection. Study should also: – Evaluate need to reduce speed limits on State Route 89A and Cornville Rd at the intersection approaches; install appropriate signage on Cornville Rd to warn drivers of approaching intersection	Improved intersection safety and operation	\$30,000
<b>N-10</b>	<b>Interstate 17/Cornville Rd</b> Upgrade signage to provide clear directions to motorists	Improves intersection safety	\$10,000
<b>N-11</b>	<b>State Route 179/Beaverhead Flat Rd</b>	Increases driver visibility; improves intersection safety	\$10,000
N-11.1	Conduct Traffic Signal Warrant study to confirm if the intersection meets signal warrants.		
N-11.2	Remove roadside vegetation to increase sight distance		
<b>Corridor Safety Improvements</b>			
<b>Arizona Department of Transportation</b>			
<b>N-12</b>	<b>Intelligent Transportation Systems (ITS) Assessment</b> Conduct an assessment to determine the feasibility and potential locations for dynamic message signboard (DMS) or variable message signboards (VMS). <i>The ADOT I-17 Corridor Profile Study recommended sign placements at MP 297.4(SB), MP289 (NB) MP 303.4 (NB) and MP 305.0 (NB). Additional locations for potential message boards include: I-17 at MP 286.0 (Northbound), I-17 at MP 301.0 (Southbound), SR 260 at MP 216.0, and SR 179 at MP 301.0.</i>	Disseminates traffic condition, travel time information, weather, and emergency warnings to motorists	\$50,000
<b>N-13</b>	<b>State Route 89A: MP 334.0 - MP 346.0</b> Conduct a Roadway Safety Assessment (RSA) to develop safety related improvement strategies	Identifies improvements to address corridor safety issues such as geometry, signage, etc.	\$30,000

**Table 1: Recommended Near-Term Improvement Projects (Continued)**

ID	Project Location and Description	Project Benefits	Cost Estimate
<b>Corridor Safety Improvements</b>			
<b>Arizona Department of Transportation</b>			
N-14	<b>SR 89A: Cornville Rd - MP 368.3 Red Rock Loop Rd</b> Conduct a Roadway Safety Assessment (RSA) to develop safety related improvement strategies	Identifies improvements to address corridor safety issues such as geometry, signage, etc.	\$25,000
N-15	<b>SR 179: I-17 - Verde Valley School Rd</b> Conduct a Roadway Safety Assessment (RSA) to develop safety related improvement strategies	Identifies improvements to address corridor safety issues such as geometry, signage, etc.	\$20,000
N-16	<b>SR 89A: Mingus Avenue - SR 260</b> Conduct an access management assessment to identify improvement scenarios	Identifies improvements to address corridor safety issues such as geometry, signage, etc.	\$50,000
N-17	<b>SR 89A: Red Rock Loop Road to Uptown Sedona</b> Conduct an access management assessment to identify improvement scenarios	Identifies improvements to address corridor safety especially pedestrian and bicyclist safety	\$60,000
<b>Yavapai County</b>			
N-18	<b>Cornville Rd: SR 89A - Page Springs Rd</b> Conduct a Roadway Safety Assessment (RSA) to develop safety related improvement strategies	Identifies improvements to address corridor safety issues such as geometry, signage, etc.	\$20,000
<b>Shoulder Improvements</b>			
<b>Arizona Department of Transportation</b>			
N-19	<b>State Route 89A: MP 346.6 - MP 349.0</b> <i>Widen shoulders from 1 FT to 5 FT</i>	Increase safety for all modes; improve emergency response	\$724,500
N-20	<b>State Route 89A: MP 374.0 - MP 376.0</b> <i>Widen shoulders from 1 FT to 5 FT</i>	Increase safety for all modes; improve emergency response	\$690,000
<b>Yavapai County</b>			
N-21	<b>Cornville Rd: SR 89A - Tissaw Road; Aspaas Road - I-17</b> <i>Widen shoulders from 0 FT to 5 FT</i>	Increase safety for all modes; improve emergency response	\$4,132,500
<b>Local Jurisdiction</b>			
N-22	<b>Montezuma Castle Highway: Finnie Flat Rd to I-17</b> <i>Widen shoulders from 0 FT to 5 FT</i>	Increase safety for all modes; improve emergency response	\$1,392,000
N-23	<b>Camino Real: Donner Trl to Arrowhead Ln</b> <i>Widen shoulders from 0 FT to 5 FT</i>	Increase safety for all modes; improve emergency response	\$348,000
<b>Roadway Surface Treatment Improvements</b>			
<b>Arizona Department of Transportation</b>			
N-24	<b>State Route 89A: 6th Street - MP 355.7</b> <i>Major pavement rehabilitation</i>	Extends life of existing infrastructure	\$1,881,000
N-25	<b>State Route 179: I-17 - MP 304.7</b> <i>Major pavement rehabilitation</i>	Extends life of existing infrastructure	\$2,465,000
N-26	<b>State Route 89A: MP 375.0 - MP 376.0</b> <i>Major pavement rehabilitation</i>	Extends life of existing infrastructure	\$425,000
N-27	<b>State Route 89A: MP 343.3 - MP 348.6</b> <i>Major pavement rehabilitation</i>	Extends life of existing infrastructure	\$765,000
<b>Yavapai County</b>			
N-28	<b>Verde Valley School Rd: Red Rock Cove Dr - End of Pavement</b> <i>Major pavement rehabilitation</i>	Extends life of existing infrastructure	\$1,020,000



**Table 1: Recommended Near-Term Improvement Projects (Continued)**

ID	Project Location and Description	Project Benefits	Cost Estimate
<b>Roadway Surface Treatment Improvements</b>			
<b>Yavapai County</b>			
<b>N-29</b>	<b>Beaver Creek Road: Montezuma Well Road to Ranger Road</b> <i>Improve roadway surface conditions by applying unpaved road treatments that provide for a much stable and smoother surface and reduce dust emissions</i>	Provides alternative/emergency route to Lake Montezuma; reduces dust emissions; improves roadway conditions; minimizes impacts to National Forest Land	\$255,000
<b>Local Jurisdiction</b>			
<b>N-30</b>	<b>Cottonwood major pavement rehabilitation</b>	Extends life of existing infrastructure	\$4,250,000
<i>N-30.1</i>	<i>Broadway: 0.5mi west of Bill Gray Rd - SR 89A</i>		
<i>N-30.2</i>	<i>Mingus Ave: SR 89A - 18th St</i>		
<i>N-30.3</i>	<i>Black Hills Dr: SR 89A - 0.9mi west of SR 89A</i>		
<i>N-30.4</i>	<i>Fir St: Chuckwalla St - Willard St</i>		
<i>N-30.5</i>	<i>Willard St: SR 89A - Mingus Ave</i>		
<i>N-30.6</i>	<i>Old State Highway 279: Rio Mesa Trail - Ogden Ranch Rd</i>		
<b>N-31</b>	<b>Old State Highway SR 279</b>	Upgrades roadway to continuous paved corridor; provides access to proposed developments	\$722,500
<i>N-31.1</i>	<i>SR 260 to Aultman Pkwy</i> <i>Major pavement rehabilitation</i>		
<i>N-31.2</i>	<i>Aultman Pkwy to Clover Ranch Rd</i> <i>Pave unpaved roadway</i>		
<i>N-31.3</i>	<i>SR 260 to Clover Ranch Road</i> <i>Major pavement rehabilitation</i>		
<b>N-32</b>	<b>Old State Highway 279: Camino Real - SR 260</b> <i>Pave unpaved roadway</i>	Provides additional access	\$2,249,500
<b>Roadway Capacity Improvements</b>			
<b>Arizona Department of Transportation</b>			
<b>N-33</b>	<b>SR 260: Thousand Trails Rd to I-17</b> <i>Widen to four lane roadway</i> <i>Projected funded (Tracs H869901C)</i>	Increases capacity; improves corridor safety; improves intersection safety	\$52,000,000
<b>Camp Verde</b>			
<b>N-34</b>	<b>Finnie Flat Road: SR 260 to Main Street</b> <i>Widen roadway to a four lane arterial roadway (Complete Streets CS # 2) with bike lanes and sidewalk in both directions. Install center turn lane or median with left-turn pockets where feasible.</i>	Improves safety for all modes; improves corridor safety; encourages economic development	\$2,795,000
<b>Cottonwood</b>			
<b>N-35</b>	<b>Broadway Road: Main Street (Cottonwood) to Main Street (Clarkdale)</b> <i>Upgrade to major collector (Complete Streets CS # 1) with bike lanes and sidewalks in both directions. Install center turn lane or median with left-turn pockets where feasible.</i>	Improves corridor safety; improve pedestrian and bicycle mobility; encourage economic development	\$332,800
<b>N-36</b>	<b>West Loop Phase 1: Black Hills Drive to Fir Street</b> <i>Construct two-lane minor collector (Complete Streets CS # 1) with bike lanes and sidewalks in both directions. Install center turn lane or median with left-turn pockets where feasible. Extend Black Hills Drive and Mingus Avenue to connect with West Loop Road.</i>	Increases mobility and circulation; provides access to Yavapai College; provides additional pedestrian and bicycle facilities	\$4,294,500

