



FARMINGTON MPO

2045 METROPOLITAN TRANSPORTATION PLAN

SEPTEMBER 2020

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LIST OF ACRONYMS

- AADT: Average annual daily traffic
- AASHTO: American Association of State Highway and Transportation Officials
- ACS: American Community Survey
- ADA: Americans with Disabilities Act
- ALP: Airport Layout Plan
- AV: Autonomous / automated vehicle
- BLM: Bureau of Land Management
- BNSF: Burlington Northern Santa Fe
- BPMP: Bicycle and Pedestrian Master Plan
- CMAQ: Congestion Mitigation Air Quality
- DWS: Department of Workforce Solutions for the State of New Mexico
- EOP: Emergency Operations Plan
- EPA: US Environmental Protection Agency
- EPDO: Equivalent Property Damage Only
- EV: Electric vehicle
- FAA: Federal Aviation Administration
- FAST Act: Fixing America's Surface Transportation Act
- FHWA: Federal Highway Administration
- FMPO: Farmington Metropolitan Planning Organization

- FTA: Federal Transit Administration
- GHG: Greenhouse gas
- GPS: Geospatial and Population Studies office at the University of New Mexico
- HMP: Multi-Jurisdictional Natural Hazard Mitigation Plan
- HSIP: Highway Safety Improvement Program
- HSP: Highway Safety Plan
- ICAM: Innovative Coordinated Access and Mobility grant
- ITS: Intelligent Transportation Systems
- LPI: Leading Pedestrian Intervals
- LUCAs: Land Use Context Areas
- MAP-21: Moving Ahead for Progress in the 21st Century Act
- MTP: Metropolitan Transportation Plan
- NHPP: National Highway Performance Program
- NHTSA: National Highway Traffic Safety Administration
- NMDOT: New Mexico Department of Transportation
- NOx: Oxides of nitrogen
- OHV: Off-highway vehicle
- ORII: Outdoor Recreational Industry Initiative
- PROWAG: Public Rights-of-Way Accessibility Guidelines
- RTP: Recreational Trails Program
- SHSP: Strategic Highway Safety Plan
- SJCCA: San Juan County Communications Authority
- SJCOEM: San Juan County Office of Emergency Management
- STBG: Surface Transportation Block Grant
- TAP: Transportation Alternatives Program
- TAZs: Traffic Analysis Zones
- TDM: Transportation demand management
- TIP: Transportation Improvement Program
- TZD: Toward Zero Deaths
- USDOT: US Department of Transportation
- V/C: Volume-to-capacity
- VHD: Vehicle hours of delay
- VHT: Vehicle hours traveled
- VMT: Vehicle miles traveled
- VOC: Volatile organic compounds
- WUI: Wildland-urban interface

1 INTRODUCTION

1.1 WHAT IS AN MTP?

The 2045 Metropolitan Transportation Plan (MTP) is the long-range transportation plan for the urbanized region that includes the cities of Aztec, Bloomfield, Farmington, Kirtland, and the surrounding urbanized area of San Juan County. The MTP is used by the staff and member agencies of the Farmington Metropolitan Planning Organization (FMPO) to project the area's transportation needs for the next 20 plus years.

Since the plan is informed by population and employment analysis, it can also provide a broader vision of infrastructure policies and development priorities for the region. To ensure that the MTP accurately addresses regional needs and better serves the transportation system's users, the plan analyzes the current and projected regional transportation system of the region. The plan is updated every five years to include the latest population projections and incorporate recent transportation projects and newly identified priorities.

As funding for transportation is limited, the MTP also considers how to best utilize the federal funding available for the region by prioritizing projects for implementation. Per federal regulations, the MTP must be fiscally constrained, meaning only projects for which there is a reasonable expectation that funding is available may be included in the MTP. For a project to receive federal funding, it must be included in the MTP or be consistent with the plan's recommendations.

Requirements of the MTP

The MTP is part of the 3-Cs approach to long range transportation planning that requires MPOs to engage in a process that is continuous, coordinated, and comprehensive. To fulfill this obligation, the MTP – and ongoing planning efforts of the MPO – must involve member agencies and transit providers and examine all modes of transportation. The MTP is adopted by the FMPO Policy Committee.

The various sections of this MTP discuss the needs of each transportation mode. Requirements for an MTP and the general obligations of an MPO are described in 23 CFR 450. Additional requirements and guidance are provided in recent transportation authorization legislation.

Updates to the MTP Over Time

The initial MTP for the region was adopted by the FMPO in April 2005 (FMPO was created in the early 2000s). Subsequent updates were completed in 2010 and 2015, with amendments to individual chapters added over time. With each update, the planning horizon period has been extended.

1.2 WHY UPDATE THE MTP EVERY FIVE YEARS?

An update to the region's MTP is required on a recurring basis. More importantly, the MTP is an opportunity to consider emerging trends and incorporate new data. The FMPO region has experienced noteworthy changes since the last MTP, beginning with the incorporation of the Town of Kirtland. In addition, new regional priorities have emerged and growth projections have been updated.

Previous long-range transportation planning efforts anticipated high levels of population growth and identified the need for capacity expansion projects (i.e. new roads and additional lanes) as well as increased transportation options to address that expected demand. However, economic conditions changed markedly in the last five to ten years, driven primarily by the decline in oil and gas extraction, resulting in overall population and employment loss in the region. The latter part of the decade appeared to bring a period of recovery and new areas of economic activity before the global outbreak of COVID-19.

Under more recent projections, which were developed before the COVID-19 outbreak and before the decision to close the San Juan Generating Station, the region is expected to regain lost population and experience modest growth into the 2040s. However, the COVID-19 pandemic may have impacts on regional migration patterns and economic activity that will not be fully understood for many years.

The 2045 MTP is an opportunity to evaluate transportation priorities. Long-term funding availability – which is already an issue – is likely to become more challenging. Agencies across the region may choose to focus their resources on maintenance and targeted improvements that address quality of life, including on-street bicycle and pedestrian facilities, trails, and design improvements that address safety. Additional roads and travel lanes may only be needed strategically to support economic development objectives.

Impacts of COVID-19

This MTP was developed in the midst of the COVID-19 pandemic, although all data collection and the majority of public input were collected before the outbreak. The long-term impacts of COVID-19 are unknown; however, early indications point to significant impacts to regional travel patterns. In particular, the region experienced a substantial reduction in vehicle miles traveled and transit ridership during the outbreak as many employees shifted to working from home while other businesses closed temporarily (or permanently). The pandemic appears to be creating a potentially long-term shock to employment with an unknown but likely extended period of recovery. From a transportation perspective, high unemployment and an increased shift to telecommuting among businesses and government agencies may reduce traffic levels during peak periods.

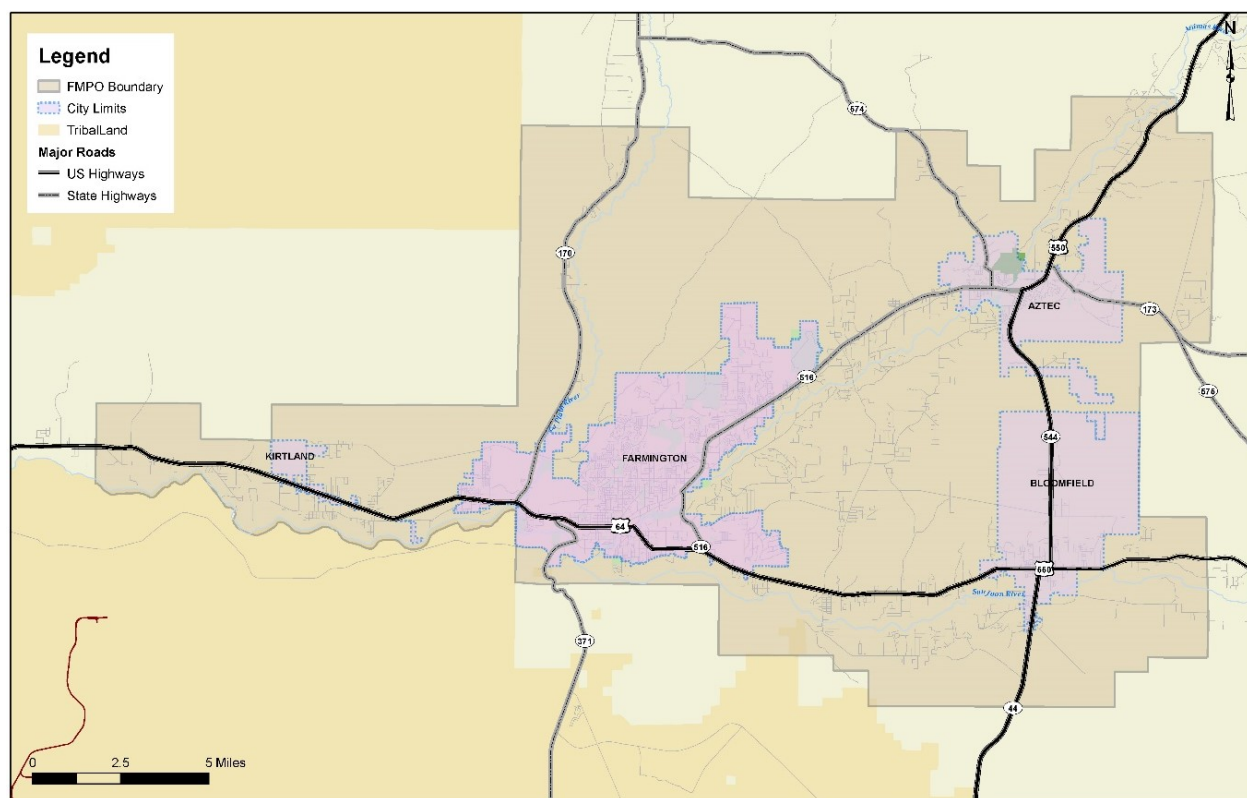
At the same time, the region has made significant progress toward policy priorities identified in the previous long-range plan. The 2040 MTP emphasized Complete Streets and identified a need for transportation projects that meet the needs of a more diverse set of users than just motorists. In the subsequent years, FMPO developed a Complete Streets Design Guide and Bicycle Pedestrian Master Plans, and jurisdictions across the region have pursued a variety of trails projects and road diets to create additional space and accommodations for bicyclists and

pedestrians. The most noteworthy of these efforts is the transformation of Main St in Downtown Farmington. Similar efforts are planned on Main Ave in Downtown Aztec, including a road diet and sidewalk widening. As a result, an emphasis on Complete Streets, safety, expanded trails, bicycle and pedestrian infrastructure and other investments that enhance the quality of life are also emphasized in this plan.

1.3 FARMINGTON METROPOLITAN PLANNING ORGANIZATION

FMPO is the regional planning agency responsible for transportation planning for the Cities of Aztec, Bloomfield, Farmington, the Town of Kirtland, and the urbanized areas of San Juan County (see Figure 1-1: FMPO Planning Area).¹ FMPO carries out federal laws related to coordinated, continuing, and comprehensive transportation planning. The MPO, in cooperation with local jurisdictions, NMDOT, Red Apple Transit, and the general public, develops long- and short-range transportation plans. FMPO is also responsible for determining the best use of federal funds available to the region.

Figure 1-1: FMPO Planning Area



¹ An MPO is required for all urbanized areas, as designated by the US Census Bureau, with more than 50,000 residents

1.4 TRANSPORTATION LEGISLATION

1.4.1 MAP-21 National Goals

The Moving Ahead for Progress in the 21st Century Act (MAP-21), enacted in 2012, funds surface transportation programs and establishes guidelines for MPOs to make surface transportation more streamlined, performance-based, and multimodal. The law also seeks to address challenges facing the U.S. transportation system, including safety improvements, maintaining infrastructure conditions, reducing traffic congestion, improving freight movement, protecting the environment, and reducing delays in project delivery. FMPO works in cooperation with local entities, the NMDOT, and the local transit operator to account for federally mandated planning goals as a part of its planning efforts.

Table 1-1: MAP-21 Goal Areas

MAP-21 Goal Area	National Goal
Safety	To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
Infrastructure condition	To maintain the highway infrastructure asset system in a state of good repair.
Congestion reduction	To achieve a significant reduction in congestion on the National Highway System.
System reliability	To improve the efficiency of the surface transportation system.
Freight movement and economic vitality	To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
Environmental sustainability	To enhance the performance of the transportation system while protecting and enhancing the natural environment.
Reduced project delivery delays	To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

1.4.2 FAST Act Requirements for MTPs

Passed in 2015, the Fixing America's Surface Transportation Act (FAST Act) builds upon the metropolitan planning requirements that were in effect under MAP-21. Focus areas from the FAST Act are described in Table 1-2: FAST Act Goal Areas.

Table 1-2: FAST Act Goal Areas

FAST Act Focus Area	Description
Support for intercity bus and commuter vanpools	The FAST Act continues to require MTPs and TIPs to provide facilities that enable an intermodal transportation system, including pedestrian and bicycle infrastructure. The FAST Act also requires that the metropolitan long-range plan include identification of public transportation facilities and intercity bus facilities.
Scope of planning process	The FAST Act expands the scope of consideration of the metropolitan planning process to include: • improving transportation system resiliency and reliability • reducing (or mitigating) the stormwater impacts of surface transportation • enhancing travel and tourism
Capital investment and other strategies	The FAST Act continues to require a metropolitan transportation plan to include strategies that meet current and projected transportation infrastructure needs.
Resilience and environmental mitigation activities	The FAST Act expands the focus on the resiliency of the transportation system as well as activities to reduce stormwater runoff from transportation infrastructure. In addition, it now requires strategies to reduce the vulnerability of existing transportation infrastructure to natural disasters.
Transportation and transit enhancement activities	The FAST Act continues to require a metropolitan transportation plan to include transportation and transit enhancement activities. When proposing these activities, the plan must now include: • consideration of the role that intercity buses may play in reducing congestion, pollution, and energy consumption in a cost-effective manner • strategies and investments that preserve and enhance intercity bus systems (including those that are privately owned and operated)
Participation by interested parties in the planning process	The FAST Act adds ports and some private providers of transportation, including intercity bus operators and employer-based commuting programs, to the list of interested parties that an MPO must provide with reasonable opportunity to comment on the transportation plan.
Congestion management	The FAST Act recommends travel demand reduction strategies for congestion management in a transportation management area (TMA). Note: These requirements do not apply to FMPO, which is currently below the threshold for a TMA (i.e. 200,000 residents).

1.5 EMPHASIS ON COMPLETE STREETS IN THE FARMINGTON METROPOLITAN AREA

In 2016, FMPO adopted *Context Sensitive Street Design Guidelines: A Complete Streets Approach*, a guidance document that reflects a region-wide emphasis on safety and economic vitality through enhanced quality of life and complements the recent investments by local agencies in trails and outdoor recreation opportunities. The

The 2045 MTP continues this emphasis and further supports building a culture around active transportation. The section below discusses the benefits of Complete Streets and summarizes the *Context Sensitive Design Guidelines* document. Refer to the Roadways and Bicycle & Pedestrian Travel chapters for discussion of specific Complete Streets-related projects.

1.5.1 Why Complete Streets?

Since the 1960s, the practice of designing places for people has emphasized accommodating the private motor vehicle. Although automobiles hold a valuable place within any overall transportation network, planners and engineers have focused heavily on their importance without considering other modes of travel. Examples include focusing on the construction of travel lanes, adopting policies and regulations leading to immense and underutilized parking lots, and applying a ‘one-size-fits-all’ approach to the construction of multimodal facilities such as sidewalks, bikeways, and transit facilities. In many cases, these facilities have been left out entirely. Past design practices have placed vulnerable, nonmotorized transportation users next to high-speed, high-volume motor vehicle traffic. This discourages active living and can place a costly burden on cities and communities who endeavor to retrofit streets in rural areas, neighborhoods, commercial corridors, and urban centers.

Complete Streets Core Values

The *Context Sensitive Street Design Guidelines* highlights six core values as regionally important as they relate to Complete Streets:

- Public Health
- Safety
- Economic Vitality
- Aesthetics
- Network Connectivity
- Multimodal Transportation

These core values establish the framework to plan, design, and build active, vibrant streets that contribute to the region’s economy. They balance the accommodation of private motor vehicles with active transportation facilities to attract growing families, seniors who can age in place, and a talented labor force. Some of these same values are carried through to the MTP’s goals and policies.



1.5.2 What are Complete Streets?

Complete Streets are streets that are designed to provide safe and comfortable access for people of all ages and abilities including those who walk, roll, bike, take transit, and drive. Complete Streets prioritize people-centric activity including crossing the street, accessing businesses, bicycling to work, and accessing transit stops. When transportation networks are comprised of Complete Streets, it is easier for everyone to get around, no matter how they choose to travel.

Complete Streets design features can include buffered sidewalks, bicycle facilities, accessible transit stops, underground utilities, access management, fewer travel lanes, and intersections that prioritize safety. These elements may not be necessary on each street, and a Complete Street in a rural area may look different from a Complete Street in a dense, urban area. In dense urban areas, placemaking and community-building functions may be prioritized over motor vehicle traffic flow. These functions may not be as desirable or applicable in a rural context. However, by making Complete Streets principles paramount in street design, cities and regions can create complete networks that link communities to jobs, services, education, and recreational opportunities and can balance safety and mobility for all travelers.

For these reasons, it is important to prioritize complete networks to allow people to travel with ease and efficiency between destinations while remaining sensitive to the needs and desires of different communities. For example, a city may prioritize transit movement on one street and bicycling on a nearby parallel street instead of trying to fit all of these uses onto one space-constrained roadway. Another community may choose to accommodate people biking and walking on a rural road by means of a shared use path on one side of the street instead of providing bike lanes and sidewalks on both sides of the street where few people would be walking or biking.

1.5.3 Complete Streets as a Guiding Framework

Transforming the region's roadway network into a safe, connected, and equitable system will require that all new construction and retrofit projects are based on a Complete Streets framework. The FMPO document *Context Sensitive Street Design Guidelines: A Complete Streets Approach* serves as a guide for municipalities in the region and outlines the key principles and benefits of Complete Streets, including references to national research and guidance on best practices. FMPO member agencies demonstrated further support for Complete Streets principles through the Bicycle and Pedestrian Master Plan, which was completed in 2019. See Chapter 7: Bicycle & Pedestrian travel for additional information.

Specifically, the Design Guidelines document identifies five street types and five land use context areas as an organizing framework for the selection of appropriate roadway design guidelines (see Figure 1-2) and provides guidance on how streets in these contexts should be designed to accommodate all users, including recommending right-of-way allocation and features for each street type and land use context. These guidelines provide a context-sensitive approach to street design by acknowledging the varying uses, characteristics, and needs of streets as they transition from urban to suburban to rural contexts.

Figure 1-2: Land Use Context Areas and Road Typologies



Land Use Context Areas

Land Use Context Areas (LUCAs) were developed with input from land-use professionals from across the region. They are comprised of a unique combination of different land use types (rural to urban core), which may also have unique architectural types, urban forms, building densities, topography variations, and other natural features. Streets in these different land use contexts can often warrant different designs and features. For example, a rural road may have low vehicle volumes and higher speeds may be more acceptable if there are few people walking or biking, while a Downtown or Urban Area may have streets with higher volumes of people walking, biking, taking transit, and driving, and may need separated spaces for all modes and slower speeds to enhance safety.

Table 1-3: Land Use Context Areas from Context Sensitive Street Design Guidelines

Land Use Context Area	Description
Rural	Predominately low density residential on large lots. Farmland and pastures are common. Large land areas for regional recreation/open space. Small commercial and retail are also found.
Industrial	Primarily industrial parks and other places served by trucks such as coal mines, refineries, and mineral extractions sites. Truck size would be large and volume would be frequent.
Neighborhood	Include subdivisions that have medium density with a mix of uses including churches, schools, and parks with varied grid patterns. Smaller commercial and retail uses within proximity or abutting neighborhoods that provide accessibility for all modes.
Commercial	Commercial and retail that serves the region. Larger sites include mall locations, big box retail, chain restaurants, auto dealers, and strip malls. Smaller scale non-intrusive industrial uses are common, including warehouses, storage yards, mechanic shops, etc.
Downtown/Urban Area	Higher density and mixed-use of residential, commercial, and retail. Highly accessible by all modes. Uniform building aesthetics and setbacks. On-street parking and wide sidewalks.

Road Typology

The road typology is composed of a defined hierarchy of street types that connect the region. Although loosely based on the US Department of Transportation's (USDOT) functional classification system, regional values supersede the definitions used by Federal and State governments. In practice, road typologies do not always fit neatly into the defined context areas, or the boundaries between context areas may be fluid. The planner or designer should use their best judgment in selecting the road typology that most closely matches the existing and proposed land uses based on the descriptions in Table 1-4 Table 1-3: Land Use Context Areas from Context *Sensitive Street Design Guidelines*

Table 1-4: Street Types from Context Sensitive Street Design Guidelines

Street Type	Description
Lane	One- or two-lane roads with the lowest travel speeds that serve low density residential and commercial areas. Lower volumes and speeds allow for integrated bike use in the roadway and do not necessarily require separate facilities. Sidewalks are encouraged depending on the surrounding density. They may have flexible transit services and stops. Rural lanes are not always paved.
Street	Two-lane roads with the lowest travel speeds that serve residential and commercial areas within the cities. On-street parking is common but may be restricted in some places. Driveway-Lane access is allowable at moderate levels. Medians may be present but not recommended. Lower volumes and speeds allow for integrated bike use in the roadway and do not necessarily require separate facilities. Sidewalks should be buffered from the street.
Avenues	These will be the most common utilitarian streets in the network. They are characterized by lower volume speeds with 2-4 lanes primarily connecting commercial, retail, and downtown districts. Bike lanes, wide sidewalks, and transit stops are prevalent, multi-modal side-paths in high traffic areas are encouraged. These roads distribute traffic between the higher classifications and local streets. Medians and two-way left turn lanes are common. Shared driveway access is encouraged. Downtown areas include additional streetscape features that promote multi-modal travel.
Boulevards	These meaningful roads are meant to be enjoyed. They steer motorists through/to local amenities such as rivers, urban centers, and neighborhoods. They are 2-4 lanes with moderate volume and speeds and connect travel through a city serving commercial areas. Travel lanes are smaller in width to accommodate the presence of medians, sidewalks & bike lanes and or multimodal side-paths, on-street parking, and transit stops. These streets support the higher road classifications and connect with Lanes and Streets and feed to Parkways. Access management controls should minimize conflicts with bicyclists and pedestrians.
Parkways	Vehicle-oriented, high speeds & volumes, typically 4-6 lanes; land uses include office parks, multi-use centers with parking lots; access management controls; recommends multi-modal side-paths; locate transit stops within adjacent developments

The *Context Sensitive Street Design Guidelines* applies minimum street design dimensions to each street type and land use context area combination. A series of tables in the document outlines minimum widths for:

- Total right-of-way
- Sidewalk zones
- Travel lanes
- Center turn lane/medians
- Buffer zones
- Curbs/gutters
- Parallel parking
- Angled parking
- Transition zones
- Bike zones
- Detached multi-use trails

When designing new roadways or retrofitting old ones, planners and engineers should consult this section of the *Context Sensitive Street Design Guidelines* – as well as the *Bicycle and pedestrian Master Plan* – to guide them in allocating roadway space between users and adhering to Complete Streets design principles.

1.5.4 Main Street in Farmington

Perhaps the best example of a Complete Streets project in the region is the redevelopment of Main St in Downtown Farmington. Using guidance outlined in the *Context Sensitive Street Design Guidelines*, this project will transform Main St with modern urban roundabouts, right-sizing the street from four lanes to two, narrowing the travel lanes from 12 feet to 11 feet, widening the sidewalks to 15 feet, and creating a 6-foot-wide park-assist lane. The park-assist lane will make parallel parking, exiting, and entering motor vehicles easier and safer while allowing traffic to pass. The modern roundabouts will keep traffic moving smoothly while reducing noise pollution as well as air pollution. These benefits eliminate the need for stop-and-go driving, thereby making Historic Downtown Farmington a much more pleasant place to live, work, shop, and recreate. The project is currently under construction and expected to be completed in fall 2020.

Figure 1-3: Concept Design of Main Street in Downtown Farmington



Figure 1-4: Existing Conditions and Conceptual Rendering of Proposed Improvements



The MTP is shaped by the vision and mission statements of the MPO. Approved in 2015, these were developed in response to the planning factors outlined by federal legislation and in cooperation with the MPO Technical Committee, the MPO Policy Committee, NMDOT, and Federal Highway Administration (FHWA).

FMPO Vision

The FMPO vision is for a safe, efficient and reliable multi-modal transportation system that meets the needs of residents and visitors in the region.

FMPO Mission Statement

Provide a forum to develop an effective transportation system to move people and goods safely, economically and efficiently while maintaining a high quality of life.

1.6 FMPO GOALS AND OBJECTIVES

To best serve its constituents, the FMPO has developed its own goals over time, based on the region's own needs, priorities, and vision, and with guidance and a collaborative effort with federal and state transportation agencies. Table 1-5 describes the goals and objectives identified by the MPO that help to support and achieve the Vision and Mission statements.

Table 1-5: FMPO Goals and Objectives

Goal	Objective
I. Enhance Quality of Life	
A. Provide safe and efficient transportation options for all of the region's residents, regardless of age, income, ability or location	1. Increase multi-modal transportation options by creating networks for all modes 2. Ensure connectivity to major destinations and recreational sites by active transportation modes 3. Expand transit routes, service hours, and days of operation particularly for those who are unable to drive or cannot afford to 4. Support continuous implementation of the Complete Streets Design Guidelines by local government entities
B. Provide a transportation system that promotes healthy living	1. Promote access to goods and services for all users, with a focus on populations that do not have access to, the ability to, or the opportunity to drive 2. Maintain existing complete streets and expand complete streets infrastructure to promote a culture of active transportation
C. Reduce VMT to improve air quality and lower emissions	1. Support active transportation modes such as biking and walking to help reduce auto-dependency 2. Pursue regional travel demand management strategies 3. Support infill development to bring housing and destinations closer together 4. Invest in rail to reduce freight VMT and emissions
II. Improve Safety	
A. Reduce crash rates for all transportation modes	1. Improve system safety through improved levels of service and reduced congestion 2. Promote safety design practices for all modes 3. Collaborate with NMDOT to address crashes along state-owned highways and county roads 4. Minimize access to adjacent developments along key arterials to maximize capacity consistent with access management principles

Goal	Objective
B. Reduce severe and injury crashes, particularly for bicycle and pedestrian-involved crashes	1. Consider traffic calming measures where appropriate to reduce speeding and severity of crashes 2. Development of Complete Streets policies, plans, guidelines, and standards
III. Support Economic Development Opportunities	
A. Support the economic vitality of the MPO region by investing strategically in transportation projects and programs that create long-term economic value	1. Invest in and maintain transportation infrastructure serving economic activity centers 2. Support all transportation modes for efficient delivery of goods and services and access to businesses and jobs 3. Enhance public health, safety, and quality of life factors to attract visitors and retain current and new residents 4. Expand transit services, routes, hours, and days of operation to improve access to jobs
B. Increase outdoor recreation tourism opportunities	1. Promote access to trailheads by creating a network of paths, bike lanes, transit lines between population centers, recreational sites, and neighboring cities 2. Create designated trails for different user types 3. Promote trails, Main Street areas, and other bikeable and walkable areas as part of regional outdoor recreation marketing campaigns, including equestrian events
C. Invest in freight transportation infrastructure	1. Maintain priority freight corridors in good conditions 2. Support transportation connections to potential rail freight facility
IV. Preserve and Maintain the Existing System	
A. Operate and maintain the metropolitan transportation system in a financially-sustainable and cost-efficient manner	1. Prioritize projects that preserve and maintain the existing roadway network 2. Ensure adequate funding is available for roadway maintenance, including on-street bicycle and pedestrian facilities 3. Leverage annual resurfacing programs to install bicycle and pedestrian facilities
B. Foster regional coordination on transportation projects and policies	1. Coordinate implementation of Intelligent Transportation Systems (ITS) technologies for improving the safety and security of transportation modes 2. Coordinate transportation system design and operation with emergency response and disaster mitigation efforts
C. Manage congestion by prioritizing projects that enhance the capacity-efficient modes like	1. Maximize use of the current transportation system through Transportation Systems Management Strategies that minimize congestion and delay

Goal	Objective
carpooling, transit, biking, and walking and reduce overall person delay	2. Integrate Intelligent Transportation Systems elements aimed at increasing system efficiency and safety into the regional infrastructure
V. Strengthen Coordination among Agencies and Jurisdictions	
A. Ensure ongoing coordination among with local agencies	1. Include MPO review in local development review process 2. Involve local engineers, planners, and the public in the transportation planning process 3. Maintain collaborative relationships within the region through ongoing public outreach to stakeholders and open public meetings 4. Coordinate on trails projects that transcend jurisdictional boundaries to further expand the regional bicycle network
B. Foster public-private partnerships aimed at reaching regional transportation goals	1. Pursue Travel Demand Management Programs that encourage alternatives commuting by single-occupancy vehicle 2. Integrate schools and businesses into the regional transportation planning process 3. Support infill development through transportation projects that improve conditions for pedestrians and bicyclists and enhance access to destinations
C. Integrate transportation and land use planning and use investments to proactively shape land use patterns rather than react to growth	1. Incorporate regional transportation policies into local plans 2. Incorporate local priorities and investments that emerge from Comp Plans and other local planning efforts into the MTP 3. Coordinate with economic development groups on transportation infrastructure investments that support new industries.

2 SOCIOECONOMIC CONDITIONS

2.1 INTRODUCTION

The distribution of population and job sites has a significant impact on regional travel patterns, including the routes that individuals use to travel and the means of transportation. A critical step in long-range regional transportation planning is therefore understanding socioeconomic conditions and how changes over time may impact future transportation needs. This section describes the projected levels of population and employment across the region through 2045.

The 2045 MTP, which uses 2018 as a base year for analysis, was developed at the end of a period of population and employment loss. Indications are that period of population loss may have ended and modest growth is expected into the future. However, employment conditions are volatile, especially given the presumptive closure of the San Juan Generating Station.² In addition, the projections for the 2045 MTP were completed before the release of the 2020 Census, meaning the most complete base year data on housing and population distributions is from the 2010 Census. Projections were also developed before the COVID-19 pandemic, the long-term effects of which are highly uncertain.

2.2 POPULATION PROJECTIONS

2.2.1 San Juan County

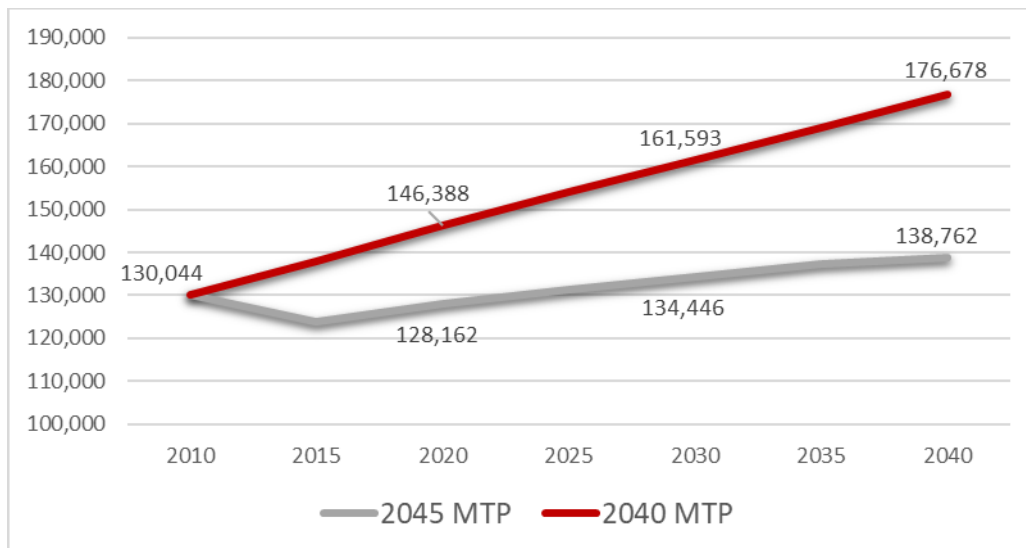
The 2045 MTP uses the population projections for San Juan County developed by the Geospatial and Population Studies (GPS) office at the University of New Mexico as a control total and the basis for estimating population at the municipal and sub-area level in the FMPO region. These population projections are noteworthy for the modest levels of anticipated growth, especially when compared to the projections contained in the previous MTP. Figure 2-1 shows the projections by MTP; previous projections indicated 36% growth between 2010 and 2040, while the projections used for this MTP indicate a total growth across San Juan County of about 8.3%, or 11,600 residents, between 2018 and 2045. The more recent projections are informed by the population loss experienced at the beginning of the 2010s and the declining net migration rate for the region (net migration equals in-migration minus out-migration).

Table 2-1: San Juan County Projections	
Year	Population
2010	130,044
2015	123,979
2018	128,046
2020	128,162
2025	131,278
2030	134,446
2035	137,173
2040	138,762
2045	139,665

² In July 2020, the Public Regulatory Commission approved a plan to close the San Juan Generating Station by 2022 and replace the energy generation with solar (plus battery backup). The plan anticipates a total of 650 MW of solar generated across San Juan, McKinley, and Rio Arriba. Officials are exploring opportunities to continue operations at the San Juan Generating Station through the deployment of carbon capture technology.

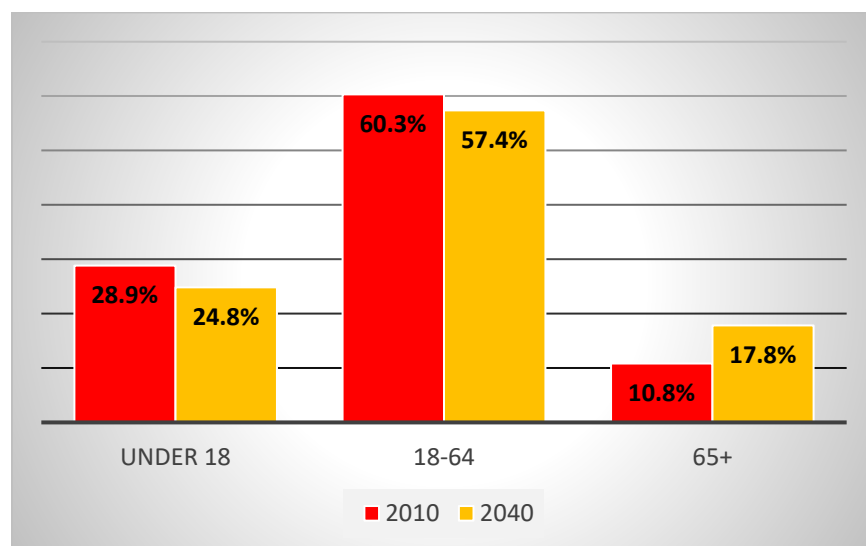
Note: Since the horizon year for the projections from GPS is 2040, the Project Team extended the projections from 2040 to 2045 using the average annual rate of growth between 2015 and 2040.

Figure 2-1: Comparison of Projections for San Juan County by MTP: 2010-2040



The age dynamics contained in the population projections have implications for workforce participation rates as well as future transportation needs. The projections indicate modest decreases in the anticipated share of the population under 18 as well as the share of the population of working age; the percentage of adults in the region age 18-64 is projected to decrease from 60.3% in 2010 to 57.4% in 2040. At the same time, the share of the population age 65 or older is projected to increase by seven percentage points. These dynamics have economic considerations, including additional jobs related to healthcare, as well as the need to provide safe transportation options for an aging population. Strategies to support transportation needs of an aging population include on-call public transportation and support for ride- hailing services. Demographics are also considered in traffic engineering when establishing traffic signal timing phases and pedestrian crossing times.

Figure 2-2: Share of Population by Age



2.2.2 Municipal Projections

Municipal-level population projections were developed using a shift share analysis which calculates the share of the county population over time and projects that ratio into the future. The analysis used San Juan County population in combination with recent annual estimates at the municipal level from the Census Bureau. Once municipal projections are calculated, the remaining population is assumed to be located in unincorporated areas of San Juan County. A similar process was used to calculate the share of the San Juan County population in unincorporated areas both inside and outside of the FMPO region.

Of the jurisdictions in the FMPO region, the City of Farmington has the largest share of the population currently and is expected to experience the most growth. About 50% of the growth in the region is projected to take place in Farmington, while another 43% is projected to take place in unincorporated portions of San Juan County.

Table 2-2: Population Projections for Jurisdictions in the FMPO Region

Location	2010	2018	2020	2025	2030	2035	2040	2045
Aztec	6,747	6,442	6,471	6,543	6,613	6,657	6,643	6,595
Bloomfield	8,198	7,842	7,893	8,021	8,149	8,247	8,275	8,260
Farmington	46,051	44,788	45,356	46,468	47,598	48,573	49,146	49,475
Kirtland	643	610	612	617	622	624	621	615
San Juan County (MPO Share)	37,530	37,462	37,207	38,290	39,397	40,383	41,042	41,501
FMPO Total Population	99,169	97,144	97,539	99,938	102,378	104,485	105,727	106,447

2.2.3 Small Area Projections

More refined projections were developed for Traffic Analysis Zones (TAZs), small geographic units that are roughly equivalent in size to census block groups and which serve as the inputs to the regional travel demand model. TAZ level estimates were aligned to the municipal, FMPO level, and San Juan County projections.

Population projections are translated into total numbers of housing units and growth was distributed to TAZs based on available land, transportation access, and likelihood of development. Projections for individual TAZs were developed by applying projected shares of growth from the 2040 MTP to the updated control totals developed for the 2045 MTP. The distribution of growth across the region was refined based on input received from member agency staff, including known development between 2015 and 2020, as well as locations where utilities or roadway connections have been extended. Areas of potential growth include:

- West Farmington
- Northeast Farmington north of Animas River around Foothills Dr
- Crouch Mesa – the level of growth depends on the timing and extent of roadway network expansion efforts
- General Kirtland area – little or no change in housing and population is expected within the Town limits, though modest growth is possible to the east and north of Town limits

2.2.4 Notes on Housing Units and Occupancy Rate

To allocate housing units to TAZs as accurately as possible requires an understanding of residents per housing unit. However, economic conditions and population loss created distortions in the local housing market. The occupancy rate fell from 2010 to 2018, while the persons per household rate went up, according to the most recent data from the ACS. This dynamic reflects uncertain economic conditions where households merge to save on housing costs. The result of this combination of population loss during the 2010s, lower housing occupancy rates, and increased household size is an overstock of housing across the region.

The projections assume an increase in occupancy rate over time but that future occupancy rates remain but below the historical average (the MTP utilizes a rate based on the average of rates from the 2010 Census and most recent ACS). Similarly, the projections assume that household size will gradually decline since the current values break with a historical trend toward shrinking household sizes

In summary, a key assumption of the projections is that some new growth will be absorbed by existing housing stock. Because consumer preferences change over time, it is likely there will still be new housing developed across the region, though it difficult to know at this point if and how much new housing will be constructed.

Table 2-3: Housing Characteristics by Location (2018)

Geography	2018 Population	Household Pop.	Housing Units	Households	Occupancy Rate	Household Size
Aztec	6,442	6,379	2,917	2,521	87.5%	2.53
Bloomfield	7,842	7,755	3,100	2,647	87.5%	2.93
Farmington	44,788	43,323	17,720	15,084	87.5%	2.87
Kirtland	610	610	258	222	87.5%	2.74
SJC MPO Area	37,462	37,323	14,958	12,385	82.8%	3.01
Total MPO Area	97,144	95,390	38,953	32,860	85.7%	2.90
San Juan County	128,046	126,292	50,716	41,908	82.8%	3.01

Table 2-4: Housing Characteristics by Location (2045)

Geography	2045 Population	Household Pop.	Housing Units	Households	Occupancy Rate	Household Size
Aztec	6,595	6,532	2,922	2,613	89.4%	2.50
Bloomfield	8,260	8,173	3,163	2,831	89.5%	2.89
Farmington	49,475	48,010	18,660	17,198	92.2%	2.79
Kirtland	615	615	258	222	86.4%	2.71
SJC MPO Area	41,501	41,362	16,862	14,568	86.4%	2.84
Total MPO Area	106,447	104,693	41,865	37,433	89.4%	2.80
San Juan County	139,665	137,911	54,085	46,728	86.4%	2.95

Note: The difference in total population and household population is the residents living in group quarters, which includes nursing homes, correctional facilities, and other communal living facilities. The group quarters population is assumed to be the same in 2018 and 2045.

2.3 EMPLOYMENT

2.3.1 Projections for FMPO Region

Customized employment projections were developed for the 2045 MTP for San Juan County, the FMPO region, and at the small area (i.e. TAZ level). Projections were based on existing employment levels and short-term projections for San Juan County from the Department of Workforce Solutions (DWS) for the State of New Mexico.

Since not all jobs in San Juan County are in the urbanized area, the Project Team used the OnTheMap tool from the US Census to generate employment data for the FMPO region.³ Since OnTheMap provides slightly different employment totals, the share of jobs by industry in the FMPO region out of the San Juan County total from OnTheMap were applied to the DWS data. (e.g. For example, if 80% of the jobs San Juan County in the OnTheMap dataset in retail services are located within the FMPO boundaries, then the assumed total employment for the FMPO region is 80% of the San Juan County total from the DWS dataset).

DWS projects 8.2% total employment growth for San Juan County between 2014 and 2024, with varying rates of growth by industry, as part of a short-term employment projection dataset. The annualized growth rates for each industry from DWS were applied to the 2018 employment total for the FMPO region and extended forward to 2045 to develop horizon year projections by industry. It is important to note that, per DWS estimates, employment fell between 2014 and 2018 but is expected to grow between 2018 and 2024. Industries projected to experience major growth include healthcare and accommodation services. Industries that are expected to see a decline in jobs include mining and manufacturing.

2.3.2 Small-Area Employment Estimates

Base year employment estimates by TAZ were developed by applying an adjustment factor to the base year employment levels from the previous MTP (base year 2014). Future year employment totals by industry were assigned to TAZs based on previously identified locations for employment growth (from the 2040 MTP) and the total employment by industry developed for the 2045 MTP.

³ The boundaries for the FMPO region and other customized geographies can be imported into OnTheMap to generate base year employment totals.

Table 2-5: Employment by Industry – FMPO Region 2018-2045

Industry	2014	2018	2030	2045	MPO Share of SJC Total by Industry
Agriculture, Forestry	110	100	101	102	29.2%
Mining	5,951	4,139	4,149	4,161	86.0%
Utilities	213	181	169	155	24.0%
Construction	3,525	2,907	3,178	3,552	86.1%
Manufacturing	1,346	1,280	1,228	1,166	99.6%
Wholesale Trade	1,680	1,435	1,510	1,608	92.0%
Retail Trade	6,167	5,786	6,057	6,415	96.2%
Transp. & Warehousing	1,311	1,111	1,180	1,271	90.7%
Information	247	199	188	176	95.8%
Finance	863	752	752	752	95.8%
Real Estate	494	375	379	383	94.5%
Prof. Tech Services	932	933	985	1,054	92.3%
Management	250	248	250	253	100.0%
Admin & Waste	1,179	1,049	1,063	1,081	98.3%
Education - Public	3,697	3,585	3,967	4,502	72.5%
Health - Public	6,348	6,449	8,283	11,327	97.4%
Arts & Entertainment	245	258	281	312	62.0%
Accommodation	4,088	4,259	5,052	6,255	92.9%
Other	1,164	1,158	1,202	1,261	94.8%
Local Govt	4,550	4,505	4,549	4,603	97.4%
State Govt	431	429	434	439	97.4%
Fed Govt	1,461	1,424	1,438	1,455	97.4%
Total Jobs	46,253	42,564	46,395	52,283	

3 STAKEHOLDER/PUBLIC OUTREACH

3.1 OVERVIEW

Public and stakeholder outreach spanned from October 2019 to August 2020 and was an integral part of the development of the 2045 MTP. The efforts described in this section were undertaken to gain insights into transportation needs from the perspective of both local agencies and residents. Public outreach efforts were specifically

intended to enhance the understanding of the regional planning process, to solicit input on regional needs and priorities, and to ensure that the MTP responds to the needs of existing and future residents and visitors alike.



3.2 STAKEHOLDER ENGAGEMENT

3.2.1 Technical Committee

The FMPO convenes staff from member agencies through the Technical Committee to provide recurring input on regional transportation priorities and identify regionally significant projects. In addition to the jurisdictions in the region (i.e. Aztec, Bloomfield, Farmington, Kirtland, and San Juan County), Technical Committee members include staff from Red Apple Transit and NMDOT. The Technical Committee served as the Steering Committee for the update to the MTP. The Project Team provided monthly updates and members of the Technical Committee also provided input throughout the planning process and reviewed drafts of the MTP. Members of the Project Team also met regularly with staff from member agencies to consider local projects and priorities. *The Technical Committee is scheduled to consider recommending the MTP for approval in September 2020.*

3.2.2 Policy Committee

The Policy Committee is comprised of elected officials (or appointees) from FMPO member agencies – as well as representatives from NMDOT – and serves as the governing body for the FMPO. The Policy Committee meets bi-monthly and all meetings are open to the public. The Policy Committee is responsible for approving the MTP. FMPO staff provided regular updates to the Policy Committee, with substantive presentations provided at various points in the plan development process. *The Policy Committee is scheduled to consider the MTP for approval in September 2020.*

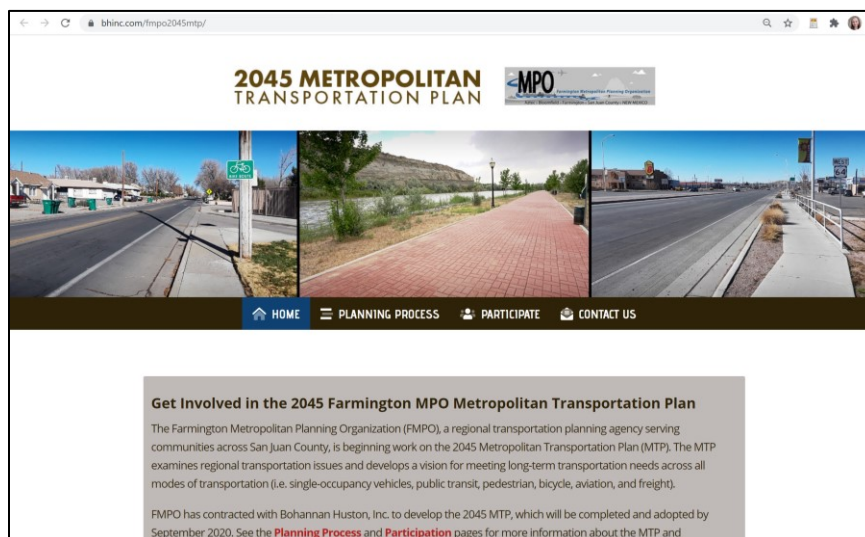
3.3 PUBLIC OUTREACH

The MTP process applied various in-person and online techniques to solicit input on regional transportation needs and priorities. This combined approach allowed for broader participation than traditional public outreach which relies exclusively on in-person meetings. This range of techniques also proved critical as restrictions related to the COVID-19 pandemic went into effect mid-way through the MTP development process. Subsequent outreach efforts took place entirely through online tools.

3.3.1 Project Website

A dedicated project was maintained throughout the development of the MTP with information related to the general purpose and contents of the MTP, the transportation planning process, and public participation opportunities, including the MTP survey and meeting dates and times. Materials presented at public events and FMPO Technical Committee meetings were posted on the project website, along with a draft version of the MTP for review during the 30-day public comment period.

Figure 3-1: 2045 MTP Project Website Homepage



3.3.2 Online Survey

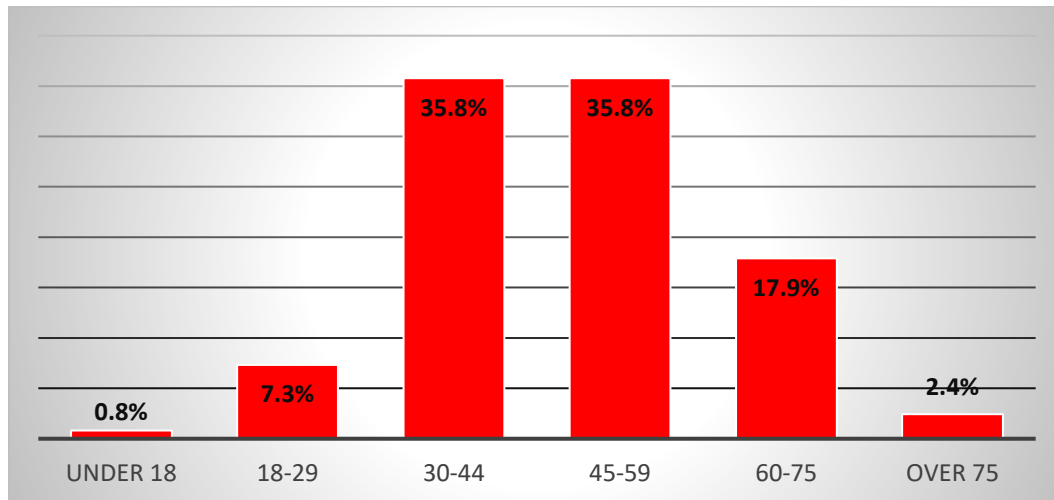
An online survey was available between October 2019 to February 2020, with hard copies distributed during tabling events. A total of 124 people completed the survey. Respondents were asked questions specific to their travel behaviors, user needs, challenges with the transportation system, and priorities for spending future transportation dollars. An overview of findings is provided below.

Demographics

The majority of survey respondents were adults ranging from 30-59 years old (71.5%), female (62.6%), White or Caucasian (74.6%), and did not identify as Hispanic or Latino/a (82.1%). Additionally, over half of respondents reported that they live in Farmington (51.2%), which is

slightly higher than the city's share of the FMPO area population.⁴ As a result, the input received does not provide a complete representation of transportation behaviors and preferences across the FMPO region. Nevertheless, findings still help inform general challenges and future priorities for the transportation system to better address user needs.

Figure 3-2: Age of Respondents



Commuting Patterns

A majority of respondents reported that they drive alone when traveling from home to school or work each day (84.2%), some carpool (5.8%) and walk (1.7%), and none of the respondents bike, take the bus, or use ride share (see Table 3-1). These numbers are generally consistent with the commuting mode shares reported in the American Community Survey.

Table 3-1: Means of Transportation to Work/School⁵

Means of Transportation	Survey Results	City of Farmington*	San Juan County*	New Mexico*
Drive Alone	84.2%	82.7%	83.1%	80.2%
Carpool	5.8%	12.3%	10.9%	10.0%
Walk	1.7%	1.3%	1.8%	2.1%
Bike	0.0%	0.4%	0.2%	0.7%
Public Transit	0.0%	0.2%	0.3%	1.2%
Other/Work from home	8.3%	3.2%	3.6%	5.6%
Total	100%	100%	100%	100%

Survey results and the American Community Survey from the US Census Bureau indicate commute times for residents of the FMPO region – and the City of Farmington in particular – are well below commute times observed at the county and state levels. Only a small amount of respondents to the MTP survey had commute times over 30 minutes (7.8% versus 31.3% at the

⁴ Of the remaining participants, most live in Aztec (19.5%), and a small amount live in unincorporated San Juan County (8.9%), other locations (8.1%), Kirtland (7.3%), and Bloomfield (4.9%).

⁵ American Community Survey (2014-2018 estimates)

county level and 27.1% at the state level). The typical daily commute time to school or work reported by survey respondents is less than 20 minutes, with the majority reporting within the 10 to 20-minute range (40.5%), as illustrated below. Such modest commute times indicate residents generally live close to job sites, and there is potential to shift trips to alternative modes of transportation, such as public transit or quality bikeways.

Table 3-2: Time Spent During Daily Commute to School or Work

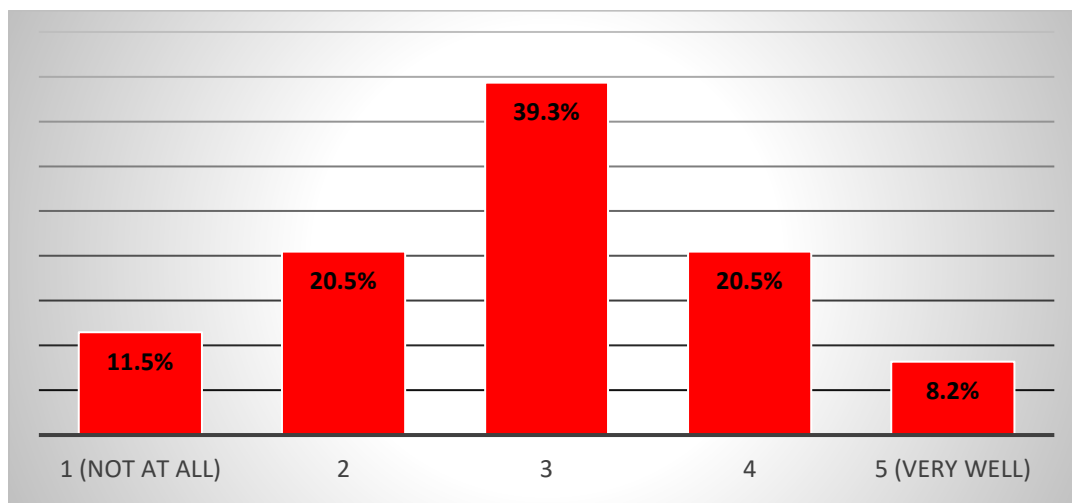
Commute Time	Survey Results	City of Farmington*	San Juan County*	New Mexico ⁶
0-10 minutes	31.9%	22.1%	16.3%	16.7%
10-20 minutes	40.5%	43.7%	33.6%	35.4%
20-30 minutes	19.8%	16.1%	18.9%	20.8%
Over 30 minutes	7.8%	18.3%	31.3%	27.1%
Total	100%	100%	100%	100%

Priorities and Challenges

The MTP survey showed that the overall transportation system is somewhat meeting traveler needs, with a combined 28.7% indicating the transportation system meets traveler needs well or very well and a combined 32% indicating the system does not meet traveler needs. A plurality of respondents (39.3%) indicated they are neutral about how the current transportation system meets their needs (response of 3 on a scale from 1 to 5).

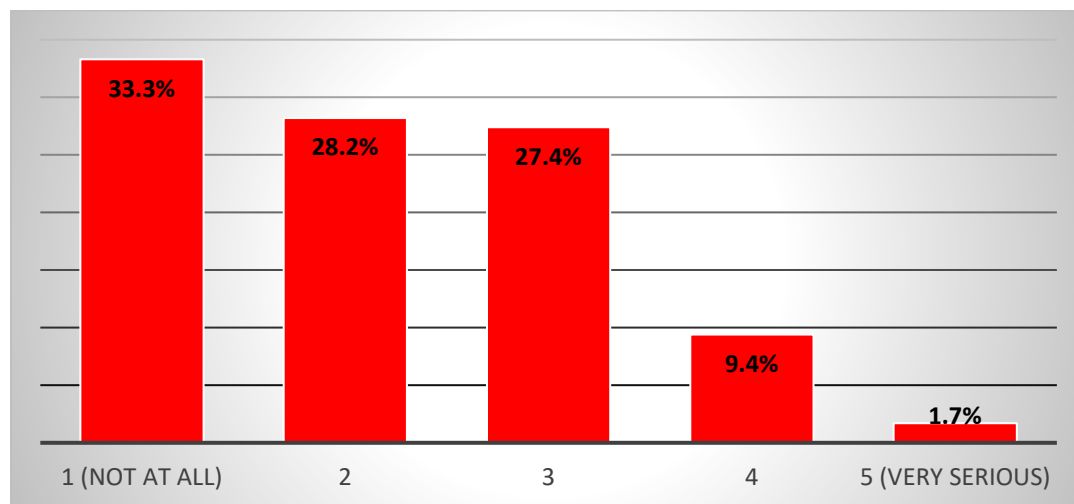
Importantly, when asked how serious a problem traffic congestion is on a scale from 1 (not at all) to 5 (very serious), respondents generally stated that it is not a serious problem. This set of responses indicates that issues with the transportation system may not specifically be related to roadway conditions but the availability of other modes of transportation.

