Central Yavapai Metropolitan Planning Organization

Regional Transportation Plan Update 2040

April 2015

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Central Creative

Central Yavapai Metropolitan Planning Organization
Transportation Plan Update 2040

Regional Transportation Plan Update
April 2015

Member Agencies:
City of Prescott
Town of Chino Valley
Town of Dewey-Humboldt
Town of Prescott Valley
Yavapai County
Arizona Department of Transportation

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1.0 Introduction

Central Yavapai County is located approximately 80 miles northwest of Phoenix and is served by State Routes (SR) 69, 169, 89 and 89A. State Route 69 connects with Interstate 17 (I-17) at Cordes Junction, about 20 miles southeast of the study area. The Central Yavapai Metropolitan Planning Organization (CYMPO) encompasses the communities of Prescott, Prescott Valley, Chino Valley, Dewey-Humboldt, portions of Yavapai County and the Yavapai Prescott Indian Tribe, including an area of approximately 401 square miles. Figure 1 shows the location of these communities and the planning influence area. The planning influence area is larger than the MPO boundaries to encompass areas of influence outside the immediate metropolitan area.

The CYMPO is one of the fastest growing areas in Arizona. As Figure 1 shows, Prescott is located in the west-central portion of the region; Prescott Valley lies east of Prescott, Chino Valley lies to the north of Prescott, and Dewey-Humboldt is just south of Prescott Valley at the intersection of SR 169 and SR 69. State Routes 69, 89, and 89A serve as the main thoroughfares within the CYMPO, tie the communities together, and also function as important commercial corridors within each community – an important dual role that this study will address.

Land ownership and management is varied within the CYMPO region (Figure 2). Approximately 70 percent of all land within the CYMPO planning area is under private ownership, about 28 percent is under the jurisdiction of the Arizona State Land Department, and the remaining two percent are split between the Bureau of Land Management, U.S Forest Service, Indian Communities, and other (military and U.S. Fish and Wildlife).

1.1 Purpose of the Regional Transportation Plan Update

The purpose of this RTP Update is to validate the previous 2011 CYMPO RTP Update, and reprioritize transportation investments for the metropolitan area with a 2040 target buildout. The plan focuses on short-, medium-, and long-term transportation investments and is not financially constrained due to the uncertainty of transportation funding availability.

Figure 1 – CYMPO Planning Area

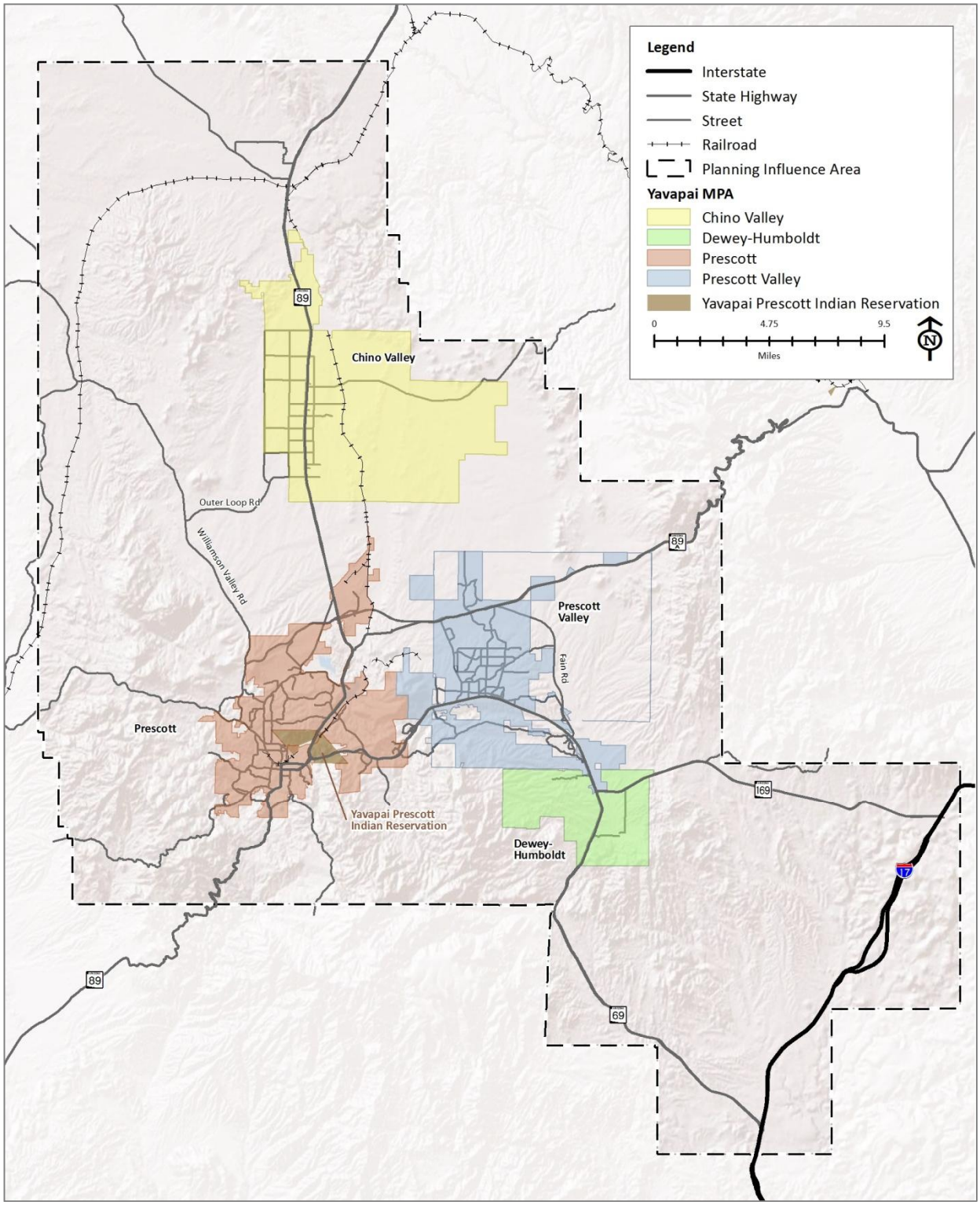
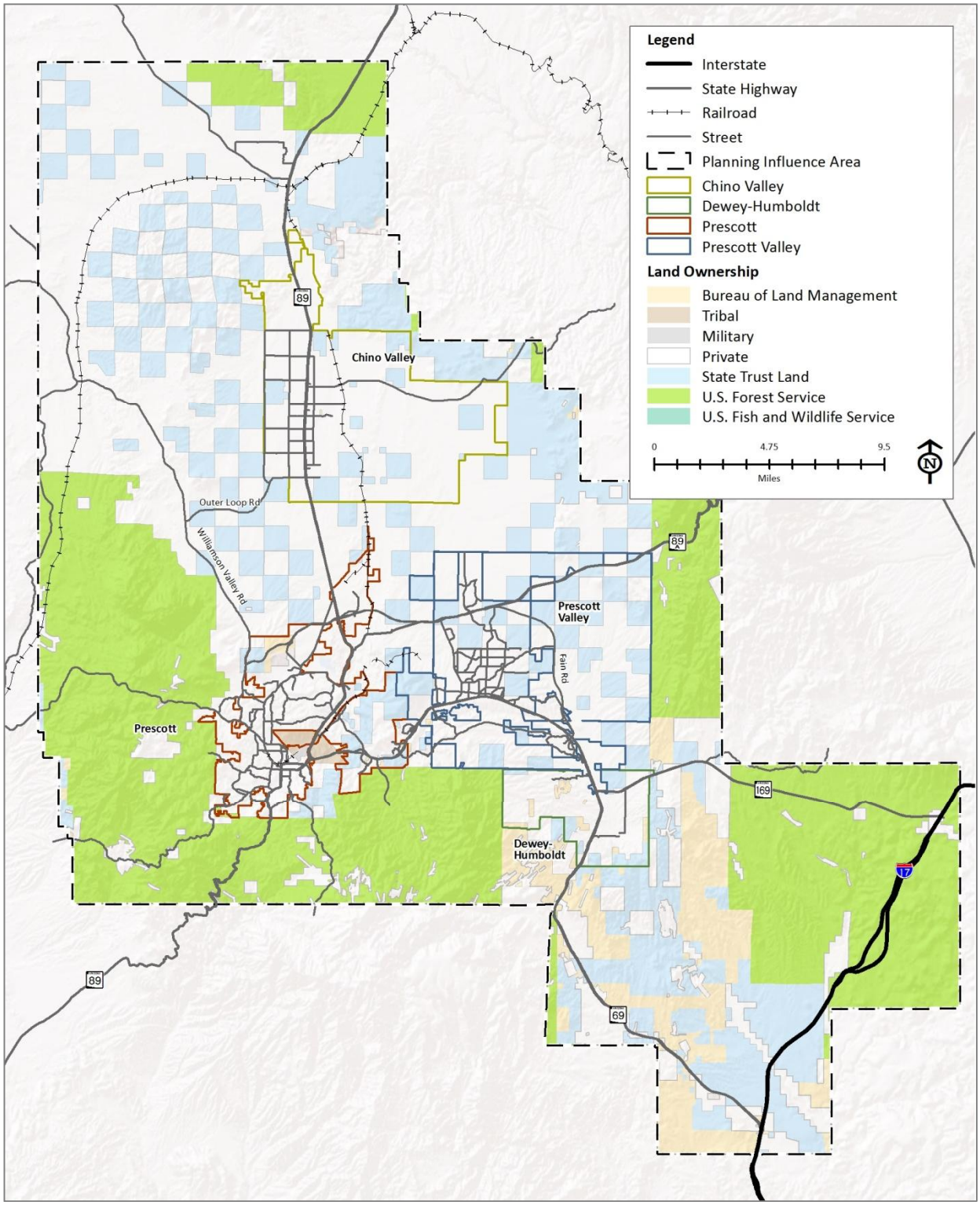


Figure 2 – Major Land Ownership



1.2 Key Findings and Limitations of Related Studies

The *2030 Regional Transportation Plan* (RTP) for the quad-city Prescott area was adopted by the Central Yavapai Metropolitan Planning Organization (CYMPO) in December 2006. This study was prepared during the economic "boom", where population growth between 2004 and 2030 was estimated to increase by over 270 percent.

The socioeconomic data presented in that study has been questioned in recent years as being inaccurate due to the Great Recession that began in December 2007 and took a sharp downward turn in September 2008. In response, CYMPO updated the socioeconomic data for the planning area in the *2011 RTP Update*, completed in June 2012. The updated study referenced the 2000 and 2010 Census Data and resulted in population growth estimates for 2030 to be more on the magnitude of a 100 percent increase. Altogether, 2030 population projections were 50 percent less than predicted in the 2006 study, and 2030 employment projections were 13 percent less than predicted in the 2006 study.

The significant reductions in future population and employment estimates were inputs to the 2006 roadway network to evaluate future travel demands on existing and proposed roadways. As a result, several of the proposed future roadway corridors were pushed to long-term investments. In addition to the impact of reduced population and employment projections on future travel demands, numerous traffic studies have shown that the Great Recession has impacted driver habits and reduced trip generation per household. This may further contribute to reduced traffic projections on the transportation network.

However, the 2011 RTP Update evaluated only the proposed 2006 roadway network and did not include the development or evaluation of network alternatives to identify changes in travel demand and transportation needs.

All of the socioeconomic changes noted above contribute to the need for an update to the RTP that incorporates refined socioeconomic data inputs to reflect 2010 U.S. Census data. In addition, an assessment of existing and future multimodal transportation needs is required to develop a plan and implementation program for transportation investments through 2040 that respond to projected travel patterns and mobility needs – both from a legislative perspective (adhering to the requirements of the newly passed *Moving Ahead for Progress in the 21st Century [MAP-21]* legislation) and from a local agency funding need.

The ultimate goal of this plan is to adjust traffic projection inputs to more accurately reflect population and employment growth in the region and to synchronize with national performance measures so as to maximize CYMPO's opportunities to receive federal transportation funding. The travel demand model will be re-run with new data to estimate the traffic volumes on the existing and proposed roadway network. This data will be used to recommend short-term, mid-term, and long-term transportation needs.

Near-term recommendations will focus on minor improvements, such as intersection improvements or signal timing coordination that will improve existing roadways for the immediate future. Higher-cost

solutions, such as roadway widening, adding new roadway capacity, and/or new roadway corridors will be evaluated for mid-term and long-term improvements.

1.3 Public Involvement

A Public Involvement Plan was developed for the Regional Transportation Plan Update process. As part of the plan update, two sets of public meetings were held. The first set of public meeting were held on April 23, 2014 between 1 p.m. and 3 p.m. and 5:30 p.m. and 7:30 p.m. and sought the public's input on the existing transportation needs and areas where the study should focus. Both meetings were held in the Town of Prescott Valley Library Auditorium. In total 39 people attended from the communities as well as elected officials and local government representatives.

The second set of public meetings were held on Monday, September 29, 2014 between 1 p.m. and 3 p.m. and 5:30 p.m. and 7:30 p.m. to provide input on the existing transportation needs and areas where the study should focus. Both meetings were held in the City of Prescott council chambers. In total 32 people attended from the communities as well as elected officials and local government representatives. Summaries of the public meetings, including written comments and meeting handouts, can be found in Appendix A.

1.3.1 Public Involvement Process for Title VI/EJ Communities

Regardless of the audience, the need for transportation commonly arises as a key concern. People rely on a range of transportation options to earn a living, secure education maintain personal health and access medical care. Limited access to safe, affordable, and reliable transportation options significantly impairs one's ability to maintain quality of life. Vulnerable populations are disproportionately affected by transportation gaps due to limited options and the need for assistance. The CYMPO addresses Title VI/EJ Communities in a number of ways, through various public outreach activities targeted to both specific minority groups and the general public as a whole. These techniques/activities are defined in detail in Appendix A of *CYMPO's Public Participation Plan for Transportation Planning* (2011).

1.3.2 Health Impact Assessments

A Health Impact Assessment (HIA) is a planning process that can help maximize positive health outcomes and minimize negative ones, for populations affected by (transportation) plans and projects.

CYMPO recognizes that Health Impact Assessments can be conducted for future plans and projects that have the potential to adversely impact the health of Title VI/EJ communities. We also recognize that the HIA process can provide an additional tool for engagement and inclusion of Title VI/EJ community members.

Since the last version of this plan, HIAs have been increasingly utilized in transportation planning and projects around the United States. The growing use of HIAs, and their benefit to public health, has led Yavapai County to train health department staff to conduct HIAs. These resources are available to assist CYMPO and its member organizations in any future transportation plans or projects that may impact the population's health.

2.0 Existing Regional Characteristics

2.1 Existing Socioeconomic Conditions

In April 2010, the U.S. Census Bureau conducted the Census 2010. The Census found an April 1, 2010 population for the CYMPO area at 122,907 people. This represented an increase of 29,725 people or about 32 percent since Census 2000. The Census also determined the population for each city or town within the CYMPO planning area. Because the preceding *Regional Transportation Plan (RTP)* was completed in 2006 and used demographic projections in line with previously burgeoning growth, the CYMPO updated the socioeconomic data for the planning area in the *2011 RTP Update*, completed in June 2012. The updated study referenced the 2000 and 2010 U.S. Census data. It summarized that altogether, 2030 population projections were 50 percent less than predicted in the 2006 study, and 2030 employment projections were 13 percent less than predicted in the 2006 study.

For the purposes of this study, population and employment data will generally be discussed in terms of traffic analysis zones (TAZs). TAZs are used to divide large regions, like the CYMPO, into smaller geographic elements to group socioeconomic data for traffic modeling purposes. U.S. Census data was distributed by TAZ to assist in understanding transportation demand and facility needs.

2.1.1 Population and Dwelling Units

Table 1 lists the population numbers by jurisdiction for 2000 and 2010. The majority of the population lives within the incorporated municipalities, including the Yavapai Prescott Indian Tribe. Prescott Valley had the highest total population increase of 65 percent, followed by Chino Valley (38 percent). During this time period, the region experienced an average annual growth rate of 3.5 percent. Figure 3 illustrates 2010 population density by TAZ.

Table 1 – Current Population Estimates

Jurisdiction	2000	2010	Increase	Percent Growth
Chino Valley	7,835	10,817	2,982	38%
Dewey-Humboldt	--	3,894	--	--
Prescott	33,938	39,843	5,905	17%
Prescott Valley	23,535	38,822	15,287	65%
Yavapai County (in CYMPO)	25,692	29,339	3,647	14%
TOTAL	91,000	122,715	31,715	35%

Source: 2000 Census; 2010 Census; 2011 Regional Transportation Plan Update
Note: Dewey-Humboldt was not a designated jurisdiction in 2000; therefore a population estimate is not presented, as that geography is included in the Yavapai County population estimate. And, although CYMPO was not organized as a MPO in 2000, population estimates for 2000 for the CYMPO geography are presented to understand growth trends in the current CYMPO planning area.

Figure 3 – 2010 Population Density

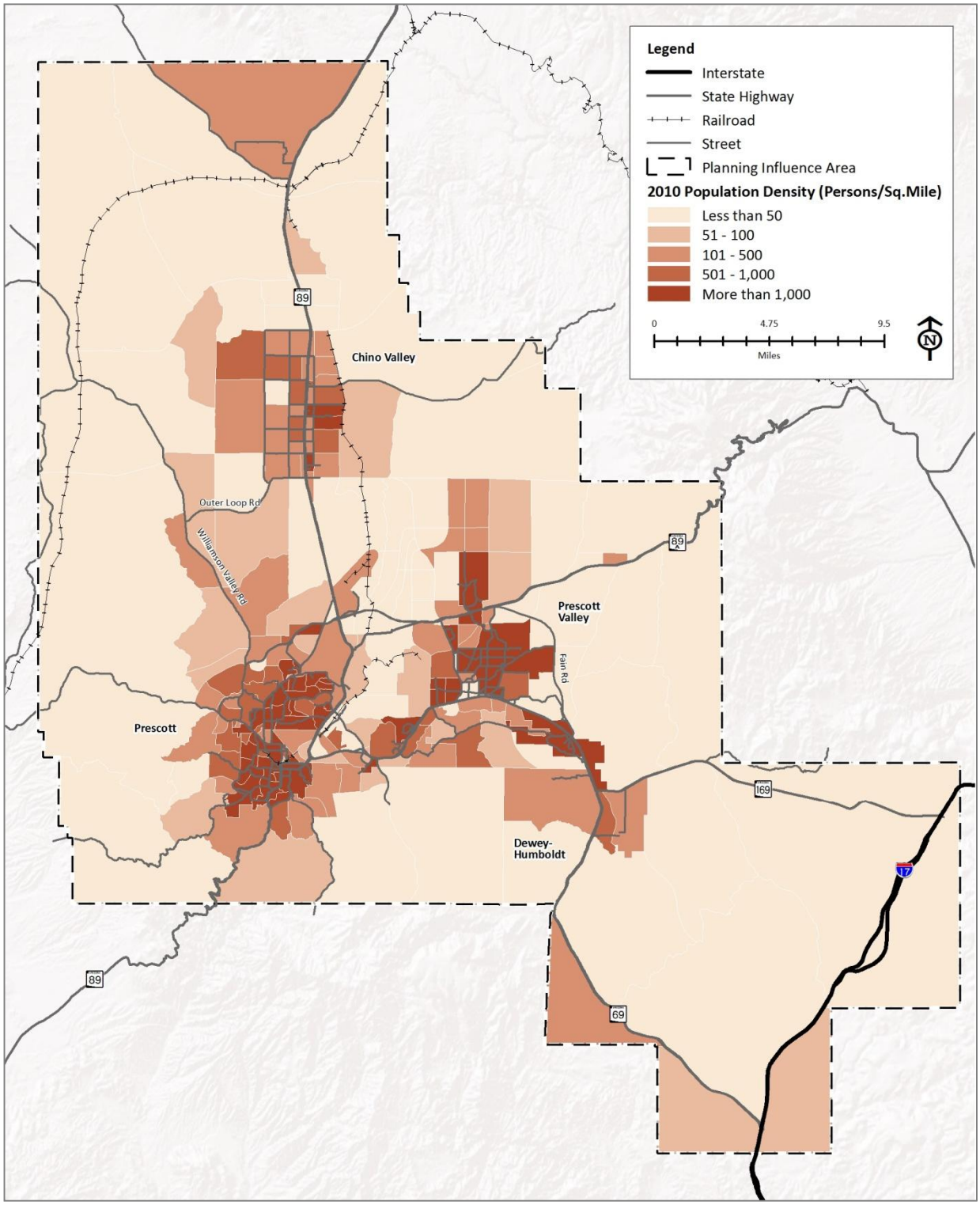


Table 2 provides estimates on the number of dwelling units within the CYMPO. The year 2000 numbers use adjusted Census 2000 data, based on the TAZ structure. The 2010 estimates were updated using feedback from local jurisdictions on land use changes and growth. The table shows the increase between 2000 and 2010, as well as the percent growth.

Table 2 – Current Dwelling Units

Jurisdiction	2000	2010	Increase	Percent Growth
Chino Valley	3,472	4,967	1,495	43%
Dewey-Humboldt	1,464	1,888	424	29%
Prescott	19,433	22,159	2,726	14%
Prescott Valley	11,358	17,494	6,136	54%
Yavapai County (in CYMPO)	11,257	17,204	5,947	53%
TOTAL	46,984	63,712	16,728	36%

Source: 2006 CYMPO RTP; 2010 Census; 2011 Regional Transportation Plan Update
Note: Dewey-Humboldt was incorporated after the 2000 Census; therefore the 2000 figures are based on TAZ data utilized in the 2006 CYMPO RTP.

The overall average growth in dwelling units for the area was 36 percent, consistent with population growth. Prescott Valley experienced a large amount of growth in dwelling units, while Yavapai County followed closely with the second largest percent growth.

2.1.2 Employment Forecasting

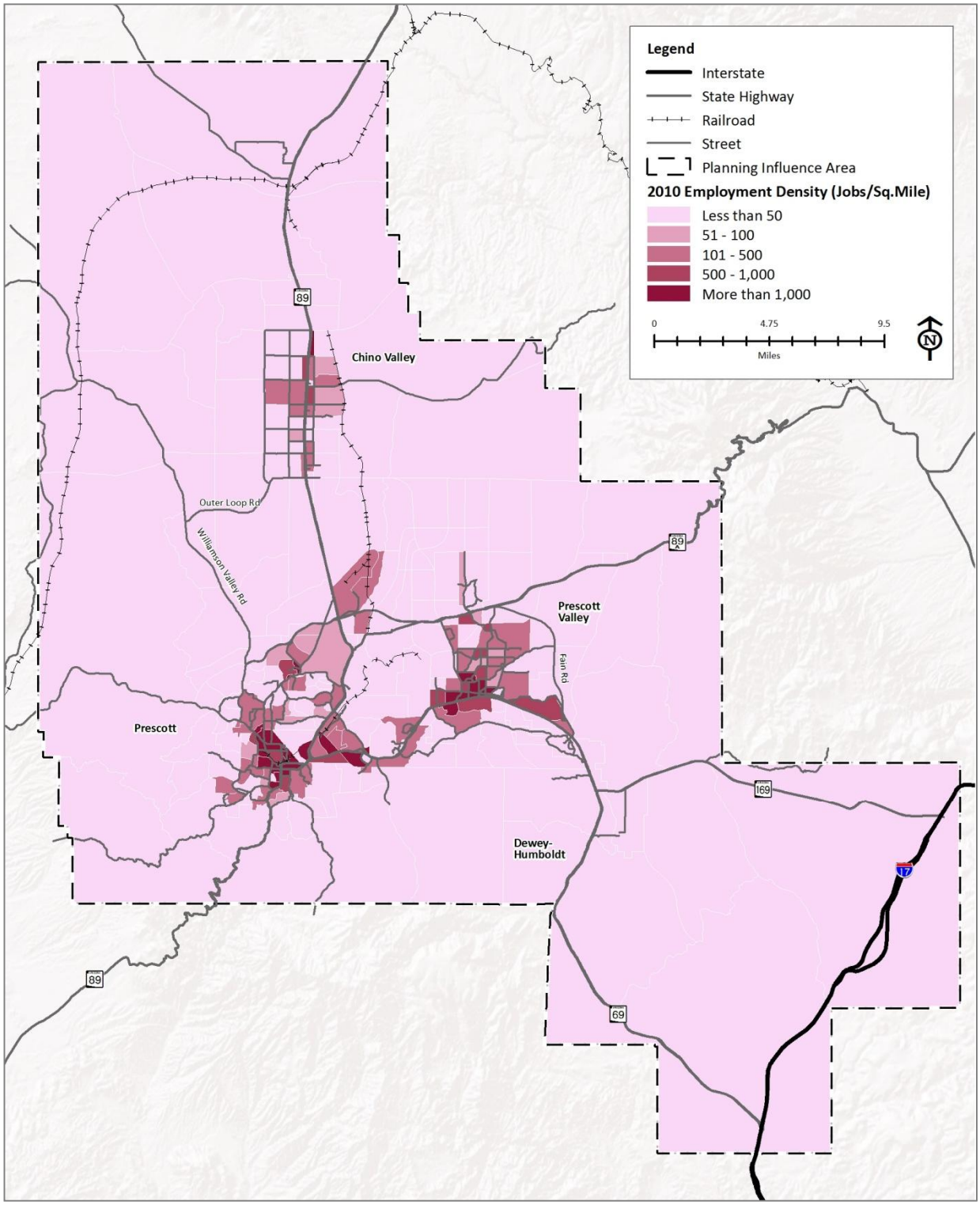
Table 3 lists the current and future projected employment numbers by jurisdiction for 2010 and 2040. The total employment for the region in 2010 is estimated at slightly over 44,000 jobs. Prescott has the largest employee base, while the community of Dewey-Humboldt has the smallest. Employment figures are based on three categories: retail, office, and industrial. Each category represents a different trip generation rate. The 2010 employment density distribution by TAZ is shown in Figure 4.

Table 3 – Current and Projected Employment

Jurisdiction	2010	2040	Increase	Percent Growth
Chino Valley	2,000	4,000	2,000	100%
Dewey-Humboldt	300	500	200	60%
Prescott	25,000	60,000	35,000	140%
Prescott Valley	9,000	16,000	7,000	78%
Yavapai County (in CYMPO)	1,000	1,000	0	0%
TOTAL	37,300	81,500	44,200	119%

Source: CYMPO Travel Demand Model

Figure 4 – 2010 Employment Density



Based on the employment inventory conducted as part of the *2011 RTP Update*, as well as subsequent CYMPO analyses, major employers currently in the area include:

- Yavapai Regional Medical Center
- VA Medical Center
- Yavapai College
- Yavapai County, city and town governments
- Embry-Riddle Aeronautical University
- Wal-Mart Supercenter

Areas projected for major employment growth include:

- Prescott Municipal Airport vicinity: transportation hub with related industrial and business development (e.g., expansion of aviation-related education, repair shops, aviation-dependent businesses; potential for economic development to expand north of Prescott toward Chino Valley along SR 89) (Draft Prescott General Plan, 2013)
- Downtown Prescott: strengthen the downtown not only as a tourist destination, but also as a priority economic development and re-development area with a mix of commerce services (Draft Prescott General Plan, 2013)
- SR 69 corridor through Prescott Valley: added business park and regional commercial uses expected (Prescott Valley General Plan, 2013)

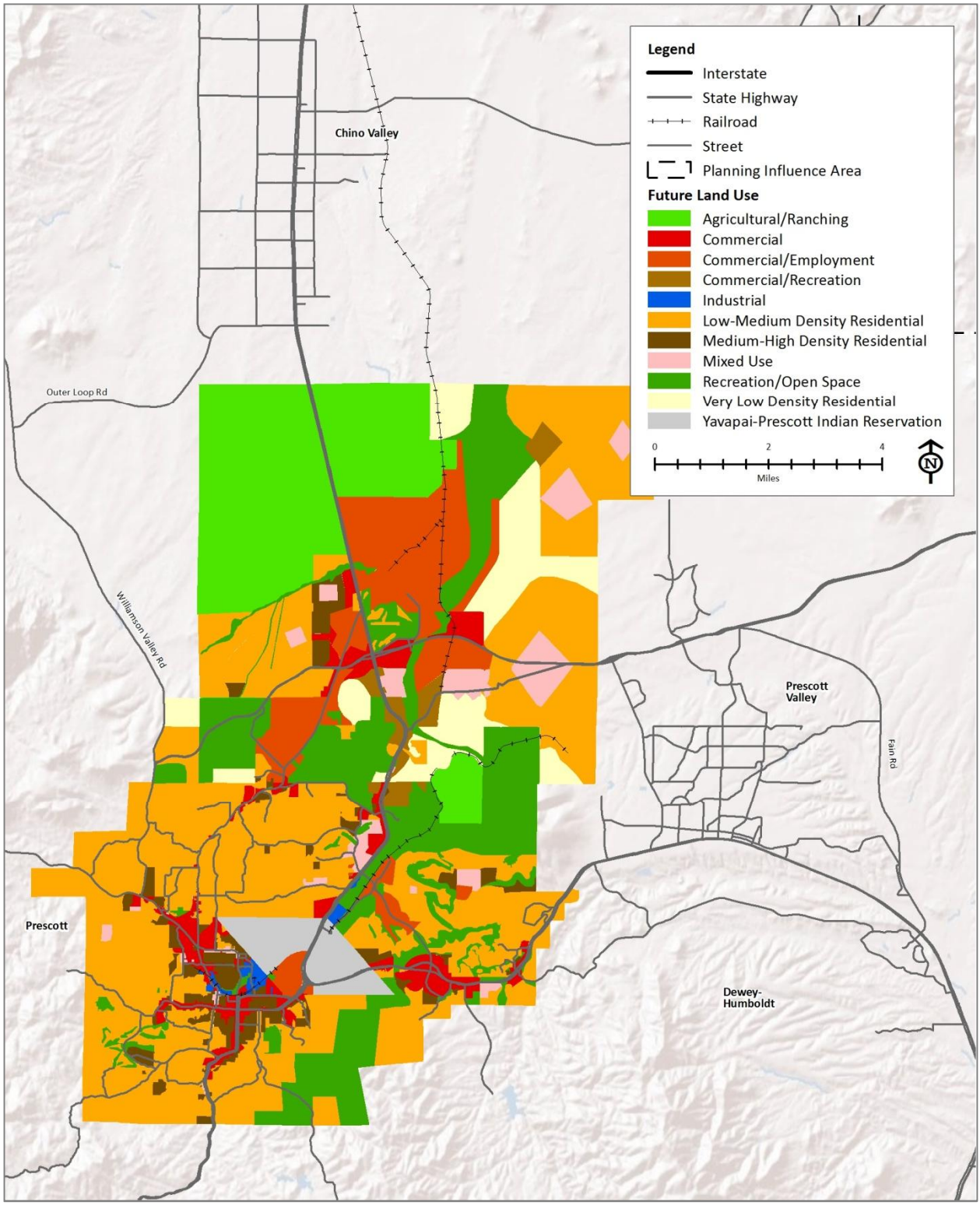
2.1.3 Regional Land Use Patterns

The CYMPO member cities and towns maintain local Geographic Information System (GIS) databases of existing and future land uses. The existing land use data set depicts the current status of land as it is built presently. The future land use data set is created using the current adopted General Plans and known developments. Since these data sets are instrumental in developing socioeconomic projections, the data sets are updated on a regular basis. Figure 5 displays the future land use data for the CYMPO region (only includes data that was made available by the respective jurisdictions).

The City of Prescott has recently annexed and rezoned about 247 acres of land west of the Prescott Municipal Airport for airport-related and mixed-use development (West Airport Annexation). The property is bounded on the south by Pioneer Parkway, on the east by SR 89, and for a distance on the west by Willow Creek Road. The property was previously zoned in the County for single-family residential, and was rezoned to a mix of multi-family residential, commercial, and industrial zoning districts. This annexation is a component of a larger area (2,600 acres) that was previously rezoned through a General Plan Amendment to prepare for future development, known as the Prescott West Airport Conceptual Master Plan (2008).

The City of Prescott is also considering annexation and rezoning about 497 acres of land north of the Prescott Municipal Airport (North Airport Annexation). The property is bounded on the west by SR 89, on the southeast by the Prescott Airport, and east by private land (James Deep Well Ranches). The land is currently vacant. In association with the annexation request are a master plan and a rezoning.

Figure 5 – Future Land Use



A major component of the proposed master plan is the development of a new campus for the Yavapai Regional Medical Center (YRMC) including a hospital and associated facilities. The property is proposed for rezoning to commercial (business regional) and industrial (industrial light) zoning districts, compatible with the General Plan and Airport Specific Area Plan land use designations for that area.

There have been no new annexations in the Town of Prescott Valley within the past two years, however the adopted 2013 General Plan notes potential future annexation areas to the west (contiguous to the City of Prescott) and south/east (adjacent to the Town of Dewey-Humboldt) of the current incorporated boundary, such as the annexations for Sections 4 and 9 (Swanson/Gisi development). No recent annexations have occurred or are known to be planned in Chino Valley or Dewey-Humboldt.

2.1.4 Title VI and Environmental Justice Assessment

Title VI of the Civil Rights Act of 1964 and Executive Order 12898 provide guidance on identifying populations to prevent the exclusion of persons or populations from participation in, denial to persons or populations the benefits of, or the subjection of persons or populations to discrimination under any program or activity receiving federal financial assistance because of race, color, or national origin. Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, reaffirms the principles of Title VI and related statutes. Consideration is given to the minority and low-income populations as stated in the Executive Order as well as elderly, disabled, and female-head-of-household populations. The U.S. Census Bureau refers to these populations according to the following definitions:

- Minority – anyone who is racially classified as African American, Asian American, Native American or Alaskan Native, or Pacific Islander; anyone who self-classifies as "other" race; or anyone classified as Hispanic.
- Hispanic – considered an ethnicity, not a separate race; Hispanics are considered minorities regardless of their racial self-affiliation.
- Elderly – individuals 60 years of age and over.
- Low-income – determined by a set of money-income thresholds that varies by family size and composition. If the total income for a family or unrelated individual falls below the relevant poverty threshold, then the family or unrelated individual is classified as low income, or below the poverty level, at the time of the census.
- Disabled – non-institutionalized civilians (people not under formally authorized, supervised care or custody in institutions like hospitals and prisons) who are 5 years of age and older and have reported a long-lasting physical, mental, or emotional condition.

The CYMPO area census data were compared with that of Yavapai County as a whole to assess whether minority, elderly, low-income, or disabled populations are disproportionately represented in the project area. According to FHWA's environmental justice guidance (FHWA 1998), a population is considered concentrated and identifiable (that is, a distinct population) if it composes more than 50 percent of the total population in a given geographic area, though a small minority or low-income population in the project area does not eliminate the possibility of a disproportionately high and negative effect on that population.

Based on the most recently available Census data for Yavapai County, the threshold for each community of concern is as follows:

- Minority population – 18.0 percent of population or higher
- Population in poverty – 14.9 percent of population or higher
- Disabled population – 14.9 percent of population or higher
- Elderly population (Over 60) – 32.8 percent of the population or higher
- Linguistic isolation (LEP) – 1.8 percent of households or higher

Figure 6 through Figure 9 show the block groups and census tracts (block groups were used where available) where communities of concern are within the CYMPO study area.

2.1.5 Public Involvement Process for Title VI/EJ Communities

Regardless of the audience, the need for transportation commonly arises as a key concern. People rely on a range of transportation services to earn a living, secure education, and access medical care. Limited access to safe, affordable, and reliable transportation options significantly impairs one's ability to live independently. Vulnerable populations are more deeply affected due to scarcity of alternatives and the depth of need for assistance. The CYMPO addresses Title VI/EJ Communities in a number of ways, through various public outreach activities targeted to both specific minority groups and the general public as a whole. These techniques/activities are defined in detail in Appendix A of *CYMPO's Public Participation Plan for Transportation Planning* (2011).

2.1.6 Limited English Proficiency

Arizona's diverse population makes it important the CYMPO be innovative and proactive in engaging individuals from different cultures, backgrounds and business in planning, project development and other program areas. In order to ensure the public receives and understands information vital to participate, CYMPO has endorsed and approved (September 2013) a Limited English Proficiency (LEP) plan. This Plan maintains guidelines so that LEP populations are notified of the availability of language assistance services and that vital documents are translated in languages other than English.