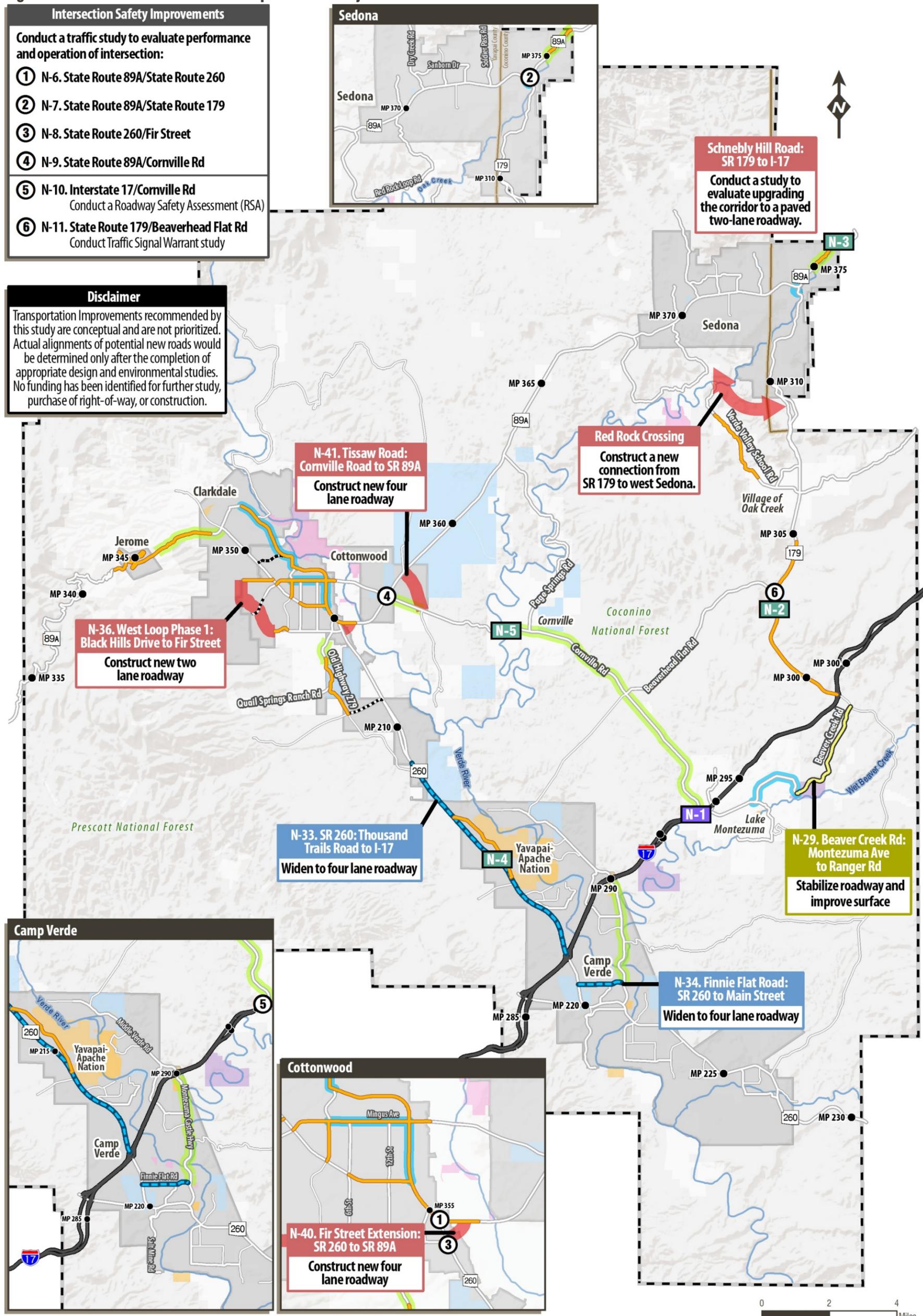


**Table 1: Recommended Near-Term Improvement Projects (Continued)**

ID	Project Location and Description	Project Benefits	Cost Estimate
<b>Roadway Capacity Improvements</b>			
<b>Cottonwood</b>			
<b>N-37</b>	<b>Groseta Ranch Road: SR 89A to North Main Street</b> <i>Pave roadway to be a two lane minor collector (Complete Streets CS # 1) with bike lanes and sidewalks in both directions. Install center turn lane or median with left-turn pockets where feasible.</i>	Increases mobility and circulation; provides additional pedestrian and bicycle facilities	\$3,676,500
<b>N-38</b>	<b>Mingus Avenue: North Main Street to Willard Street</b> <i>Upgrade roadway to an arterial (Complete Streets CS # 1) with bike lanes and sidewalks in both directions. Install center turn lane or median with left-turn pockets where feasible.</i>	Upgrades corridor to provide safe facilities for all modes; improves corridor safety; encourages economic development	\$128,000
<b>N-39</b>	<b>Main Street: SR 89A to Mingus Avenue</b> <i>Upgrade roadway to an arterial (Complete Streets CS # 2) with bike lanes and sidewalks in both directions. Install center turn lane or median with left-turn pockets where feasible.</i>	Upgrades corridor to provide safe facilities for all modes; improves corridor safety; encourages economic development	\$102,400
<b>N-40</b>	<b>Fir Street Extension: SR 260 to SR 89A</b> <i>Extend Fir Street to SR 89A as a four lane minor collector roadway</i>	Redirects traffic away from SR 260/SR 89A intersection	\$1,345,500
<b>N-41</b>	<b>Tissaw Road: Cornville Road to SR 89A</b> <i>Coordinate with developer to construct a four lane major collector roadway. <b>This project is recommended to be constructed as development occurs at the northwest corner of the Cornville Road/SR 89A intersection</b></i>	Increases access to planned development; reduce congestion on Cornville Road	\$5,830,500
<b>Sedona</b>			
<b>N-42</b>	<b>Brewer Road - Ranger Road Connection</b> <i>Upgrade Brewer Rd and Ranger Rd segments to one lane minor collector roadway. Install clearly visible signage to direct SR 89A Eastbound and to SR 179 Northbound traffic to use connection to avoid SR 89A / SR 179 intersection</i>	Redirects traffic away from SR 89A/SR 179 intersection	\$25,600
<b>N-43</b>	<b>Schnebly Hill Rd - SR 179 to I-17</b> <i>Conduct a study to evaluate upgrading the corridor to a paved two lane roadway. The study should include: - Traffic demand analysis, evaluation of constructability, and environmental impacts analysis</i>	Provides alternate route from Sedona to I-17 and Flagstaff	\$200,000
<b>N-44</b>	<b>Red Rock Crossing</b> <i>Conduct a feasibility study for a new connection from SR 179 to west Sedona. The study should include: - Evaluation of Oak Creek crossing locations, future traffic demand analysis, and environmental assessment</i>	Serves as a local SR 89A/SR 179A bypass; improves connectivity from Village of Oak Creek and West Sedona; improves emergency access	\$100,000
<b>Yavapai County</b>			
<b>N-45</b>	<b>Beaver Creek Rd: Montezuma Ave to Montezuma Well Rd</b> <i>Upgrade functional classification to Major Collector</i>	Upgrades corridor to provide safe facilities for all modes; improves corridor safety; encourages economic development	N/A