Figure 3-3: How Well Current Transportation System Meets Traveler Needs



⁶ American Community Survey (2014-2018 estimates)

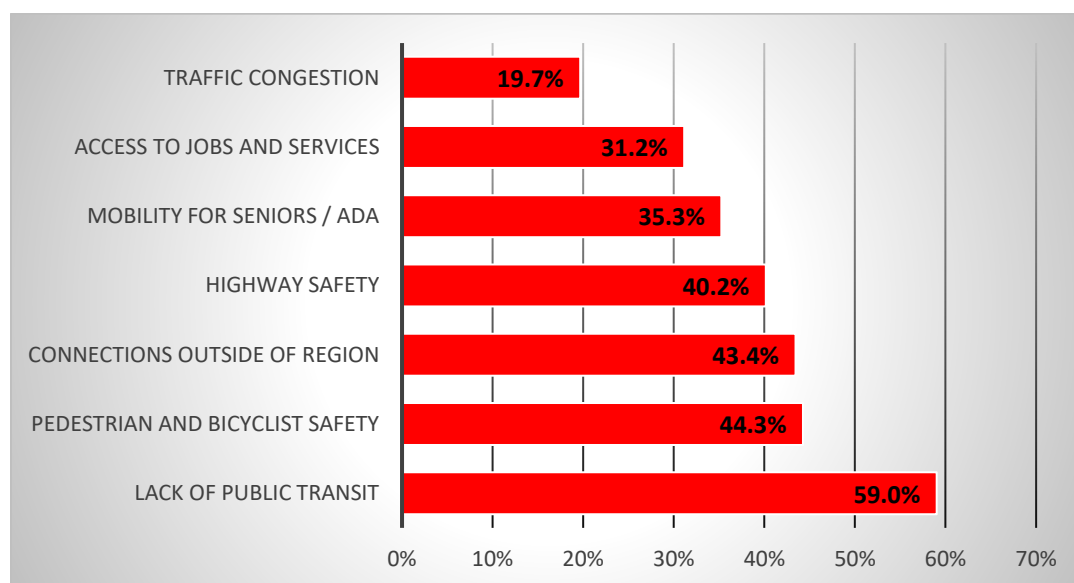
Figure 3-4: Seriousness of Traffic Congestion During Daily Commute



The lack of convenient public transit options was the most frequently reported challenge facing the FMPO transportation system today (respondents could choose up to three responses and public transit was identified by 59.0% of individuals). Other frequently cited challenges include pedestrian and bicyclist safety, connection to destinations outside of northwest New Mexico, and highway safety (see Figure 3-5).

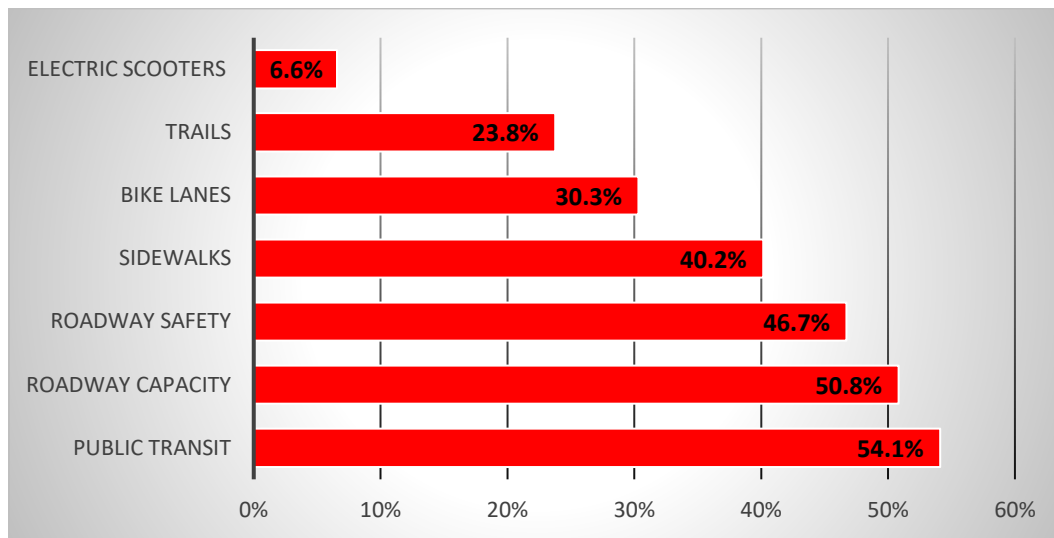
Similarly, respondents identified public transit (54.1%) as the top mode that should be invested in (see Figure 3-6). Other frequent responses included roadway capacity (50.8%) and roadway safety, despite that traffic congestion is not viewed as a serious issue. The responses may indicate an assumption that new or improved roadways will include infrastructure for all modes.

Figure 3-5: Top Challenges Facing the FMPO Transportation System Today*



**Does not add up to 100%, respondents could select up to three choices*

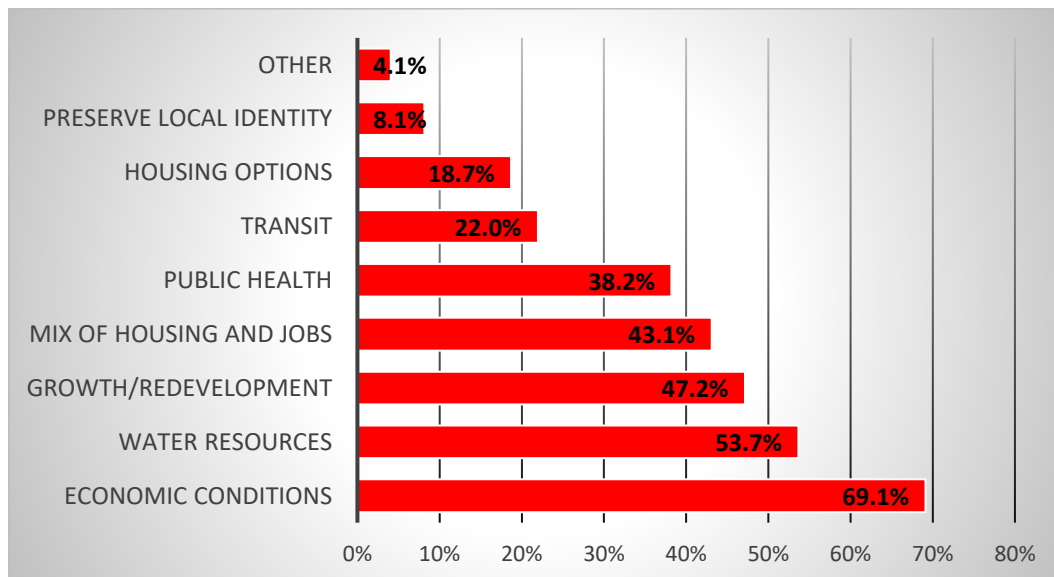
Figure 3-6: Top Modes to Invest In*



**Does not add up to 100%, respondents could select up to three choices*

Respondents were also given the opportunity to weigh in on regional challenges beyond transportation needs. The issue of greatest concern to FMPO area residents is pursuing a more resilient economy (69.1%). Other frequently reported issues include conserving and protecting water resources (53.7%) and redeveloping abandoned and vacant property while also promoting growth in key areas (47.2%).

Figure 3-7: Greatest Overall Regional Challenges*



**Does not add up to 100%, respondents could select up to three choices*

What Did We Hear from the Public?

The top issues when using **public transit** are:

- Schedule does not meet my needs (40.5%)
- It takes too much time (33.1%)
- It does not go where I want to go (32.2%)

Top **measures to encourage more transit users** include:

- More convenient stops and service (58.0%)
- More frequent service (48.7%)
- Better connections between routes (48.7%)

Top **issues for walking** include:

- Distance to destinations being too far (52.6%)
- Poor sidewalk conditions (50.8%)
- Not feeling safe from traffic (49.2%)

Top **issues for biking** include:

- Not feeling safe from traffic (54.9%)
- Poor conditions of bicycle routes, bike lanes, and/or paths (42.6%)

Top **issues for motorists** include:

- Poor driver behavior (74.8%)
- Poor road conditions (62.6%)
- Traffic congestion (43.9%)

Top **safety concerns** specific to driver behavior include:

- Distracted/inattentive drivers (74.0%)
- Impaired/drunken driving (60.2%)
- Aggressive driving/speeding (56.9%)

Note: Respondents could select up to three choices for each of these issue areas.

3.3.3 Tabling Events

To further engage with the communities of Farmington, Kirtland, Bloomfield, and Aztec, a two-day regional outreach effort was conducted to collect input on the MTP 2045 update. These efforts focused on regional transportation needs and invited residents to complete a survey and identify locations in need of improvements.

To make participation and public involvement as accessible as possible, a series of five tabling events were held on October 17th and 18th, 2019, across all communities within the FMPO region. Additional outreach efforts took place on January 30, 2020 at the community meeting for the City of Farmington's Comprehensive Plan Update. Event details were featured in the Farmington Daily Times, which published various news stories on the MTP and outreach events. Event details were also shared by member agencies through their websites and social media accounts.

Tabling Event Locations

- Aztec Public Library
- Kirtland Youth Association Building
- Downtown Farmington Makers Market
- Bloomfield Multi-Cultural Center
- Animal River Trail near Berg Park
- Farmington Civic Center



Tabling events were intended to generate awareness of the MTP, solicit input on regional needs, and encourage participation in the MTP survey. Educational materials and resources were available at each event to explain the role of the MPO, the purpose and contents of an MTP, and share additional opportunities for people to participate. Approximately 65 people across the two days engaged in the tabling events. Major themes that emerged from tabling events include:

- Safety concerns related to heavy trucks
- Improvements to the public transportation routes, times, and infrastructure, including enhanced bus shelters and technology such as online or phone applications that provide real-time information.
- Recreation trails to promote physical activity and public health, access to nature, and general transportation needs

3.3.4 Virtual Outreach

Following the start of the COVID-19 pandemic, outreach methods were shifted to accommodate virtual outreach as an alternative approach to the traditional in-person meetings to align with public health restrictions. A total of four open house public meetings were held in June 2020 and August 2020 during different times of the day to engage with the public in a virtual setting. Members of the public were also encouraged to submit comments via the project website.

The meetings in June featured findings from the existing conditions analysis and survey, as well as draft recommendations. The meetings in August were held to share the draft plan and solicit comments prior to finalizing the plan. Noteworthy comments from the virtual public meetings included support for investments in public transit, trails and other infrastructure for non-motorized travel, as well as a request that the FMPO consider transportation equity, food access, and regional connections between tribal lands and the greater Farmington area.

3.3.5 Additional Outreach and Promotion

Other outreach was conducted through a contact list of stakeholders, including meeting attendees, individuals who submitted questions on the project website, and members of the public who participated in the previous MTP. The contact list was used to help distribute flyers and other marketing materials for upcoming meetings and to share project updates. The outreach activities were supported by newspaper advertisements and promoted on FMPO and member agency websites and social media accounts to increase public awareness and engagement surrounding this effort.

3.4 KEY TAKEAWAYS

While the majority of FMPO area residents rely on private vehicles for most of their transportation needs, survey respondents and other individuals who participated in MTP meetings and outreach efforts demonstrated a recognition that the overall transportation system could be improved to better meet the needs of all travelers. Primary concerns include investing in the reliability of public transit for everyone – including people with disabilities, youth, older adults, and individuals who do not own motor vehicles – and ensuring connections from surrounding communities to destinations in the City of Farmington.

The feedback supports a general set of priorities related to safety, maintaining the existing roadway system in good working order, and expanding opportunities across the region for walking and biking. Many residents spoke approvingly of the investments in trails and attributed the high quality of life in the region in part to the presence of recreational opportunities. The feedback also reflects the need to reinvigorate the local economy; investments would also help support regional economic development through quality of life amenities and recreational tourism. Other priorities, such as improved connections outside the region, will require ongoing and concerted planning efforts that transcend the typical regional planning process.

4 ROADWAY CONDITIONS & MTP PROJECTS

4.1 EXISTING CONDITIONS

4.1.1 Regional Roadway System

The major communities in the FMPO region are connected – to each other and to the larger Four Corners region – by a series of US and NM highways. Regional trips are concentrated on a few major roadways: NM 516 is the primary route connecting Farmington and Aztec, US 550 connects Aztec and Bloomfield, and US 64 connects Bloomfield with Farmington and Kirtland. Outside the FMPO area boundaries, NM 170 and US 550 continue to the north and connect to Durango and other southwestern communities in Colorado. US 550 also links the region to the Albuquerque metropolitan area to the southwest. US 64 provides east-west connections across northern New Mexico and into northeast Arizona. NM 371 traverses portions of the Navajo Nation and connects the City of Farmington with I-40 to the south.

National Highway System

NM 516, US 550, and US 64 – the key roads that link the region together and provide connections across the southwest – are all part of the National Highway System (NHS). The NHS is comprised of key roads that support nationwide mobility and economic activity and should be maintained to the highest standard.

Roads considered for analysis by FMPO include arterials (principal and minor) and collectors (major and minor), as defined in the FHWA functional classification system. These roads provide regional connections and are eligible for federal funds. The arterial and collector network is complemented by local roads that are owned and maintained by incorporated municipalities or San Juan County. US and NM highways that provide mobility across the region are generally classified as principal arterials. As these roads are owned and maintained by NMDOT, ongoing coordination is required by FMPO to ensure the system meets the needs of FMPO member agencies and the public. Approximately 100 miles of the roadways in the FMPO area are NMDOT facilities.

Table 4-1: Total Roadway Length by Functional Classification

Functional Classification	Length (miles)
Principal Arterial	95.2
Minor Arterial	81.5
Major Collector	93.1
Minor Collector	21.6
Local Roads	604.6
Total	896.1

Figure 4-1: FMPO Area Roads by Functional Classification

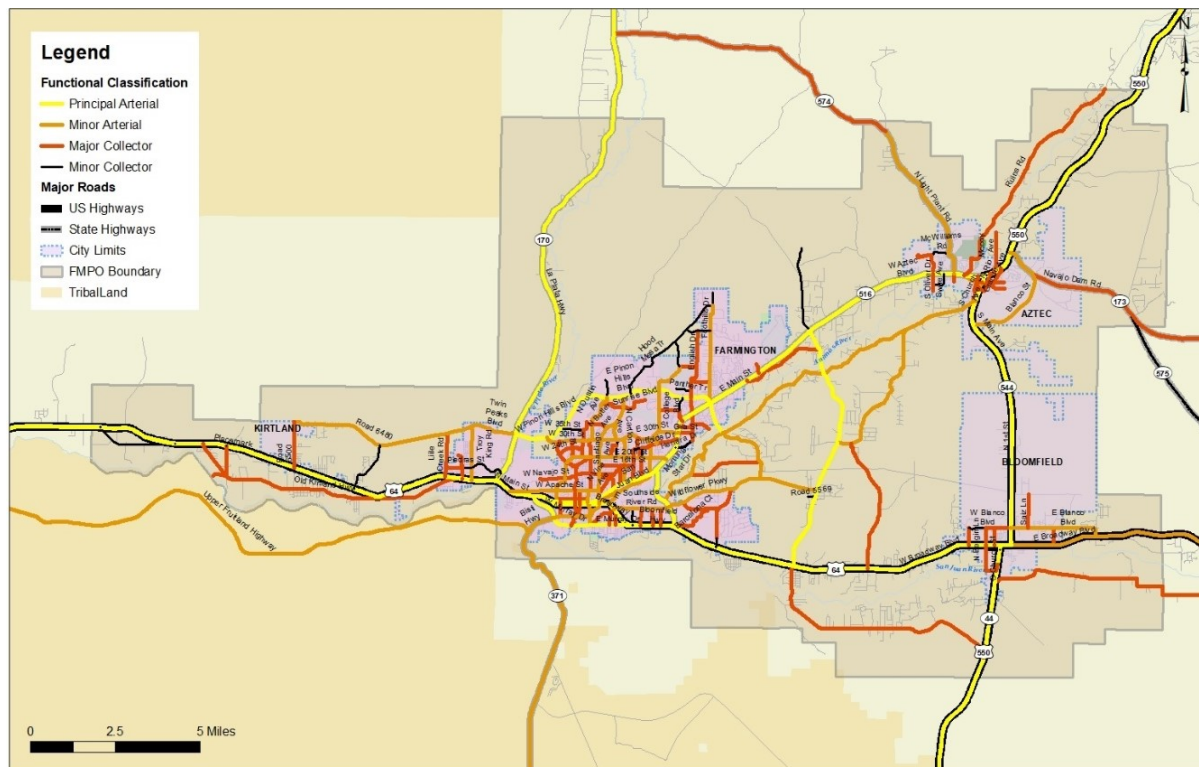
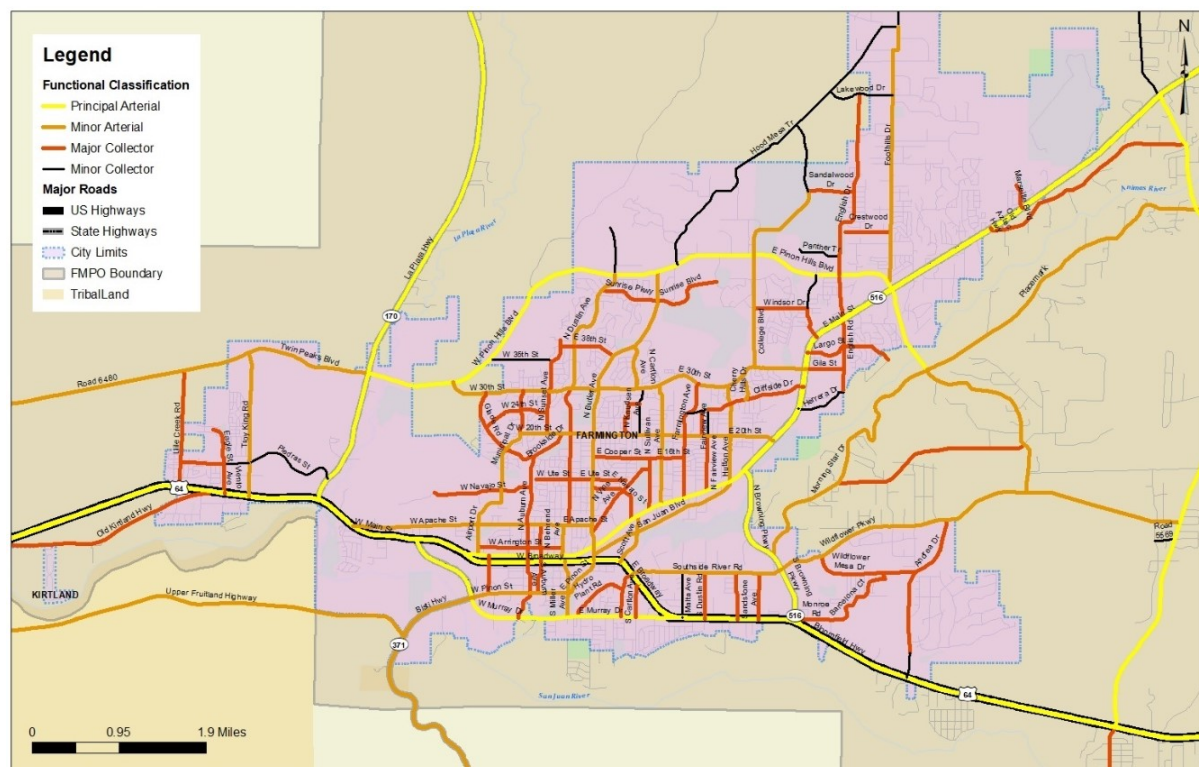


Figure 4-2: City of Farmington Roads by Functional Classification



4.1.2 Observed Traffic Volumes

Based on the 2018 average annual daily traffic (AADT) data from NMDOT, the routes with the highest traffic volumes are the portion of US 64 between Farmington and Bloomfield (about 22,000 vehicles per day and NM 516 in eastern Farmington (30,000-38,000 vehicles per day). These roadways also experience the highest levels of truck traffic within the FMPO and are key routes for inter and intra-regional travel. Consult the Freight, Air, and Rail chapter for more information.

Traffic Counts Data Collection

NMDOT collects traffic counts on segments of arterials and collectors around the region on a rotating basis once every three years. FMPO and member agencies utilize this data for a range of planning purposes, including understanding regional travel patterns and changes in roadway conditions over time.

Roadways within the City of Farmington experience higher levels of daily traffic compared to other FMPO entities as a result of its larger population and the concentration of employment and services. Roadways with high amounts of traffic in Farmington include 30th St, 20th St, Broadway, Main St, and Murray Dr.

Figure 4-3: FMPO Area Daily Traffic Volumes

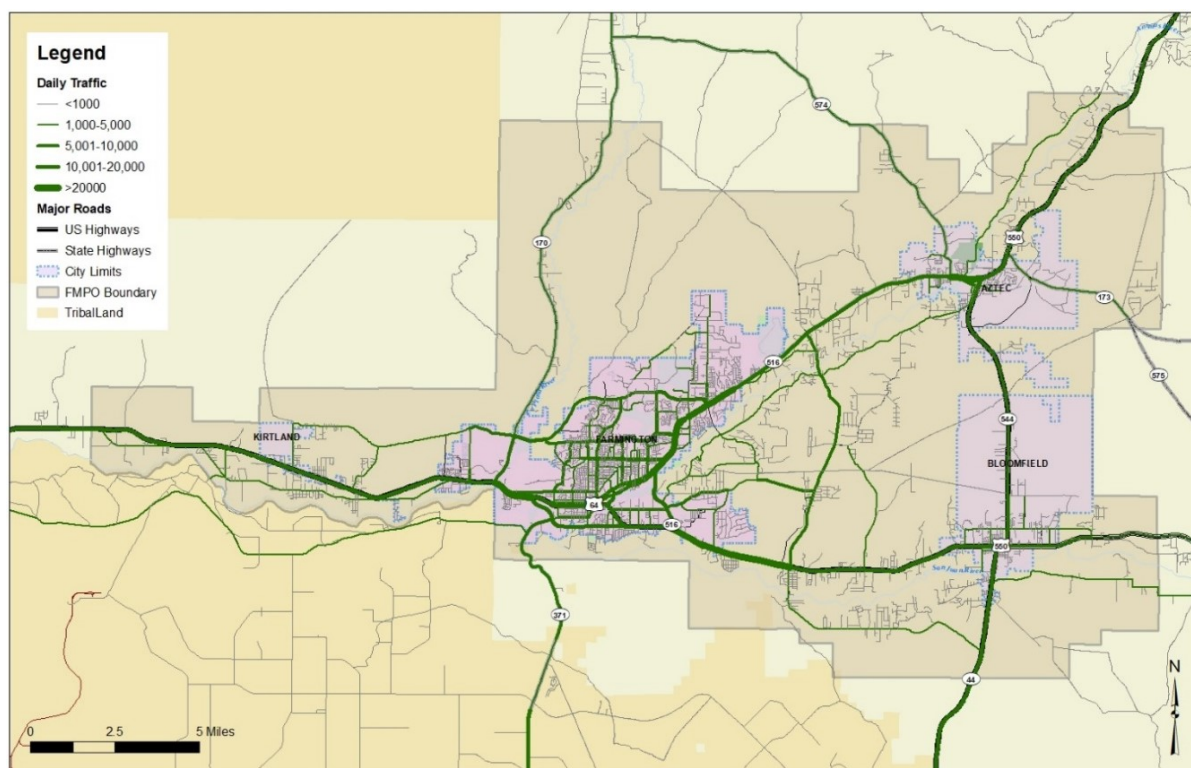
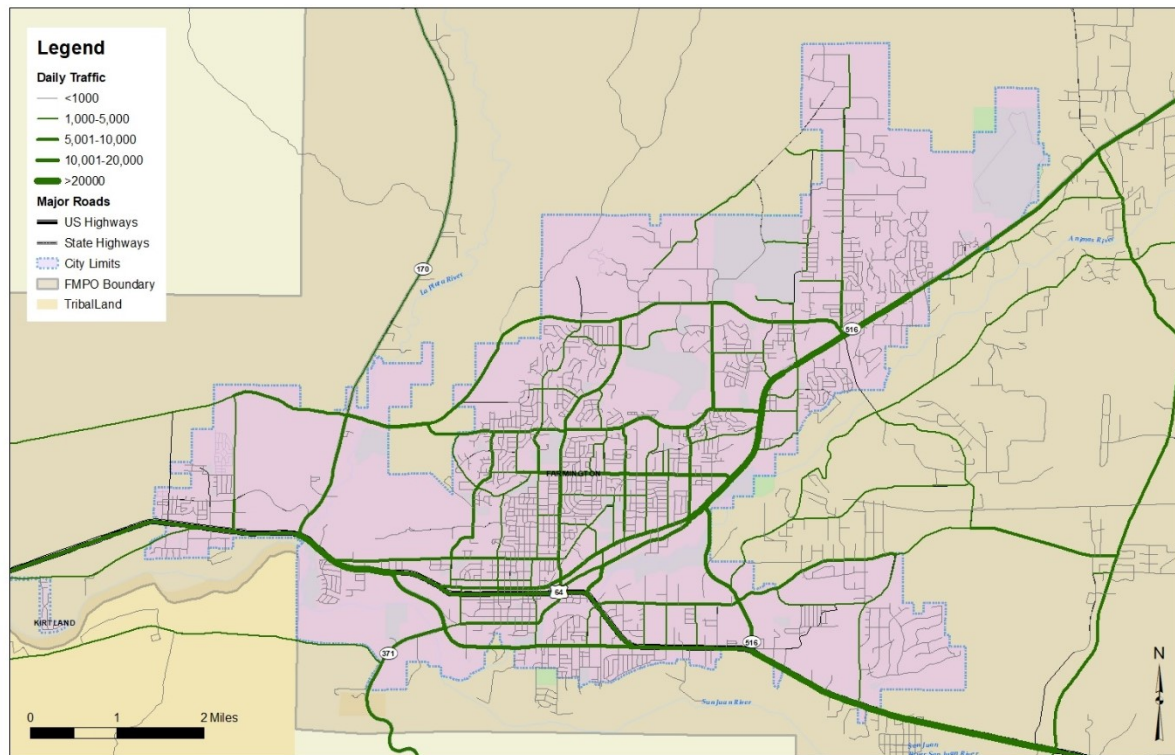


Figure 4-4: City of Farmington Roads – Daily Traffic Volumes

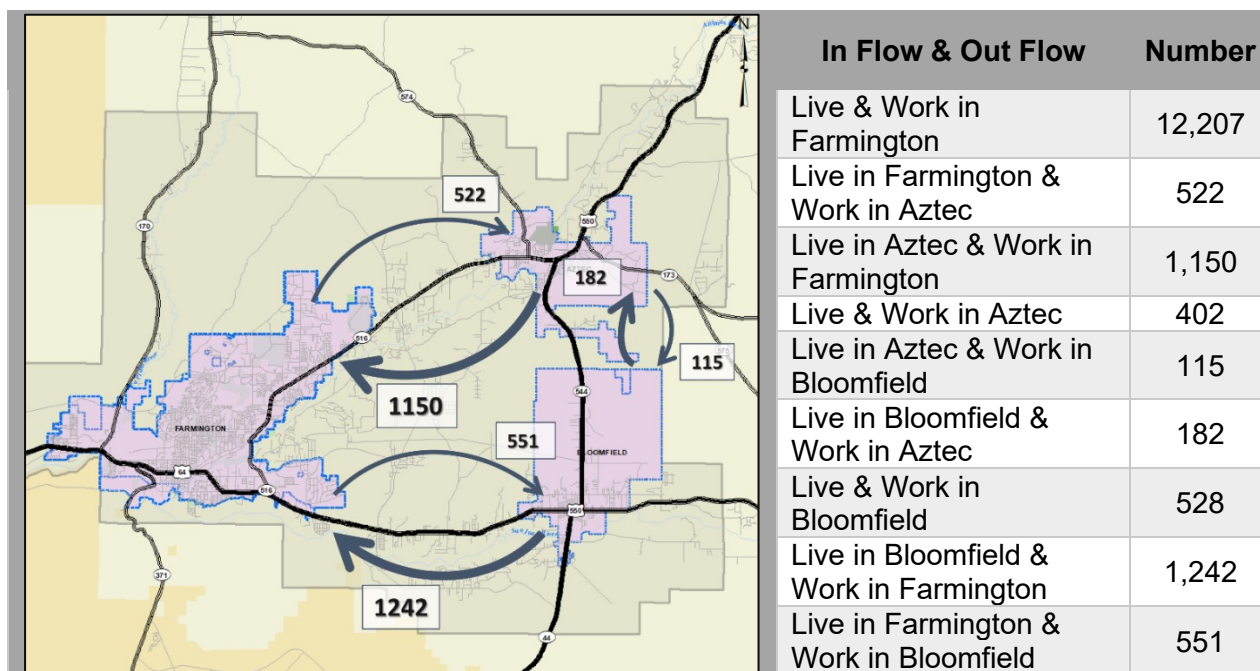


4.1.3 Regional Mobility & Commuting Patterns

Using in-flow and out-flow data from the Census Bureau OnTheMap tool, an analysis was conducted among incorporated communities within the region to better understand existing commuting patterns. The town of Kirtland was excluded from this analysis due to its small population and geographical size. Figure 4-5 depicts the most recent data from OnTheMap (year 2017).

As the largest community in the region, Farmington attracts workers from Aztec and Bloomfield (1,150 and 1,242 workers in 2017 respectively.) However, a noteworthy number of residents leave Farmington to work in Aztec or Bloomfield (about 520 and 550 workers in 2017, respectively). These commuting patterns contribute to peak period traffic along the main arterials connecting the region. The distribution of workers and jobs also demonstrate some of the potential demand for transit between communities in the region. It is important to note that the dataset does not include any federal government jobs and employment numbers differ slightly from the total contained in the socioeconomics section.

Figure 4-5: Estimated Commuting Flows in the FMPO Region, On the Map



Analysis was also conducted between San Juan County and La Plata County in southwest Colorado to understand the extent to which commuting trips occur between the greater FMPO region and the Durango area. In 2017, a noteworthy number of commuting trips took place between the two counties, with 1,357 individuals traveling from San Juan County to La Plata County for work and 923 individuals traveling in the opposite direction. This commuting dynamic may continue over time as Durango becomes an increasingly expensive place to live and area residents elect to move to one of the FMPO member entities and either continue to work in Durango since it is still a short commute or seek new employment opportunities in San Juan County.

Figure 4-6: Commuting Between San Juan County and La Plata County



Source: On the Map, 2017

4.1.4 Noteworthy Recent and Ongoing Projects

Maintenance and roadway rehabilitation projects are undertaken on an ongoing basis and form a large portion of recurring transportation expenditures in the region. Noteworthy transportation projects that changed roadway capacity are discussed below.

US 64 Widening: NMDOT is completing improvements along US 64 from Farmington to Bloomfield at a cost of approximately \$34.7 million dollars. Improvements consist of full road reconstruction, addition of one general purpose travel lane in each direction, access management, right and left turn bays, drainage structure extensions, and bikeways/shoulders.

Downtown Farmington Main St Complete Streets Implementation: Main St in Downtown Farmington is currently being reconstructed as a Complete Street from Miller Ave to Auburn Ave. The project includes traffic calming such as roundabouts and narrow travel lanes, wide sidewalks and landscape buffers, street trees, and accessibility improvements across the corridor.

Road Diets: Several road diets were completed in the City of Farmington since the last MTP including along College Blvd, Hutton Ave, Sullivan Ave, Main St, and Miller Ave in Farmington and Main Ave in Aztec. In each of these projects, general purpose travel lanes were removed and roadway space was reallocated to on-street bikeways and turn lanes.

Table 4-2: Recent Roadway Changes

Location	Change in Roadway
College Blvd: 30th St to Victoria Way	Changed 2 NB lanes to 1 NB lane and 1 bike lane
Miller Ave: Animas St to Hill St	Changed 3 lane street (with center lane) to 2-lane street with bike lanes
Sullivan Ave: 20 th St to 30th St	Changed 4 lanes with no center lane and bike lanes to a 3-lane street with center lane and bike lanes
Sullivan Ave: San Juan Blvd to Main St	Changes 4 lanes with center lane and no bike lanes to a 3-lane street with center lane and bike lanes
Main St: Fairgrounds Rd and Hutton Ave	Changed 7 lanes with center lane and no bike lanes to 5-lane street with center lane and bike lanes
Hutton Ave: Cliffside Dr to 30th St	Changed 2 NB lanes to 1 NB lane and 1 bike lane

4.2 MTP PROJECTS

4.2.1 Notable Near-term Roadway Projects

The projects described below are among the noteworthy roadway projects in the short-range TIP, the implementation plan for the region that includes all projects that receive federal funding as well as those considered regionally significant. See the implementation section for additional information on the TIP and a complete list of projects receiving federal funding.

Piñon Hills Blvd Extension and Widening: The City of Farmington (Phase I and II) in collaboration with San Juan County (Phase III) is pursuing an extension of the existing Piñon Hills Blvd from NM 516 southeast across the Animas River to connect with CR 3000. The

project is not yet funded and is in the informational years of the TIP (2024 or later). Part of the extension of Piñon Hills Blvd includes new roadway construction through unincorporated land, which would be the responsibility of San Juan County; this project is also currently unfunded

Over the medium to long-term, the City is also proposing a widening of Piñon Hills Blvd from two to four lanes from Butler Ave to NM 170 near the City sports complex. The project is not yet funded and is in the information years of the TIP (2024 or later). The extension of Piñon Hills Blvd includes new roadway construction through unincorporated land, which would be the responsibility of San Juan County.

East Aztec Arterial: To alleviate heavy truck traffic along Main Ave (US 55) through Downtown Aztec, the City is pursuing the East Arterial bypass route to connect US 550 with NM 173. Construction is expected to begin in 2020 or 2021. An extension of the East Aztec Arterial is proposed long-term between NM 173 and US 550 to complete the bypass route.

Main Ave Complete Street: The City of Aztec is pursuing a road diet of Main Ave through Downtown based on Complete Street principles. The project, which was identified in the 2018 Downtown Metropolitan Redevelopment Area, would reduce the number of travel lanes from four to two while widening sidewalks and installing other streetscaping. The project would complement the East Arterial bypass route, which would alleviate the travel demand on US 550.

East Blanco Bridge: The East Blanco Bridge is rated “functionally obsolete” and is substandard for both pedestrian and vehicular use. The proposed reconstruction project would include two travel lanes, bike lanes, and sidewalks on both sides of the bridge, due to the lack of barriers, lack of sidewalks and pedestrian walkways on both sides of the structure. Partial funding has been identified, with construction funds needed. Improvements are desired along East Blanco Rd approaching the bridge on either side from US 550 and Saiz Ln, though funding has not been identified.

NM 173 Safety Improvements: NMDOT is pursuing safety improvements as part of roadway reconstruction along the nearly two-mile stretch of the highway immediately east of US 550. The project addresses issues related to the vertical curve of the roadway, as well as improvements related to drainage, fencing, and permanent signing and striping.

NMDOT Repaving/Rehabilitation Projects: NMDOT District 5 has identified US 550 north of Aztec for rehabilitation efforts along 13.5 miles of the highway from north of Aztec to 0.5 miles south of the Colorado border. The project is included in the informational period of the TIP (2024 or beyond) and has an initial estimated cost of \$25 million. Other major preservation and rehabilitation projects are likely needed along other US and NM highways in the FMPO region over the lifespan of the 2045 MTP, including NM 170, NM 516, and parts of US 64 west of Farmington. Route maintenance along US and NM highways is expected to be ongoing.

Local Improvement Projections: A line item is included in the MTP Projects List for each jurisdiction for improvement projects. Though it is not feasible to identify all potential locations for improvements across the span of the 2045 MTP, local improvements dollars may be allocated for projects that address MTP objectives. These projects may include installation of projects identified in the Bicycle Pedestrian Master Plan, intersection improvements, or a variety of roadway investments that address safety, access management, and ADA improvements that may be included as part of major rehabilitation efforts.

San Juan County Bridge Replacement Projects: Following the completion of the Bridge Repair Prioritization Study in 2015, San Juan County is pursuing a series of bridge replacement projects, including three near-term projects funded with local and state money. The most significant of these projects is Bridge No. 8130 over the San Juan River along CR 5500. The total project cost is \$6,972,000 and is paid for through local funds, state severance tax funds as well as funding from the statewide Transportation Project Fund. Other near-term bridge replacement projects include bridges along CR 3500 and CR 3000.

4.2.2 2045 MTP Project List

The transportation investments contained in the 2045 MTP project list reflects the priorities of the member agencies of the FMPO and are based on the best information available at the time of the plan's adoption. Projects may only be included in the MTP if funding has been identified or if there is a reasonably likelihood that funding will be available. Projects must be identified in an MTP or be consistent with plan goals and objectives to receive federal funding. It is also important to note that other projects may emerge over the lifespan of this plan. These projects may be funded locally or must be able to demonstrate they meet federal eligibility requirements.

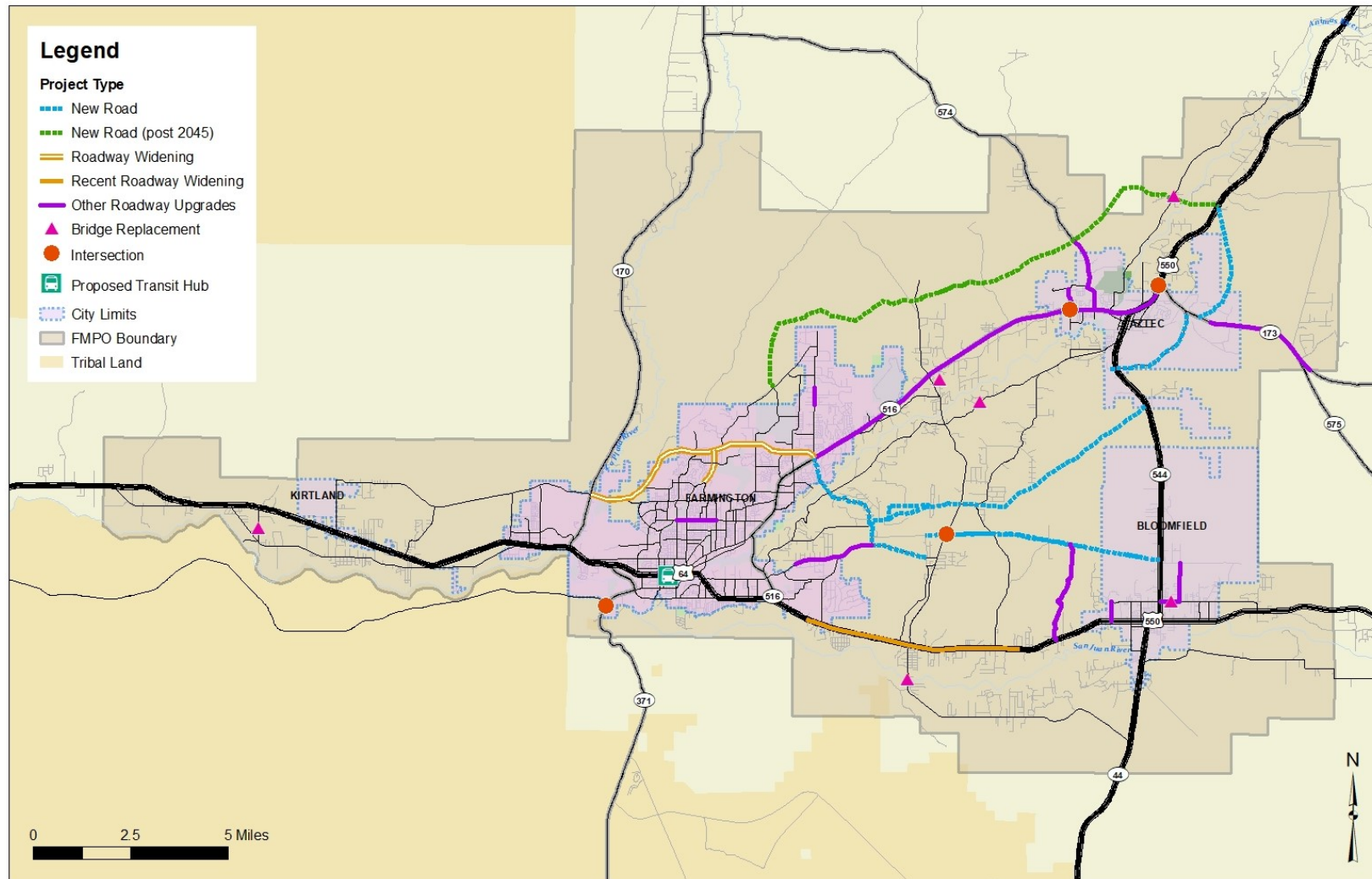
Figure 4-7 contains all roadway projects identified over the 25+ year time period of the 2045 MTP. A full list of all projects in the MTP can be found in Table 4-3. Cost estimates are provided in 2020 dollars and projects are identified by time period. "Current" indicates project is in progress (or completed between 2018 and the time this MTP was adopted) or that funding has been identified and the project is included in the TIP or a local agency ICIP. Other projects are assigned to one of two time periods: short to medium-term priorities are identified in the 2024-2030 period while long-term projects are assigned to the 2031-2045 time period. Projects in the latter time period should be re-evaluated in the subsequent updates to the MTP to determine if the need for the project still exists or if circumstances have changed and the project should be more heavily prioritized.

To better account for the maintenance needs, the project list table includes line items by agency for ongoing roadway preservation/rehabilitation. These funds may be applied to projects in the MTP project list or to other roadways where maintenance/preservation needs have not yet been identified.

Changes from 2040 MTP

It is important to note that this MTP update contains fewer roadway widening projects and new roads than the 2040 MTP. The previous MTP anticipated high levels of population growth and identified additional roadways and wider highways to accommodate projected travel demand. Given current projections and funding levels, some of these previously proposed projects may not be necessary (or funding may not be available) by 2045, are documented in the MTP and shown in Figure 4-7 as New Road (Post-2045).

Figure 4-7: Proposed Projects for 2045 MTP – FMPO Region



Note: Rehabilitation projects on NMDOT facilities are not included in this map. See the Bicycle & Pedestrian Travel section for the proposed bikeways network and the Bicycle and Pedestrian Master Plan for a full set of bicycle, pedestrian, and trail projects.

Figure 4-8: Proposed Projects for 2045 MTP – City of Farmington

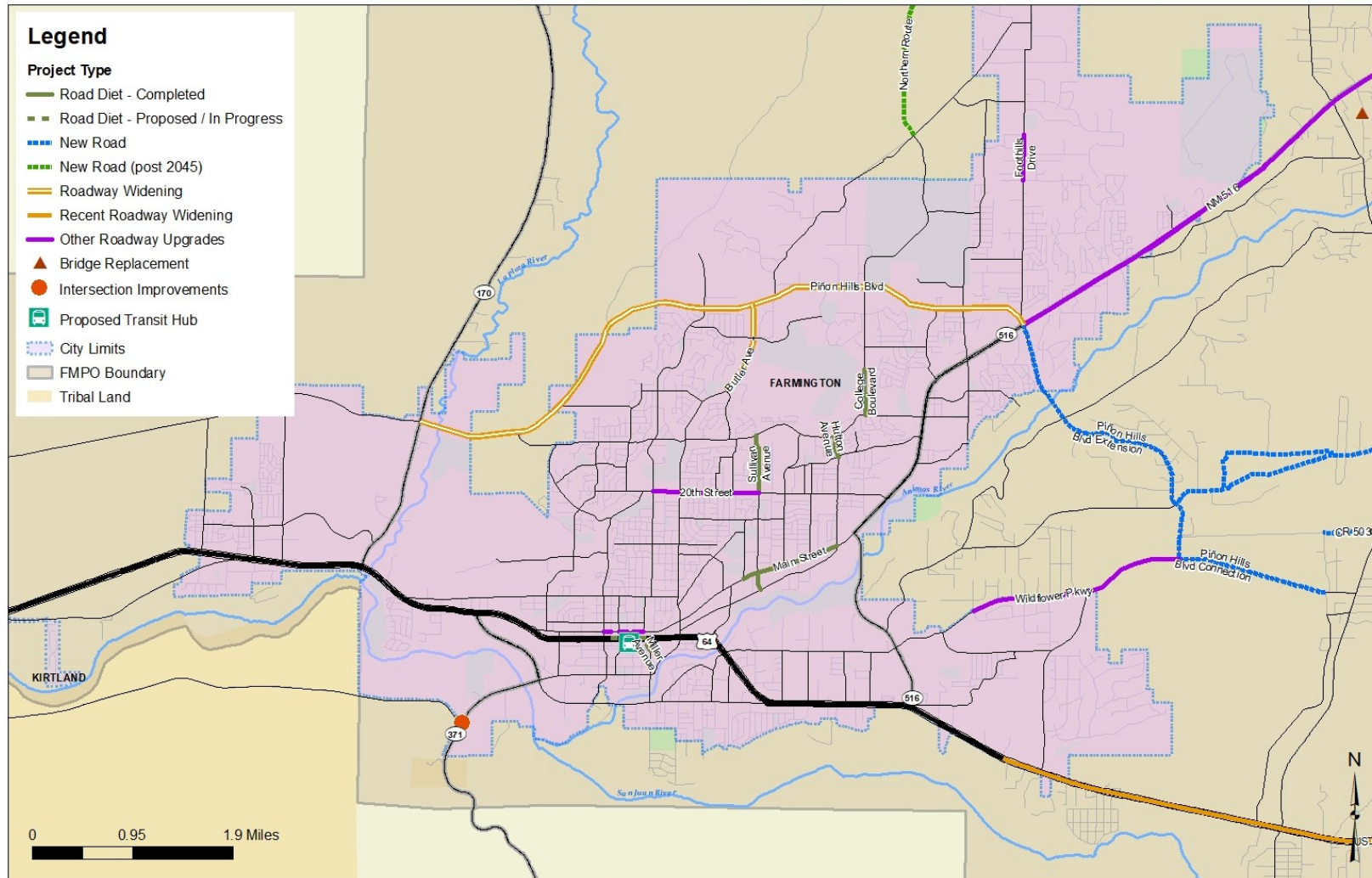


Table 4-3: 2045 MTP Project List

Agency	Facility Name	Project Type	Termini	Description	Estimated Cost (2020)	Timeframe
Aztec	East Arterial North	New Road	NM 173 to US 550	Construct new 2 lane road	\$17,500,000	2031-2045
Aztec	East Arterial Route	New Road	US 550 to NM 173	Construct new 2 lane road (preserve ROW for 2 additional lanes)	\$11,800,000	Current
Aztec	Lt Plant Rd	Road Upgrade	NM 516 to Aztec City Limits	Upgrade road to Minor Arterial; curb/gutter, sidewalks	\$5,000,000	2031-2045
Aztec	N Oliver St	Road Upgrade	Hermosa Rd to McWilliams Ave	Road improvements, including sidewalks and bike lanes	\$2,000,000	Current
Aztec	Main Ave	Multi-modal / Complete Street	NM 516 to Zia St	Complete Streets installation, including road diet	\$1,527,213	2024-2030
Aztec	Road Improvements	Rehabilitation	City-wide	Rehabilitation and preservation efforts for existing roads	\$250,000	Ongoing
Bloomfield	Newby Ln/ CR 5075	Road Upgrade	US 64 to CR 5030	Upgrade road to Collector	\$9,000,000	2031-2045
Bloomfield	Saiz Ln	Road Upgrade	E Blanco to Arizona	Widen existing 2 lanes; curb gutter, sidewalk	\$6,000,000	2024-2030
Bloomfield	Bergin Ln	Road Upgrade	US 64 to West Blanco	Widen existing 2 lanes; curb, gutter, sidewalks	\$2,500,000	2024-2030
Bloomfield	East Blanco Rd	Road Upgrade	US 550 to Saiz Lane	Bridge upgrades plus center turn lanes and sidewalks	\$3,248,408	2024-2030
Bloomfield	Road Improvements	Rehabilitation	City-wide	Ongoing rehabilitation and preservation efforts to existing roads	\$200,000	Ongoing
Bloomfield	East Blanco Bridge	Bridge Improvement	Executive Dr and Saiz Ln	Bridge replacement plus pedestrian facilities	\$3,248,408	Current
Farmington	Piñon Hills Blvd Extension (Phase I)	New Road	NM 516 to Hubbard	Construct new 2 lane road	\$4,000,000	2024-2030
Farmington	Piñon Hills Blvd Extension (Phase II)	New Road	Hubbard to South Side River Road (CR 3000)	Construct new 2 lane road plus bridges over the Animas River and Oxbow	\$18,500,000	2024-2030
Farmington	Butler Ave	Widening	38th St to Piñon Hills Blvd	Widen to 4 lanes, add bike lanes	\$6,500,000	2031-2045

Agency	Facility Name	Project Type	Termini	Description	Estimated Cost (2020)	Timeframe
Farmington	Downtown Main Street	Multi-modal / Complete Street	Miller Ave to Auburn Ave	Complete Streets installation, including roundabouts, wide sidewalks, and streetscaping	\$9,200,000	Current
Farmington	Piñon Hills Blvd	Widening	30th St to Butler	Widen to 4 lanes	\$9,000,000	2031-2045
Farmington	Piñon Hills Blvd	Widening	Sports Complex to 30th St	Widen to 4 lanes	\$2,000,000	2031-2045
Farmington	New Road east of Foothills Rd	New Road	NM 516 to Northern Route	Construct 2 lane road	N/A	Post-2045
Farmington	20th St Phase III	Multi-modal	Dustin Ave to Sullivan Ave	Construct sidewalks, ADA improvements	\$971,978	Current
Farmington	Foothills Dr Enhancements	Road Upgrade	Mesa del Oso to Rinconada St	Reconstruct roadway, add bike lanes and trail	\$2,100,000	Current
Farmington	Road Improvements	Rehabilitation	City-wide	Rehabilitation and preservation efforts for existing roads	\$5,000,000 / year	Ongoing
Multiple	Northern Route	New Road	East Farmington to US 550	Construct new 2 lane road from Farmington to Aztec	N/A	Post-2045
NMDOT	Browning Pkwy / NM 516	Preservation	US 64 to Southside River Road	Major Preservation (approximately 2 miles)	\$4,000,000	2031-2045
NMDOT	US 64 Widening	Widening	Mile post 54 to 60.2	Widening from 4 to 6 lanes, access management, shoulder bikeways	\$34,700,000	Current
NMDOT	NM 173 Safety Improvements	Safety	Motor Cross Rd to Road 2575	Address vertical curve, drainage, fencing, signing and striping	\$4,270,000	Current
NMDOT	NM 516	Preservation	Farmington limits to US 550	Major Preservation (approximately 8 miles)	\$15,000,000	2031-2045
NMDOT	US 64	Preservation	West of Farmington city limits	Major Preservation (approximately 13 miles)	\$25,000,000	2031-2045
NMDOT	NM 170	Preservation	US 64 to FMPO Boundary	Minor Preservation (approximately 12 miles)	\$12,000,000	2031-2045
NMDOT	US 550	Preservation	Cox Canyon/Animas River to 173	Pavement preservation/minor rehabilitation	\$25,000,000	2024-2030
NMDOT	Oliver St and NM 516	Intersection	Distance on side streets TBD	Intersection improvements	\$1,000,000	2024-2030
NMDOT	NM 173 and US 550	Intersection	Distance on side streets TBD	Intersection improvements	\$1,000,000	2024-2030
NMDOT	Road Improvements	Rehabilitation	Region-wide	Rehabilitation and preservation efforts for existing roads	\$150,000	Ongoing

Agency	Facility Name	Project Type	Termini	Description	Estimated Cost (2020)	Timeframe
NMDOT	NM 371/ Navajo Route 36 Intersection	Intersection	Intersection	Preliminary engineering and construction of new signalized intersection	\$1,850,000	Current
Red Apple Transit	Downtown Transit Hub	Transit	Downtown Farmington	Transit center with user amenities	\$3,000,000	2024-2030
Red Apple Transit	Operations and Capital Grants	Transit	Regionwide	5307 FTA funds for operations	\$1,275,000 / year	Ongoing
San Juan County	Piñon Hills Blvd Extension to CR 350	New Road	Corridor to be determined	Construct a facility to connect Piñon Hills Blvd to County road network	\$12,800,000	2024-2030
San Juan County	Wildflower Pkwy	Multi-modal	Approx. Yarrow to CR 3900	Upgrade road - add turn lane, curb/gutter, sidewalk, bike lanes	\$4,000,000	2024-2030
San Juan County	CR 5030	New Road	CR 350 to US 550	Construct new 2 lane road	\$25,000,000	2031-2045
San Juan County	CR 3900 - ROW Acquisition	ROW Acquisition	County portion of proposed Piñon Hills Extension	Right-of-way acquisition to support Piñon Hills Blvd extension	\$900,000	Current
San Juan County	Road Improvements	Rehabilitation	County-wide	Rehabilitation and preservation efforts for existing roads	\$1,000,000 / year	Ongoing
San Juan County	Bridge No. 8111 / CR 3500	Bridge Replacement	Bridge #8111	Design and construct a replacement bridge on CR 3500	\$2,800,000	2024-2030
San Juan County	Bridge No. 5722 / CR 6675	Bridge Replacement	Bridge #5722	Design and construct a replacement bridge on CR 6675	\$800,000	2024-2030
San Juan County	Bridge No. 3121 / CR 3000	Bridge Replacement	Bridge #3121	Design and construct a replacement bridge on CR 3000	\$1,000,000	2024-2030
San Juan County	Bridge No. 3382 / CR 2900	Bridge Replacement	Bridge #3382	Design and construct a replacement bridge on CR 2900	\$1,000,000	2024-2030
San Juan County	Bridge No. 8130 / CR 5500	Bridge Improvement	Near CR 5507 over San Juan River	Bridge replacement plus pedestrian facilities	\$6,972,200	Current
Various	Highline Road	New Road	CR 3950 to US 550	Construct new 2 lane road	\$19,000,000	2031-2045

Note: Estimates for certain NMDOT roadway projects are based on per mile costs for minor and major rehabilitation.

4.3 FUTURE ROADWAY CONDITIONS & TRAVEL MODEL RESULTS

FMPO maintains a regional travel demand model to consider the impacts to the regional transportation system based on current and proposed socioeconomic conditions and changes to the transportation network. Travel model analyses were conducted for several scenarios to better understand regional travel patterns and identify long-term transportation needs. Ultimately, the analysis allows the region to address these needs in a proactive manner and consider the benefits of roadway capacity projects before the investments are made. This section documents the findings from the regional travel demand model and considers current and projected travel patterns.

As part of the 2045 MTP, the Project Team conducted a thorough update to the travel demand model. The model update incorporated recent changes to the transportation network, including newly widened or upgraded roads, as well as location where travel lanes were removed as part of road diet projects. The model was also recalibrated based on the most recent traffic counts information to be able to represent current travel patterns as accurately as possible, as described in Appendix A.