Figure 6 – Minority Population

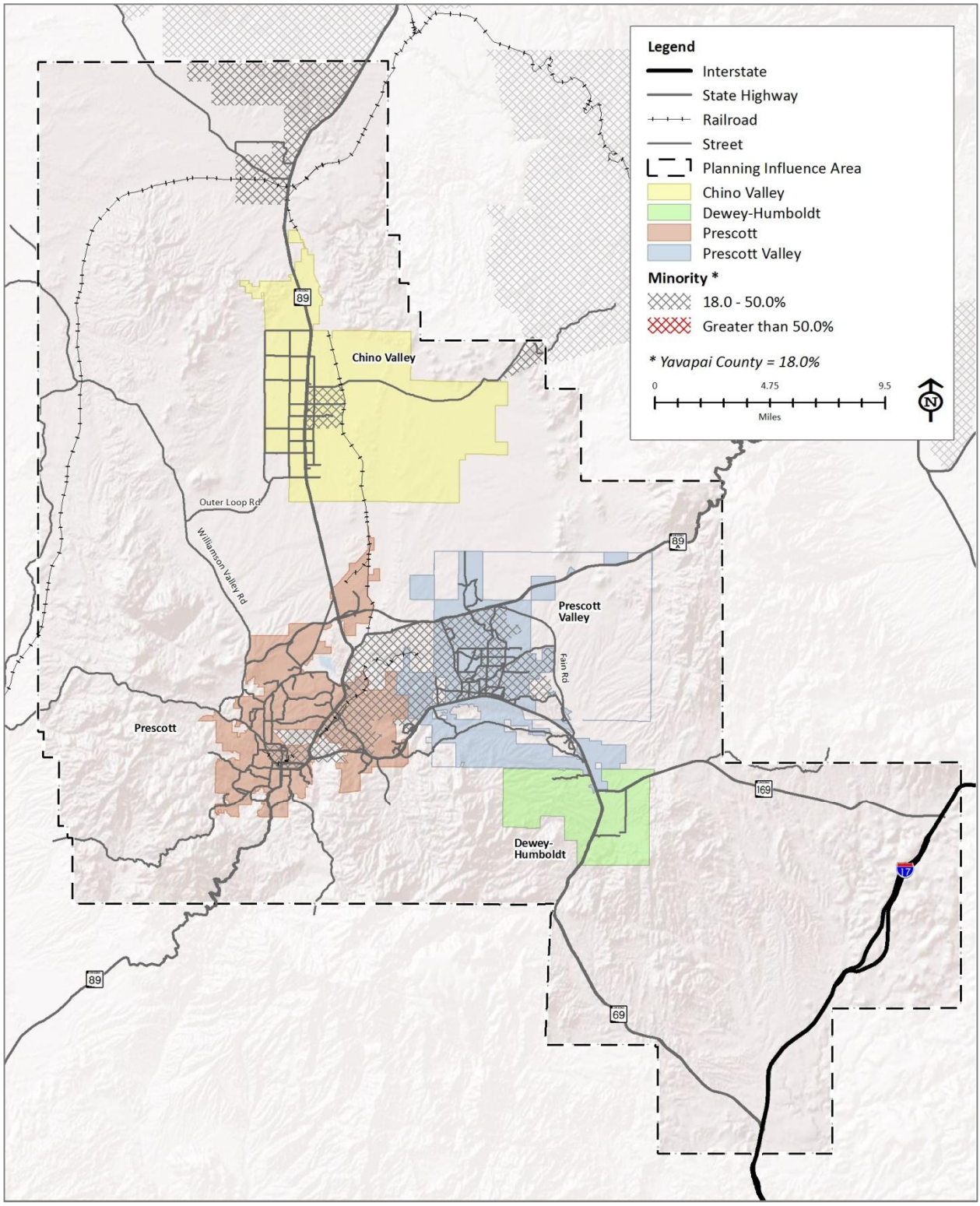


Figure 7 – Population in Poverty

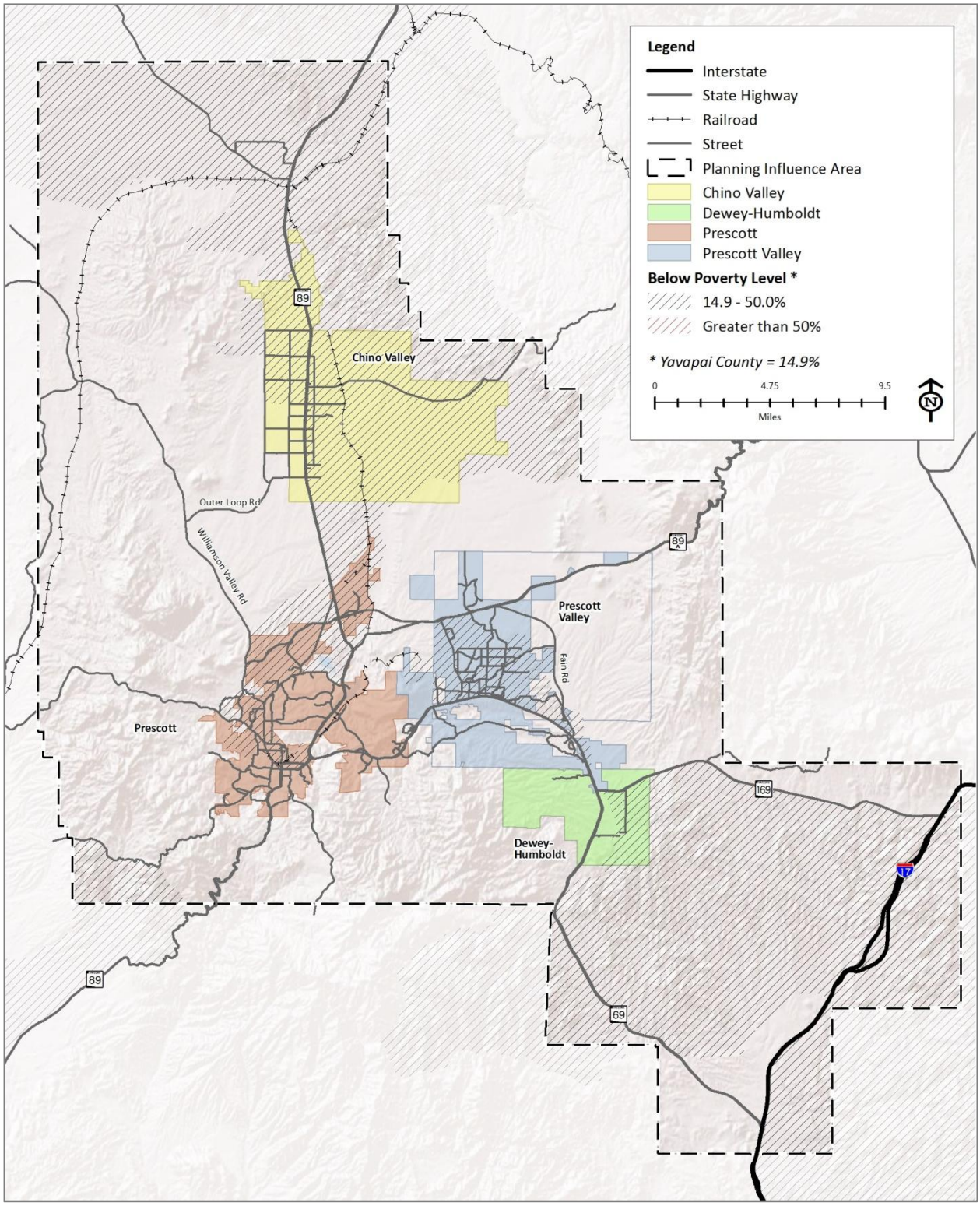


Figure 8 – Disabled Population

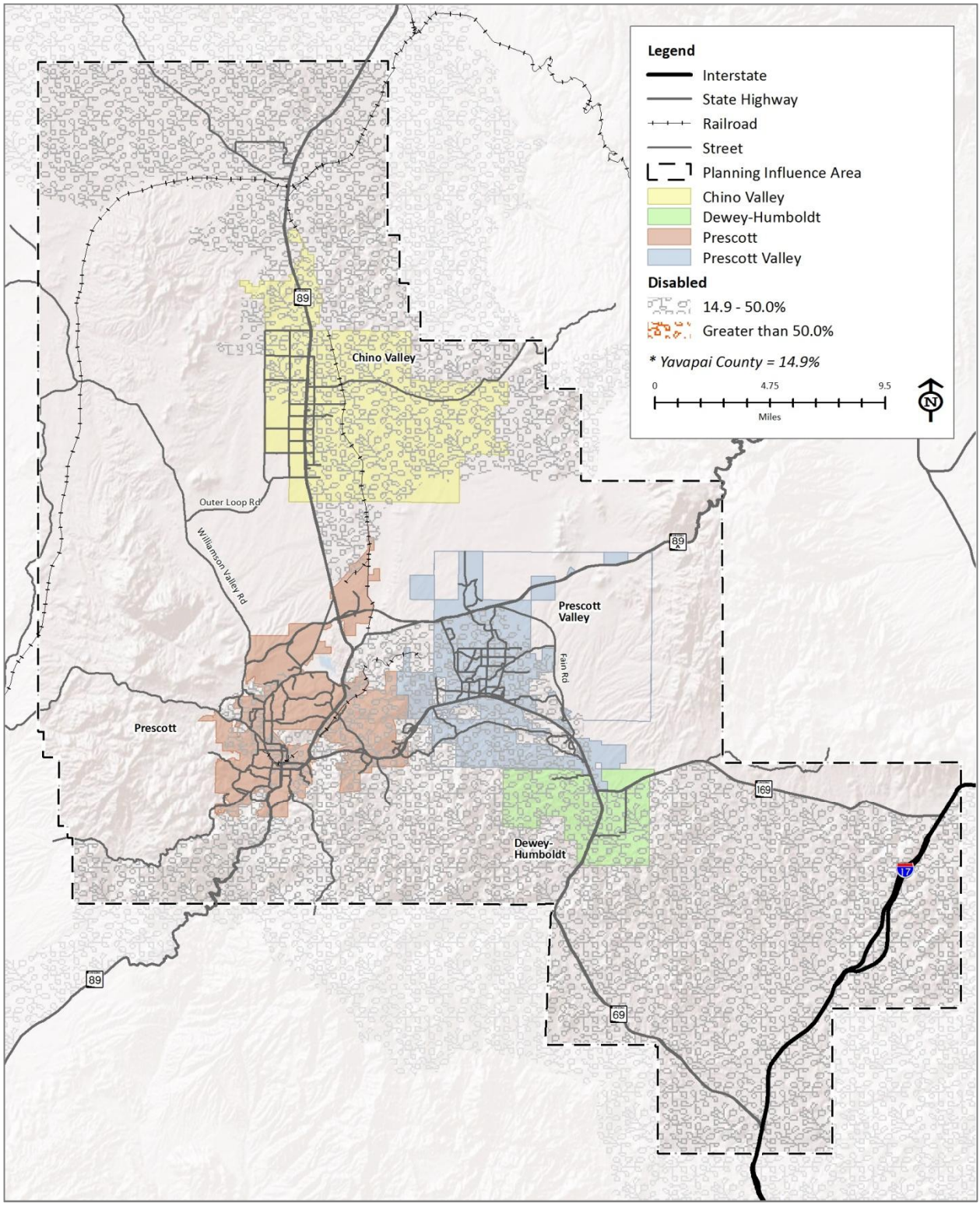
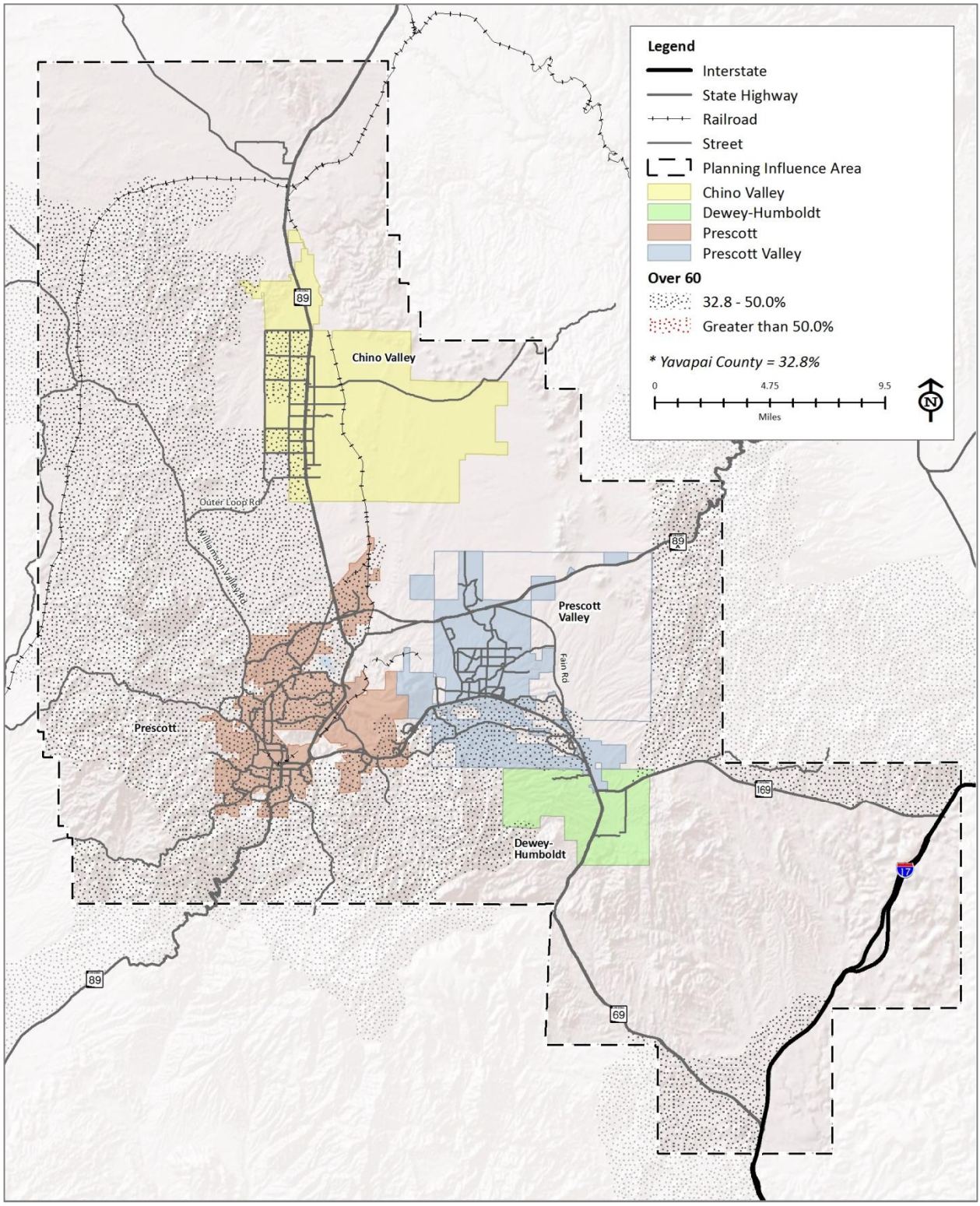


Figure 9 – Elderly Population (Over 60)



2.2 Transportation Characteristics

2.2.1 Data Collection

At the beginning of the RTP Update process, an extensive data collection effort was conducted to obtain a series of datasets for use in the travel demand model development. Typically, these are GIS datasets of transportation features, recently updated for General Plan documentation or other studies. The study team compiled and reviewed this data, performing edits and updates as required to account for recent network changes. All changes were reviewed by the CYMPO and Technical Advisory Committee (TAC). These datasets will serve as inputs to refinement of the Focused Travel Demand, which relies on ADOT's model infrastructure.

2.2.2 Existing Roadway System

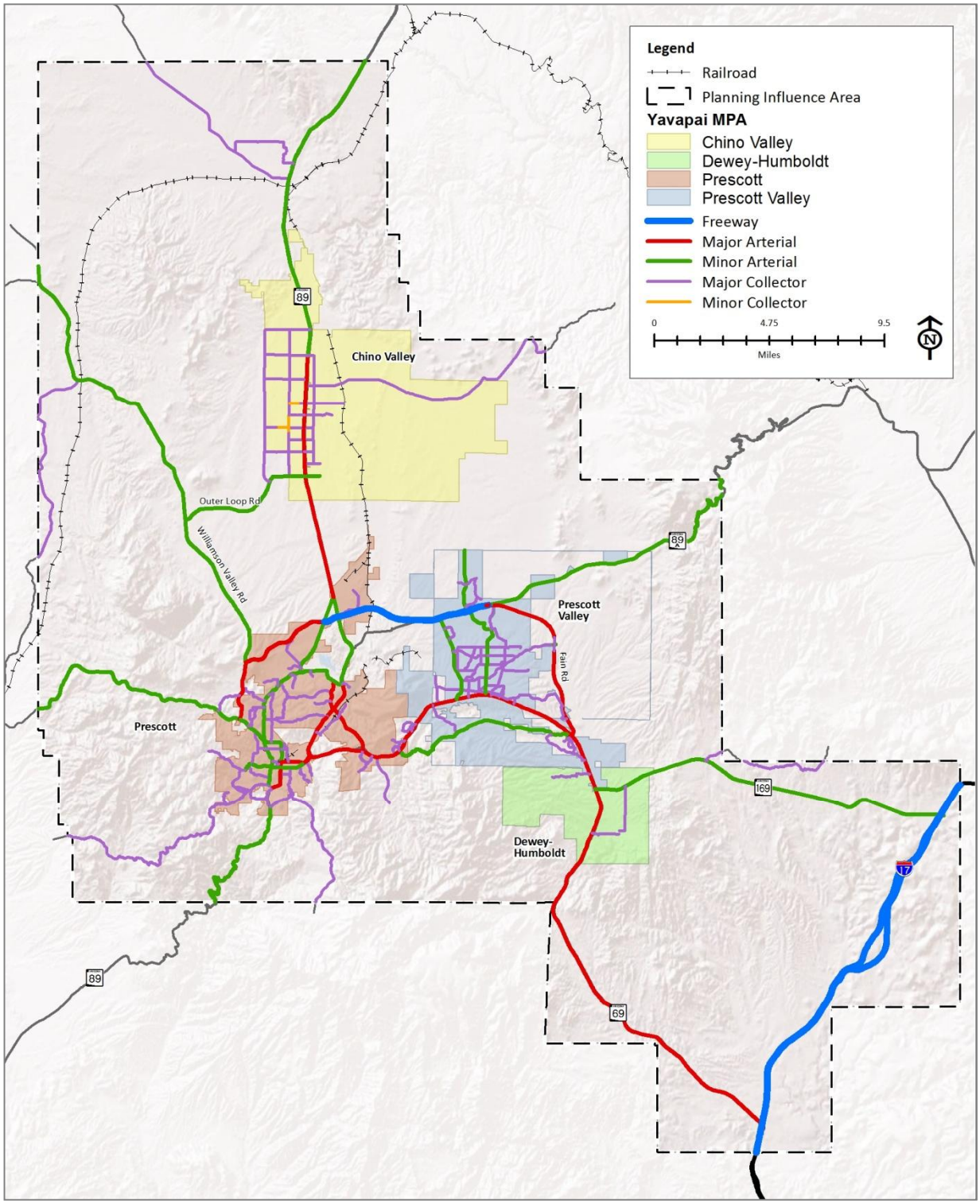
The existing roadway system serving the CYMPO region contains a set of regional roadways that connect the communities together, and local roadways that serve each jurisdiction. Regional roadways include I-17, SR 69, SR 89, SR 169, and SR 89A. These routes connect the CYMPO to the rest of Arizona and serve as main thoroughfares for the jurisdictions. SR 69 travels southeast of the main population centers, connecting to I-17 and serving as the primary route of travel between the CYMPO region and metropolitan Phoenix. With the city/town limits, it serves Prescott and Prescott Valley as one of their main roadways, with substantial commercial development located along the corridor. SR 89 serves as a main north-south roadway within Prescott and travels north from Prescott through Chino Valley, ultimately connecting with I-40. SR 169 provides another easterly connection to I-17, primarily for those traveling north to Flagstaff or other parts of eastern Arizona. SR 89A travels east with connections to the Sedona and Verde Valley region, as well as continuing north to Flagstaff.

Roadway Functional Classification

Functional classification is a grouping of streets and highways by the character of service they intend to provide. Defining a street's functional classification serves as a basis for establishing speed limits, design standards, and access control. A major arterial, for example, provides mobility between long distances with minimal access to adjoining properties. A collector, on the other hand, provides access to adjacent properties rather than serving long distances.

The approved ADOT functional classification system was used as a base and modified to reflect more accurate functionality on particular roads for modeling purposes. For example, Fain Road is classified as a minor arterial in the ADOT Highway Performance Management System (HPMS); however, for the model, Fain Road was coded partially as a freeway and major arterial, which more closely reflects how Fain Road operates. Figure 10 shows the classification system used for the model. Only minor collectors and greater are shown. Local and neighborhood streets are not included in the travel demand model since they do not serve regional transportation needs.

Figure 10 – Existing Roadway Functional Classification



Within the CYMPO region, I-17 and SR 89A are the only corridors coded as "freeways" in the model. By definition, a freeway has very limited access, carries the largest volumes of traffic, and functions mainly as a facilitator of through movements bypassing the CYMPO.

The arterial street system is a critical element of the regional transportation network, providing the region with a high level of accessibility and mobility, serving automobile traffic, transit, bicycle and pedestrian traffic. Major arterials serve centers of activity and carry the second largest traffic volume within the area. They carry the major portion of trips entering and leaving the area, as well as the majority of through movements bypassing central areas. Major arterials usually have fully or partially controlled access. Minor arterials connect with the major arterials and provide service trips of moderate length and distribute vehicles to collectors.

In addition to the arterial street system, the region is served by non-arterial streets, which include all local and collector streets. Collector streets provide traffic circulation within residential neighborhoods and low density areas, and direct access to adjacent properties. The collector system also distributes trips from the arterials to the local streets. Examples of urban collectors include Lakeshore Drive in Prescott Valley, Rosser Street in Prescott, and Center Street in Chino Valley. Non-arterial streets carry a relatively small amount of the total traffic in the region, primarily providing access to businesses and residences. The development of local street mileage is closely associated with the growth in population and employment.

Number of Lanes

The majority of the streets in the study area are two-lane facilities as shown in Figure 11. Four lane facilities include SR 69, Fain Road, portions of Williamson Valley Road, portions of SR 89, SR 89A, I-17, and a handful of streets in Prescott Valley and Prescott.

Speed Limits

Speed limits were inventoried as inputs into the travel demand model. In the CYMPO region, the posted speed limits generally range between 25 and 45 mph on incorporated municipality streets. I-17 is posted at 75 mph. Many of the arterials, especially state routes, are posted at 55 mph.

Traffic Counts

Existing traffic counts are shown on Figure 12. Counts are included for segments of the major roadway network. These counts provide an understanding of which roadways within the region are most heavily traveled. Roadways such as SR 69 and Glassford Hill Road have some of the higher traffic volumes in the region. Around 20,000 vehicles per day (vpd) travel on SR 89 between Chino Valley and Prescott and upwards of 36,000 vpd on sections of SR 69 between Prescott and Prescott Valley.

Existing traffic count information was compiled from each of the CYMPO member agencies, varying in data collection years from 2011 through 2013. Accurate traffic counts are an important input to development of the focused travel demand model. Therefore, this inventory effort identified areas where counts have not previously been collected and are required, and a field survey was conducted to obtain this information.

Figure 11 – Roadway Network by Number of Lanes

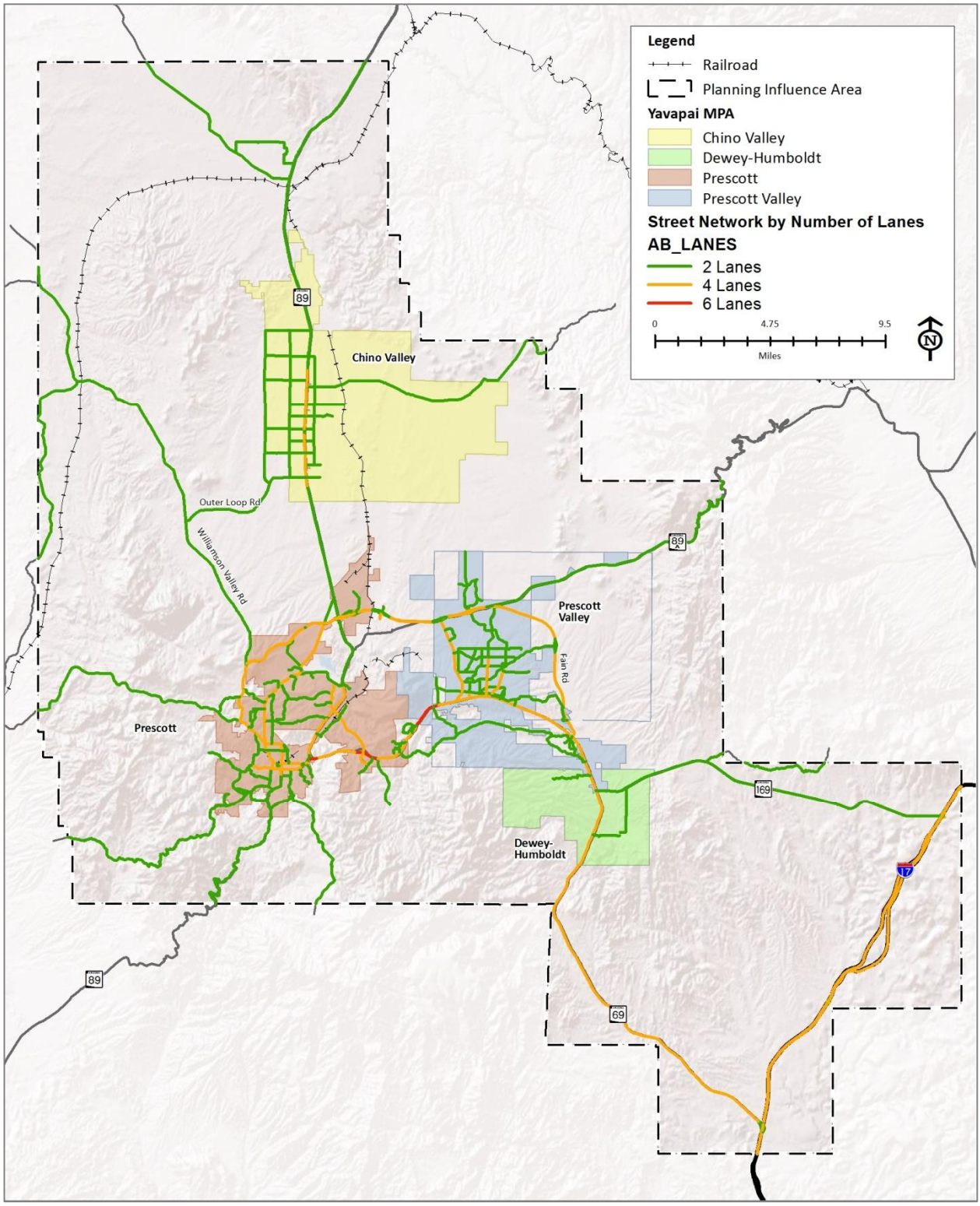
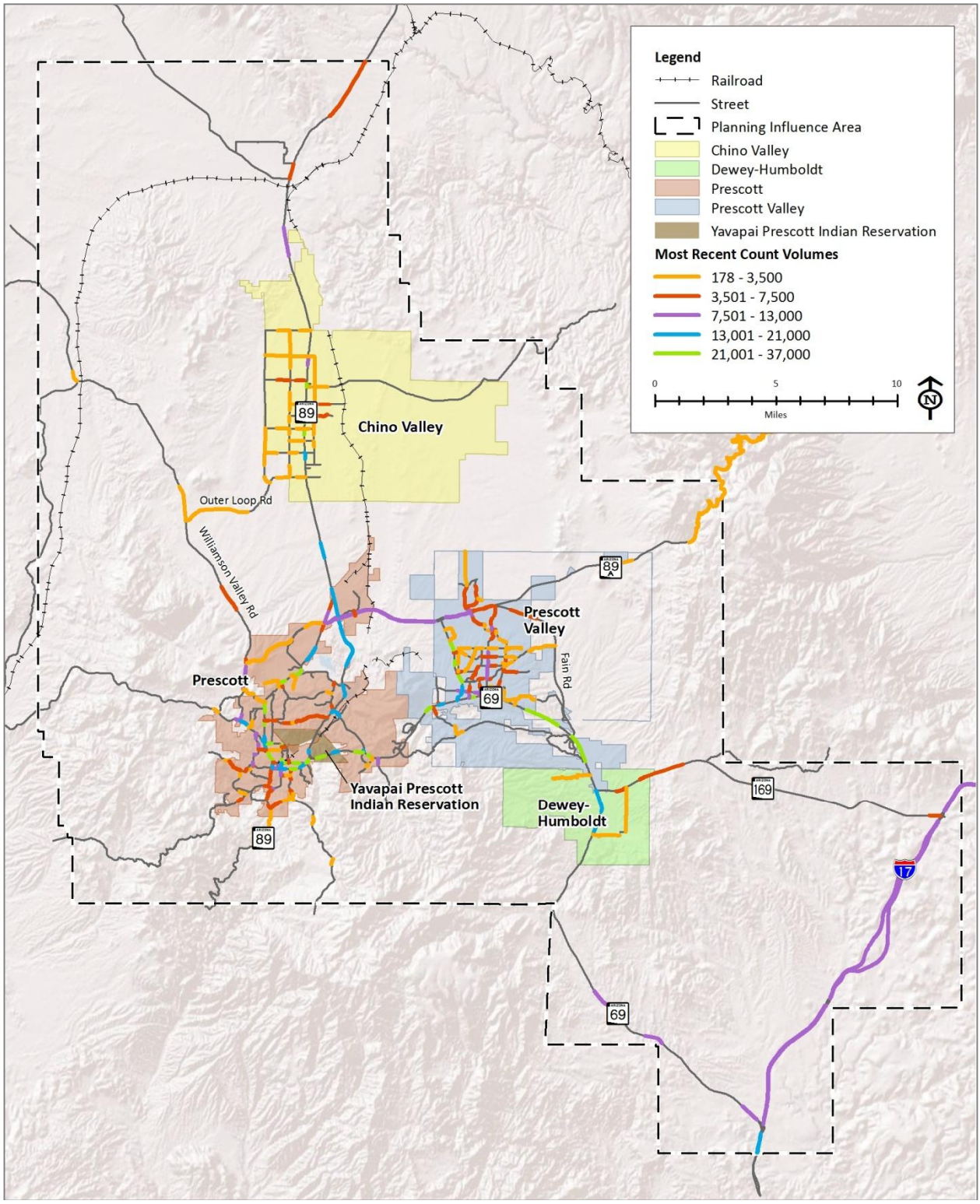


Figure 12 – Existing Traffic Counts



2.2.3 Existing Network Traffic Conditions

The traffic volumes and LOS of the existing 2010 network are displayed in Figure 13 through Figure 17. The highest volume roadways include most of the regional routes, such as SR 69 between Prescott and Dewey-Humboldt, SR 89 between Chino Valley and Prescott, Willow Creek Road, and Glassford Hill Road between SR 69 and SR 89A.

The V/C ratios indicate that some of these regional routes also experience the highest level of congestion. The following summarizes the key areas of the CYMPO network that have a V/C ratio that represents LOS E or F:

- Multiple sections along SR 89
- Robert Road south of SR 89A
- Multiple section along SR 69
- Short sections of other non-regional roadways

A majority of this congestion is related to high volumes of regional commuter traffic. Some of the areas of congestion in downtown Prescott are more associated with the high concentrations of population and employment in that area.