Figure 5: Recommended Near-Term Improvement Projects



- Intersection Safety Improvements**
- Conduct a traffic study to evaluate performance and operation of intersection:
- ① N-6. State Route 89A/State Route 260
  - ② N-7. State Route 89A/State Route 179
  - ③ N-8. State Route 260/Fir Street
  - ④ N-9. State Route 89A/Cornville Rd
  - ⑤ N-10. Interstate 17/Cornville Rd  
Conduct a Roadway Safety Assessment (RSA)
  - ⑥ N-11. State Route 179/Beaverhead Flat Rd  
Conduct Traffic Signal Warrant study

**Disclaimer**

Transportation Improvements recommended by this study are conceptual and are not prioritized. Actual alignments of potential new roads would be determined only after the completion of appropriate design and environmental studies. No funding has been identified for further study, purchase of right-of-way, or construction.

Construct new road	Widen shoulders	Interstate	State Trust
<b>Roadway Improvements</b>	Upgrade roadway functional classification	Study Roadway	National Park
Major pavement rehabilitation	<b>Bridge Improvements</b>	Study Area	State Park
Pave unpaved road	Rehabilitate bridge	County Boundary	Indian Reservation
Unpaved road treatment	Replace bridge	City Boundary	
Widen roadway			

## Mid-Term Improvements

Mid-term projects are more complex projects that improve safety, expand mobility and access, or address future development needs. Table 2 and Figure 6 presents a comprehensive list of the transportation recommendations for this phase, as well as the project number, location, and descriptions for each project. *Each project is assigned a unique project number; project numbering does not represent the priority of the project but rather it is an identification number to track project progress. Unless otherwise noted, funding has not been secured for additional studies, design, purchase of right-of-way, or construction. As each project progresses into the concept and design phase, close coordination with the Prescott and Coconino Forest should occur to assess if there are available solutions on non-federal land. All federally funded projects are also subject to the National Environmental Policy Act (NEPA) process, which identifies projects potential environmental impacts and ensures that subsequent mitigation measures are addressed and implemented appropriately through construction. Planning level cost estimates were developed based on typical per-mile/foot construction costs. Estimated costs for each project are expressed in 2015 dollars and do not include costs associated with right-of-way acquisitions, design, utility relocation, environmental clearance, etc. Actual costs for projects could vary at the time of implementation; therefore, a detailed analysis should be performed on a case-by-case basis to determine actual costs. Unless otherwise noted, the recommended projects are not yet funded.*

**Table 2: Recommended Mid-Term Improvement Projects**

ID	Project Location and Description	Project Benefits	Cost Estimate
<b>Bridge Improvement Projects</b>			
<b>Arizona Department of Transportation</b>			
<b>M-1</b>	<b>SR 89A (MP 339.16) - Bridge #133 (Wash)</b> <i>Rehabilitate bridge</i>	Prevents increased deterioration; extends life of bridge; improves safety	\$800,000
<b>M-2</b>	<b>SR 260 Bridge Rehabilitation</b>	Prevents increased deterioration; extends life of bridge; improves safety	\$2,400,000
M-2.1	SR 260 (MP 287.27) - Bridge #2575 (I-17)		
M-2.2	SR 260 (MP 224.43) - Bridge #2300 (Wickiup Wash)		
M-2.3	SR 260 (MP 227.05) - Bridge #2301 (West Clear Creek)		
<b>M-3</b>	<b>Reconstruct Bridge to include Pedestrian Facilities</b>	Increased pedestrian and bicyclist access	\$7,000,000
M-3.1	SR 260 (MP 209.88) - Bridge #758 (Black Canyon Wash)		
M-3.2	SR 260 (MP 210.55) - Bridge #781 (Wilbur Canyon)		
<b>Yavapai County</b>			
<b>M-4</b>	<b>Page Springs Rd - Bridge #9102 (Oak Creek)</b> <i>Rehabilitate bridge</i>	Prevents increased deterioration; extends life of bridge; improves safety	\$800,000
<b>M-5</b>	<b>Broadway - Bridge #8488 (Bitter Creek)</b> <i>Widen One-Lane Bridge</i>	Increased capacity for trucks and tourists	\$390,000
<b>Shoulder Improvements</b>			
<b>Local Jurisdiction</b>			
<b>M-6</b>	<b>Clarkdale: Widen shoulders from 0 FT to 5 FT</b>	Increases safety for all modes; improves emergency response	\$652,500
M-6.1	Cement Plant Rd		
M-6.2	Tuzigoot Rd		
M-6.3	Sycamore Canyon Rd		
<b>M-7</b>	<b>Dry Creek Rd: Thunder Mountain Rd - Long Canyon Rd</b> <i>Widen shoulders from 0 FT to 5 FT</i>	Increases safety for all modes; improves emergency response	\$565,500
<b>M-8</b>	<b>Camp Verde: Widen shoulders from 0 FT to 5 FT</b>	Increases safety for all modes; improves emergency response	\$1,566,000
M-8.1	Arena del Loma		
M-8.2	Boot Hill Dr		
M-8.3	Apache Trail		