Model Limitations

The travel model is a useful tool for understanding whether the existing roadway network can support regional travel and the impacts of new roadway facilities (i.e. new lanes and wider roads). It is also important to note that while the travel demand model does not account for public transit, biking, or walking activity in the trip rates data, model will not reflect the shift of trips to other mode resulting from transportation investments. Signal timing updates were not included in this MTP update.

4.3.1 Methodology and Scenarios

The main inputs to the travel model are current and future socioeconomic conditions (i.e. the number and distribution of residents and employment sites) and the current and proposed transportation networks. These inputs are used to understand the points of origin for trips in the region, trip destinations, and the paths that motorists take. Destinations include job sites, schools, and services, with different industries generating trips at different rates. By examining population and employment patterns over time, the model is able to assess the extent to which additional growth or changes in trip distribution patterns can be managed by the transportation system. See the socioeconomics section for more information on projected population, housing, and employment levels. The impacts of new or widened roadways can also be assessed to determine the level of benefit associated with those investments.

The following scenarios were evaluated for the 2045 MTP.

- **2018 Baseline:** Represents the current transportation conditions within the FMPO area to the greatest and most accurate extent possible.
- **2045 No Build:** Uses projected land use and socioeconomics and the existing roadway network, plus projects that are under construction or for which funding has been identified. The projections include 9% increase in the population for the FMPO region.
- **2045 Build:** Uses projected land use and socioeconomics and includes all new roadway capacity projects through 2045.

How to Compare Scenarios

- *2018 Baseline versus 2045 No Build*: compares changes in traffic levels over time due to population and employment growth only
- *2018 Baseline versus 2045 Build*: compares changes in traffic levels and travel patterns due to population growth and network changes
- *2045 No Build versus 2045 Build*: demonstrates impacts of changes in the transportation network

4.3.2 Summary Statistics

The scenarios were evaluated and compared to each other based on a set of measures of effectiveness generated by the travel demand model. These measures reveal changes in the overall transportation system over time, including the impacts of socioeconomic changes and roadway capacity projects. Summary statistics are presented below for the PM peak period, the time of the day when volumes are generally the highest,

- *Average Speed*: Average conditions in miles per hour for all collector and arterial roadways in the PM peak period
- *Vehicle Miles Traveled (VMT)*: the amount of travel in miles for all vehicles within an area during the PM peak period
- *Vehicle Hours Traveled (VHT)*: Total driving time in the PM peak period, based on average speed and VMT
- *Vehicle Hours of Delay (VHD)*: The total combined delay experienced by all vehicles in the PM peak period

For the FMPO region overall, modest differences are observed between baseline and future scenarios in the travel demand model. Average speeds decrease by 1-2%, while the region is projected to experience larger increases in VMT and VHT (VMT increases by about 25% in both future scenarios). The increase in VMT is noteworthy as it is disproportionate to the population and employment growth and is likely related to the projected distribution of new housing. Since only modest levels of infill are expected, much of the new growth is expected in locations that would require residents to travel greater distances to access jobs services. The analysis does show that VHD will increase across the region; however, the current levels of delay are quite modest.

Differences in regional conditions are observed between the No Build and Build Scenarios, indicating that travel patterns respond to the additional roads and travel lanes proposed in the MTP. However, changes in VMT and VHT are minimal (i.e. about a 1.1% reduction in VMT) from the No Build to the Build Scenario. Average speed increases over time by an equally modest amount (0.9%) from the are expected from the No Build to the Build Scenarios.

Conditions in the City of Farmington follow similar patterns to the region at-large, with slightly larger decrease in average speeds projected. The differences in conditions between the No Build and Build scenarios are somewhat more pronounced in the City than for the region overall, with projected roadway projects resulting in a 3.0% reduction in VHT and 9.3% reduction in VHD.

Table 4-4: Summary Statistics for the FMPO Region

Scenario	Average Speed (MPH)	Vehicle Miles Traveled (VMT)	Vehicle Hours Traveled (VHT)	Vehicle Hours of Delay (VHD)
2018 Existing Conditions	35.6	182,008	5,116	78
2045 No Build	34.9	227,556	6,522	154
2045 Build	35.2	227,312	6,452	145
Difference: 2045 NB vs 2018	-2.0%	25.0%	27.5%	97.4%
Difference: Build vs 2018	-1.1%	24.9%	26.1%	85.9%
Difference: Build vs No Build	0.9%	-0.1%	-1.1%	-5.8%

Table 4-5: Summary Statistics for the City of Farmington

Scenario	Average Speed (MPH)	Vehicle Miles Traveled (VMT)	Vehicle Hours Traveled (VHT)	Vehicle Hours of Delay (VHD)
2018 Existing Conditions	29.0	72,885	2,500	43
2045 No Build	27.8	85,193	3,069	75
2045 Build	28.3	84,279	2,977	68
Difference: 2045 NB vs 2018	-4.1%	16.9%	22.8%	74.4%
Difference: 2045 B vs 2018	-2.4%	15.6%	19.1%	58.1%
Difference: Build vs No Build	1.8%	-1.1%	-3.0%	-9.3%

4.3.3 Travel Model Results/Regional Conditions Maps

The series of figures on the following pages depict regional roadway conditions under the different scenarios using volume-to-capacity (V/C) ratios for the PM peak period, the time of day when traffic volumes are highest. V/C ratios compare roadway demand (volumes) to supply (the available capacity based on roadways, travel lanes, and functional classification); a roadway is considered congested as the V/C ratio approaches or exceeds 1.0, the point at which the traffic volume equals the roadway capacity.⁷ The V/C ratios were calculated for each direction (north/south or east/west) for all roadway segments in the region. The highest value is used to calculate the V/C ratio for that roadway segment in the summary figures.

Though traffic levels are projected to increase over time, no roadway segments in any scenario are expected to be over capacity. In 2018, only a few roadway segments have V/C ratios that

⁷ Urbanized areas using varying thresholds to identify locations approaching congested conditions. Common V/C thresholds include 0.7 and 0.85

exceed 0.6, with no V/C ratios observed above 0.7. The locations with the highest V/C ratios in the 2045 No Build and Build Scenarios are depicted in Table 4-6 and Table 4-7.

Table 4-6: Locations with Highest V/C Ratios in 2045 No Build Scenario

Location	V/C Ratio
CR 3536: CR 3566 CR 3535	0.73
Glade Rd: East of Farmington City Boundary to Piñon Hills Blvd	0.70
Piedras St: East of Troy King Rd to NM 170 / La Plata Hwy	0.68
NM 371: Southwest of Ojo Ct to Upper Fruitland Hwy	0.65
30th St: Cherry Hills Dr to Hutton Ave	0.65

Table 4-7: Locations with Highest V/C Ratios in 2045 Build Scenario

Location	V/C Ratio
CR 3536: CR 3566 to CR 3535	0.73
Glade Rd: East of Farmington City Boundary to Piñon Hills Blvd	0.70
30th St: Cherry Hills Dr to Hutton Ave	0.67
30th St: Harvard Dr to Cherry Hills	0.67
CR 5500: US 64 to CR 5470	0.66

4.3.4 Discussion and Key Takeaways

Based on the modeling results, congestion is not a significant issue in the FMPO region and roadways are expected to have adequate capacity in future years. Where locations of delay and congestion do occur around the region, they are likely the result of operation issues rather than insufficient roadway capacity. As levels of projected growth are modest, no significant increases in congestion levels are projected.

The projections therefore represent an important opportunity to re-think transportation priorities across the region. Rather than stretch narrow budgets to support new population growth with additional roadway capacity, member agencies can invest in the existing infrastructure and pursue projects that enhance safety and maximize the efficiency of existing roadways. Such an approach would also allow FMPO member agencies to more heavily invest in other modes of travel – including trails, on-street bikeways, and pedestrian infrastructure – to better support a multi-modal network. Where new roadways are pursued, those investments should be targeted to support economic development initiatives.

Figure 4-9: 2018 Baseline Model Scenario – Roadway Volume-to-Capacity Ratios

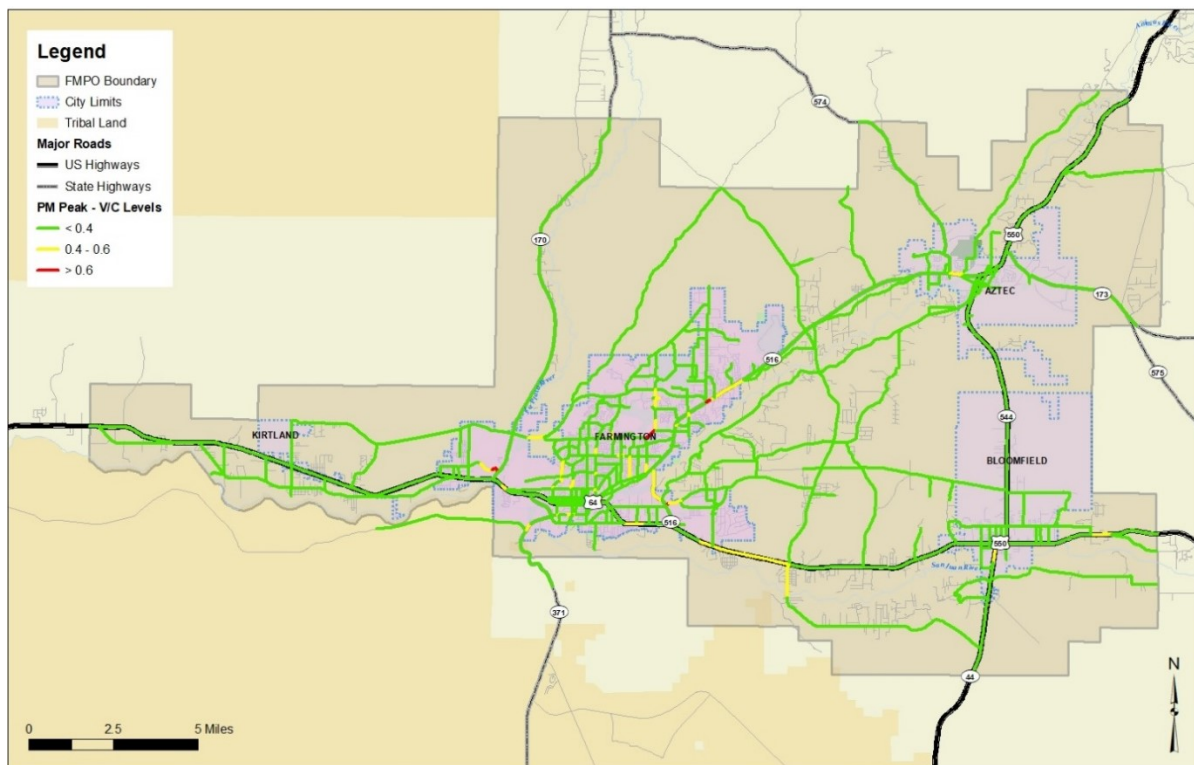


Figure 4-10: 2045 No Build Model Scenario – Roadway Volume-to-Capacity Ratios

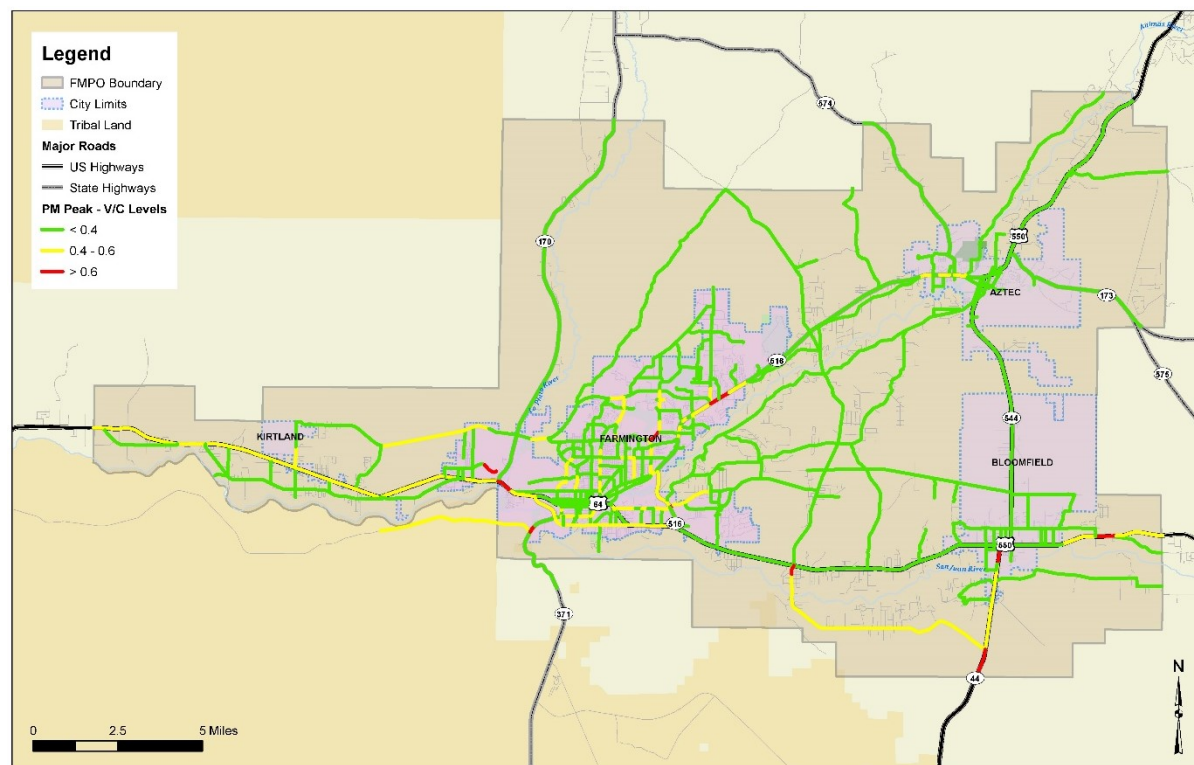


Figure 4-11: 2045 Build Model Scenario – Roadway Volume-to-Capacity Ratios

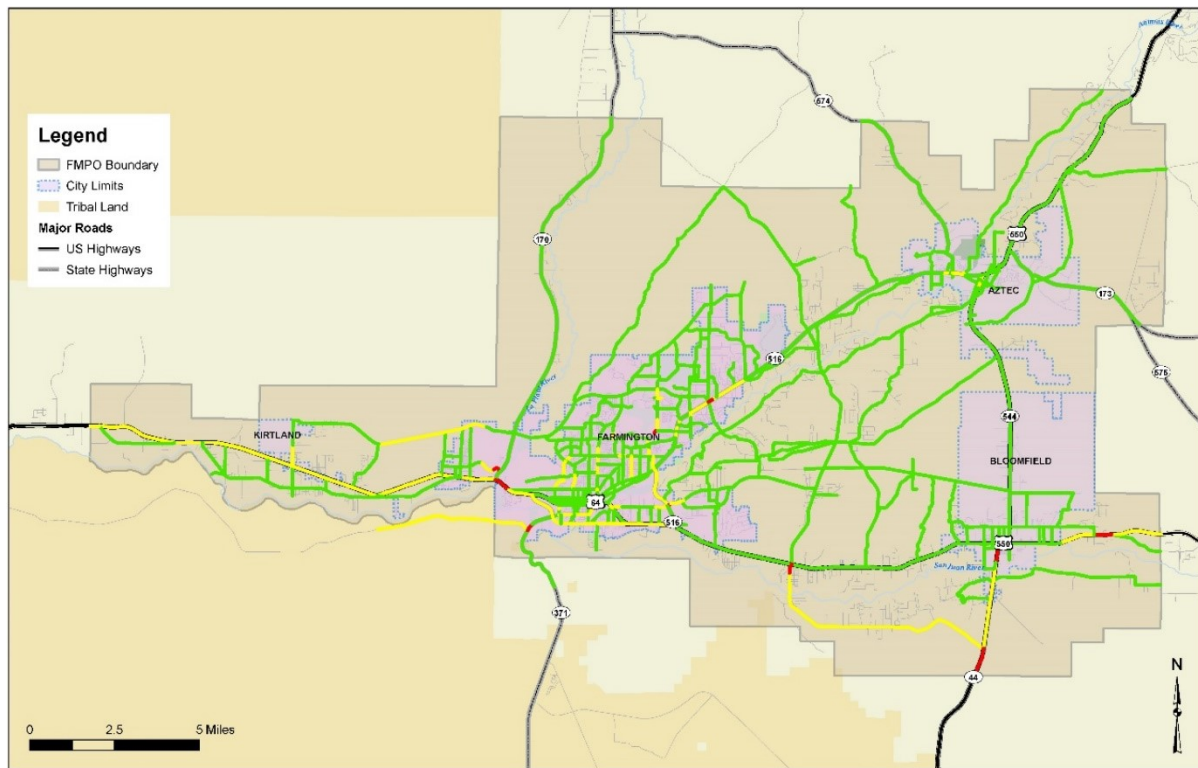
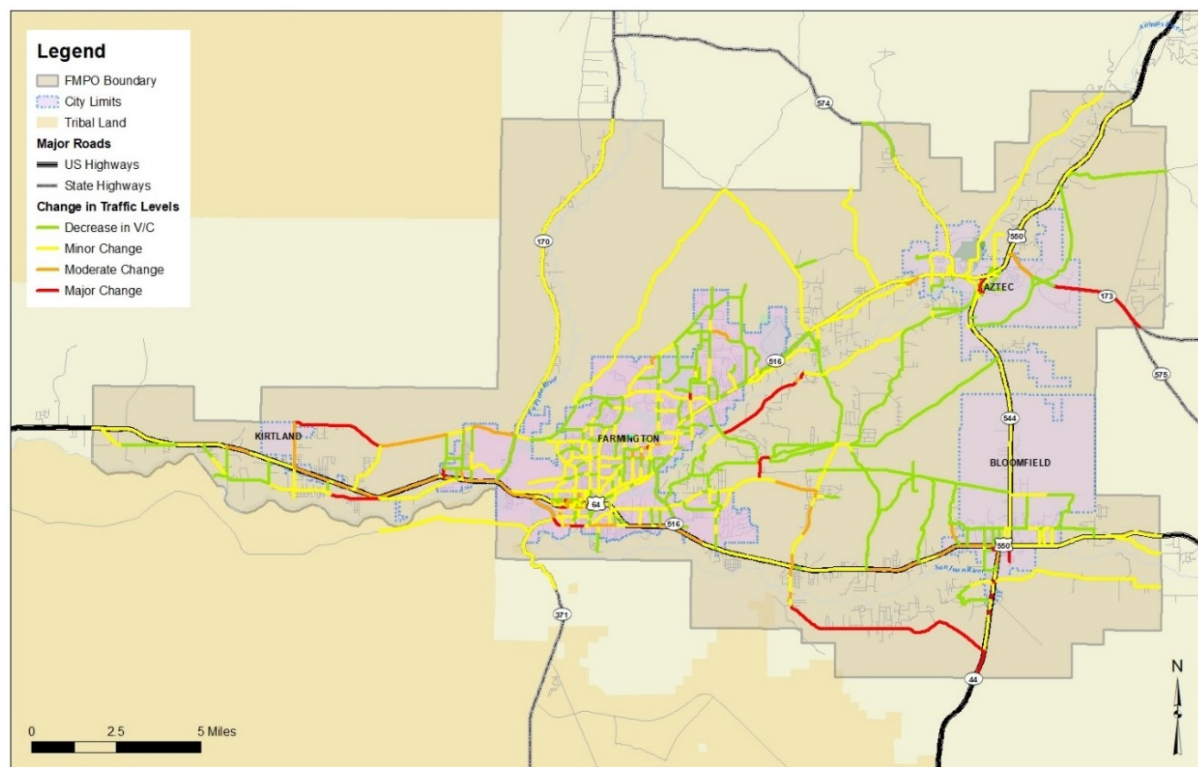


Figure 4-12: Change Volume-to-Capacity Ratios – 2018 versus 2045 Build



4.4 ROADWAYS OPERATIONS

4.4.1 Overview and General Strategies

The relatively modest levels of projected growth and lack of regional congestion mean the FMPO and member agencies can focus transportation dollars on projects that improve the existing roadway network. This section describes general strategies – collectively referred to as transportation systems management – to improve the efficiency, operations, and safety of existing roadways.

Transportation systems management consists of strategies to help increase the operating performance of roadways. These strategies in particular help make the roadway more efficient by moving more vehicles in the same roadway space and increasing the capacity of a roadway without adding travel lanes. Some examples include access management, installation of turn lanes and turn bays, signal coordination and timing improvements, and the use of Intelligent Transportation System.

Strategies to Improve Efficiency and Operations

Signal coordination/timing, including the use of adaptive traffic signals, can also be used to increase travel efficiency. There is already a precedent set for using this type of strategy within the FMPO area as the City of Farmington has installed adaptive signals on multiple corridors. See the ITS section below for additional discussion on the use of technology and communication to support operational improvements.

Freight Management: There is a potential to create restrictions for truck drivers and establish specific weight limits along roadways where reducing truck traffic is needed to help improve safety and/or reduce noise issues. One example is for the FMPO to encourage heavy trucks bypass downtown Aztec to travel on the East Arterial route instead. The FMPO could identify routes through FMPO member entities where delivery trucks are already traveling along as a first steps towards identifying preferred truck routes. Refer to the Freight chapter for regional routes.

Transportation Demand Management (TDM) encompasses a variety of strategies and programs that reduce single-occupancy vehicles (SOV) to help mitigate climate change impacts and enhance quality of life. Examples of programs that FMPO member entities could consider pursuing include telecommuting; providing incentives to bike, walk, or take transit to work; and other methods to reduce the number of motorists on the roadway, particularly during peak periods.

4.4.2 Existing Operations Issues

Because the roadway capacity is based on functional classification, the travel model indicates some roads should be able to carry greater capacity than the roads were designed to support. In practice, various roadways in the City of Farmington, particularly north-south routes that pass through residential areas (e.g. Butler Ave and Dustin Ave) can experience delays. Improve efficiency along Main St could help the distribution of trips along these streets. Adaptive signals were recently installed on Main St and other proposed along 20th St.

Noteworthy locations with recurring delay due to operations issues includes the intersections of Butler Ave with Broadway, San Juan Blvd, and Main St, as well as the intersections of Main St with San Juan Blvd and English Rd. Other bottlenecks identified by City of Farmington staff include portions of College Blvd, 30th St, and Piñon Hills Blvd. Additional locations where intersection and operations improvements are warranted may emerge from traffic studies or the result of development patterns and changes in land use.

4.4.3 Access Management

Access management is a technique used to control access to highways, major arterials, and other roads to increase capacity, manage congestion, and improve safety. Benefits are derived from reducing conflict points and better managing traffic flows by limiting locations where turning movements can be made. Access management is achieved through the use of medians, managed turn lanes, and consolidating driveways and limiting new driveways that may be introduced along a roadway

The purpose of access management is to achieve a balance between access to parcels adjacent to roadways and preserving regional mobility. The most common benefits of implementing access management practices includes improving movement of through traffic; improving safety through reducing crashes, user error, and delay; and minimizing conflicts. A range of techniques can be used to manage access to highways, major arterials, and other roads (see Table 4-8).

Access management is an appropriate technique for various highways in the FMPO region, including US 64 through the Town of Kirtland and NM 516 between Farmington and Aztec that feature high volume and high-speed roadways through areas with large numbers of business access points and turning movements. In the case of US 64 through Kirtland, the roadway serves as both a major highway and as the community's main street. Access management - combined with pedestrian improvements – may be considered in other locations where local agencies wish to better manage traffic and reduce potential conflicts among pedestrians and motorists.

Table 4-8: Types and Benefits of Access Management Techniques ⁸

Technique	Benefits
<i>Signal Spacing:</i> increasing the distance between traffic signals	- Improves the flow of traffic on major arterials - Reduces congestion - Improves air quality for heavily traveled corridors
<i>Driveway Spacing:</i> fewer driveways spaced further apart	- Improves orderly merging of traffic - Fewer challenges to drivers
<i>Safe Turning Lanes:</i> includes dedicated left- and right-turn, indirect left-turns and U-turns, and roundabouts to keep through traffic flowing	- Keeps through traffic flowing - Improves safety
<i>Median Treatments:</i> includes two-way left-turn lanes (TWLTL) and non-traversable, raised medians	- Regulates access - Reduces crashes
<i>Right-of-Way Management:</i> reservation for future widening, sight distance, and access location	Improves safety

4.4.4 Intelligent Transportation Systems

Overview

Intelligent Transportation Systems (ITS) encompasses a range of technologies used to advance transportation safety and mobility by integrating advanced communications technologies into transportation infrastructure and vehicles. Some of the most prominent applications of ITS technologies already deployed across the country include electronic toll collection, ramp meters, red light cameras, traffic signal coordination, transit signal priority, and traveler information systems. While not all of these strategies are relevant for the FMPO region, there are a variety of opportunities to utilize technologies to improve operations along major roadways. These strategies are outlined in the Farmington Regional Intelligent Transportation Systems Architecture Update.

Farmington Regional Intelligent Transportation Systems Architecture Update

Regional coordination of ITS among agencies is critical since roadways and vehicle travel transcend jurisdictional boundaries. The Farmington Regional Intelligent Transportation Systems Architecture Update, last updated in 2015, is a roadmap for ITS integration in the FMPO area over the next 20 years. In addition to an inventory of “elements” that represent all existing and planned ITS systems in the FMPO region, as well as non-ITS systems that provide information to or get information from the ITS system, the Architecture Update identifies key ITS investments across the region.

The update also defines possible integration opportunities among agencies across the region and identifies how cooperation between the agencies in the deployment of ITS systems can be used to satisfy transportation needs. Ultimately, by creating a long-range plan for the implementation of these systems and technologies, FMPO agencies can use the document to prepare for future expansion, develop coordinated deployments of ITS, leverage funding, and

⁸ FHWA, 2020

identify standard interfaces. The Farmington Regional ITS Architecture also enables the region to comply with the FHWA Rules and FTA Policy on Architecture and Standards.⁹

Stakeholders

The organizations that operate systems within or adjacent to the FMPO region covered by ITS architecture are referred to as stakeholders and include public agencies, private organizations, or the traveling public with a vested interest, or "stake," in one or more transportation elements within FMPO's ITS Architecture. Since roadways and vehicle travel transcend jurisdictional boundaries, regional coordination of ITS infrastructure is needed. Key stakeholders include:

- City of Aztec
- City of Bloomfield
- City of Farmington - Traffic Engineering
- City of Farmington - Fire Department
- FMPO
- FHWA
- NMDOT - District 5
- NMDOT - ITS Bureau
- Red Apple Transit
- San Juan County EMS

Other organizations that may have a stake in ITS deployment and roadways operations include the Town of Kirtland, the Navajo Nation DOT, and the region's school districts.

Roles and Responsibilities for Maintenance

Responsibility for maintenance of the Farmington Regional ITS Architecture lies with FMPO, as they perform primary regional planning functions and will be one of the primary users of the architecture. The Architecture Update proposes that an ITS Steering Committee act as an "institutional framework" to review and propose the installation of ITS infrastructure. changes to the architecture. The following groups or persons have a role in the maintenance of the architecture:

- **Stakeholders.** Any government agency or private organization that has a role in providing transportation services in the region.
- **Maintenance Working Group.** A group of stakeholder representatives who are responsible for the technical review of updates/changes to the Farmington Regional ITS Architecture, and for approving changes to go into the architecture.
- **Responsible Agency.** The stakeholder agency with primary responsibility for maintenance of the architecture.
- **Maintenance Manager.** The person responsible for overseeing and guiding the maintenance efforts.

Integration with the Regional Transportation Planning Process

To deploy ITS across the region, the ITS Architecture must be integrated into the regional planning process to ensure transportation objectives are supported by the ITS deployments in

⁹ The FHWA Final Rule 23 CFR 940, (and corresponding FTA policy) to implement Section 5206(e) of the TEA-21 requires that ITS projects funded through the Highway Trust Fund conform to the National ITS Architecture and applicable standards. The Rule/Policy requires that the National ITS Architecture be used to develop a local implementation of the National ITS Architecture, which is defined as a regional ITS architecture.

the field. The ITS Architecture Update identifies the following methods for incorporating ITS architecture into the planning process:

- The regional ITS Architecture can provide the basis for operational strategies...to improve the transportation system to meet the region's vision and goals.
- The regional ITS architecture can be used to support evaluation and prioritization of strategies in two ways. The first is through the definition in the architecture of archiving and data collection systems that support collecting the data needed for evaluation. The second is through the detailed definition of ITS projects and their sequencing that can be used to support prioritization efforts.
- The process of developing and maintaining a regional ITS architecture can help to enhance the linkage between operations and planning through closer involvement of a wider array of stakeholders from both areas of transportation.

Other means of incorporating ITS elements into regional transportation planning efforts include the prioritization of projects for federal funding that enhance the regional ITS Architecture. The Farmington Regional ITS Architecture Update also recommends that the FMPO designate an ITS Planner, who, with the assistance of an ITS Subcommittee, would be responsible for the application and monitoring of the ITS Architecture in the transportation planning process.

4.4.5 Roadway Maintenance and Rehabilitation

Technical staff from member agencies indicate there are significant needs across the region in terms of roadway maintenance, though limited funding is available to address those needs. The 2045 MTP prioritizes maintaining the existing transportation system in good working order and recommends that available transportation dollars be targeted toward rehabilitation and preservation projects. Such an approach is not merely about maintaining the system as is; rather, a focus on rehabilitation provides an opportunity to address safety concerns and install on-street bikeways and pedestrian facilities.

Current or upcoming rehabilitation and improvement projects include resurfacing of Foothills Dr in Farmington, which includes the addition of bike lanes and a multi-use path, and Oliver St in Aztec. The bridge along Broadway Ave over the Animas River is also slated for significant repairs. Other corridors owned and maintained by local agencies in need of major rehabilitation include but are not limited to CR 6100, Dustin Ave, Broadway Blvd from Southside River Rd to US 64, Main St from Murray Dr to W Broadway, and W Broadway from Main St to Lake Street.

4.5 RECOMMENDATIONS & ACTION TEMS

4.5.1 Transportation Systems Management/Operational Improvements

- Prioritize roadway projects that increase the efficiency of the existing transportation system
- Evaluate roadways that experience delay for installation of adaptive traffic signals and other signal timing/coordination improvements
- Implement strategies for operational improvements including traffic signal coordination, adaptive traffic signals, and freight management in locations that experience recurring or non-recurring congestion or both

4.5.2 Access Management

- Inventory driveway and intersection spacing on principal arterials and roadways where high speed limits and traffic volumes are present alongside high levels of site access and/or pedestrian activity
- Update local development standards to incorporate access management
- Fund and prepare corridor access management studies that reduce conflict points and control turning movements; potential locations include US 64 through Kirtland and NM 516 from eastern Farmington to Aztec
- Implement access management techniques, including consolidation of driveways, turn lanes, median treatments, and right-of-way management during the design of new roadways and reconstruction of existing roadways. Refer to the Safety Chapter for more guidance on safety enhancements related to roadway design and access management.

4.5.3 ITS

- Continue implementation of ITS improvements listed in the *ITS Architecture Update*; conduct ongoing updates to the *ITS Architecture*
- Designate an ITS Planner within FMPO; convene an ITS Subcommittee to promote ongoing communication and coordination among agencies regarding ITS architecture.
- Incorporate ITS elements into roadway rehabilitation and reconstruction projects

4.5.4 Complete Streets/Multi-Modal Improvements

- Evaluate potential candidates for road diets
- Pursue Complete Streets improvements on Main Ave in Downtown Aztec and other locations with high levels of pedestrian activity and where bikeway connections are a priority
- Update *Context Sensitive Street Design Guidelines* to ensure consistency with the 2045 MTP, Bicycle-Pedestrian Master Plan, and other recent planning efforts in the region

4.5.5 Maintenance and Rehabilitation

- Use rehabilitation and roadway reconstruction projects as an opportunity to introduce on-street bikeways and to improve sidewalk conditions
- Account for long-term maintenance and rehabilitation needs during long-term budgeting
- Coordinate with NMDOT on asset management efforts, including pavement and bridge conditions evaluations for major highways through the FMPO region on the NHS

5 SAFETY

5.1 OVERVIEW

Ensuring that roadways are safe and comfortable for all users is an important part of local quality of life and requires actions at the statewide, regional, and local levels. The 2045 MTP considers locations with high numbers and rates of crashes and proposes general strategies to reduce traffic fatalities and serious injuries. This MTP also considers severity of crashes, which is an important supplemental factor to the rate of crashes—in some cases interventions may seek to reduce the severity of crashes but may not necessarily reduce the number of crashes.

The intent of this analysis is to identify priorities and inform investments across the FMPO region.

Across the US there is increasing awareness of the issue of roadway safety, yet outcomes are worsening. As VMT has risen nationally and statewide in recent years, so too have the number of crashes and transportation-related fatalities. According to the World Health Organization, approximately 1.35 million people die each year due to traffic crashes.¹⁰ In the US, almost 40,000 people lost their lives and an estimated 4.4 million people were seriously injured due to car-related crashes in 2019.¹¹ Traffic fatalities take a toll on individuals and entire communities and there are serious health-care costs and health consequences; billions of dollars are spent each year due to health costs from traffic crashes, air pollution, and physical inactivity.¹²

Safety goals can be addressed through programs and infrastructure design techniques that alter behavior in positive ways. Many locations with high crash rates are the result of roadway designs where travel speeds are contextually incompatible with adjacent land use. NMDOT and FMPO have both taken steps to address this dynamic through design manuals that encourage

Transportation and Public Health

Our transportation systems play a vital role in encouraging or discouraging healthy behaviors and the overall health of communities. How we design our streets matter. Traditionally, streets were designed using a vehicle-centric approach, resulting in unsafe places to walk, bike, roll, or cross the street and placing bicyclists and pedestrians at greater risk. However, designing streets with people in mind provides everyone the opportunity to move safely and freely throughout a community regardless of mode, helps prevent the incidence of motor vehicle crashes, and supports healthier communities.

In other words, transportation is a social determinant of health. The conditions in the environments in which people live, learn, work, and play that affect a wide range of health and quality-of-life outcomes (Healthy People 2020). Creating safer transportation systems in FMPO areas will help foster a healthier population, society, and workforce.

¹⁰ WHO Road Traffic Injuries. <https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries>.

¹¹ NSC Fatality Estimates. <https://www.nsc.org/road-safety/safety-topics/fatality-estimates>

¹² RWJF How Does Transportation Impact Health? <https://www.rwjf.org/en/library/research/2012/10/how-does-transportation-impact-health-.html>

designs and vehicle travel speeds more appropriate for the roadway users and surrounding land uses. These include the FMPO Complete Streets Design Guide and the NMDOT Road Diet Design Guide.

5.2 FEDERAL AND STATEWIDE POLICIES AND INITIATIVES

5.2.1 Performance Targets

Safety is a central goal among national and statewide transportation legislation and policy initiatives. The MAP-21 federal transportation legislation established safety as one of its seven National Goal Area while the FAST Act requires that performance targets be set at the statewide and MPO levels in the more recent FAST Act.

In January 2020, the FMPO adopted a resolution to embrace the state established performance measures, the NMDOT Safety Targets for 2020, as their commitment to improve transportation safety. These annual targets are required by 23 CFR 490 and must be in accordance with the final rule on the Highway Safety Improvement Program.¹³ It should be noted that the performance targets were developed at a time when VMT and crash rates were expected to increase annually. The NMDOT targets adopted by the FMPO are related to the following measures:

- Number of Total Fatalities
- Number of Serious Injuries
- Fatalities per 100 million VMT
- Serious Injuries per 100 million VMT
- Number of Non-motorized Fatalities and Serious Injuries

5.2.2 Statewide Safety Programs and Initiatives

NMDOT engages in various state-level planning and policy initiatives that coordinate safety strategies. These programs also help NMDOT and agencies across the state access federal funding for safety initiatives. In addition, NMDOT has developed new guidelines for roadway design and project development that emphasize safety. This includes the NMDOT Road Diet Design Guide, which encourages the reconfiguration of certain roadways to provide on-street bikeways and reduce risks of rear-end collisions.

Strategic Highway Safety Plan (2016)

The Strategic Highway Safety Plan (SHSP) coordinates safety-related programs and strategies for reducing fatal and serious injury crashes on New Mexico roads. Highway Safety Improvement Program (HSIP) funds may be used for projects that address needs and issues identified in the SHSP. General priority areas include reducing unsafe driving behaviors including distracted and

¹³ 23 CFR Part 490 Safety Performance Measurement Final Rule.

<https://safety.fhwa.dot.gov/hsip/rulemaking/>

impaired driving and addressing locations with high numbers of crashes through design. The SHSP is a requirement for the use of HSIP funding and is updated regularly.

Highway Safety Plan (2017)

The Highway Safety Plan (HSP) reviews safety conditions and crash data across New Mexico and provides data-driven strategies to address the safety issues on NM highways for motorists, bicyclists, and pedestrians, and to reduce crashes resulting in fatalities of those users. The HSP is required by the National Highway Traffic Safety Administration (NHTSA) and enables NMDOT to access funds for safety-related programs. Strategies in the HSP for increasing safety include educational efforts to increase safe driving habits and create awareness of the presence of non-motorists. Notable among NMDOT programs and campaigns are the ENDWI and DNTXT initiatives and the Look for Me campaign to raise motorist awareness of pedestrians and bicyclists.



Pedestrian Safety Action Plan

NMDOT is currently developing a Pedestrian Safety Action Plan that identifies policies and strategies at the statewide level to address the high pedestrian fatality rates and create safer conditions along roadways across New Mexico. *Outreach and plan development are expected to take place over the course of 2020 and early 2021.*

5.3 CRASH ANALYSIS

5.3.1 Statewide and Regional Conditions

Safety strategies and policy initiatives should respond to identified safety concerns. Crash rates in combination with crash severity data are commonly used to assess roadway safety and determine locations with the greatest safety concerns. This plan considers summary data provided by NMDOT and analyzes individual crash locations across the FMPO region from 2013 to 2017 to gain an understanding of safety issues and to help identify policy priorities and potential transportation investments.

According to the *New Mexico Traffic Crash Annual Report* (2018), fatal and serious injury crashes rose in New Mexico from 2014 to 2018 (see Figure 5-1). San Juan County ranked 6th among New Mexico counties for total number of crashes, including an increase from 1,800 in 2014 to 1,931 in 2018; however, the County experiences relatively low crash rates relative to other counties and is well below the New Mexico average (99.9 crashes per 100 million VMT versus 171.5 crashes per 100 million VMT at the state-level).

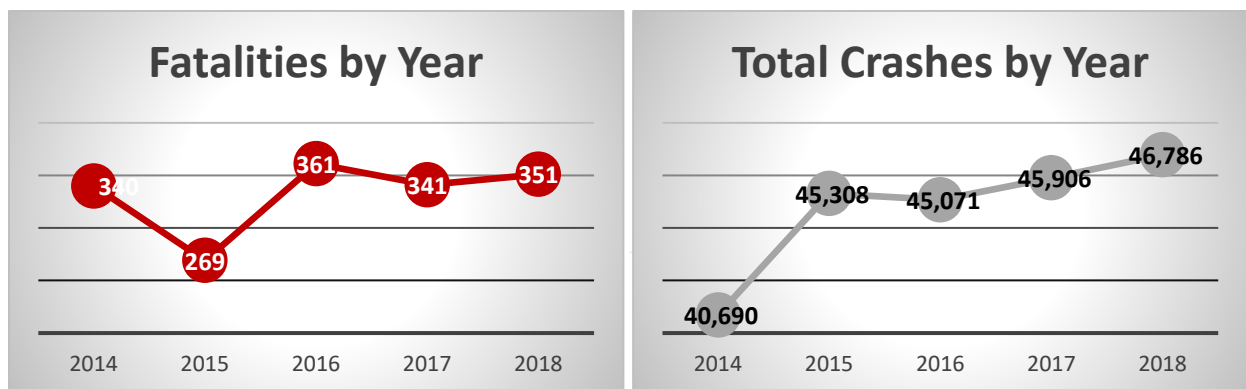
Classifying Severe Crashes

The most common injury scale used in police reports is the KABCO Injury Classification Scale, which uses the following severity levels:

- **K** – Killed
- **A** – Suspected Serious Injury
- **B** – Suspected Minor Injury
- **C** – Possible Injury
- **O** – No apparent Injury (Property Damage Only)

Killed and Serious Injury crashes are often grouped together in a metric known as “KSI”. This metric is used as a way to understand the most severe crashes.

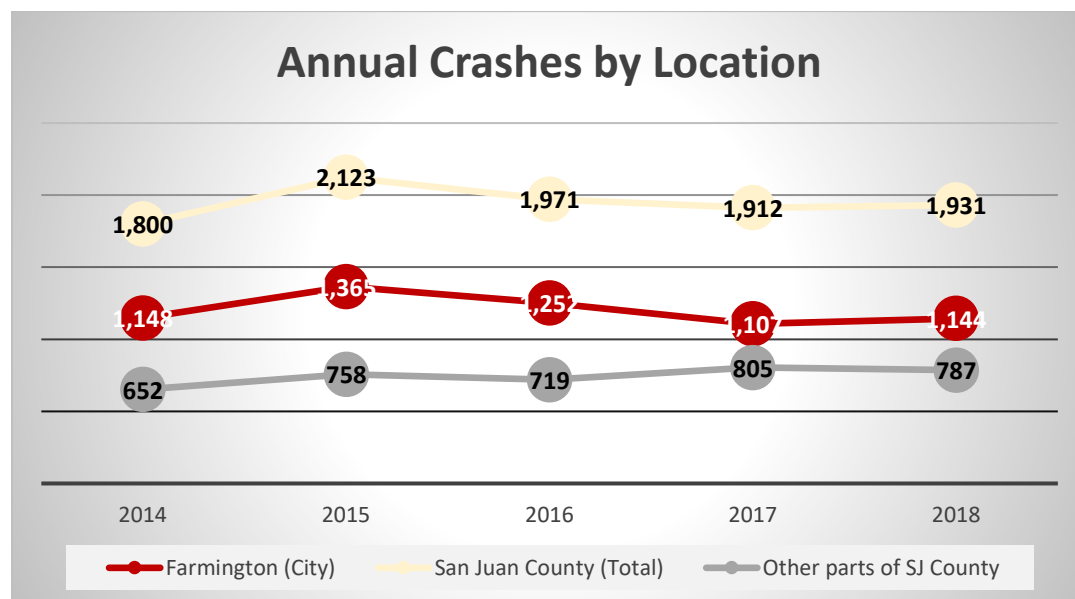
Figure 5-1: Statewide Crash Data (2014-2018)



Due to its high concentration of economic activity and population, the majority of crashes in the FMPO region take place in the City of Farmington. Crashes occur in the City of Farmington at rates above the statewide average (about 26 crashes per 1,000 residents in Farmington versus 22.3 crashes per 1,000 residents statewide), although Farmington does have a rate below most peer cities.¹⁴ Among the cities in New Mexico with more than 40,000 residents, only Rio Rancho had lower crash rates, while Albuquerque (34.4 crashes per 1,000 residents) and Las Cruces (34.5 crashes per 1,000 residents) featured rates well above the Farmington average.

¹⁴ Farmington has a higher rate compared to the state (about 35 traffic fatalities per 100,000 residents in Farmington compared to 17.8 traffic fatalities per 100,000 residents statewide). This is notable given that New Mexico is among the top five states with the highest fatality rates in the country. IIHS, Fatality Statistics by State; <https://www.iihs.org/topics/fatality-statistics/detail/state-by-state>

Figure 5-2: Annual Crashes in Farmington and San Juan County (2014-2018)



When further assessing severity by mode, it is clear bicycle and pedestrian crashes are disproportionately severe when compared to motor vehicle crashes. Table 5-3 groups crash severity into KSI (fatal and seriously injured crashes) and non-KSI crashes. While 31% of pedestrian crashes and 9% of bicyclist crashes result in fatality or serious injury, only 3% of motor vehicle crashes have a severe outcome. Pedestrian crashes comprise 17% of all fatal and serious injury crashes but only 1% of crashes overall.

Table 5-1: Crash Severity by Mode (2013-2017)

Crash Severity	Pedestrian Crashes	Bicycle Crashes	Motor Vehicle Crashes	Total
KSI	38	4	188	230
Non-KSI	83	83	8,012	8,138
Total	121	47	8,200	8,368

Table 5-2 provides summary crash data for FMPO jurisdictions from 2013 to 2017 (the most recent years for which individual crash location information is available). The table includes average annual number of crashes, pedestrian- and bicycle-involved crashes, and the rate of crashes as measured in VMT per crash and per 1,000 residents. Among FMPO member agencies, Farmington has the highest amount of crashes as well as the highest rate of crashes, as measured in VMT per crash. Other than the unincorporated portion of the MPO, Bloomfield experiences the fewest number of crashes per resident, while Kirtland experiences the fewest crashes per VMT. Kirtland, which experiences a high level of through-traffic relative to its population, experiences crashes at about the average rate of the MPO region.

Table 5-2: Crash Data by Area – Total Crashes (2013-2017)

Location	Population	Daily VMT	Total Crashes	Ped-Involved	Bike-Involved	Annual Average	Crash Rate per 1,000 Residents	Annual VMT per Crash
Aztec	6,567	152,611	583	12	6	116.6	17.8	95,545
Bloomfield	7,996	83,670	459	4	1	91.8	11.5	66,535
Kirtland	884	49,607	165	7	1	33.0	37.3	109,737
Farmington	45,582	885,247	5,426	80	36	1,085.2	23.8	59,549
Rest of SJC*	35,897	913,528	1,735	18	3	347.0	9.7	192,183
MPO Total	96,926	2,084,663	8,368	121	47	1,673.6	17.3	90,930

*Includes the portion of San Juan County in the MPO region only

Table 5-3: Crash Data by Area – Severe Crashes (2013-2017)

Location	Population	Daily VMT	Total Crashes	Fatalities	Serious Injuries	Minor / Possible Injuries	Non-Injury Crashes	Share of Crashes Classified as Severe
Aztec	6,567	152,611	583	2	8	205	358	1.7%
Bloomfield	7,996	83,670	459	3	6	168	282	2.0%
Kirtland	884	49,607	165	6	1	67	91	4.2%
Farmington	45,582	885,247	5,426	16	135	2,421	2,854	2.8%
Rest of SJC*	35,897	913,528	1,735	21	76	636	1,002	5.6%
MPO Total	96,926	2,084,663	8,368	48	226	3,497	4,597	3.3%

*Includes the portion of San Juan County in the MPO region only

5.3.2 Intersection Analysis and Regional Hot Spots

To complement the aggregate data available at the large geography level, the MTP evaluated crash data from 2013 to 2017 for FMPO member entities to better understand the locations and sources of crashes. In general, crashes for all FMPO areas are clustered around US and NM highways, particularly near town centers and along main streets. The roadway with the greatest incidences of crashes is East Main St in

Farmington (NM 516), where 6 of the 7 intersections with the highest number of crashes are located. The intersection of US 64 (Murray Dr) and NM 317 (Bisti Hwy) is noteworthy for having the one of the highest incidences of crashes plus the highest rate for any intersection across the region. In addition, this intersection has the highest number of KSI crashes. Locations where

The majority of total and serious crashes in the US occur at intersections – a typical two-lane intersection has approximately 32 conflict points including through and turning movements.

major highways intersect are also noteworthy, including the intersections of NM 516 with Chaco St and US 550, as well as the major intersections of US 550 in Bloomfield.

Figure 5-3: Heat Map of Reported Crashes (2013-2017)

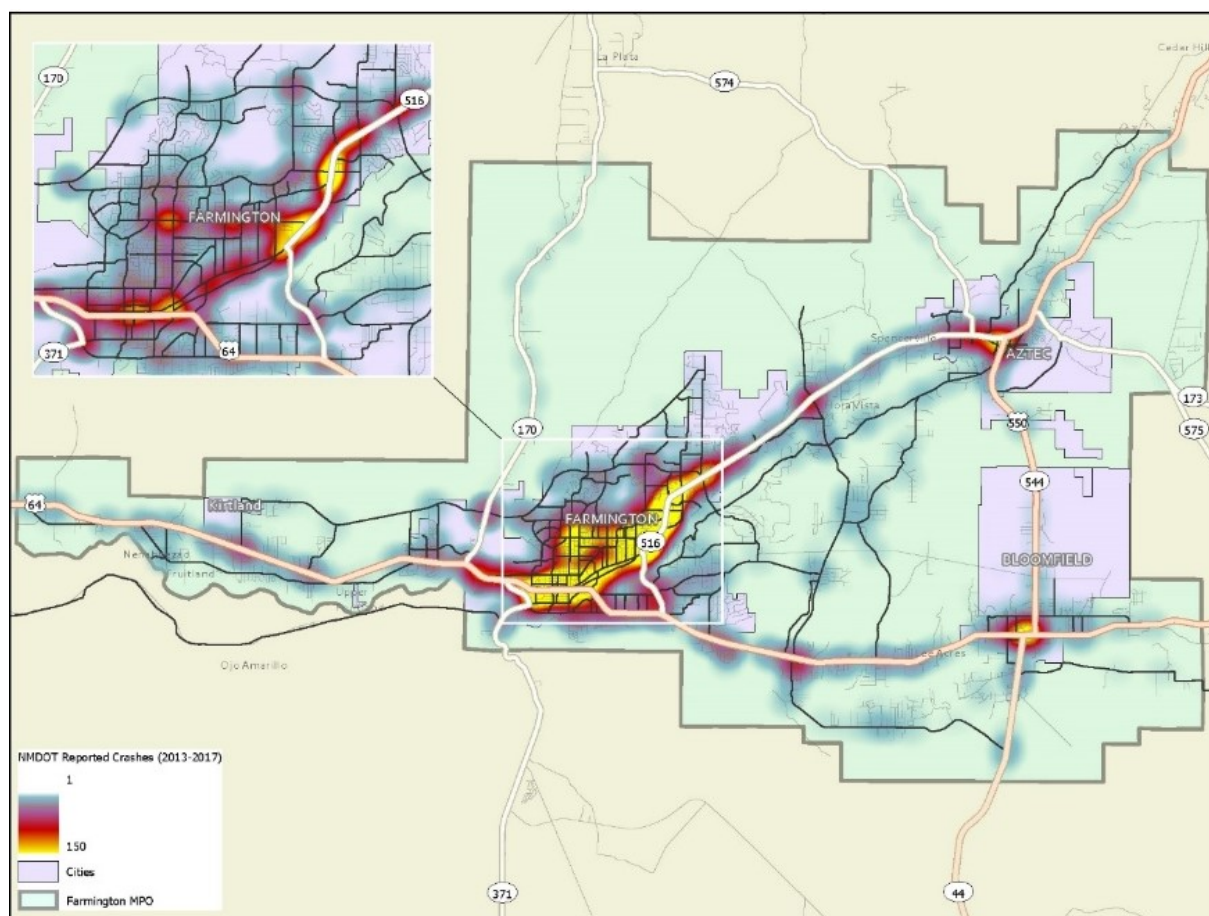


Table 5-4: Intersections with the Highest Number of Crashes in the FMPO Region

Intersection	Location	5-Year Total Crashes	KSI Crashes	Total Crashes per Year	Daily Trips	Trips per Crash
NM 516 (E Main St) & 30th St	Farmington	158	0	31.6	42,654	492,681
NM 516 (E Main St) & E 20th St	Farmington	145	3	29.0	49,204	619,292
US 64 (Murray Dr) & NM 317 (Bisti Hwy)	Farmington	92	5	18.4	15,852	314,455
NM 516 (E Main St) & English Rd	Farmington	92	1	18.0	52,587	1,043,156
NM 516 (E Main St) & Cliffside Dr	Farmington	90	0	18.0	41,143	834,289
NM 516 (E Main St) & Browning Pkwy	Farmington	88	1	17.6	32,379	671,496

Intersection	Location	5-Year Total Crashes	KSI Crashes	Total Crashes per Year	Daily Trips	Trips per Crash
NM 516 (E Main St) & N Hutton Ave	Farmington	84	1	17.0	40,477	879,400
N Hutton Ave & E 20th St	Farmington	80	2	16.0	19,668	448,665
NM 516 (E Main St) & Beckland Dr	Farmington	77	1	15.4	34,792	824,616
W Main St & W Apache St	Farmington	77	4	15.0	28,882	684,541
N Butler & E 20th St	Farmington	72	1	14.0	26,081	661,081
E Broadway & S Butler Ave	Farmington	69	1	13.8	21,052	556,810
NM 170 (La Plata Hwy) & Twin Peaks Blvd	Farmington	66	2	13.0	15,011	415,077
NM 516 (E Main St) & N Clayton Ave	Farmington	64	3	13.0	36,886	1,051,827
N Sullivan Ave & E 20th St	Farmington	63	1	13.0	21,120	611,795
NM 516 (E Main St) & E Pinon Hills Blvd	Farmington	62	3	12.0	39,759	1,170,325
NM 516 (E Main St) & N Butler Ave	Farmington	61	1	12.0	22,273	666,364
W Broadway St & N Main St	Farmington	59	0	12.0	20,178	624,150
US 550 (1st St) & US 64	Bloomfield	59		11.8	27,056	836,902
W Main St & W Murray Dr	Farmington	59	1	11.8	32,856	1,016,308
Scott Ave & San Juan Blvd	Farmington	57	1	11.0	18,774	601,097
Pinon Hills Blvd & College Blvd	Farmington	56	2	11.2	14,546	474,044
NM 516 & CR 3535/350	San Juan County	56	1	11.2	27,813	906,406
E Main St & Villa View Dr	Farmington	54	0	10.8	26,650	900,671
S Browning Pkwy and Wildflower Dr	Farmington	54	0	10.8	19,906	672,749
NM 516 & Chaco St	Aztec	53	0	10.6	25,871	890,824
E Main St & Herrera Rd	Farmington	53	1	10.6	39,479	1,359,418
E 20th St & Farmington Ave	Farmington	52	1	10.4	9,201	322,920
US 550 (Bloomfield Blvd) & US 64	Bloomfield	49	0	9.8	27,679	1,030,902
US 64 & NM 170	Farmington	49	1	9.8	27,185	1,012,503
N Clayton Ave & E 20th St	Farmington	47	0	9.4	6,307	244,899
W Main St & W Broadway	Farmington	46	1	9.2	20,178	800,540
US 64 & CR 350/5500	San Juan County	46	1	9.2	24,883	987,206
E Main St & Plaza Ctr	Farmington	44	0	8.8	38,300	1,588,580
US 64 & NM 516	Farmington	43	1	8.6	32,178	1,365,694
US 64 & CR 6500	Kirtland	41	2	8.2	40,111	1,785,429
E Main St & N Sullivan Ave	Farmington	40	1	8.0	18,980	865,963
NM 516 & US 550	Aztec	38	0	7.6	46,432	2,229,958

5.3.3 Kirtland

Although there are no intersections in the Town of Kirtland among the region's hot spots for crashes, the US 64 corridor was identified by stakeholders as an area of concern. Specifically, US 64 serves as the community's main street and bisects the business district. Primary safety strategies along the corridor include sidewalks and additional designated crossings, as well as access management efforts that consolidate turning movement locations and reduce the potential conflicts in the continuous center turn lane. To provide safer conditions for pedestrians and bicyclists, the Town of Kirtland and San Juan County have pursued a series of multi-use trails along major roads with connections to area schools.

5.3.4 Contributing Factors

Crash data was also analyzed based on severity, type, and source (see Table 5-1 to Table 5-5). The majority of crashes involve another vehicle (70.3%), while top contributing factors include driver inattention (18.8%), failure to yield (16.2%), and drivers following too closely (15.6%). A little more than one percent of crashes were pedestrian-involved (1.4%) and less than one percent were bicycle-involved (0.6%). It is important to note that analysis of top contributing factors is imprecise and should be considered for general planning purposes only. Issues include subjectivity in reporting and incomplete data in crash reports.