Figure 13 – CYMPO 2010 Traffic Volumes and Levels-of-Service

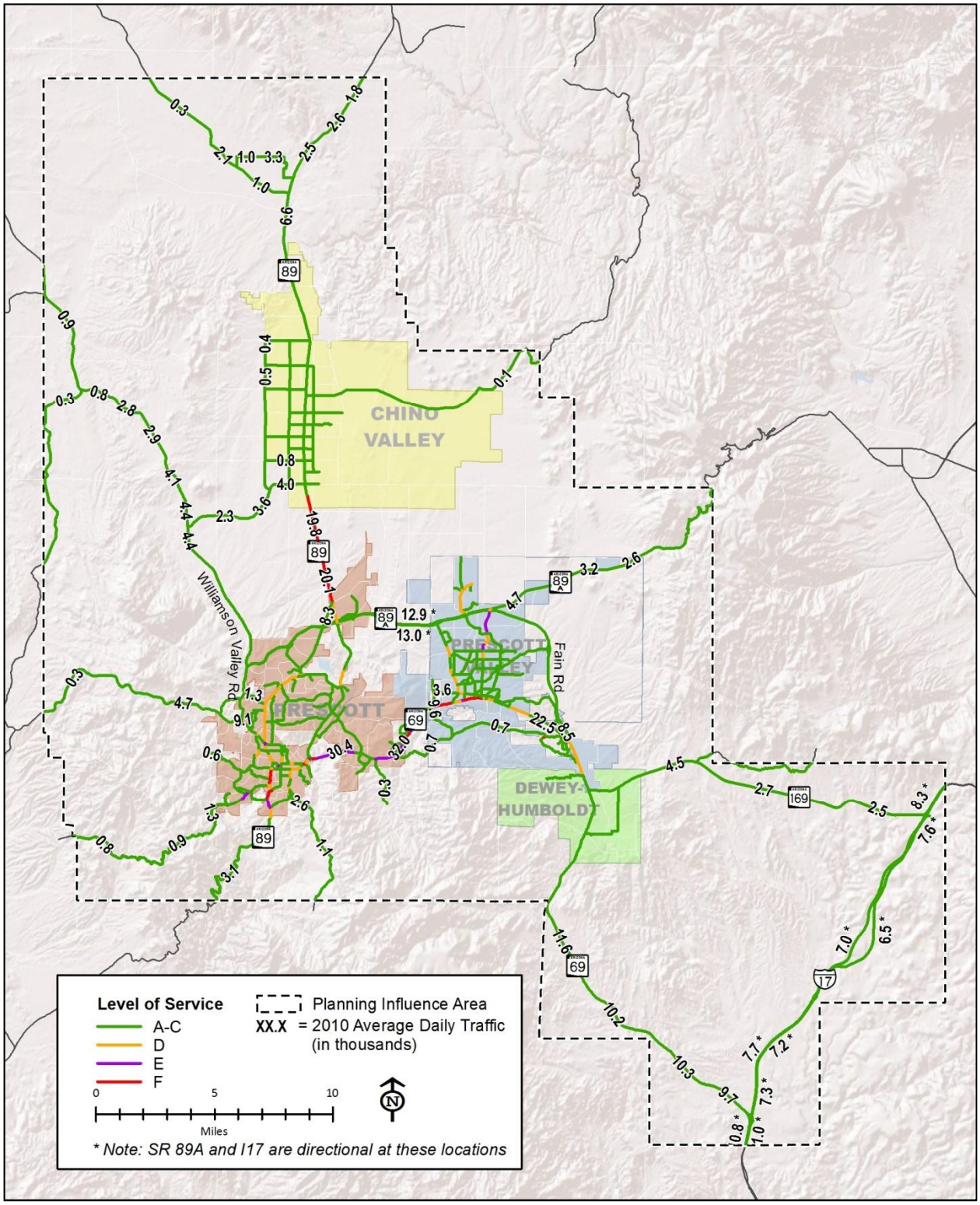


Figure 14 – City of Prescott 2010 Traffic Volumes and Levels-of-Service

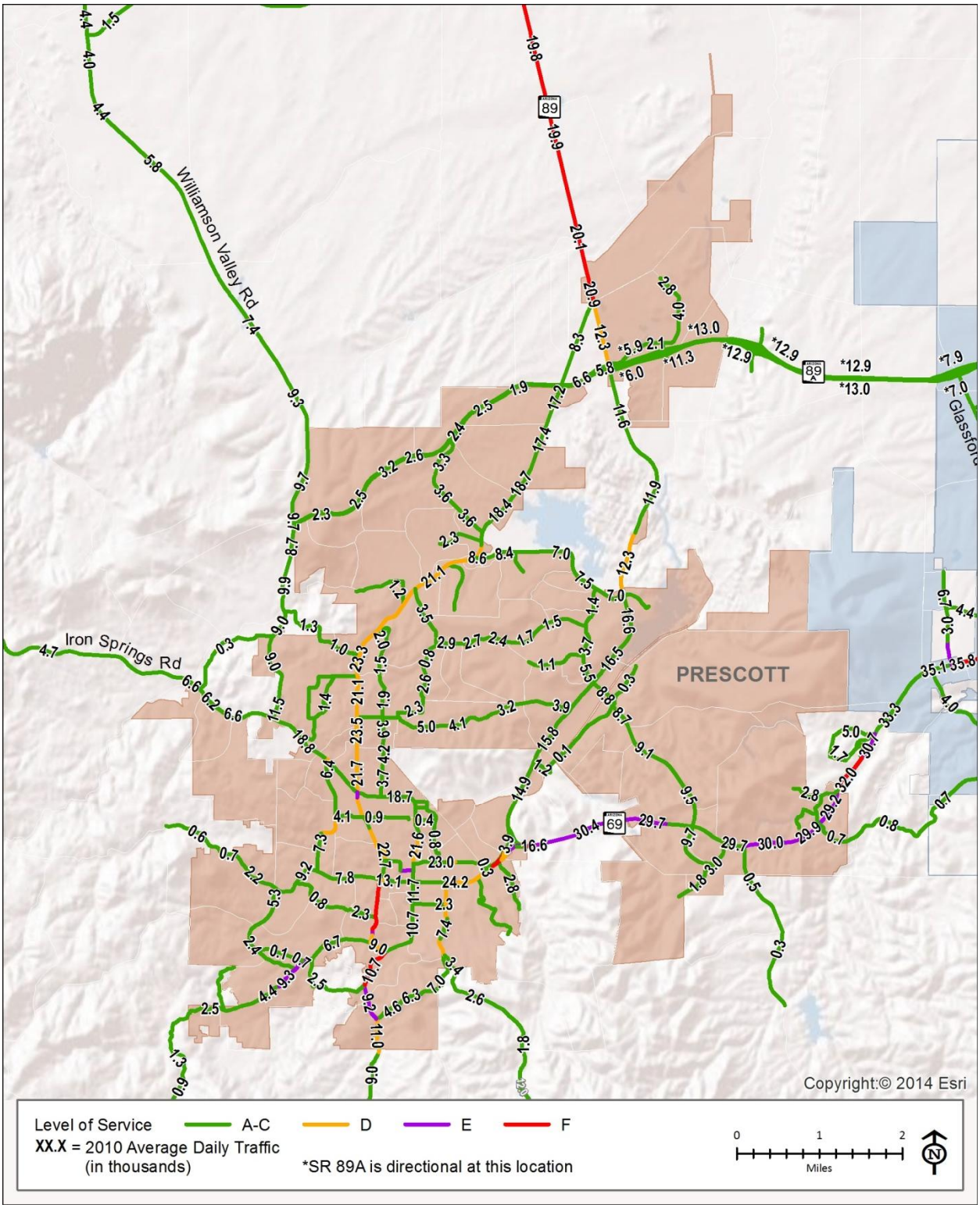


Figure 15 – Town of Prescott Valley 2010 Traffic Volumes and Levels-of-Service

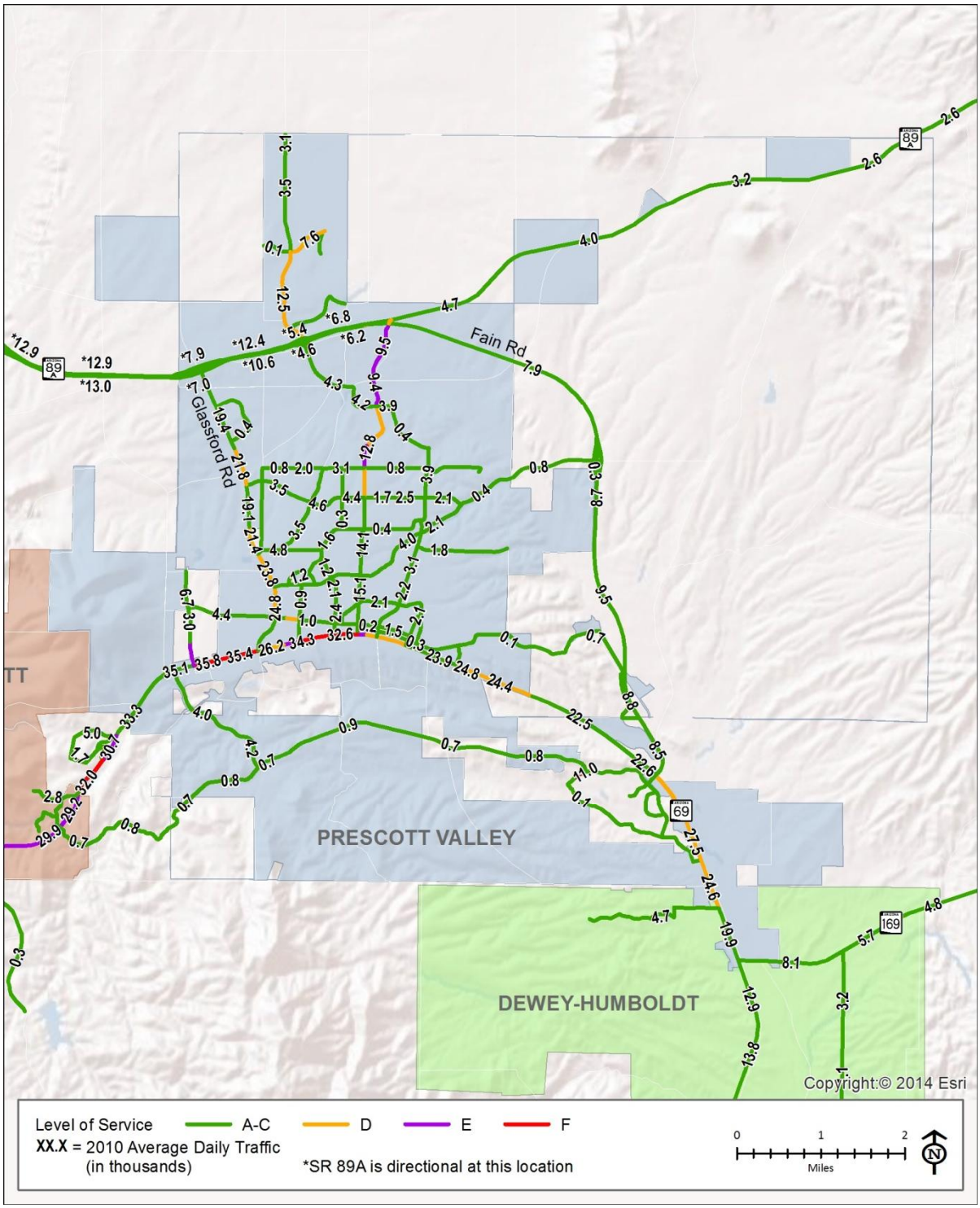


Figure 16 – Town of Chino Valley 2010 Traffic Volumes and Levels-of-Service

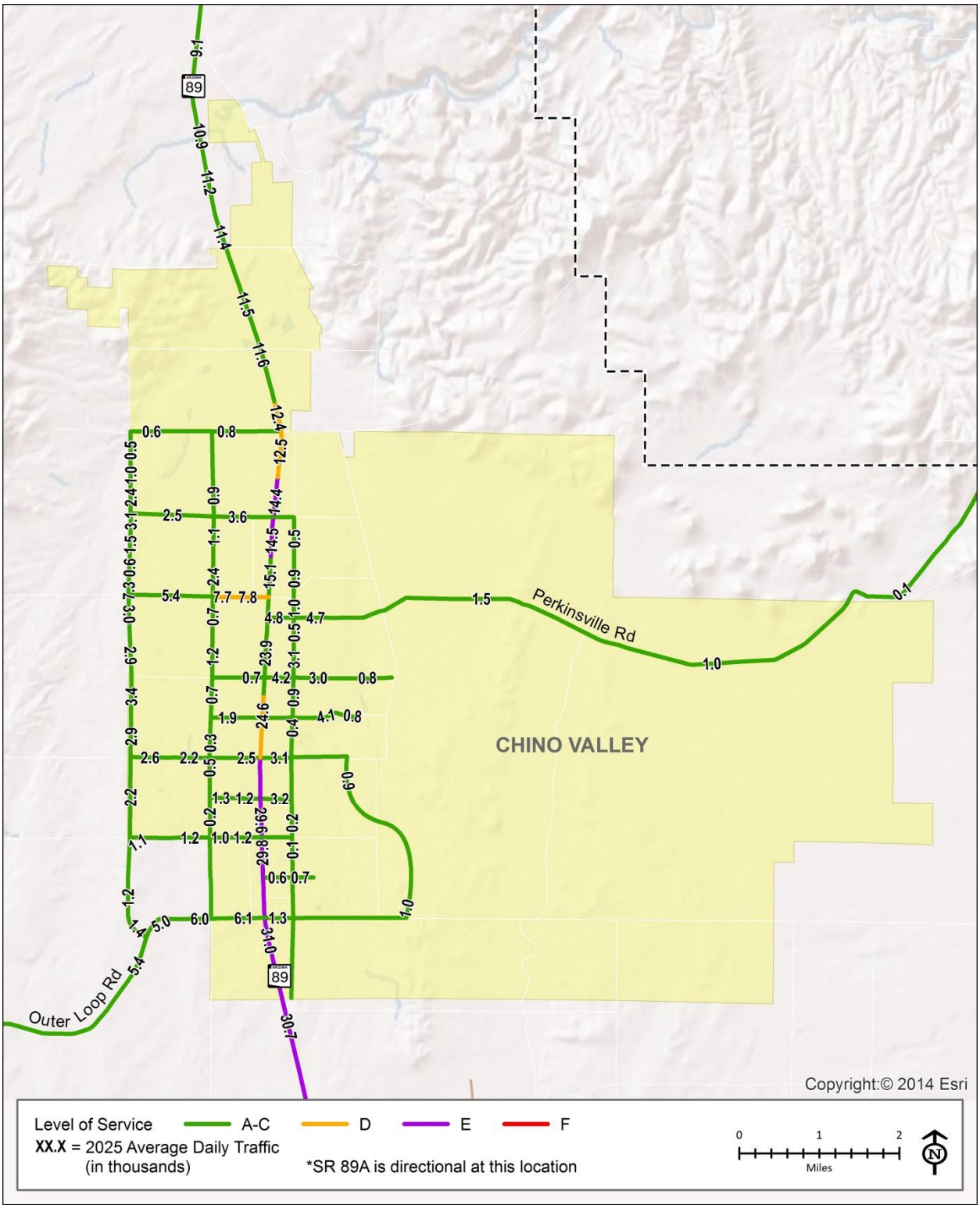
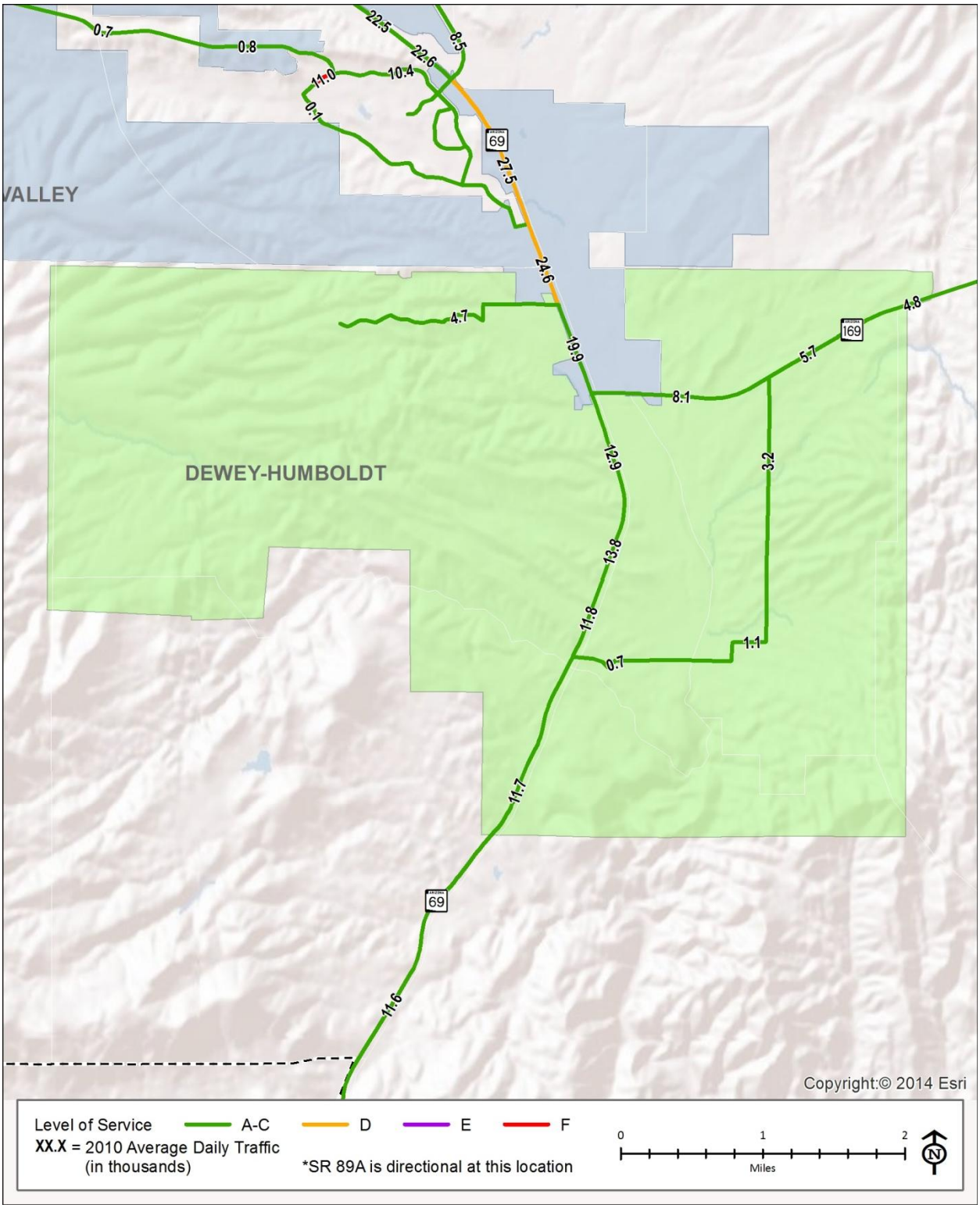


Figure 17 – Town of Dewey Humboldt 2010 Traffic Volumes and Levels-of-Service



2.3 Transportation Plans and Studies

For each CYMPO member agency, a summary of transportation goals and description of future network improvement projects is provided.

2.3.1 Yavapai County Plan

The *Yavapai County Comprehensive Plan* (9/17/2012) identifies three major transportation element goals. These are: fully integrated coordination between land use planning and transportation planning, encouragement of multi-modal transportation opportunities (including transit), and ensured consistency between transportation and land use through a thorough review and understanding of land use zoning policy. In summary, Yavapai County transportation goals are centered on the cohesion of transportation and land use as well as the promotion of multi-modal options for users.

The Yavapai County Comprehensive Plan (9/17/2012) lists the following major planned regional projects in the Central Yavapai area.

- Great Western/Glassford Hill Extension, which will provide connectivity north of Prescott Valley and southeast of Chino Valley. The corridor alignment connects SR 89A at Great Western Road to SR 89 approximately one mile south of Outer Loop Road.
- I-17 to SR 169 connector, a continuation of the previously studied SR 169 to Fain Road connector. The new facility would provide a direct connection between I-17 and SR 89A and would alleviate future congestion on SR 69.
- Williamson Valley Road to be widened to four lanes.
- SR 89 to be widened between Chino Valley and Prescott.
- Intersection improvements at the intersections of SR 89 and Road 4 North and SR 89 and Perkinsville Road.
- SR 89 between Road 5 South in Chino Valley and the Prescott Airport would be widened to four lanes.
- A connector between SR 89 and SR 69 is being planned by the Yavapai-Prescott Indian Tribe (constructed).
- SR 69 construction as a six-lane access-controlled roadway, identified as a long-range project.
- Widening of I-17 to six lanes from Cordes Junction to SR 169 as a long-range project.

2.3.2 City of Prescott Plan

The *Draft 2014 City of Prescott General Plan* identifies transportation goals for each of three types of facilities separately: arterial streets, collector streets, and local streets. Goals for arterial roadways include providing adequate level of service (LOS) and options for alternative mode usage during peak hours. The goals for collector roadways include providing safe access to community amenities (such as schools and libraries), connecting neighborhoods to each other, and connecting neighborhoods to commercial centers. The goals for local streets include providing efficient access to emergency response vehicles, and enhancing the environment and livability of neighborhoods. The general plan also includes

transportation goals revolving around enhanced transportation safety, efficient management of the existing system, and the increased integration of bike, pedestrian, transit, and air travel modes. The *Draft 2014 City of Prescott General Plan* does not provide a detailed list of future transportation projects, instead referring to the plan developed in the CYMPO RTP.

2.3.3 Town of Prescott Valley Plan

The Town of Prescott Valley General Plan 2025 identifies a guiding principle for its circulation element that emphasizes traffic safety and efficiency, pedestrian safety, economic development, and alternative modes of travel. The plan also affirms a second guiding principle that establishes the need to administratively adopt transportation recommendations made by CYMPO. The general plan adopts goals for its circulation element to 1) encourage alternative modes of travel, including transit, 2) incorporate a comprehensive public trails system to increase connectivity to parks and other community amenities, 3) adopt a street improvement program that draws maximum capacity from existing infrastructure, 4) increase connectivity to the local airport in order to support air travel, and 5) adopt relevant transportation projects approved by CYMPO in the Prescott Valley plans.

The *General Plan* lists several improvement projects for the 2025 future build-out network. With the exception of roadways requiring the specified improvements, the Prescott Valley system was anticipated to operate at LOS E or better in 2025. The projects listed would improve the roadways through capacity augmentations, including (but not limited to) signal timing improvements, additional intersection lanes, auxiliary lanes, and intersection grade separations. The projects identified are listed below:

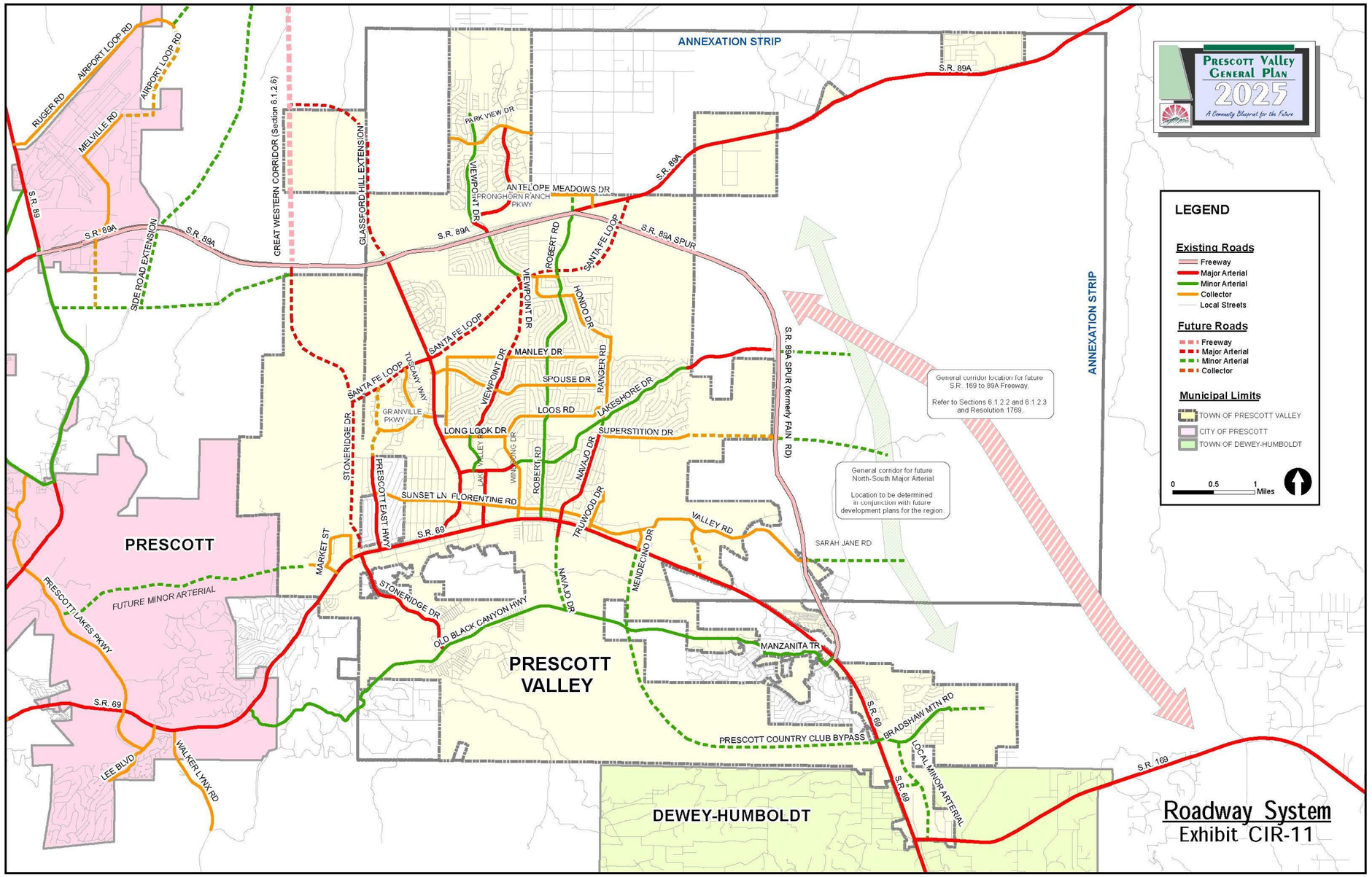
- SR 69, Sundog Ranch Road to Prescott East Highway
- Fain Road, SR 69 to southern terminus
- Lakeshore Drive, Navajo Drive to Fain Road or SR 89A Spur
- Robert Road, Tranquil Boulevard to SR 89A

The *General Plan* (Figure 18) summarizes the anticipated 2025 transportation system.

2.3.4 Town of Chino Valley

The *Town of Chino Valley General Plan 2013-2014* (Review Draft) establishes the objective to increase employment opportunities and establish community core areas without sacrificing the small-town, rural atmosphere. The plan provides one overarching goal for the transportation system and several supporting strategies. The circulation/transportation goal of the community is to encourage system improvements that incorporate alternative transportation modes. The town identifies six targeted strategies for achieving this goal. These are: 1) encouraging new connecting local roadways, 2) supporting regional goals of widening existing and planning for future major regional connectors, 3) promoting Yavapai Regional Transit Inc. (YRTI), 4) encouraging the use of all alternative transportation modes, including transit, paratransit, and non-motorized, 5) considering “green” practices when constructing new streets, and 6) adopting a five-year Capital Improvement Program (CIP).

Figure 18 – Town of Prescott Valley General Plan 2025 Transportation System Map



Source: Town of Prescott Valley General Plan

The Draft *General Plan* identifies several projects for future development that aim to advance the community's circulation/transportation goal. These are projects that the City plans either to budget itself or promote in cooperation with other entities. The projects listed are as follows:

- Westside Road at Center Street alignment, Williamson Valley Road to Reed Road
- Road improvements for several local corridors, including Reed Road north to Road 2N, Center Street to SR 89, and others
- Eastside Loop Road Center Street to Peavine Trail to Road 4 South
- Planning for the installation of bus stop features, such as safe seating and shelters
- Complete an origin-destination study to determine non-motorized transportation needs

In addition to these roadway construction or planning projects, the Draft General Plan identifies specific strategies for regional cooperation and incorporation of "green" roadway construction practices in all new street construction.

2.3.5 Town of Dewey Humboldt

The Town of Dewey-Humboldt does not as yet have a general plan, but a Planning Assistance for Rural Areas (PARA) study that outlines the transportation needs of the community was completed in May, 2012. These identified needs include improvements to the current system (paving some unpaved roads, signal coordination, incorporation of ADA-compliant rehabilitation in the community core, and rehabilitation of failing pavements), access management along major regional routes for improved safety, federal reclassification of several roadway segments, and improved circulation through the addition of some local streets and at least one river crossing. (ADA = Americans with Disabilities Act.)

The PARA study identifies two regional improvement projects that could affect circulation in the Dewey-Humboldt area: the addition of the Country Club Bypass road and the addition of a north-south roadway through the developments near the northeast corner of the SR 69 and SR 169 intersection. In the long-range time frame, the addition of a highway corridor ultimately connecting I-17 to Fain Road would affect conditions in the area as well. The study also identifies several small local street improvements that should be implemented to improve mobility and connectivity in the community. Several of the network improvement suggestions made in the study are recommended for further study and development by the town.

2.4 Existing Multimodal Transportation Facilities

2.4.1 Types of Multimodal Transportation

For this effort, "multimodal" refers to three major categories of transportation – transit, pedestrian, and bicycle.

Pedestrian and Bicycle Transportation

Walking and bicycling require safe accommodations and equal consideration, just as other modes, in transportation planning and design. These "active" modes of transportation offer benefits to both the

participant and the transportation system. When provided safe accommodations, walking and bicycling can be attractive transportation options for community members. Not only does this benefit people who wish to be physically active while traveling to a destination, but also provides transportation choice for those with limited options (i.e. Title VI/EJ). Walking and bicycling provides the added benefit of reducing an equivalent number of passenger vehicles, and the associated emissions, from the road.

Pedestrian accommodations can include: on and off-street sidewalks/paths (which also should accommodate wheel chairs), and trails. Bicycle accommodations can include: striped bike lanes, shared-use (non-motorized) paths and trails. Continuity of pedestrian and bicycle facilities are integral to accommodating the travel needs of both groups. However, bicycles right to roadways (including the state highway system) coupled by the ability and interest of riders to cover long distances requires additional consideration in regional transportation planning.

Transit Services

The types of transit service that may be in operation today or in the future include demand-responsive (dial-a-ride or other paratransit), vanpool/carpool, local fixed-route service, and possibly bus rapid transit (BRT). A description of these types of transit services follows.

Dial-a-Ride is a demand-response service. Vehicles do not operate on a fixed route or schedule, but pick up patrons at their origins and deliver them directly to their destinations, although possibly with intermediate stops. The driver receives information from a dispatcher concerning pick-up and drop-off requests. The dispatcher typically decides the most efficient order in which to make stops. Such a procedure often means that, after being picked up, a passenger must remain on board while "detours" to pick up or drop off other passengers are made. Hence, a dial-a-ride trip can take significantly longer to complete than if the passenger had been able to drive directly to his or her destination, and such service appeals primarily to transit-dependent persons. In addition, depending on how busy the system is, this type of service can involve waits of an hour or more for a vehicle. A variant of dial-a-ride is known as reserve-a-ride, for which passengers must make an advance reservation, often providing 24 hours' notice. Paratransit generally refers to complementary dial-a-ride service provided to elderly and disabled persons in a fixed-route service area, as required by the Americans with Disabilities Act (ADA).

Vanpooling can be a cost-saving and stress-reducing option for groups of commuters. Often, a transit agency or service will provide vans to qualifying groups of commuters, driven by one of the vanpool members. Passengers share the cost of operating the van by paying a monthly fee for gas, insurance, and vehicle maintenance costs. Carpooling is a less structured form of transportation, where two or more people commute together in the same vehicle – either organized individually, or with assistance through an employer or regional rideshare agency.

Local Fixed-Route Service follows a regular route on a regular, published schedule. Bus stops are generally located approximately one-fourth mile apart. Some communities operate modified or deviated fixed bus routes, known as point deviation or route deviation service.

Arterial BRT service operates at higher speeds and makes fewer stops than local buses, resulting in trip times that are more competitive with the private automobile. Arterial BRT routes typically operate on major streets/arterial roadways – operating either in dedicated or shared lines – and might receive

some form of signal priority. To attract riders from their private vehicles, some BRT systems offer distinctive branding and vehicle design, comfortable stops with real-time arrival information, and on-board amenities such as reclining seats, footrests, overhead racks and Wi-Fi. On-street or arterial BRT typically stops every mile, as opposed to every one-fourth mile for local buses. BRT operates primarily in large metropolitan areas such as greater Phoenix, although in Flagstaff a limited BRT route serves Northern Arizona University.

2.4.2 Existing Conditions

The 2010 U.S. Census found a population for the CYMPO area of 122,900 people. This represented an increase of 29,700 people, or 32 percent, since 2000. After the previous RTP in 2006 used demographic projections in line with previously rapid growth, CYMPO updated its socioeconomic data in the *2011 RTP Update*, completed in June 2012. The updated 2030 population projections were 50 percent less and employment projections 13 percent less than predicted in the 2006 study.

Population and employment data will be discussed in terms of traffic analysis zones (TAZs). TAZs are used to divide large regions, like the CYMPO, into smaller geographic elements to group socioeconomic data for traffic modeling purposes. U.S. Census data was distributed by TAZ to assist in understanding transportation demand and facility needs.

The private sector has historically played an important role in the transportation sector in the Central Yavapai region. Public funds were, however, available for funding voucher programs in the four municipalities in CYMPO. Transit vouchers are available through COGs/MPOs to 'special needs' population which comprise low income families, persons with a disability, or persons 55 years or older. Transit vouchers can be used as payment for all types of trips. The vouchers are accepted by vendors as "script" for the ride along with a $2.00 cash co-pay from the customer. Depending on the cost of the transportation service provided, a single trip may require multiple vouchers.

In 2011, the Town of Chino Valley started a limited transit service (Chino Valley Transit) using federal rural transit funding (Section 5311 is a non-urbanized area formula funding program authorized by 49 United States Code Section 5311. This federal grant program provides funding for public transit in non-urbanized areas with a population under 50,000 as designated by the Bureau of the Census) that it received from ADOT. This program served the town and made connections into Prescott, linking up with Citibus, a privately funded system that operates only in Prescott.

Chino Valley's proposed service plan included local demand-responsive service four days per week with limited hours each day. Two regional trips would be made to Prescott on Monday and Wednesday, with detours to pick up and drop off passengers. The plan included two types of service – public transit and senior activity (doctor's appointments, shopping, etc.), with the bulk of the ridership expected to be seniors.

Chino Valley discontinued its sponsorship to the Chino Valley Transit in 2013, which led to a public-private partnership that combined federal money with a collaborative effort of Chino Valley Transit. The two entities formed a 501(c)(4)

organization (IRS's designation in the tax code for a nonprofit organization that is designed to promote social welfare causes) to apply for Section 5311 funding from ADOT. The former Chino Valley Transit was rebranded as the Yavapai Regional Transit system, which was launched in February 2014. It provides local service within Chino Valley on Monday and Wednesday, and regional service between Chino Valley and Prescott on Tuesday and Thursday. The van that was previously used by Chino Valley Transit has been rebranded and now serves the Chino Valley and City of Prescott communities as part of the Yavapai Regional Transit system. The service is operating under a $400,000 Section 5311 grant received through ADOT. The non-profit system plans to add another bus to its fleet by the end of 2014.

The private sector provides a wide variety of transportation services in the region, including: airport shuttle services to Phoenix Sky Harbor Airport, a shuttle service with a flexible route between Prescott and Flagstaff, and reserve-a-ride services for seniors and people with disabilities, as well as non-emergency medical transportation and taxi service. The Prescott Transit Authority (PTA), a private entity, provides a variety of public transportation services including Prescott Citibus, airport shuttle, dial-a-ride, and limousine. The Prescott Dial-a-Ride provides individual and group services throughout the four jurisdictions in the CYMPO area. The vehicles are equipped with GPS tracking and VOIP (Voice-over-Internet Protocol) phone systems, providing accurate estimates of arrival time. The service also provides vehicles that are wheelchair-accessible. The Prescott Citibus is a one-way loop through central Prescott operating on weekdays from 9:00 am to 5:00 pm. The rider base is comprised primarily of lower-income local residents and some tourists.

Table 4 – General Public Private Transportation Providers

Name	Type of Service	Hours	Vouchers Accepted	Wheelchair Accessible	Trip Purpose Restrictions	Geographic Scope	Rider Eligibility	Contracts	Vehicles
Fixed-Route Service									
Prescott Transit Authority – Citibus	Fixed-route	9 am to 5 pm weekdays	Yes	Yes with advance notice	None	Prescott	General public	N/A	17-passenger minibuses
Yavapai Regional Transit	Fixed-route	8:00 am to 2:00 pm	Not Available	Yes	None	Chino Valley and Prescott	General public	N/A	15-passenger van
Dial-a-Ride									
American Red Cross	Dial-a-ride	8:00 am to 4:30 pm weekdays	Yes	Yes	"Essential services only"	Prescott and Prescott Valley	Seniors and people with disabilities	None	3 7-passenger minivans and 1 large van with lift
Black Canyon City Meals on Wheels	Dial-a-ride	Any time as pre-arranged	N/A	Yes	"Mostly for essential services"	Black Canyon City, Anthem, Phoenix, Prescott and Prescott Valley	Elderly (age 60+)	None	1 9-passenger minivan with lift
Four County Conference on Developmental Disabilities	Dial-a-ride	8:00 am to 5:00 pm weekdays	Yes	Yes	None	Prescott, Prescott Valley and Chino Valley	Elderly and disabled	None	2 7-passenger minivan, one of which has a wheelchair lift
Mayer Area Meals on Wheels	Dial-a-ride	Any time as pre-arranged	N/A	Yes	Medical, shopping, and other essential services	Mayer, Cordes Lakes, Spring Valley, Poland Junction and Dewey-Humboldt	People with disabilities and elderly	None	1 9-passenger minivan with wheelchair lift
New Horizons Independent Living	Dial-a-ride	7 am to 5 pm Monday weekdays	Yes	Yes	None	Western Yavapai County and points beyond with advance notice	Low-income, elderly, disabled and general public	ACCCHS	8 4- to 9-passenger vans, 4 of which are lift-equipped
Prescott Transit Authority – Dial-a-ride	Dial-a-ride	Unrestricted	Yes	Yes	None	CYMPO region and statewide	General public	ACCCHS	Sedans and minivans with ramps
Tender Hearts Transportation Services	Dial-a-ride	Unrestricted	Yes	Yes, and stretcher transport	None	Arizona and out-of-state w/ advance notice	Elderly, disabled and non-emergency medical patients		3 kneeling minivans with ramps and one stretcher van
Town of Chino Valley Senior Services Department	Dial-a-ride	8:00 am to 5:00 pm weekdays	N/A	Yes	None	Chino Valley local and to/from other CYMPO communities	Chino Valley residents over 60 and people with disabilities	None	2 9-passenger ADA-accessible vans; 1 15-passenger van
Yarnell Activities Center	Dial-a-ride	Any time as pre-arranged	N/A	No	Medical appts., group shopping & day trips	From Wickenburg and Phoenix to Prescott and Prescott Valley	Seniors in Yarnell, Wilhoit, North Ranch, Peeples Valley, Kirkland and Congress	None	One 9-passenger van
Shuttle Service									
Arizona Shuttle	Airport shuttle	Hourly from Prescott: 4 am to 8pm Hourly from Sky Harbor: 6:30 am to 10:30 pm	Yes	Yes with advance notice	None	Prescott to Sky Harbor Airport and points between	General public	AHCCCS*	N/A

Table 4 – Continued

Name	Type of Service	Hours	Vouchers Accepted	Wheelchair Accessible	Trip Purpose Restrictions	Geographic Scope	Rider Eligibility	Contracts	Vehicles
Shuttle Service									
Shuttle U	Airport shuttle	Hourly from Prescott: 4 am to 7pm Hourly from Sky Harbor: 7:30am to 10:30 pm	Yes	Yes with advance notice	None	Prescott to Sky Harbor Airport and points between	General public	None	14-passenger vans
Van Go of Prescott	Airport shuttle	Four times daily per direction	Yes	No	None	From passenger's home to Sky Harbor Airport	General public	None	14-passenger vans
Angels on Duty	Shuttle	8 am to 5 pm Mon-Thurs 8:30am to 4:30pm Friday	Yes	Yes, and stretcher transport	None	Arizona	General public, elderly and disabled	ACCHS	2 minivans with ramp, 1 minivan with lift, and one stretcher van
Coconino/Yavapai Shuttle	Shuttle	Twice daily weekdays; once daily weekends	Yes	No	None	Shuttle between Prescott and Flagstaff	General public	N/A	7- and 8-passenger minivans
Copper State Transportation	Shuttle	Unrestricted	N/A	Yes	None	Prescott, Prescott Valley and Chino Valley	Seniors, disabled and general Public	N/A	1 GMC conversion van with lift
Statewide Express	Shuttle	Unrestricted	No	Yes	None	Arizona and out-of-state	Infants, elderly, disabled and general public		One minivan with lift
Taxi Service									
AAA Taxi	Taxicab	Unrestricted	No	No	None	Prescott, Prescott Valley and Chino Valley	General Public	N/A	6-passenger minivans
Express Ride	Taxicab	Unrestricted	No	No	None	CYMPO region and statewide with advance notice	General public	N/A	2 sedans
Hurry Cab	Taxicab	Unrestricted	Yes	No	None	Prescott	General public	ACCCHS	Sedans and minivans
Red Rock Taxi	Taxicab	Unrestricted	Yes	No	None	Yavapai County	General public	N/A	Sedans and 7-passenger minivans
Tri City Cab	Taxicab	Unrestricted	Yes	Yes	None	Prescott	General public	ACCCHS	Sedans and minivans with 1 wheelchair-accessible van

*AHCCCS = Arizona Health Care Cost Containment System

2.4.3 Plans and Studies

Since 1991, numerous studies have been conducted, all of which have highlighted the need for a moderately-sized regional transit system. There have also been a number of multi-modal assessments and plans that focus on accommodating pedestrians and bicycles in CYMPO communities. Key findings of the most recently completed studies and plans are provided on the following pages.