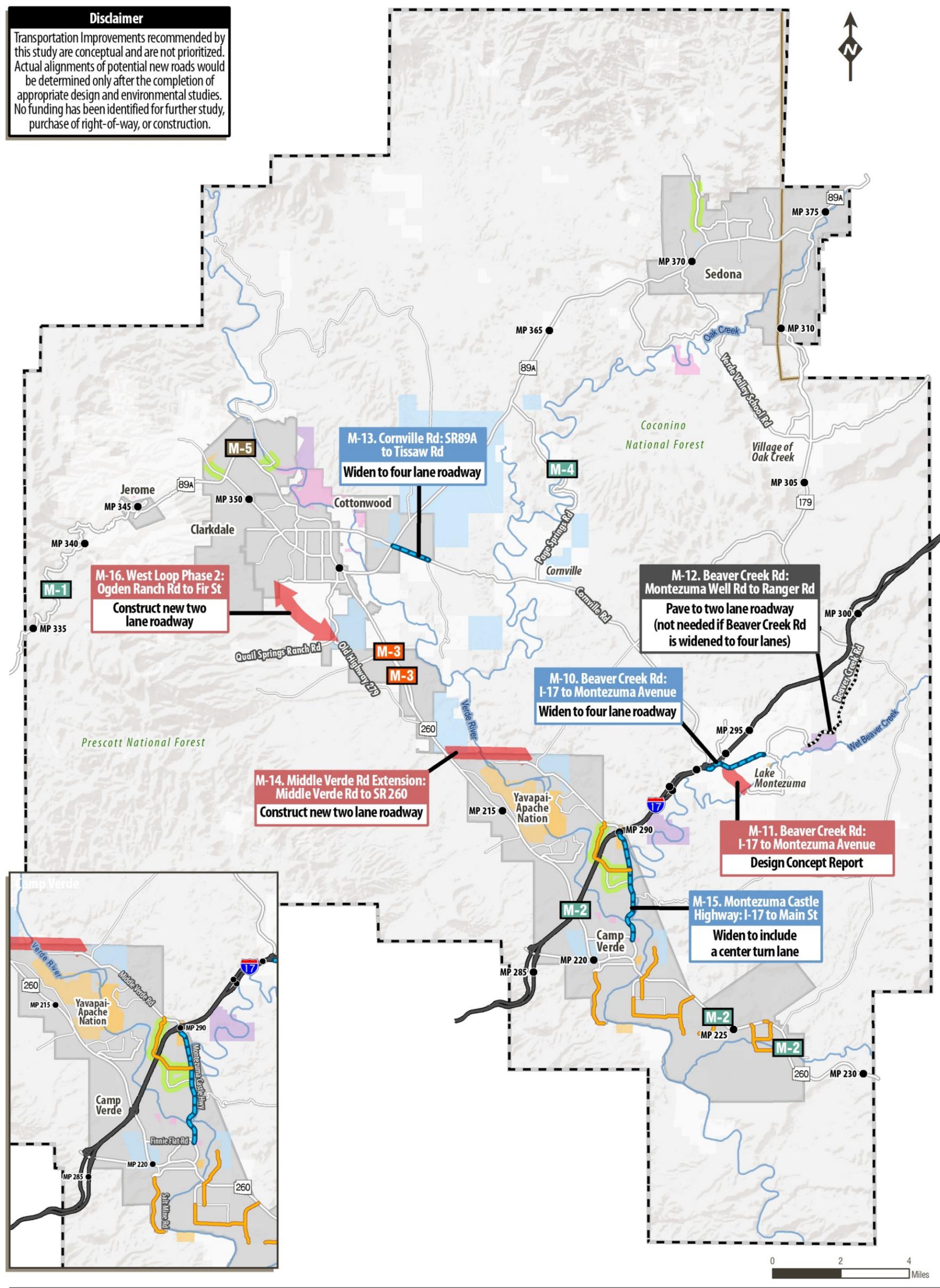
**Table 2: Recommended Mid-Term Improvement Projects (Continued)**

ID	Project Location and Description	Project Benefits	Cost Estimate
<b>Roadway Surface Treatment Improvements</b>			
<b>Local Jurisdiction</b>			
<b>M-9</b>	<b>Camp Verde: Pavement Preservation</b>	Extends life of existing infrastructure	\$635,000
M-9.1	Aspen Way: SR 260 - Catclaw Drive		
M-9.2	Arena del Loma		
M-9.3	Salt Mine Rd		
M-9.4	Verde Park Dr		
M-9.5	Verde Lakes Dr: SR 260 - Clinton Lane		
M-9.6	Murdock Rd: Quarterhorse Ln - Stolen Blvd		
M-9.7	Quarterhorse Ln: Stolen Blvd - Verde Park Dr		
M-9.8	Clinton Ln: Verde Lakes Drive - Creek View Dr		
M-9.9	McCracken Rd: SR 260 - 0.1mi north of Lena Dr		
M-9.10	Creek View Dr: Clinton Lane - Chino Dr		
M-9.11	Sierra Verde Rd: SR 260 - Sierra Ln		
M-9.12	Catclaw Dr: Verde Lakes Dr - Aspen Way		
<b>Roadway Capacity Improvements</b>			
<b>Yavapai County</b>			
<b>M-10</b>	<b>Beaver Creek Rd: I-17 to Montezuma Avenue*</b> <i>Widen to four lane arterial roadway and install center turn lane or median where feasible.</i>	Improves congestion; improves safety for all modes; provides pedestrian and bicycle facilities	\$387,000
<b>M-11</b>	<b>New Road: Beaver Creek Rd to Montezuma Ave</b>	Provides alternative/emergency route to residents residing south of Beaver Creek; provides pedestrian and bicycle facilities	NA
M-11.1	Conduct Design Concept Report for New Road between Beaver Creek Road and Montezuma Avenue in the vicinity of Brocket Ranch Road.		
M-11.2	Use the findings from the Design Concept Report, Project 11.1, to construct a new road between Beaver Creek Road and Montezuma Avenue		\$1,840,500
<b>M-12</b>	<b>Beaver Creek Rd: Montezuma Well Rd to Ranger Rd</b> <i>Pave unpaved roadway to a two lane minor collector roadway. <span style="color: red;">This project is not needed if Beaver Creek Road is widened to four lanes between I-17 and Montezuma Avenue (M-12).</span></i>	Provides alternative/emergency route to Lake Montezuma; reduces congestion on Beaver Creek Road in Lake Montezuma	\$6,953,000
<b>M-13</b>	<b>Cornville Rd: SR 89A to Tissaw Rd</b> <i>Widen roadway to four lane arterial roadway with bike lanes and sidewalks in both directions. Install center turn lane or median with left-turn pockets where feasible.</i>	Relieves congestion; improves safety for all modes; provides pedestrian and bicycle facilities	\$236,500
<b>Camp Verde</b>			
<b>M-14</b>	<b>Middle Verde Rd Extension: Middle Verde Rd to SR 260</b> <i>Extend Middle Verde Road as a two lane minor collector (Complete Streets CS # 1) with bike lanes and sidewalk in both directions. Bridge will need to be constructed over Verde River.</i>	Provides alternative/emergency route to Yavapai-Apache Nation; increases access for all modes; encourage economic development	\$7,737,500
<b>M-15</b>	<b>Montezuma Castle Highway: I-17 to Main St</b> <i>Widen corridor to include a center turn lane</i>	Improves corridor safety	\$1,716,000
<b>M-16</b>	<b>West Loop Phase 2: Ogden Ranch Rd to Fir St</b> <i>Construct two lane minor collector (Complete Streets CS # 1) with bike lanes and sidewalks in both directions. Install center turn lane or median with left-turn pockets where feasible.</i>	Increases mobility and circulation; provide additional pedestrian and bicycle facilities	\$3,067,500

*\*During the public meetings, county residents expressed a strong interest in pedestrian and bicycles amenities along county roads. Yavapai County Resolution NO. 1036 contains the adopted roadway cross sections for all County roads which dictate the roadway design and include a 4 foot shoulders beyond the travel lane which provides for multimodal uses. County residents could work with their public officials to begin a dialogue on how to amend the resolution to include modified multimodal amenities in the roadway cross sections.*