Table 5-5: Crashes by Type and Cause

Type	Count	Percent
Other Vehicle	5885	70.3%
Fixed Object	960	11.5%
Animal	473	5.7%
Parked Vehicle	316	3.8%
Pedestrian/Bicyclist	166	2.0%
Other	568	6.8%
Totals	8,368	100%

Cause	Count	Percent
Driver Inattention	1,572	18.8%
Failure to Yield	1,359	16.2%
Following Too Closely	1,305	15.6%
Other Types of Driver Error	849	10.1%
Alcohol/Drug Involved	660	7.9%
Excessive Speed	520	6.2%
Disregard Traffic Signal	362	4.3%
Other	1,741	20.8%
Total	8,368	100%

5.4 RECOMMENDATIONS AND ACTION ITEMS

Roadway safety is a priority shared by all member agencies; however, the appropriate countermeasures vary by location. Collaboration with NMDOT is also imperative to address the noteworthy amount of crashes found along state-owned highways and county roads. This section outlines safety-related action items that FMPO member agencies may pursue.

5.4.1 Infrastructure Design that Support Complete Streets and Address Crash Issues

To encourage safe design for bicyclists and pedestrians in locations where they are allowed to travel, FMPO agencies may consider traffic calming techniques, including road diets where there is excess roadway capacity. Design improvements that support Complete Streets and reduce motor vehicle speeds include the installation of pedestrian countdown signals, Leading Pedestrian Intervals (LPI), raised intersections/crosswalks, protected intersections, pavement flashers that are actively or passively actuated by pedestrians, and marked crosswalks.

- Increase funding, advance implementation, and improve maintenance activities for bike lanes, sidewalks, and trails across the region. Utilize bike buffers and landscape buffers to separate bicyclists and pedestrians from motorists and to increase user safety and comfort.
- Support the development of local Complete Streets policies, plans, guidelines, and standards.
- Update FMPO scoring criteria for statewide and federal funding to ensure inclusion of safety and Complete Streets metrics.
- Update road specifications to ensure that new bicycle and pedestrian facilities are designed with sufficient width and utilize buffers, when appropriate.
- If not addressed in a systemic safety analysis (recommended below as part of the regional safety action plan), fund and prepare safety studies for high-crash corridors and intersections to identify risk factors and countermeasures to reduce the number of crashes, with a focus on reducing fatal and severe injury crashes.
- Support implementation of evidence-based countermeasures in high-crash or high-risk locations. Table 5-6 includes countermeasures that are applicable to various risk factors. Resources available to assist in the identification of countermeasures include:

- [FHWA's Crash Modification Factors Clearinghouse](#) – A searchable, online database of countermeasures with associated Crash Modification Factors and related details.
- [FHWA Proven Safety Countermeasures](#) – A compilation of 20 research-proven countermeasures.
- [NHTSA's Countermeasures That Work](#) – A reference guide geared towards State Highway Safety Offices
- [NCHRP 15-63](#) – Guidance on Improving Pedestrian and Bicyclist Safety at Intersections
- [FHWA's PED/BIKESAFE](#) – Guidance and countermeasures selection system geared towards improving bicycle and pedestrian safety

Table 5-6: Countermeasure Toolkit

COUNTERMEASURES	RISK FACTORS							
	Poor Lighting	Arterials	4+ lanes	35mph+	No Crosswalks	Unprotected turns	Unsafe passing	No sidewalks
Medians & Pedestrian Crossing Islands		✓	✓	✓	✓	✓		
Pedestrian Hybrid Beacons (PHB)			✓		✓			
Road diet		✓	✓	✓				
Lane diet		✓	✓	✓				
Sidewalks		✓	✓	✓				✓
Crosswalks					✓			
Changing Speed Limits		✓	✓	✓			✓	
Leading Pedestrian Intervals (LPI)		✓				✓		
Rectangular Rapid Flashing Beacons (RRFB)					✓			
Crosswalk Visibility Enhancements	✓				✓			
Street lighting	✓					✓		
Separated bike lanes		✓		✓			✓	
Traffic calming				✓		✓		✓

5.4.2 Roadway Design/Access Management

Access management and other roadway design measures can reduce the risks of crashes by minimizing conflict points and reducing opportunities for user error.

- Fund and prepare corridor access management studies that reduce conflict points and control turning movements. Desired locations for access management include US 64 in the Kirtland area and NM 516 in east Farmington and unincorporated areas between Aztec and Farmington.
- Update local development standards to reduce the number of driveways, encourage shared parking, increase cross-parcel access, and improve pedestrian and bicycle access.

5.4.3 Enforcement

Enforcement can play a role in roadway and public safety. A data driven approach to enforcement can help to focus efforts on the violations that most contribute to fatal and serious

crashes. Relying on data in this way also offers an opportunity to improve the equity of enforcement efforts. Transportation-related enforcement measures include:

- Assessing traffic violations to ascertain which violations are the biggest contributors to fatal or severe injury crashes. Prioritize enforcement efforts on these violations. Compiling a regional inventory of traffic violations by location and referring to locations with high numbers of serious crashes and/or risk factors can also help guide enforcement efforts.
- Prioritizing enforcement efforts in locations with high levels of pedestrian activity, particularly on driver violations that may put pedestrians at risk such as failure to yield and speeding.
- Installing red light cameras to reduce signal running violations.
- Closely tracking and reporting all enforcement efforts to ensure they do not disproportionately impact low-income communities or communities of color.

5.4.4 Education Programs

Education programs help increase knowledge, skills, and behaviors specific to safely operating a motor vehicle or bicycle to reduce the risk of injuries and fatalities. These programs vary in content, format, and duration based on needs and resources, and are frequently developed through local schools and in partnership with Safe Routes to Schools Programs. Specific actions include:

- Motorist education programs, including media and advertising such as promotional videos, pamphlets, and billboards to encourage safer driver behavior.
- Driver training courses, including government agency programs for employees and information about sharing the road with bicyclists and pedestrians.
- Information published on social media by member agencies and FMPO that outlines safety tips to educate motorists about the rights of different roadway users, including pedestrians and bicyclists.

5.4.5 Regional Safety Action Plan & Commitment to Zero Deaths

With initial performance targets in place, FMPO is positioned to take additional steps to improve safety outcomes. A high priority effort to address transportation safety in the region is the development of a **regional safety action plan**. Safety action planning uses a data-driven, comprehensive approach to reduce fatalities and serious injuries on all roadways and aids in institutionalizing safety in transportation programs and projects. For FMPO, a safety plan would provide an opportunity to focus on objectives such as:

- Embracing a safe systems approach
- Identifying risk factors and high-risk corridors
- Determining policy and funding priorities
- Championing implementation of transformative complete streets projects

The regional safety action plan would provide the framework to support evaluation of progress over time. Often, regional safety action plans will incorporate systemic safety analyses (described below).

The regional safety action plan could build on current efforts by NMDOT to consider bicycle and pedestrian-specific safety measures as part of the Pedestrian Statewide Action Plan. This may include additional performance measures beyond crash rates, including the share of project funding dedicated to safety improvements and bicycle and pedestrian facilities, and connectivity, as measured by the number of crossing opportunities. Many states and local jurisdictions also participate in the Vision Zero movement and Toward Zero Deaths (TZD) initiatives that call for zero deaths as the only acceptable safety target. These efforts rely on a data-driven approach to eliminating fatal and severe injury crashes. Refer to *the Transportation Safety Planning and the Zero Deaths Vision: A Guide for Metropolitan Planning Organizations and Local Communities* for additional information and guidance on potential scope and best practices. Setting a target by making a formal commitment to a Toward Zero Deaths initiative is an important next step to guide transportation safety efforts moving forward. This commitment could be an overarching goal of a regional safety action plan.

5.4.6 Systemic Safety Analysis

While a high-level crash analysis is included in this chapter, conducting a full systemic safety analysis can provide a nuanced understanding of risk factors and enable a proactive focus on crash severity. Methods for conducting this analysis could include the Equivalent Property Damage Only (EPDO) method. In this method, dollar values are assigned to crashes based on severity and value of a statistical life. This ensures the crash analysis is focused towards human lives instead of the number of crashes without regard to their severity. A systemic analysis can also help identify nuanced crash types and risk factors that can inform actionable countermeasures. In addition, screening the roadway network using these risk factors can apply a proactive focus on locations where crashes are likely to occur, rather than where they have already happened. This type of crash analysis can be incorporated into the regional safety action plan, described above.

6 PUBLIC TRANSIT

6.1 OVERVIEW AND REGIONAL BENEFITS

Public transit is a key element of the regional transportation system – and one that, to be successful, requires support and coordination across agency boundaries. The most basic function of public transit is to provide a basic level of mobility so that all residents, especially those without access to a vehicle or the ability to drive, can access jobs and services. Therefore, public transit is a critical means of offering an equitable transportation system.

Public transit systems can provide a variety of additional benefits that extend beyond basic mobility for lower income individuals and seniors. Public transit provides additional transportation options and can reduce transportation costs and dependency on single-occupancy vehicles. Reliable public transit is also a key component of enhancing the regional quality of life. From a public health perspective, transit users are more likely to reach the recommended minutes of daily physical activity. Also, utilizing transit is substantially safer than driving on a per-mile basis. Additional public health benefits of public transit include lower emissions and potential reduction in overall vehicles on the road.



In order to achieve the greatest benefits, coordinated efforts across jurisdictions are necessary to ensure residents can access regional destinations. Pedestrian connections to transit stops and station areas are particularly critical. These include regular street crossings since all transit users are pedestrians at some point in their trip. Enhanced pedestrian facilities can significantly increase the range of travel for residents without a car. Roadway design should also consider the needs of transit vehicles and users, including stop locations and providing high-quality bus stops for waiting.

This section describes current transit services in the FMPO region and potential policies and action items that transit providers and agencies across the region can pursue. These action items intend to improve the efficiency of the regional transit system, increase the type and amount of destinations that may be achieved without access to a private vehicle, and increase overall ridership levels on public transit.

Table 6-1: Transit Impacts and Benefits – Victoria Transport Policy Institute

Transit Impact	Description
<i>Mobility Benefits</i>	<i>Benefits from increased travel that would not otherwise occur.</i>
Direct User Benefits	Direct benefits to users from increased mobility.
Public Services	Support for public services and cost savings for government agencies.
Productivity	Increased productivity from improved access to education and jobs.
Equity	Improved mobility that makes people who are economically, socially or, physically disadvantaged relatively better off.
Option Value/ Emergency Response	Value of having mobility options available in case they are ever needed, including the ability to evacuate and deliver resources during emergencies.
<i>Efficiency Benefits</i>	<i>Benefits from reduced motor vehicle traffic.</i>
Vehicle Costs	Changes in vehicle ownership, operating and residential parking costs.
Chauffeuring	Reduced chauffeuring responsibilities by drivers for non-drivers.
Vehicle Delays	Reduced motor vehicle traffic congestion.
Pedestrian Delays	Reduced traffic delay to pedestrians.
Parking Costs	Reduced parking problems and non-residential parking facility costs.
Safety, Security and Health	Changes in crash costs, personal security and improved health and fitness due to increased walking and cycling.
Roadway Costs	Changes in roadway construction, maintenance and traffic service costs.
Energy and Emissions	Changes in energy consumption, air, noise and water pollution.
Travel Time Impacts	Changes in transit users' travel time costs.
<i>Land Use</i>	<i>Benefits from changes in land use patterns.</i>
Transportation Land	Changes in the amount of land needed for roads and parking facilities.
Land Use Objectives	Supports land use objectives such as infill, efficient public services, clustering, accessibility, land use mix, and preservation of ecological and social resources.
<i>Economic Development</i>	<i>Benefits from increased economic productivity and employment.</i>
Direct	Jobs and business activity created by transit expenditures.
Shifted Expenditures	Increased regional economic activity due to shifts in consumer expenditures to goods with greater regional employment multipliers.
Agglomeration Economies	Productivity gains due to more clustered, accessible land use patterns.
Transportation Efficiencies	More efficient transportation system due to economies of scale in transit service, more accessible land use patterns, and reduced automobile dependency.
Land Value Impacts	Higher property values in areas served by public transit.

6.2 RED APPLE TRANSIT

The major transit provider within the FMPO area is Red Apple Transit, which is operated by the City of Farmington. Red Apple Transit began operations in 1999 and receives federal operating funds and capital grants to cover vehicle purchases through the Federal Transit Administration. The City of Farmington provides a local match to support FTA funds, while FMPO provides transit planning support to Red Apple Transit as part of its long-range regional transportation mission, including the funding of transit studies. Regional services to Aztec and across portions of San Juan County are provided with financial contributions from surrounding jurisdictions. Service was previously provided between Farmington and Bloomfield; however, the City of Bloomfield ended its contract with Red Apple Transit in 2016 due to budgetary constraints. Red Apple Transit has recently engaged in partnerships with the Navajo Nation and the North Central Regional Transit District to provide regional transit connections.



Note: The City of Farmington and Red Apple Transit received grant funding from the US Department of Transportation's Federal Transit Administration as part of the Coronavirus Aid, Relief and Economic Security Act (CARE Act) and is restoring service to Bloomfield in the short-term. There is also no charge to the riders with the funding received.

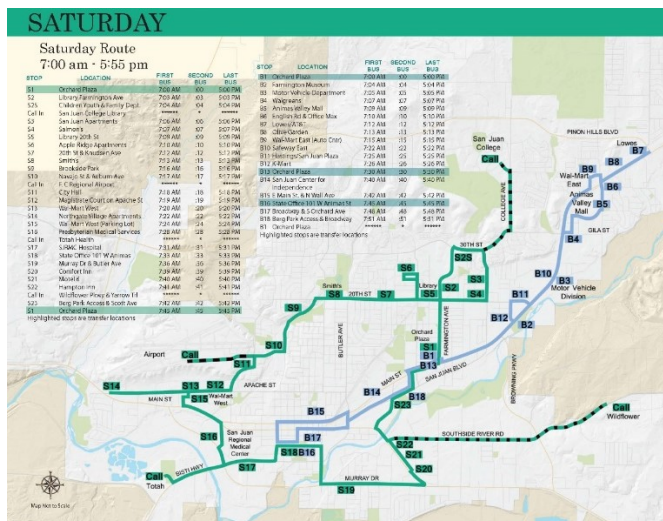
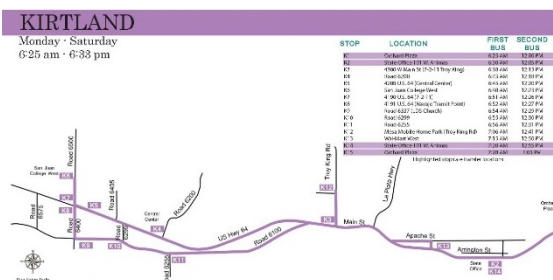
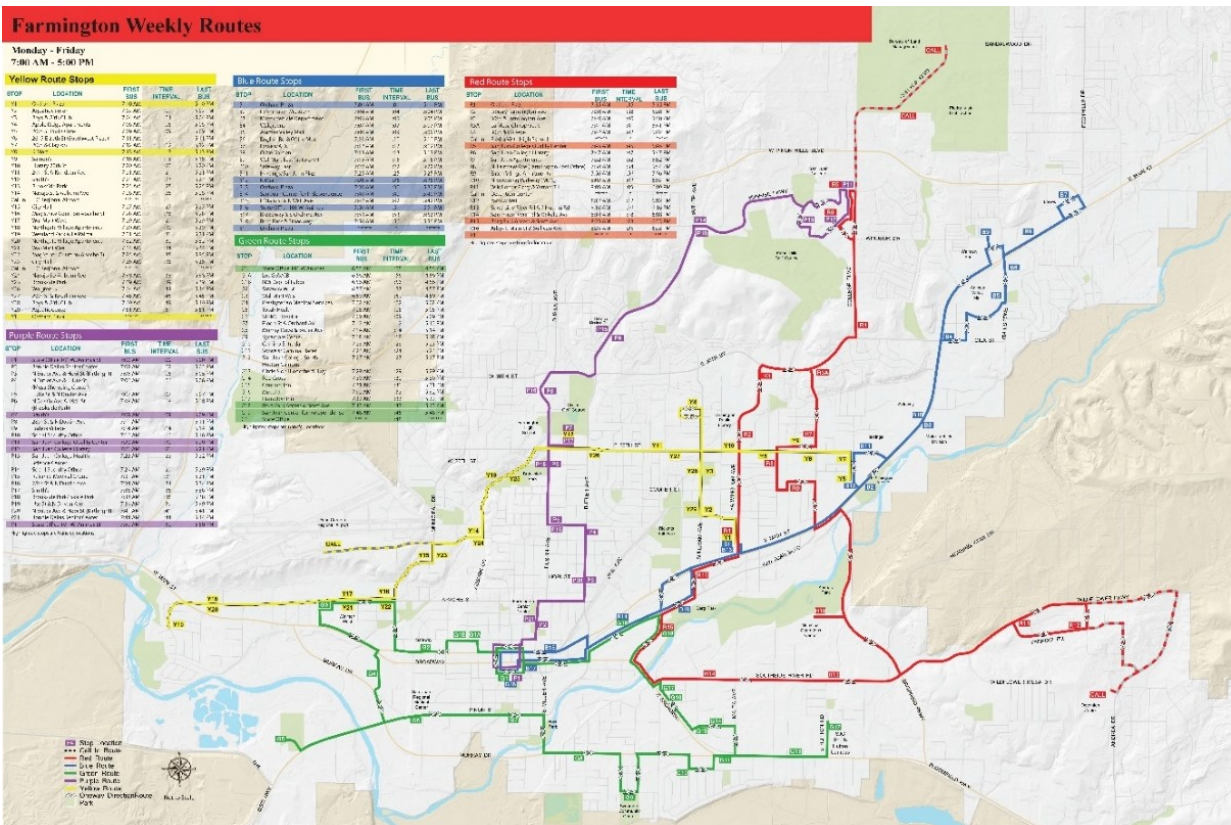
6.2.1 Fixed Route

Red Apple Transit currently operates seven fixed routes, including five routes within the City of Farmington and two regional routes that serve Aztec, Kirtland, and the surrounding San Juan County. Several routes operate as loops (i.e. one-way routes that begin and end in the same point), which enables Red Apple Transit to cover a larger geographic area but can be inefficient for users. All weekday routes operate with one-hour frequency between 7 AM and 6-6:30 PM. Services overlap along Main St in east Farmington – an area of more intense recent development and high ridership. Destinations served by multiple routes include Downtown Farmington, San Juan College, the Farmington Museum, various parks and recreational sites, as well as retail destinations such as the Walmart in west Farmington. Red Apple Transit runs a modified service to major destinations on Saturdays.

6.2.2 Demand Response Services

In addition to its fixed-route services, Red Apple Transit offers a variety of demand response services. Demand response services are generally utilized by individuals who do not live within a proximity of a fixed route transit service or are physically unable to access transit. Dial-A-Ride demand response service is available on a first come, first serve basis within Farmington city limits to individuals who meet eligibility requirements. Scheduled pickups may be made as part of regular routes to identified sites across the metropolitan area, including the San Juan County Detention Center.

Figure 6-1: Red Apple Transit Route Maps and Schedules

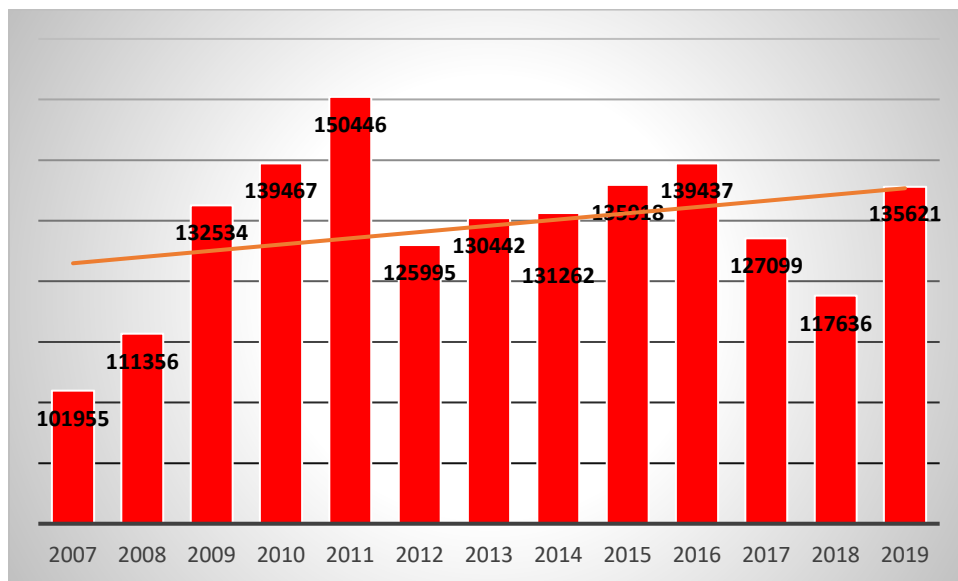


6.2.3 Red Apple Transit Ridership

When transit service operations began in 1999, annual ridership was just under 33,000 trips. Operations and ridership have grown significantly over time, peaking in 2011 with over 150,000 trips. Like most transit agencies across the US, ridership on Red Apple Transit decreased in the latter part of the 2010s. However, Red Apple Transit saw a 15% year-to-year increase in ridership from FY 2018 to FY 2019, making 2019 was one of the agency's highest ridership years on record.

Two routes – Green and Blue – account for slightly more than half of all ridership on Red Apple Transit; the Blue Route operates as a line along Main St from Downtown Farmington east to Piñon Hills Blvd, while the Green Route operates as a loop that connects Downtown with the San Juan Regional Medical Center and other destination in southern Farmington. Saturday services and dial-a-ride each comprise about four percent of the annual ridership on Red Apple Transit.

Figure 6-2: Ridership by Year, Red Apple Transit



6.2.4 Downtown Transit Hub

Through previous studies, Red Apple Transit and FMPO identified the need for a Downtown Transit Hub to formalize service and provide rider amenities. Three fixed Red Apple Transit routes – along with other regional services – converge at an existing transit hub located at Orchard Plaza Park in Farmington. The location is surrounded by retail which creates conflicts among motorists, pedestrians, transit users, and patrons of nearby stores.

A study completed in 2016 examined the feasibility and benefits of a Downtown Transit Hub and identified three potential sites. A second, recently completed study evaluated the land requirements, building facility size, and site operation considerations. The Downtown Proposed Transit Hub is located in the lot next to 213 S Orchard Ave. The proposed design for the Transit Hub includes shelters for waiting passengers, bus bays to accommodate up to four buses at a time, and a terminal/operations building that includes user amenities. The on-site facility would include office space and a police substation, which could enhance security for transit users.

The estimated total project cost is \$3 million. Red Apple Transit is pursuing a competitive transit facility grant through FTA that would cover \$2.4 million, with a \$600,000 local match to be provided by the City of Farmington. Plans for the site are ready and construction could begin once funding becomes available. Awards from FTA are expected to be made in late 2020.

6.3 REGIONAL TRANSIT SERVICES

As a regional destination and commercial center, Farmington attracts trips from a large service area. A primary source of these trips is the San Juan Medical Center, a Level III Trauma Center. Located in Farmington, the San Juan Medical Center serves patients from several areas, including much of the Navajo Nation, the Jicarilla Apache Reservation, as well as communities across the northwest New Mexico and Four Corners region. The demand for medical trips includes visits from family members who do not have regular access to private vehicles.

Multiple regional transit providers operate connections to Downtown Farmington with stops in other key destinations along the way. Red Apple Transit has formed various partnerships to make it easier for transit users on these regional services to transfer to local Red Apple Transit buses and travel within the Farmington metropolitan area. The connections allow users to access medical and other services across the FMPO region.

6.3.1 Navajo Nation Transit

The Navajo Nation Transit System operates a route with two trips per day from Newcomb and Shiprock to the Downtown Transit Center in Farmington with an additional stop in the Kirtland area. As part of a program that began in early 2018, Navajo Transit users can transfer for free onto Red Apple Transit vehicles from the Downtown Hub. Users are required to pay the one-way fee for return trips on Red Apple Transit.

6.3.2 North Central Regional Transit District

NCRTD is a regional agency serving Los Alamos, Rio Arriba, Santa Fe, and Taos Counties. The agency operates 25 fixed or flex route services, including the Jicarilla Route, which operates a route two days per week with two trips per day from Chama to Farmington via Dulce on the Jicarilla Apache Reservation. The route includes stops at the Bloomfield Public Library and Orchard Plaza in Downtown Farmington. While the route provides critical access from the Jicarilla Apache Reservation to medical and other services in Farmington, the route also provides FMPO area residents with access to Chama, where connections can be made to the rest of the NCRTD service area, including Española and Santa Fe.

6.3.3 Regional Non-Emergency Medical Services

Red Apple Transit and its operations contractor – Capacity Builders, Inc. – received an Innovative Coordinated Access and Mobility (ICAM) grant from FTA in 2019 to provide non-emergency medical services for older adults and individuals with disabilities in northwest New Mexico and Montezuma County, CO. The grant will support service starting in fall 2020 that is intended to provide affordable access to medical care, improve health outcomes, and reduce healthcare costs in rural areas with limited access to transportation.

6.4 RECOMMENDATIONS AND ACTION ITEMS

6.4.1 Downtown Transit Hub Implementation and Operations

If the Downtown Transit Hub is not selected for funding through the FTA facilities grant, FMPO agencies should pursue alternative funding sources for implementation. The facility is a high regional priority given the variety of routes and transit service providers that would utilize the site and the general support for enhanced transit service across the region. Once the site is constructed, it will also be important to ensure maintenance and operations are adequately funded long-term.

6.4.2 Transit Action Plan

Red Apple Transit could pursue a Transit Action Plan to identify long-term priorities for the region, to consider ways to increase ridership through improved efficiency, and to identify priorities for service expansion and to identify a sustainable means of funding that expansion. Among the considerations for **improving service efficiency** could be the evaluation of route design. There have been only minimal changes to the route design since Red Apple service operations began. A key consideration could be the reconfiguration of routes to follow lines instead of loops. Loops allow transit agencies to cover a large geographic area; however, they are sometimes inefficient for users because they require out of direction travel. The current frequency levels and service design also results in long waits and other issues among ADA users.

Service expansion priorities include increased access to schools, parks, and recreational areas, with a particular need to serve students who may not go to nearby schools and who require access to parks for after-school activities as well as seniors who rely on transit to travel to and from destinations to meet their daily living needs. Increased service frequency to Downtown and along Main St is also warranted based on the concentration of jobs and retail sites. Other service expansion goals may include expanding transit service to include early mornings, evenings, and weekends which would serve more non-commuters. Another goal could include identifying activity and retail centers that can serve as informal park and ride facilities and transfer hubs for multiple routes.

Red Apple Transit and FMPO could also explore new **regional connections** that respond to the increasing number of commuters from the Farmington metropolitan area to Durango and other communities in southwest Colorado. Specific opportunities include participation in the Regional Transit Coordinating Council of the Southwest Colorado Council of Governments. Within the FMPO region, restoring service to Bloomfield is a priority. Future studies should also evaluate the viability of a connection between the Bloomfield to Aztec route, which could include an extension of the existing Orange Route from Farmington to Aztec. Service may also be evaluated to tourism sites, including opportunities for bicyclists to reach recreational trails.

The Transit Action Plan could further identify needs among jurisdictions in northwest New Mexico and help **coordinate services** for individuals without access to a vehicle. A noteworthy example is the expansion of **regional demand response services** to ensure all residents, especially seniors, have transportation access to medical and other services. In some communities, such as the City of Bloomfield, taxi services are the only option for Bloomfield residents without a vehicle to access medical appointments or other services across the region.

The Transit Action Plan could also address equity as it relates to the gender gap in public transportation. Several cities across the US are working to ensure equitable transit by determining how women use transit and how transit can better accommodate their needs. For example, women often are responsible for the mobility of children and aging relatives. This points to a need for bus design to accommodate strollers, small children, and wheelchairs. Women are also more likely to avoid public transit due to safety concerns. Policies and other initiatives that aim for gender equity can be addressed in the Transit Action Plan.

6.4.3 Enhanced Data Collection

Data collection efforts can support ongoing transit planning in the region. In particular, Red Apple Transit could work with FMPO to review ridership characteristics and collect regular on-board passenger surveys to better understand locations where service could be improved. Red Apple Transit and FMPO should also continue to conduct regular boarding and alighting surveys to evaluate usage patterns.

6.4.4 Other Transit Policies and Considerations

To support the growth of the transit system and to promote efficiency, FMPO and Red Apple Transit should consider the following policies and action items:

- Enhance **traveler information**, including adding schedules and stop locations to online platforms such as Google improve riders' ability to plan trips.
- Conduct **facilities assessment** and identify pedestrian facility improvements to ensure bus stops are ADA compliant and high-quality and that sidewalks are constructed to provide direct access to the stops. Red Apple Transit can work with FMPO member agencies on ADA Transition Plans to ensure transit stop locations are considered in the planning process.
- Conduct a Transit Asset Management planning efforts to meet federal reporting requirements and ensure vehicles and other assets are in good condition.
- Red Apple Transit can conduct a detailed analysis of pedestrian facilities around transit routes to improve connections for transit users and provide bus shelters at key destinations.
- Encourage **land use** patterns with mixed uses and higher density areas that support transit along Main St and other high ridership corridors
- Seek **additional funds** from local agencies and state and federal grant programs to enhance service over time.
- Conduct **public outreach** to identify areas of greatest need and potential revisions and updates to route and bus stop locations. Consider the creation of a transit advisory board to advise Red Apple Transit on recurring issues for users and the potential impacts of proposed transportation projects from a transit perspective.

7 BICYCLE & PEDESTRIAN TRAVEL

7.1 OVERVIEW

Safe and connected bicycle, pedestrian, and trail facilities – also referred to here as active transportation – across FMPO member agencies and the greater region are necessary to enhance quality of life for those working and living in the region. Non-motorized transportation (also referred to as active transportation) produces numerous community and public health benefits, including opportunities for social interaction, reducing traffic congestion and air pollution, and providing more options for residents and visitors to access destinations. Non-motorized options are especially important for those who are unable to drive or do not own motor vehicles, as well as those who simply prefer not to drive.

In addition to improving safety, public health, and livability, active transportation facilities are a critical means of supporting the region through a period of economic transition. As the FMPO region increasingly pursues outdoor recreation tourism, developing more walkable and bikeable communities can attract more visitors and extend their length of stay. Non-motorized travel options are also a key ingredient for making a region an attractive place to live for young professionals and the businesses who want to hire them.

In 2019, the FMPO developed a Bicycle and Pedestrian Master Plan (BPMP) to further its commitment to active transportation modes and identify additional investments in biking and walking in the region. The development of the plan is also part of applying a Complete Streets approach at a regional level. In particular, the BPMP establishes priorities for enhancing and expanding biking and walking facilities to strengthen connectivity and to maximize the recreational potential of the area.

This section builds upon the recommendations outlined in the BPMP with considerations given to recent planning documents and related initiatives. Regional projects identified in the BPMP are also contained in this MTP update.



Key Themes from the Bicycle and Pedestrian Master Plan

- Connectivity / Multi-modal networks
- Additional transportation options
- Support outdoor recreation tourism
- Safety / Safe Routes to Schools

7.1.1 Existing Conditions

There is a growing network of bikeways and trails across the region. The most developed network of on-street bikeways and trails is located in the City of Farmington; however, a series of trails and bikeways are either in development or identified as long-term needs by each member agency. Various agencies are also pursuing Complete Streets efforts to create additional infrastructure for pedestrians and bicyclists. Farmington's Main Street is currently undergoing a Complete Streets transformation that includes a road diet, widened sidewalks, and other traffic calming measures. Aztec is considering similar measures along Main Ave.

Through its public outreach process, the BPMP identified various opportunities and constraints related to bicycle and pedestrian travel. These include the need for improved network connectivity, especially to downtown areas and recreational destinations (e.g. trailheads, parks, etc.) and creating safer routes to school.

Information on current usage patterns is limited and is a potential area of improvement for FMPO. Based on an analysis of data from Strava, a mobile app that allows users to record and share outdoor activities, activity is centered in and around the City of Farmington, with a moderate amount of activity in Aztec. Overall, areas where greater levels of bicycling activity can be observed include the Animas River Trail, Hood Mesa Trail, US 64, Main Street (Farmington), 20th Street (Farmington), NM 170, NM 371, Piñon Hills Boulevard (Farmington), and Blanco Street (Aztec).

7.1.2 Safety

San Juan County has one of the highest rates of pedestrian crashes and fatalities in New Mexico. Across the US, bicycle and pedestrian-involved crashes and fatalities are increasing, and pedestrians and bicyclists face greater risk of injury or death in New Mexico than elsewhere in the country. Bicyclist and pedestrian safety is a high priority as these roadway users are disproportionately affected by more severe crashes and traffic-related deaths caused by motorists. Refer to the Safety Chapter for more details.



Multi-use Trail along San Juan River (Bloomfield)



Bike Lanes along Dustin Ave (Farmington)

According to the NMDOT Annual Crash Report from 2018:

- San Juan County ranks second for the highest number of pedestrian fatalities caused by motor vehicle crashes, the same ranking from 2016
- Statewide, bicycle-involved fatalities rose dramatically in the past five years
- Pedestrian fatalities and pedestrian-involved crashes across New Mexico in 2018 were at their highest level in the past five years

7.2 PROPOSED IMPROVEMENTS

Based on findings from Technical Committee meetings, crash data, and the infrastructure gap analysis, the BPMP developed a priority project list that reflects the FMPO member agencies' vision for future bicycle and pedestrian facilities and aims to develop more complete, connected, and accessible bicycle and pedestrian networks across the region. Figure 7-1 depicts the existing network and the improvements identified in the Plan.

Proposed projects respond to gaps in the existing network and upgrades to existing facilities and will ultimately create a more robust multi-modal network. For more details, consult the BPMP.

Per the BPMP, **potential constraints** among proposed projects include:

- Right-of-way constraints
- Land acquisition and easements
- Limited funding
- Coordination with NMDOT on projects within City limits
- Local familiarity and comfort with on-street bikeways

7.2.1 General Priorities

Three top priorities emerged through development of the BPMP and other planning efforts:

- Connecting population centers to recreational sites
- Safe routes to schools
- Coordinating with NMDOT to improve highways through urban centers

One of the top priorities across the region is connecting downtowns and population centers to nearby recreational sites and trails, as well as tourist sites such as Aztec Ruins National Monument. These recreational sites are huge economic drivers, and as such it is important that residents and visitors can easily access them with or without use of a personal vehicle. Another priority stated in the BPMP is the desire to provide safer routes to school through sidewalks, crossings, and bicycle infrastructure near schools of all levels. The region's high rate of pedestrian and bicyclist crashes makes it even more important to improve safety around schools.

The BPMP identifies a series of trails and facilities on routes parallel to US and NM highways to better connect the region and provide safe and comfortable alternatives. However, a consistent challenge and tension among the priority projects is that main streets through communities in the FMPO region are owned and maintained by NMDOT. These roads function as highways, which can create conflicts for people walking and bicycling and may not be compatible and are not as conducive to walking as is desired by local communities.

7.2.2 Regional Network

Per the BPMP, the purpose of the proposed regional network is to link together destinations and communities throughout the FMPO planning area. High-priority projects were identified through the public planning process of the BPMP and with the participation of staff and stakeholders from across the region. See Table 7-1 for a list of priority improvements and opportunities in the region and Figure 7-1 for a depiction of the proposed network. Consult the BPMP for a more detailed list of projects.

Table 7-1: General Priorities and Opportunities Identified in BPMP

Farmington
Connect the northern and southern recreational corridors: Hood Mesa to Berg Park or Animas Park
Connect Farmington Lake with the City: East Main St and/or Foothills Dr
Extend the Animas River Trail and Riverwalk Nature Trail
Connect existing bike lanes along 20 th and 30 th St
Make East Main Street safer for pedestrian and bicyclists
Connect Farmington with neighboring municipalities: Animal River Trail, US 64, and NM 516 (or parallel routes such as CR 3000 and Old Aztec Hwy)
Aztec
Connect the Aztec Ruins to Main Street
Improve Ruins Road (CR 2900) for bicyclists and pedestrians
Extend the Animas River Trail to Townsend Park
Connect Tiger Park to the City via Blanco Street
Implement bicycle infrastructure and crossing signals along US 550 and NM 516
Establish more robust and PROWAG compliant facilities: Downtown and Main St
Improve access to CV Koogler Junior High School: Lydia Rippey Rd and N Light Plant Rd
Bloomfield
Complete final phases of Vereda De Rio River Trail
Add bicycle and pedestrian infrastructure on East Blanco Blvd
Connect the Urban Core to the Vereda De Rio River Trail: North 5 th St and Bloomfield Blvd
Improve pedestrian crossings along US 64 and US 550
Create safer routes to school: Naaba Ani Elementary School (US 550) and Mesa Alta Junior High School
Connect northwest neighborhoods to the Wilderness Park Trail: W Blanco Rd (CR 5070)
Kirtland/San Juan County
Provide pedestrian connections along US 64
Provide connections between residential neighborhoods and the San Juan River
Provide bicycle connections between Kirtland and Farmington: Troy Kind Rd and Twin Peaks Blvd (CR 6480)
Install bicycle lanes on routes that run parallel to NM 516 (CR 3000 and Old Aztec Hwy)

Figure 7-1: Proposed Bicycle Improvements – FMPO Region

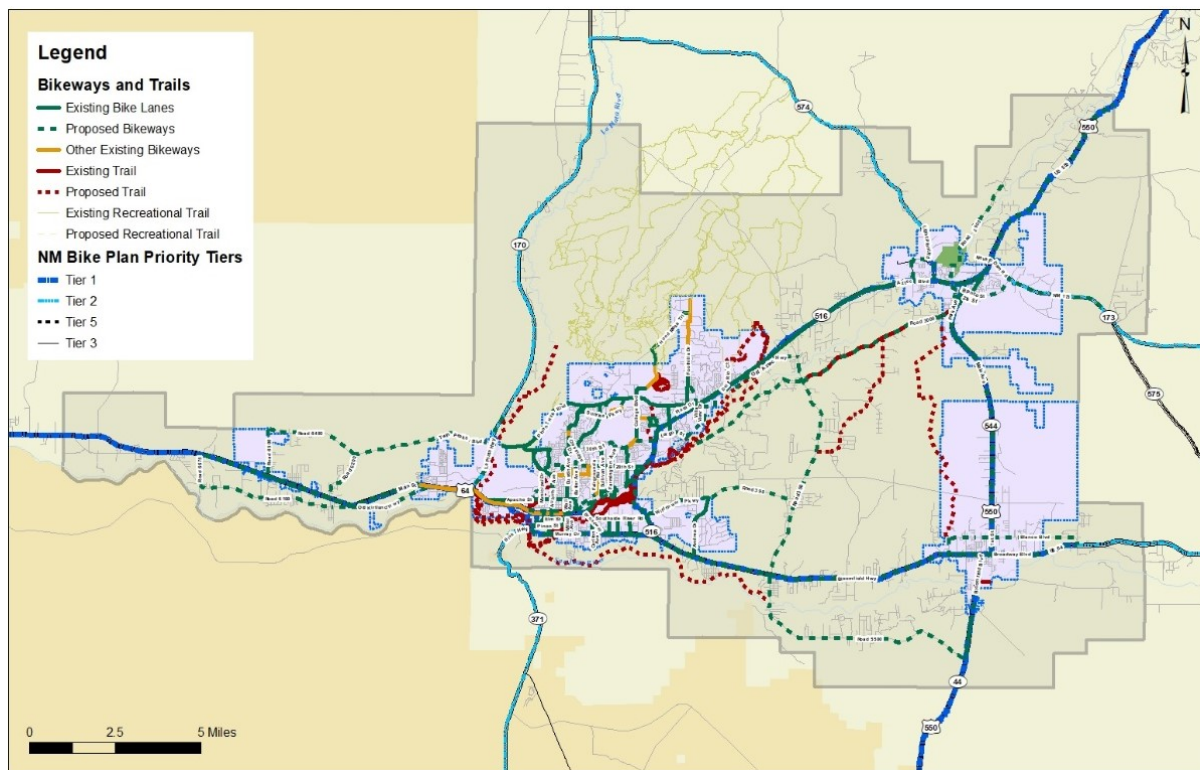
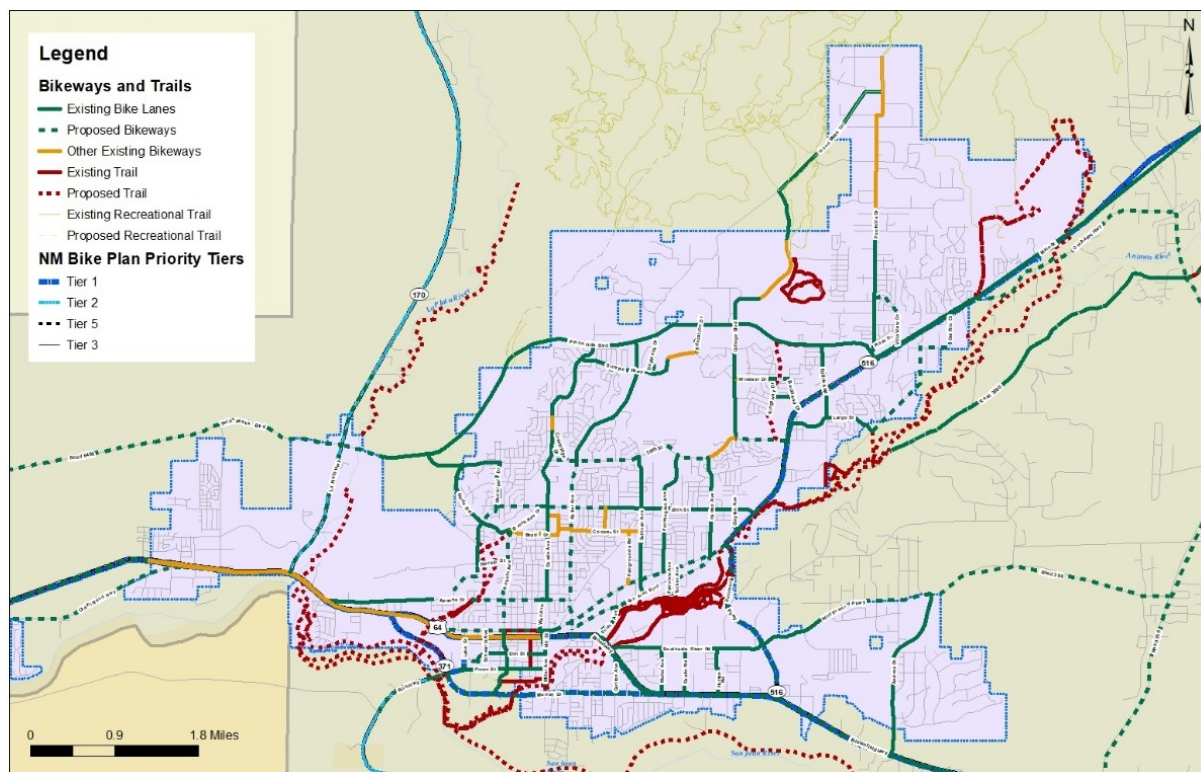


Figure 7-2: Proposed Bicycle Improvements – City of Farmington



7.2.3 Recent Projects and Improvements

Agencies across the FMPO region have made meaningful investments in the last five years to enhance trails, provide additional bike lanes, and improve the pedestrian environment. Recent projects include:

- **Kirtland Path Network:** San Juan County installed a multi-use trail along CR 6100 (Brigham St) in unincorporated lands near the Town of Kirtland to improve access by bicycle to Kirtland Central HS. Future phases include trails along CR 6400 and CR 6446 to connect to the Kirtland Youth Association Building and Kirtland Elementary School.
- **Farmington Bike Lanes:** The City of Farmington has added bike lanes through restriping efforts on a series of corridors across the city. These low-cost efforts have significantly expanded the bicycle network within the city. Farmington has also added route signs and a numbering system to help bicyclists with wayfinding. See the Introduction section for additional discussion and the Roadways section for a depiction of routes where road diets have been implemented.
- **Farmington Main Street:** Main St in Downtown Farmington is currently being reconstructed into a Complete Street with traffic calming such as roundabouts and narrow travel lanes, wide sidewalks and landscape buffers, street trees, and accessibility improvements along the corridor.
- **Aztec Main Ave:** The City of Aztec has developed initial designs for a road diet along Main St from Zia St to NM 516. The project includes a trail connection to areas north of NM 516, including Aztec National Monument. The project would promote Complete Streets principles, increase Downtown walkability, and enhance safety. Aztec also received a \$2.5 million capital outlay grant to create a trail connection to the north of NM 516/US 550 for the **N. Main Development project**. Due, to recent floodplain issues, construction is estimated to commence in the spring of 2021.
- **US 64 Bloomfield to Farmington:** NMDOT is completing the widening of US 64 from NM 516 in east Farmington to US 550 in Bloomfield. The intent of the project is to better support regional mobility while addressing access concerns. The project includes paved shoulders along the length of the corridor.

Multi-use Path along CR 6100 (Brigham St) near the Town of Kirtland



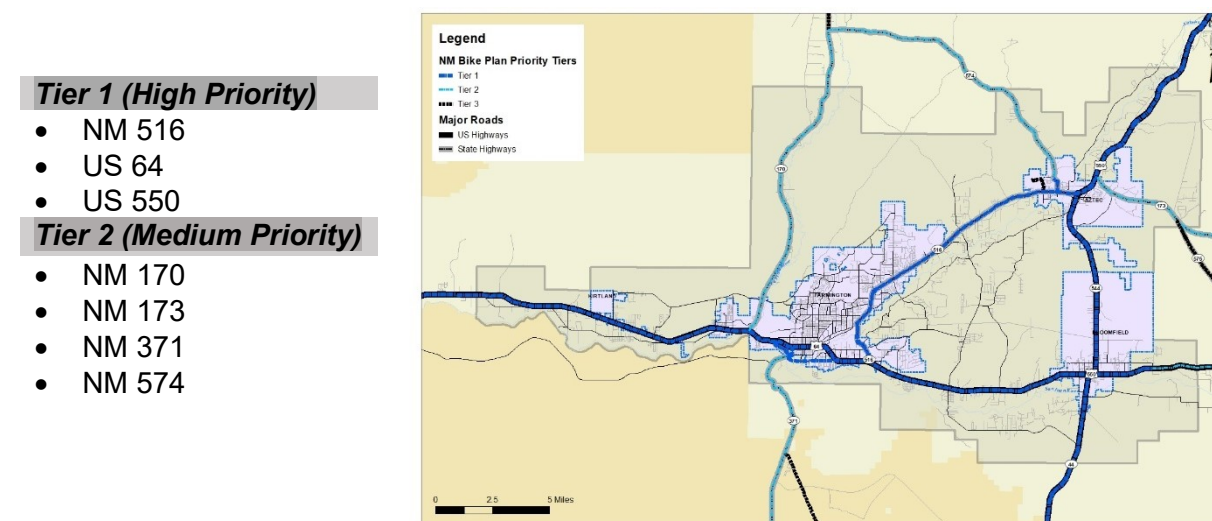
7.2.4 Statewide Prioritized Bicycle Network Plan

The Statewide Prioritized Bicycle Network Plan (NM Bike Plan), adopted by NMDOT in 2018, considers how to best provide a safer and more connected bicycle network at the statewide level. The NM Bike Plan identifies priority tiers for all US and NM highways based on the locations where bicycle infrastructure would be most beneficial. The plan complements the statewide priority network with design guidance related to appropriate types of bicycle infrastructure by roadway context. The highest tier facilities in the FMPO region include NM 516,

US 64, and US 550 (see Figure 7-3 for a map of all priority tiers in the region). Per the NM Bike Plan, bikeways are to be installed or improved along these highways as part of major rehabilitation or reconstruction projects.

As some of the routes in the NM Bike Plan are high speed and high volume roadways that are uncomfortable routes for many bicyclists, San Juan County is prioritizing installation of bike lanes on County roads that run parallel to these US and NM highways. These routes include Old Aztec Hwy, CR 3000, and CR 6480.

Figure 7-3: NM and US Highways and Priority Tiers in the FMPO Region



7.3 RECOMMENDATIONS AND ACTION ITEMS

The general priorities for the region are to implement and expand upon the recent BPMP. The items below are taken primarily from the BPMP; additional items were identified during the MTP development process. In addition, the agencies in the FMPO region can continue to emphasize Complete Streets as part of roadway design. The *Context Sensitive Street Design Guidelines* set a precedent for transportation policies aimed at supporting multi-modal transportation networks across FMPO entities. The guidelines should be used as a tool when considering implementation of bicycle and pedestrian facilities and opportunities to create a more multi-modal transportation network across.

7.3.1 Implement Multi-Modal Networks

- Agencies should review zoning codes and subdivision regulations to support pedestrian and bicycle infrastructure as part of new developments and encourage new developments to provide connections for non-motorized access wherever possible.
- Update the *Context Sensitive Street Design Guidelines* to align with current best-practices and priorities for the FMPO region.
- Update municipal and County road standards to incorporate best practices in bicycle and pedestrian facility design and align with the Public Rights-of-Way Accessibility Guidelines (PROWAG) requirements and the *Context Sensitive Street Design Guidelines*, as well as national guidance such as the FHWA Bikeway Selection Guide,

American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, and the National Association of City Transportation Officials guidance.

- Establish dedicated budgets for sidewalks, bikeways, and trails improvements. FMPO can support agencies to aggressively pursue statewide and federal funding for active transportation infrastructure.
- Setting performance measures to track progress toward infrastructure implementation.
- Prioritize safety for people using all modes of transportation, particularly vulnerable roadway users who are walking and bicycling, by designing roadways that prioritize safety as well as designing for and setting safe speeds.
- Address deficient pedestrian facilities, as identified in agency ADA Transition Plans; ensure that transit stops are ADA-compliant.
- Install bike racks at public destinations; encourage businesses to provide bicycle parking near building entrances.
- Increase active transportation access to recreation sites via transit service and providing comfortable bicycling infrastructure between city centers and outdoor recreation sites. Focus efforts on high-comfort bicycling facilities such as separated bike lanes and trails.
- Pursue trails along regional waterways, including rivers and arroyos.

7.3.2 Maintain Facilities

- Ensure adequate funding is available for maintenance of bicycle and pedestrian facilities, including street sweeping, repairing sidewalks, and keeping sidewalks and trails free from debris.
- Leverage annual resurfacing programs to install curb ramps, marked crosswalks, and on-street bikeway markings and signs.
- Prioritize lighting along all river pathways to improve safety for all users.
- Consider a mix of trail types depending on anticipated usage (e.g. soft surface, asphalt or concrete) depending on expected usage levels and maintenance requirements.

7.3.3 Educate and Encourage Walking and Biking

- Support and sponsor in-school programs like Safe Routes to School and Walk and Roll, efforts to develop safer pedestrian and bicycle routes for children and their families to travel to school.
- Encourage businesses to participate in “clean commuting” and travel demand management programs that promote commuting by transit, carpool, bicycle, or walking.
- Traffic calming measures outlined in the Complete Streets Guide should be prioritized, particularly around schools.
- Support local law enforcement efforts to enforce safety rules for both motorists and non-motorists. Pair enforcement efforts with awareness and education. For example, consider optional courses for drivers who receive speeding or DUI citations.
- Develop partnerships with schools, non-profits, and businesses to educate motorists and non-motorists with online information and other media.

7.3.4 Regional Coordination

- FMPO and member agencies should track progress through performance measures, including changes in the extent of the regional bikeways and trails network and the number of residents within a proximity of those facilities.

- Coordinate on trails projects that transcend jurisdictional boundaries to further expand the regional bicycle network.
- Expand on the City of Farmington Bike Map and create a pamphlet-size Regional Bikeways Map for public distribution. Support regional bicycle travel through a coordinated signage and wayfinding program.
- Promote trails, Main Street areas, and other bikeable and walkable areas as part of regional outdoor recreation marketing campaigns.
- Support a regional Safe Routes to Schools program and consider developing a regional Safe Routes to School Plan.

7.4 CONSIDERATIONS FOR EQUESTRIANS

New Mexico—and San Juan County—is a prominent location for equestrian activities and the FMPO area is a regional destination for equestrians, particularly during winter months. In FMPO areas, equestrians typically use trails for recreational purposes or competitive events, as well as travel along private roads and multi-use paths to reach major destinations. Therefore, consideration of equestrians as a non-motorized mode and the specific needs to support this activity are important in establishing trails networks around the FMPO region. Equestrian traffic must also be routinely accommodated in all NMDOT projects as mandated by state law.

State Law NMSA 67-3-62 requires that provisions for pedestrian, bicycle and equestrian traffic shall be properly considered in all NMDOT projects (NM Bicycle-Pedestrian-Equestrian Advisory Plan, 2009).

Safety is a noteworthy concern and area of emphasis along equestrian trails as horses may use paths and trails, including hard surfaces, which are also used by pedestrians, bicyclists, and motorized vehicle users. However, equestrians often are displaced from recreational areas by motorists. Conflicts with pedestrians and bicyclists may also occur without adequate education and signage indicating the presence of multiple modes. For the protection of the other users of trails and roads, the rider, and the horse, more widespread education is needed about how to behave around horses. This includes yielding the right-of-way to the horse and vocally acknowledging the horse's rider.

7.4.1 Equestrian-Related Considerations and Action Items

Tourism

- Equestrian events support tourism in the region as they draw people from outside the immediate area, and FMPO could support the development of a regional marketing campaign related to equestrian events and recreation opportunities. Several popular equestrian trails throughout member entities include Glad Recreation Area, Navajo Dam, Pinon Mesa, Farmington Lake, the Sheriff's Posse venue, and McGee Park.

Trails Enhancements

- Additional trail connections are desired for existing users and to support recreational tourism as well as travel between communities. Additional signage should be provided to indicate where equestrian use is permitted.
- Separate trails for horses are ideal. Trail designs where multiple users are permitted should consider passing needs and other safety concerns.

Safety/Education

- FMPO could pursue an evaluation of locations where trails intersect with roadways to identify needs for improvements to crossing facilities.

Regional Coordination

- Pursue a Regional Equestrian Trails Plan that indicates locations where new trails are desired, safety issues, and potential enhancements to existing trails. In particular, coordination among jurisdictions is needed in order to connect more riding locations and to use existing rights-of-way such as irrigation ditches, trail parks, pipeline rights-of-way, and oilfield roads to expand trail networks across jurisdictions.

7.5 OUTDOOR RECREATION CONSIDERATIONS

The FMPO region's landscape offers the perfect environment for outdoor recreation. Opportunities for hiking, biking, horseback riding, and use of off-road vehicles are abundant, and outdoor recreation is a growing part of the regions economy. Providing access to these types of trails and expanding them for multiple users is paramount in supporting this burgeoning sector of the economy.

7.5.1 Access to Trailheads

Almost as important as the recreational trails themselves is ease of access to trailheads. Many peer regions boast a connected network of paths, bike lanes, and transit lines between major population centers, recreational sites, and neighboring cities. These types of investments ensure that people who can't or don't want to drive a vehicle to recreate don't have to, cuts down on emissions near the parks, and frees up limited parking spaces at trailheads. Long-distance trails and a regionally connected bike network can be used both by residents and visitors alike and local municipalities should cooperate to further develop this network.