CYMPO Regional Transit Needs Study

The CYMPO Regional Transit Needs Study was completed in April 2007, laying the ground work for a future transit framework in the region. The study identified federal, state and local funding opportunities. It evaluated alternatives for fixed-route, flexible-route (e.g., route deviation and point deviation), and demand-responsive transit services. The study developed four detailed service alternatives that address current and projected conditions in the Central Yavapai region through 2025. The four alternatives are briefly described below:

1. Improved Locally Funded Voucher Program – maintain and incrementally improve the existing Tri-City Transportation Voucher Program. The program distributes subsidies to transit users in the form of vouchers that may be redeemed with one of nine participating service providers.
2. Federally-Assisted Voucher Program with Local Public Shared-Ride Taxi System – expands the existing Tri-City Transportation Voucher Program beyond its presently limited focus on the 'special needs' population to include the general public, making it eligible for federal funding assistance under the FTA Section 5307 program.
3. Limited Service Fixed Route Transit System with Complementary Paratransit Voucher Program – would include three routes (one regional route and two local routes serving Prescott and Prescott Valley) that would constitute a basic network suited to the start-up phase of a new public transportation system.
4. Full Service Fixed Route Transit System with Complementary Paratransit Voucher Program – A larger fixed-route transit network consisting of three regional routes linking Chino Valley, Dewey/Humboldt, Prescott, and Prescott Valley, and three local routes covering the more densely populated neighborhoods of Prescott and Prescott Valley, plus ADA complementary transit service as in option 3.

2009 CYMPO Transit Implementation Plan

The 2009 CYMPO Transit Implementation Plan, which was a follow-on of the CYMPO Transit Needs Study, identified initial fixed and flexible routes for transit service. It also identified areas where ADA paratransit would be provided. Extension of the local Prescott bus route to Willow Creek would significantly expand the area where paratransit service is required in Prescott. In Prescott Valley, the expanded service would include an additional vehicle so the route would operate hourly in both directions (while the original Prescott Valley route is a one-way loop). Minor changes to the regional and local route in central Prescott are also included.

Paratransit services, along with the voucher program and volunteer driver programs, are designed to meet specialized transportation needs in the region and satisfy federal ADA requirements. The

paratransit requirements will be met by a combination of full-time paratransit vehicles and flexible routes in local communities. Vehicles will be shared between local and regional paratransit, as it is expected that a significant number of the local riders will travel to regional destinations. Other programs identified under the Transit Implementation Plan include the voucher program and a mileage reimbursement programs for non-professional drivers.

CYMPO Coordinated Public Transit –Human Services Transportation Plan Update – 2014

The 2014 update of the CYMPO Coordinated Public Transit – Human Services Transportation Plan established the following goals for development of a regional transit system:

1. Support a regional approach to transportation coordination and mobility by Increasing travel options.
2. Increase the availability of information on transportation services.
3. Increase coordination and efficiency.
4. Promote and patronize Yavapai Regional Transit.

The 2012 update of the CYMPO Coordinated Public Transit – Human Services Transportation Plan established the following goals for development of a regional transit system:

1. Establish a regional public transit service for the general public on a small scale.
2. Educate policymakers about alternative sources of funding to ensure that there is no financial burden on local governments.
3. Develop a one-call scheduling and dispatch center that provides information, assistance, and access to all demand-responsive transportation services.
4. Strengthen the capacity to coordinate between different transportation services.
5. Provide employment transportation by establishing an on-line employer ridesharing program which allows residents to identify people with similar commutes and work hours.

Prescott Bicycle and Pedestrian Master Plan Update – July 2009

The 2009 update of the City of Prescott's bicycle and pedestrian master plan outlines the improvements to bicycle facilities, sidewalks, and trails within the last decade. A 4.5-mile bike route (named the "guinea pig project") was laid out to connect Taylor Hicks School past Prescott High School along Ruth Street to Merritt Avenue, easterly to Sixth Street, to Granite Creek Park and then to Yavapai College. The route also provided access southerly from Granite Creek Park to the downtown area and to Mile High Middle School. This has been followed by a 22-mile marked system of bike lanes and routes along arterial, collector, and residential streets. Additionally, there are 60 miles of bike routes along streets, local trails and nearby Forest Service Roads. The routes are not fully connected, however.

Prescott has continued sidewalk development and improvements along with large-scale street improvement projects. The creation of trails in and around Prescott has increased in the past decade.

2025 Prescott Valley General Plan – March 2013

Prescott Valley has not historically had a dedicated pedestrian and bicycle system. All subdivisions since 2000 have required sidewalks on local streets and Multi-Use Paths (MUPs) on Collectors and Minor Arterials to meet the stated Goals of the General Plan 2020. The Parks & Recreation Commission adopted a Town of Prescott Valley Pedestrian/Bicycle Master Plan in 2001 designating the proposed locations for the various types of alternative transportation facilities. This plan serves as an advisory document for planning purposes and was the main reference in identifying the Multi-use Path / Trail System within the 2025 General Plan.

The plan identified the following goals related to multi-use paths/trail systems:

1. Increase connectivity between local parks and public facilities through a comprehensive trails system.
2. Provide access to open space and parks, and linkages between open space, parks, and user-specific destinations.

The following policies were defined for achieving the above mentioned goals:

- Provide access to public open space areas and parks.
- Provide a trail system that connects the Town's open space, parks, and select activity centers, such as community and regional commercial development, in a cohesive manner and, where appropriate, includes multi-use facilities (pedestrian and bikes).
- Support the Trails and Open Space Plan prepared by the Parks and Recreation Department.

The following multi-use path expansion projects have been completed through Federal Transportation Enhancement Grants since the last 2006 Regional Transportation Study:

1. SR 69 MUP (Phase I) - 1.5 miles completed in 2005.
2. Central Core MUP (Phases I & II)- 2.0 miles completed in 2008.
3. Bison Lane MUP- 1.0 miles completed in 2009.
4. SR 69 MUP (Phase II& III) - 1.0 miles completed in 2011.
5. PV Pipeline MUP- 2.5 miles to be completed in 2015.
6. Central Core MUP (Phase III)- 0.75 miles to be completed in 2015.

2.4.4 Multimodal Programs and Resources

Safe Routes to School

There have been Safe Routes to School (SRTS) programs conducted in the CYMPO region since 2007. Initiated by a local non-profit organization, Prescott Alternative Transportation (PAT), the programs have grown to be conducted by multiple agencies and serve K-8 schools in Prescott, Prescott Valley and Chino Valley. Funded through ADOT, the national program intends to prevent obesity (and other chronic disease risk factors) among youth, by assisting schools to support safe walking and bicycling to school. The program, until recently, funded infrastructure improvements and education programs. PAT

currently provides pedestrian and bicycle safety education, including helmet giveaways, to K-8 students in the Prescott and Humboldt Unified School Districts. Yavapai County Community Health Services (YCCHS) provides a similar program to Chino Valley Schools. Both programs conduct pedestrian and bicycle safety education and encouragement activities, as well as evaluations such as travel tallies and parent surveys.

These programs also partner with municipal departments to assess transportation infrastructure needs, in order to support safe accommodations for students and their families to walk and bike to school. Commonly referred to as "walkability surveys," the programs have assisted municipalities in prioritizing multimodal transportation needs, and in some cases securing funding to implement improvements. They include:

- PAT partnered with the City of Prescott to author four successful SRTS infrastructure grant applications—the awards were granted to re/construct sidewalks to better connect five Prescott schools to neighborhoods and community resources
- YCCHS has partnered with the Town of Chino Valley and the Chino Valley Unified School District to assess needs for sidewalks, to connect three schools to neighborhoods and community resources—these neighborhoods represent communities of concern, per Title VI/EJ.

City of Prescott Trails Map

The City of Prescott partners with local businesses to publish a trails map. Updated yearly, the map depicts non-motorized trails around the City of Prescott, as well as bicycle infrastructure and routes within the city limits.

Town of Prescott Valley Pedestrian/Bicycle System Master Plan Map

The Town of Prescott Valley developed the Pedestrian/Bicycle System Master Plan in 2006 identifying shared use paths, on-street bike lanes, widened shoulders, and urban sidewalks. This map depicts the towns existing and planned non-motorized transportation infrastructure.

Non-Motorized Trails

The Peavine/Iron King trails are part of a rails-to-trails project that currently provides an off-street, non-motorized route between Prescott and Prescott Valley. There is significant interest in continuing the Peavine trail, following its original path into Chino Valley. This eventual connection will also serve to connect businesses and residences near Prescott's airport.

Other Regional Initiatives

Yavapai County worked with local bike club "Bike Prescott" in the past year to post more "Share the Road" signs on county roads, to promote awareness and safety of bicyclists on the roadway.

3.0 Future Regional Conditions

3.1 Inputs to Focused Travel Demand Model

The CYMPO *RTP Update 2040* used a focused version of ADOT's statewide travel demand model. ADOT has spent several years developing a statewide model that can be focused on specific MPO planning areas of the state. The model is based on extensive data collection efforts that are beyond the reach of most MPOs. The model has been calibrated and validated to a comprehensive set of observed data. The statewide model has also undergone a national peer review which was focused on model development, calibration and validation. Additionally, ADOT continues to update features of the model.

Much of the data inputs discussed in the previous section constitute CYMPO-specific inputs to the focused model.

The three primary tasks to organize the focused model for use in the CYMPO region include:

1. Redefine the base street network, as appropriate, to account for local circulation patterns that may not be present in the statewide model.
2. Redefine TAZ boundaries. Often, TAZ boundaries in the statewide model are larger than MPO-organized TAZ systems and need to be split into smaller shapes to more accurately reflect the distribution of population and employment.
3. Provide additional traffic count data and screen line locations for ADOT to utilize in model validation.

3.1.1 2013 Street Network

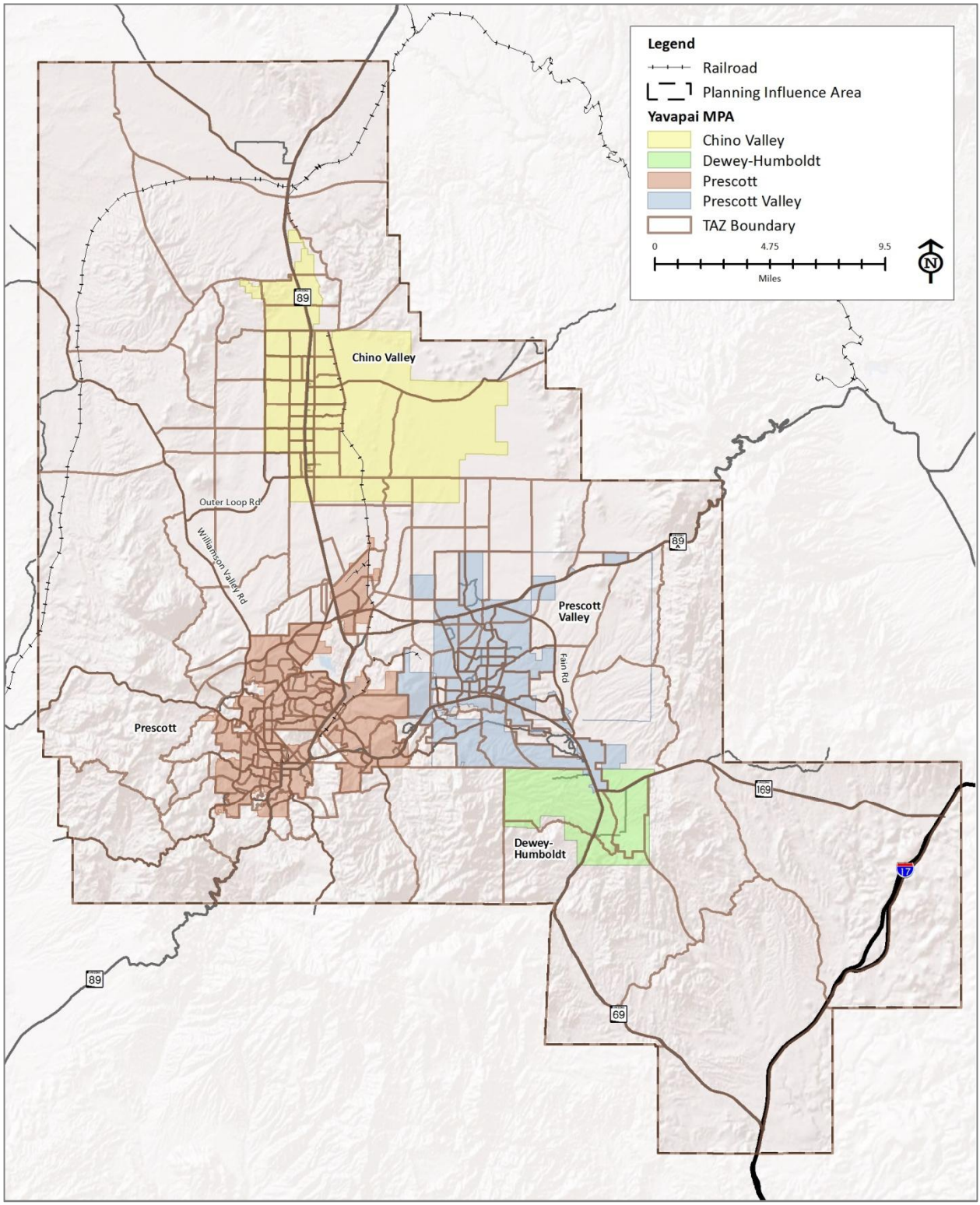
All of the information obtained and described in the previous section contributed to the development of a base 2013 street network to serve as the foundation to the focused travel demand model, as illustrated in Figure 11.

3.1.2 TAZ Boundary System

TAZs are used to divide large regions, like the CYMPO, into smaller geographic elements to group socioeconomic data for traffic modeling purposes. TAZs help distribute people, households, and employees to appropriate areas within the study area to represent where concentrations are expected to occur, based on known land use plans and real world conditions. TAZ boundaries are often based on major streets, physical boundaries like major waterways, and political boundaries. TAZ boundaries extend beyond the CYMPO planning area to include the future growth and its effect on travel demand in this area.

Minor changes were made to the ADOT TAZ structure to better adapt the focused travel demand model to the needs of the CYMPO region. Figure 19 shows the TAZ structure for the CYMPO, which divides the area into 307 zones.

Figure 19 – TAZ Boundary System



3.1.3 Screen Line Analysis

A screen line analysis is a technique that facilitates a broad assessment of the relationship of network capacity to travel demand. In screen line analyses, an imaginary line is drawn across all of the major roadways – either north/south or east/west – in a selected area of the network. A total screen line volume is obtained by adding up all the volumes on the individual roadways that cross the screen line. Volumes on specific roadways may be higher or lower, depending on variation in the model assignment process. Thus, the screen line volume represents the total two-way demand for travel over a broad portion of the network.

The capacity threshold of a link in the network (roadway segment) is determined by the number of lanes and the functional classification of the roadway. Therefore, each roadway intersecting a given screen line can be reviewed to determine the average daily traffic capacity associated with its functional classification at a certain level of service (LOS). The screen line analysis provides a basis for assessing the adequacy of network capacity to meet forecast travel demand and identify corridors that are expected to need additional or expanded roadways to accommodate forecast demand. Figure 20 displays screen line locations that will be utilized in the travel demand analysis later in the study.

3.1.4 Model Validation

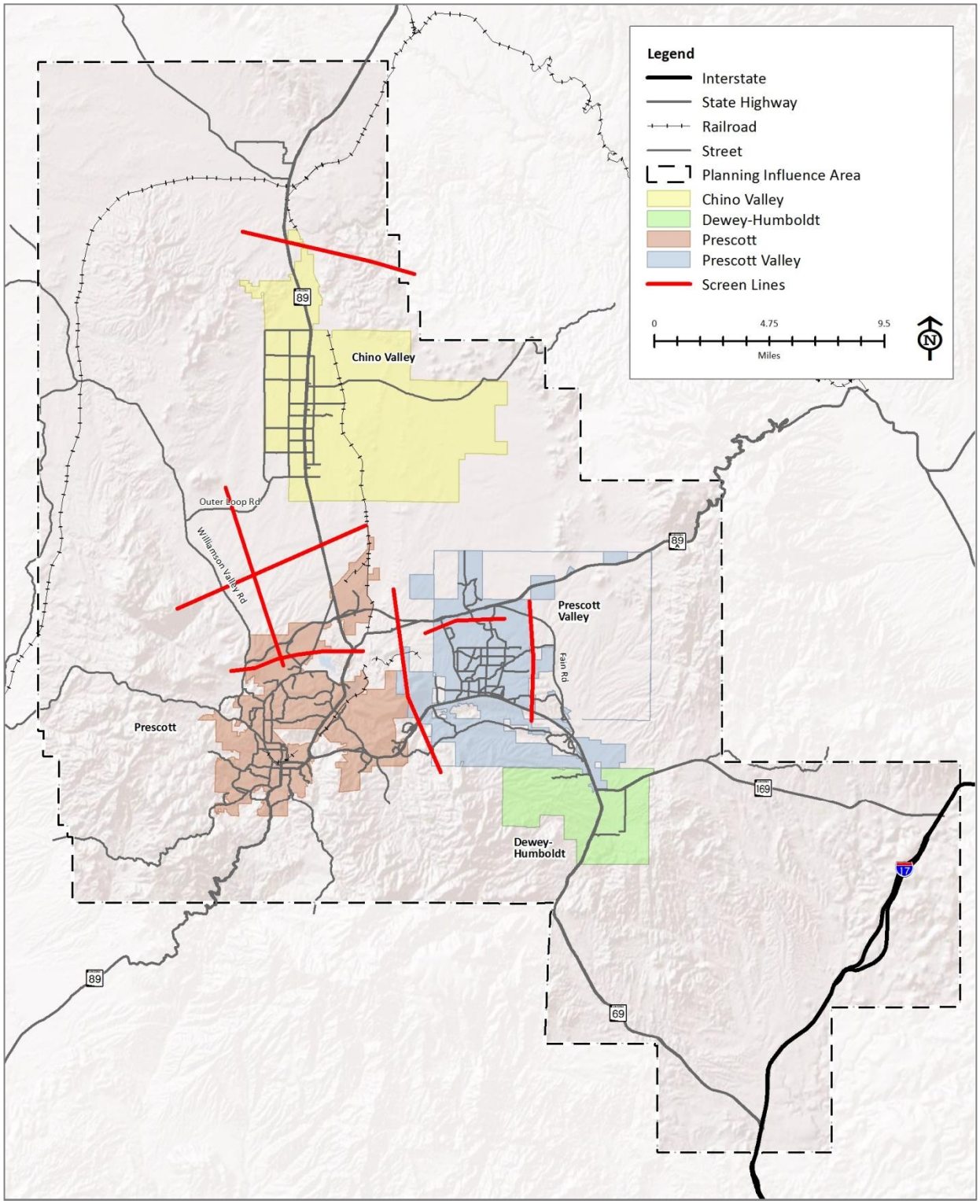
Model validation efforts consists of several steps including estimation of person and truck trips (trip generation), distribution of trips (trip distribution), assignment of trips to the network (trip assignment) and aggregate and roadway level comparisons of model assigned daily vehicle trips to traffic counts.

The validation process is a top down approach starting with estimation of the number for trips within the region and ending with roadway level analysis. At each step, daily traffic counts are used to evaluate if the model is performing within acceptable standards. For the CYMPO model validation, both aggregate and disaggregate analyses were conducted. The validation standards used for this analysis are the same as those used to validate the AZTDM2 model. The AZTDM2 model validation followed guidelines from several sources, such as the Federal Highway Administration, the National Cooperative Highway Research Project and Best Practices. The model validation effort consisted of the following comparisons of model assigned traffic to aggregated traffic counts.

- Cordon Line
- Screen Line
- Facility Type
- Volume Group
- Roadway Level

The results of the comparison are then evaluated based on the validation guidelines to determine whether the standards have been met. The first step in the model validation process is to establish the database and validation guideline(s) for each of the categories. The development of the data sets for the model validation is described below. Details and results of the CYMPO model validation are included in Appendix B.

Figure 20 – Screen Lines for Traffic Demand Modeling



3.2 Network Analysis

The purpose of this section is to document the procedures and results of the analysis of the existing CYMPO base model (described in a previous chapter), the development of the future year 2040 base "No-Build" model, including the socio-economic parameters, and the 2025 interim year base "No-Build" model. These No-Build models were developed based on information gleaned from each member agency's Capital Improvement Program (CIP), where available, and input from members of the CYMPO Technical Advisory Committee (TAC). The No-Build models include projects that are currently budgeted in the CIPs or Transportation Improvement Programs (TIPs) of Prescott Valley, Prescott, Chino Valley, Dewey-Humboldt, Yavapai County, or CYMPO.

3.2.1 Network Analysis Procedures

As described in previous chapters, model validation efforts for the CYMPO region consisted of several steps, including a cordon line analysis (which examines the total number of vehicles entering or exiting the region), a screenline analysis (which examines the number of vehicles passing through specific strategically identified points on the network), and a comparison of daily traffic volumes for different functional classes and categories of roadways. The validation procedures ensured that the model reproduced the existing network conditions with sufficient accuracy and can be used to estimate conditions of the future roadway network with a reasonable level of confidence.

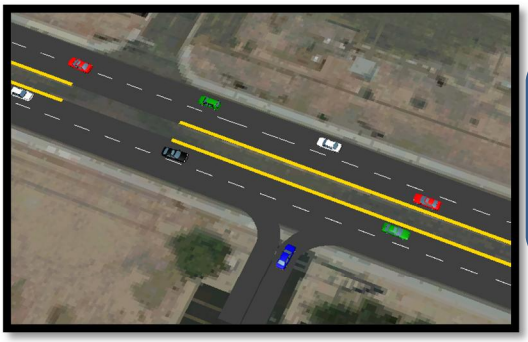
Level-of-service (LOS) analysis was used to assess the general state of traffic operating conditions on the roadway system of the validated existing model and future roadway network models. The concept of LOS uses qualitative measures that characterize operational conditions within a stream of traffic. The descriptions of individual levels-of-service characterize these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. Six levels of service are defined. They are given letter designations from "A" to "F," with "A" representing the best operational conditions and LOS "F" representing an over capacity condition with a high degree of congestion. Each LOS represents a range of operating conditions. Figure 21 depicts the general operating conditions under each LOS.

LOS for this analysis was assigned according to the volume-to-capacity (V/C) ratio. The capacity of a roadway segment is the designation of how much traffic a roadway segment can carry, and is based on the road's functional classification and number of lanes. The V/C ratio is calculated as the 24-hour total volume on a particular roadway segment, divided by the 24-hour total capacity on that same segment. Therefore, values approaching one (1.0) represent worse LOS, and values greater than 1 represent a severely congested, over-capacity roadway. Table 5 displays the V/C ratio associated with each level of service rating.

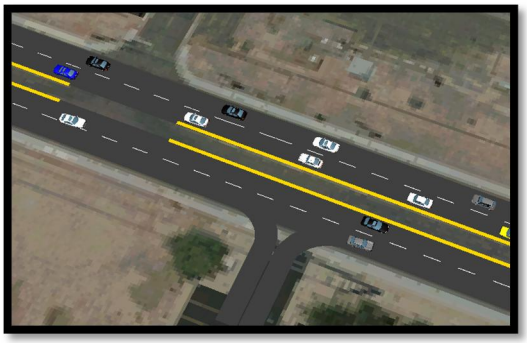
Table 5 – V/C Ratio Thresholds for Levels of Service

Level of Service	V/C Ratio
A – C	< 0.75
D	< 0.90
E	< 1.00
F	≥ 1.00

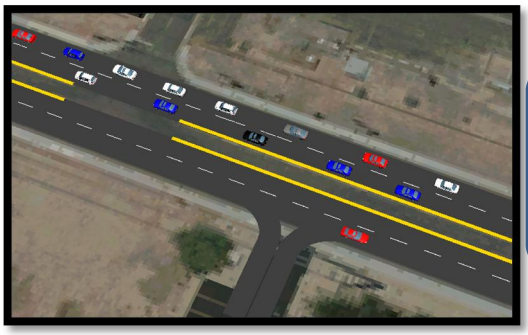
Figure 21 – Level-of-Service Roadway Conditions



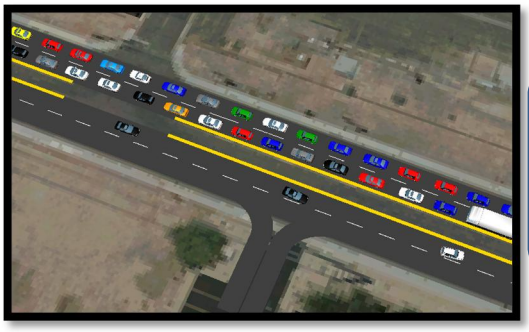
LOS A through C: Light traffic flow, no congestion, free flow speeds



LOS D: Moderate congestion, traffic restricts lane changes, speeds slightly reduced



LOS E: Congested roadways, irregular traffic flow, speeds greatly reduced



LOS F: Roadways at or above capacity, gridlock and traffic jams common, expect frequent stops

3.3 Summary of Future Socio-Economic Conditions

The Arizona governor's executive order number 2011-04 dictates the development of future population forecasts that are to be used by all government entities for planning purposes. The executive order establishes that there will be one set of official population projections developed by the State Demographer's Office at the Arizona Department of Administration. These projections are developed using a methodology dictated by the Council for Technical Solutions – a technical council that includes expert demographers as well as representatives from state universities, regional councils, and state agencies.

The executive order dictates that the official population projections will be developed at the level of the state, each county, each incorporated jurisdiction, and the unincorporated portions of each county. The State Demographer's Office does not develop socio-economic projections at the level of individual Traffic Analysis Zones (TAZs). The ADOT statewide model provided the future socio-economic data for the CYMPO region based upon these population projections.

Socio-economic projections were adjusted by TAZ to reflect the future planned residential, commercial, and other employment developments in the area. The projections were compared to the General Plan of each jurisdiction, coordination was conducted with owners of larger developments, and final collaboration with the TAC ensured that projections accurately reflected the anticipated growth in the CYMPO region.

3.3.1 Future 2040 Population Growth Areas

Table 6 presents projected population growth to 2040. Socioeconomic projections were validated with each member jurisdiction to account for any major recent land use changes that may impact future allocations of population and employment.

Per these socioeconomic projections, by 2040 the CYMPO region is projected to increase its population by more than 74 percent over the 2010 base population – for an anticipated total of 214,000 people. This population forecast translates to an average annual growth rate between two and three percent over the next 25 years. When comparing the 2030 estimates developed during the *2006 CYMPO RTP* with the new 2040 projections based on the 2010 Census data, a decrease in projected population of almost 50 percent occurred. This decrease is attributed to the changed economic conditions present due to the Great Recession. Figure 22 displays the final projected population densities in 2040 by TAZ.

Table 6 – Projected Population

Jurisdiction	2010	2040	Increase	Percent Growth
Chino Valley	11,000	19,000	8,000	73%
Dewey-Humboldt	4,000	6,000	2,000	50%
Prescott	40,000	76,000	36,000	90%
Prescott Valley	39,000	79,000	40,000	103%
Yavapai County (in CYMPO)	29,000	34,000	5,000	17%
TOTAL	123,000	214,000	91,000	74%

Source: 2010 Census, CYMPO Travel Demand Mode

3.3.2 Future 2040 Employment Growth Areas

The final projections used for 2040 employment density distribution by TAZ are displayed on Figure 23. Like the population projections, the ADOT 2040 statewide model employment information by TAZ was verified, and the employment in each TAZ adjusted, to reflect the areas of future growth in the region. The verification included the review of planning documents and input from members of the TAC.

Table 7 lists the current and future projected employment numbers by jurisdiction for 2010 and 2040. The total employment for the region in 2010 is estimated at slightly over 37,000 jobs. Prescott has the largest employee base, while the community of Dewey-Humboldt has the smallest.

Table 7 – Current and Projected Employment

Jurisdiction	2010	2040	Increase	Percent Growth
Chino Valley	2,000	4,000	2,000	100%
Dewey-Humboldt	300	500	200	60%
Prescott	25,000	60,000	35,000	140%
Prescott Valley	9,000	16,000	7,000	78%
Yavapai County (in CYMPO)	1,000	1,000	0	0%
TOTAL	37,300	81,500	44,200	119%

Source: CYMPO Travel Demand Model

Figure 22 – 2040 Population Projections

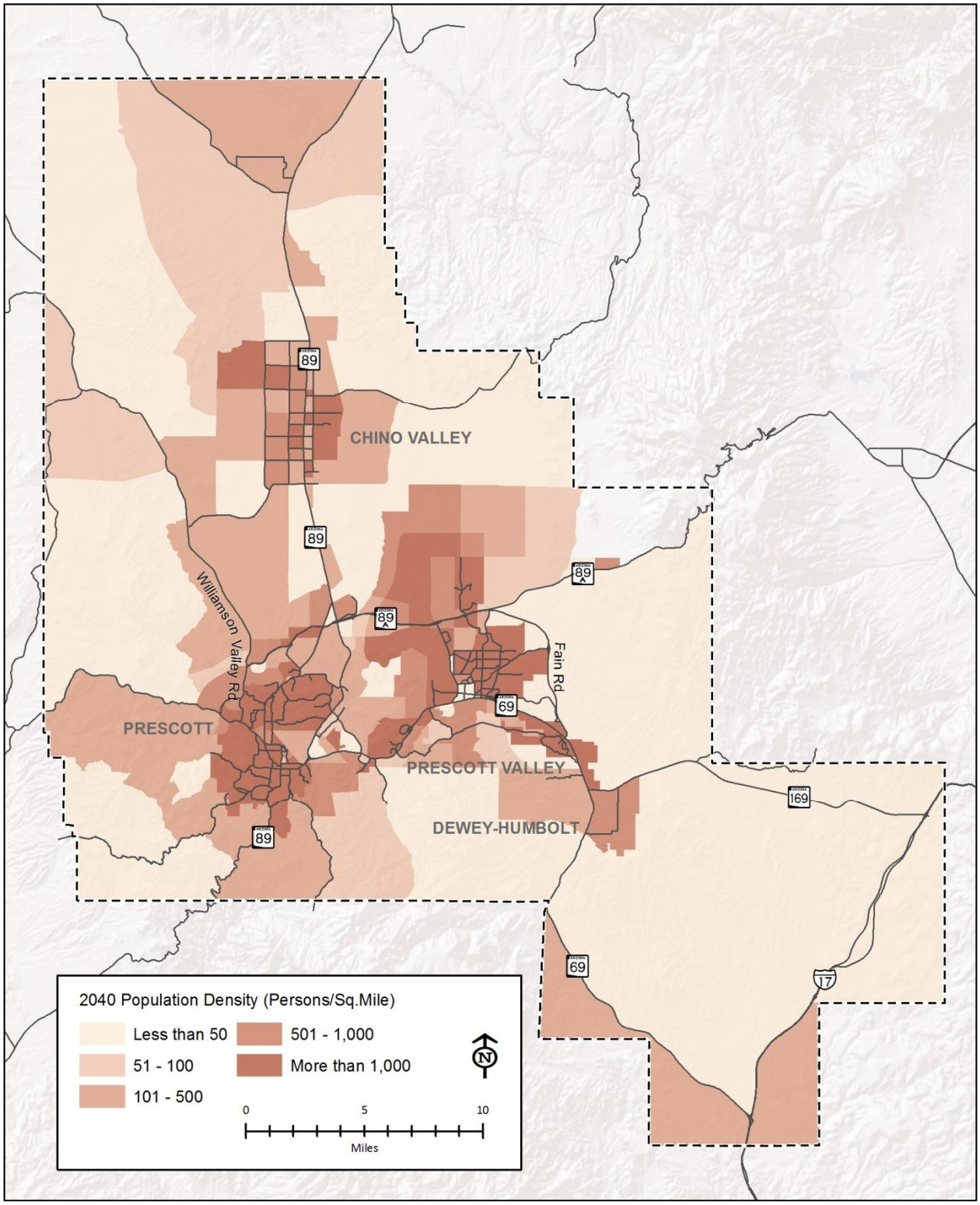
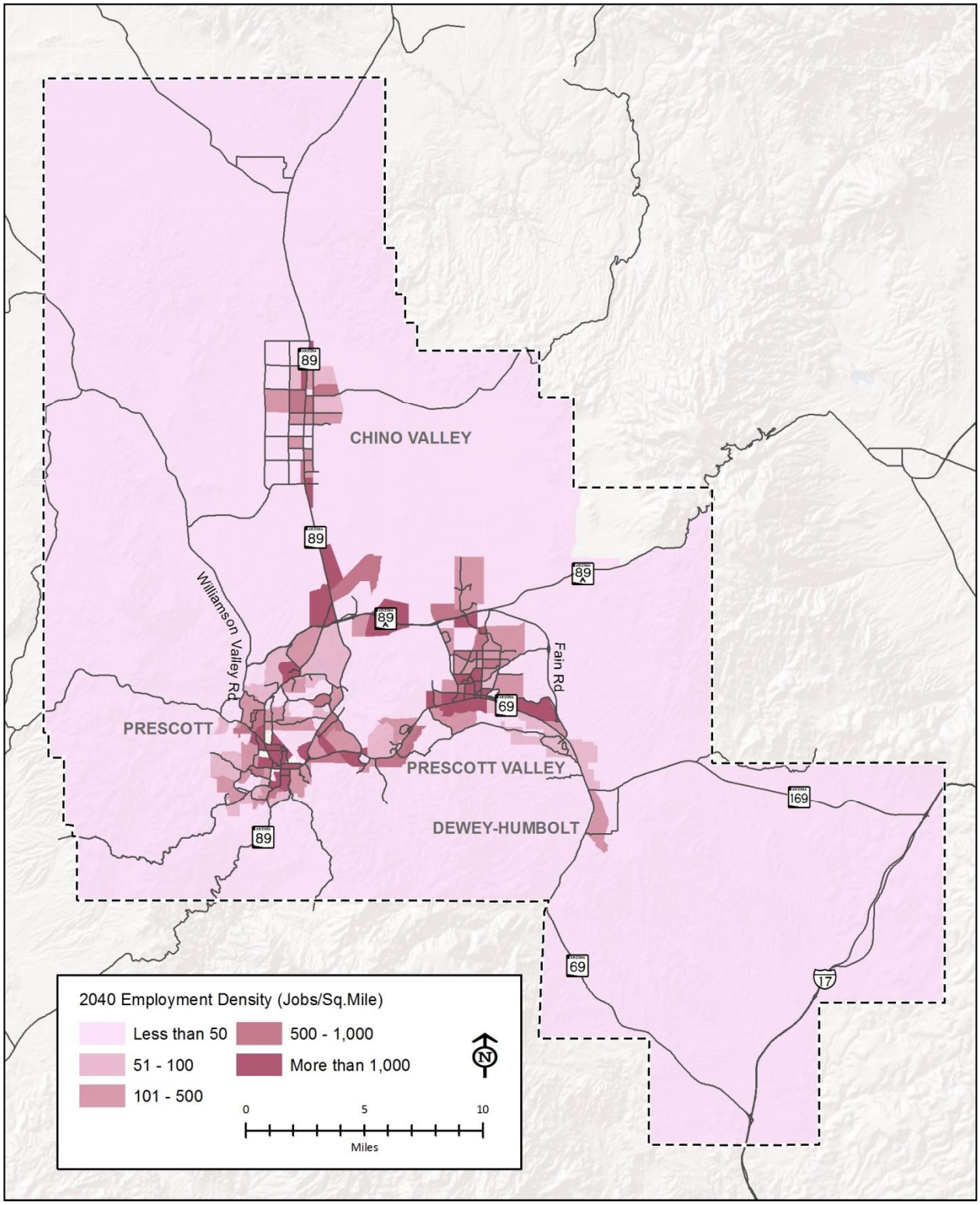


Figure 23 – 2040 Employment Projections



Based on the employment inventory, major employers currently in the area include:

- Yavapai Regional Medical Center
- Veterans' Administration (VA) Medical Center
- Yavapai College
- Yavapai County, city and town governments
- Embry-Riddle Aeronautical University
- Wal-Mart Supercenter

Areas projected for major employment growth include:

- Prescott Municipal Airport vicinity: transportation hub with related industrial and business development (e.g., expansion of aviation-related education, repair shops, aviation-dependent businesses; potential for economic development to expand north of Prescott toward Chino Valley along SR 89) (Draft Prescott General Plan, 2013).
- Downtown Prescott: strengthen the downtown not only as a tourist destination, but also as a priority economic development and redevelopment area with a mix of commerce services (Draft Prescott General Plan, 2013).
- SR 69 corridor through Prescott Valley: added business park and regional commercial uses expected (Prescott Valley General Plan, 2013).