Figure 6: Recommended Mid-Term Improvement Projects



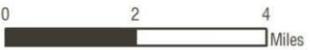
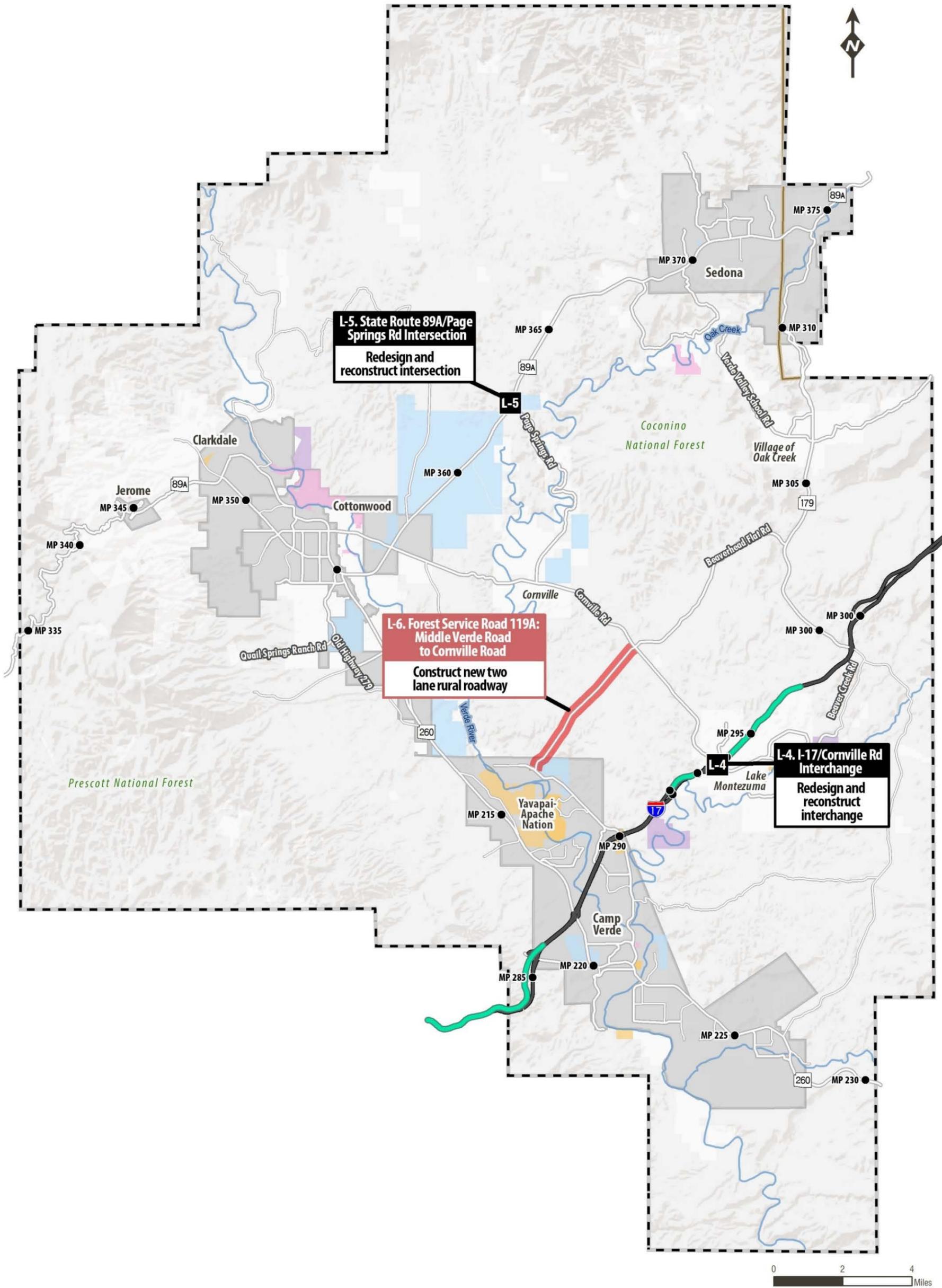
## Long-Term Improvements

Long-term phase projects are high cost projects that require additional time to obtain funding or are not needed until build-out conditions. Table 3 and Figure 7 presents a comprehensive list of the transportation recommendations for this phase, as well as the project number, location, and description for each project. *Each project is assigned a unique project number; project numbering does not represent the priority of the project but rather it is an identification number to track project progress. Unless otherwise noted, funding has not been secured for additional studies, design, purchase of right-of-way, or construction. As each project progresses into the concept and design phase, close coordination with the Prescott and Coconino Forest should occur to assess if there are available solutions on non-federal land. All federally funded projects are also subject to the National Environmental Policy Act (NEPA) process, which identifies projects potential environmental impacts and ensures that subsequent mitigation measures are addressed and implemented appropriately through construction.*

**Table 3: Recommended Long-Term Improvement Projects**

ID	Project Location and Description	Project Benefits
<b>Roadway Capacity Improvements</b>		
<b>Arizona Department of Transportation</b>		
L-1	<b>I-17 Southbound Climbing Lane: MP 286 – MP 281</b> <i>Construct 12 FT truck climbing lane for slow-moving heavy vehicles</i> <i>ADOT I-17 Corridor Profile Study recommended climbing lane installation at MP 294 – MP 298 (Northbound), MP 299 – MP 305 (Northbound), and MP 292 – 294 (Southbound)</i>	Improves corridor safety and traffic flow
L-2	<b>I-17 Southbound Climbing Lane: MP 293 – MP 292</b> <i>Construct 12 FT truck climbing lane for slow-moving heavy vehicles</i> <i>ADOT I-17 Corridor Profile Study recommended climbing lane installation at MP 294 – MP 298 (Northbound), MP 299 – MP 305 (Northbound), and MP 292 – 294 (Southbound)</i>	Improves corridor safety and traffic flow
L-3	<b>I-17 Northbound Climbing Lane: MP 294 – MP 297</b> <i>Construct 12 FT truck climbing lane for slow-moving heavy vehicles</i> <i>ADOT I-17 Corridor Profile Study recommended climbing lane installation at MP 294 – MP 298 (Northbound), MP 299 – MP 305 (Northbound), and MP 292 – 294 (Southbound)</i>	Improves corridor safety and traffic flow
L-4	<b>I-17/Cornville Rd</b> <i>Redesign and reconstruct interchange</i>	Improves interchange safety and operation
L-5	<b>State Route 89A/Page Springs Rd</b> <i>Redesign and reconstruct intersection</i>	Improves intersection safety and operation
<b>Yavapai County</b>		
L-6	<b>Forest Service Road 119A: Middle Verde Road to Cornville Road</b> <i>Construct new two lane rural roadway</i> <i>This project is not needed if Cornville Road is widened to four lanes (M-16)</i>	Provides alternative route between SR 260 and Cornville Road; alternative/emergency route to Yavapai-Apache Nation; increases access for all modes

Figure 7: Recommended Long-Term Improvement Projects



- Construct new road
- Construct climbing lane
- Interstate
- Study Roadway
- Study Area
- County Boundary
- City Boundary
- State Trust
- National Park
- State Park
- Indian Reservation

## Environmental Considerations

For each project involving potential impacts to National Forest Lands or environmentally sensitive lands, a trade-off analysis needs to be conducted to carefully determine trade-offs between wilderness values and the “incremental costs” of expanding the transportation network on the environment. A comprehensive trade-off analysis determining if the positive impacts on the region’s transportation network outweighs the potential impacts on the natural and cultural environment should be conducted for each project that has the potential to impact National Forest Lands or environmentally sensitive lands. A trade-off analysis is particularly important within the National Forest system, because the land is a federally protected source that must be managed for the benefit of the public. Analysis should include:

- Degree to which the planned improvement increases access to protected lands and environmentally sensitive lands
- Degree that the planned improvement alters the natural environment or appearance of the land
- Impacts on areas of ecological, geologic, scenic, historic, or cultural significance
- Potential mitigation measure to minimize impacts on natural and cultural environment

Below is a summary of improvement projects that may have substantial environmental impacts and potential mitigation measures and trade-offs.