7.5.2 Accommodating Various Trail Users

Common users of unpaved, recreational trails include hikers, mountain bikers, equestrians, and off-road vehicle users. In some cases, there may be ample room and low enough volumes of users to allow all types of trail users to share the same trails at the same time. However, this is not typical and when possible, trails should be designated for each type of trail user to decrease overcrowding and risk of injury. Off-road vehicle users in particular need designated trails for their exclusive use due to their higher speeds and greater wear and tear on the trails, which make hiking, biking, and riding horses particularly difficult. Allowing off-road vehicle use on trails where people may be hiking, biking, and riding horses can create an extremely dangerous environment and should be strongly discouraged or prohibited.

When providing separate trails for hiking, mountain biking, and horseback riding is not feasible and volumes of trail users are high, specific days of the week or month should be designated for each trail user. For example, allowing hikers and equestrians to use a trail on even-numbered weekend dates (e.g. 2nd, 8th, 16th, 22nd) and mountain bikers to use it on odd-numbered weekend dates (e.g. 1st, 7th, 15th, 21st) could reduce conflicts.

Public education and awareness regarding trail etiquette can also be key to enhancing user experience of recreational trails. Ample signage should be located at trailheads and at various points along trails to ensure that proper yielding etiquette is followed. Typically, all users must

yield to equestrians, people biking must yield to people hiking, and trail users traveling downhill must yield to those going uphill. Following these guidelines ensures that all users are safe and able to enjoy themselves. Trailheads should also have trail maps, information on which types of activities are allowed on each trail, and information about how to be a good steward of the trail (e.g., no littering, no venturing off designated trails, etc.).

7.5.3 Off-Road Vehicle Trails

The region has an expansive network of off-road vehicle trails and public lands. With something for every type of vehicle and level of experience, Farmington is poised to be a premier off-roading destination. In order to make it easier for people to access OHV (Off-Highway Vehicle) sites, [City Ordinance 2016-1286](#) was adopted in 2016 authorizing some off-highway recreational vehicles to be operated on city streets. As with other types of trails, adequate signage and user education is required on off-road vehicle lands to keep all users safe and aware of their surroundings. Allowing motorized vehicles of any kind on the same trails as people on foot, bicycle, or horseback should be strongly discouraged or prohibited. Particular care should be taken to separate equestrian trails from crossing OHV trails because engine noise can scare horses, leading to unsafe conditions for the riders and horses.

Keeping these guidelines in mind, the FMPO region should seek to expand and enhance its OHV offerings, thereby bolstering economic activity from this sector. Next steps for supporting OHV use includes designating trails that are unique to OHVs to reduce conflicts and manage access.

8 TRUCK FREIGHT, RAIL, AND AIR

8.1 OVERVIEW AND REGIONAL BENEFITS

Freight and inter-modal transportation systems ensure that residents have access to goods and that local products can reach markets quickly and cost-effectively. However, FMPO member agencies and residents are hampered by the fact that the FMPO region is not located along major transcontinental rail or truck freight corridors. As a result, there is a high level of dependence on truck freight along US 550, which affects the resiliency of the region and can add to the costs of shipping and the price of goods.

This chapter considers the set of inter-modal transportation systems that support economic activity in the FMPO region. In spite of the limited options for freight movement, the Farmington metropolitan planning area is especially reliant upon freight transportation-dependent industries, which account for 62% of the area's total output and more than 40% of the region's jobs. Historically, industries such as agriculture and mining (which includes oil and gas extraction) were even more critical to the region's economy. New economic development opportunities, such as manufacturing and potash mining, have also been limited by transportation access. In the coming decades, FMPO and member agencies can invest in freight transportation infrastructure that supports a range of industries to ensure greater economic resiliency.

8.2 TRUCK FREIGHT

The lack of rail access means that the majority of goods entering and exiting the region travel by truck freight, and a combination of routes that allow for regional truck freight mobility and local distribution of goods is necessary (see additional discussion below). FMPO plays a role in regional truck freight planning through data collection, coordination with NMDOT on inter-regional transportation needs, and consideration of roadway conditions that can affect the movement of goods. Ensuring that goods can be transported across the region efficiently is critical for economic competitiveness and for mitigating the negative environmental and community impacts associated with heavy truck travel.

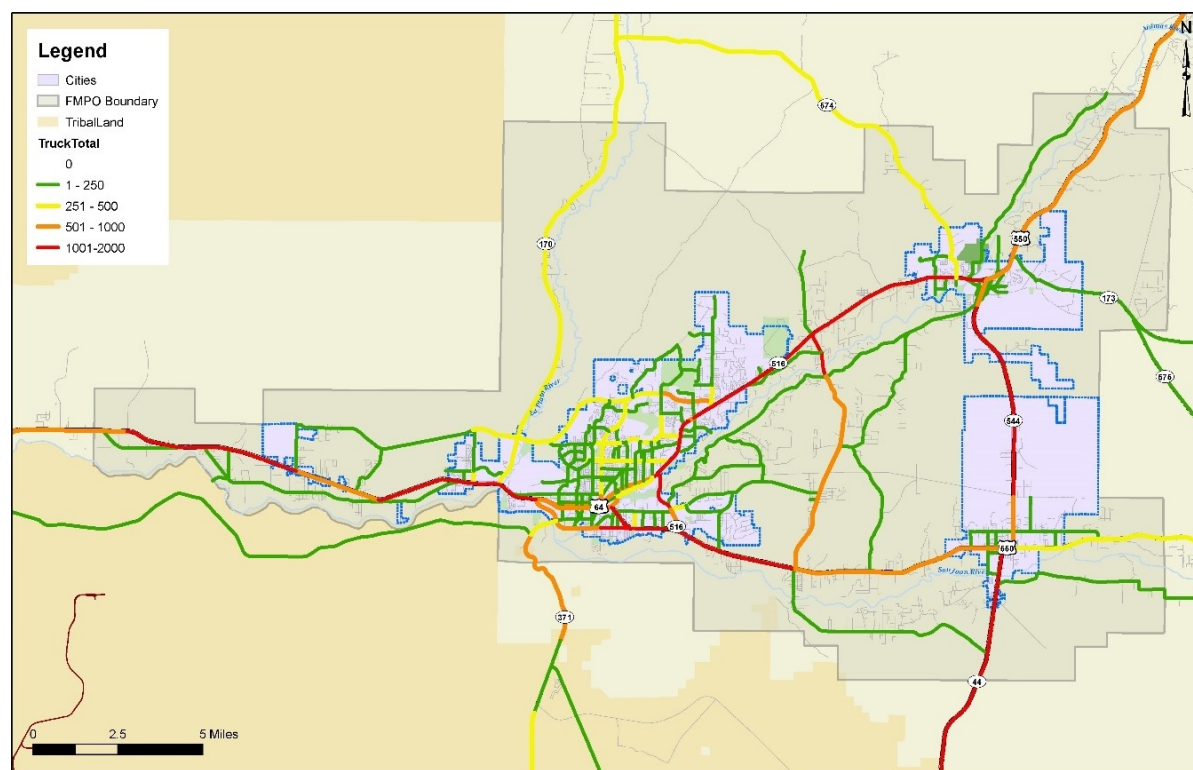
8.2.1 Existing Services

The primary routes for heavy freight truck travel include US 550, NM 516, and US 64. The highest volumes in the region are observed along NM 516 between Farmington and Aztec, where about 5-8% of the vehicles on the route are heavy trucks. As a share of total volume, the roads with the highest percentage of heavy trucks include CR 350 and NM 371. See Table 8-1 for additional information.

Table 8-1: Roads with High Freight Volumes in the FMPO Region

Corridor	Daily Volume	Truck Volume Share	Location(s) with Highest Volumes
Butler Ave	500	6%	North of Main St
CR 350	550-1050	9-13%	US 64 to NM 516
Main St	550-1400	4-7.5%	West of Browning Pkwy
Murray Dr	750-1100	7-8.5%	West of US 64
NM 371	700	11%	South of Murray Dr
NM 516	800-1800	5-7%	East of Browning Pkwy
Pinon Hills Blvd	850	6%	College Blvd to NM 516
Scott Ave	500	4%	North of US 64
US 550	6000-1100	6-12%	Bloomfield to Aztec
US 64	700-1150	5-7%	East of Browning Pkwy

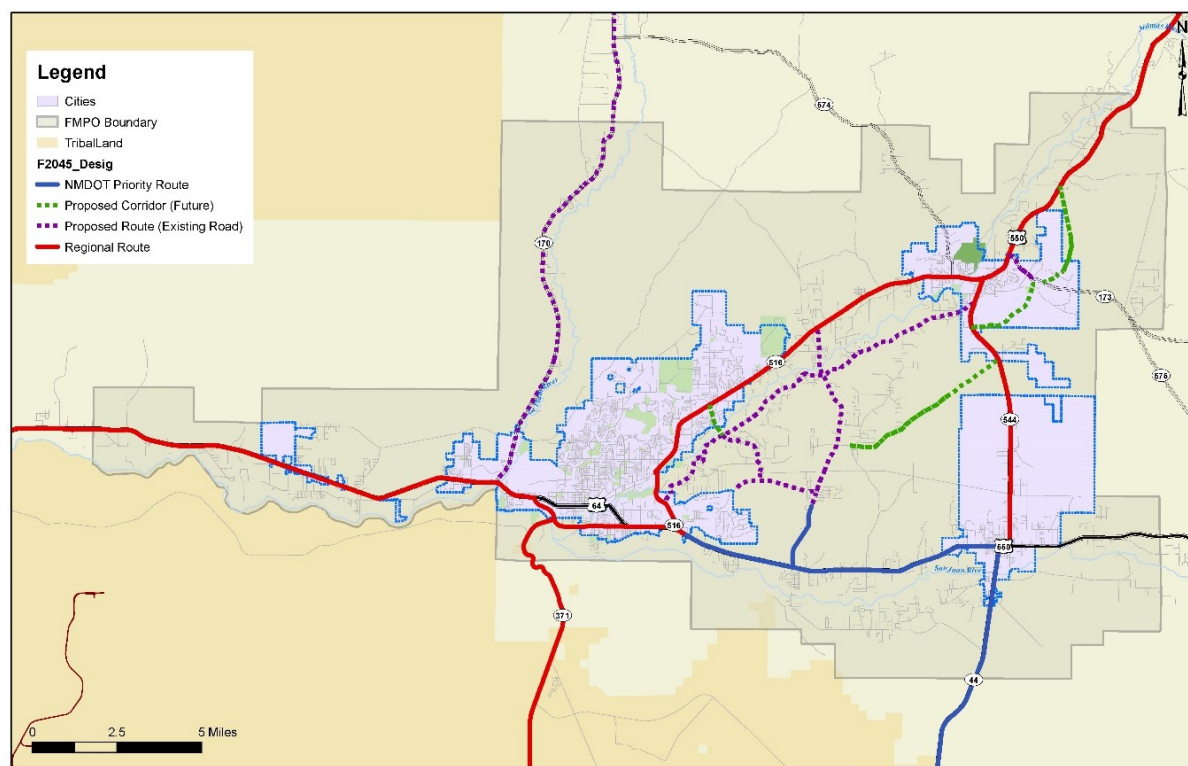
Figure 8-1: Truck Freight Volumes in the FMPO Region



To support the local distribution of goods, NMDOT and FMPO have also identified routes across the FMPO planning area to ensure products reach local businesses and that locally produced goods and natural resources can be shipped around the state and the US (see Figure 8-2). US 550 is considered a statewide Priority Freight Corridor for the critical connection it provides from the Albuquerque metropolitan area and I-25 to the Four Corners region. Per the NMODT Freight Plan, truck freight travel along this corridor is expected to increase in the coming decades. (The

impacts of the proposed rail line on truck freight travel have not been fully evaluated and may reduce truck freight travel along both NM 371 and US 550.)

Figure 8-2: Truck Freight Network in the FMPO Region



8.2.2 Planned Services/Long-Range Needs

Various roadway improvement projects identified in the 2045 MTP have implications for freight travel. The widening of US 64 is under construction, in part to support the movement of truck freight through the region. Several planned routes are identified as proposed freight corridors, including the Piñon Hills Blvd extension, East Aztec Arterial, and Highline Road. Other existing routes – including CR 350, CR 390, and CR 3000 – could support additional freight traffic through improvements such as more durable pavement design and the installation of shoulders (where absent).

In addition to new and improved infrastructure, truck freight travel through the region can be improved by increasing the efficiency of the existing transportation system and decreasing traffic congestion. Transportation systems management and the use of Intelligent Transportation Systems measures include coordination of traffic operations and signal timing improvements along major freight corridors, intersection improvements, incident management, and access management.

FMPO and member agencies can also explore opportunities to provide the services and amenities desired by truck drivers and better enable the Farmington metropolitan area to serve as a regional center for truck freight. As identified in the recently conducted statewide *Freight-Related Economic Development Opportunity Study* (NMDOT 2016), truck drivers express a strong desire for services and amenities such as fresh food, opportunities to exercise, outside space for drivers and their dogs, and access to health care and personal care services.

8.3 RAIL

8.3.1 Existing Services

There are currently no existing rail services in the FMPO region. The nearest major rail line in northwest New Mexico is operated by Burlington Northern Santa Fe (BNSF), whose track runs parallel to I-40 and stops in Gallup, 100 miles south of Farmington. Distribution of goods into the FMPO region from Gallup or Albuquerque is provided by truck freight.

Rail and Natural Resource Extraction Industries in New Mexico

Rail is particularly important for the state's mining industries, with coal accounting for nearly 60% of all New Mexico rail tonnage. Rail also supports the state's oil and gas extraction and agriculture industries. Energy-related mining and production activities in San Juan County include two coal mines, two coal-fired power plants, a natural gas hub (the Blanco Hub), a petroleum refinery, and a natural gas power plant. Most of New Mexico's coal reserves are found in the San Juan Basin and a large amount of stone and aggregate, which includes construction sand and gravel, a subset of industrial minerals, is found in San Juan County.

8.3.2 Planned Services/Long-Range Needs

In February 2020, the Navajo Nation and San Juan County signed a memorandum of understanding to partner for the development of a potential freight railroad corridor from the BNSF line to the FMPO region. A rail connection has long been identified as a high priority for the region and the MOU signifies a major step for the region. The exact alignment for the proposed rail line is not known, and a new study is warranted to identify a final route and/or validate the route identified in the *Farmington-Thoreau Railroad Study*, a feasibility study completed in 2015 for the New Mexico Economic Development Department by the Navajo Nation and the New Mexico Institute of Mining and Technology.

Per the feasibility study, the rail line could help fulfill the demand for equipment and materials to support mining industries in the Four Corners region and represents an opportunity to support a greater set of economic activities and bring products from the Four Corners region to markets across the United States. The Feasibility Study concludes the rail line is viable economically. A barrier had been jurisdictional issues since the vast majority of the rail line would travel through the Navajo Nation; however, the direct participation of the Navajo Nation makes the advancement of the rail line more realistic.

The rail connection from the region to the BNSF line is also considered a statewide priority and is discussed in both the *NMDOT Freight Plan* and the *NMDOT State Rail Plan*. The *Freight Plan* (2015) estimates the project cost at \$553 million. It is important to note that significant roadway transportation investments may also be necessary to support access and distribution from the rail facility. These roadway connections warrant further analysis and may require local investment and long-term maintenance.

8.4 AIR

8.4.1 Existing Services

The FMPO region is currently served by the Four Corners Regional Airport and the Aztec Municipal Airport. Air cargo plays a modest role in the regional flow of goods and services, with most goods moving through the Albuquerque International Sunport before being shipped to the FMPO region by land.

Four Corners Regional Airport

The Four Corners Regional Airport in Farmington is a general aviation facility that supports 11.5% of all statewide general aviation activity and contributes \$23 million to the regional economy per year.¹⁵ The facility features two runways at an elevation of 5,506 feet, full-time Aircraft Rescue and Fire Fighting, and an Air Traffic Control tower. At present, there are no commercial flights available to the City of Farmington, though commercial airlines have provided connections to the airport in the past. On-demand charter flights are offered by Vernon Aviation to and from many destinations. Atlantic Aviation, a Fixed Base Operation facility, offers hangar space, aircraft maintenance, in-flight catering, flight crew lounge and flight planning services.

Aztec Municipal Airport

Aztec Municipal Airport has a single runway at 5,882 elevation and serves mostly private planes and minor commercial operations. Aztec is one of several airports located within New Mexico that features a retroreflective landing light system. This system uses reflectors that are located along runways edge at standard intervals. Using the aircraft landing lights will "light up" the runway reflectors at about 1-1/2 miles out.

8.4.2 Planned Services/Long-range Needs

Four Corners Regional Airport

Commercial air service is a major priority. In June 2020, Farmington announced new daily service through United Express and operated by SkyWest Airlines between the Four Corners Regional Airport and Denver, CO. The service, which was expected to begin in October, has been delayed due to COVID-19. The region had been without commercial air service since Great Lakes Airlines suspended flights in November 2017.

The return of commercial service was made possible through recent investments and grant funding. The City of Farmington, which owns Four Corners Regional Airport, received a \$3.45 million grant from the Federal Aviation Administration (FAA) to extend the safety areas on either end of the runway. In addition to the extension, the airfield will be repainted and will receive fog sealing to extend the life of the runway. These improvements will help upgrade the runway reference code from a B-II category to a C-II and enable regional jets to operate from the airport. The airport also recently received an \$850,000 Small Community Air Service Development Grant from the FAA that will help pay for marketing and assist with the return of air service to Four Corners Regional Airport.

Other long-term improvements are identified in the City of Farmington's 2013 long-range plan. In particular, the plan cites the need for new air cargo facilities which could be located on the northern portion of the airport's property. The plan also acknowledges general deficiencies,

¹⁵ <https://businessviewmagazine.com/digital-magazines/jan-2020/141/>

though the recent grant funding will allow the City of Farmington to implement some of these infrastructure needs. Additional transportation infrastructure and connections to the airport are also desired to spur development on the northside of the facility.

Aztec Municipal Regional Airport

The City of Aztec initiated a study to complete an *Airport Layout Plan (ALP) Update and Narrative Report* for the Aztec Municipal Airport in 2018. The objective of the ALP Update and Narrative Report is to provide the City with a future development plan that will satisfy aviation demand, identify the critical aircraft, address airport issues and needs, address new FAA design standards, and update the Airport Capital Improvement Plan.

Long-range needs identified in the 2018 ALP include:

- Crosswind Runway Completion
- Hangar Development
- BLM Land Transfer, Environmental Process
- Runway Lighting and Visual Aids
- Pavement Maintenance
- Perimeter Fencing Improvements for security, wildlife
- New FAA Design Standards
- Verification of Design Aircraft and Airport Reference Code (ARC)

8.5 RECOMMENDATIONS AND ACTION ITEMS

8.5.1 Truck Freight

- Evaluate potential truck routes to the proposed rail facility, once a site is identified.
- Conduct a regional freight study to identify freight-specific roadway improvements and formally designate proposed truck routes and potential truck stop areas. The study could also develop design standards to support anticipated levels of freight traffic and evaluate multiple scenarios to consider how the proposed rail line may impact freight traffic across the region.
- Enhance data collection, including freight truck counts, to understand shifts in economic activity and impacts to regional roads.
- Add signage to designated regional truck freight routes.
- Improve amenities for truckers, including consideration of shuttle services from truck stops and the feasibility of a regional center for truckers.

8.5.2 Rail

- Support the proposed rail line from Farmington to the BNSF corridor near I-40.
- Conduct ongoing outreach with BNSF and the Navajo Nation regarding the roadway transportation infrastructure needed to support a rail connection.
- Coordinate with NMDOT and NMEDD on potential funding opportunities to support rail connections and other infrastructure to enable the shipment of local goods via rail

8.5.3 Air

- Invest in runways and other infrastructure at the Four Corners Regional Airport to increase the ability to support general aviation, commercial services, freight cargo, and military use.
- Support marketing efforts to attract commercial passenger air service to the region.
- Improve transportation access to the Four Corners Airport; consider additional access roads and transit shuttle connections to Downtown Farmington.
- Develop transportation infrastructure on the northside of the Four Corners Regional Airport to support aviation-related industries and commercial activity.

9 CLIMATE CHANGE

9.1 OVERVIEW

With scenic natural landscapes in abundance, a deep-rooted farming tradition, and major river systems, communities in the FMPO region have a deep connection to the natural environment. The various natural attractions and resources are enjoyed by visitors and residents year-round, making northwest New Mexico a hub for outdoor recreation and tourism. However, changing climate conditions, which are driven by transportation-related greenhouse gas (GHG) emissions, threaten many of the region's unique natural resources. The following section discusses the effects of climate change on the FMPO region, potential impacts to infrastructure and the built environment, and how agencies in the FMPO region can respond through both adaptation and mitigation efforts.

Addressing climate change is a major MPO and statewide policy priority. *U.S. Code § 134. Metropolitan Transportation Planning* states that MPOs:

“[P]rotect and enhance the environment, promote energy conservation, improve the quality of life... [and] improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.”

9.2 IMPACTS OF CLIMATE CHANGE IN NEW MEXICO

New Mexico's climate has begun changing; New Mexico is the sixth fastest-warming state in the nation, with the average annual temperature increasing about 2.7°F since 1970.¹⁶ With this change comes fundamental alterations to the state's weather patterns including temperature, water availability, storm frequency, and many other factors that affect the lives of every New Mexican. Increased temperatures lead to diminished snowpack, and earlier snowmelts contribute to lower stream flows at critical times of the year when reduced availability of water has greater economic and environmental consequences. The information contained in the following sections is drawn from the most recent National Climate Assessment from the Intergovernmental Panel on Climate Change as well as the EPA report *What Climate Change Means for New Mexico* (2016).

9.2.1 Effects on Temperature

Average temperatures and the numbers of high heat days are expected to increase in the Four Corners region and across New Mexico. The combined effects of higher average temperatures and more variable rainfall (see below) have a range of impacts on the landscape, including more frequent droughts and increased risk of wildfires, and impacts on the types of vegetation and crops that can grow in the region. Direct impacts of high heat on transportation infrastructure include degradation and buckling of pavement, though changes to pavement mix may be applied during rehabilitation and resurfacing efforts, as well as impacts on roadway

¹⁶ Union of Concerned Scientists, *Confronting Climate Change in New Mexico*, May 2, 2016
<https://www.ucsusa.org/resources/confronting-climate-change-new-mexico>

landscaping. One ancillary benefit of higher average temperatures is the likely reduction in freeze-thaw days, which can cause significant impacts to paved surfaces and bridge structures. Higher average temperatures also increase the need for bicyclist and pedestrian amenities such as shade trees and water stations.

Figure 9-1 shows how the average air temperature from 2000-2015 in the Southwest region has increased compared to the long-term average (1895-2015). Each state is divided into climate divisions, which are zones that share similar climate features. The map indicates an average temperature increase of 1.0-1.2 degrees across climate division encompassing the greater FMPO region.

Figure 9-1: Average Temperatures in the Southwest (2000-2015) Vs. Long Term Average

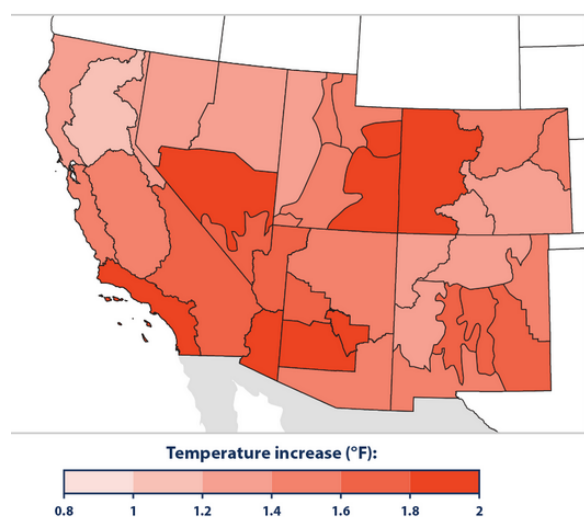
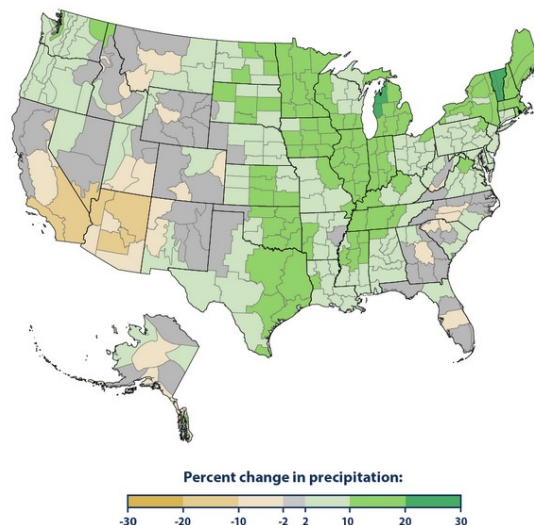


Figure 9-2: Change in Precipitation in the United States (1901-2015)



17

Higher temperatures and drought are likely to increase the severity, frequency, and extent of wildfires, which can harm property, livelihoods, and human lives, as well as lead to changing landscapes and ecosystems. The smoke produced from wildfires reduces air quality which leads directly to chest pains, respiratory problems, and heart problems. The combination of more fires and drier conditions may expand deserts and otherwise change parts of New Mexico's landscape, as many plants and animals living in New Mexico are already near the limits of what they can tolerate. On average, more than two percent of the land in New Mexico has burned per decade since 1984.¹⁷

From a public health perspective, rising temperatures can lead to risks of heat exposure, especially for children, the elderly, the sick, and those without cooling or water readily available in their homes. High temperatures can also lead to heatstroke, dehydration, and negatively affect people's cardiovascular, respiratory, and nervous systems. Higher temperatures are amplified in urban settings where concrete, paved and other infrastructure surfaces tend to

¹⁷ EPA.gov, *Climate Change Indicators*: <https://www.epa.gov/climate-indicators>

¹⁸ EPA, *What Climate Change Means for New Mexico*, August 2016

<https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-nm.pdf>

absorb heat throughout the day in what is known as the heat island effect. In severe cases, construction crews and other outdoor labor may have to operate on altered time schedules to avoid extreme daytime heat.

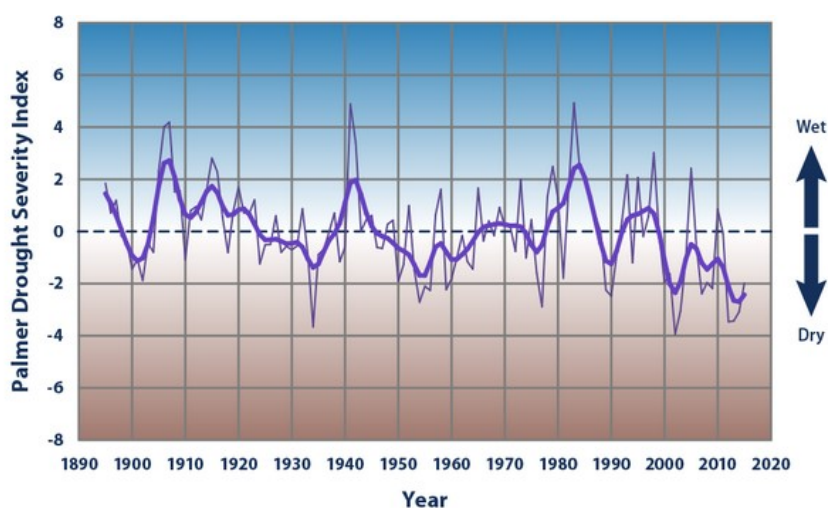
9.2.2 Effects on Precipitation

While overall levels of precipitation in New Mexico are not expected to change dramatically, precipitation patterns are likely to change over time. Projections indicate that as temperatures increase due to climate change, less precipitation will fall as snow. Without a snowpack acting as a natural reservoir, river flows will decrease throughout the year and reduce available resources for agriculture throughout the state. Figure 9-2 shows the rate of change in total annual precipitation in different parts of the United States since 1901 for the contiguous 48 states and 1925 for Alaska. The map indicates a -10 to -2 percent change in total annual precipitation across the climate division encompassing the FMPO region. Most of the State of New Mexico shows a more modest decrease in total annual precipitation.

Evidence also suggests that rainfall events may become more intense, creating a greater annual risk of flooding events. Flood risks are worsened by the long periods of drought in between rainfall events, the increased frequency of wildfires, and the potential for inundation over burn scars. Flood events have direct impacts on regional transportation by limiting mobility and making roads impassable. Extreme weather events can also cause erosion and affect the structural integrity of bridges.

Figure 9-3 shows annual values of the Palmer Drought Severity index in the Southwest; the Palmer Drought Severity Index is a standardized index that spans from -10 (dry) to +10 (wet). The index uses available temperature and precipitation data to estimate relative dryness. A value between -2 and -3 indicates moderate drought and a value between -3 and -4 indicates severe drought. The thicker line is a nine-year weighted average. The chart indicates increasingly drier than average conditions in the Southwest, with the 2010s experiencing the driest average conditions of any recorded period.

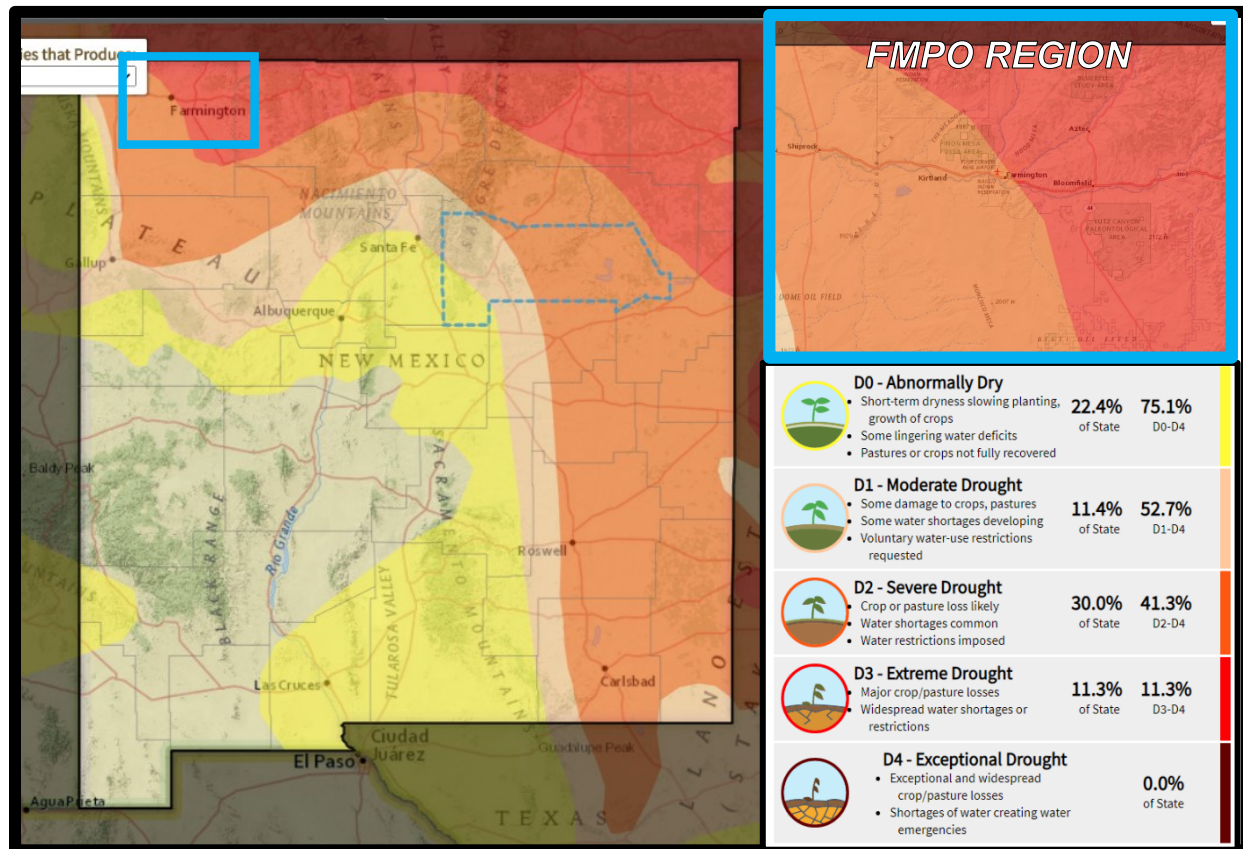
Figure 9-3: Drought Severity in the Southwestern United States (1895-2015)



9.2.3 Drought Conditions in New Mexico and the FMPO Region

New Mexico and the FMPO region reflect the overall trend of longer and more severe drought conditions observed in the southwestern United States. Per the U.S. Drought Monitor, since 2000, the longest duration of drought in New Mexico lasted 329 weeks between May 1, 2001, and August 14, 2007, while the most intense period of drought occurred the week of June 21, 2011, where D4 (exceptional drought) affected 49.09% of all New Mexico land.¹⁹ As of June 2020, the FMPO region and much of New Mexico, are facing severe drought conditions (see Figure 9-4).²⁰

Figure 9-4: Drought Conditions in New Mexico and the FMPO Region - June 30, 2020



¹⁹ US Drought Monitor, *Drought in New Mexico*, <https://www.drought.gov/drought/states/new-mexico#:~:text=from%202000%20%2D%202020,49.09%25%20of%20New%20Mexico%20land.>

²⁰ US Drought Monitor, *Drought in New Mexico*.

Other Climate Change Impacts

Water Resource Availability

Water resource and river flow impacts in the Upper Rio Grande and San Juan-Chama systems were evaluated in a 2013 study published by the Bureau of Reclamation entitled *West-Wide Climate Risk Assessment: Upper Rio Grande Impact Assessment*. Using downscaled global climate data and a series land surface and local river operations models, the study concluded that the Upper Rio Grande Basin and the San Juan Chama systems are likely to face decreases in overall water availability, changes in the timing of flows, and increases in the variability of flows. Specifically, supplies of all native sources to the Rio Grande are projected to decrease on average by about one third by 2100, while flows in the tributaries that supply the imported water to the San Juan-Chama Project are projected to decrease on average by about one quarter.

Along with declines in average volume, the seasonality of flows is projected to change due to the anticipated changes in snowmelt and runoff. This increased variability in the amount, timing, and distribution of streamflow and other hydrologic variables indicate that river basins will experience a decrease in summertime flows, the time when agricultural and residential demands are greatest.

Economic Development

Climate change's impacts go beyond just the natural environment, as much of New Mexico's economy is dependent on water in a direct or indirect manner. According to a study published by New Mexico State University entitled *Climate Change and Its Implications for New Mexico's Water Resources and Economic Opportunities*:

Substantial and transformational disruption to New Mexico's agricultural and rural economy can be expected in the future as climate changes. Under the best economic and institutional assumptions, direct economic losses of up to \$100 million are estimated, largely suffered in the agricultural sector under relatively severe climate changes by 2080, with an additional \$200 million in indirect economic losses anticipated.¹

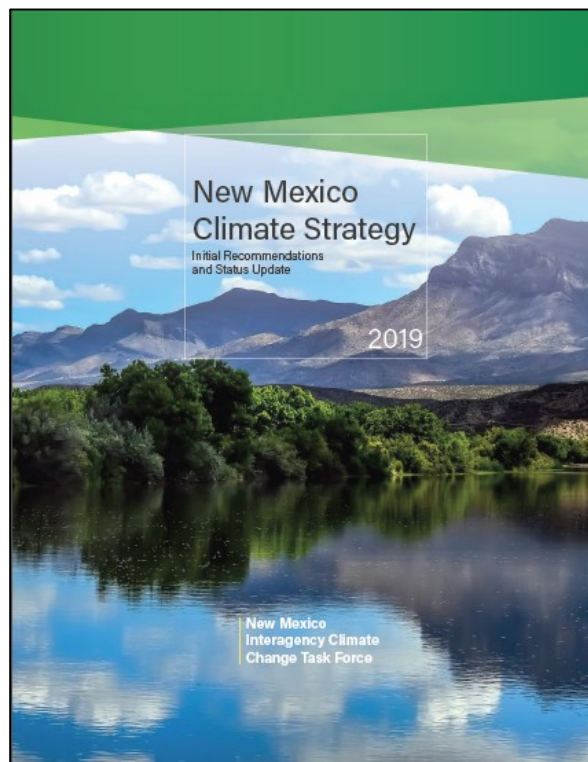
The FMPO region is projected to be one of the areas of New Mexico most effected by climate change, as the economy of the region is largely based upon agriculture, outdoor recreation, mining, and energy production. Farms and cattle ranches are poised to be some of the most negatively affected as a result of the increased droughts and higher temperatures resulting from climate change. Irrigated farmland, which is utilized extensively throughout the FMPO region, would thus need more water to operate. The state's transition to renewable energy will also affect the region, as the San Juan Generating Station is set to permanently close in 2022, along with the coal mines that power it.

9.3 EXECUTIVE ORDER ON ADDRESSING CLIMATE CHANGE AND ENERGY WASTE PREVENTION

On January 29, 2019, Governor Michelle Lujan-Grisham signed *EO 2019-003 – Executive Order on Addressing Climate Change and Energy Waste Prevention*, which directs New Mexico to support the 2015 Paris Agreement by joining the US Climate Alliance with the goal of achieving a statewide reduction in GHG emissions of at least 45% by 2030 compared to 2005 levels. The executive order also includes the transportation-specific goal of reducing per capita vehicle miles traveled (VMT) by 15% below 2015 levels by 2027.

The executive order creates an interagency Climate Change Task Force headed by the Cabinet Secretaries of the Energy, Minerals and Natural Resources Department, and the New Mexico Environment Department to provide strategic direction for achieving climate goals. The order directs the Climate Change Task Force to evaluate policies and regulatory strategies to meet this target, including the adoption of a

market-based program that sets emission limits to reduce carbon dioxide levels, policies to expand adoption of low emission and electric vehicles, adopting more efficient building codes, and identifying transmission corridors needed to expand renewable energy. Investing and prioritizing alternative modes of transportation is one of the main strategies outlined by the Climate Change Task Force in its recommendations. Transportation strategies identified in the Task Force's initial report – *New Mexico Climate Strategy Initial Recommendations and Status Update 2019* – include investing in multi-modal transportation infrastructure, such as public transit and bicycle-and-pedestrian-friendly streets, and marketing and incentives programs that encourage additional use of alternative modes of transportation. MPOs in particular are tasked with prioritizing transportation infrastructure that serves more than just cars, such as transit and bicycle-and-pedestrian friendly streets.



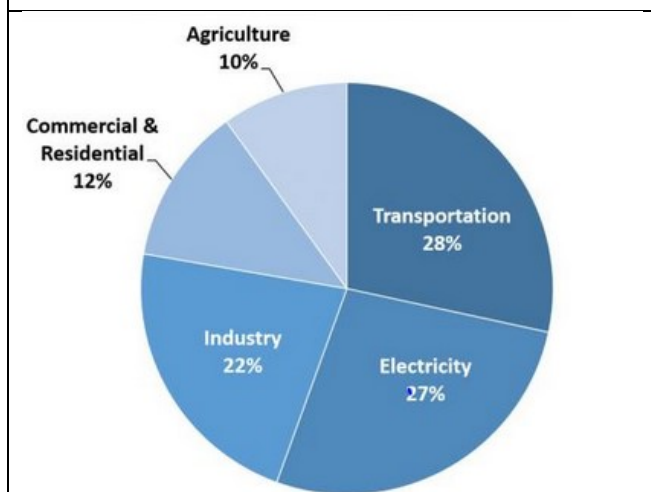
9.4 VEHICLE EMISSIONS EFFECT ON CLIMATE CHANGE

When cars on the road burn fossil fuels like gasoline and diesel, they release multiple harmful substances, including carbon dioxide, carbon monoxide, hydrocarbon, nitrogen oxides, and other particulate matter into the atmosphere. According to the EPA, a typical passenger vehicle emits about 4.6 metric tons of carbon dioxide per year, a number which can vary based on a vehicle's fuel, fuel economy, and the number of miles driven per year. The buildup of carbon dioxide and other GHGs like methane, nitrous oxide, and hydrofluorocarbons is actively causing the Earth's atmosphere to warm, resulting in changes to the climate already being observed today.

Climate Change Mitigation

FMPO and member agencies can also take steps to reduce automobile dependence and play a role in mitigating the transportation emissions that are a major contributing factor to climate change.

Figure 9-5: Share of Emissions from Transportation in the United States



The transportation sector accounts for about 28% of total U.S. emissions, making it the largest contributor to GHG emissions in the US.²¹ While emissions from other sources, such as electricity generation, have declined per capita, GHG emissions in the transportation sector increased between 1990 and 2017 more in absolute terms than any other sector.²² Transportation is currently the second-largest source of GHG emissions in New Mexico, accounting for 22% of all emissions. While this percentage is lower than the national rate, New Mexico produces about 70% more GHG emissions per capita than the national average.²³

9.5 VEHICLE EMISSIONS EFFECT ON HUMAN HEALTH

In addition to affecting climate change, the GHGs released through vehicle emissions also lead to several adverse effects on human health. Exposure to carbon monoxide, ozone, nitrogen dioxide, and sulfur dioxide can all harm people's breathing, especially in children, the elderly, and those suffering from asthma. Toxic air pollutants such as benzene and formaldehyde, which are known byproducts of automobile emissions, are suspected of causing cancer, genetic

²¹ EPA, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>

²² EPA, Carbon Pollution from Transportation
<https://www.epa.gov/transportation-air-pollution-and-climate-change/carbon-pollution-transportation>

²³ New Mexico Interagency Climate Change Taskforce, New Mexico Climate Strategy 2019
https://www.climateaction.state.nm.us/documents/reports/NMClimateChange_2019.pdf

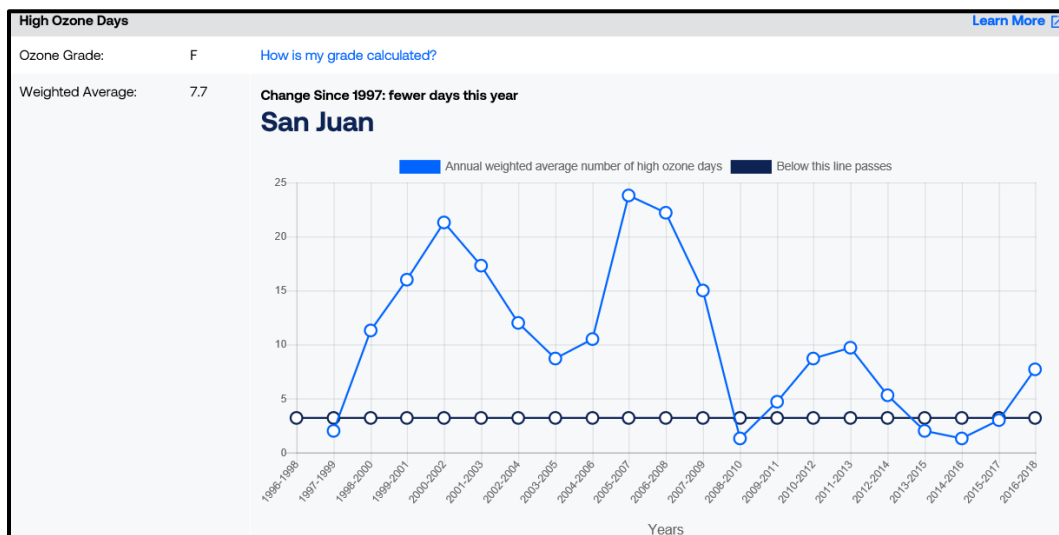
mutation, birth defects, and other serious illnesses in people even at relatively low levels.²⁴ The impacts of some pollutants are local, such as noise, carbon monoxide, and particulates, so their costs depend on where emissions occur. The impacts of other pollutants, such as ozone, methane and carbon dioxide, are regional and global, so their costs are less affected by location. Detailed reporting on the health effects, exposure, and risks associated with vehicle emissions can be found on the [US EPA](https://www.epa.gov/) website.

9.6 EXISTING AIR QUALITY

Levels of ozone is a concern in San Juan County, with levels nearing the acceptable limits set in the National Ambient Air Quality Standards. Ozone is formed from chemical reactions between oxides of nitrogen (NOx) and volatile organic compounds (VOC), which are released from power plants as well as private vehicles. While transportation plays a relatively minor role in ozone levels in the FMPO region, reducing VMT can have a meaningful impact on air quality.

Ozone can have a significant impact on human health, and the American Lung Association's yearly "State of the Air" report gives San Juan county an "F" in terms of its levels of ozone in its latest ranking of the county.²⁵ The report also shows an upward trend in historical ozone tracking data (see Figure 9-6). Levels of particulate matter are not currently available for San Juan County, as the state's ambient air quality monitors are not currently placed in every county.

Figure 9-6: State of the Air - San Juan County Historic Ozone Levels 1998-2018²⁶



²⁴ WA Department of Ecology, Health Effects from Automobile Emissions <https://fortress.wa.gov/ecy/publications/publications/0002008.pdf>

²⁵ American Lung Association, *State of the Air*, "New Mexico: San Juan," <http://www.stateoftheair.org/city-rankings/states/new-mexico/san-juan.html>, accessed July 31, 2020

²⁶ American Lung Association, *State of the Air*, "New Mexico: San Juan," <http://www.stateoftheair.org/city-rankings/states/new-mexico/san-juan.html>, accessed July 31, 2020

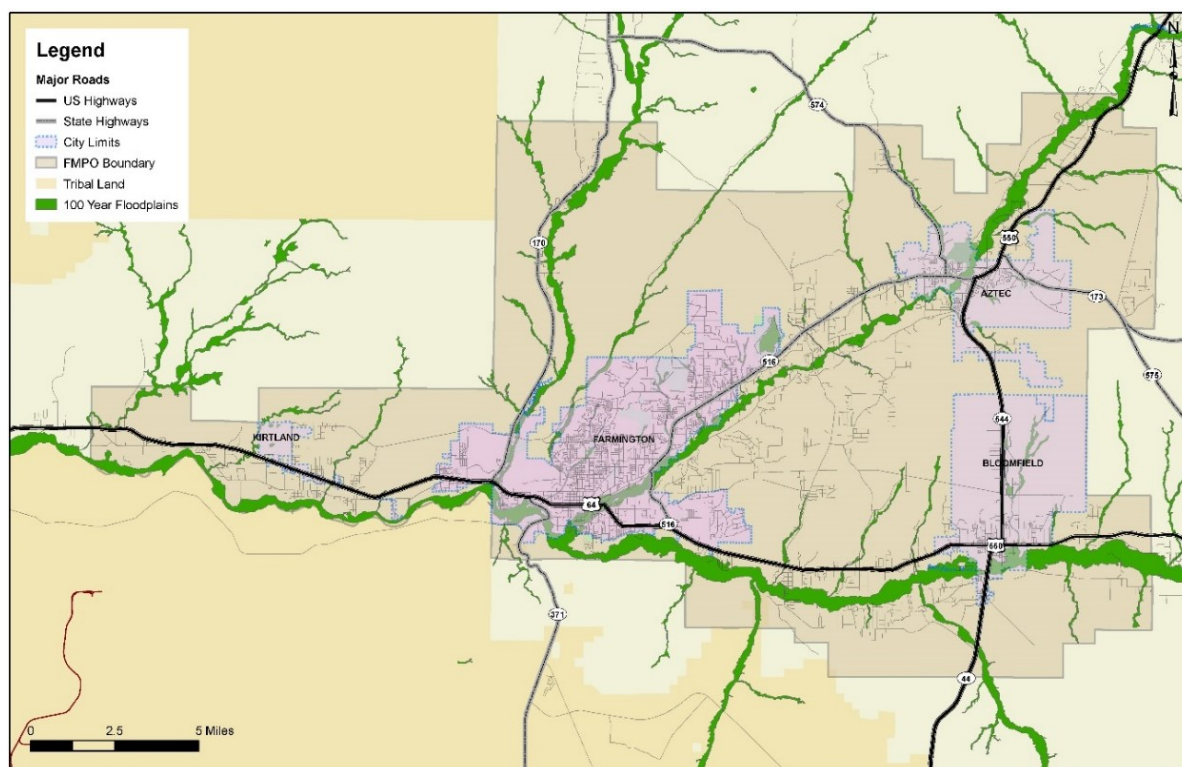
9.7 CLIMATE CHANGE ADAPTATION

A first step in climate adaptation planning is to understand where the built environment, including transportation infrastructure, is at risk due to climate impacts. Specific analyses conducted for the 2045 MTP include locations at general risk of flooding and wildfires. Understanding these risks allows FMPO and member agencies to limit the consequences of extreme events. Potential strategies include reducing development in vulnerable areas, upsizing flood control infrastructure, and accounting for climate impacts as part of hazard mitigation and emergency preparedness efforts (see the Security chapter for additional discussion). These analyses represent a first step in identifying locations that *may* be at risk of climate impacts. Actual risks depending on the design storm and the type of vegetation present in WUI areas.

9.7.1 Flood Risk Areas

FEMA designates 100-year floodplains based on the extent of impact likely from a 24-hour 100-year precipitation event (see Figure 9-7). In the FMPO region, floodplains are generally located along the San Juan and Animas Rivers, and the various arroyos that flow into the river systems. FEMA-designated floodplains are a primary tool for assessing the risks associated with extreme precipitation events across the region, though the exact frequency and intensity of extreme events (i.e. the 100-year design storm) may increase and impacts to individual floodplains may vary. Major floodplains are observed along the San Juan and Animas Rivers, as well as some arroyos and tributaries. Though US 64 and NM 516 intersect with or are adjacent to 100-year floodplains, these facilities feature major drainage structures and are maintained to a high standard.

Figure 9-7: 100-Year Floodplains



9.7.2 Wildfire Risk Areas

Wildland-urban interface (WUI) refers to the “area where structures and other human development meet or intermingle with undeveloped wildland” and is a common tool for understanding locations at risk to wildfires. Not only does increased development in WUI area pose a threat to natural ecosystems, but the climate literature indicates the WUI areas may be at greater risk due to wildfires over time. In general, areas along the river systems are interface areas. Intermix areas, which are generally at greater risk of wildfires, include locations on the edges of incorporated communities and parts of Crouch Mesa.

Wildland Intermix and Interface Area Definitions (Silvis Lab, University of Wisconsin)

Intermix communities are places where housing and vegetation intermingle. In intermix areas, wildland vegetation is continuous, more than 50 percent of the land is vegetation, and density is greater than 1 house per 40 acres.

Interface communities are areas with housing in the vicinity of contiguous vegetation. These areas have more than 1 house per 40 acres, have less than 50 percent vegetation, and are within 1.5 mi of an area that is highly vegetated.

Development patterns in recent decades have resulted in an increasing number of FMPO area residents located in WUI areas. From 1990 to 2010, the number of individuals living in intermix areas nearly doubled. Table 9-1 indicates area, population, and housing units across San Juan County associated with different WUI areas.

Figure 9-8: Wildland-Urban Interface

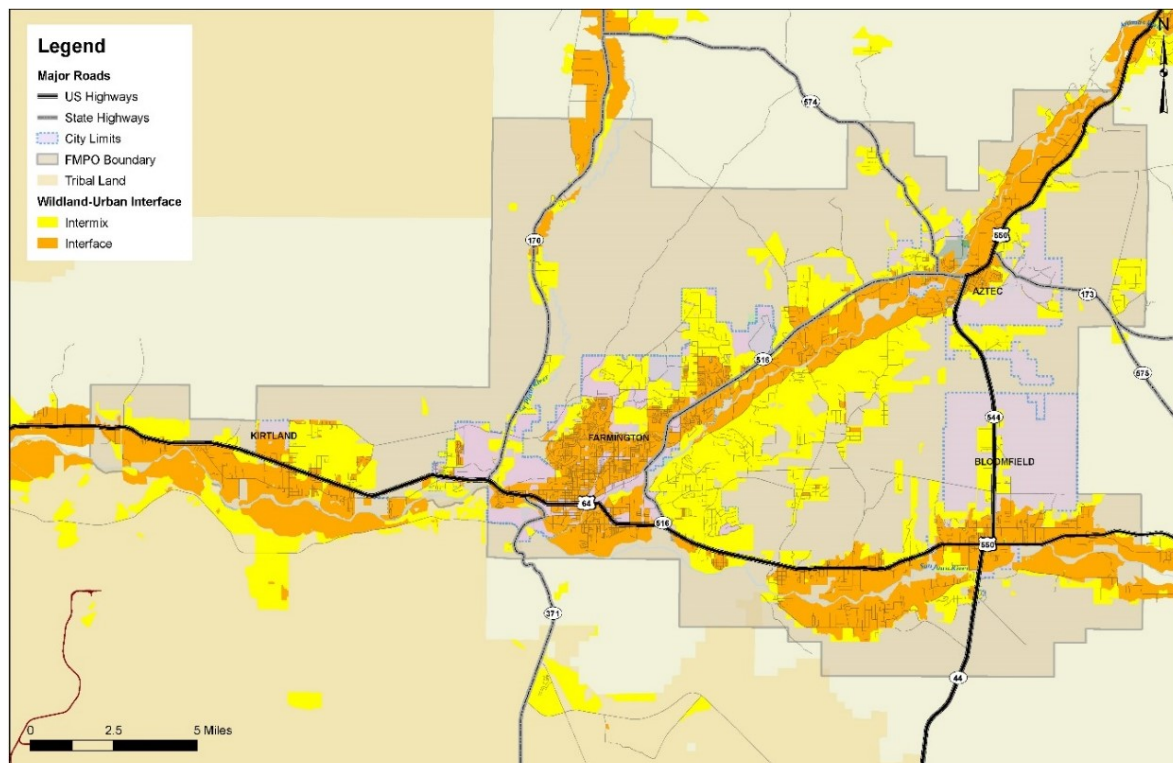


Table 9-1: Development in San Juan County in Wildland-Urban Interface Areas, 1990-2010

	Intermix WUI		Interface WUI		WUI (total)		Non-WUI	
	1990	2010	1990	2010	1990	2010	1990	2010
Area (km²)	272.7	370.5	205.4	229.8	478.2	600.3	13,866.2	13,744.1
Population	20,888	38,890	61,890	82,012	82,778	120,902	8,827	9,142
Housing Units	7,643	13,898	22,759	31,622	30,402	45,520	3,846	3,821

9.7.3 Adaptation Strategies

Agencies in the FMPO region can pursue a number of strategies to adapt to climate change and minimize the impacts of extreme events.

- Land Use:** Agencies can discourage development in locations that are vulnerable to climate impacts and prioritize development in locations with fewer risks (restrictions currently exist to development in 100-year floodplains). The EPA has released an online guide, *Smart Growth and Climate Change*, which details several land use policies which, when used in conjunction, can contribute to both mitigating and adapting to climate change.²⁷ Some of the land use policies detailed in the guide include:
 - *Reuse existing infrastructure and buildings to take advantage of previous investments and the energy already used to build them.*
 - *Put homes, jobs, stores, parks, schools, and other destinations close to each other.*
 - *Preserve green space, and contiguous areas of open space to better protect ecosystems that might be under pressure from the changing climate.*
 - *Coordinate land use and transportation infrastructure decisions and incorporate climate change projections into those decisions.*
 - *Encourage green roofs, parks, street trees, and other elements that can reduce ambient air temperatures and filter pollutants from stormwater runoff and the air.*
 - *Upgrade stormwater systems to better manage heavier storm flows and consider using green infrastructure to reduce the amount of runoff from paved surfaces.*
- Infrastructure Vulnerability Assessment:** Vulnerability assessments can act as a first step in the infrastructure analysis process to determine exactly which roadways and bridges are sensitive to climate impacts. As the intensity and volume of storm runoff increases from climate change, drainage conditions should be a primary emphasis area for these assessments. Specific efforts could also include identification of bridges in vulnerable locations that have low sufficiency rating and evaluation for evidence of scouring.
- General Adaptation Measures:** Agencies may consider include upsizing drainage infrastructure and setting minimum drainage design criteria to exceed the 100-year design storm. NMDOT and local agencies may also consider wildfire buffer zones along major roadways that pass through wildland-urban interface areas.