3.3.3 Future 2025 Socio-Economic Parameters

The ADOT statewide modeling program does not currently have population and employment projections for the interim future year 2025. Therefore, 2025 population and employment were derived from a linear interpolation of population and employment between 2010 and 2040.

The resultant socio-economic projections were reviewed and verified by the TAC. The final population and employment projections for 2025 are depicted in Figure 24 and Figure 25.

Figure 24 – 2025 Population Projections

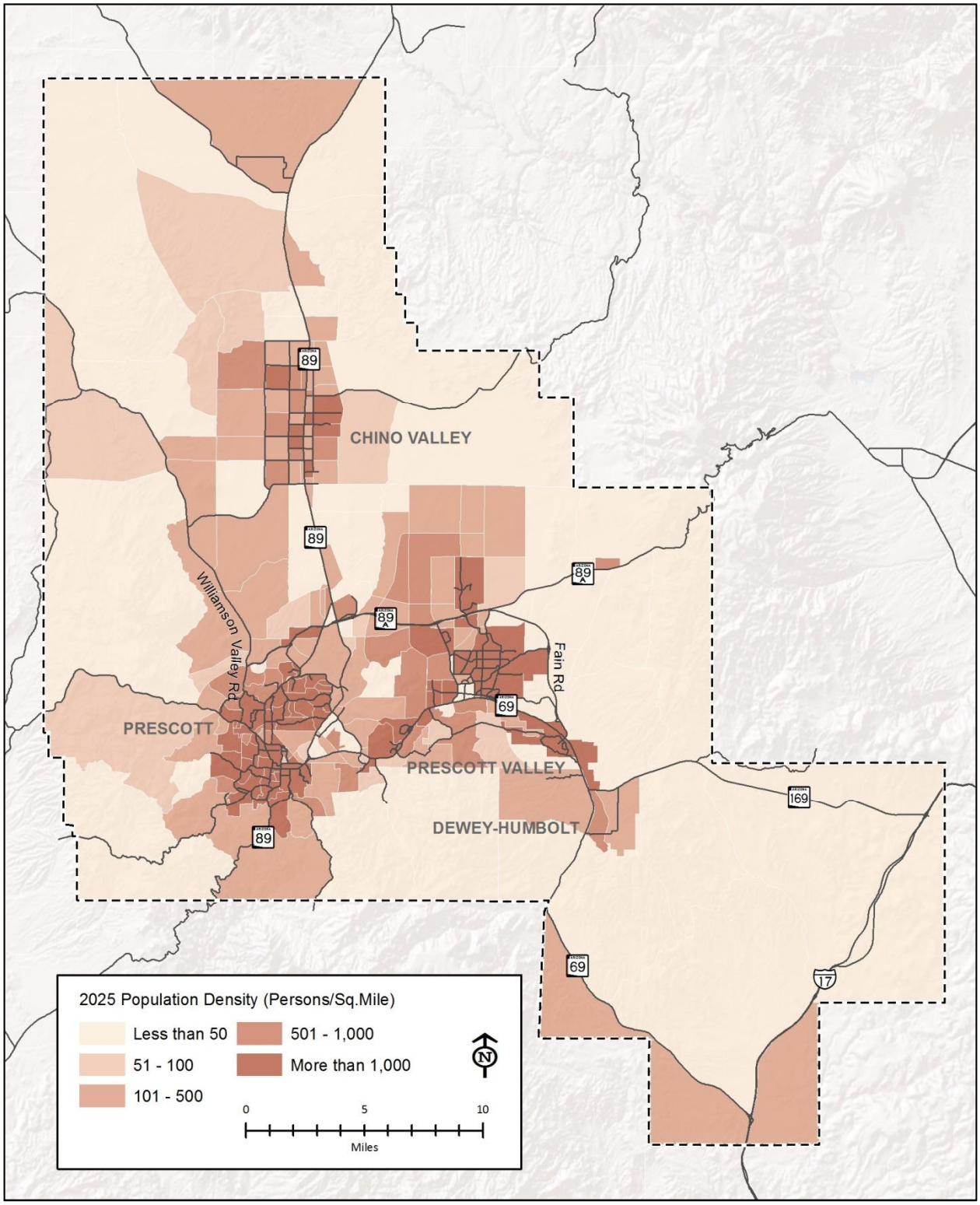
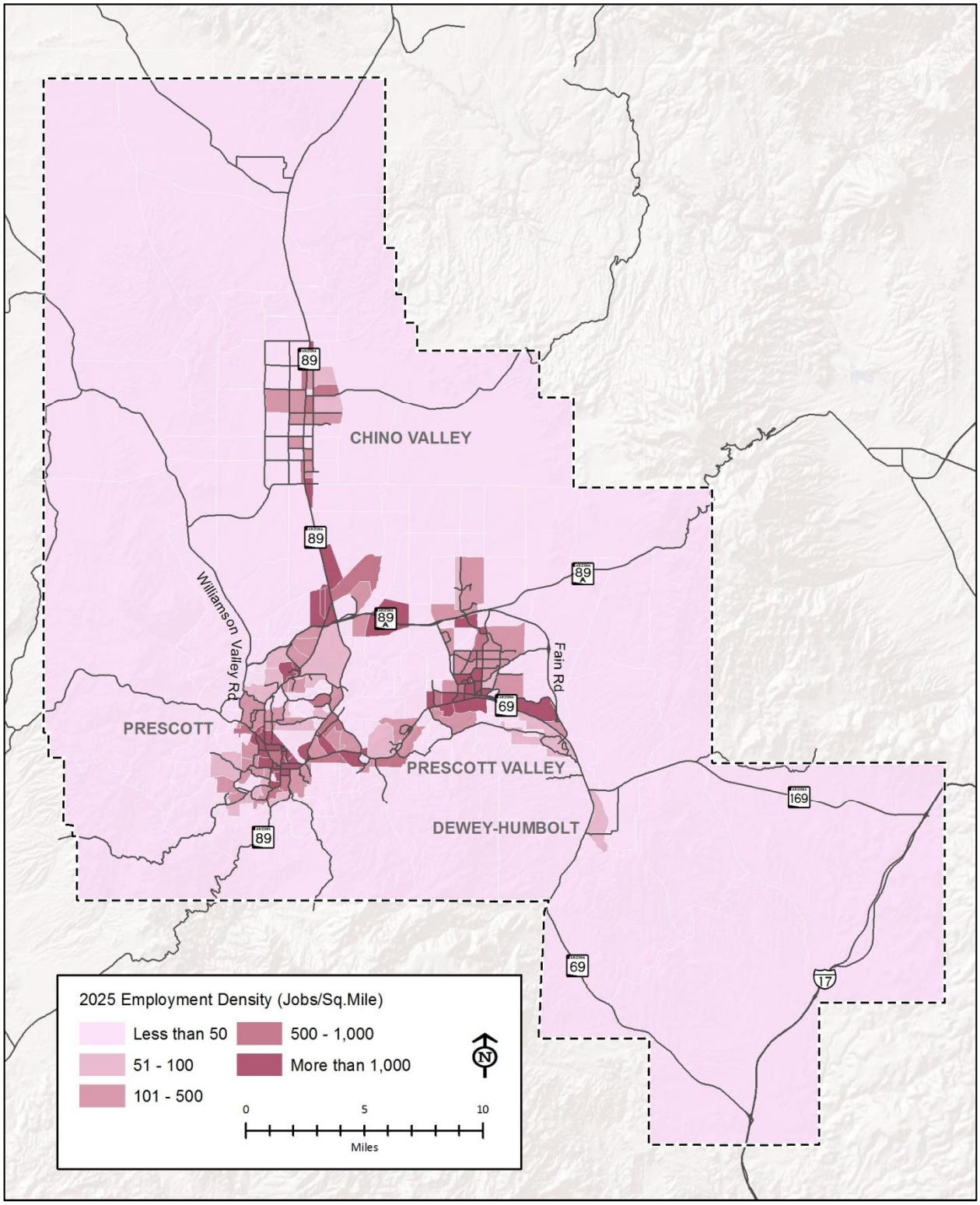


Figure 25 – 2025 Employment Projections



3.4 No-Build Network Conditions

In an effort to further examine the transportation needs in the CYMPO region under future conditions, the No-Build network was modeled and the resultant volumes and capacity levels analyzed. The No-Build network includes the existing transportation network and completely funded projects, thus identifying any regional needs that will exist in the future transportation system if no other improvements are programed. This evaluation includes the use of the projected socio-economic parameters presented in Section 4. The development of the No-Build network is described in detail below, followed by a description of the results of the model for the 2025 and 2040 projections.

3.4.1 Development of the No-Build Network

Typically, a No-Build network is exactly the same as the existing network; however, there are current projects being planned, designed, or constructed in the CYMPO region that are fully funded. The No-Build network for this RTP therefore consists of the existing network, with the addition of those projects that are currently programmed and fully funded. Descriptions of projects included in the No-Build network are provided below in the text and in
Table 8. Other projects listed in CIPs, TIPs, and planning documents are not fully funded at the time of this study and evaluation, and hence not part of the No-Build.

ADOT is conducting the SR 89 widening project, which is being completed in segments and includes the design and construction of Deep Well Ranch Road, which will intersect SR 89 north of the airport and connect at the west end to the realigned Willow Creek Road. The Willow Creek Road realignment project is under the jurisdiction of both Prescott and Yavapai County and will facilitate more efficient access between SR 89 and the area of Prescott containing Embry-Riddle Aeronautical University – a major employment center for the region. Yavapai County is also responsible for the construction of James Lane, a small connector between the realigned Willow Creek Road and SR 89 just north of Pioneer Parkway.

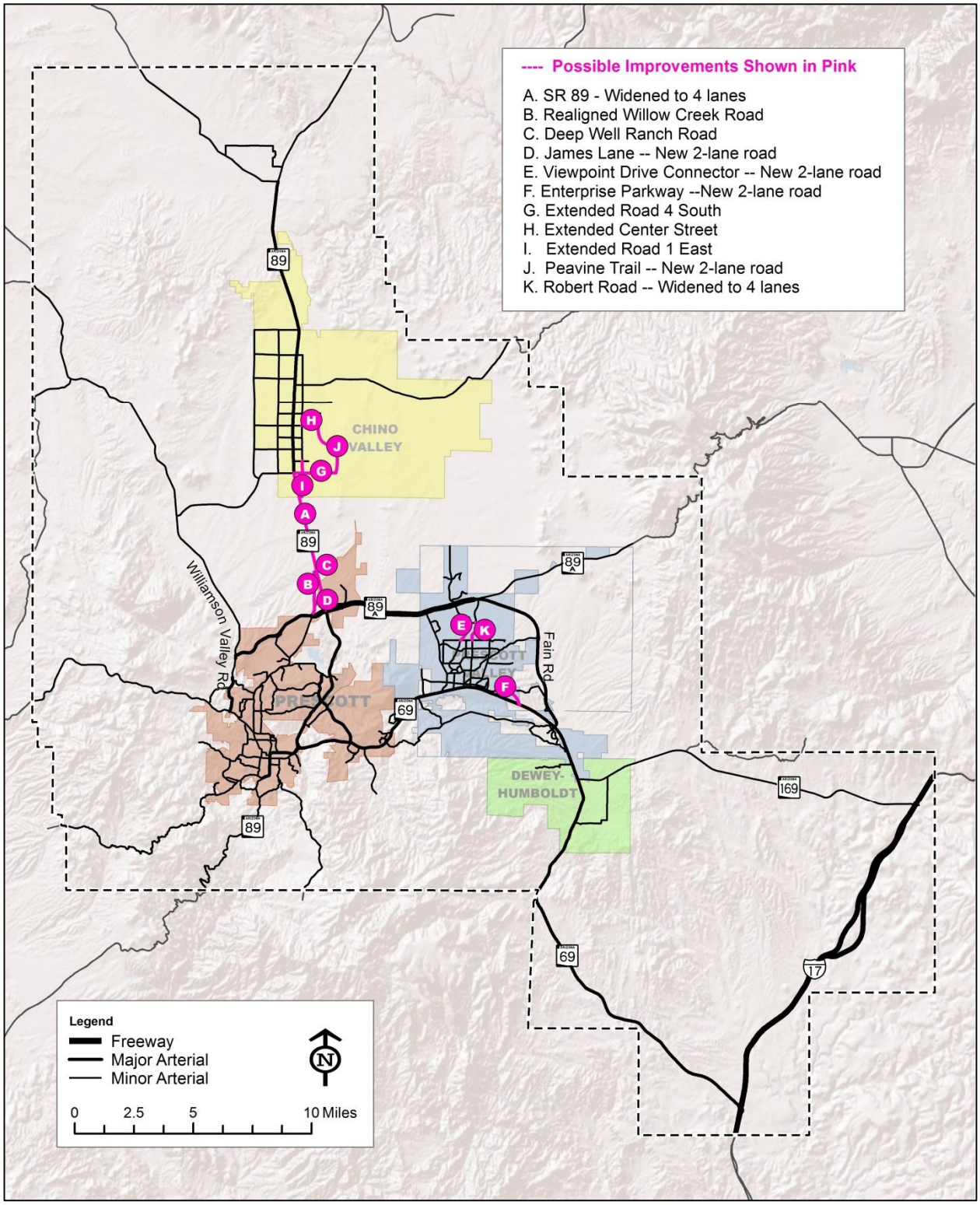
The Town of Prescott Valley is responsible for three funded projects. The Viewpoint Drive Connector will connect two portions of existing Viewpoint Drive, the segment north of Roundup Drive, and a segment south of Manley Drive. Robert Road, a four-lane facility south of Tranquil Drive, is being widened to four lanes north of Tranquil Drive to Long Mesa Drive. Enterprise Parkway will be a new facility providing access to the industrial employment center along East Valley Road to SR 69.

The Town of Chino Valley will conduct four roadway improvement projects in the near term. Road 1 East is currently the only north-south connecting roadway east of SR 89. The Peavine trail is a new local facility that will provide access between Road 4 South and Center Street east of Road 1 East; this facility will run adjacent to the current Peavine multi-use trail. Center Street will be extended from its current terminus at Road 1 East to meet Peavine Trail. Similarly, Road 4 South will be extended from its current terminus at Outlaw Road to meet Peavine Trail. Road 1 East will be extended south of its current terminus at Road 4 South in preparation for anticipated future employment opportunities in the area along SR 89 south of Road 4 South. The No-Build network is depicted in Figure 26.

Table 8 – Improvement Projects Included in No-Build Network

Project name	Description	Jurisdiction	Document
SR 89 Widening	Design and construct 2 new lanes on SR 89 (89A to Chino Valley)	ADOT	CYMPO 2014-2018 MTIP
Realigned Willow Creek Road	Realign Willow Creek Road between Pioneer Pkwy-Deep Well Ranch Road	Prescott and Yavapai County	CYMPO 2014-2018 MTIP
Deep Well Ranch Road	Part of the SR 89 Widening Project	ADOT	CYMPO 2014-2018 MTIP
James Lane	Design and construct new connector facility between Willow Creek Road and SR 89 north of Pioneer Pkwy	ADOT/CYMPO	CYMPO 2014-2023 MTIP as part of SR89 – Deep Well Ranch Road to SR89A
Viewpoint Drive Connector	Extension of Viewpoint Drive from Manley Drive to Roundup Drive	Prescott Valley	CYMPO 2015-2024 MTIP - Local Jurisdiction Projects
Enterprise Parkway	Design and construct new 2-lane facility between SR 69 and East Valley Road east of Mendecino Drive	Prescott Valley	CYMPO 2015-2024 MTIP - Local Jurisdiction Projects
Extend Road 4 South	Road 4 South extension from the Sun Edison Project to Peavine Trail	Chino Valley	CYMPO 2015-2024 MTIP - Local Jurisdiction Projects
Extend Center Street	Center Street extension from Road 1 East to Peavine Trail	Chino Valley	CYMPO 2015-2024 MTIP - Local Jurisdiction Projects
Extend Road 1 East	Road 1 East extension from Road 3 South to 1,000' north of the future alignment of Road 5 South	Chino Valley	Chino Valley – Annual Budget for Fiscal Year Ending in June 30, 2014
Peavine Trail	Design and construct new 2-lane facility connecting Road 4 South to Center Street east of Road 1 East (adjacent to current multi-use Peavine Trail)	Chino Valley	CYMPO 2015-2024 MTIP - Local Jurisdiction Projects
Robert Road Widening	Design and construct 2 new lanes on Robert Road from Tranquil Blvd. to Long Mesa Drive	Prescott Valley	CYMPO 2015-2024 MTIP - Local Jurisdiction Projects

Figure 26 – CYMPO No-Build Network



3.4.2 2025 No-Build Network Analysis

The No-Build network depicted in Figure 26 was modeled in conjunction with the 2025 socio-economic conditions, in order to evaluate the CYMPO transportation network in 2025 if no currently unfunded improvement projects are programmed. The resulting volumes of the 2025 No-Build Network and LOS projections based on V/C ratio are displayed in Figure 27 through Figure 31.

Based on these projections, the greatest traffic volumes will occur on SR 69 between Prescott and Dewey-Humboldt, on Glassford Hill Road, on SR 89 between SR 89A and Chino Valley, on SR 89A between Viewpoint Drive and SR 89, on Viewpoint Drive north of SR 89A, and on Willow Creek Road between Pioneer Parkway and downtown Prescott.

The LOS estimates indicate that several segments in the network are predicted to fail at LOS "F" under the 2025 No-Build conditions. Those segments consist of the following:

- Robert Road from SR 89A to Long Mesa Drive
- Viewpoint Drive north of SR 89A
- Glassford Hill Road generally between SR 69 and SR 89A
- Several segments of SR 69 between SR 89 and SR 169
- SR 89 between approximately Willow Lake Road and SR 89A
- Various segments in downtown Prescott
- Various segments of Willow Creek Road between SR 89 and downtown Prescott.

These failures primarily occur near major employment areas, near major residential areas, or along the regional routes that serve as commuter corridors.

3.4.3 2040 No-Build Network Analysis

The No-Build network depicted in Figure 26 was also modeled in conjunction with the 2040 socio-economic parameters to evaluate the CYMPO transportation network in 2040 if no additional improvement projects are programmed. The resultant volumes of the 2040 No-Build Network and LOS projections based on V/C ratio are displayed in Figure 32 through Figure 36.

Based on these projections, the greatest traffic volumes are anticipated at the same locations as in 2025. In addition, Fain Road, Prescott Lakes Parkway, Manzanita Trail, Commerce Drive, Rosser Street, and some local streets in the Paulden area also experience a noticeable increase in volume between the 2025 and 2040 No-Build scenarios.

Figure 27 – CYMPO 2025 No-Build Traffic Volumes and Levels-of-Service

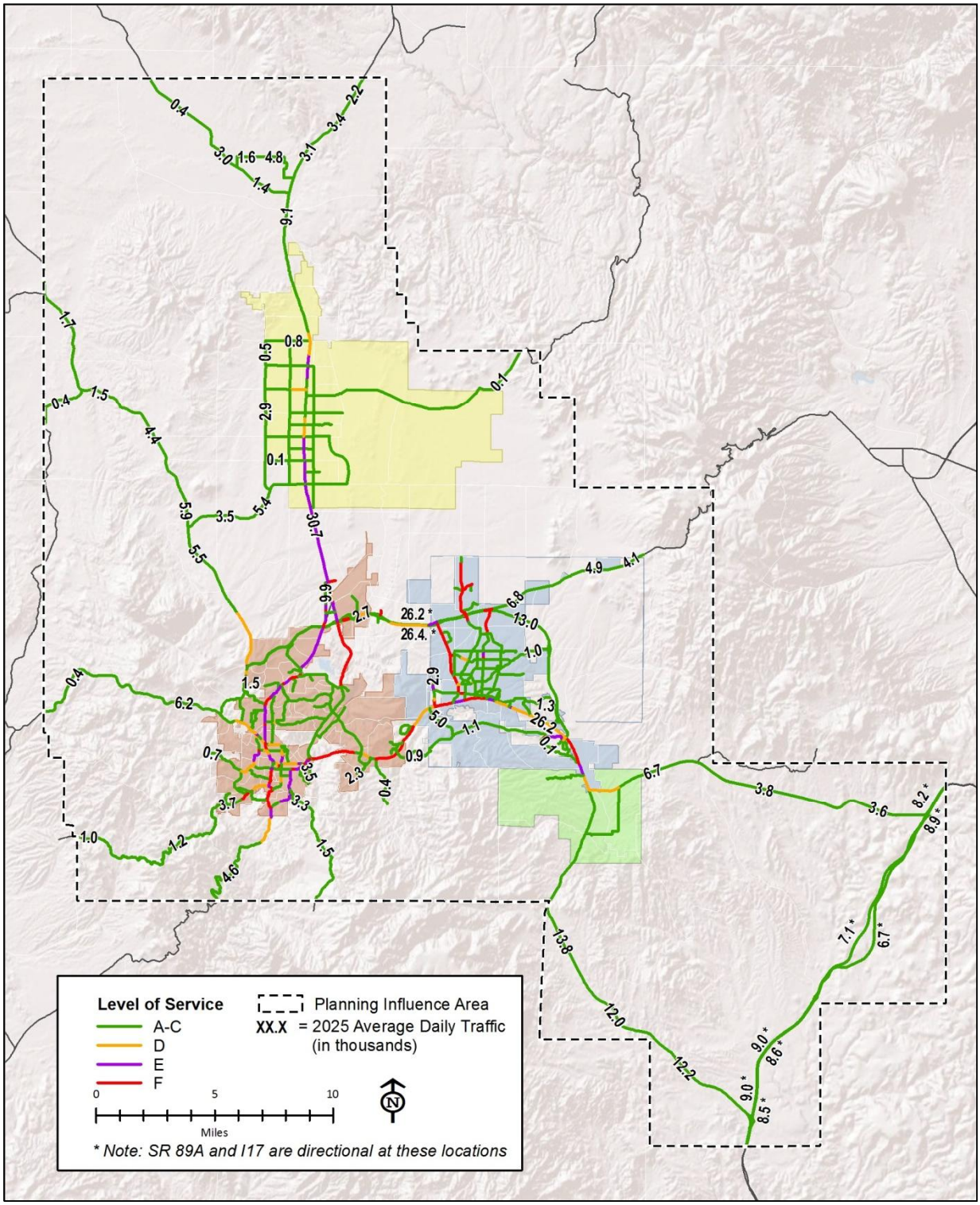


Figure 28 – City of Prescott 2025 No-Build Traffic Volumes and Levels-of-Service

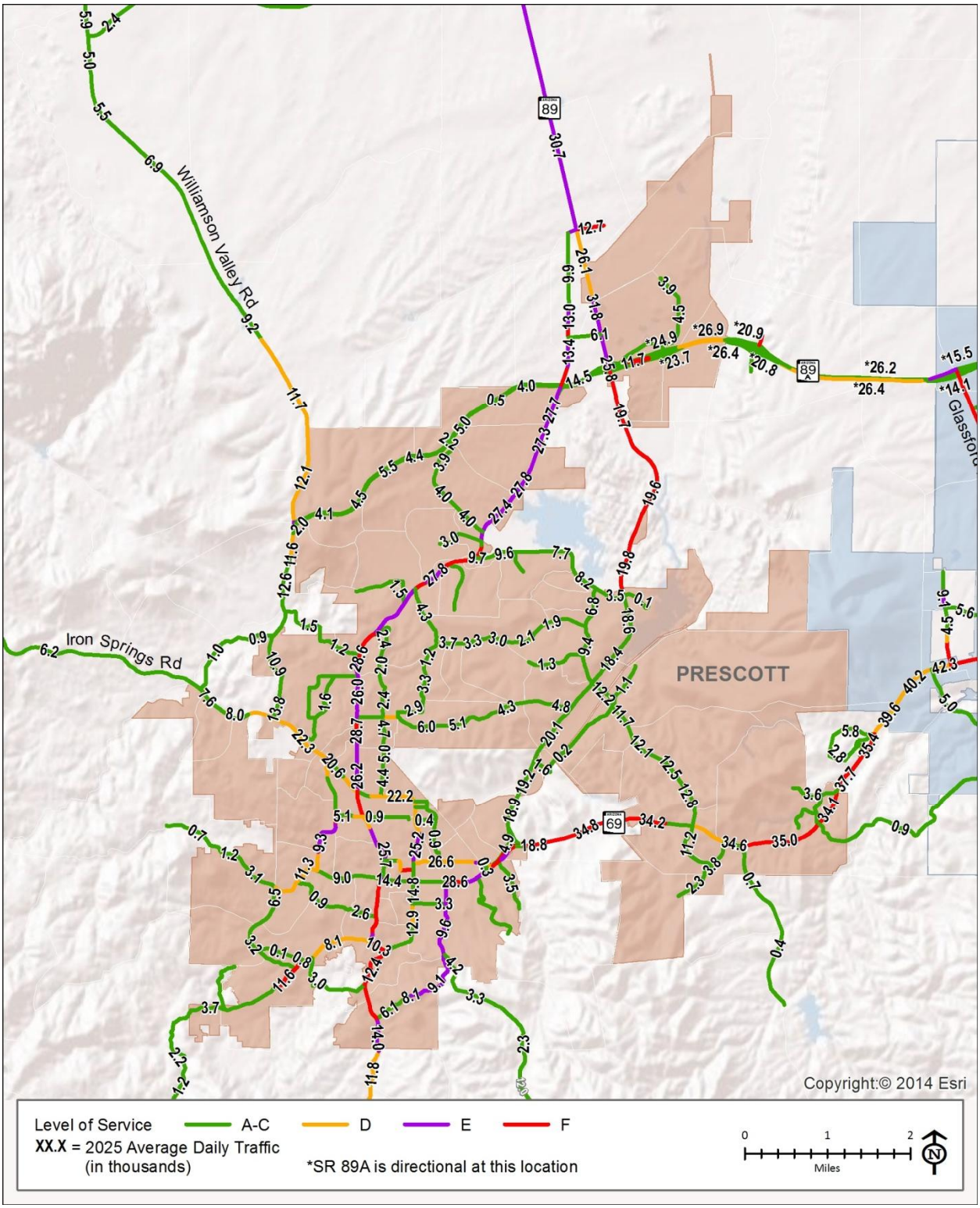


Figure 29 – Town of Prescott Valley 2025 No-Build Traffic Volumes and Levels-of-Service

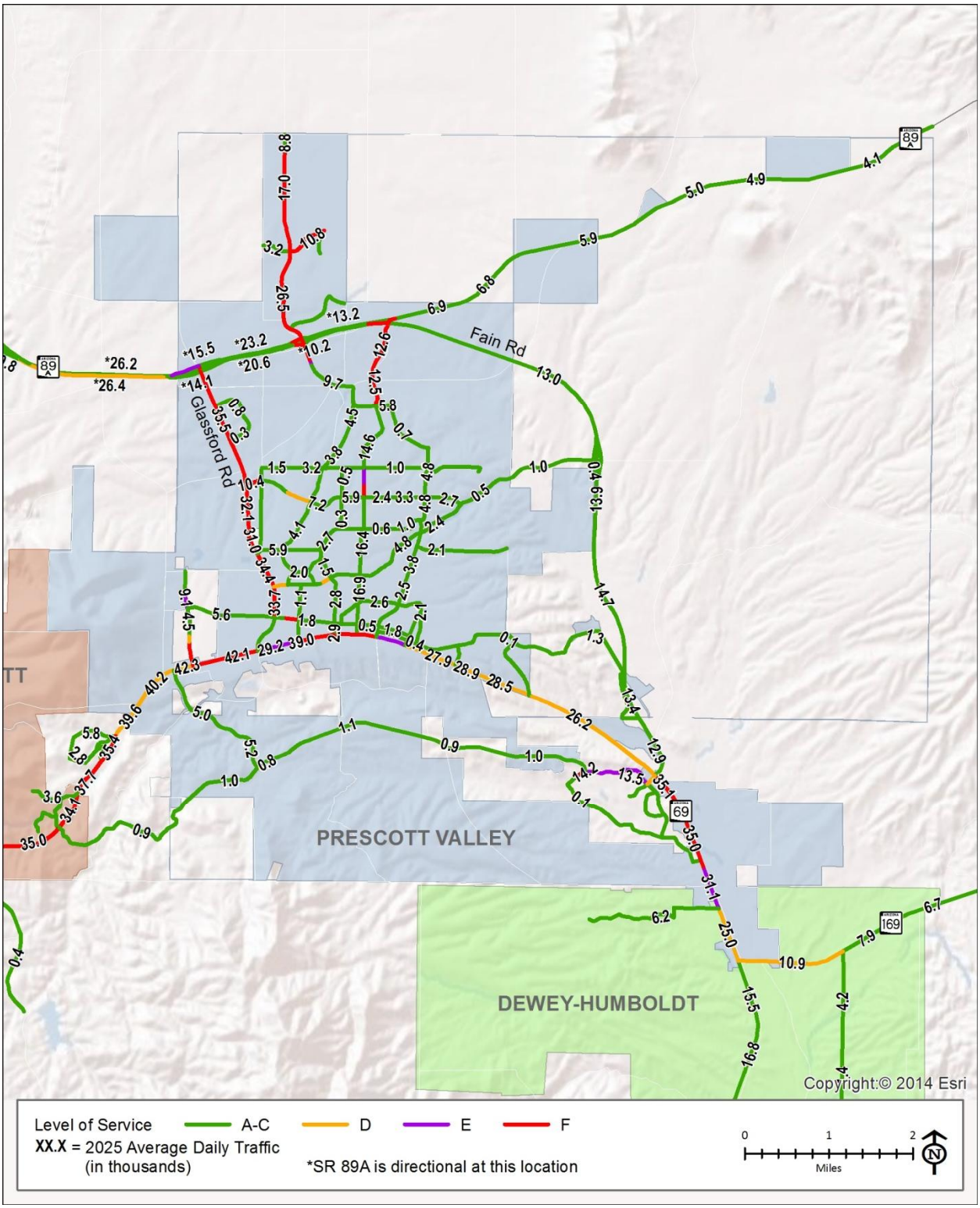


Figure 30 – Town of Chino Valley 2025 No-Build Traffic Volumes and Levels-of-Service

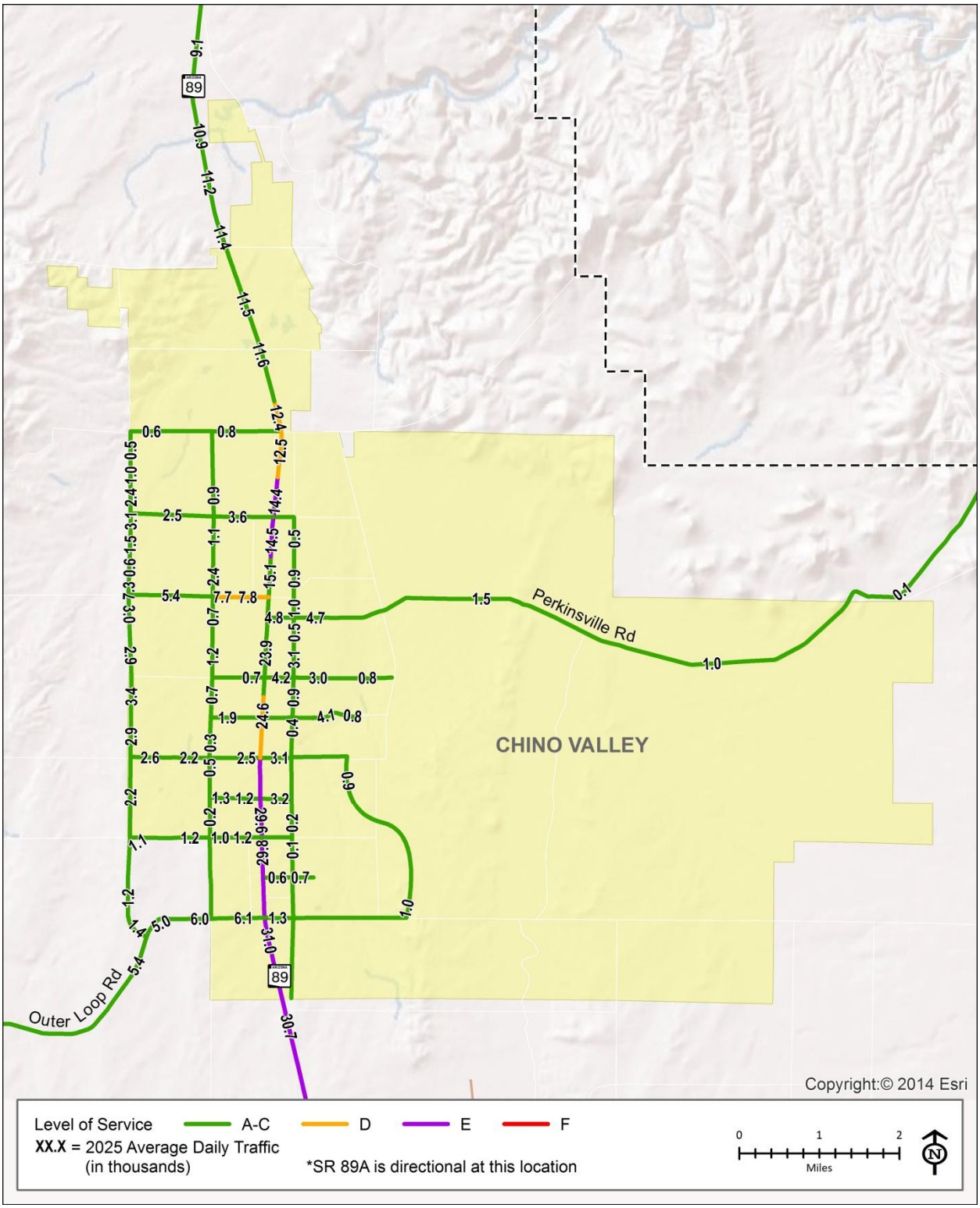


Figure 31 – Town of Dewey Humboldt 2025 No-Build Traffic Volumes and Levels-of-Service