<p><b>Paving Beaver Creek Road (Montezuma Lake Road to Ranger Road)</b></p>	<p><b>Purpose:</b> Future traffic demand in Lake Montezuma requires additional access and alternative route to access Lake Montezuma</p> <p><b>Impacts:</b> A 2000 Environmental Assessment was conducted that found no significant impact if the roadway were upgraded to a paved roadway; however, an updated Environmental Assessment would need to be conducted to determine potential impacts of the proposed improvement.</p> <ul style="list-style-type: none"> <li>– Short-term recommendations of performing a dirt road surface treatment may reduce dust emissions; however, it may increase vehicular usage of the roadway.</li> <li>– Widening Beaver Creek Road from I-17 to Montezuma Avenue eliminates the need of paving unpaved portions of Beaver Creek Road, because the increased capacity of the corridor meets the future traffic demand of Lake Montezuma.</li> </ul>
<p><b>Constructing a new road along Forest Service Road 119A</b></p>	<p><b>Purpose:</b> Relieve congestion on Cornville Road and provide alternative access to SR 260</p> <p><b>Impacts:</b> A 2000 Environmental Assessment was conducted that found no significant impact if the roadway were upgraded to a paved roadway; however, an updated Environmental Assessment would need to be conducted to determine potential impacts of the proposed improvement.</p> <ul style="list-style-type: none"> <li>– Paving the roadway will increase vehicular traffic and recreational activities within the National Forest. Coordination should occur with the USFS to determine if the proposed improvement conflicts with the USFS management objectives.</li> <li>– To mitigate impacts, widening Cornville Road to four lanes from Page Springs Road to SR 89A improves congestion along the Cornville Road.</li> </ul>
<p><b>West Loop Road</b></p>	<p><b>Purpose:</b> Improve traffic circulation in Cottonwood and meeting future traffic demand</p> <p><b>Impacts:</b> Construction of this proposed improvement would involve acquiring additional right-of-way from USFS land. An Environmental Assessment will need to be conducted to determine potential impacts on the natural environment.</p>
<p><b>Middle Verde Road Verde River crossing</b></p>	<p><b>Purpose:</b> Provide alternative access between SR 260 and Middle Verde Road</p> <p><b>Impacts:</b> Potential impacts posed by the construction of a bridge include: displacement of biological resources and riparian habitats, changes to the river’s free-flow conditions, induced increase to the 100-year flood event water surface elevation, and impacts to the river’s wild and scenic qualities.</p>



## Congestion Management Strategies

Traditional capacity improvement, such as adding travel lanes or constructing new roadways, can be costly and pose adverse impacts on the natural environment. Implementing low-cost congestion management strategies; however, may assist in reducing transportation demand and improving overall traffic flow. Congestion management strategies include:

- *Transportation demand management (TDM)*: strategies generally focus on reducing the amount of vehicle travel by changing travel behavior (reducing vehicle miles traveled, trip length, travel model, etc.). Examples of TDM strategies include: ridesharing, High-Occupancy Vehicle (HOV) lanes, constructing park-and-ride facilities, increasing bike and pedestrian paths, improving transit service, parking management, creating auto-free zones, implementing employer-based flexible work schedules, etc.
- *Transportation system management (TSM)*: driver behavior-oriented strategies that generally focus on improving the management and operations of a facility or transportation system. Examples of TSM strategies include: traffic signal synchronization/optimization, installing roundabouts, restricting turning movements, constructing bus pullouts, installing variable message signs, variable speed limits, access management, truck restrictions, Intelligent Transportation Systems (ITS), limiting on-street parking, etc.

TDM and TSM strategies were evaluated for the Verde Valley study area to identify methods of improving circulation, reducing congestion, and meeting existing and future demand. Below provides a review of potential congestion management strategies that ADOT, Yavapai County, and local jurisdiction should consider implementing to improve the local and regional transportation system.

<p><b>Warning system to alert motorist of traffic conditions and emergency situation</b></p>	<p>Electronic message boards warn motorists of traffic conditions, adverse weather, and emergency situations. Providing real-time congestion and travel-time information along I-17 to major activity centers may assist in improving traffic flow along area highways, as motorists may alter their route depending on congestion levels. Potential locations for message boards include: I-17 at MP 286.0 (Northbound), I-17 at MP 301.0 (Southbound), SR 260 at MP 216.0, and SR 179 at MP 301.0. <i>The ADOT I-17 Corridor Profile Study recommended sign placements at MP 297.4(SB), MP 289 (NB) MP 303.4 (NB) and MP 305.0 (NB).</i></p>
<p><b>Uptown Sedona – Motorists searching for parking creates additional delays and impairs local circulation</b></p>	<p>Developing a cohesive system of variable message signs and wayfinding signage to disseminate parking garages (Sedona Chamber of Commerce and Sinagua Plaza), parking availability, and parking rate information to travelers may reduce excessive congestion caused by motorists circulating to find a parking space. Currently ADOT has a way finding program; however, City of Sedona is responsible for implementation and maintenance of the signs.</p>
<p><b>Uptown Sedona – unsafe pedestrian crossings</b></p>	<p>Construct pedestrian bridges over SR 89A with elevators that tie into parking structures. Wayfinding signage directing pedestrians to utilize the bridges should also be installed.</p> <p>Construct sidewalk barriers that prevent pedestrians from crossing SR 89A and funnel pedestrian traffic to pedestrian bridges or crosswalks.</p> <p>Install pedestrian call button at mid-block crosswalks (Forest Road, Jordan Road, Arroyo Roble) with an LED display.</p>
<p><b>SR 179 – heavy congestion south of SR 89/SR 179 intersection</b></p>	<p>Install variable message signs on I-17 Northbound before Camp Verde and on I-17 Southbound south of Flagstaff to provide travel-time estimates to motorists to access major destinations. This enables motorists to choose alternate routes during congested and emergency situations.</p> <p>Evaluate the impact of constructing a parking lot south of Sedona that ties into a shuttle service that transports travelers to/from Sedona activity centers. Adding a bike rental facility at the parking lot may further reduce congestion.</p>
<p><b>Cottonwood Downtown – limited parking causes congestion</b></p>	<p>Construct a parking structure and install wayfinding signage to direct tourists to parking facilities.</p> <p>Restrict on-street parking during major events to reduce congestion and improve pedestrian safety.</p>

## Pedestrian, Bicycle, And Trail Improvement Recommendations

Existing pedestrian and trail facilities were reviewed in relation to: the location of activity centers such as schools, retail establishments, medical facilities, recreation centers; residential community developments; and existing roadway alignments. Analyzing the study area's existing pedestrian and trail facilities helped to identify locations that would benefit from these amenities and that would be closely integrated with the area's roadway system while maintaining pedestrian safety. The prioritization of the pedestrian, bike, and trail improvement projects is based on the facilities spatial relationship to schools and major activity centers, as well as input from the TAC, stakeholders, and the public. Figure 8 provides an illustration of recommended improvements for the near-, mid- and long- terms.

Based on technical analysis of historic crash records, numerous pedalcyclist related crashes occurred within the Verde Valley, notably along SR 89A in Cottonwood and Sedona. To reduce vehicle-pedalcyclist collisions, one potential improvement strategy is to add colored pavement within bike lanes. Bike lanes with colored pavement treatments increase driver awareness and improve motorists yielding behavior.