²⁷ EPA, *Smart Growth and Climate Change*, <https://www.epa.gov/smartgrowth/smart-growth-and-climate-change#main-content>

9.8 CLIMATE CHANGE MITIGATION THROUGH REDUCED EMISSIONS AND VMT

Active transportation can reduce VMT when a bicycle or walking trip replaces a driving trip. Reducing VMT in favor of active transportation modes (i.e., walking or bicycling) can help to reduce emissions while also positively impacting health outcomes associated with increased physical activity. There is a strong correlation between the presence of nonmotorized transportation networks and rates of walking and biking. Further reduction in miles driven can be achieved if the bicycle or pedestrian trip is linked with transit.²⁸ An analysis of the 2009 Household Travel Survey found that 60% of trips under one mile in length are by private vehicle, meaning there are a large share of trips that could be plausibly completed by other modes if safe infrastructure were provided.

In 2019, New Mexico set a statewide target of a 45% reduction in net emissions by 2030 as well as 15% reduction in per capita VMT by 2027. While the most aggressive strategies require national or state-level action, such as user fees or increasing fuel efficiency standards, FMPO and member agencies can take steps to reduce automobile dependence and play a role in mitigating transportation emissions which are a major contributing factor to climate change.

- **Travel demand management strategies** that reduce VMT include encouraging telecommuting, creating carpool programs (once it is considered safe to do so), and incentives programs for individuals to take transit, bike, or walk to work.
- **Land use strategies** that reduce VMT and emissions include growth management approaches that bring housing and destinations closer together through infill development and rehabilitation of existing housing. Specific opportunities to address these housing and land use issues may be considered during updates to comprehensive plans and may require updates to municipal zoning codes.
- **Transportation operations strategies** include signal timing and other efficiency improvements that reduce delay and idling.
- **General policy options** include investments in public transit and active modes of transportation to create additional opportunities for people to walk and bike, as well as install EV charging station. FMPO should participate in NMDOT climate action planning efforts.
- **Rail** investment could also result in significant reduction in freight VMT and emissions as transportation of products by rail is significantly more efficient economically and environmentally.

FMPO and member agencies can also reference the EMNRD Sustainable Infrastructure and Planning Climate Action Team presentation from the June 9, 2020 MPO Quarterly Meeting for additional climate mitigation strategies.

²⁸ FHWA, *Report to the U.S. Congress on the Outcomes of the Nonmotorized Transportation Pilot Program*, 2012
https://www.fhwa.dot.gov/environment/bicycle_pedestrian/ntpp/2012_report/page05.cfm

10 SECURITY & EMERGENCY PLANNING

10.1 OVERVIEW

Security is among the major planning factors identified in the FAST Act legislation and is a required element in the long-range transportation planning process. FMPO must plan for how to respond to threats to the regional transportation system in order to ensure the region's economic vitality and the well-being of its population and environment. Threats could include natural disasters, terrorism, or hazardous spills, all of which endanger people's lives and impact transportation infrastructure. Consequences of these events can include loss of transportation mobility, limited access to goods and services, and individual safety. Regions must also consider the extreme cases where evacuation may be required. General strategies to enhance transportation security include an understanding of risks and vulnerable infrastructure, infrastructure investments to increase resiliency to extreme events, and redundancy in the transportation network. See the chapter on Climate Change for additional discussion.

10.2 SECURITY PLANNING AND THE ROLE OF FMPO

The role of FMPO with respect to security planning and preparedness is to understand risks and ensure effective interagency communication. As MPOs are responsible for coordinating and communicating with federal, state, and local agencies, they are in a unique position to bring stakeholders together and consider potential impacts to the transportation system for its various users.

To support and build on hazard mitigation and security planning efforts taken at the state and local levels, opportunities exist for FMPO to partner with various agencies in pursuit of hazard mitigation and improved emergency response at the regional level and to consider impacts beyond jurisdictional boundaries. Among the steps related to security planning that FMPO may take include:

- Review local and statewide plans for emergency planning/security elements
- Include security needs in review of proposed projects and the overall transportation system, including transportation network connectivity
- Identify critical facilities and transportation system elements for evacuation planning

The FMPO region is susceptible to many types of natural disasters:

- Flooding
- Drought
- Wildfires
- Hailstorms
- High winds
- Tornadoes
- Thunderstorms, lightning, and power outages



Flooding from Animas River, June 2019

<https://www.kob.com/new-mexico-news/animas-river-overflow-floods-trails-in-farmington/5386019/>

- Develop security goals and appropriate strategies in the MTP
- Work with emergency response agencies for disseminating information to the public as quickly as possible
- Implement Intelligent Transportation Systems (ITS) technologies for emergency traffic flow, evacuation, etc.
- Incorporate transit security planning into the MTP; define the role of public transportation operators, the MPO, and the state in promoting security

Table 10-1: Regional and Local Agency Roles in Security Planning

Role of Local Agencies	Role of FMPO
Implementation Lead – The traditional role of local agencies applies to security planning, as municipal or county governments agencies may lead specific planning efforts and implement projects that emerge from the regional planning process. Emergency Response – Local jurisdictions oversee emergency response and security-related services. Local jurisdictions may coordinate with neighboring agencies on responses to public safety emergencies across jurisdictional boundaries.	Convener – FMPO can act as a forum where operations plans could be discussed and coordinated with other plans in the region. Regular meetings on operations issues could be held, and FMPO can play a role in identifying funding opportunities. Champion – FMPO can work to develop a regional consensus on operations planning and security needs. FMPO planners can work with operating agencies to create programs and projects that improve system performance and can coordinate with NMDOT and other state-level agencies on addressing regional needs. The MPO takes the lead in developing regional agreements on coordinated operations.

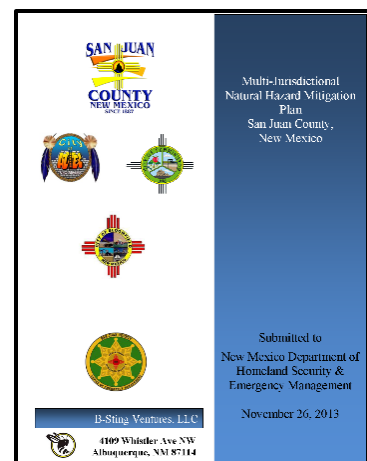
10.3 REGIONAL PLANS AND POLICIES

10.3.1 San Juan County Emergency Operations and Hazard Mitigation Plans

The San Juan County Office of Emergency Management (SJCOEM) provides a comprehensive and coordinated county wide emergency management program to enhance public safety and reduce the loss of lives and property in an emergency or a large-scale disaster. While the OEM and local governments have taken the lead on security planning, FMPO is available for assistance when needed.

Together with San Juan County and the cities of Aztec, Bloomfield, Farmington, SJCOEM created an *Emergency Operations Plan* (EOP) for safety and security in the communities and the region. The EOP establishes protocols of who will be involved in responding to emergencies and how the response occurs.

The Office of Emergency Management and the local governments also created a *Multi-Jurisdictional Natural Hazard Mitigation Plan* (HMP). The plan identifies hazards most likely to impact the area, and policies and procedures to save lives, minimize injuries, protect property, and perform other essential activities. The HMP addresses drought, flooding, wildfire and wildland urban interface, and hazardous material transport. The plan assesses the risks of each hazard and describes steps for implementing a mitigation plan. The HMP also identifies projects which are needed to improve the prevention of and response to these hazards. The transportation of hazardous materials (typically liquid nitrogen) and the risk of hazardous spill incidents is specifically identified on multiple routes within the county, including: US 550, US 64, and NM 516.



San Juan County Communications Authority

The San Juan County Communications Authority (SJCCA) is the primary public safety answering point for San Juan County. SJCCA is a joint effort among the cities of Aztec, Bloomfield, and Farmington, as well as San Juan County and the New Mexico Department of Public Safety. SJCCA serves as the 9-1-1 call center for all of San Juan County, with the exception of portions of the Navajo Nation Reservation, and communications authority dispatchers broadcast emergency calls for service to police, fire, and EMS throughout San Juan County.

10.3.2 State of New Mexico All-Hazard Emergency Operations Plan

The *State of New Mexico All-Hazard Emergency Operations Plan* (2013) establishes the New Mexico Emergency Operations System to respond to emergencies and disasters. The plan establishes lines of authority, responsibilities, and organizational relationships, and shows how all actions will be coordinated among state, federal, and local governments to provide for the safety and welfare of New Mexico residents.

The plan specifically addresses emergencies and disasters caused by natural or manmade events, acts of terrorism, or any other circumstance as determined by the Governor. The plan's guidance and protocols apply when it is necessary for the state to assist local jurisdictions whose capabilities are overwhelmed, when the state has to respond first, or when the state needs to prepare for or respond to incidents of national significance.

In addition to the EOP, the state Department of Homeland Security's *New Mexico State Hazard Mitigation Plan* (2013) considers services and facilities that may be vulnerable to a variety of hazards and extreme events. Though the most recent plan considers few transportation security-related items, further integration of transportation-related hazards may be included in future updates.

10.4 EVACUATION PLANNING

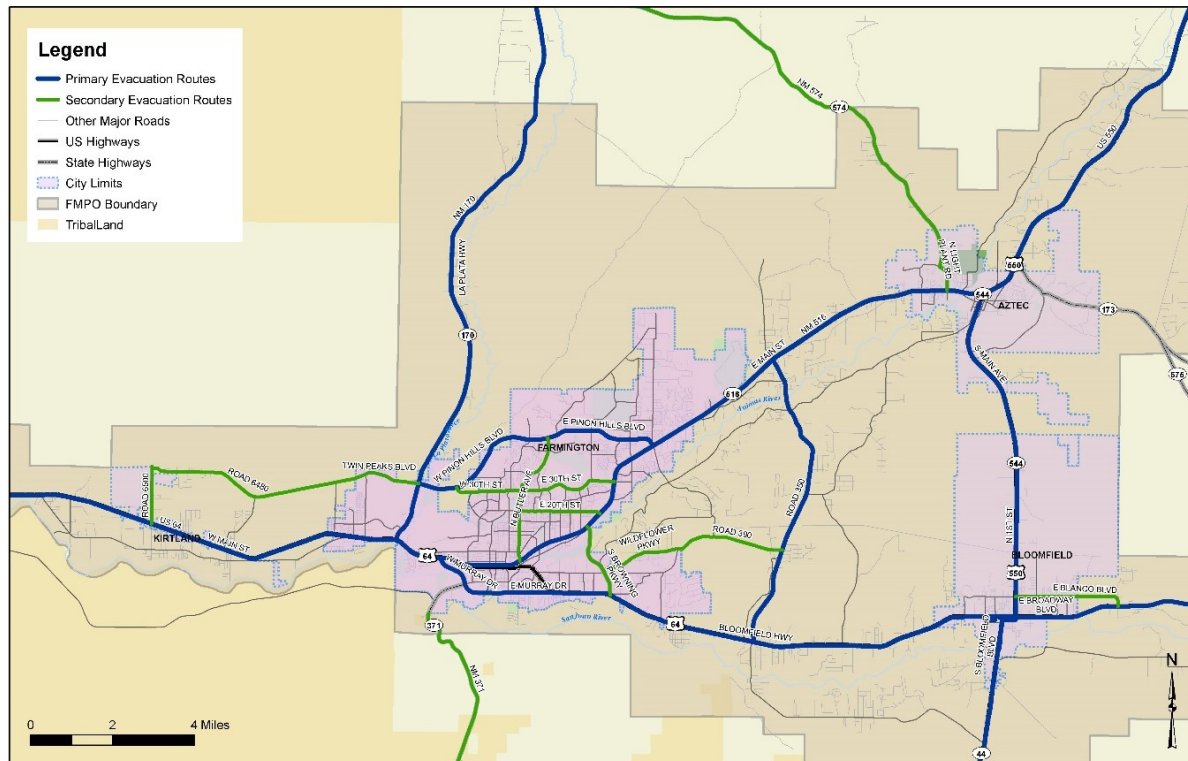
In coordination with San Juan County Office of Emergency Management, the FMPO has identified primary and secondary evacuation routes in the event that a security incident occurs (See Table 10-2 and Figure 10-1). These routes serve as the primary means of exiting region, should an emergency event occur. These routes should be maintained to a high standard and subject to regional emergency plans and contingencies such as protocols for reversing lanes and managing traffic during an evacuation. FMPO may conduct further analysis to consider the impacts if one of these routes is affected by an extreme event or security concern and becomes impassible.

It should be noted that San Juan County has an emergency alert system in place that sends out messages to inform the public about severe weather or other incidents. It is conceivable that the identified evacuation routes could be incorporated into this alert system to direct the public to specific routes. The actual routes for evacuation depend on the specific details of the event.

Table 10-2: Primary and Secondary Evacuation Routes

Primary Routes	Secondary Routes
• US 64 • US 550 • NM 170 • NM 516 • Piñon Hills Blvd • CR 350	• NM 371 • NM 574 • CR 390/Wildflower Pkwy • CR 6480/Twin Peaks Blvd • E 20th St • E 30th St • Browning Pkwy • Butler Ave • East Blanco Blvd

Figure 10-1: Primary and Secondary Evacuation Routes



10.5 TRANSIT SECURITY

All efforts should be made to ensure the safety and security of public transit users. Red Apple Transit staff is involved in the planning efforts of the San Juan County Emergency Management Office and is available to assist in emergency response efforts in times of evacuation. Security and safety measures on Red Apple Transit should be taken, such as:

- Provide bus stops and shelters that are well-lit and located in places that are highly visible
- Install on-board cameras to discourage crime and monitor activities
- Evaluate on-vehicle features to ensure the security of drivers
- Continue to coordinate with emergency responder and prepare to assist during events requiring evacuation

10.6 SECURITY STRATEGIES AND ACTION ITEMS

10.6.1 General Strategies

FMPO can play an ongoing role in regional security planning. General strategies include:

- Provide a forum for security and safety agencies to coordinate prevention strategies
- Coordinate with security officials in development of prevention strategies
- Identify new strategies, technologies and projects that can help prevent events

10.6.2 Action Items

- Consider the impacts of proposed projects from a security perspective and include security criteria in the project prioritization methodology
- Locate funding for communications systems, such as ITS, and other technologies to disseminate information and speed response during incidents
- Coordinate with NMDOT on regional and statewide travel modeling efforts to assess the impacts of an extreme event if major statewide freight and travel corridors were compromised
- Conduct or fund vulnerability analyses on regional transportation facilities

11 IMPLEMENTATION

11.1 TRANSPORTATION IMPROVEMENT PROGRAM

One of the principal responsibilities of the MPO is developing and administering a Transportation Improvement Program (TIP), the mechanism by which federal funds are allocated to the FMPO region to support planning, design, and construction of transportation projects. More specifically, the short-range implementation program for the MTP. The TIP is comprised of projects that will receive federal transportation funds as well as locally-funded projects that are considered “regionally significant”. Projects included in the TIP can be led and funded by local government entities or NMDOT, and often include a mix of local, state, and federal funding sources.

The TIP covers a minimum four-year period, plus informational years. A “new” TIP is developed every two years by adding the next two subsequent fiscal years. Each fiscal year must be fiscally constrained, meaning that the amount of funds programmed must not exceed the amount of funds estimated to be available in each year. It is important to note that only projects which are included in, or consistent with, the MTP can be funded through the TIP.

11.1.1 Relationship Between the TIP and the MTP

Establishing consistency between transportation plans is one of the major requirements of the FAST Act. In revising 23 USC 134, Sec. 1201(a) §134(g)(3) states, “Under the metropolitan planning process, transportation plans and TIPs shall be developed with due consideration of other related planning activities within the metropolitan area...”. Within the specific criteria for TIP development, located in Sec. 1201(a)§134(j)(2)(C), the FAST Act also states that “each project shall be consistent with the long-range transportation plan...”

The TIP and MTP are intended to work in tandem to plan for the MPO’s transportation needs in both the near- and long-term. The MTP establishes a 25-year, multimodal, long-range transportation plan that provides a framework for development of the associated TIP (i.e. FFY 2020-2025 TIP). The 2045 MTP will serve as FMPO’s roadmap to guide transportation investments and decisions regarding transit enhancements and expansions, bicycle and pedestrian improvements, transportation demand management strategies, ITS enhancements, and roadway improvements. While the MTP establishes the region’s needs, the TIP translates these needs into implementable projects and programmed for federal funds through the TIP. While the MTP establishes the goals and framework, the TIP serves as a tool for program and project implementation.

11.1.2 Current TIP Projects

The FMPO Policy Committee approved adoption of the FFY2020-2024 TIP on July 25, 2019. The following tables summarize the projects selected for the for inclusion in the TIP. For almost all of the projects listed, identified funding equals the total estimated project cost. Some projects have found partial funding and sponsoring agencies and/or the state are working to complete the funding. As funding is identified for projects, they will be added to the TIP by amendment.

Table 11-1: Projects in TIP – 2020-2024

Control Number	Lead Agency	Project Title	Project Type	Funds	Total Cost (2020)	Previous	2020	2021	2022-2023	Future
F100091	Aztec	East Aztec Arterial Phase II	Road - New Construction	Federal	\$11,800,000	\$0	\$11,800,000	\$0	\$0	\$0
F100300	Bloomfield	East Blanco Bridge	Bridge - Replacement	Local	\$3,248,408	\$359,154	\$463,524	\$0	\$0	\$4,791,460
TF00001	Farmington	Red Apple Transit	Transit Operations and Capital	Federal	\$3,830,520	\$2,552,285	\$1,278,235	\$0	\$0	\$0
F100099	Farmington	Foothills Drive Enhancement Phase II	Road - Other Improvement	Federal	\$1,588,644	\$1,237,465	\$351,179	\$0	\$0	\$0
F100132	Farmington	20th Street Phase III	Bicycle and Pedestrian	Federal	\$971,978	\$139,048	\$0	\$832,930	\$0	\$0
F100100	Farmington	Piñon Hills Blvd Ext. Phase I - NM 516 to Hubbard	Road - New Construction	Local	\$4,000,000	\$0	\$0	\$0	\$0	\$4,000,000
F100101	Farmington	Piñon Hills Blvd Ext. Phase II - Hubbard to CR 3000	Road - New Construction	Local	\$18,250,000	\$0	\$0	\$0	\$0	\$18,250,000
F100221	Farmington	Anesi Trail and Pedestrian Bridge	Bicycle and Pedestrian	Local	\$1,038,264	\$0	\$0	\$0	\$0	\$1,038,264
F100350	Navajo Nation Transp. Dept.	NM 371/ Navajo Rt 36 Intersection Improvements	Preliminary Engineering	State	\$149,061	\$0	\$149,061	\$0	\$0	\$0
F100351	NMDOT	NM 371/ Navajo Rt 36	Road - Interchange/ Intersection	Local	\$1,700,000	\$0	\$1,700,000	\$0	\$0	\$0

Control Number	Lead Agency	Project Title	Project Type	Funds	Total Cost (2020)	Previous	2020	2021	2022-2023	Future
		Intersection Improvements								
F100340	NMDOT	US 550 Pavement Rehabilitation	Road - Minor Rehabilitation	Federal	\$25,000,000	\$0	\$0	\$0	\$0	\$50,000,000
F100170	NMDOT	NM 173 Safety Improvements	Safety	Federal	\$4,270,000	\$80,500	\$0	\$4,189,500	\$0	\$0
F100240	San Juan County	Glade Run Recreation Area Trails	Bicycle and Pedestrian	Federal	\$700,000	\$175,000	\$525,000	\$0	\$0	\$0
F100330	San Juan County	Glade Run Recreation Area Trails Extension	Other Trails	Federal	\$500,000	\$0	\$125,000	\$375,000	\$0	\$0
F100370	San Juan County	CR 3500 Bridge Replacement	Bridge - Replacement	Local	\$1,900,000				\$100,000	\$1,800,000
F100360	San Juan County	CR 3000 Bridge Replacement	Bridge - Replacement	Local	\$950,000			\$100,000		\$850,000
F100290	San Juan County	CR 5500 Bridge Replacement	Bridge - Replacement	Local	\$6,972,200	\$708,377	\$6,263,823	\$0	\$0	\$0
F100320	San Juan County	Kirtland Schools Path Extension	Bicycle and Pedestrian	Federal	\$795,000	\$0	\$65,000	\$730,000	\$0	\$0
F100021	San Juan County	Piñon Hills Blvd Ext. Phase III - CR 3000 to Wildflower	Road - New Construction	Local	\$12,800,000	\$0	\$0	\$0	\$0	\$12,800,000

11.2 FUNDING ANALYSIS

11.2.1 Overview and Purpose

Per MAP-21, an MTP is required to be fiscally constrained, meaning that only projects for which there is a reasonable likelihood that funds will be available may be included in the MTP. This section quantifies the costs of transportation projects identified by FMPO member agencies through 2045 against the projected available funding. The financial analysis demonstrates the need for prioritization of finite transportation funds and for ongoing coordination over regional funding decisions.

11.2.2 Methodology

Long-term regional financial analysis is challenging as FMPO member agencies generally rely on short-term ICIPs for project planning and do not have dedicated or recurring bond programs, though such programs have been pursued in the past. Local available funding is based on a review of member agency budget information and data provided by staff.²⁹ At the same time, the federal funding available to the region varies from year to year as funding is first allocated to District 5, which then identifies projects across its planning area.³⁰ Available federal funding is therefore based on observed levels of funding for the FMPO region over the period 2016-2020. NMDOT receives additional state funds for projects on NM and US highways. Annual average local, state, and federal funding levels are summed from 2024 through 2045 to allow for FMPO to contrast likely available funds against the estimated costs of projects identified in the MTP. All cost values and budget information are provided in 2020 dollars.

NMDOT District 5 receives a share of federal funding through NHPP and Surface Transportation Program funds that may be utilized across the district; these funds may be used for state or local roadways.³¹ The share of federal funds that go to FMPO region for is estimated to be \$3.65 million per year, based on shared of miles of NM and US highways in NMDOT District 5 that are in the FMPO region.³²

Table 11-2 and Table 11-3 identify MTP project funding by type and time period. All short-term projects where funding has been identified are included in the Current Projects category, including all projects in the 2020-2023 TIP. The MTP Projects List and summary tables also identify ongoing road improvement projects. How these funds will be spent is not specified in the 2045 MTP, though it is important that these line items be included in the MTP project table to ensure such funds are properly accounted for. These ongoing roadway improvements may be used to address general needs identified in the MTP, bicycle and pedestrian facilities (to use federal funding these projects must address regional priorities identified in the MTP).

²⁹ The City of Farmington has a roads budget of about \$5,000,000 per year. For budgeting purposes in this MTP, 30% of \$1,500,000 of that budget is allocated for road improvement projects. San Juan County includes a \$1,000,000 annual line item in the San Juan County ICIP for unspecified road improvement. The Town of Kirtland is excluded from this analysis as all collector and arterial roads through the Town of Kirtland that are eligible for federal funds are owned and maintained by either NMDOT or San Juan County.

³⁰ NMDOT District 5 includes both the Santa Fe MPO and FMPO, as well as other counties in north and northwest New Mexico.

³¹ Federal funds to NMDOT District 5 (NHPP, STPS, STPR, STPF) is \$25,829,261 for each year from 2020 through 2023

³² About 14.14% of road miles in District 5 are in the FMPO region).

Table 11-2: MTP Projects by Type

Project Type	Current (2018-2023)	2024-2045	Total
Transit Operating & Capital	\$7,650,000	\$31,050,000	\$38,700,000
Bridge Replacement	\$10,220,608	\$5,600,000	\$15,820,608
Complete Streets / Multi-Modal	\$10,171,908	\$5,527,213	\$15,699,121
New Roads	\$11,800,000	\$96,800,000	\$108,600,000
Preservation/Rehabilitation	\$4,100,000	\$106,748,408	\$110,848,408
Road Improvements (Ongoing)	N/A	\$68,200,000	\$68,200,000
Widening	\$34,700,000	\$17,500,000	\$52,200,000
Other	\$10,020,070	\$2,000,000	\$12,020,070
Total	\$88,662,586	\$333,425,621	\$422,088,207

Table 11-3: Distribution of MTP Projects by Time Period

Time Period	Projects	Ongoing	Total
Current (2018-2023)	\$81,012,586	\$7,650,000	\$88,662,586
2024-2030	\$88,175,621	\$49,750,000	\$137,925,621
2031-2045	\$149,000,000	\$46,500,000	\$195,500,000
Total	\$318,188,207	\$103,900,000	\$422,088,207

Table 11-4: Available Funding by Source

Source	Per Year	2024-2045
Local Capital Improvements	\$2,950,000	\$64,900,000
NMDOT Federal Share (Ongoing)	\$3,652,807	\$80,361,764
State Funds (NMDOT)	\$4,900,000	\$107,800,000
RTP / TAP	\$750,000	\$16,500,000
FTA 5307 (Transit) plus Match	\$1,275,000	\$28,050,000
Total	\$13,527,807	\$297,611,764

11.2.3 Difference between Available and Required Funding

The difference in projected available funds versus project costs – approximately \$125 million across the 22-year period from 2024-2045 – will need to be identified through additional funding sources. These could include local bond packages, increases in the gas tax (or a future mileage-base user fee), or state funding measures, which are an important means of meeting project funding requirements. Due to the level of variability from year to year, state capital outlays for local projects are not included in these estimates, nor are other state programs to fund transportation projects (state funds to NMDOT are included). For example, the Transportation Project Fund allocated \$2,375,000 to FMPO member agencies in 2019.³³ However, COVID-19 has created uncertainty about state funding and it is unclear if funding for that program (and at 2019 levels) will be available in the future. If that program were funded

³³ The Transportation Project Fund was previously referred to as the Local Government Transportation Project Fund.

from 2021 through 2045 at the same rate as in 2019, an additional \$60,000,000 would be available for transportation projects in the FMPO region.

11.2.4 Notes on Red Apple Transit

Red Apple Transit receives 5307 FTA funds to support operating expenditures and 5309 funds to support vehicle replacement costs and other capital needs. The City of Farmington provides a local match and other FMPO agencies provide funding support for transit service outside of Farmington city limits. A major priority for Red Apple Transit is a Downtown Transit Hub. Though design is complete and grant applicants have been submitted for near-term implementation, the project is not fully funded and is included in the 2024-2030 period for budgeting purposes. Though Red Apple Transit receives dedicated funds from the Federal Transit Administration, the agency may compete for additional federal funds.

11.2.5 Discussion on Long-Term Revenue and Expenditures

FMPO member agencies may need to prepare for the fact that additional local revenue streams may be necessary. In particular, long-term revenue from the State Highway Trust Fund and federal Highway Trust Fund are projected to face shortfalls as vehicles become more efficient and revenue from gas taxes declines. (Compounding the challenge, electric vehicles generate zero gas tax revenue whatsoever.) Behavioral patterns, including the decrease in driving levels observed from approximately 2004 to 2014, could also affect funding levels.

11.3 FUNDING SOURCES

Agencies must submit funding applications through FMPO to receive deferral funds, and funding is awarded by NMDOT. The process for soliciting federal funds varies by source and project type. In addition to federal funds, local entities may use their general funds and other infrastructure grants to complete regional transportation improvements. The following are key sources of federal funds that are available to FMPO member agencies.

- **National Highway Performance Program:** The National Highway Performance Program (NHPP) provides support for the condition and performance of the National Highway System (NHS), for the construction of new facilities on the NHS, and to ensure that investments of Federal-aid funds in highway construction are directed to support progress toward the achievement of performance targets established in a State's asset management plan. The majority of roads in the FMPO region are owned and maintained by NMDOT; exceptions include the portions of Broadway Ave and NM 516 (Main St) within Farmington city limits.
- **Surface Transportation Block Grant Program:** The Surface Transportation Block Grant program (STBG) provides flexible funding that may be used by NMDOT or local agencies to preserve and improve the conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals.
- **Congestion Mitigation and Air Quality:** The Congestion Mitigation Air Quality (CMAQ) Improvement Program, originally implemented in 1991, helped shift federal policy towards a multi-modal and environmental focus. The CMAQ program supports surface

transportation projects and other efforts that help improve air quality and reduce congestion to meet National Ambient Air Quality Standards. Eligible projects include those that contribute to maintenance or attainment of air quality standards and reduce air pollution, including bicycle, pedestrian, and trail projects. Consult the NMDOT T/LPA Handbook for additional information.

- **Highway Safety Improvement Program:** The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose of achieving a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned roads and roads on tribal land. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads with a focus on performance.
- **Transportation Alternatives Program:** The Transportation Alternatives Program (TAP) is a federal reimbursement program administered by NMDOT. TAP can be applied to projects focused on pedestrian and bicycle facilities, including trails projects and safe routes to schools programs. The total state allocation was \$5.7 million in FY 2020; entities may be awarded up to \$2 million. Refer to the *Active Transportation and Recreational Programs Application Guide* (NMDOT, Current Guide) for more information.
- **Recreational Trails Program:** The Recreational Trails Program (RTP) is a federal reimbursement program administered through NMDOT. The RTP funds projects for additional multimodal transportation options including the development and maintenance of recreational trails and facilities for motorized and non-motorized use. The total state allocation was \$1.4 million in FY 2020; there are no minimum or maximum funding amounts for RTP. Refer to the *Active Transportation and Recreational Programs Application Guide* (NMDOT, Current Guide) for more information.
- **State Funding:** Local entities also receive state funds through the Local Government Road Fund as well as legislative appropriations. The Transportation Project Fund (formerly the Local Government Transportation Fund) was established in 2019 to provide additional funds for roadway improvement projects, though that money is subject to budget availability. The Transportation Project Fund covers 95 percent of project costs – or 100 percent if a financial hardship can be demonstrated – and is available for municipalities, counties, and tribal governments.

11.4 NEXT STEPS & FUTURE CONSIDERATIONS

This section contains additional actions and next steps the FMPO could incorporate into regional analysis, including future transportation behavior, development patterns, and shifts in modal preferences. The items contained in this section are voluntary; however, pursuing these areas would support best practices in regional planning and enable FMPO to proactively consider a range of potential needs.

11.4.1 Recreational Access

Recreational tourism is an emerging focus area across the region as a means of economic development. In addition to the proximity to various national parks and monuments in the Four Corners region, the FMPO region features extensive opportunities for mountain biking, hiking, and off-road vehicle use. Access to recreational amenities and active transportation infrastructure, including trails and on-street bikeways, are also means of enhancing the quality of life in the region and attracting and retaining residents. The City of Farmington is particularly invested in supporting outdoor recreation and recently launched the Outdoor Recreational Industry Initiative (ORII) to highlight municipal and regional attractions and support economic vitality.

Fully developing this industry requires investments in recreational facilities as well as transportation connections and access to those recreational sites. Opportunities exist for partnerships among FMPO, ORII, and other economic development partners to evaluate the transportation infrastructure needed to support the outdoor recreation and tourism industry. An additional opportunity exists to partner with Federal Land Management Agencies, in particular the Bureau of Land Management (BLM), and capitalize on programs that support access to federal lands.

Several strategies can be used to help respond to future demand and increase recreational access overall, including strengthening interagency coordination among federal lands managers, parks and recreation departments, economic development professionals, and other stakeholders; conducting an assessment to identify needs and available funding, including maintenance and management of facilities; and improved data on recreational travel including the anticipated tourist visits. Refer to Appendix B: Enhancing Federal Lands Access for more details on funding opportunities and next steps for conducting a needs assessment as an initial first step towards improving access to recreational lands.

11.4.2 Telecommuting

A shift toward telecommuting has been long-anticipated yet slow to materialize. The COVID-19 pandemic – and social distancing tactics to help protect public health – may prove to be the catalyst that accelerates this shift. And as telecommuting becomes widely adopted and employers value more flexible work cultures, travel demand during the peak periods may decrease.

After a rapid initial decline in driving rates at the onset of the pandemic, overall vehicle miles traveled and rates of personal driving recovered quickly, and the long-term impacts of the virus on transportation patterns remain uncertain. Yet even small changes in telecommuting and a commensurate decrease in trips during the peak periods could have significant impacts on transportation needs. Roadway design decisions are often made based on the level of traffic during the PM peak period. Fewer commuters at those times means that previously proposed

roadway widening projects may no longer be necessary and that excess roadway space may be reallocated for other roadway users. FMPO should continue to track changes in commuting patterns during and following the pandemic to help inform future transportation decisions and investments.

11.4.3 Transportation Needs of Aging Populations

Agencies across the FMPO region have a responsibility to plan for the transportation needs of an aging population. In addition to the changing demographics of the region in which an increased share of residents over the age of 65 by 2040, the City of Farmington is marketing the region as a destination for retirees. The combined result is a growing share of individuals for whom driving may not be safe or responsible.

Since residents across the region are heavily dependent on single-occupancy vehicle travel and vast majority of senior citizens prefer to age in place, creative solutions will be required to ensure some level of mobility for the elderly mobility. Strategies employed across the US include driver education programs to retrain senior citizens; on-demand transit services, including models that are more flexible than para-transit, which is expensive to operate; and partnerships with transportation networking companies, such as Uber and Lyft, to provide ride-hailing services. It will also be critical to provide services across the region, not just within the City of Farmington.

11.4.4 Electric Vehicles & Autonomous Vehicles

The emergence of new technologies may also reshape transportation infrastructure needs.

Electric vehicles (EVs) include vehicles that are fully or partially powered by battery (BEVs) or fuel cell (FCEV). As EVs become more and more common, charging stations are warranted to allow drivers to re-charge vehicle batteries to get where they need to go. Charging stations may also be beneficial for accommodating visitors and supporting the tourism industry. FMPO may proactively plan for EVs by consider potential sites for electric charging stations across the region.

The increased prevalence of hybrids and EVs – and more efficient vehicles in general – also has implications for transportation financing. While these vehicles provide significant environmental benefits due to lower fuel consumption, they also contribute less in gas tax revenue at the state and federal levels. A consequence of this decline in revenue may be the need for local agencies to fill funding gaps through local revenue sources.

Autonomous / automated vehicles (AVs) rely on artificial intelligence to operate with varying degrees of human input, ranging from partial automation with some vehicle operation and human interaction to full automation where the vehicle operates independently without a human driver. Full automation has been slower to materialize than initially expected, however, and the transition period is likely to be lengthy given the lifespan of most vehicles and the sheer volume of vehicles owned across the US.

The eventual emergence of AVs has a range of land use planning and traffic implications, including reduced car ownership and parking requirements, increased need for drop-off zones, as well as the need to update traffic codes. Driving patterns could also change substantially as AVs relieve drivers from the burden of paying attention to the road and allow travel time to become usable for leisure and social activities. A growing set of research suggests that overall driving may go up, even if individual car ownership goes down. At the same time, AVs that

communicate with one another may require less roadway space per vehicle. As many impacts are speculative, it will be important for FMPO to evaluate potential impacts resulting from AVs over time and their applicability to a small urban area.

11.4.5 Scenario Planning

The 2045 MTP includes one socioeconomic scenario based on likely locations for future development and population projections established by the state demographic office (UNM Geospatial and Population Studies). However, future growth, economic conditions, and transportation needs are inherently uncertain. Scenario planning is a regional planning tool that allows agencies to better respond to different potential futures and to work proactively to create a desired set of future conditions. A common approach to scenario planning is to identify multiple plausible sets of future conditions and identify a preferred scenario for the region. Agencies can then pursue concrete steps and specify funding and projects for implementation to achieve the preferred scenario.

Potential approaches for scenario planning, whether as a stand-alone planning exercise or as part of the next MTP update include:

- Alternative development scenarios that consider multiple locations where new housing and employment activity may occur. Scenarios could draw upon emphasis areas identified in local comprehensive plans (the City of Farmington and City of Aztec Comprehensive Plans are ongoing).
- Maximum growth scenario that considers how much development could be absorbed with the existing transportation system.
- Alternative economic scenario based on major growth (or decline) in some industries.
- Alternative scenarios in which population growth exceeds the current projections.
- Alternative investment scenarios based on different levels of funding availability and transportation infrastructure spending. These scenarios could examine the impacts of funding additional (or fewer) transportation projects than what is contained in the MTP.

11.4.6 Integration of MTP with Local Land Use Plans

A key strategy for the implementation of the MTP is to ensure that local land use planning efforts, include comprehensive plans, are consistent with the regional transportation strategies in the MTP. The comprehensive plans for the City of Farmington and the City of Aztec were ongoing at the time the 2045 MTP was adopted. FMPO staff can provide ongoing support to member agencies through reviews of major development projects for transportation impacts and for the development of transportation strategies and action items in comprehensive plans. FMPO can also ensure that future MTPs incorporate transportation issues and priorities identified in local plans and studies.

11.4.7 Inter-Regional Coordination

As travel between the regions increase, FMPO could pursue formal partnerships with the Southwest Colorado Council of Governments. Areas of cooperation could include transportation investments that support regional tourism and economic development efforts, especially as the FMPO region emerges as a destination for outdoor recreation. Agencies could also consider opportunities for regional transit services to support tourism efforts, access to services including medical care, as well as commuting needs for the growing number of individuals who work in southwest Colorado and live in San Juan County, NM.

Other areas where greater regional coordination is appropriate is with the Navajo Nation. Among the concerns raised during the public outreach efforts for the plan were the need to support improved transportation access to ensure that rural and tribal populations across San Juan County have access to medical care, healthy food, and other services. Ongoing coordination is also needed as part of the proposed rail connection from the BNSF corridor to the Farmington area.

11.4.8 Update the FMPO Prioritization Process

To ensure greater objectivity in project selection, FMPO may update the existing process for prioritizing projects proposed for inclusion in the TIP. Though a prioritization process was developed as part of the 2040 MTP, there is increased need for transparency in the scoring process and greater ease of application. In addition, the process should be consistent with the goals and objectives of the MTP and criteria should be quantitative, where data exists. Under such a process the projects that receive the highest scores – and are most likely to be included in the TIP – would demonstrate direct benefits and address clearly articulated regional needs.

Table 11-5 includes potential evaluation criteria. The next step for FMPO could include establishing scoring thresholds for each criterion and performing a calibration process in which sample projects are evaluated to test the effectiveness of the proposed prioritization process. Such a calibration process could include all quantitative criteria. Qualitative evaluation criteria, such as economic development, could be evaluated based on a narrative explanation provided by the applicant with a formal review process by a subcommittee of member agency staff.

Table 11-5: Proposed Prioritization Process Evaluation Criteria

Criteria	Description	Relevant MTP Goal(s)
Traffic Volume	Daily AADT along project area (or parallel route for new road)	Preserve and Maintain Existing System
Functional Classification	Based on roadway type for project area	Preserve and Maintain Existing System
Safety	Frequency and severity of crashes at project location	Enhance Quality of Life; Improve Safety
Land Use	Number of housing units and employees in project location (current and projected)	Strengthen Coordination; Support Economic Development
Bicycle/Pedestrian Improvements	Project provides new/improved facilities	Enhance Quality of Life; Support Economic Development
Access to Recreational or Cultural Site	Project provides connection to established recreational or tourism site	Enhance Quality of Life; Support Economic Development
Local Priority	Project is identified in a local Comprehensive Plan and/or is consistent with goals and objectives of the MTP	Strengthen Coordination; Support Economic Development
Bridge/Pavement Conditions	Based on pavement condition rating or bridge sufficiency rating, if applicable	Preserve and Maintain Existing System
Economic Development	Project directly supports a regional economic development initiative	Support Economic Development

11.5 PERFORMANCE MEASURES

11.5.1 Overview

With the MAP-21 Act and the FAST Act, the federal government introduced performance measures as an integral part of the planning process. Long-range plans must now incorporate a performance-based approach to decision-making, and MAP-21 and the FAST Act created guidance for states and MPOs to establish performance targets related to safety, state of good repair, and system performance.

Current federal guidance requires a performance report that evaluates condition and performance according to defined performance measures, demonstrates progress toward national goals, compares performance to targets, and evaluates how local investments impact performance goals.

National Performance Goal Areas

- Safety
- Infrastructure Condition
- Congestion Reduction
- System Reliability
- Freight Movement and Economic Vitality
- Environmental Sustainability
- Reduced Project Delivery Delays

The 2045 MTP uses a performance-based approach to planning, which allows the MPO to prioritize projects based on national determined measures as well as locally informed goals. Potential performance measures in this section are aligned with measures established by the state through the New Mexico Department of Transportation (NMDOT). Additional information on performance measure reporting requirements can be found in the New Mexico Metropolitan Planning Organizations Performance Based Planning and Programming & Target Reporting appendix.

11.5.2 Federal Requirements

Federal performance measures fall into five main categories (see Table 11-6):

- **Highway Safety (PM1):** Measures safety performance for the purpose of carrying out the Highway Safety Improvement Program and to assess fatalities and serious injuries on all public roads
- **Infrastructure Condition (PM2):** Addresses condition of pavement and bridges.
- **System Performance (PM3):** Measures the extent to which a project improves the efficiency of the surface transportation system.
- **Transit Asset Management:** Measures the operations and maintenance of public transportation, focusing on rolling stock, equipment, facilities, and infrastructure.
- **Transit Safety Targets:** Measures safety of public transit, focusing on fatalities, injuries and safety events.

Table 11-6: National Required Performance Measures

Category	National Performance Management Measures Required
Highway Safety Improvement Program (PM1)	• Number of fatalities • Rate of fatalities • Number of serious injuries • Rate of serious injuries • Number of non-motorized fatalities and injuries
Pavement Conditions (PM2)	• Percentage of pavements of the Interstate System in Good or Poor condition • Percentage of pavements of the non-Interstate NHS in Good or Poor condition
Bridge Conditions (PM2)	• Percentage of NHS bridges classified as in Good or Poor Condition
Performance of the National Highway System (PM3)	• Interstate Travel Time Reliability measure (percent of person-miles traveled) • Non-Interstate Travel Time Reliability measure (percent of person-miles traveled)
Freight movement on the Interstate system (PM3)	• Truck Travel Time Reliability Index
Traffic Congestion (CMAQ) (PM3)	• Annual hours of Peak Hour Excessive Delay Per Capita (PHED measure) • Percent of non-SOV travel
On-road Mobile Source Emissions (PM3)	• Total Emissions Reduction
Transit Asset Management (updated TAM plan required by October 2022)	• Percent of revenue vehicles exceeding useful life benchmark (ULB) • Percent of non-revenue service vehicles exceeding ULB • Percent of facilities rated under 3.0 on the Transit Economic Requirements Model scale • Percent of track segments under performance restriction
Transit Safety Targets (required in MTPs updated or amended after July 20, 2021)	• Number of fatalities reported to the National Transit Database (NTD) and rate per total vehicle revenue miles by mode • Number of total injuries reported to NTD and rate per total VRM by mode • Total number of safety events reported to NTD and rate per total VRM by mode • Mean distance between major mechanical failures by mode

11.5.3 State Requirements

States are required to develop targets in coordination with MPOs for each performance measure; MPOs can either adopt these targets or develop their own regionally-specific measures. NMDOT established performance measures in its 2015 Statewide Long Range Plan with the understanding that specific measures would evolve and change, and the agency developed a Transportation Asset Management Plan with performance measures and targets for state and federal facilities within the National Highway System in 2019.

11.5.4 Potential FMPO Performance Measures

A performance-based approach will assist FMPO in realizing regional, state, and national goals. FMPO has already adopted NMDOT's 2020 Safety Performance Targets, as well as the state's 2019 performance measures for infrastructure assets. FMPO can continue to align its measures and targets with those established by NMDOT and will need to collaborate closely with or rely on NMDOT for certain data and reporting. Aligning performance measures and targets with NMDOT may require the MPO to expand its current data collection activities and perform additional travel modeling. Additional collaboration will be required with local agencies to obtain relevant data, including ridership data from Red Apply Transit and infrastructure information from member agencies.

Table 11-7 includes potential performance measures for Highway Safety (PM1), Infrastructure Condition (PM2), System Performance (PM3), and Transit Asset Management. These measures meet federal requirements, are aligned with NMDOT's most recent long-range transportation plan, and include additional region-specific measures for the MPO. FMPO will develop transit safety targets in conjunction with Red Apple Transit to meet the 2022 federal deadline. Transit-related performance measures in this section are taken from the existing Red Apple Transit Asset Management Plan.

Table 11-7: Recommended Performance Measures for FMPO Performance Measures

Performance Measures	FMPO	Collaboration between FMPO and NMDOT	NMDOT	FY2021 NMDOT Target
Highway Safety (PM1)				
Total annual number of fatalities*	X			401.9†
Rate (per 100 million vehicle miles travelled (VMT)) of fatalities*	X			1.429†
Total annual number of serious injuries*	X			1074.2†
Rate (per 100 million VMT) of serious injuries*	X			3.820†
Number of non-motorized fatalities and serious injuries combined*	X			204.0†
Infrastructure Condition (PM2)				
% of pavements of the non-Interstate NHS in Good condition*			X	34.2%
% of pavements of the non-Interstate NHS in Poor condition*			X	12.0%
% of NHS bridges in Good condition*			X	30.0%
% of NHS bridges in Poor condition*			X	2.5%
System Performance (PM3)				
% of PMT traveled on NHS that are reliable*		X		95.1%

Performance Measures	FMPO	Collaboration between FMPO and NMDOT	NMDOT	FY2021 NMDOT Target
% of PMT traveled on NHS that are reliable*		X		90.4%
Truck Travel Time Reliability Index*		X		1.15
Annual VMT	X			N/A
Peak Period vehicle hours of delay (VHD)	X			N/A
Peak Period vehicle hours traveled (VHT)	X			N/A
Transit Asset Management				
% of fleet in at least good or fair condition*	X			N/A
% of vehicles that have no yet reached their useful life benchmark*	X			N/A
NTD Average Lifetime Miles	X			N/A
Other Mobility				
Transit ridership	X			N/A
Mode share	X			N/A
Share of recreation areas accessible by transit, bike, and pedestrian facilities	X			N/A
Total miles of bicycle facilities	X			N/A
Total miles of paved trails	X			N/A
% of sidewalks that are ADA compliant	X			N/A

*Called out in federal regulations (23 CFR part 490) as a national performance management measure
†2020 NMDOT performance target

References

- Appendix 1: Federal Performance Measures and FAST Act Report. Retrieved July 29, 2020 from <https://www.mrcog-nm.gov/DocumentCenter/View/4213/Appendix-I---Federal-Performance-Measures-and-FAST-Act-Report-PDF>
- City of Farmington Red Apple Transit Vehicles Transit Asset Management (TAM) Plan
- National Performance Measures, 23 C.F.R Part 490. Retrieved July 27, 2020 from <https://www.law.cornell.edu/cfr/text/23/part-490>
- New Mexico Department of Transportation: Transportation Asset Management Plan. Retrieved July 29, 2020 from https://dot.state.nm.us/content/dam/nmdot/planning/NMDOT_TAMP.pdf
- Performance Management. Retrieved July 27, 2020 from <https://www.transit.dot.gov/PerformanceManagement#Performance%2520Measures>
- Safety Performance Targets Guide. Retrieved July 27, 2020 from <https://www.transit.dot.gov/sites/fta.dot.gov/files/2020-04/SPTs-Guide-20200413-v1-1.pdf>
- The New Mexico 2040 Plan: NMDOT's Long Range, Multi-Modal Transportation Plan. Retrieved July 27, 2020 from https://dot.state.nm.us/content/dam/nmdot/planning/NM_2040_Plan.pdf

APPENDIX A: SUMMARY OF MAJOR RECOMMENDATIONS

The table below provides major recommendations by chapter for the 2045 MTP. These recommendations are organized by chapter and linked to the relevant goals of the for this planning effort. Refer to the associated chapter for additional recommendations and for more details on the major recommendations listed below.

Recommendations by Chapter

Chapter	Major Recommendations
General	- Update the regional prioritization process - Update <i>Context Sensitive Street Design Guidelines</i> to ensure consistency with 2045 MTP and incorporate emerging best practices in roadway design
Roadways	- Prioritize operations improvements to increase efficiency of the existing transportation system - Continue implementation of Farmington Regional ITS Architecture - Pursue access management strategies along US 64 through Kirtland, NM 516 from east Farmington to Aztec, and other corridors as appropriate - Evaluate potential candidates for road diets
Safety	- Pursue Regional Safety Action Plan - Conduct corridor studies to consider safety enhancements along locations with high rates of total crashes and severe crashes - Update FMPO scoring criteria to include safety and Complete Streets metrics - Update road specifications to support bicycle and pedestrian facilities - Fund and prepare safety studies
Bicycle and Pedestrian Travel	- Implement projects identified in the Bicycle and Pedestrian Master Plan - Incorporate multi-modal considerations into road design - Maintain on-street bikeway facilities and trails in good condition - Pursue programs to encourage regional bicycle and pedestrian travel - Provide connections to and expand outdoor recreation facilities
Public Transit	Complete implementation of Downtown Transit Hub

Chapter	Major Recommendations
	Pursue Transit Action Plan to identify potential service expansion opportunities and coordinate services for individuals without access to a vehicle
Truck Freight, Air, Rail	- Conduct a regional freight study to identify freight specific improvements and formally designate regional freight routes - Coordinate with regional stakeholders on progress of rail freight connection and identify infrastructure connections to proposed rail freight hub - Invest in runways and other infrastructure at the Four Corners Regional Airport
Climate Change	- Conduct a regional vulnerability assessment to understand locations and infrastructure at risk of climate impacts and consider measures to make infrastructure more resilient - Support land use strategies to limit new development in vulnerable locations - Invest in transportation modes that result in reduced VMT and improved air quality, including public transit, active transportation facilities, and rail freight - Participate in NMDOT climate action planning efforts
Security	- Conduct vulnerability assessment on threats to regional transportation facilities - Coordinate with NMDOT on statewide travel demand modeling to understand impacts of events on regional and statewide roadway network

APPENDIX B: MTP PROJECT LIST BY TIMEFRAME

Agency	Facility Name	Project Type	Termini	Description	Estimated Cost (2020)	Timeframe
Aztec	East Arterial Route	New Road	US 550 to NM 173	Construct new 2 lane road (preserve ROW for 2 additional lanes)	\$11,800,000	Current
Aztec	N Oliver St	Road Upgrade	Hermosa Rd to McWilliams Ave	Road improvements, including sidewalks and bike lanes	\$2,000,000	Current
Bloomfield	East Blanco Bridge	Bridge Improvement	Executive Dr and Saiz Ln	Bridge replacement plus pedestrian facilities	\$3,248,408	Current
Farmington	Downtown Main Street	Multi-modal / Complete Street	Miller Ave to Auburn Ave	Complete Streets installation, including roundabouts, wide sidewalks, and streetscaping	\$9,200,000	Current
Farmington	20th St Phase III	Multi-modal	Dustin Ave to Sullivan Ave	Construct sidewalks, ADA improvements	\$971,978	Current
Farmington	Foothills Dr Enhancements	Road Upgrade	Mesa del Oso to Rinconada St	Reconstruct roadway, add bike lanes and trail	\$2,100,000	Current
NMDOT	US 64 Widening	Widening	Mile post 54 to 60.2	Widening from 4 to 6 lanes, access management, shoulder bikeways	\$34,700,000	Current
NMDOT	NM 173 Safety Improvements	Safety	Motor Cross Rd to Road 2575	Address vertical curve, drainage, fencing, signing and striping	\$4,270,000	Current
NMDOT	NM 371/ Navajo Route 36 Intersection	Intersection	Intersection	Preliminary engineering and construction of new signalized intersection	\$1,850,000	Current
San Juan County	CR 3900 - ROW Acquisition	ROW Acquisition	County portion of proposed Piñon Hills Extension	Right-of-way acquisition to support Piñon Hills Blvd extension	\$900,000	Current
San Juan County	Bridge No. 8130 / CR 5500	Bridge Improvement	Near CR 5507 over San Juan River	Bridge replacement plus pedestrian facilities	\$6,972,200	Current
Aztec	Road Improvements	Rehabilitation	City-wide	Rehabilitation and preservation efforts for existing roads	\$250,000	Ongoing
Bloomfield	Road Improvements	Rehabilitation	City-wide	Rehabilitation and preservation efforts for existing roads	\$200,000	Ongoing

Agency	Facility Name	Project Type	Termini	Description	Estimated Cost (2020)	Timeframe
Farmington	Road Improvements	Rehabilitation	City-wide	Rehabilitation and preservation efforts for existing roads	\$5,000,000 / year	Ongoing
NMDOT	Road Improvements	Rehabilitation	Region-wide	Rehabilitation and preservation efforts for existing roads	\$150,000	Ongoing
Red Apple Transit	Operations and Capital Grants	Transit	Regionwide	5307 FTA funds for operations	\$1,275,000 / year	Ongoing
San Juan County	Road Improvements	Rehabilitation	County-wide	Ongoing rehabilitation and preservation efforts to existing roads	\$1,000,000 / year	Ongoing
Aztec	Main Ave	Multi-modal / Complete Street	NM 516 to Zia St	Complete Streets installation, including road diet	\$1,527,213	2024-2030
Bloomfield	Saiz Ln	Road Upgrade	E Blanco to Arizona	Widen existing 2 lanes; curb gutter, sidewalk	\$6,000,000	2024-2030
Bloomfield	Bergin Ln	Road Upgrade	US 64 to West Blanco	Widen existing 2 lanes; curb, gutter, sidewalks	\$2,500,000	2024-2030
Bloomfield	East Blanco Rd	Road Upgrade	US 550 to Saiz Lane	Bridge upgrades plus center turn lanes and sidewalks	\$3,248,408	2024-2030
Farmington	Piñon Hills Blvd Extension (Phase I)	New Road	NM 516 to Hubbard	Construct new 2 lane road	\$4,000,000	2024-2030
Farmington	Piñon Hills Blvd Extension (Phase II)	New Road	Hubbard to South Side River Road (CR 3000)	Construct new 2 lane road plus bridges over the Animas River and Oxbow	\$18,500,000	2024-2030
NMDOT	US 550	Preservation	Cox Canyon/Animas River to 173	Pavement preservation/minor rehabilitation	\$25,000,000	2024-2030
NMDOT	Oliver St and NM 516	Intersection	Distance on side streets TBD	Intersection improvements	\$1,000,000	2024-2030
NMDOT	NM 173 and US 550	Intersection	Distance on side streets TBD	Intersection improvements	\$1,000,000	2024-2030
Red Apple Transit	Downtown Transit Hub	Transit	Downtown Farmington	Transit center with user amenities	\$3,000,000	2024-2030
San Juan County	Piñon Hills Blvd Extension to CR 350	New Road	Corridor to be determined	Construct a facility to connect Piñon Hills Blvd to County road network	\$12,800,000	2024-2030
San Juan County	Wildflower Pkwy	Multi-modal	Approx. Yarrow to CR 3900	Upgrade road - add turn lane, curb/gutter, sidewalk, bike lanes	\$4,000,000	2024-2030

Agency	Facility Name	Project Type	Termini	Description	Estimated Cost (2020)	Timeframe
San Juan County	Bridge No. 8111 / CR 3500	Bridge Replacement	Bridge #8111	Design and construct a replacement bridge on CR 3500	\$2,800,000	2024-2030
San Juan County	Bridge No. 5722 / CR 6675	Bridge Replacement	Bridge #5722	Design and construct a replacement bridge on CR 6675	\$800,000	2024-2030
San Juan County	Bridge No. 3121 / CR 3000	Bridge Replacement	Bridge #3121	Design and construct a replacement bridge on CR 3000	\$1,000,000	2024-2030
San Juan County	Bridge No. 3382 / CR 2900	Bridge Replacement	Bridge #3382	Design and construct a replacement bridge on CR 2900	\$1,000,000	2024-2030
Aztec	East Arterial North	New Road	NM 173 to US 550	Construct new 2 lane road	\$17,500,000	2031-2045
Aztec	Lt Plant Rd	Road Upgrade	NM 516 to Aztec City Limits	Upgrade road to Minor Arterial; curb/gutter, sidewalks	\$5,000,000	2031-2045
Bloomfield	Newby Ln/ CR 5075	Road Upgrade	US 64 to CR 5030	Upgrade road to Collector	\$9,000,000	2031-2045
Farmington	Butler Ave	Widening	38th St to Piñon Hills Blvd	Widen to 4 lanes, add bike lanes	\$6,500,000	2031-2045
Farmington	Piñon Hills Blvd	Widening	30th St to Butler	Widen to 4 lanes	\$9,000,000	2031-2045
Farmington	Piñon Hills Blvd	Widening	Sports Complex to 30th St	Widen to 4 lanes	\$2,000,000	2031-2045
NMDOT	Browning Pkwy / NM 516	Preservation	US 64 to Southside River Road	Major Preservation (approximately 2 miles)	\$4,000,000	2031-2045
NMDOT	NM 516	Preservation	Farmington limits to US 550	Major Preservation (approximately 8 miles)	\$15,000,000	2031-2045
NMDOT	US 64	Preservation	West of Farmington city limits	Major Preservation (approximately 13 miles)	\$25,000,000	2031-2045
NMDOT	NM 170	Preservation	US 64 to FMPO Boundary	Minor Preservation (approximately 12 miles)	\$12,000,000	2031-2045
San Juan County	CR 5030	New Road	CR 350 to US 550	Construct new 2 lane road	\$25,000,000	2031-2045
Various	Highline Road	New Road	CR 3950 to US 550	Construct new 2 lane road	\$19,000,000	2031-2045
Farmington	New Road east of Foothills Rd	New Road	NM 516 to Northern Route	Construct 2 lane road	N/A	Post-2045
Multiple	Northern Route	New Road	East Farmington to US 550	Construct new 2 lane road from Farmington to Aztec	N/A	Post-2045

APPENDIX C: NEW MEXICO METROPOLITAN PLANNING ORGANIZATION PERFORMANCE BASED PLANNING AND PROGRAMMING & TARGET REPORTING

SAFETY

The New Mexico Planning Procedures Manual (PPM) was amended March 13, 2019 to include a new chapter *NMDOT Planning Procedures Manual: Performance Based Planning and Programming/Target Setting Procedures*. This reporting format will provide consistency and assure implementation of federal reporting requirements.