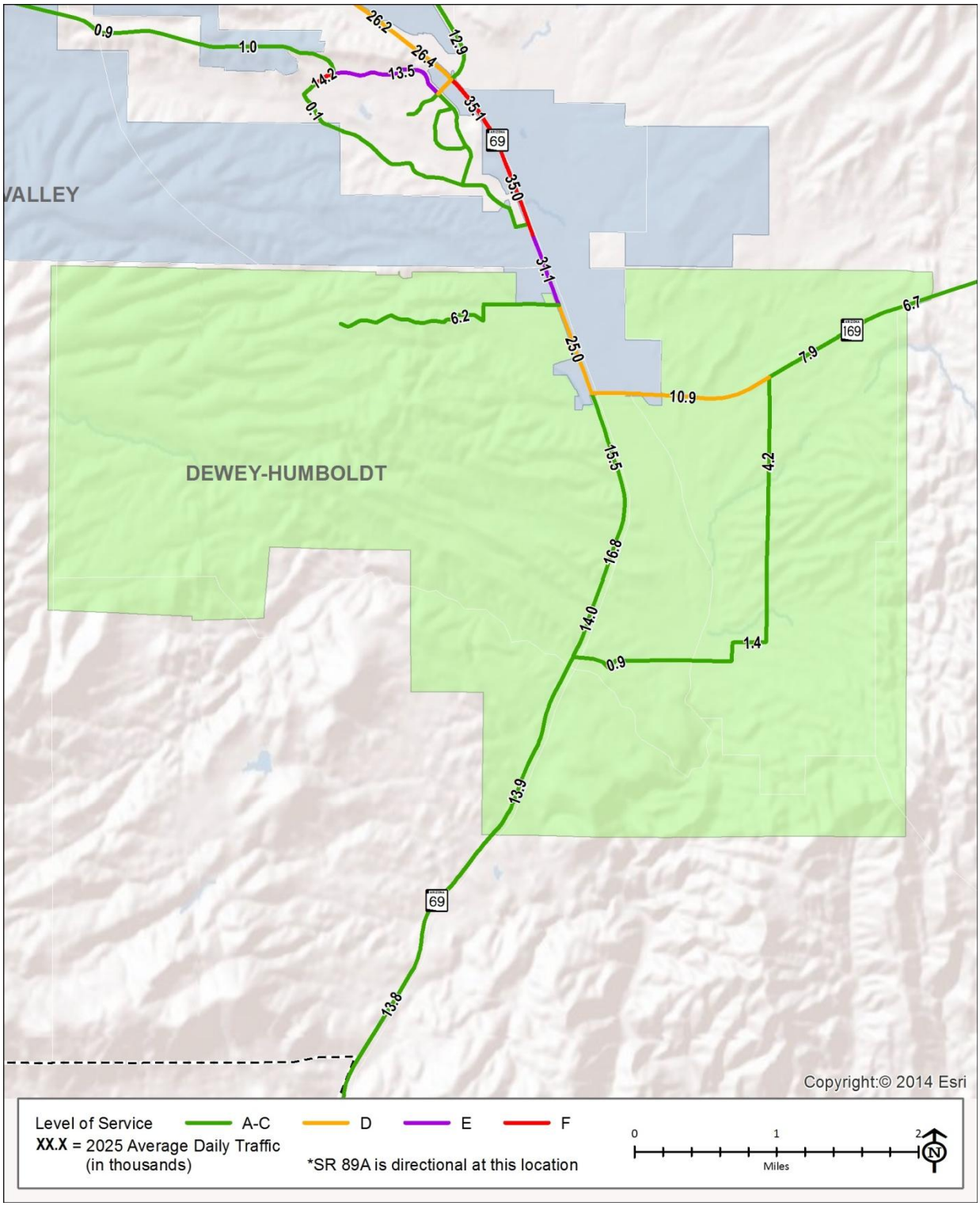


Figure 32 – CYMPO 2040 No-Build Traffic Volumes and Levels-of-Service

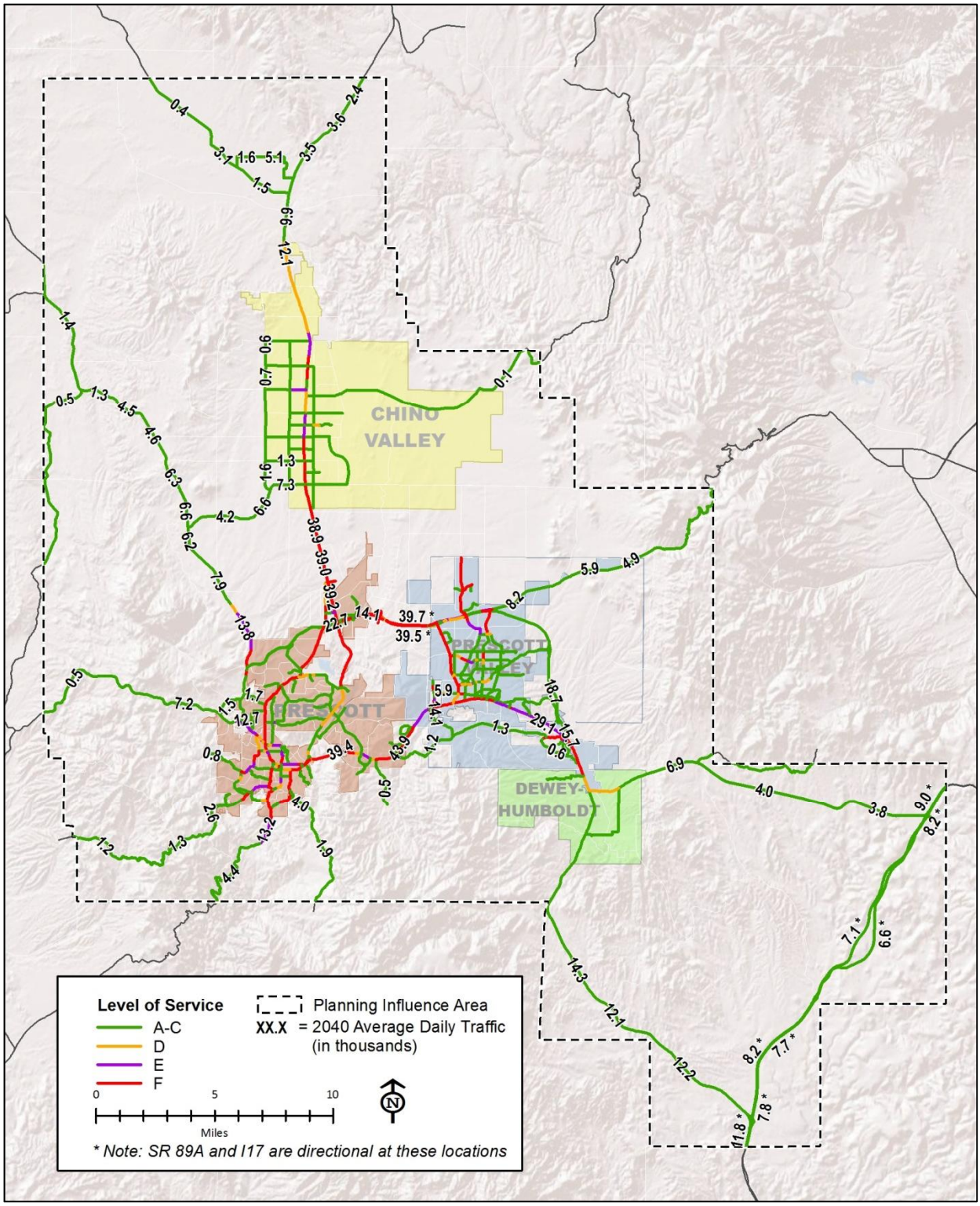


Figure 33 – City of Prescott 2040 No-Build Traffic Volumes and Levels-of-Service

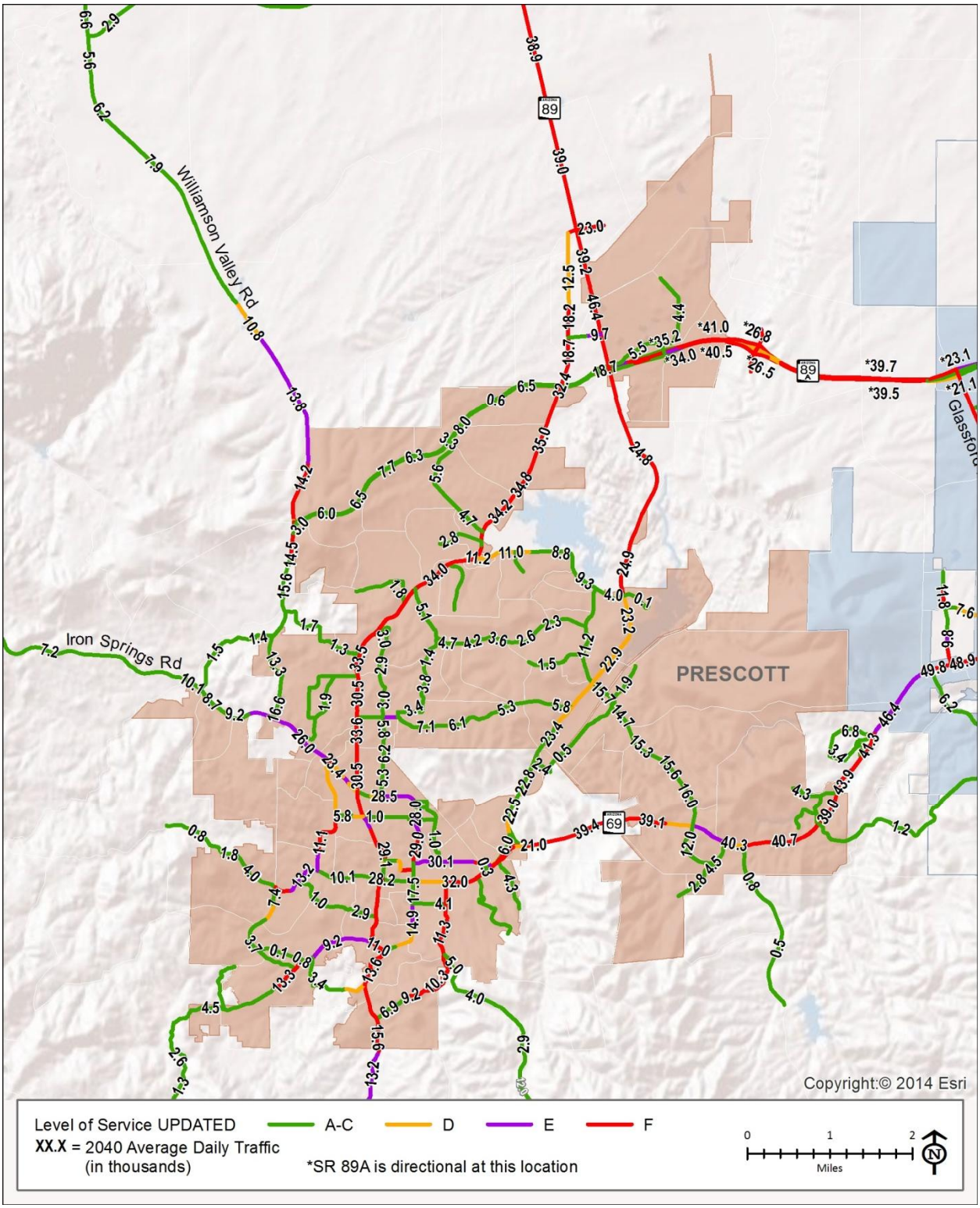


Figure 34 – Town of Prescott Valley 2040 No-Build Traffic Volumes and Levels-of-Service

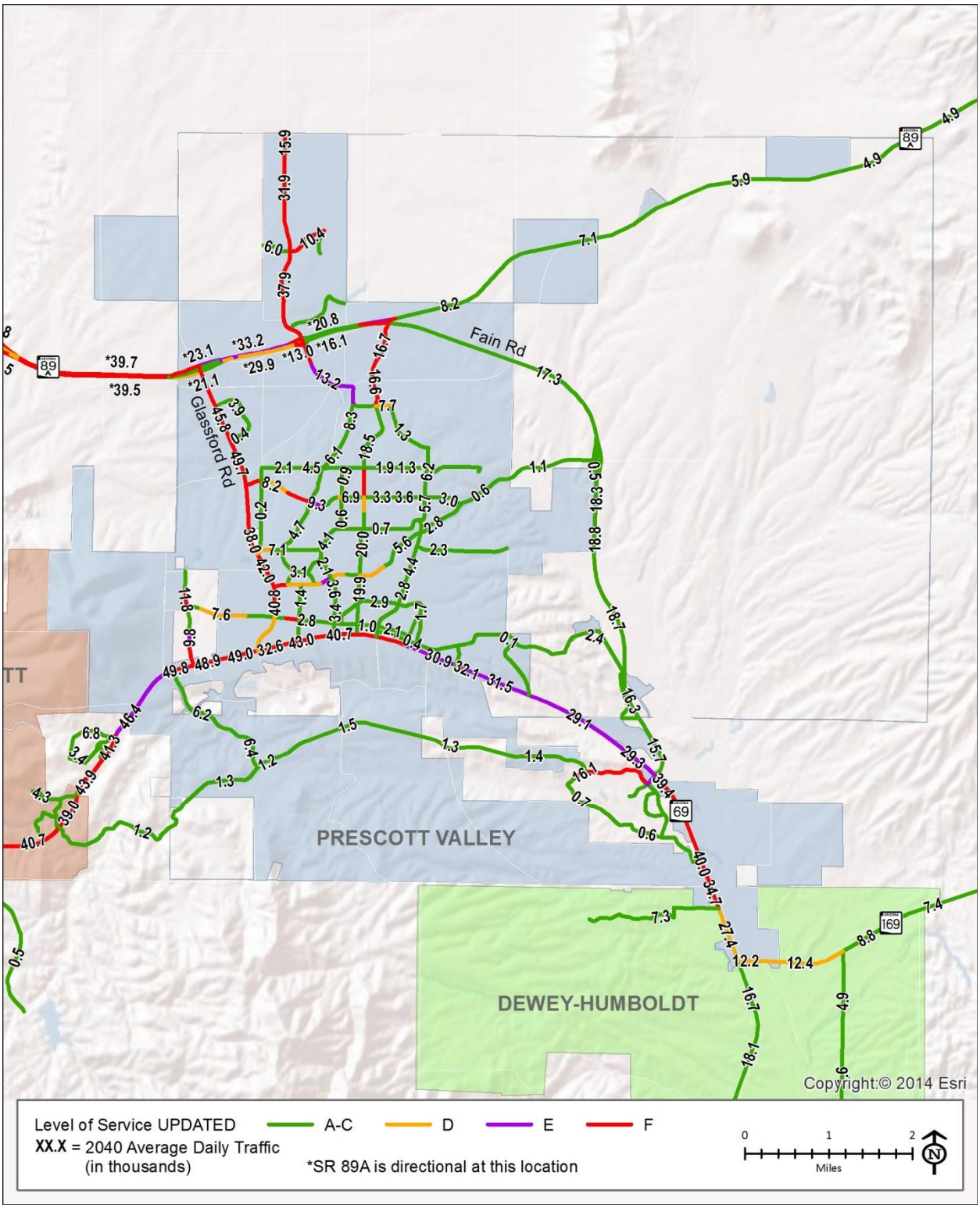


Figure 35 – Town of Chino Valley 2040 No-Build Traffic Volumes and Levels-of-Service

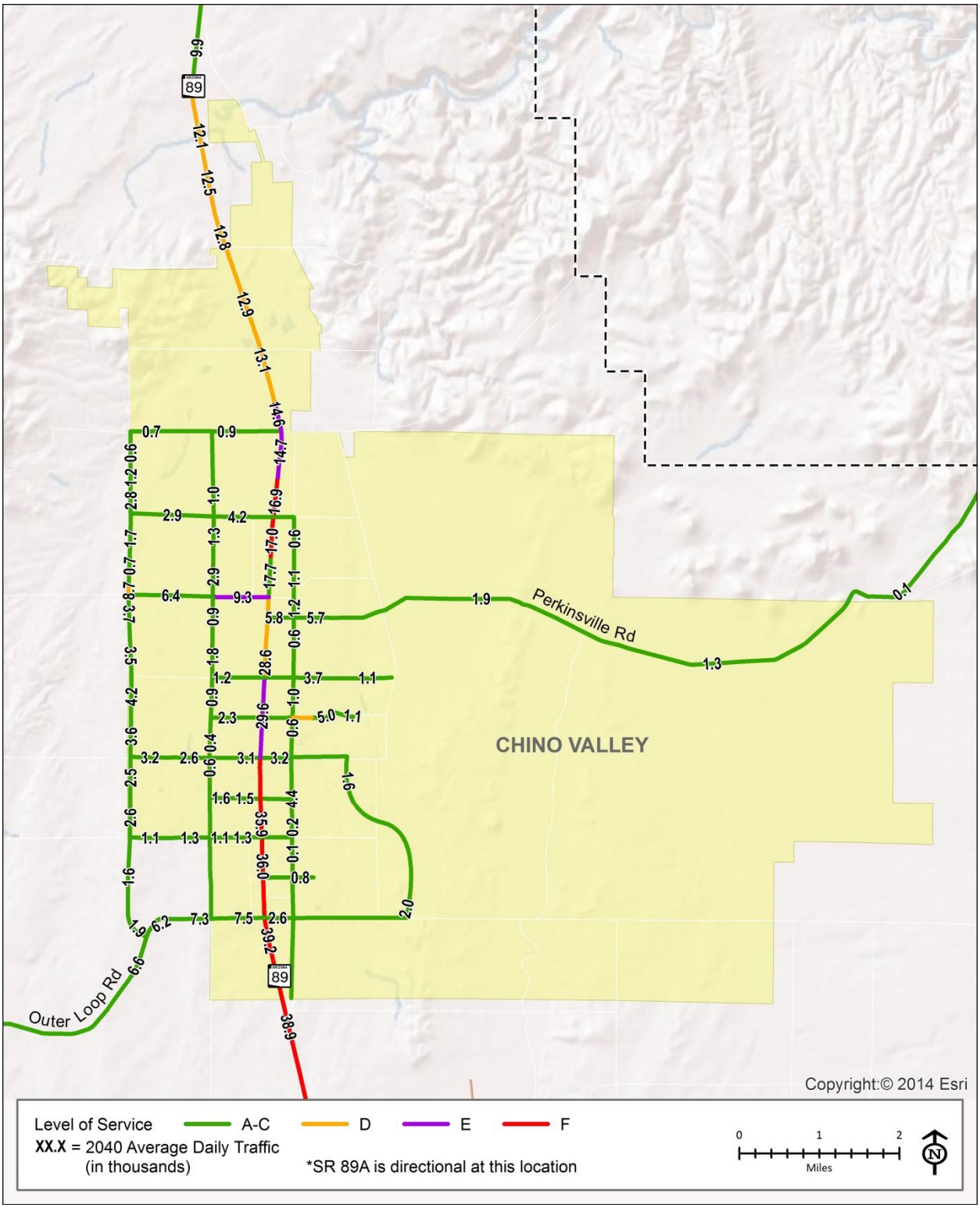
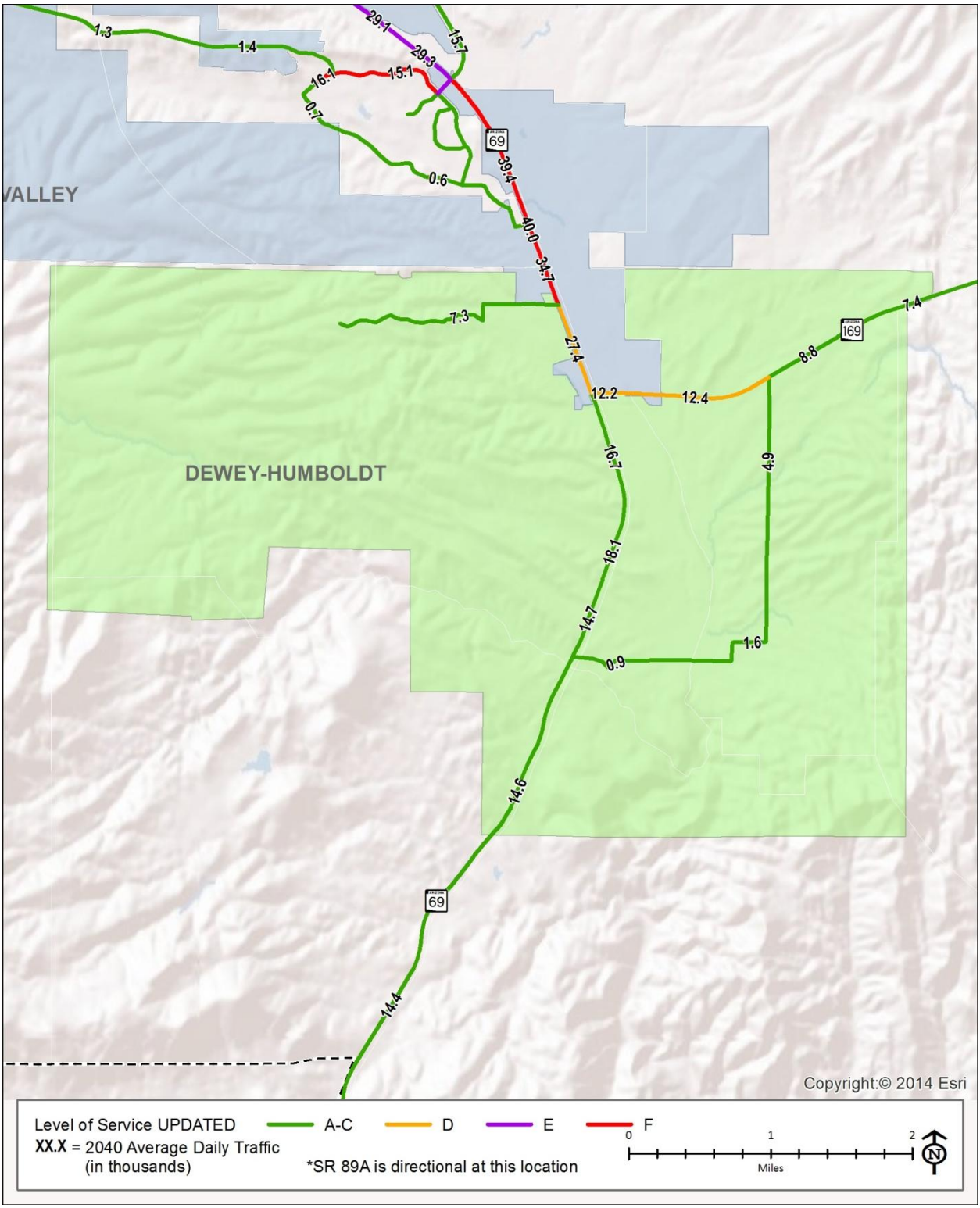


Figure 36 – Town of Dewey Humboldt 2040 No-Build Traffic Volumes and Levels-of-Service



Beyond the locations identified in the 2025 No-Build projections, the LOS estimates for the 2040 No-Build network indicate that additional segments are predicted to fail at level of service "F." These additional facilities consist of:

- Williamson Valley Road near Pioneer Parkway
- SR 89A between SR 89 and Viewpoint Drive
- Additional roadway segments in the downtown Prescott area
- Additional segments of Willow Creek Road
- Additional portions of SR 89, including locations north of SR 89A

This analysis indicates that several of the regional routes in the CYMPO region are anticipated to experience congested conditions in 2040 if no roadway improvements beyond "No-Build" are implemented.

3.5 Future Multimodal Transportation Facilities

3.5.1 Planned Multimodal Facilities

The City of Prescott's Bicycle and Pedestrian Master Plan identified high-priority requests for Complete Street improvements for inclusion in future Capital Improvement Programming (CIP). These high-priority projects include:

1. Projects listed in the current CIP, programmed to be designed/constructed in 5 to 10 years
2. Projects recommended for inclusion in the CIP for design/construction in 5 to 10 years

Some example high-priority projects in Prescott include:

- Ruth/Demerse, Whipple to Montebello Lane – sidewalks on both sides with crosswalk at Rosser Street
- Sidewalk improvements providing linkage from the Ruth, Demerse project to the Prescott Heights neighborhood
- Mt. Vernon, Senator Highway Improvements – sidewalk construction with potential striped bike lane
- Rosser Street Reconstruction – modification to intersection (SR 89) and signal to provide pedestrian crossing
- East Gurley Street west to Thumb Butte Road to Thumb Butte Park – study reconstruction of street to accommodate pedestrian and bicycle traffic
- Green Lane sidewalks, Santa Fe Springs to Meadowridge Lane – construction of sidewalks
- Moeller Street sidewalks, Mt. Vernon to Rush Street – reconstruction of sidewalks
- Country Club Drive, street improvements associated with utility system improvements
- Park Avenue, West Gurley to Copper Basin Road – investigate opportunity to provide bike lanes
- Goodwin Street, Bradshaw Drive to Glenwood Avenue to Park Avenue – reconstruction of sidewalks

The Town of Prescott Valley has considered a potential future light rail facility along the Santa Fe Loop Road, right-of-way for which has already been preserved.

3.5.2 Funding Opportunities and Constraints

Transportation funding, especially for public transit, has been an area of critical concern in recent years. While federal sources of funding still exist for transit infrastructure projects, local sources are much more limited outside the state's largest metropolitan areas. Until 2010, the state of Arizona dedicated a portion of its Powerball lottery revenues to fund public transportation through the Local Transit Assistance Fund (LTAF II). However, LTAF II was repealed by the legislature in 2010, making Arizona one of five states with no state funding for transit.

The following federal funding sources could be tapped for future transit projects. Nearly all federal grant programs require a local match, either in cash or in kind. Although the capital needs of most transit systems are largely funded through federal programs, operating funds must be found locally.

- Section 5307 Urbanized Area Formula Grants: for expenses related to planning, engineering, design, and evaluation of transit projects and other technical studies, as well as capital investments in bus and bus-related activities.
- Section 5309 Discretionary Capital Grants: can be used for new and replacement buses and facilities and new fixed guideway systems.
- Section 5310 Elderly and Disabled Transportation Grants: available to public and private, not-for-profit entities to cover 80% of the cost for purchasing vans, small buses, and related capital equipment. During FY 2014, various agencies within CYMPO have been awarded a total of $230,000 in grants ($184,000 federal, $46,000 local) under Section 5310 capital awards, and $70,000 ($35,000 federal, $35,000 local) in operating awards.
- Section 5316 Jobs Access/Reverse Commute Program: for new transit service designed to assist welfare recipients and other low-income individuals to get to jobs, training and child care services.
- Section 5317 New Freedom Initiatives Grants: designed to encourage services and facility improvements to address the transportation needs of persons with disabilities that go beyond those required by the ADA.

4.0 CYMPO 2040 Regional Transportation Plan

4.1 Definition of Alternatives

Four alternative transportation networks for the 2040 horizon design year were developed by the Technical Advisory Committee (TAC). These alternatives were drawn from a list of planned projects in the CYMPO planning area, which was based in turn upon the 2011 RTP update, Yavapai County plans, and city and town CIPs and general plans. Each alternative represents a different combination of improvements to existing roadways and/or new facilities, assembled to evaluate the combined projects' effect on congestion in the region.

Alternative 1
The TAC collaboratively identified those projects (from the list of planned projects) that would be essential to traffic circulation in the future network. These projects were identified by taking into account the needs identified in the No-Build network, the planned future residential and commercial developments in the area, the ease of freight access to the region, and other factors. Alternative 1 includes only those projects that were deemed essential, the majority of which are improvements to existing roadways, with some smaller new facilities.

Alternative 2
Alternative 2 was developed to include all of the projects present in Alternative 1, plus three regional connecting roadways. This alternative was conceived to cover all of the essential circulation projects, with the addition of some new options for regional travel and improved regional connectivity.

Alternative 3
Alternative 3 was developed to include all of the projects in the list of planned projects that were identified as feasible by 2040, with the exception of SR 69 widening and the new Najavo Drive facility, which were included in Alternative 2. This alternative was developed to evaluate whether these two projects would be necessary, considering the addition of other regional circulation projects that provide capacity and connectivity to the network.

Alternative 4
Alternative 4 was developed to include all the projects (in the list of planned projects for the region) that were deemed feasible by 2040. This scenario includes all of the projects that were present in Alternative 3, plus the SR 69 widening project and Navajo Drive widening projects.

4.2 Alternatives Evaluation Criteria

Network alternatives were evaluated and evaluation results were then used to quantitatively rank the alternatives based on their technical merits. The evaluation criteria are listed in Table 9 below.

Table 9 – Network Alternative Evaluation Criteria

#	Criteria	Performance Measures
1	Improve traffic operations	Total miles of projected LOS E or F
2	Promote mobility and accessibility for personal and freight transport	Travel time savings per home-based work trip compared to No-Build Alternative
		Percent of 24-hour truck VMT on congested facilities
3	Maintains planning consistency	Consistent with comprehensive plans, city/town general plans, previous regional transportation plan and corridor studies
4	Right-of-way considerations	Total estimated right-of-way (ROW) needed
5	Potential to result in relocations or displacements of a protected population	Qualitative assessment of the new ROW required and the likelihood that relocations or displacements would be required in areas where protected populations have been identified
6	Potential to affect protected populations' community	Qualitative assessment of the potential for adverse effects to the communities in which protected populations live
7	Improve safety by strengthening and expanding roadway access management	Number of additional centerline miles with a high level of access management compared with the 2040 No-Build condition
8	Cost	Total estimated cost for all projects included in addition to 2040 No-Build condition
		Ratio of estimated cost to annual time savings from building the alternative
9	Ease of implementation	Constructability based on miles of included improvements that are new major regional freeways
10	Local agency and public acceptance	Local community support for and acceptance of the alternative

The evaluation criteria were developed in coordination with the TAC. Results of the evaluation on all criteria were compared across alternatives. The criteria and their performance measures are described below.

4.2.1 Description of Evaluation Criteria

Improve Traffic Operations
This criterion is a calculation of the total miles of level of service "E" or "F" for each network alternative. LOS "E" and "F" were considered failing levels, meaning that the fewer the congested miles, the better the performance.

Promote Mobility and Accessibility for Personal and Freight Transport
It is important to improve mobility for residents, visitors, and freight carriers operating in the region. This criterion has two performance measures: one related to personal travel and one related to freight travel. The first performance measure compares travel time savings per each home-based work trip

compared to the No-Build Alternative. Home-based work trips – that is, those trips with one end located at home and the other at work, no matter the direction of travel – are typically the most prevalent type of trip during a weekday. They tend to have the greatest impact on the transportation system, since they are heavily concentrated during peak travel periods. This performance measure calculates the average of the travel times of all home-based work trips in the No-Build network, then compares that to the average of the travel times of all home-based work trips in each network Build alternative. The second performance measure is the percent of daily vehicle miles that trucks travel in the system on congested roadways. A "congested roadway" refers to a roadway operating at LOS 'E' or 'F' during the time the truck is traveling on it.

Maintains Planning Consistency
This evaluation criterion evaluates whether the projects in the network alternative are consistent with those previously planned in the CYMPO area. Although some of those projects were not considered due to the size of the project, the needs of the community, and/or the limited funding available, the majority were considered in at least one of the network alternatives. This criterion indicates which alternatives maintained the most consistency with the planned projects.

Right-of-Way Considerations
A transportation project cannot be built unless the land necessary to build and operate the project is first acquired. Acquisition of ROW is expensive and, in situations where the land is already occupied by active land uses, its acquisition will disturb the community's environment, continuity, and way of life. This criterion estimates the amount of ROW that would need to be acquired for each alternative. The more ROW needed, the less desirable the alternative.

Potential to Result in Relocations or Displacements of a Protected Population
If the land needed for a roadway project includes land on which a home is already located, the residents of that home will need to vacate and find alternative housing (with assistance from the responsible agency, as required by law). Protected populations include certain racial and ethnic minorities, low-income households, disabled persons, and elderly persons, among others (in accordance with Title VI of the Civil Rights Act and Executive Order 12898). This criterion was set to evaluate the extent to which any protected populations would need to be moved due to ROW acquisitions.

Potential to Affect Protected Populations' Community
In addition to ROW acquisition, a new roadway can negatively affect a community simply through its location; for example, by forming a barrier to circulation. A large facility, such as a freeway or major arterial, can split a community, isolating a group on one side of the facility from neighbors and community amenities on the other side. This criterion was established to determine the potential of each alternative for creating such barriers affecting protected populations.

Improve Safety by Strengthening and Expanding Roadway Access Management
Vehicular crashes often involve conflicts between vehicles at public or private access points. Sound access management practices can reduce the number of crashes while enhancing the efficiency of traffic flow. This criterion quantifies linear miles of new access management – either new facilities that will effectively manage access or existing facilities that will have access management features added.
Cost

The level of funding needed to complete each network alternative is an important factor in the evaluation. The cost criterion includes two performance measures. The first is the estimated total cost of each alternative. The second represents a form of cost/benefit analysis. This performance measure compares the total cost of the alternative to the annual time savings resulting from that alternative. The time savings is gleaned from reduction of congestion as compared to the No-Build network. For example, in the No-Build network, a person may have sat in traffic for 60 minutes on the way to work. In a network with a Build alternative implemented, that same trip may take only 55 minutes. If a person makes that same trip twice in one day, for 250 days per year, then that person will save more than 20 hours of time each year. The total annual time savings for an alternative is the sum of the time savings off all the trip-makers in the network. It should be noted that a transportation investment may have many benefits other than travel time savings.

Ease of Implementation
Transportation improvements can be difficult to implement. Besides the necessary funding, implementation requires public support, limiting disruption to the community, maintaining access during construction, and other challenges. The ease of implementation criterion compares the number of roadways in each alternative which are considered the most difficult to build.

Local Agency and Public Acceptance
The final criterion is the level of acceptance from the CYMPO member agencies and the public. None of the projects proposed will be completed without community acceptance. The local agencies reviewed the evaluation results for all other criteria and a recommended network alternative were presented to the public on Monday, 9/29/14. The local agencies criterion was evaluated based on the input at the public meeting and through the TAC coordination.

4.3 2040 Recommended Network

The recommended 2040 network represents the planning-level network that is being recommended for implementation by the year 2040 throughout the CYMPO region. This recommendation takes into account all of the criteria presented in the alternatives evaluation process. The recommended alternative does not directly correspond to any one alternative evaluated in the alternatives selection process, but is a modification or combination of multiple alternatives.

4.3.1 2040 Recommended Network Description

The *Yavapai County Comprehensive Plan* (9/17/2012) identifies three major transportation element goals. These are: fully integrated coordination between land use planning and transportation planning, encouragement of multi-modal transportation opportunities (including transit), and ensured consistency between transportation and land use through a thorough review and understanding of land use zoning policy. In summary, Yavapai County transportation goals are centered on the cohesion of transportation and land use as well as the promotion of multi-modal options for users.

The project team reviewed the results of the alternative selection process; the details of this analysis are included in Appendix C. A base alternative (Alternative 1) was identified as the scenario that would be

most beneficial for the region. It is anticipated to provide a great deal of benefit to the system with the lowest cost of the four alternatives, when compared to the No-Build scenario. It is projected to reduce the length of congested roadway by 30 miles. It adds 24 miles of access-controlled highway facilities and has the highest ranking for ease of implementation.

In addition to the improvements included in the base alternative, the recommended network was modified to include additional facility improvements that would enhance the regional network to further alleviate congestion, while still being considered reasonable or feasible for cost and implementation. The 2040 recommended improvements are listed in Table 10 and displayed geographically in Figure 37.