### Bike Lane Colored Pavement

**Benefits:** Increases driver awareness of bike lane; provides pedalcyclist with a defined space to travel; increases motorists yielding behavior.

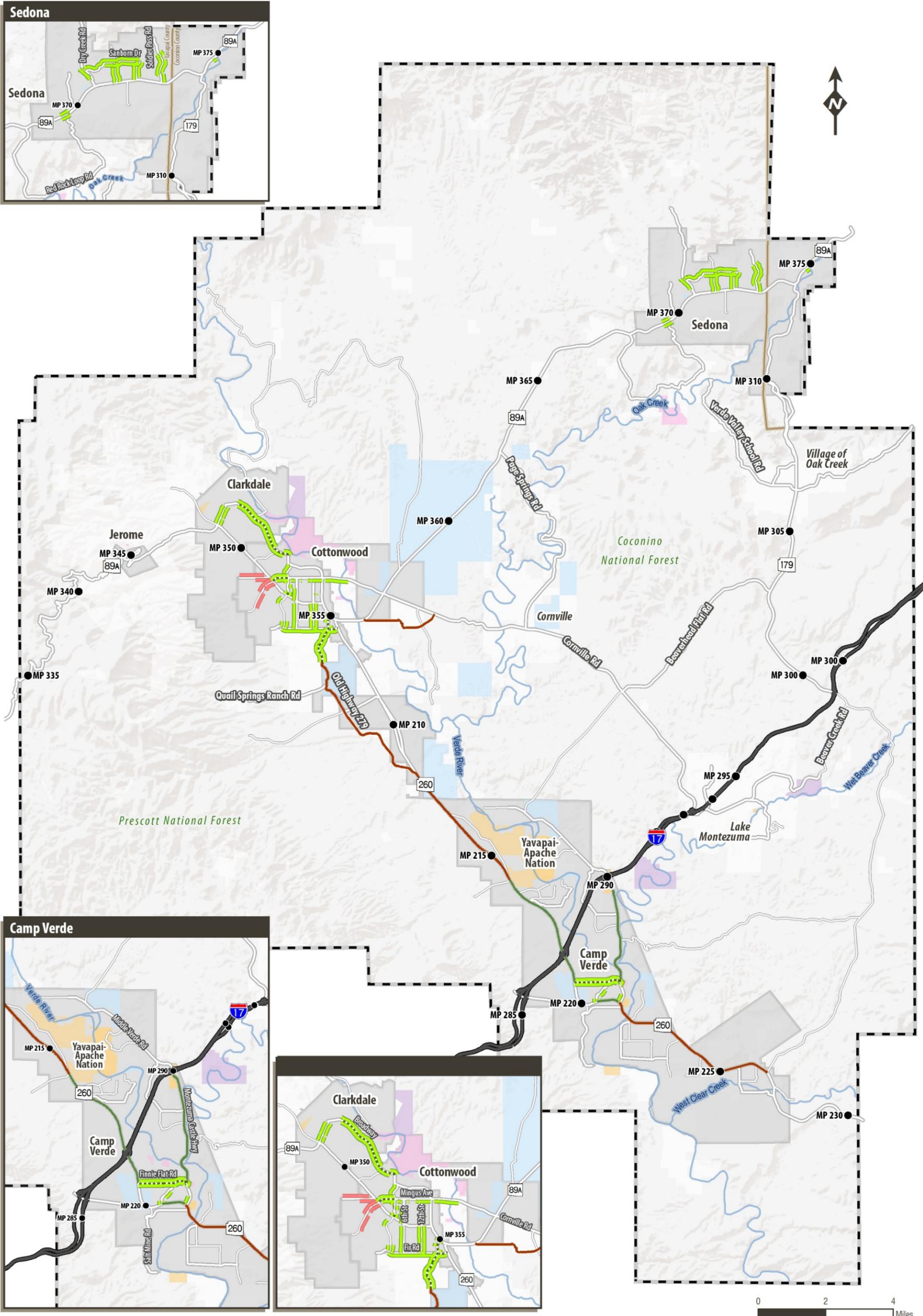
**Considerations:** The colored surface should be ski resistant and retro-reflective. Can be painted corridor-wide or at intersection crossings. Easily wears off and requires regular maintenance.

## Transit Service Recommendations

Based on discussions with Cottonwood Area Transit (CAT), the Yavapai-Apache Transit System (YAN), and input from the TAC, stakeholders, and public the following actions and recommendations are needed in order to meet the public transportation needs of the Verde Valley:

- Implement recommendations included in the *Yavapai Regional Mobility Management Implementation Plan*
- Conduct an on-board ridership survey of existing transit service to evaluate the need to alter existing service routes or schedules, determine locations that may require service, and overall route performance
- Expand existing CAT service to include fixed transit service to Cornville
- Expand existing Verde Lynx service to include fixed transit service to the Village of Oak Creek
- Expand YAN/CAT service to include fixed transit service to the Lake Montezuma
- Conduct a Transit Feasibility study to determine the demand and need for:
  - Shuttle service between Village of Oak Creek and Sedona
  - Service between Camp Verde and Lake Montezuma
  - Service connecting Camp Verde and Verde Lakes
  - Service connecting Cottonwood, Cornville, and the Village of Oak Creek
  - Service between Lake Montezuma and the Village of Oak Creek
  - Sedona circulator route

Figure 8: Recommended Pedestrian, Bicycle, and Trail Improvements



- |   |  |  |  |
|---|--|--|--|
| <b>Phased Improvements</b>  |  | <ul style="list-style-type: none"> <li> Interstate</li> <li> Study Roadway</li> <li> Study Area</li> <li> County Boundary</li> <li> City Boundary</li> </ul> | <ul style="list-style-type: none"> <li> State Trust</li> <li> National Park</li> <li> State Park</li> <li> Indian Reservation</li> </ul> |
| <ul style="list-style-type: none"> <li><b>Near-Term</b></li> <li> Sidewalk</li> <li> Bicycle Lane</li> <li> Multi-use Path</li> </ul> | <ul style="list-style-type: none"> <li><b>Mid-Term</b></li> <li> Sidewalk</li> <li> Bicycle Lane</li> <li> Multi-use Path</li> </ul> |  |  |

## Title VI Implications

To ensure that the recommended projects provide a fair distribution of benefits and burdens to all residents, an analysis of potential impacts on protected populations was conducted. It is anticipated that recommended transportation improvement projects will only have negative impacts during construction periods. Ultimately, this plan's recommendations will provide protected populations with enhanced, safer multimodal transportation. Table 4 provides an overview of potential impacts and benefits of recommended improvements on Title VI population.

Throughout the course of the study, efforts were made to include meaningful participation by all residents through stakeholder and public outreach. A two-phase public involvement process including two public meetings in which protected populations were invited to voice their opinion on the needs of the community and comment on recommended improvements. As recommended projects are implemented, it is vital that on-going outreach efforts to protected populations continue. Furthermore, consideration should be given during project development and construction to minimize or mitigate adverse impacts to minority business owners, the mobility needs of the protected populations, and residential parcels of protected populations.