FMPO: Farmington Metropolitan Planning Organization

Target for Number of Total Fatalities: 401.9
MPO adopted NMDOT target – Yes For MPOs adopting the NMDOT target, the annual reporting shall be undertaken by NMDOT as part of their Highway Safety Improvement Program (HSIP) submitted to FHWA annually (due August 31 st).
MPO adopted separate target – No For MPOs adopting a separate target, the following information is required: the estimated Vehicle Miles Traveled (VMT) used for rate targets and the methodology used to develop the estimate. The MPO must report annually to NMDOT and provide the report to FHWA upon request. MPO methodology, if applicable:
MPO Progress Report if adopting separate target:

Target for Number of Serious Injuries: 1,074.2
MPO adopted NMDOT target – Yes See attached documentation from NMDOT. For MPOs adopting the NMDOT target, the annual reporting shall be undertaken by NMDOT as part of their Highway Safety Improvement Program (HSIP) submitted to FHWA annually (due August 31 st).
MPO adopted separate target – No For MPOs adopting a separate target, the following information is required: the estimated Vehicle Miles Traveled (VMT) used for rate targets and the methodology used to develop the estimate. The MPO must report annually to NMDOT and provide the report to FHWA upon request. MPO methodology, if applicable:
MPO Progress Report if adopting separate target:

Target for Rate of Fatalities: 1.429
MPO adopted NMDOT target – <u>Yes</u> For MPOs adopting the NMDOT target, the annual reporting shall be undertaken by NMDOT as part of their Highway Safety Improvement Program (HSIP) submitted to FHWA annually (due August 31st).
MPO adopted separate target – <u>No</u> For MPOs adopting a separate target, the following information is required: the estimated Vehicle Miles Traveled (VMT) used for rate targets and the methodology used to develop the estimate. The MPO must report annually to NMDOT and provide the report to FHWA upon request. MPO methodology, if applicable:
MPO Progress Report if adopting separate target:

Target for Rate of Serious Injuries: 3.820
MPO adopted NMDOT target – <u>Yes</u> For MPOs adopting the NMDOT target, the annual reporting shall be undertaken by NMDOT as part of their Highway Safety Improvement Program (HSIP) submitted to FHWA annually (due August 31st).
MPO adopted separate target – <u>No</u> For MPOs adopting a separate target, the following information is required: the estimated Vehicle Miles Traveled (VMT) used for rate targets and the methodology used to develop the estimate. The MPO must report annually to NMDOT and provide the report to FHWA upon request. MPO methodology, if applicable:
MPO Progress Report if adopting separate target:

Target for Number of Nonmotorized Fatalities and Serious Injuries: 204.0
MPO adopted NMDOT target – <u>Yes</u> For MPOs adopting the NMDOT target, the annual reporting shall be undertaken by NMDOT as part of their Highway Safety Improvement Program (HSIP) submitted to FHWA annually (due August 31st).
MPO adopted separate target – <u>No</u> For MPOs adopting a separate target, the following information is required: the estimated Vehicle Miles Traveled (VMT) used for rate targets and the methodology used to develop the estimate. The MPO must report annually to NMDOT and provide the report to FHWA upon request. MPO methodology, if applicable:
MPO Progress Report if adopting separate target:

INFRASTRUCTURE AND SYSTEM PERFORMANCE NATIONAL HIGHWAY SYSTEM (NHS) PAVEMENT AND BRIDGES

The New Mexico Planning Procedures Manual (PPM) was amended March 13, 2019 to include a new chapter *NMDOT Planning Procedures Manual: Performance Based Planning and Programming/Target Setting Procedures*. This reporting format will provide consistency and assure implementation of federal reporting requirements.

FMPO: Farmington Metropolitan Planning Organization

Target Report - Performance Measure #2 Infrastructure and System Performance National Highway System (NHS) Pavement and Bridges 2-Year & 4-Year Targets

Per federal law, NMDOT is required to establish 2-year and 4-year targets for each performance area. MPOs are required to adopt only 4-year targets. The 2-year targets adopted by NMDOT are shown here for informational purposes.

**NMDOT has identified additional performance measures for Interstate conditions. Those measures have been omitted since there are no interstates in the FMPO region.*

Percentage of Bridges on the NHS in "Good" Condition: 2-yr Target for 2019 is 36.0% & 4yr Target for 2021 is 30.0%
MPO adopted NMDOT 4-year target – <u>No</u> For MPOs adopting the NMDOT target, the Mid-Performance Period Progress Report shall be undertaken by NMDOT and submitted to FHWA biennially (due October 1 st of even years).
MPO adopted separate 4-year target – <u>Yes</u> MPOs adopting a separate 4-year target must commit to their own <i>quantifiable</i> target. Per Resolution 2018-5, FMPO adopted a four-year target in which 10% of bridges should be classified in good condition and 2.5% in poor condition. MPO methodology and rationale including MPO baseline performance figures used.
MPO Mid-Term Progress Report on 4-Year Target Due October 1, 2020
The bridge condition information report for the bridges within the MPO area for the mid-term period, will be provided by NMDOT. The MPO's report should include: whether the target was met/progress on achieving the target, extenuating circumstances (if any) relating to the target, investment strategies, applicable target achievement discussion (for remaining 2-years).
Mid-Term Progress Report:
MPO Progress Report on 4-Year Target Due October 1, 2022
The bridge condition information report for the bridges within the MPO area for the 4 th year, will be provided by NMDOT. The MPO's report should include: whether the target was met/progress on achieving the target, extenuating circumstances (if any) relating to the target, investment strategies, applicable target achievement discussion (for next 4-year target).
4-Year Progress Report:

Percentage of Bridges on the NHS in "Poor" Condition: 2-yr Target for 2019 is 3.3% & 4yr Target for 2021 is 2.5%
MPO adopted NMDOT 4-year target – <u>No</u> See attached documentation from NMDOT.
For MPOs adopting the NMDOT target, the Mid-Performance Period Progress Report shall be undertaken by NMDOT and submitted to FHWA biennially (due October 1 st of even years).
MPO adopted separate 4-year target – <u>Yes</u>
MPOs adopting a separate 4-year target must commit to their own <i>quantifiable</i> target. Per Resolution 2018-5, FMPO adopted a four-year target in which 2.5% of bridges are classified in poor condition. MPO methodology and rationale including MPO baseline performance figures used. Target methodology report, if applicable:
MPO Mid-Term Progress Report on 4-Year Target Due October 1, 2020
The bridge condition information report for the bridges within the MPO area for the mid-term period, will be provided by NMDOT. The MPO's report should include: whether the target was met/progress on achieving the target, extenuating circumstances (if any) relating to the target, investment strategies, applicable target achievement discussion (for remaining 2 yrs).
Mid-Term Progress Report:
MPO Progress Report on 4-Year Target Due October 1, 2022
The bridge condition information report for the bridges within the MPO area for the 4 th year, will be provided by NMDOT. The MPO's report should include: whether the target was met/progress on achieving the target, extenuating circumstances (if any) relating to the target, investment strategies, applicable target achievement discussion (for next 4-year target).
4-Year Progress Report:

Percentage of Non-Interstate Pavement on the NHS in "Good" Condition: 2-yr Target for 2019 is 35.6% & 4yr Target for 2021 is 34.2%
MPO adopted NMDOT 4-year target – <u>Yes</u> See attached documentation from NMDOT.
For MPOs adopting the NMDOT target, the Mid-Performance Period Progress Report shall be undertaken by NMDOT and submitted to FHWA biennially (due October 1 st of even years).
MPO adopted separate 4-year target – <u>No</u>
MPOs adopting a separate 4-year target must commit to their own <i>quantifiable</i> target. MPO methodology and rationale including MPO baseline performance figures used. Target methodology report, if applicable: N/A
MPO Mid-Term Report on 4-Year Target Due October 1, 2020
The pavement condition information report for the non-Interstate NHS highways (regardless of ownership) within the MPO area for the mid-term period, will be provided by NMDOT. The MPO's report should include: whether the target was met/progress on achieving the target,

extenuating circumstances (if any) relating to the target, investment strategies, applicable target achievement discussion (for remaining 2 years).
Mid-Term Progress Report: N/A
MPO Progress Report on 4-Year Target Due October 1, 2022
The pavement condition information report for the non-Interstate NHS highways (regardless of ownership) within the MPO area for the 4 th year, will be provided by NMDOT. The MPO's report should include: whether the target was met/progress on achieving the target, extenuating circumstances (if any) relating to the target, investment strategies, applicable target achievement discussion (for next 4-year target).
4-Year Progress Report: N/A

Percentage of Non-Interstate Pavement on the NHS in "Poor" Condition: 2-yr Target for 2019 is 9.0% & 4yr Target for 2021 is 12.0%
MPO adopted NMDOT 4-year target – <u>Yes</u> See attached documentation from NMDOT.
For MPOs adopting the NMDOT target, the Mid-Performance Period Progress Report shall be undertaken by NMDOT and submitted to FHWA biennially (due October 1 st of even years).
MPO adopted separate 4-year target – <u>No</u>
MPOs adopting a separate 4-year target must commit to their own <i>quantifiable</i> target. MPO methodology and rationale including MPO baseline performance figures used.
Target methodology report, if applicable: N/A
MPO Mid-Term Report on 4-Year Target Due October 1, 2020
The pavement condition information report for the non-Interstate NHS highways (regardless of ownership) within the MPO area for the mid-term period, will be provided by NMDOT. The MPO's report should include: whether the target was met/progress on achieving the target, extenuating circumstances (if any) relating to the target, investment strategies, applicable target achievement discussion (for remaining 2 years).
Mid-Term Progress Report:
MPO Progress Report on 4-Year Target Due October 1, 2022
The pavement condition information report for the non-Interstate NHS highways (regardless of ownership) within the MPO area for the 4 th year, will be provided by NMDOT. The MPO's report should include: whether the target was met/progress on achieving the target, extenuating circumstances (if any) relating to the target, investment strategies, applicable target achievement discussion (for next 4-year target).
4-Year Progress Report: N/A

SYSTEM PERFORMANCE, FREIGHT, CONGESTION, AND AIR QUALITY

The New Mexico Planning Procedures Manual (PPM) was amended March 13, 2019 to include a new chapter *NMDOT Planning Procedures Manual: Performance Based Planning and Programming/Target Setting Procedures*. This reporting format will provide consistency and assure implementation of federal reporting requirements.

FMPO: Farmington Metropolitan Planning Organization

Target Report - Performance Measure #3 System Performance, Freight, Congestion and Air Quality 2-Year & 4-Year Targets

Per federal law, NMDOT is required to establish 2-year and 4-year targets for each performance area. MPOs are required to adopt only 4-year targets. The 2-year targets adopted by NMDOT are shown here for informational purposes.

Percentage of Person-Miles Traveled on the Interstate System that are Reliable: 2-yr Target for 2019 is 96.1% & 4yr Target for 2021 is 95.1%
MPO adopted NMDOT 4-year target – Yes See attached documentation from NMDOT.
For MPOs adopting the NMDOT target, the Mid-Performance Period Progress Report shall be undertaken by NMDOT and submitted to FHWA biennially (due October 1 st of even years).
MPO adopted separate 4-year target – No
MPOs adopting a separate 4-year target must commit to their own <i>quantifiable</i> target. MPO methodology and rationale including MPO baseline performance figures used.
Target methodology report, if applicable: N/A
MPO Mid-Term Report on 4-Year Target Due October 1, 2020
The data required for the Interstate System within the MPO area for the mid-term period, will be provided by NMDOT. The MPO's report should include: whether the target was met/progress on achieving the target, extenuating circumstances (if any) relating to the target, investment strategies, applicable target achievement discussion (for remaining 2-years).
Mid-Term Progress Report: N/A
MPO Progress Report on 4-Year Target Due October 1, 2022
The data required for the Interstate System within the MPO area for the 4 th year, will be provided by NMDOT. The MPO's report should include: whether the target was met/progress on achieving the target, extenuating circumstances (if any) relating to the target, investment strategies, applicable target achievement discussion (for next 4-year target).
4-Year Progress Report:

Percentage of Person-Miles Traveled on the Non-Interstate NHS that are Reliable: 2-yr Target for 2019 is 90.4% & 4yr Target for 2021 is 90.4%
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MPO adopted NMDOT 4-year target – <u>Yes</u> See attached documentation from NMDOT. For MPOs adopting the NMDOT target, the Mid-Performance Period Progress Report shall be undertaken by NMDOT and submitted to FHWA biennially (due October 1 st of even years).
MPO adopted separate 4-year target – <u>No</u> MPOs adopting a separate 4-year target must commit to their own <i>quantifiable</i> target. MPO methodology and rationale including MPO baseline performance figures used. Target methodology report, if applicable: N/A
MPO Mid-Term Report on 4-Year Target Due October 1, 2020
The data required for the non-Interstate NHS within the MPO area for the mid-term period, will be provided by NMDOT. The MPO's report should include: whether the target was met/progress on achieving the target, extenuating circumstances (if any) relating to the target, investment strategies, applicable target achievement discussion (for remaining 2-years).
Mid-Term Progress Report: N/A
MPO Progress Report on 4-Year Target Due October 1, 2022
The data required for the non-Interstate NHS within the MPO area for the 4 th year, will be provided by NMDOT. The MPO's report should include: whether the target was met/progress on achieving the target, extenuating circumstances (if any) relating to the target, investment strategies, applicable target achievement discussion (for the next 4-year target).
4-Year Progress Report: N/A

Index of the Interstate Sys. Mileage providing for Truck Travel Times that are Reliable: 2-yr Target for 2019 is 1.14 & 4yr Target for 2021 is 1.15
MPO adopted NMDOT 4-year target – <u>Yes</u> See attached documentation from NMDOT. For MPOs adopting the NMDOT target, the Mid-Performance Period Progress Report shall be undertaken by NMDOT and submitted to FHWA biennially (due October 1 st of even years).
MPO adopted separate 4-year target – <u>No</u> MPOs adopting a separate 4-year target must commit to their own <i>quantifiable</i> target. MPO methodology and rationale including MPO baseline performance figures used. Target methodology report, if applicable: N/A
MPO Mid-Term Report on 4-Year Target Due October 1, 2020
The data required for the truck travel times on the Interstate System within the MPO area for the mid-term period, will be provided by NMDOT. The MPO's report should include: whether the target was met/progress on achieving the target, extenuating circumstances (if any) relating to the target, investment strategies, applicable target achievement discussion (for remaining 2 years).
Mid-Term Progress Report: N/A
MPO Progress Report on 4-Year Target Due October 1, 2022

The data required for the truck travel times on the Interstate System within the MPO area for the 4th year, will be provided by NMDOT. The MPO's report should include: whether the target was met/progress on achieving the target, extenuating circumstances (if any) relating to the target, investment strategies, applicable target achievement discussion (for next 4-year target).

4-Year Progress Report: N/A

**Annual Hours of Peak-Hour Excessive Delay per Capita:
Not Applicable**

MPO adopted NMDOT 4-year target – N/A See attached documentation from NMDOT.

This applies only to urbanized areas of more than 1 million population that are also in nonattainment or maintenance for ozone, carbon monoxide or particulate matter. At this time, there are no such urbanized areas in New Mexico.

**Percent of Non-Single Occupancy Vehicle (non-SOV) Travel:
Not Applicable**

MPO adopted NMDOT 4-year target – N/A See attached documentation from NMDOT.

This applies only to urbanized areas of more than 1 million population that are also in nonattainment or maintenance for ozone, carbon monoxide or particulate matter. At this time, there are no such urbanized areas in New Mexico.

**On-Road Mobile Emissions Reduction:
Not Applicable**

MPO adopted NMDOT 4-year target – N/A See attached documentation from NMDOT.

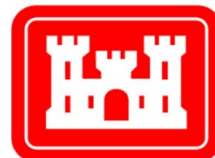
New Mexico is included in the list of states required to establish targets and report performance for on-road mobile source emissions. This measure is limited to air quality nonattainment or maintenance areas, which in New Mexico applies exclusively to Sunland Park, Anthony, and southern Doña Ana County which is within the El Paso Metropolitan Planning Area.

APPENDIX D: ENHANCING FEDERAL LANDS ACCESS

ENHANCED QUALITY OF LIFE AND ECONOMIC VITALITY THROUGH IMPROVED FEDERAL LANDS ACCESS

This 2045 MTP update is taking a closer look at the needs and priorities associated with the Federal Lands Transportation Program (FLTP) and Federal Lands Access Program (FLAP). Like the bigger pot of federal funds allocated to NMDOT and the Local Planning Agencies (LPAs) on an annual basis, the FLTP and FLAP are also funded by the Highway Trust Fund (HTF). The HTF is funded by a federal tax that collects 18 cents per every gallon purchased nationwide. The Federal Lands Highway Division (FLH) of the FHWA administers the FLTP and FLAP in close partnership with the following federal agencies:

- National Park Service (NPS)
- U.S. Fish and Wildlife Service (FWS)
- U.S. Forest Service (USFS)
- Bureau of Land Management (BLM)
- U.S. Army Corps of Engineers (USACE)
- U.S. Bureau of Reclamation (BOR)



The table below shows a breakdown of FLTP funding among these federal agencies nationwide. The NPS, FWS, USFS are non-competitive partners while the remaining three partners have to compete annually for their portion of the FLTP. For the non-competitive partners, the funds are further sub-allocated based on agency processes.

Federal Agencies FLTP Funding

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	Total
NPS	\$268M	\$276M	\$248M	\$292M	\$300M	\$1.420B
FWS	\$30M	\$30M	\$30M	\$30M	\$30M	\$150M
USFS	\$15M	\$16M	\$17M	\$18M	\$18M	\$85M
BLM, USACE, BOR and IFAs	\$22M	\$23M	\$24M	\$25M	\$26M	\$120M
Total	\$335M	\$345M	\$355M	\$365M	\$375M	\$1.775B

It is important to recognize that the FLTP is stretched very thin when compared to the amount of road miles each agency has to manage for public access. For example, the USFS has approximately 65,000 miles of road it maintains as primary public access and it will only receive

\$18M in 2020.³⁴ Similarly, the BLM has approximately 45,000 miles, and the other two competitive partners (USACE and BOR) manage networks that are approximately 5,000 and 3,000 miles respectively. Thus, there is only \$26M available for about 53,000 miles of road managed by the competitive partners. The NPS and FWS (5,000 and 4,000 miles respectively) are strategically better positioned funding wise with network sizes similar to USACE and BOR and available funding set at higher levels. However, regardless of network size and available FLTP funding, each agency struggles to meet all their transportation needs. Local Federal Land Management Agency (FLMA) offices throughout the state must compete regionally or nationally amongst the other offices in their respective agencies to get their projects funded.

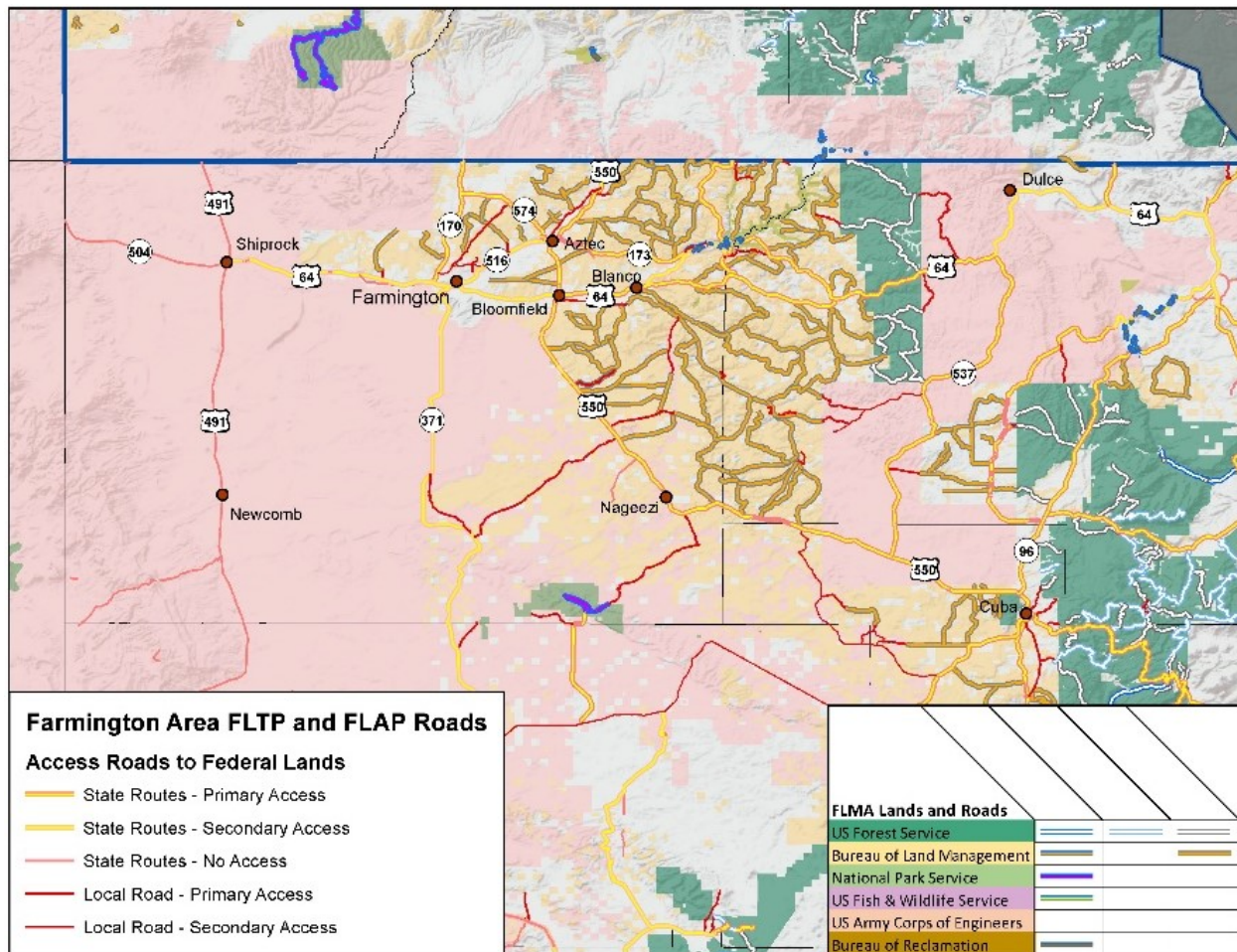
In comparison, the FLAP receives \$270M per year nationally of which the state of New Mexico receives \$7.9M. While the FLTP is prioritized by these federal agencies, the FLAP is prioritized by Program Decision Committees (PDCs) set up in each state. Projects are selected through competitive calls for projects that occur approximately every two years.

The correspondent map shows the primary public access network and FLTP color coded by the federal agency that owns the routes. The red and gold routes represent the state and local routes that provide primary access to the FLTP and are eligible to receive funding through the FLAP. Three critical considerations need to be made when looking at these routes:

1. The priorities for the FLTP routes are determined by the federal agencies that own them and those set priorities are one of the main factors that influence how FLAP funding will be allocated.
2. For projects that are identified on the state routes highlighted in gold, there is an opportunity to leverage FLAP funding with other pots of funding managed by the FMPO and NMDOT.
3. For projects that are identified on the local routes highlighted in red, FLAP provides a rare opportunity for local agencies to receive federal funding for their roads to the extent that those projects can be shown to enhance primary access to the adjacent federal lands and align with the priorities of the federal agency in charge of those lands and a portion of FLTP funding.

³⁴ There are 370,000 miles of FS roads, 267,000 miles of which are open to public motorized use. 65,000 miles are open and maintained for use by low clearance (passenger car) vehicles, and thereby considered “public roads” as defined by 23 CFR 460.2(c) or 660.103. Of those 65,000 miles of public roads only 29,000 miles are designated as FLTP roads and therefore eligible for the \$18M. Also within that funding level are 30,000 miles of FLTP trails. Separately, I think it is important to communicate that the FLTP program is intended to fund improvements, not maintenance. The different levels of maintenance standards within the 370,000 miles of FS roads are balanced against our appropriated funding for maintenance. Improving a road under FLTP does not particularly relate to our fiscal ability to meet maintenance needs. In the big picture, we should consider that some FLTP projects may actually lead to an increase in maintenance costs. With the same maintenance funding levels, that could result in a lower standard of maintenance elsewhere, and potentially a reduction in mileage of public roads.

FMPO Area FLTP and FLAP Roads



From a planning process standpoint, the differing approach to project prioritization and selection between the FLTP and FLAP creates several challenges in terms of aligning project priorities among FLTP partners and the PDCs in each state. In New Mexico, the PDC is made up of a tri-party member group that includes representatives from FLH, NMDOT, and a person from the Association of Counties. Additionally, FLH convenes a Transportation Advisory Group (TAG) to help evaluate the projects submitted during each FLAP call for projects. The TAG is comprised of a representative from each federal agency, and while TAG members are not formally part of the PDC, they are very influential in the project selection process.

NEXT STEPS – FEDERAL LANDS TRANSPORTATION NEEDS ASSESSMENT AND PRIORITIZATION

Now that the inventory of FLTP and FLAP routes have been identified, the next steps in the planning process are to assess the needs associated with these network segments and prioritizing them for eventual project development. In this process, it is important to recognize the limitations in the availability of funding that all agencies grapple with and the importance of understanding the varying priorities and land management goals that exists within the federal agencies involved.

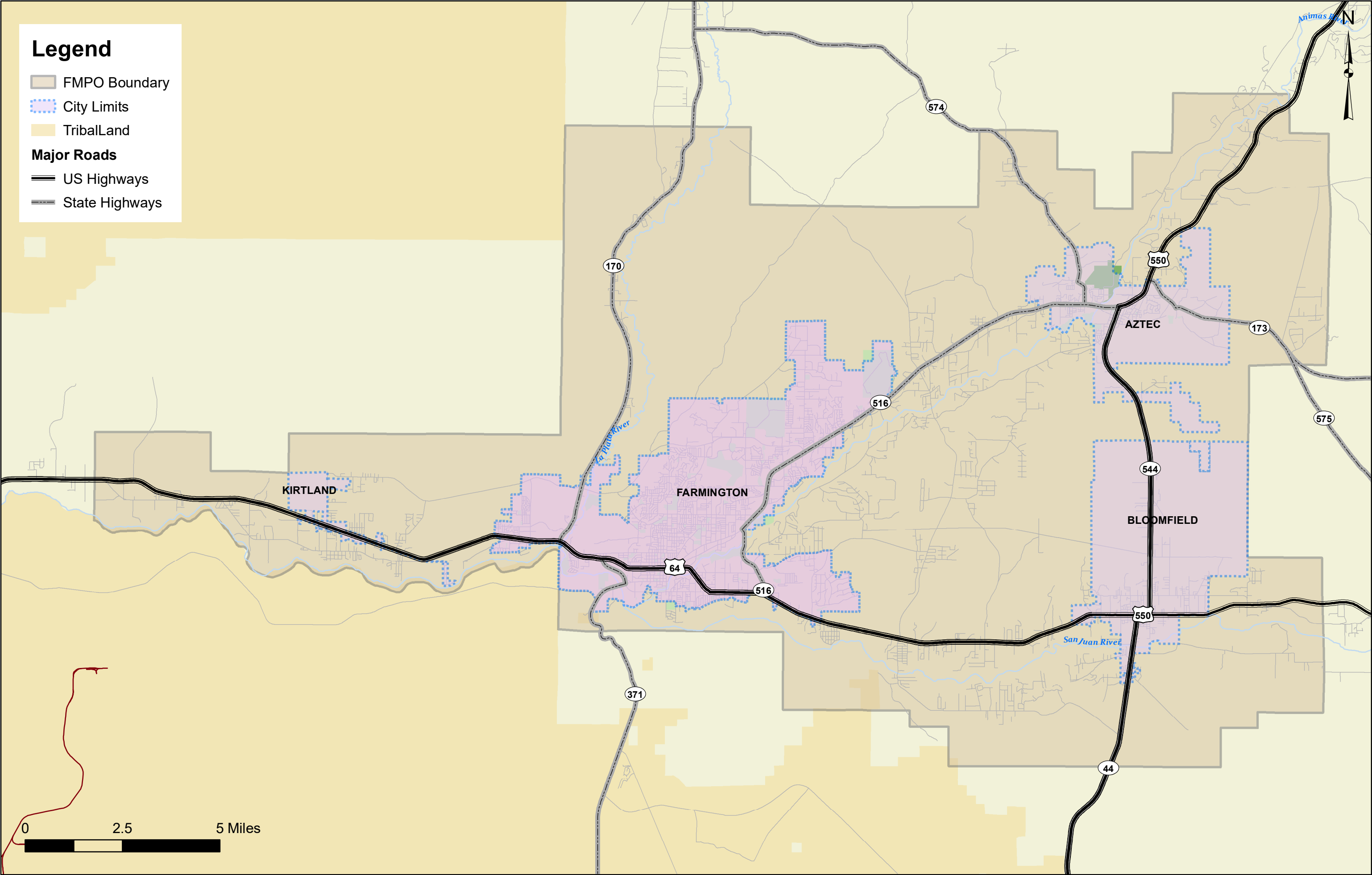
In terms of assessing needs and prioritizing them, the next step will focus on working with the Federal Land Management Agencies (FLMAs), NMDOT, and MPO/RTPO Members to **conduct a virtual Needs Assessment workshop** to identify a preliminary set of transportation project needs intended to enhance access to the federal lands in the FMPO area and surrounding region. Areas within the FMPO area transportation network where there might be overlap in needs between the FLTP, FLAP, and the bigger pot of NMDOT funding are of particular interest. Using the established forums and other engagement opportunities built into the transportation planning process, the FLMAs hope to work with NMDOT and the members of the adjacent jurisdictions to move the most important FLTP and FLAP needs identified into the project development pipeline.

APPENDIX E: MTP MAPS

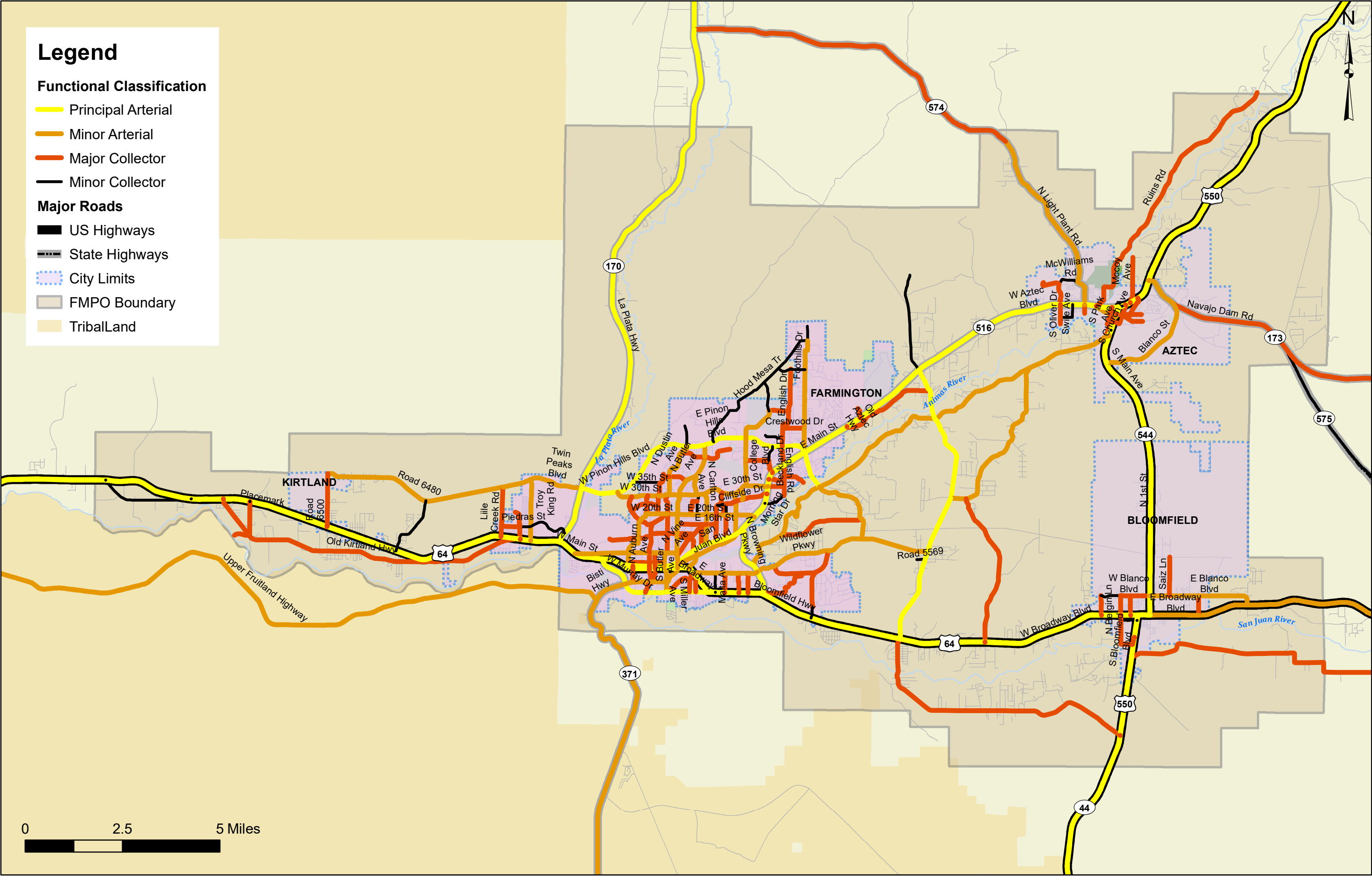
List of Maps

- FMPO Planning Area
- FMPO Area Roads by Functional Classification
- City of Farmington Roads by Functional Classification
- FMPO Area Daily Traffic Volumes
- City of Farmington Roads – Daily Traffic Volumes
- Proposed Projects for 2045 MTP – FMPO Region
- Proposed Projects for 2045 MTP – City of Farmington
- 2018 Baseline Model Scenario – Roadway Volume-to Capacity Ratio
- 2045 No Build Model Scenario - Roadway Volume-to Capacity Ratio
- 2045 Build Model Scenario - Roadway Volume-to Capacity Ratio
- Change Volume-to-Capacity Ratio – 2018 versus 2045 Build
- Heat Map of Reported Crashes (2013-2017)
- Proposed Bicycle Improvements – FMPO Region
- Proposed Bicycle Improvements – City of Farmington
- NM and US Highways and Priority Tiers in the FMPO Region
- Truck Freight Volumes in the FMPO Region
- Truck Freight Network in the FMPO Region
- 100-Year Floodplains
- Wildland-Urban Interface
- Primary and Secondary Evacuation Routes

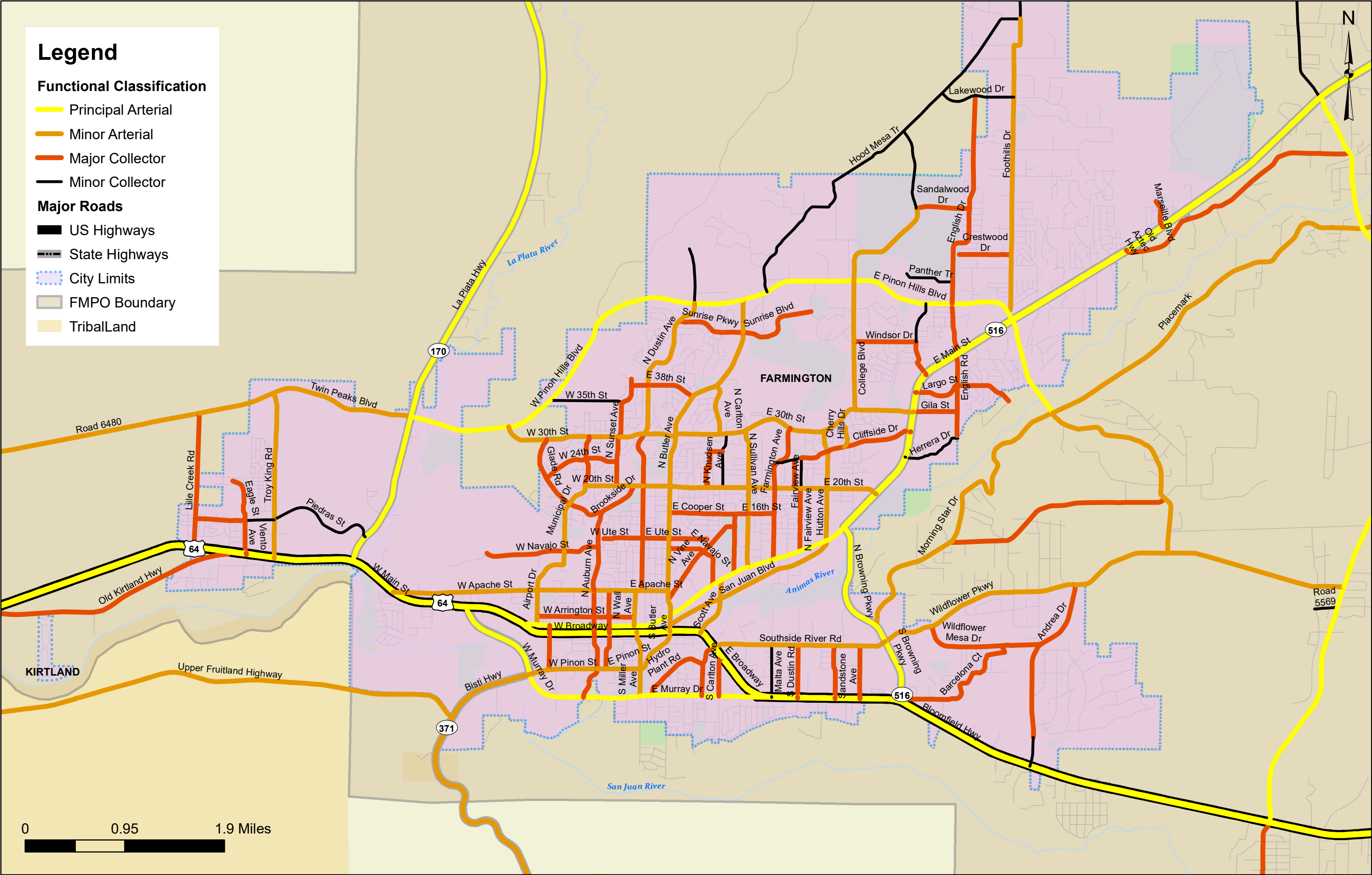
Farmington Metropolitan Planning Organization: Planning Area



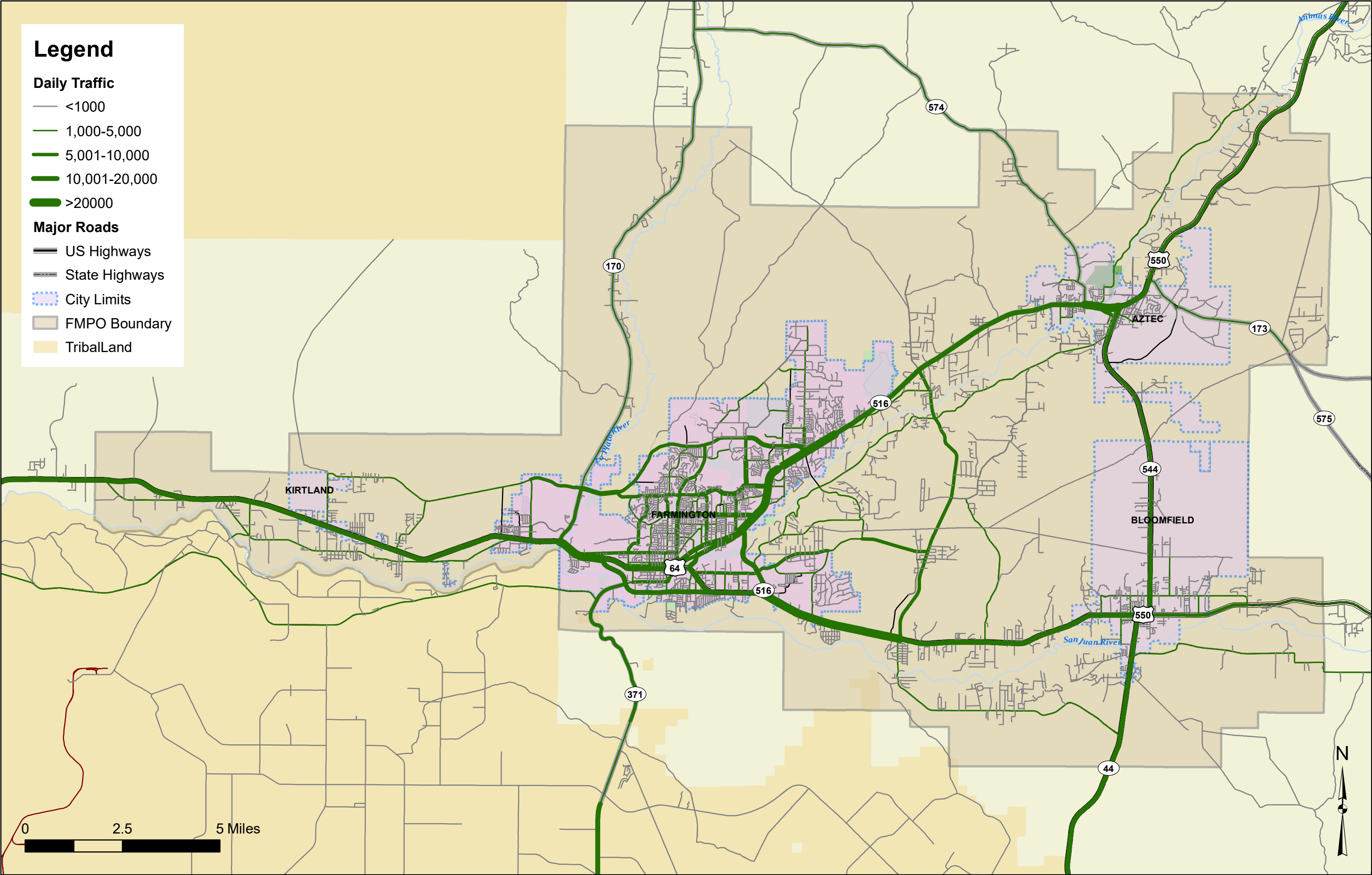
Farmington Metropolitan Planning Organization: FMPO Area Roads by Functional Classification



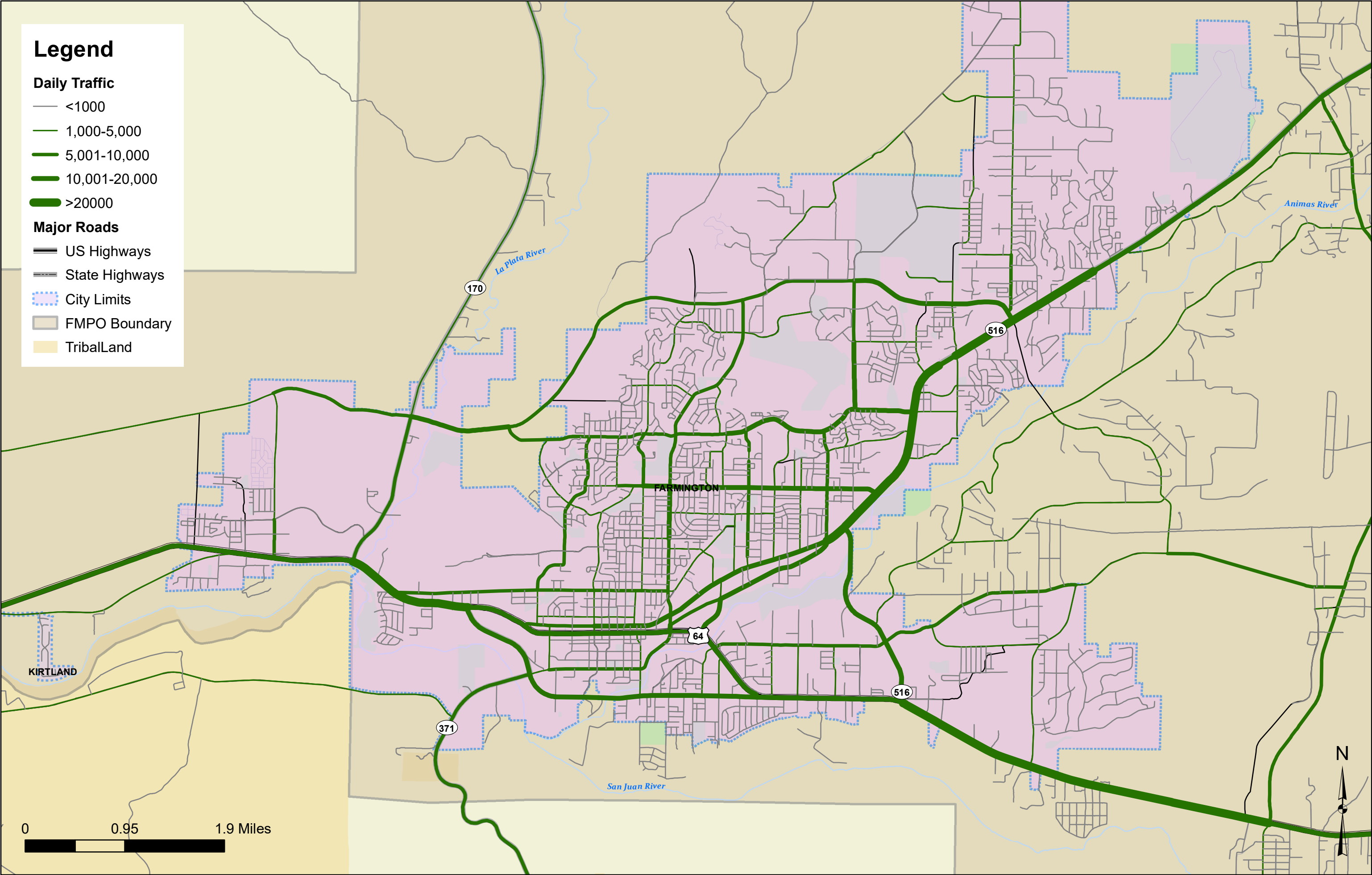
Farmington Metropolitan Planning Organization: City of Farmington Roads by Functional Classification



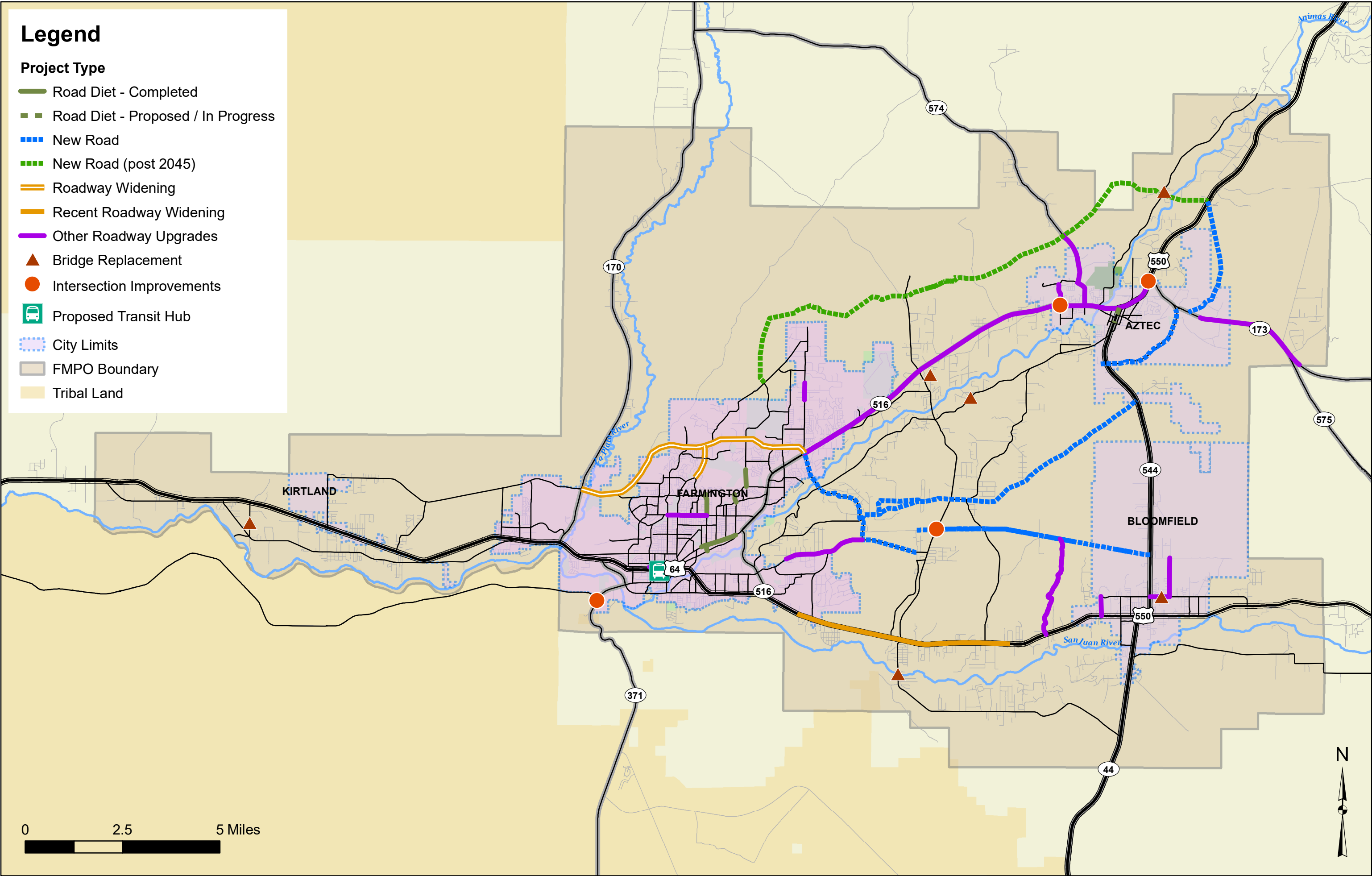
Farmington Metropolitan Planning Organization: FMPO Area Daily Traffic Volumes



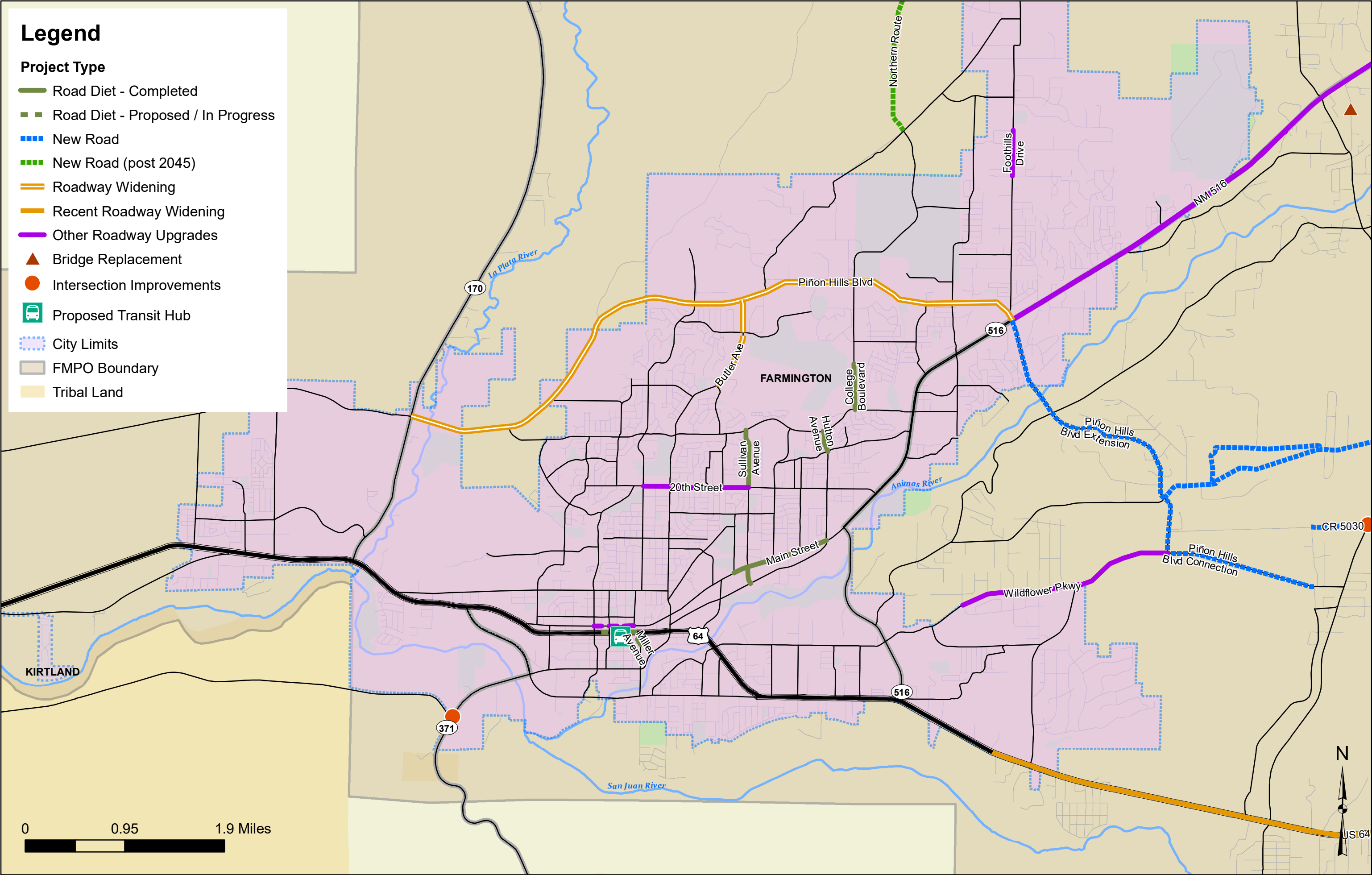
Farmington Metropolitan Planning Organization: City of Farmington Roads – Daily Traffic Volumes