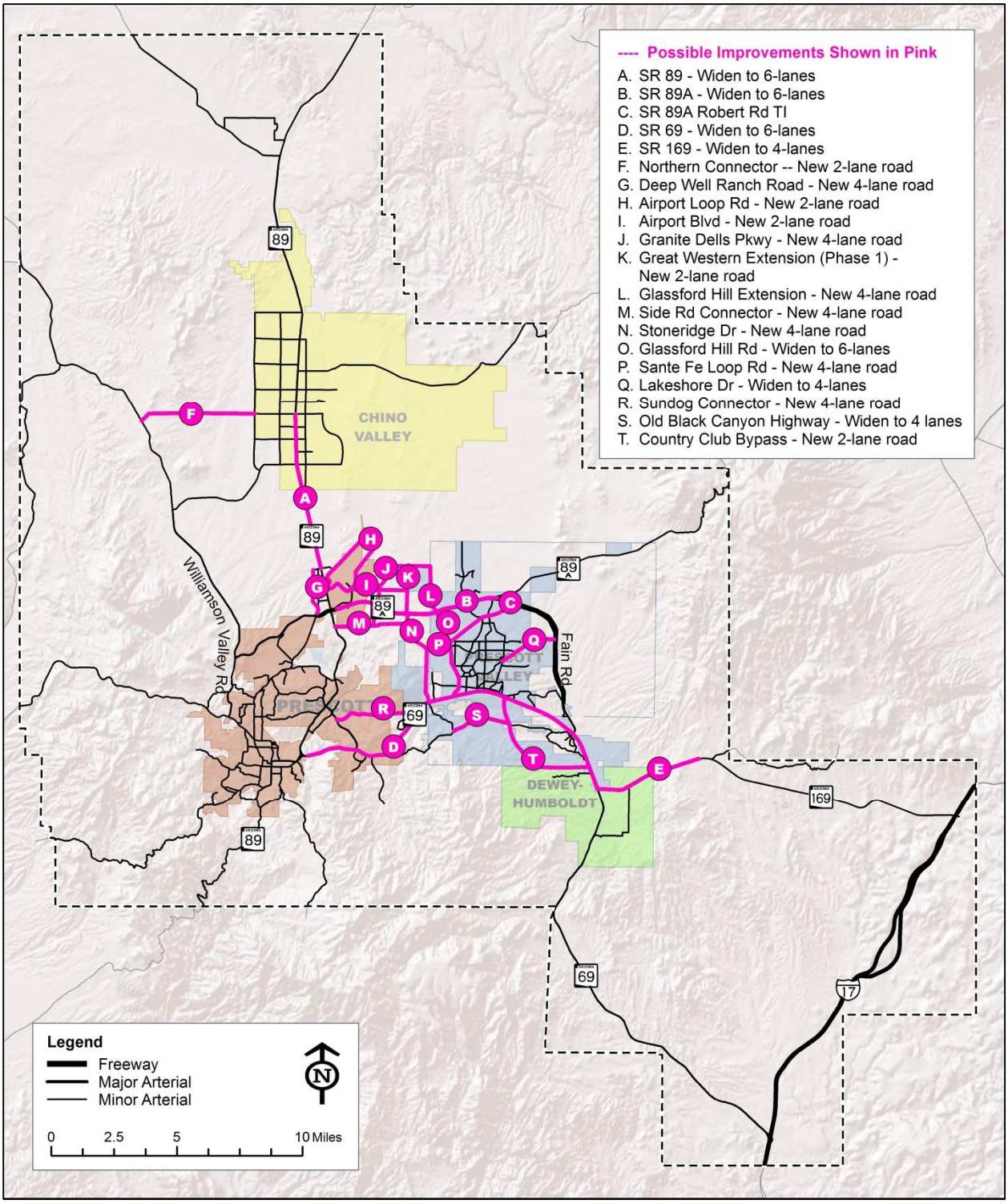
Table 10 – Improvement Projects Included in 2040 Recommended Network

Project name	Description	Jurisdiction
SR 89 Widening	Widen to 6 lanes (Deep Well Ranch Road to Center Street)	ADOT
SR 89A Widening	Widen to 6 lanes (SR 89 to Robert Road)	ADOT
SR89A/Robert Road Traffic Interchange (TI)	New Robert Road (TI), includes portion of Santa Fe Loop Road, grade separation of Robert Road, and new ramps	ADOT/Local Jurisdiction
SR 69 Widening	Complete widening to 6 lanes (SR 89 to SR 169)	ADOT
SR 169 Widening	Widen to 6 lanes (SR 69 to Old Cherry Road)	ADOT
Northern Connector	New 2-lane facility between Reed Road and Williamson Valley Road	Yavapai County
Deep Well Ranch Road	New 4-lane facility between existing Deep Well Ranch Road and Willow Creek Road	Prescott
Airport Loop Road	New 2-lane facility looping around the airport	Prescott
Airport Boulevard	New 4-lane facility between SR 89A and Great Western Extension	Prescott
Granite Dells Parkway	New 4-lane facility between SR 89A and Great Western Extension	Prescott
Great Western Extension (Phase 1)	Phase 1 includes new 2-lane facility to the north of SR 89A	Yavapai County
Glassford Hill Extension	New 4-lane facility between SR 89A and Great Western Extension	Prescott Valley
Side Road Connector	New 4-lane facility between SR 89A and Stoneridge Drive	Prescott
Stoneridge Drive	New 4-lane facility between SR 69 and SR 89A	Prescott Valley

Table 10 – Continued

Project name	Description	Jurisdiction
Glassford Hill Road Widening	Complete widening to 6 lanes (SR 69 to SR 89A)	Prescott Valley
Santa Fe Loop Road	New 4-lane facility between Robert Road and Stoneridge Drive	Prescott Valley
Lakeshore Drive Widening	Widen to 6 lanes (Navajo Drive to Fain Road)	Prescott Valley
Sundog Connector	New 4-lane facility between Prescott Lakes Parkway and SR 69	Prescott
Old Black Canyon Highway Widening	Widen to 6 lanes between Stoneridge Drive and Country Club Bypass	Prescott Valley
Country Club Bypass	New 2-lane facility bypassing SR 69 around the Country Club	Prescott Valley

Figure 37 – CYMPO 2040 Recommended Regional Network



4.3.2 2040 Recommended Network Performance

Figure 38 to Figure 42 display the anticipated traffic volumes and level of service (LOS) of the 2040 recommended network. Volume is represented by the numeric values shown on the roadways, while LOS (based on volume/capacity [V/C] ratio) is represented through color. LOS F signifies the most congested roadway segments and is shown in red.

The figure indicates that the following highest-volume roadways in the CYMPO region cover most of the regional routes, including SR 69 between Dewey-Humboldt and Prescott, SR 89A between Viewpoint Drive and SR 89, SR 89 between downtown Prescott and approximately Road 2 North, Glassford Hill Road between SR 69 and SR 89A, and Willow Creek Road between SR 89A and downtown Prescott. Some of the new facilities recommended in this network are anticipated to also carry relatively high volumes, such as Stoneridge Drive between SR 69 and SR 89A, Santa Fe Loop Road between Stoneridge Drive and Robert Road, Sundog Connector, Granite Dells Road, and Glassford Hill Extension north of SR 89A.

The V/C ratios indicate a significant improvement over the 2040 No-Build network. Improved areas include the following roadways:

- SR 89 between Deep Well Ranch Road and Center Street
- Williamson Valley Road north of Pioneer Parkway
- SR 69 in multiple segments from SR 89 to SR 169
- Glassford Hill Road from SR 69 to SR 89A
- SR 89A between SR 89 and Robert Road
- Willow Creek Road between Pioneer Parkway and SR 89
- Robert Road near SR 89A

However, some areas of the recommended network are still anticipated to operate at congested levels. These roadways include the following:

- SR 89 between Deep Well Ranch Road and approximately Willow Lake Road
- Segments of SR 89 north of Center Street
- Segments of SR 89 in the downtown Prescott area
- Willow Creek Road between Pioneer Parkway and downtown Prescott
- Multiple roadways in the downtown Prescott area
- Small segments of SR 69 in Prescott Valley
- Viewpoint Drive north of Santa Fe Loop Road
- Small portions of multiple roadways in Prescott Valley

Further study is recommended for improvements beyond 2040 to address some of these congestion issues.

Figure 38 – CYMPO Recommended 2040 Traffic Volumes and Levels-of-Service

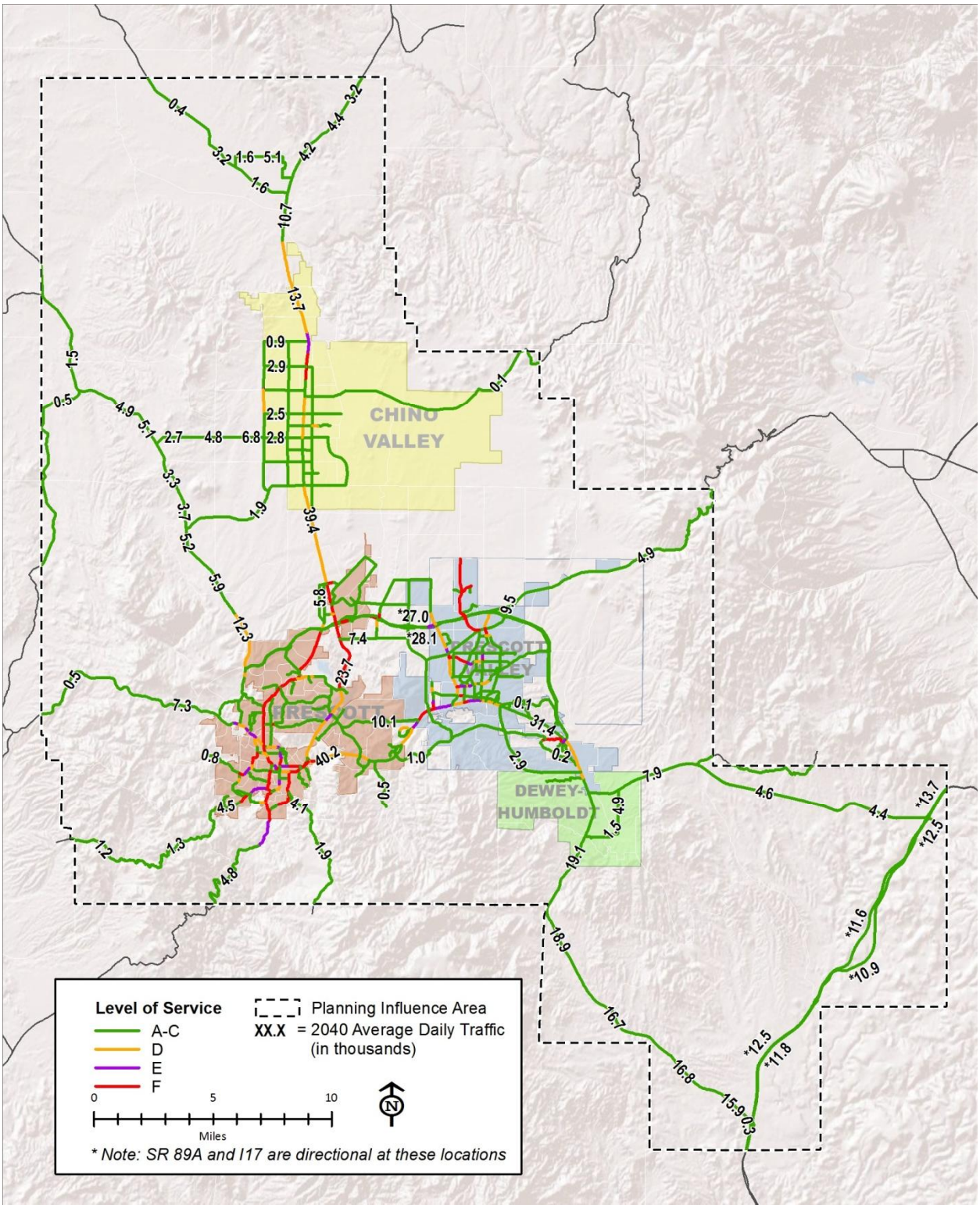


Figure 39 – City of Prescott 2040 Recommended Traffic Volumes and Levels-of-Service

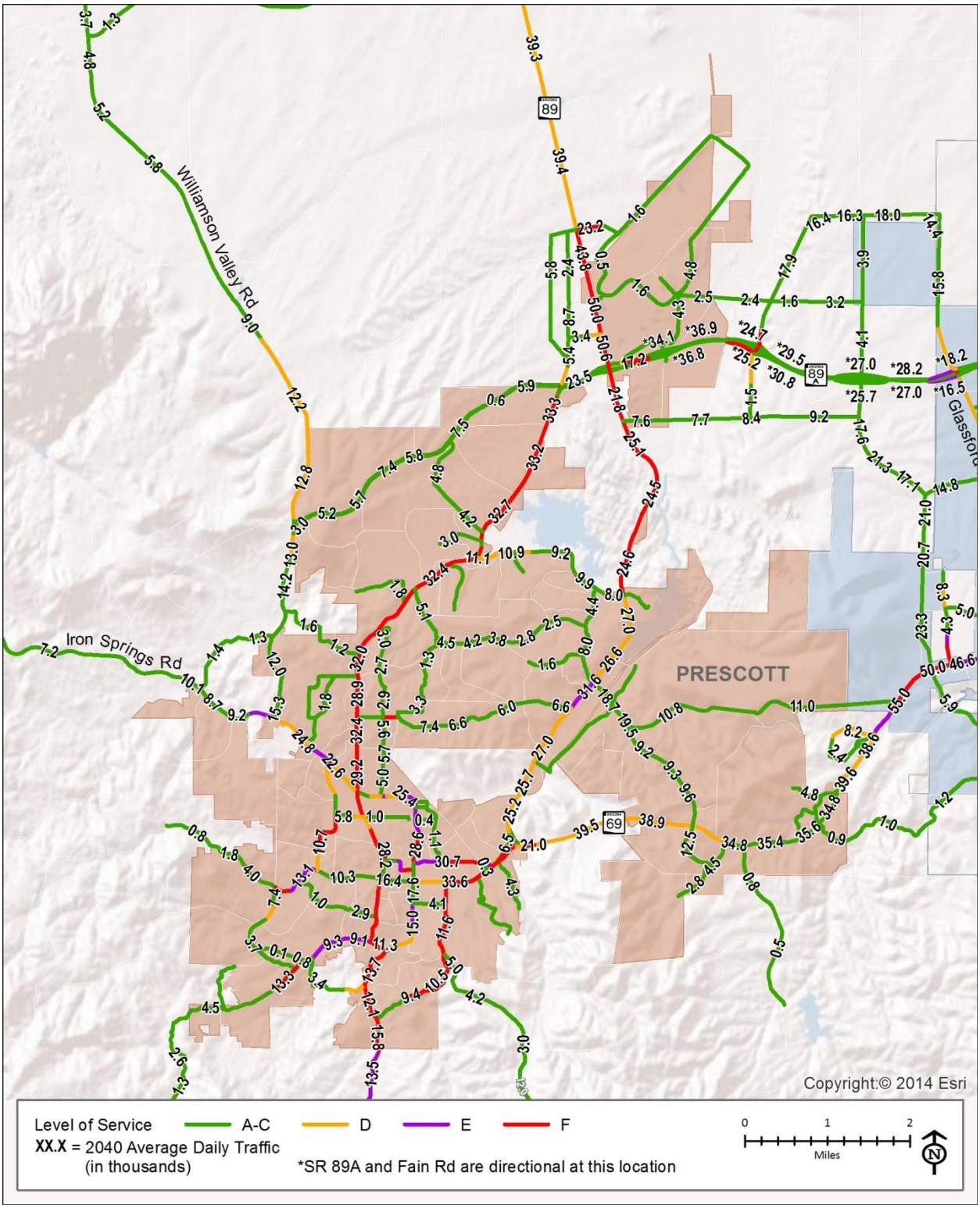


Figure 40 – Town of Prescott Valley 2040 Recommended Traffic Volumes and Levels-of-Service

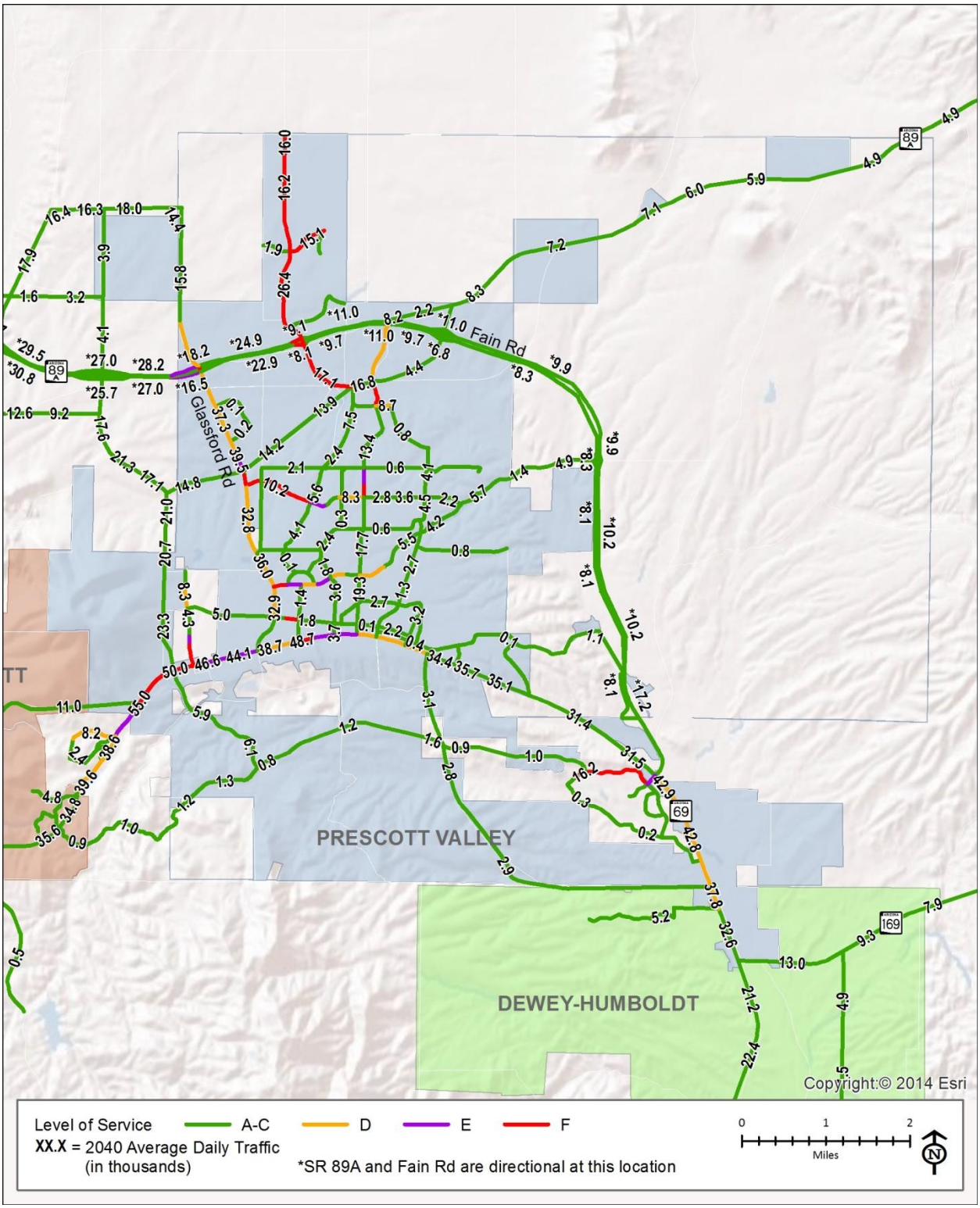


Figure 41 – Town of Chino Valley 2040 Recommended Traffic Volumes and Levels-of-Service

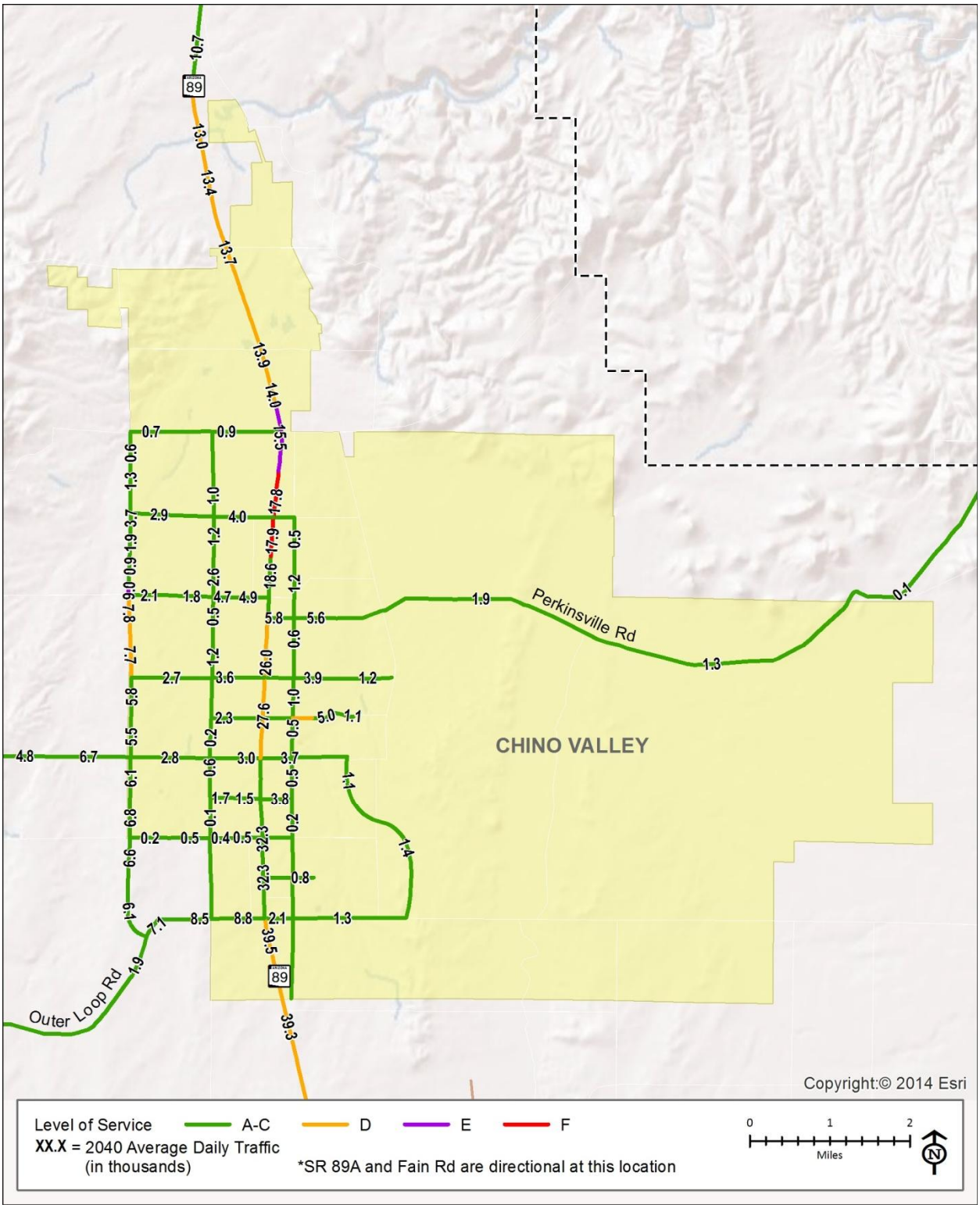
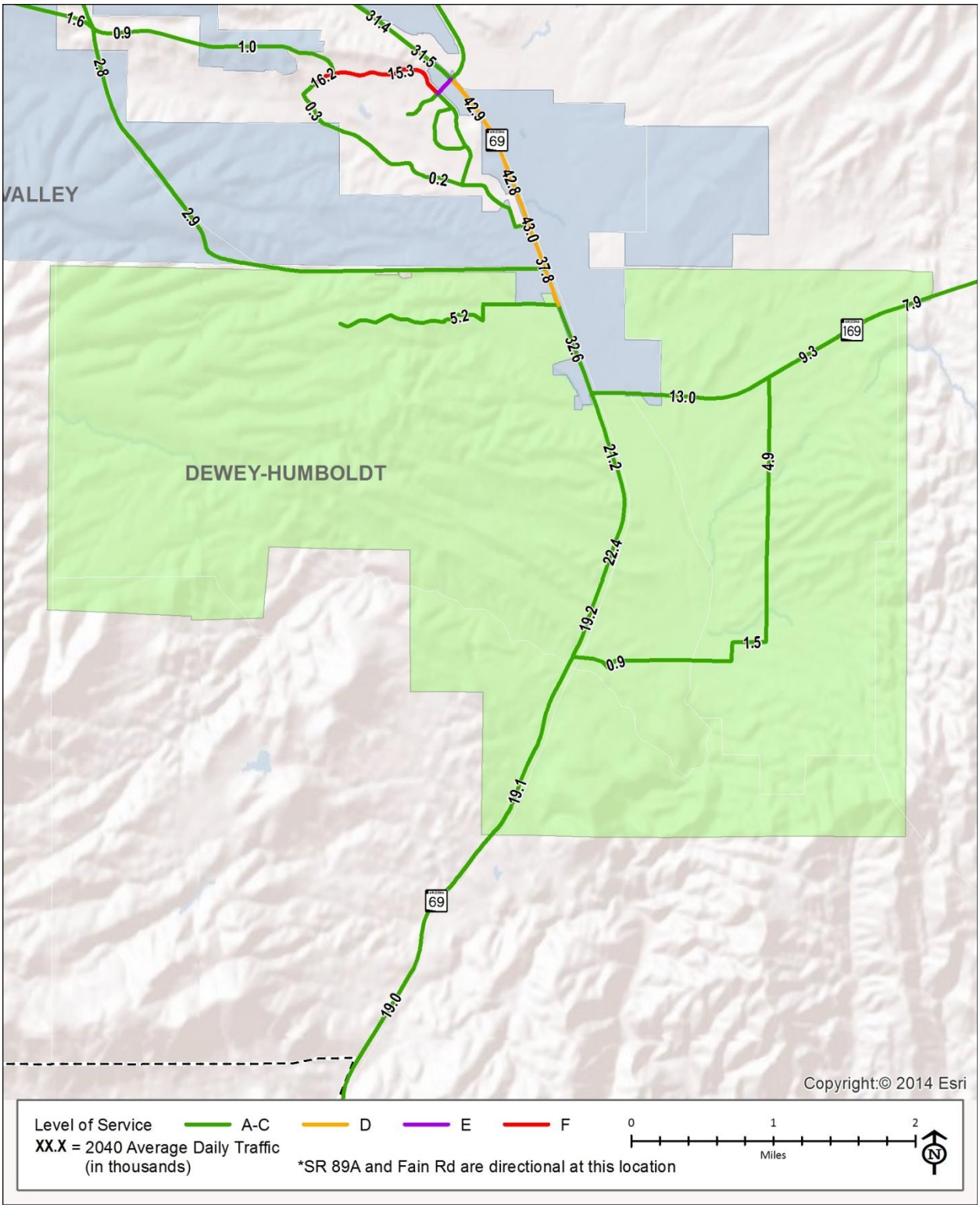


Figure 42 – Town of Dewey Humboldt 2040 Recommended Traffic Volumes and Levels-of-Service



4.4 2025 Recommended Network

The Regional Transportation Plan (RTP) for the CYMPO network includes recommendations for horizon years 30 years from 2010 (2040), and 15 years in the future (2025). The improvement projects selected for the 2025 recommended network are a subset of those in the 2040 recommended network. The selection was based on the level of congestion in the 2025 No-Build scenario as well as development projects expected to be underway or completed by 2025.

4.4.1 2025 Recommended Network Description

The 2025 No-Build analysis revealed that Glassford Hill Road is anticipated to operate at congested levels between SR 69 and SR 89A by 2025 without improvements. The Glassford Hill Road widening project, Side Road Connector, and Stoneridge Drive were therefore included in the 2025 recommended network. The combination of the Stoneridge Drive and Side Road Connector facilities will provide access between SR 69 in Prescott Valley and SR 89 just south of the SR 89A interchange. This connection will help to alleviate traffic on Glassford Hill Road. In addition, these two projects will provide necessary access to major regional routes for development in the area west of Prescott Valley and south of SR 89A, which is expected to be partially developed by 2025.

The 2025 No-Build network analysis showed that portions of SR 69 will continue to be congested under a scenario with no new improvements. The 2025 recommendation is therefore to widen SR 69 in areas that are anticipated to operate at a 'LOS' E or worse by 2025. This includes the following segments:

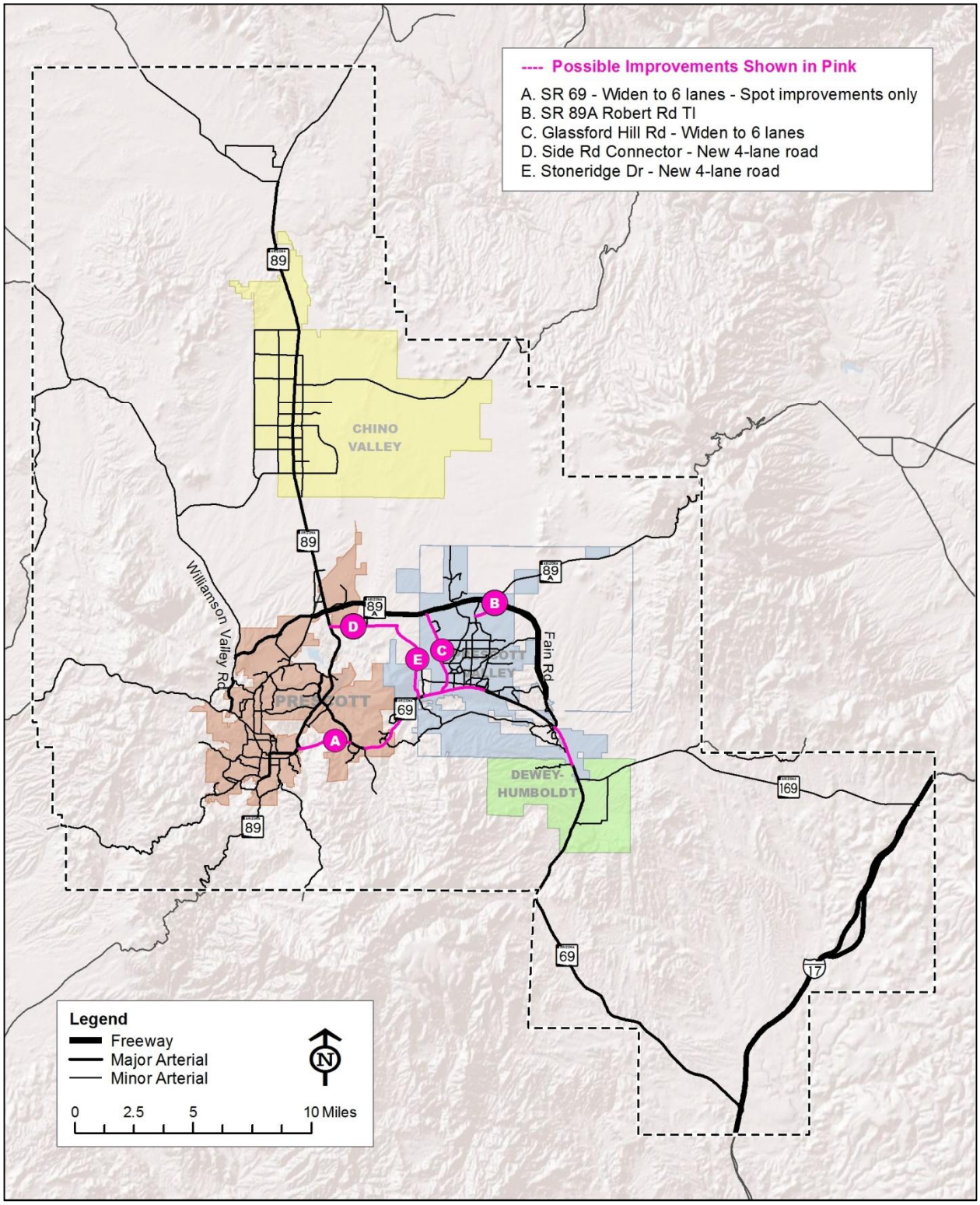
- SR 89 to Prescott Lakes Parkway
- Walker Road to Ramada Drive
- Prescott East Highway to Truwood Drive
- Fain Road to Kachina Place

The 2025 No-Build network analysis also revealed that Robert Road and SR 89A have operational issues near their intersection. The Robert Road traffic interchange (TI) is therefore included in the 2025 recommended network. However, it is also recommended that SR 89A and all its interchange connections be studied prior to implementation of the Robert Road TI. This TI project includes several parts: a grade separation at Robert Road and SR 89A, the construction of Santa Fe Loop Road between Robert Road and SR 89A, and the construction of a TI at the new Santa Fe Loop Road and Fain Road. The 2025 recommended improvements are summarized in Table 11 and displayed geographically in Figure 43.