**Table 4: Impacts and Advantages of Recommended Projects to Title VI Populations**

Project Type	Project Number	Project Description	Disproportionate/ Adverse Impacts	Benefits of Recommended Improvements
<b>Roadway Deficiencies</b>	<b>NT:</b> 1, 2, 3, 4, 5, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50 <b>MT:</b> 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 <b>LT:</b> 1, 2, 3, 4	Pave roadways; pavement rehabilitation; install shoulders; widen street; bridge replacement or rehabilitation; construct new road; upgrade functional classification; construct climbing lane	Temporary constraints to access activity centers during construction. Increased noise during construction. Closure of sidewalks during construction. Wider crossing distance for disabled and elderly individuals.	Improved overall safety and efficiency of roadway network. Improved road conditions and emergency response time. Improved pedestrian safety. Reduction in crashes and crash severity.
<b>Roadside Safety Enhancements</b>	<b>NT:</b> 11, 13, 14, 15, 16, 17	Remove vegetation; install signage; install street lighting	Temporary constraints and increased noise during construction.	Improved overall safety and efficiency of roadway network. Reduction in crashes and crash severity. Increased visibility of vehicles and pedestrians.
<b>Intersection Traffic Control</b>	<b>NT:</b> 6, 7, 8, 9, 10, 11 <b>LT:</b> 5, 6	Install traffic signals; enhance existing traffic signal; add turn lanes; reconfigure intersection to roundabout; remove roadside vegetation at intersection	Temporary constraints and increased noise during construction.	Improved overall safety and efficiency of roadway network. Improved road conditions and emergency response time. Improved pedestrian safety. Reduction in crashes and crash severity. Relieve traffic congestion.
<b>Pedestrian and Bicycle Mobility</b>	<b>NT:</b> 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 40, 41, 42, 43, 44 <b>MT:</b> 3, 6, 7, 8, 12, 13, 14, 15, 16, 18	Install multi-use paths, construct sidewalks; widen shoulders; add pedestrian crosswalks	Temporary constraints and increased noise during construction.	Improved pedestrian, bicycle, and roadway safety. Promote safe mobility and exercise. Provide alternative means of transportation.
<b>Traffic Calming and Community Safety Improvements</b>	<b>NT:</b> 12, 13, 14, 15, 16, 17, 18 <b>LT:</b> 1, 2, 3	Install message traffic boards; conduct RSA or access manage study	Temporary constraints and increased noise during construction.	Improved pedestrian, bicycle, and roadway safety. Reduction in crashes and crash severity.

## IMPLEMENTATION AND FUNDING STRATEGIES

This section discusses available funding sources, roadway standards and policies, and implementation actions to help implement the Plan for Improvements.

### Funding Sources

#### Existing Funding Sources

The successful implementation of the *Verde Valley Master Transportation Improvement Plan* is contingent upon the availability of funding for design and construction of the improvement projects. Primary funding sources for the area include Federal programs, ADOT, and other regional government agencies such as NACOG.

**Transportation Excise Tax:** Yavapai County enacted a half-cent transportation excise tax to assist in funding transportation improvement projects.

**Highway User Revenue Fund (HURF):** The State of Arizona taxes motor fuels and collects a variety of fees relating to the registration and operation of motor vehicles in the state. These collections include gasoline and use fuel taxes, motor carrier fees, vehicle license taxes, motor vehicle registration fees, and other miscellaneous fees. These revenues are distributed to the cities, towns and counties of the state and to the State Highway Fund, which is administered by ADOT. These taxes and fees represent a source of revenues available for highway-related expenses. In fiscal year 2015, the HURF distribution to Yavapai County was \$10.9 million, of which \$2.6 million was allocated to jurisdictions in the Verde Valley.

#### Potential Funding Sources

Passed in July 2012, the Moving Ahead for Progress in the 21st Century Act (MAP-21) reauthorized surface transportation programs through fiscal year 2014. The program was enacted to create a streamlined, performance-based, and multimodal program to address the many challenges facing the Nation's transportation system. MAP-21 authorizes Federal-aid highway programs for the next two-years while maintaining current spending levels by consolidating core highway programs of SAFETEA-LU.

In addition, MAP-21 gives FTA significant new authority to strengthen the safety of public transportation systems throughout the United States. The Act aims to align Federal funding to progress towards the goals of restoring and replacing aged public transportation infrastructure, supporting development, and improving the efficiency of administering grant programs by consolidating and streamlining several programs.

A comprehensive matrix of potential funding sources that local agencies can apply for funding to implement the Plan for Improvement can be found in the Verde Valley Master Transportation Plan Final Report. Additional funding opportunities include, but are not limited to:

- **Direct User Taxes and Fees:** examples of direct user taxes and fees include motor fuel taxes, fees bases on vehicle weight, tolls, and license registration taxes.
- **Development Impact Fees:** fees imposed on new developments to offset costs associated with building new infrastructure to accommodate the new travel demand generated by the development.
- **Community Facilities District (CFD):** special purpose, tax levying public improvement district the aids in financing and providing public infrastructure, such as water, sewer, schools and streets in a defined district.
- **Improvement Districts:** allows local agencies to collect special assessments on properties within the district in order to make infrastructure improvements within the district boundaries.
- **Community Development Block Grant Program (CDBG):** Administrated by the Arizona Department of Housing, CDBG funds may be used on numerous development activities, such as acquisition of property for public purposes; construction or reconstruction of streets, sidewalks, pathways; and planning activities.
- **Public-Private Partnership (P3):** partnership between a public agency and a private-sector entity, in which a private partner either finances or assists in financing a transportation project.

## Implementation Strategies

Implementation of the recommended Improvement Plan to enhance the safety and mobility along roadways within Verde Valley requires active participation from local citizens, private entities; and local, county, and State government officials. The following actions are recommended to successfully implement the Plan for Improvements developed as part of this study.

- Present the *Verde Valley Master Transportation Plan* to the Yavapai County Board of Supervisors for approval of recommendations.
- Integrate the implementation plan into the next update of the Yavapai County Improvement Program (CIP) as available funding allows.
- Integrate short-term priority improvements into the NACOG Transportation Improvement Program (TIP).
- Incorporate high priority improvement projects in the State Transportation Improvement Program (STIP). In order to receive any federal funding, transportation improvement projects must be included in the State TIP.
- Establish a partnership with Yavapai County, Coconino County, Coconino National Forest, Prescott National Forest, and ADOT for the on-going planning, maintenance, improvement, and funding for roadways.
- Coordinate with ADOT and local jurisdictions to complete RSA, access management, traffic warrant studies, and feasibility studies.
- Work with ADOT, local jurisdictions, and the Arizona Department of Tourism to determine the most appropriate locations for variable message signs to welcome incoming motorists and inform them of travel times to attractions in the Verde Valley.
- Develop and implement access management plans for State Routes, County roads, and local streets.
- Coordinate the implementation of the *Verde Valley Master Transportation Plan* with the previously completed *Clarkdale Transportation Study*, *Camp Verde Business Corridor Study* and the upcoming *Sedona Transportation Master Plan*.
- Develop a partnership with Yavapai County, Coconino County, Yavapai-Apache Nation and ADOT to confirm existing ROW widths and identify areas where additional ROW is required. If needed, purchase required ROW from property owners.
- Establish partnerships with new commercial developments for the planning, design, improvement, and funding of roadway improvements that provide pedestrian or motor vehicle access to developments.
- Promote public-private partnerships between the local jurisdictions and the private sector to implement improvements.
- Collaborate with local property owners, real estate professionals, and developers to identify economic development goals and to formulate an outreach plan to promote development along the economic corridors.
- As development occurs, pursue developer stipulations and exactions in order to construct necessary infrastructure for the additional growth.
- Solicit grants for bicycle and pedestrian improvements to add bicycle lanes, enhance connections to existing facilities, and to construct new facilities in deficient locations.
- Develop policies and procedures to promote alternative modes of transportation.
- Review and update street design standards, develop comprehensive access management standards, and detailed traffic impact guidelines and procedures.
- Further research and apply for funding for each project identified in the Plan for Improvements.