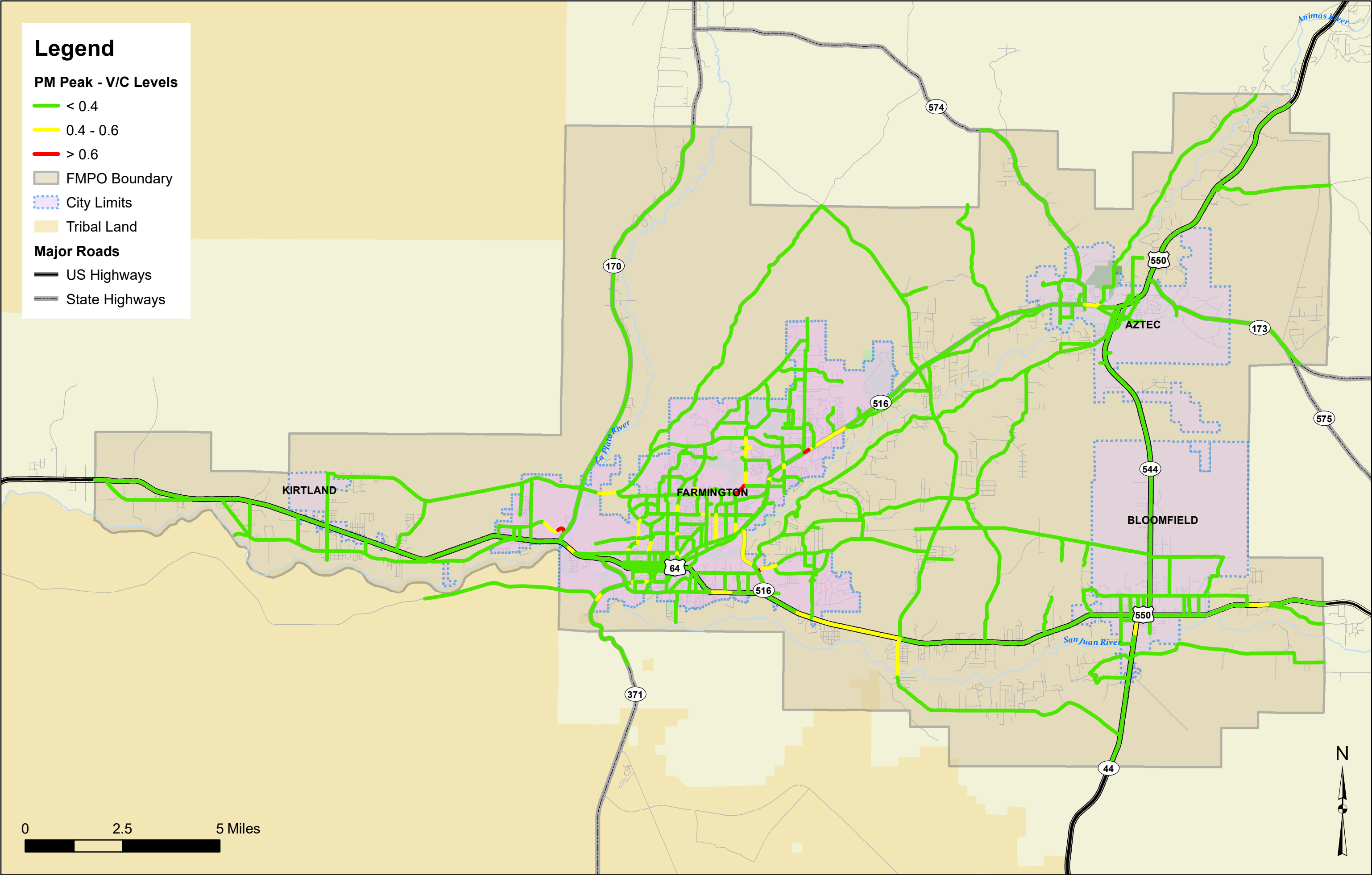
Farmington Metropolitan Planning Organization: Proposed Projects for 2045 MTP - FMPO Region



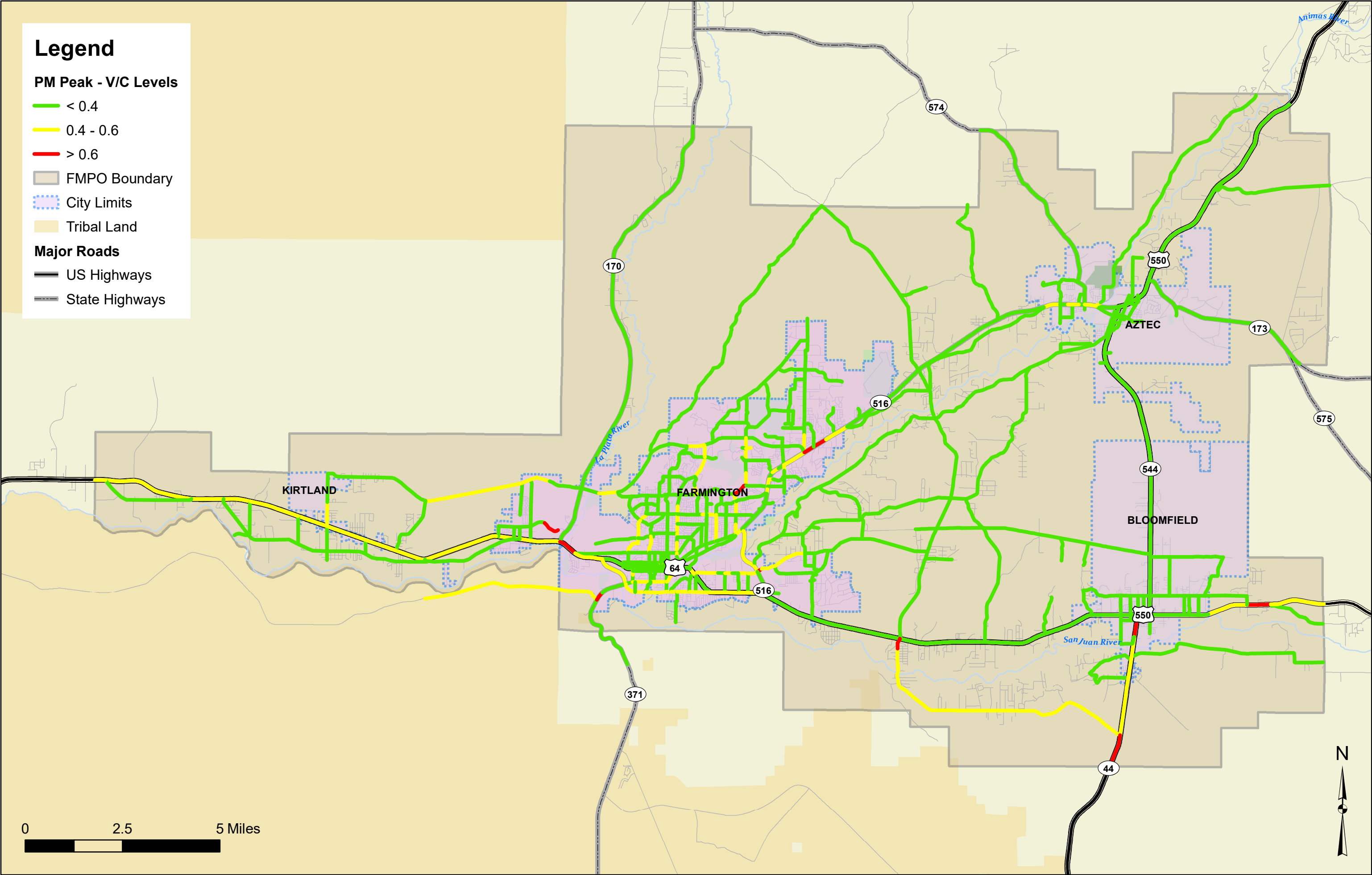
Farmington Metropolitan Planning Organization: Proposed Projects for 2045 MTP - City of Farmington



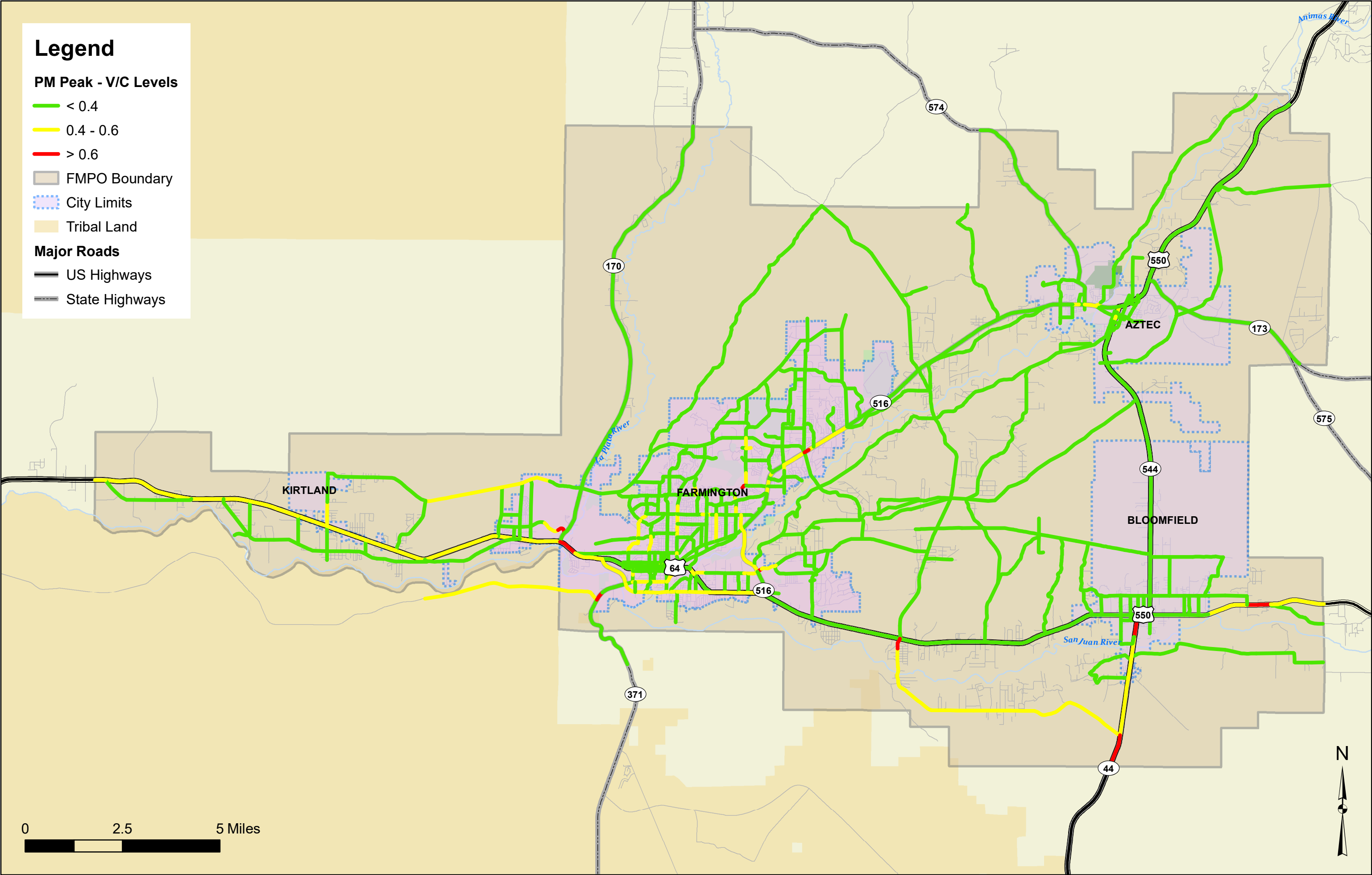
Farmington Metropolitan Planning Organization: 2018 Baseline Model Scenario – Roadway Volume-to-Capacity Ratios



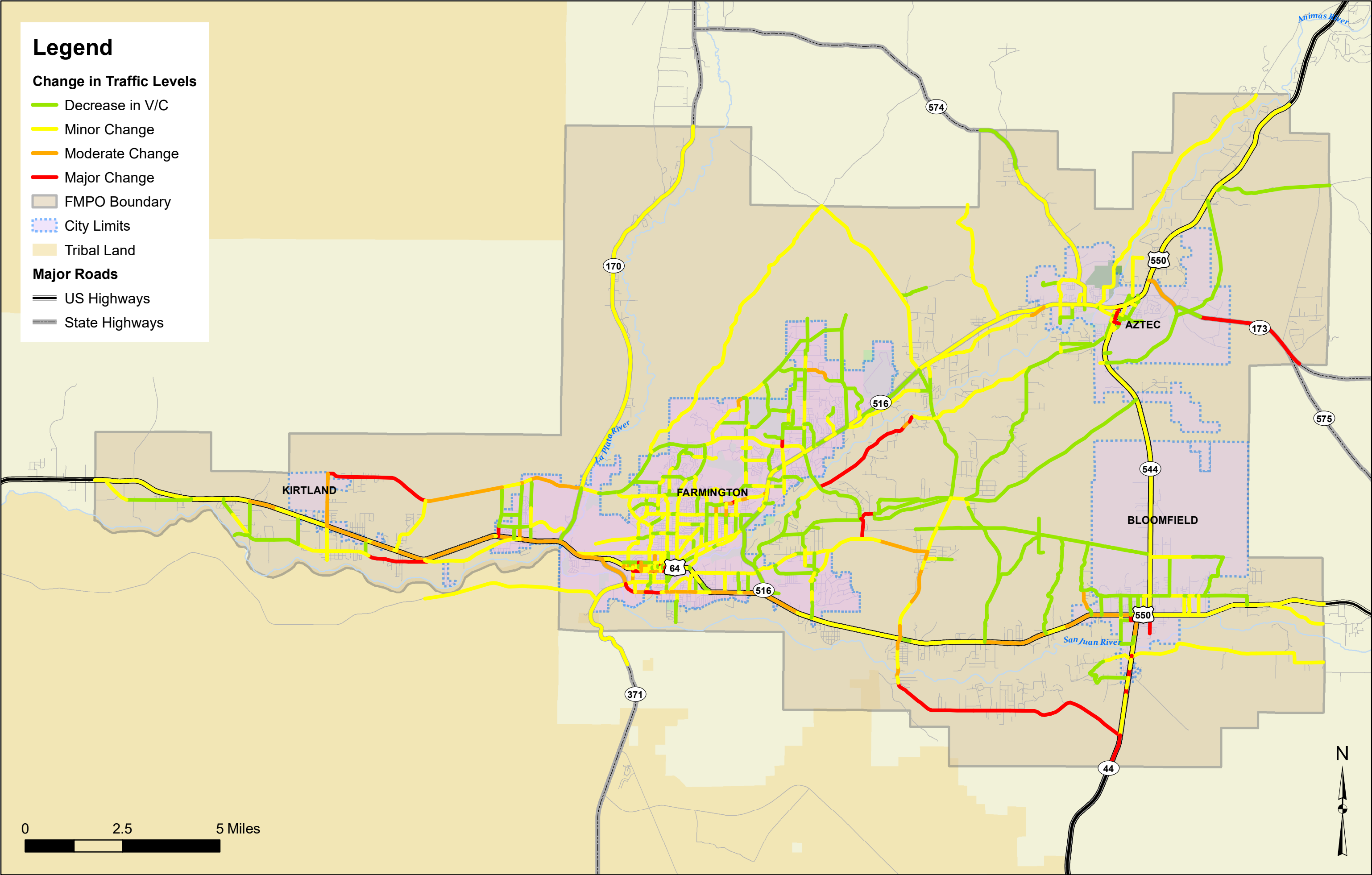
Farmington Metropolitan Planning Organization: 2045 No Build Model Scenario – Roadway Volume-to-Capacity Ratios



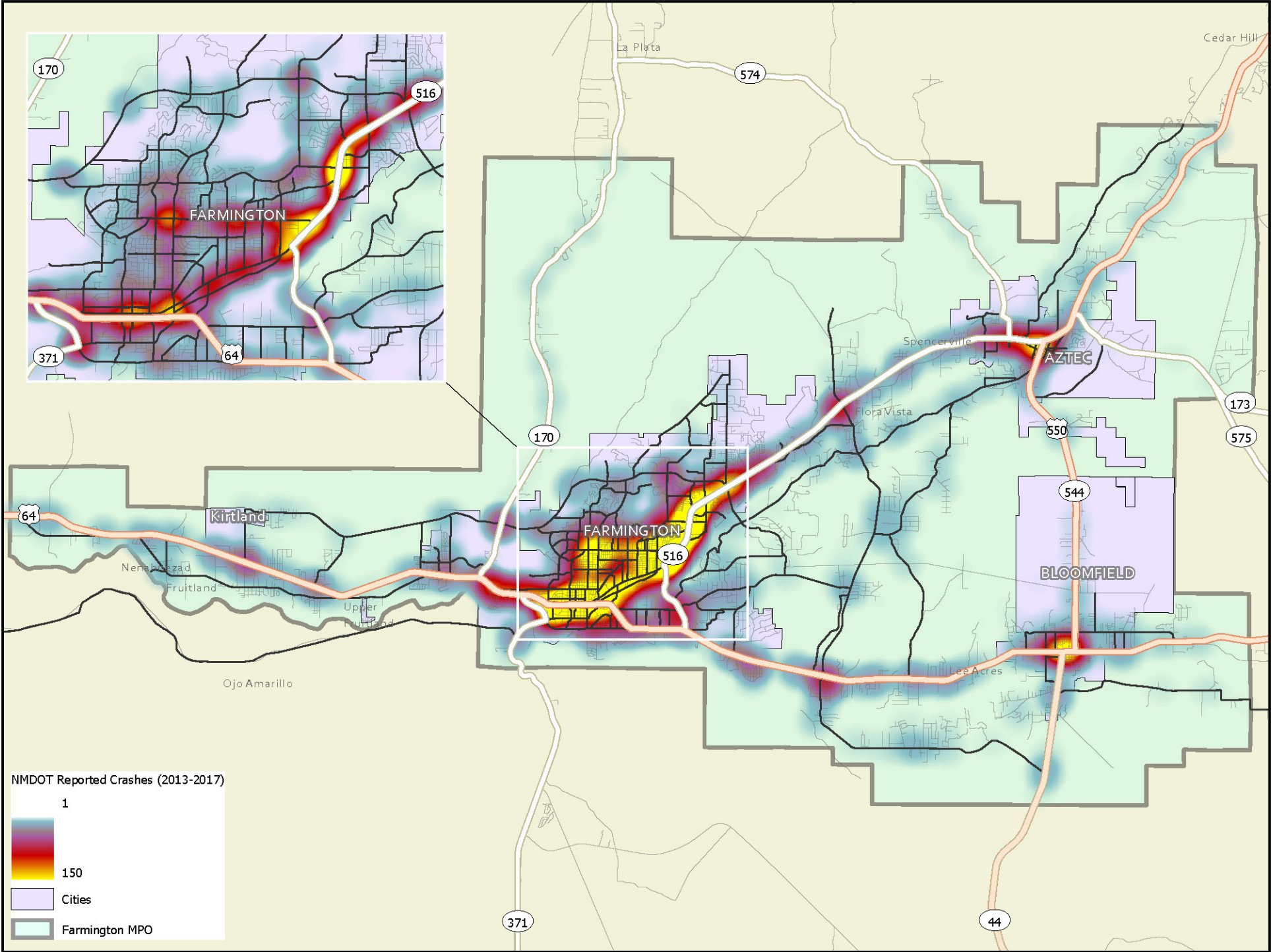
Farmington Metropolitan Planning Organization: 2045 Build Model Scenario – Roadway Volume-to-Capacity Ratios



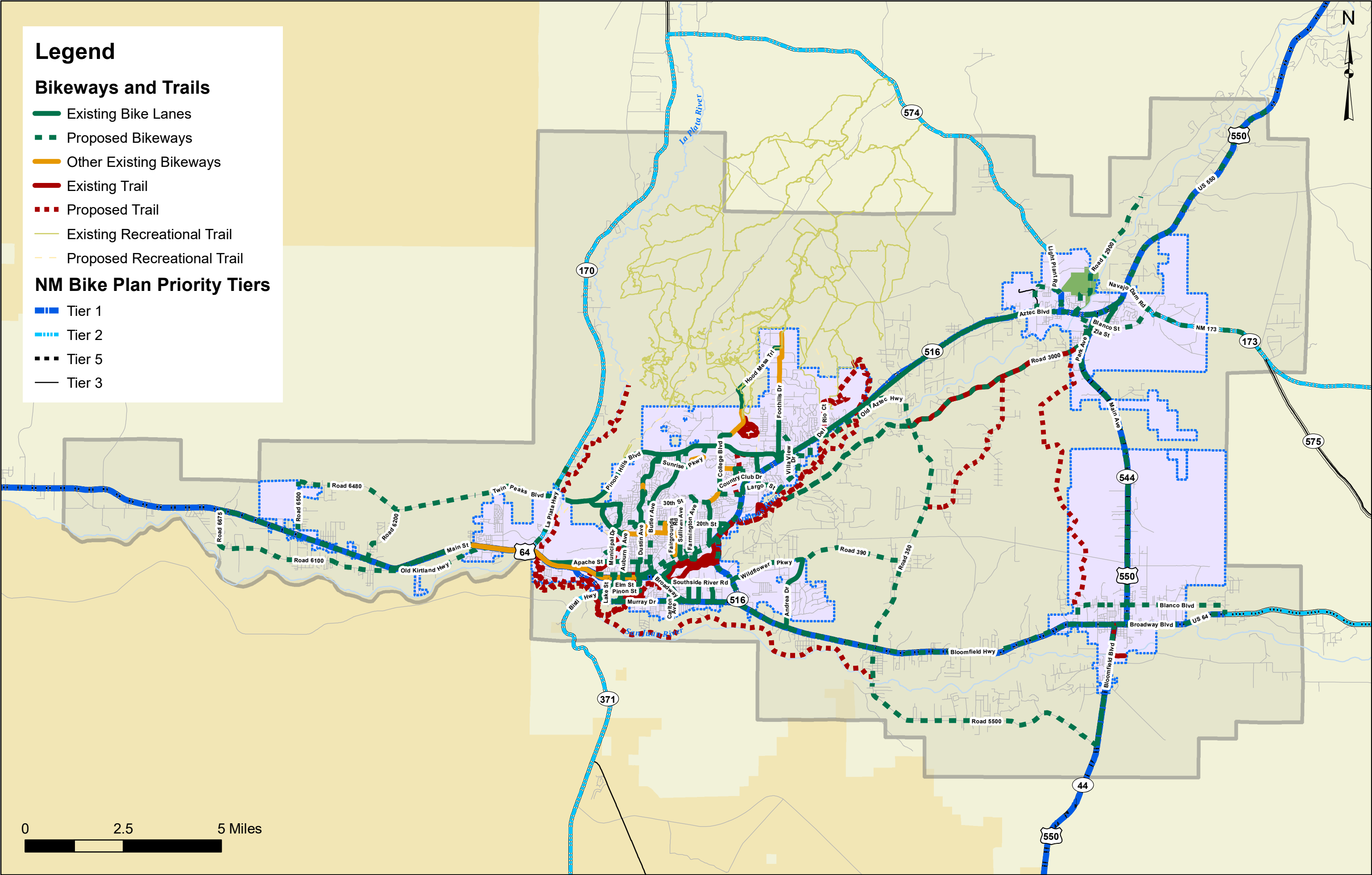
Farmington Metropolitan Planning Organization: Change Volume-to-Capacity Ratios – 2018 versus 2045 Build



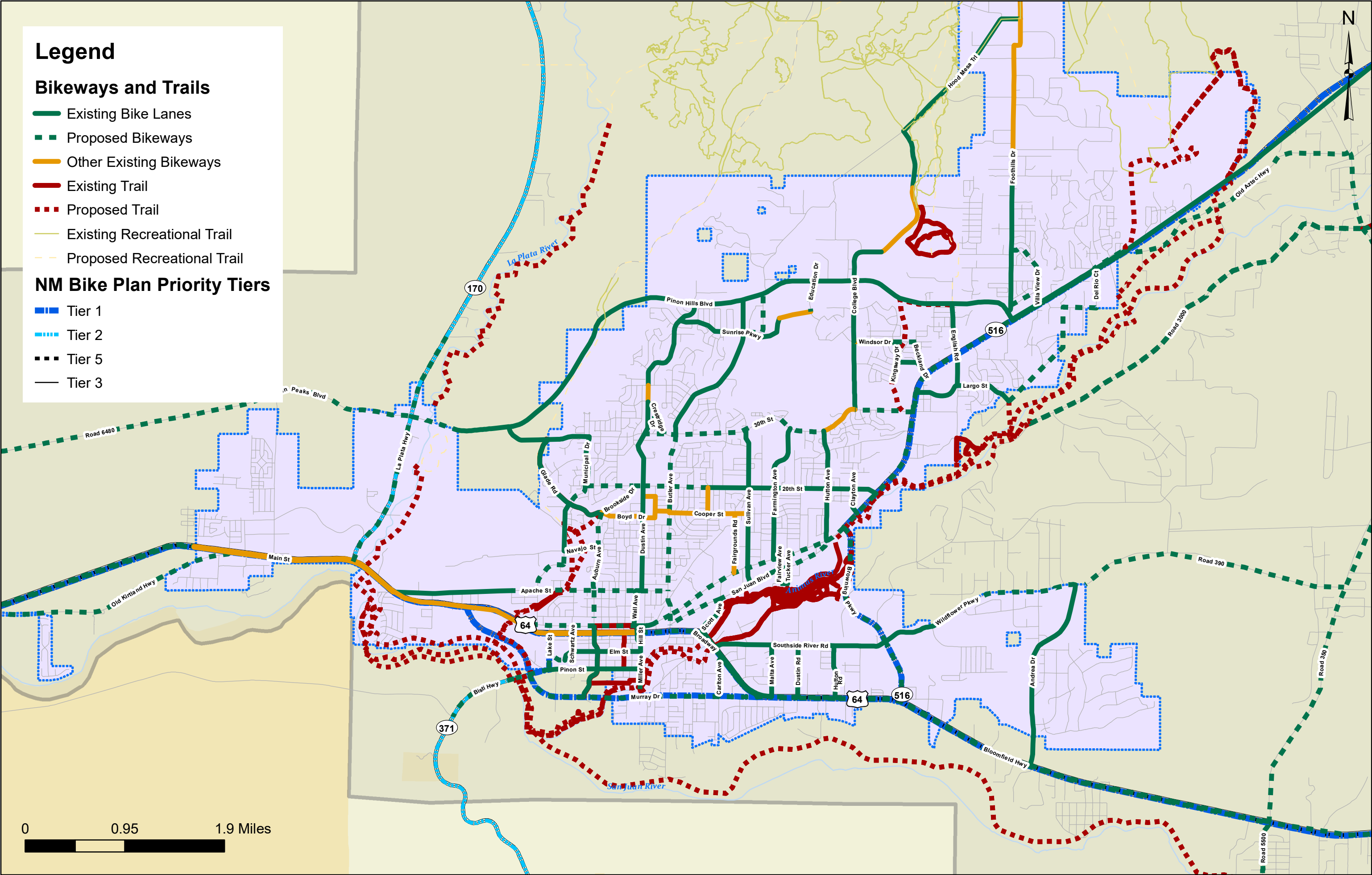
Farmington Metropolitan Planning Organization: Heat Map of Reported Crashes (2013-2017)



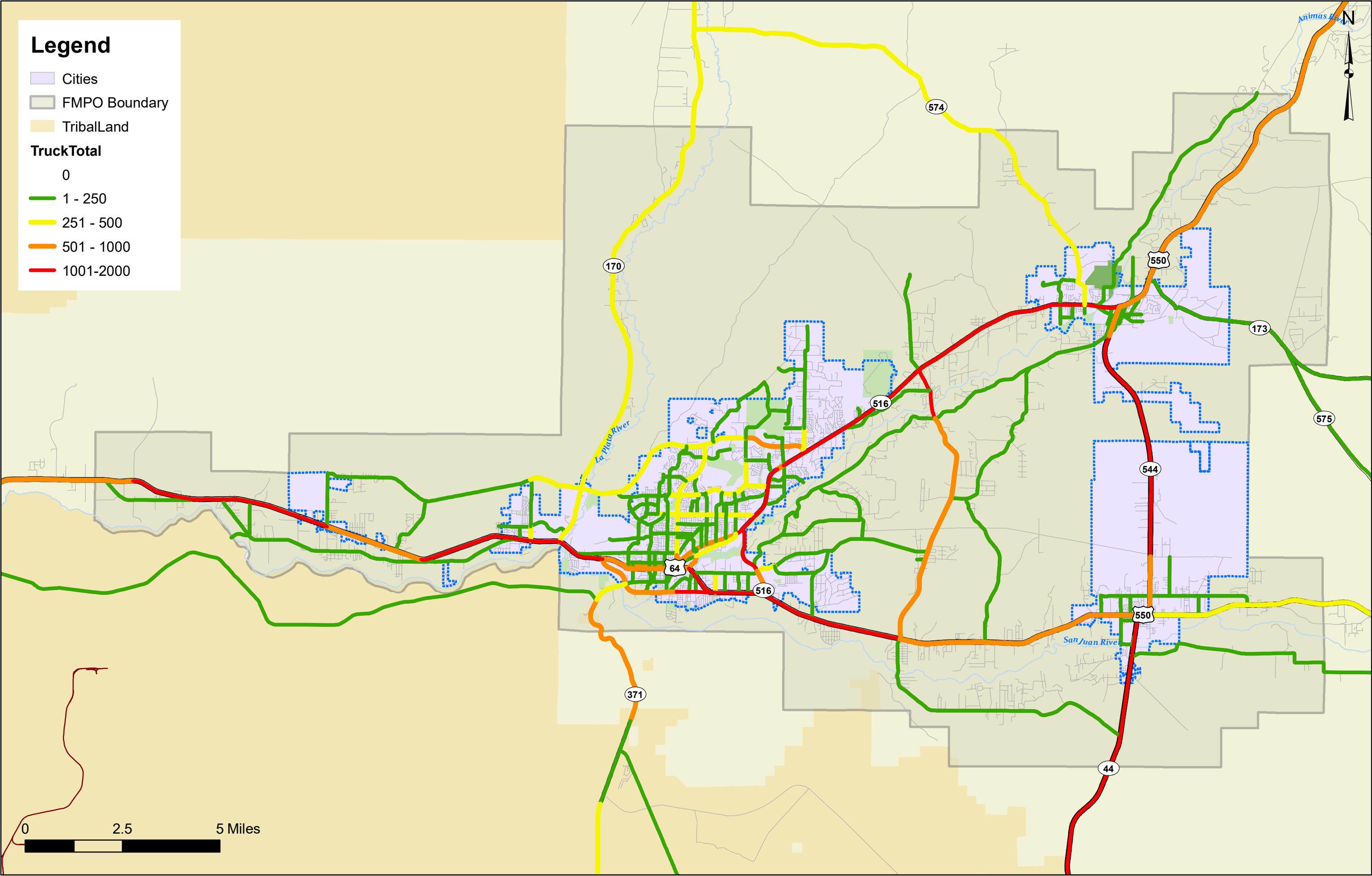
Farmington Metropolitan Planning Organization: Proposed Bicycle Improvements - FMPO Region



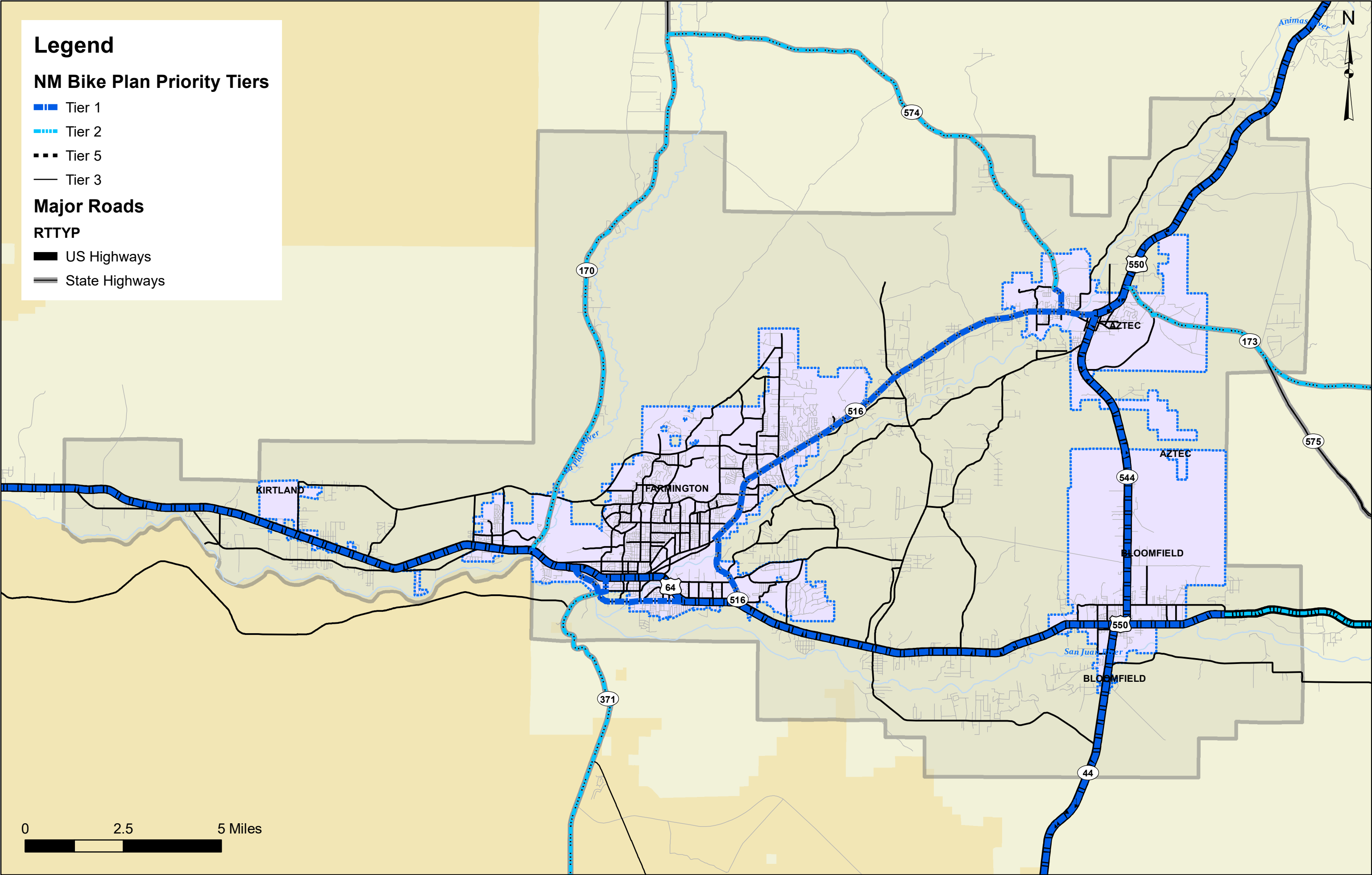
Farmington Metropolitan Planning Organization: Proposed Bicycle Improvements – City of Farmington



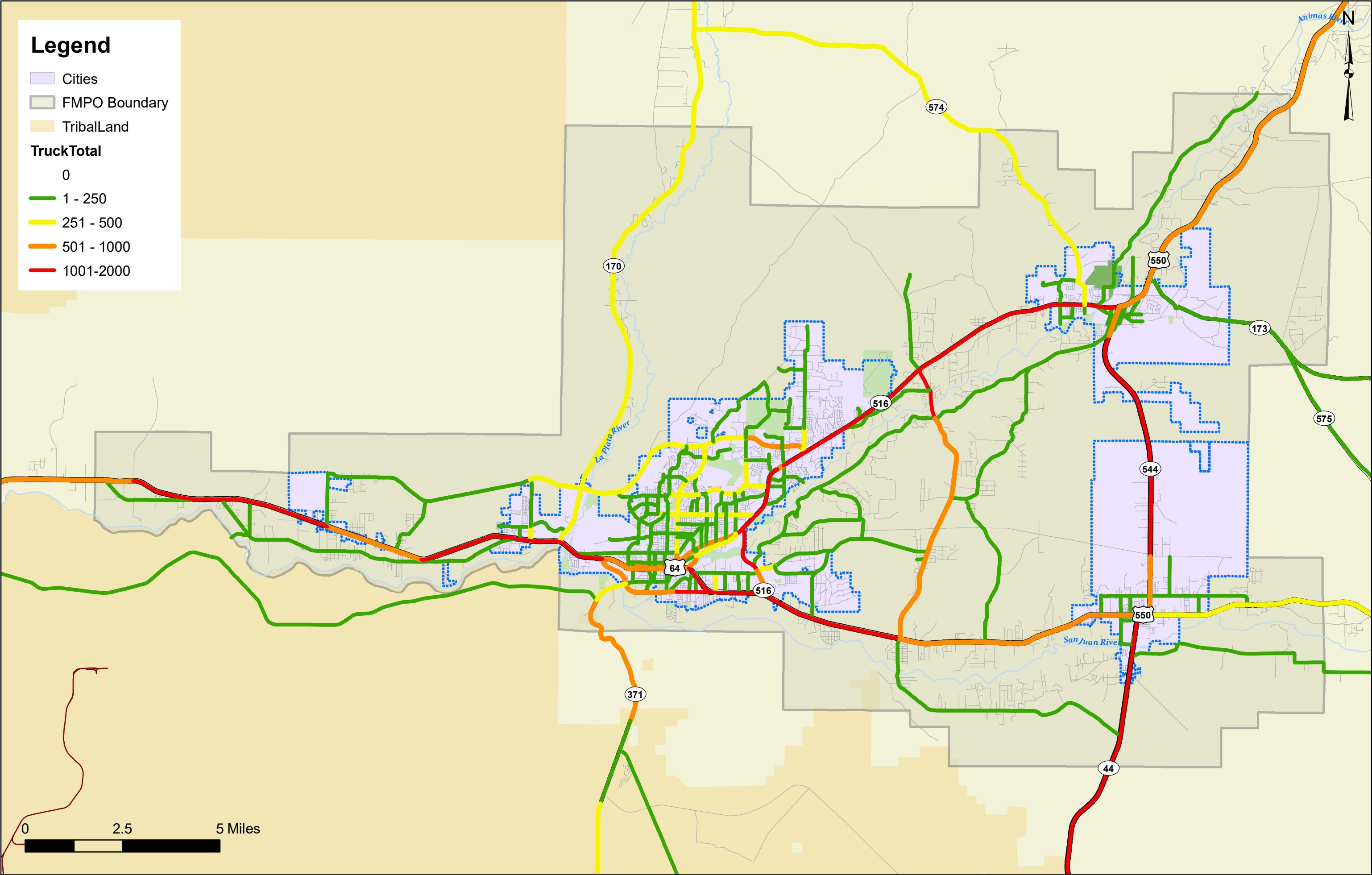
Farmington Metropolitan Planning Organization: NM and US Highways and Priority Tiers in the FMPO Region



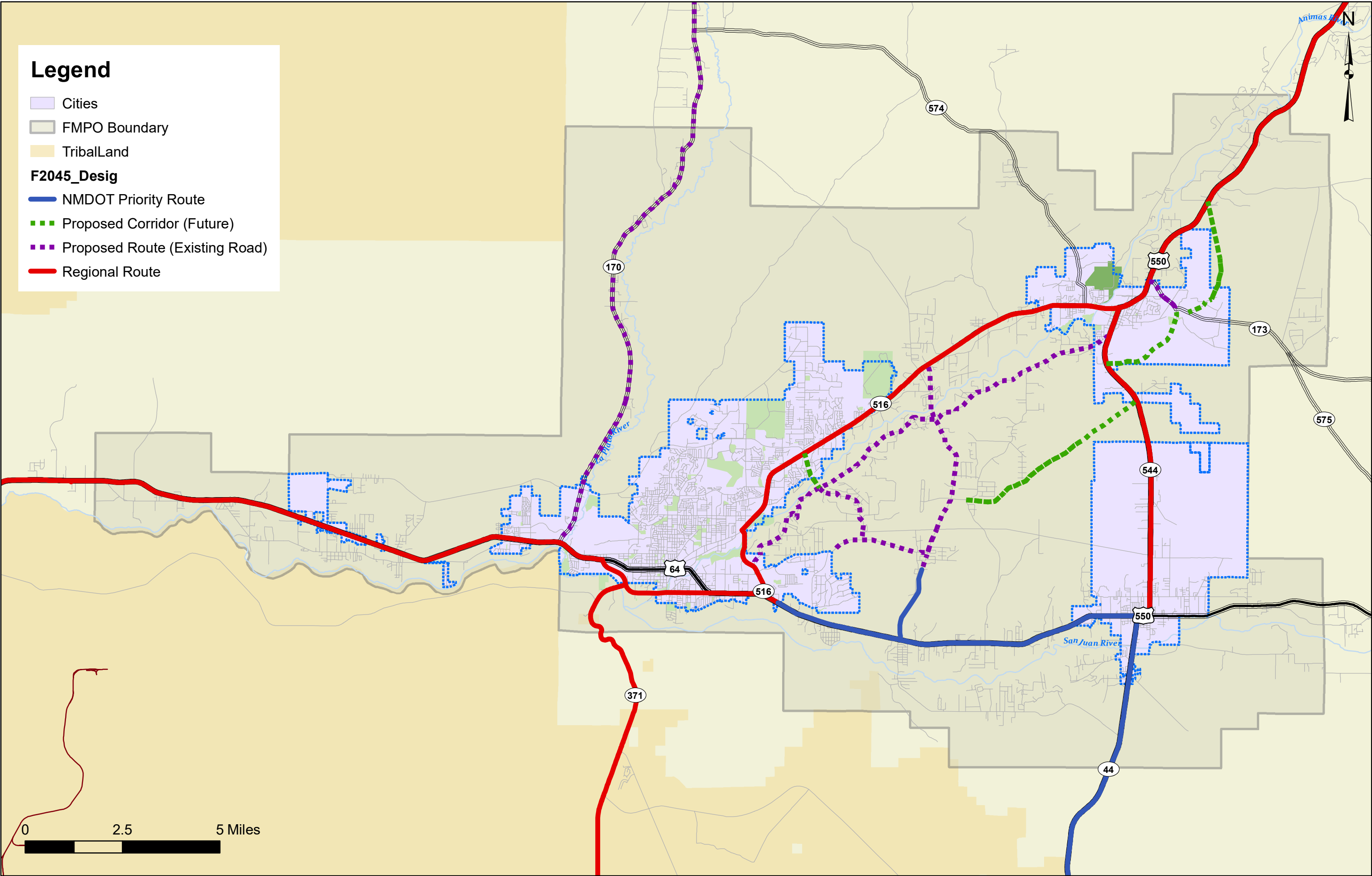
Farmington Metropolitan Planning Organization: NM and US Highways and Priority Tiers in the FMPO Region



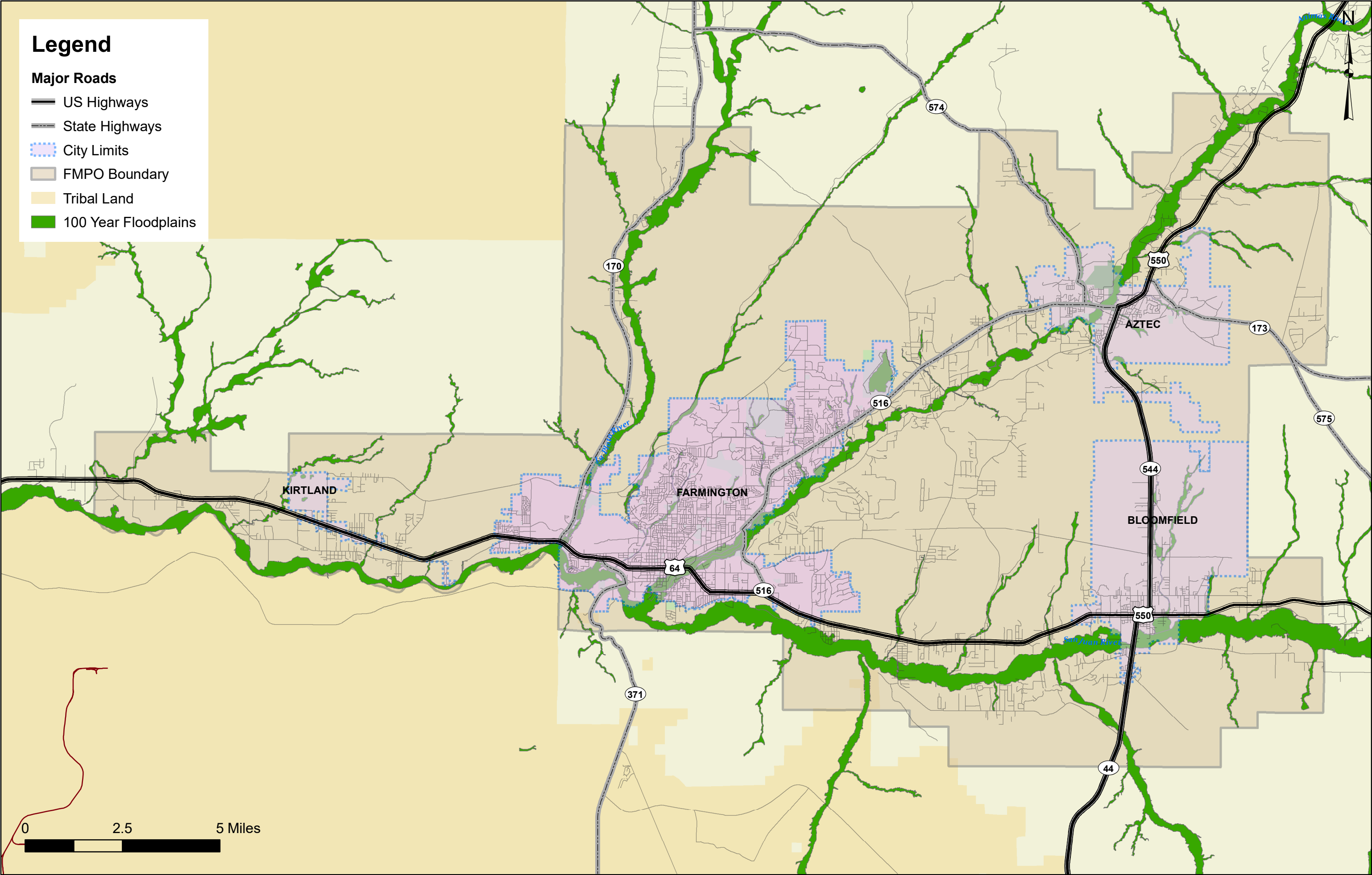
Farmington Metropolitan Planning Organization: Truck Freight Volumes in the FMPO Region



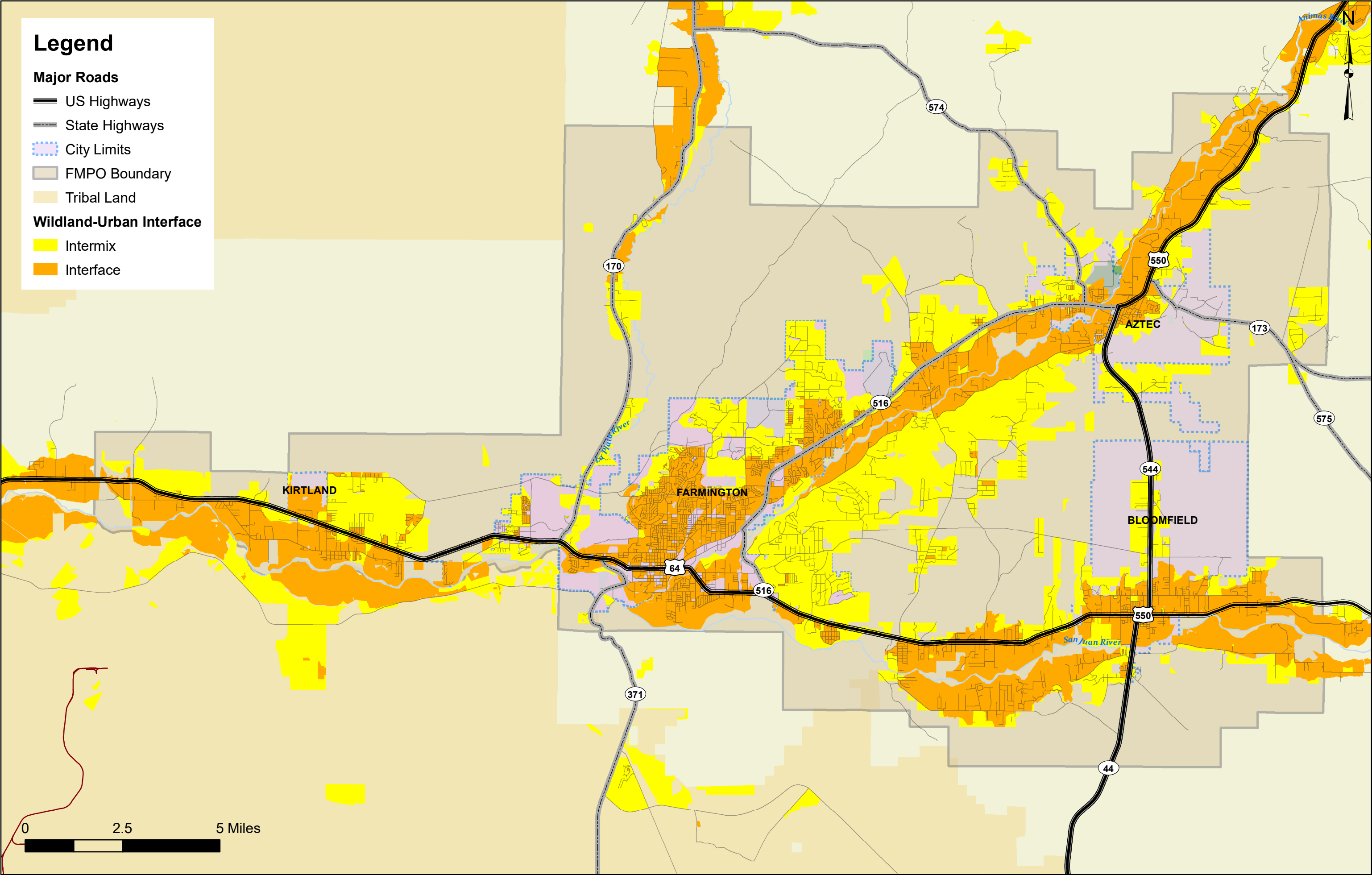
Farmington Metropolitan Planning Organization: Truck Freight Network in the FMPO Region



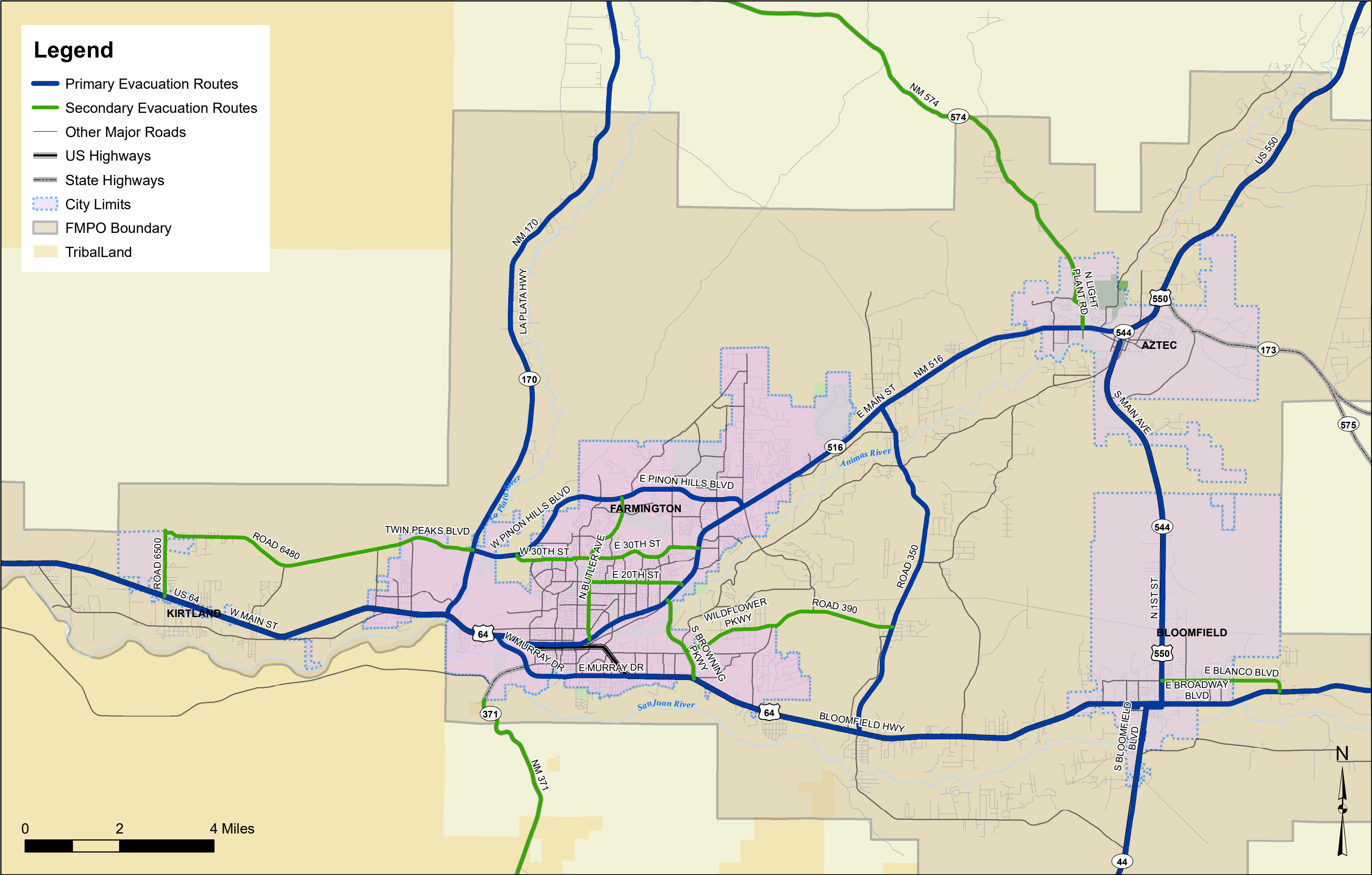
Farmington Metropolitan Planning Organization: 100-Year Floodplains



Farmington Metropolitan Planning Organization: Wildland-Urban Interface



Farmington Metropolitan Planning Organization: Primary and Secondary Evacuation Routes





Bohannon  Huston