Table 11 – Improvement Projects Included in 2025 Recommended Network

Project name	Description	Jurisdiction
SR89A/Robert Road (TI)	New Robert Road TI, includes portion of Santa Fe Loop Road, grade separation of Robert Road, and new ramps	ADOT/Local Jurisdiction
SR 69 Widening	Widening to 6 lanes (selected locations between SR 89 and SR 169)	ADOT
Side Road Connector	New 4-lane facility between SR 89A and Stoneridge Drive	Prescott
Stoneridge Drive	New 4-lane facility between SR 69 and SR 89A	Prescott Valley
Glassford Hill Road Widening	Complete widening to 6 lanes (SR 69 to SR 89A)	Prescott Valley

Figure 43 – CYMPO 2025 Recommended Regional Network



4.4.2 2025 Recommended Network Performance

Figure 44 to Figure 48 display the volumes and LOS of the 2025 recommended CYMPO network. The figures indicate that the roadways with the highest anticipated volumes correspond to the regional routes in the area. The highest-volume roadways include the following:

- SR 69 between Prescott and Dewey-Humboldt
- Willow Creek Road between Pioneer Parkway and downtown Prescott
- Segments of some major roadways in downtown Prescott (including Iron Springs Road, Gurley Street, Montezuma Street, and others)
- SR 89 between SR 89A and Chino Valley
- SR 89A between Viewpoint Drive and SR 89
- Glassford Hill Road between SR 69 and SR 89A
- Viewpoint Drive north of SR 89A

The V/C ratios indicate a significant improvement over the 2025 No-Build network. Improved areas include the following roadways:

- SR 69 in multiple segments from SR 89 to SR 169
- Glassford Hill Road from SR 69 to SR 89A
- SR 89A between Granite Dells Parkway and Glassford Hill Road

However, some areas of the recommended network are still anticipated to operate at congested levels. These roadways include the following:

- SR 89 between James Lane and approximately Willow Lake Road
- SR 89 between Deep Well Ranch Road and Center Street
- Segments of SR 89 in the downtown Prescott area
- Willow Creek Road between Pioneer Parkway and downtown Prescott
- Multiple roadways in the downtown Prescott area
- Short segments of SR 69 in Prescott Valley

Figure 44 – CYMPO 2025 Recommended Traffic Volumes and Levels-of-Service

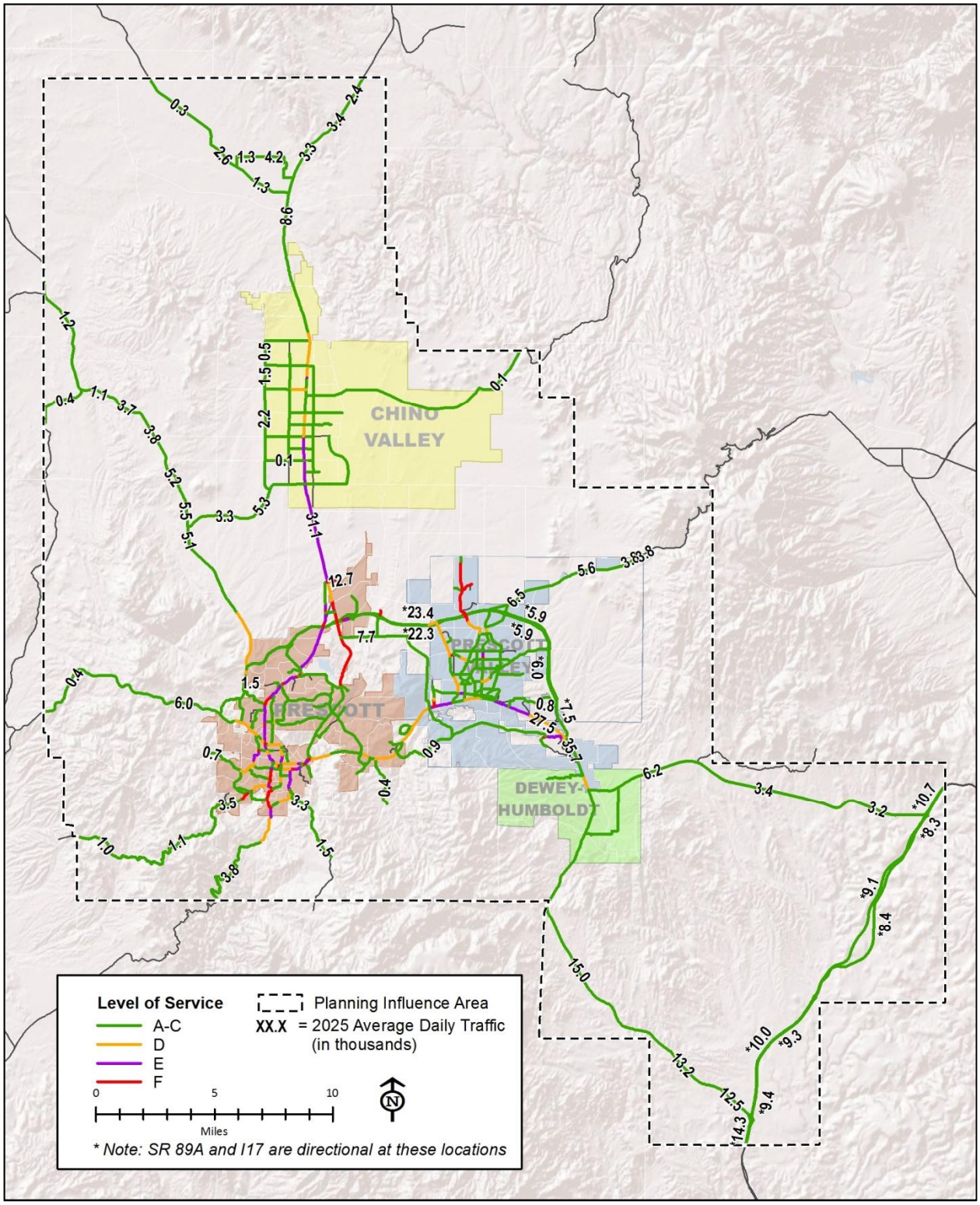


Figure 45 – City of Prescott 2025 Recommended Traffic Volumes and Levels-of-Service

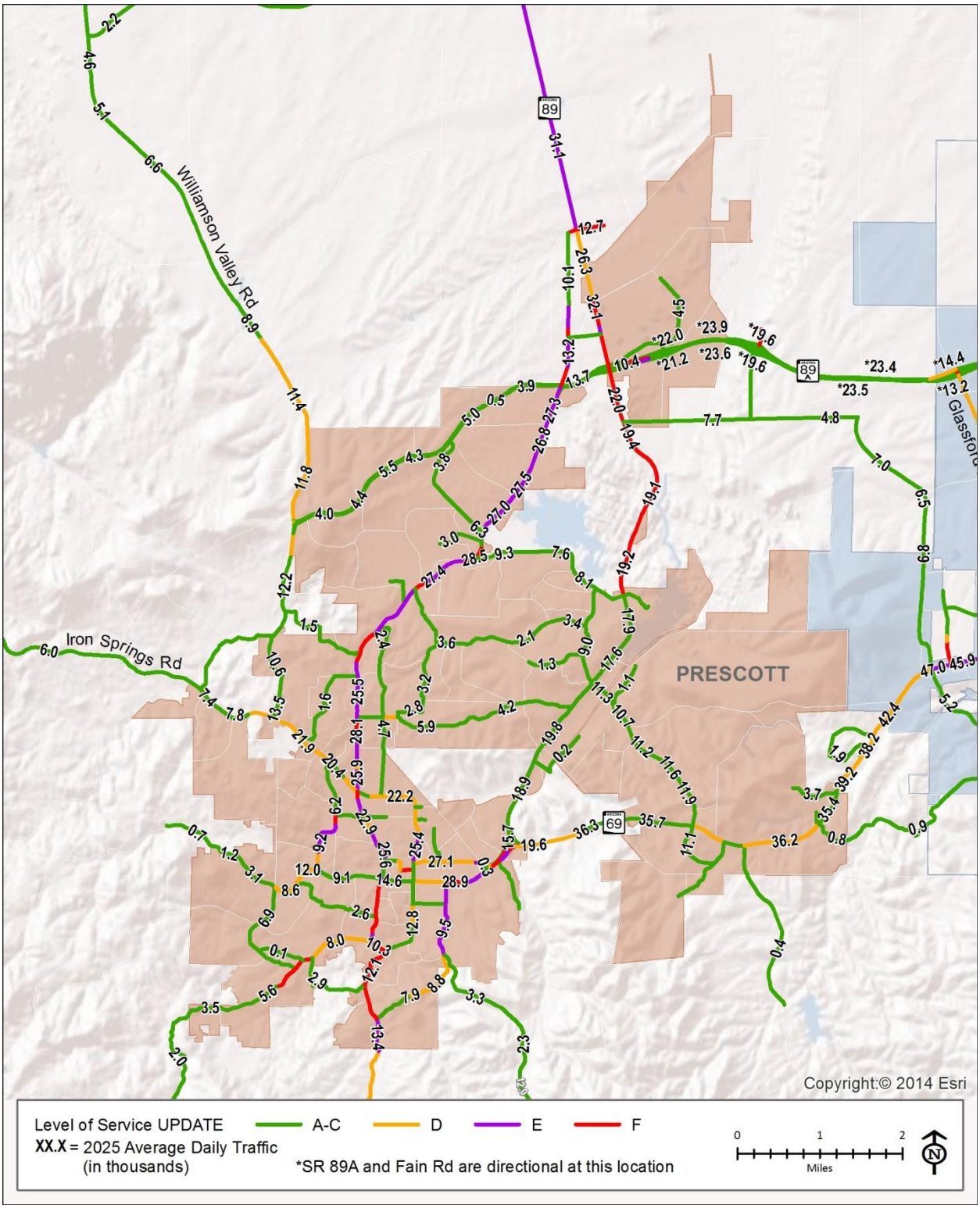


Figure 46 – Town of Prescott Valley 2025 Recommended Traffic Volumes and Levels-of-Service

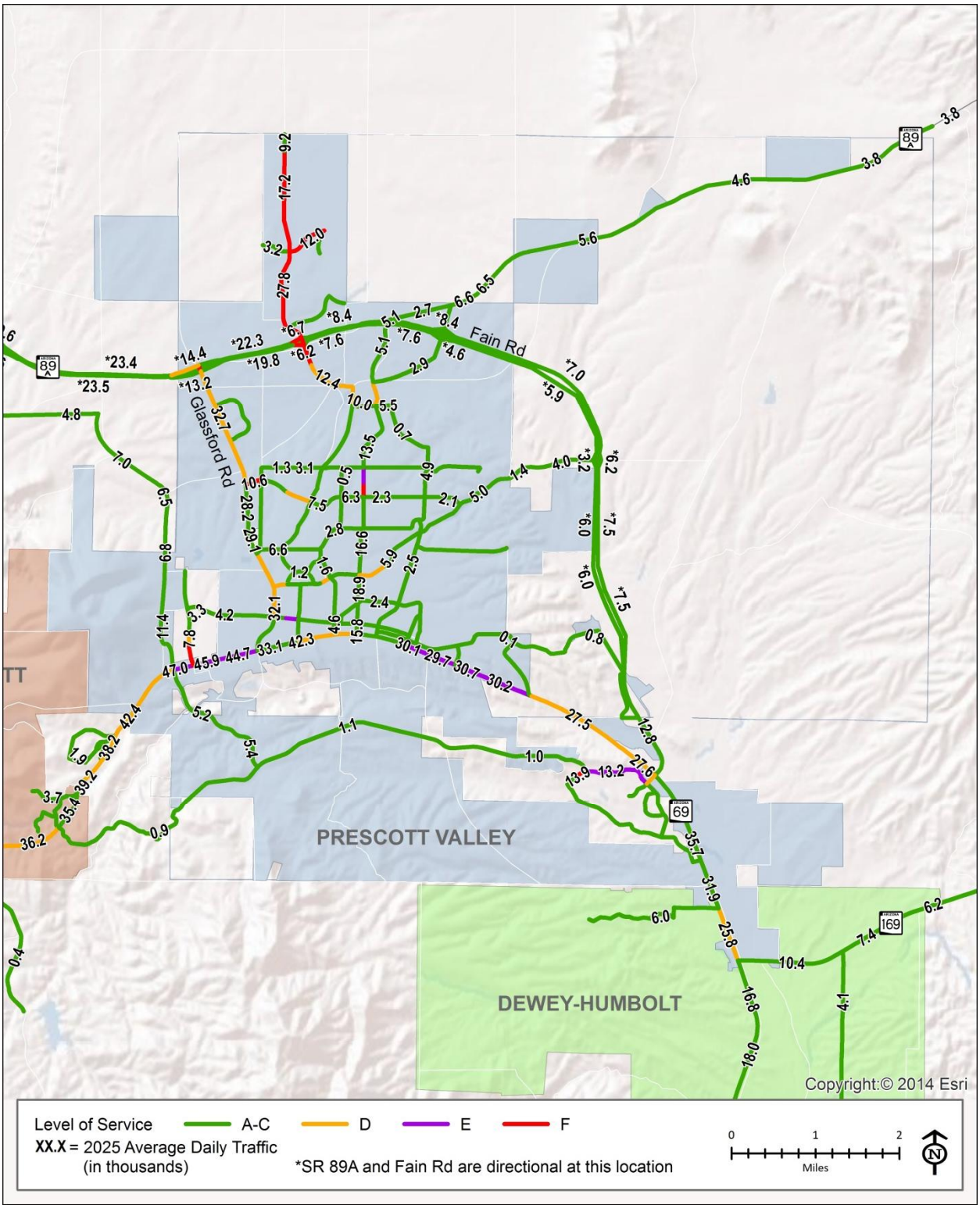


Figure 47 – Town of Chino Valley 2025 Recommended Traffic Volumes and Levels-of-Service

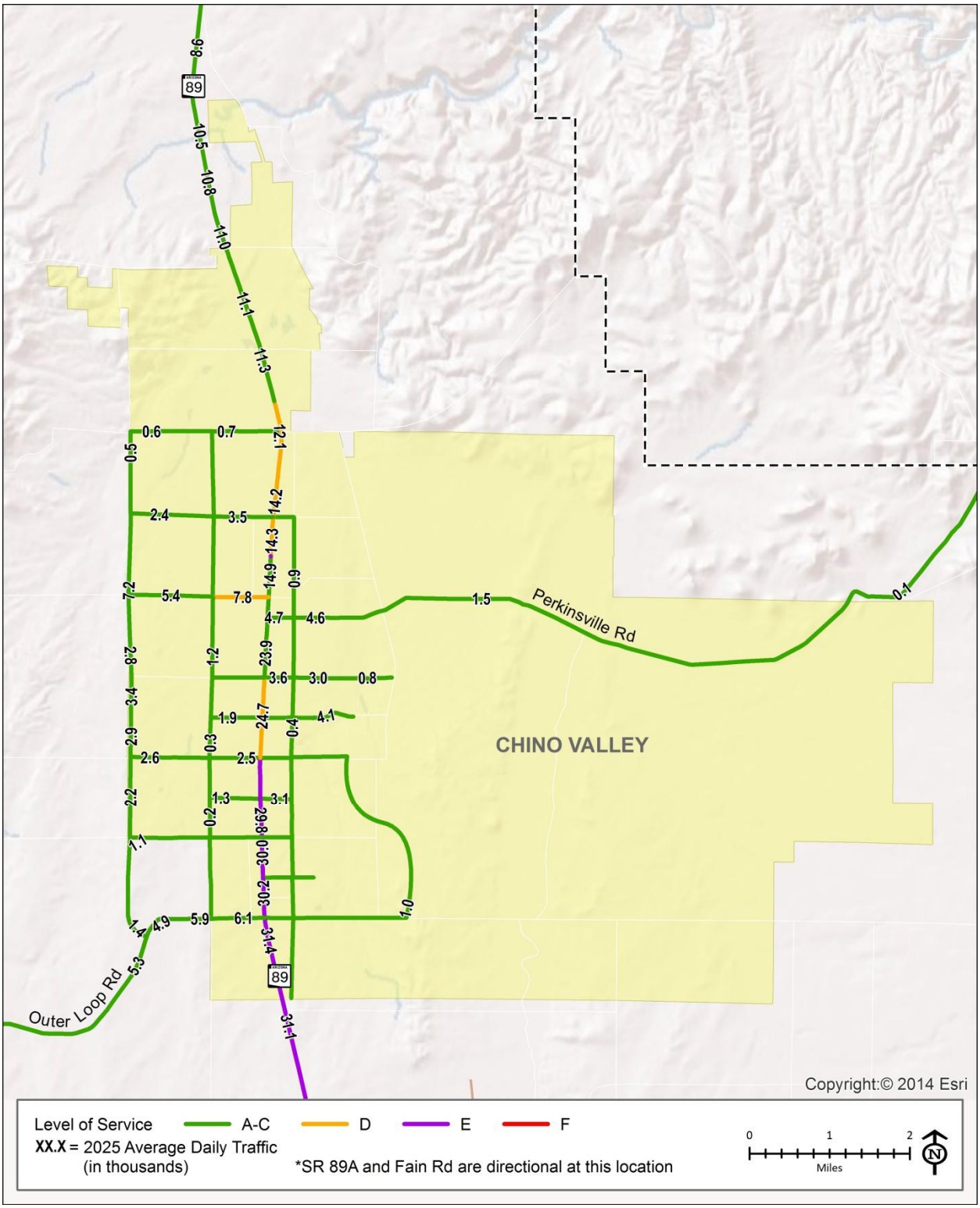
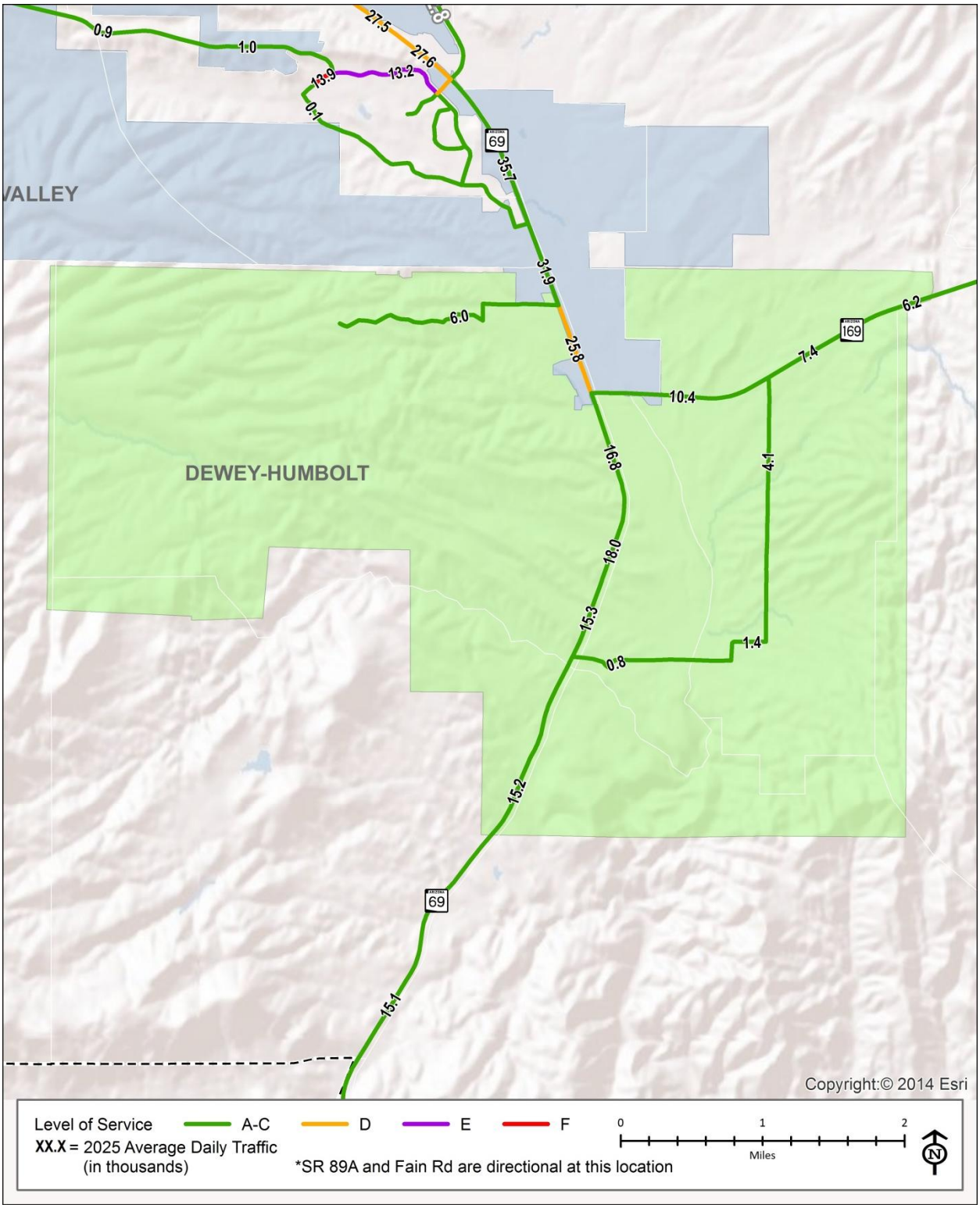


Figure 48 – Town of Dewey Humboldt 2025 Recommended Traffic Volumes and Levels-of-Service



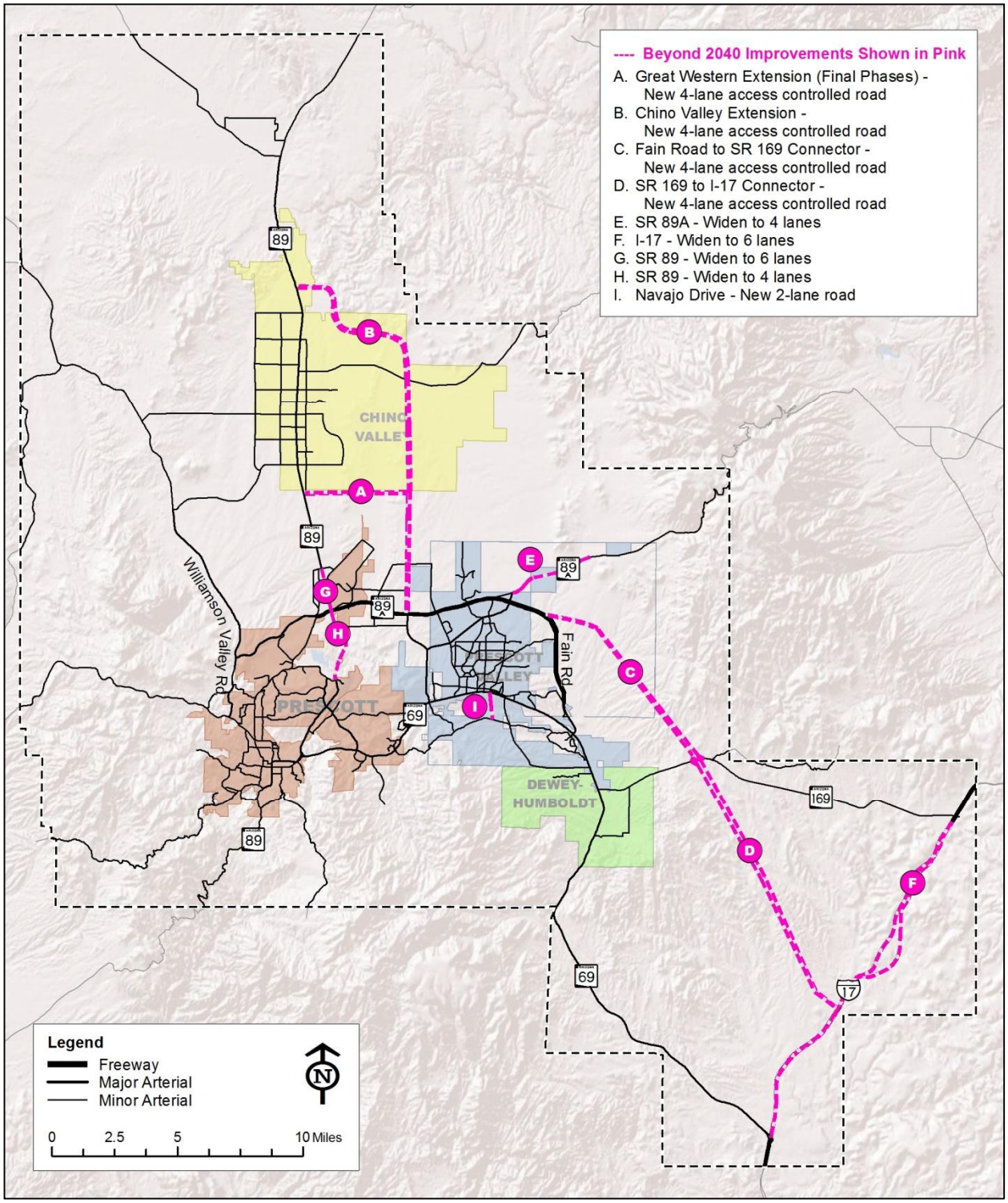
4.5 Beyond 2040 Network Recommendations

The previously planned projects that were not recommended for implementation by 2040 are recommended to be further studied and evaluated for possible implementation beyond 2040. Table 12 and Figure 49 summarize these "beyond 2040" improvement projects.

Table 12 – Improvement Projects Recommend for Study and Implementation Beyond 2040

Project name	Description	Jurisdiction
I-17 Widening	Widen to 6 lanes (SR 69 to SR 169)	ADOT
Great Western Extension (Remaining phases)	New 4-lane access controlled facility between SR 89A and SR 89	ADOT/ Yavapai County
Chino Valley Extension	New 4-lane access controlled facility between Great Western Extension and SR 89 north of Chino Valley	ADOT/Chino Valley
Fain Road to SR 169 Connector	New 4-lane access controlled facility between Fain Road and SR 169	ADOT
SR 169 to I-17 Connector	New 4-lane access-controlled facility between SR 169 and I-17	ADOT
SR 89A Widening	Widen to 6 lanes (Fain Road to Milepost 329)	ADOT
SR 89 Widening	Widen to 6 lanes (SR 89A to Deep Well Ranch Road)	ADOT/Prescott
SR 89 Widening	Widen to 4 lanes (Milepost 316 to SR 89A)	Prescott
Navajo Drive	New 4-lane facility between SR 69 and Old Black Canyon Highway	Prescott Valley
Eastern Connector (not included in figure)	New Facility	

Figure 49 – CYMPO Beyond 2040 Recommended Network Improvements



5.0 Implementation

In a region with growing travel demand, the plan for the future circulation network is equally as important as the plan for implementing that network. Without scheduling and identification of possible funding sources, the network improvements cannot be implemented. The purpose of this section is to document a draft plan for implementing the CYMPO 2040 recommended transportation network. The recommendations include projects for short-term improvements, mid-term improvements (2025 recommended network), long-term improvements (2040 recommended network), and long-term projects to be studied.

5.1 Short-Term Improvement Projects

The Technical Advisory Committee (TAC) identified areas within the CYMPO region that were areas of interest for immediate improvements. The areas investigated were those with potential congestion issues and may have potential for improved traffic conditions with relatively low-cost improvements. The three areas identified include:

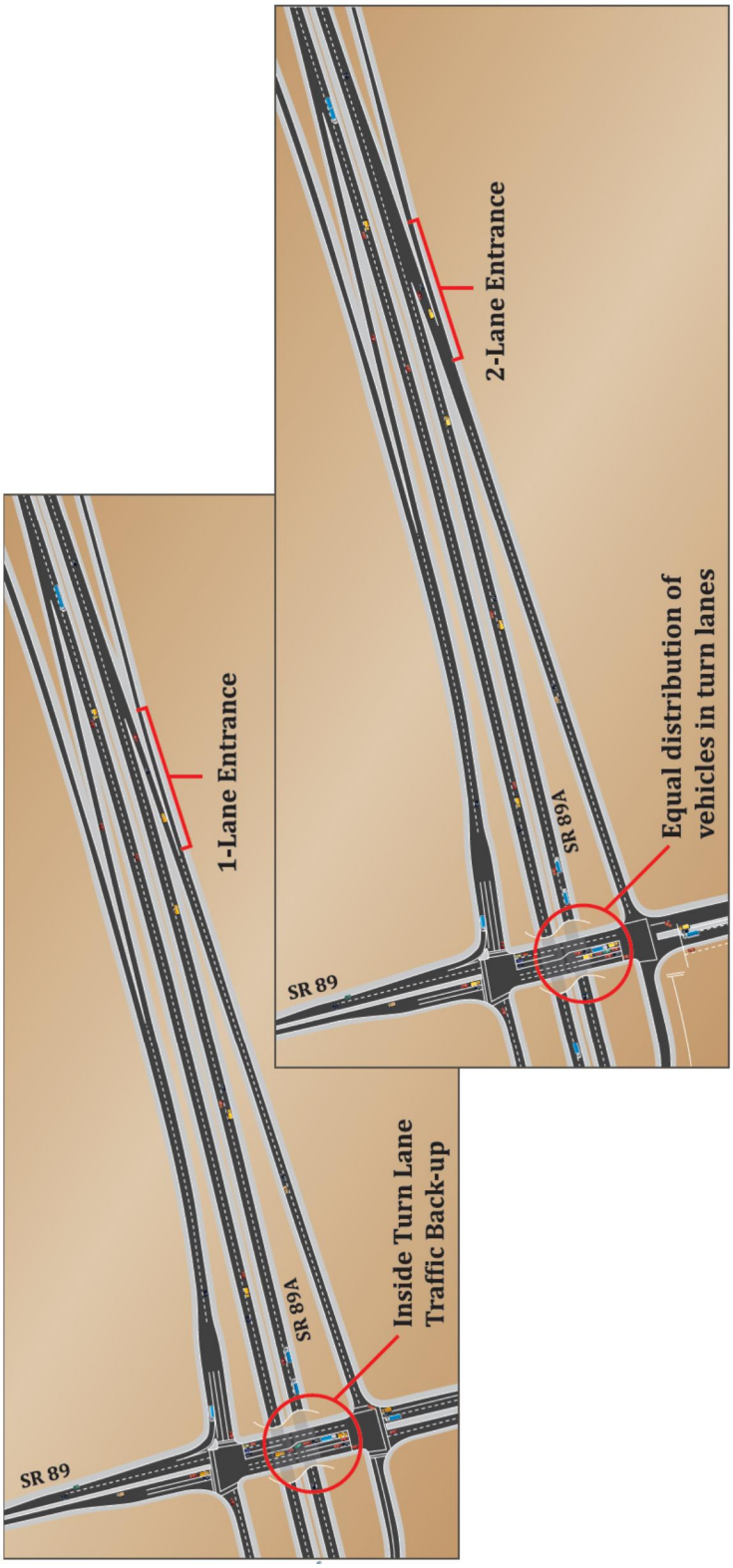
1. The SR 89 and SR 89A/Pioneer Parkway Traffic Interchange
2. The intersection of SR 69 and SR 169
3. The traffic interchanges along SR 89A between SR 89 and Robert Road

5.1.1 SR 89/ SR 89A Traffic Interchange

The SR 89 corridor between Chino Valley and SR 89A/Pioneer Parkway and the SR 89A corridor between Robert Road and SR 89 are both major regional routes. The traffic interchange where these two roadways intersect is a high-volume interchange. Observation of the interchange revealed that certain movements at the interchange experience congestion in both the AM and PM peak times. The project team collected turning movement count data in the AM and PM peak hours as well as intersection timing data to analyze the operations of the intersection. The observations revealed that the left-turn movement from southbound SR 89 to eastbound SR 89A frontage road is the heaviest turning movement at the intersection. The eastbound frontage road is a two-lane roadway between the SR 89 intersection and the SR 89A entrance ramp, but only vehicles in the far left lane have access to the entrance ramp. Two left turn lanes are provided for the southbound to eastbound left turn, but observations at the intersection reveal that only the far left-turn pocket is fully utilized, as drivers anticipate the need to be in the left lane on the frontage road in order to access the ramp.

The analysis of the intersection was conducted utilizing the VISSIM traffic simulation program. Results showed that the re-configuration of the entrance ramp to a two-lane entrance ramp would prompt a more equal utilization of the two left-turn lanes at the SR 89/SR 89A interchange. This change is depicted in Figure 50. The equal use of the two lanes, however, would not completely eliminate the congestion at the intersection. The SR 89/SR 89A interchange is a high volume interchange due to location in the network. Although two left-turn lanes exist for the southbound to eastbound movement, the second left-turn lane is currently less than 100 feet long. With a high volume turning movement, it is advisable to investigate the best way to extend the left-turn lanes at this intersection in addition to creating a two-lane entrance ramp onto SR 89A. The revision of the entrance ramp would require a design project in order to adequately revise the SR 89 to accommodate the lane revisions and is recommended to move forward.

Figure 50 – Turn Lane evaluation at SR 89/SR 89A Traffic Interchange



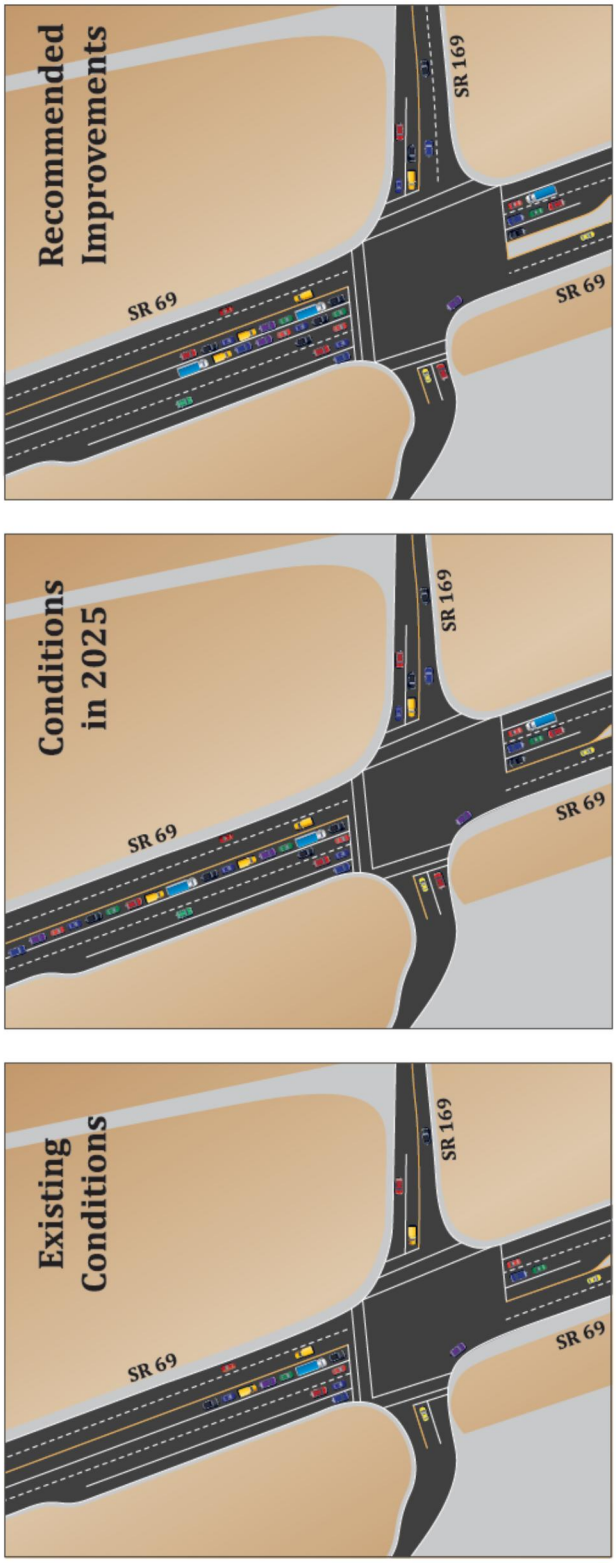
5.1.2 SR 69/ SR 169 Intersection

SR 169 and SR 69 are both roadways that begin at I-17 and terminate within the CYMPO region. SR 169 ends at the intersection with SR 69 in Dewey-Humboldt. The purpose of both roadways is to provide mobility between the CYMPO region and other external regions, such as the Phoenix and Flagstaff metropolitan areas. Traffic volume data was gathered at this intersection of SR 69 and SR 169 and operations were analyzed using the Synchro software tool.

As the intersection exists today, the eastbound approach consists of a parking lot access, making the eastbound traffic quite low. This is not anticipated to change in the future, though it is possible that the addition or more businesses using the parking lot could increase the traffic to and from this leg of the intersection. The heaviest turning movements are the southbound to eastbound left-turn and the westbound to northbound right-turn. The westbound to northbound right-turn is serviced with a combined through and right-turn lane and is permitted to make a right-turn on red. This combined with low traffic volume on the westbound through movement into the parking access allows for the right-turn to currently operate quite well. The southbound to eastbound left-turn is serviced with a single left-turn lane with a long storage area provided.

The intersection was analyzed both in the existing conditions and in the future 2025 conditions. Projected 2025 volumes from the recommended 2025 regional model were utilized for this analysis. This analysis indicated that congestion is anticipated by 2025 if no improvements are implemented at the intersection. Recommended intersection improvements are shown in Figure 51. Recommendations include a second left-turn lane, providing more storage length for vehicles waiting to turn left and allowing the left-turn lane to clear twice as quickly during a green light. This dual left-turn will also require that eastbound SR 169 be widened to two lanes east of SR 69. This second travel lane should continue long enough to allow vehicles to safely merge before resuming a single lane. No recommendations are made for the westbound to northbound right-turn at this time.

Figure 51 – Current and Future Conditions and Recommendations for the SR 69 / SR 169 Intersection



5.1.3 SR 89A Traffic Interchanges

SR 89A is a major commutor roadways in the CYMPO area and connects the residential area of north Prescott Valley, including the Viewpoint and Pronghorn Ranch areas – to the rest of the region. The portion of SR 89A between Fain Road and SR 89 currently supports four traffic interchanges: Larry Caldwell Drive, Granite Dells Parkway, Glassford Hill Road, and Viewpoint Drive. In the future, two traffic interchanges are anticipated to be added at Great Western and Robert Road. This portion of the region north and south of SR 89A is currently identified as being an area of high growth in the near future. Both residential and commercial developments are expected in this area, although at this point in time it is difficult to identify the magnitude of the development that is slotted to take place.

The results of the future network modeling analysis presented in previous working papers show that these interchanges, especially Viewpoint Drive, could have one or more of its ramps in failure in the future, due to the high level of development. It is recommended that the region conduct a detailed traffic impact study of these traffic interchanges in the near future. The study should include both an analysis of the progression of traffic along SR 89A and a detailed trip generation endeavor to more accurately portray the future traffic demand that will come with the targeted development. A sofisticated modeling software analysis (such as VISSIM) is also recommended in order to capture the anticipated operations of SR 89A and all the traffic interchanges along the corridor.

5.2 Draft Project Implementation Schedule

The implementation plan that follows is a draft schedule that identifies the time frame in which each improvement project will be completed. The time frame for each project or corridor was identified through collaboration with the TAC in addition to results of the 2025 and 2040 future network models. The projects listed in Table 13 below do not include those that have already been programmed prior to Fiscal Year (FY) 2015.

Table 13 – Draft Project Implementation Schedule

Facility	FY2015-2020 (Funded)	FY 2020-2025	FY 2025-2040	Beyond 2040
SR 89	Widen to 4 lanes between SR 89A and Chino Valley	Intersection improvements at SR 89A	Widen to 6 lanes between Deep Well Ranch Road and Center Street	Further study for widening to 6 lanes between SR 89A and Deep Well Ranch Road Further study for widening to 4 lanes between MP 316 and SR 89A
SR 69		Widen to 6 lanes in segments with greatest need between SR 89 and SR 169 Intersection improvements at SR 169	Widen to 6 lanes in all remaining segments from SR 89 to SR 169	
SR 89A	* Conduct traffic study for mainline and interchanges between SR 89 and Fain Road	Construct the Robert Road traffic interchange	Widen to 6 lanes between SR 89 and Fain Road	Further study for widening to 4-lanes between Fain Road and MP 329
SR 169			Widen to 4 lanes between SR 69 and Old Cherry Road	
I-17				Widen to 6 lanes between SR 69 and SR 169
Glassford Hill Road		Widen to 6 lanes between SR 69 and SR 89A		
Side Road Connector		Construct new 4-lane facility		

Table 13 – Continued

Facility	FY2015-2020 (Funded)	FY 2020-2025	FY 2025-2040	Beyond 2040
Stoneridge Drive		Construct new 4-lane facility		
Northern Connector			Construct new 2-lane facility	
Deep Well Ranch Road	Construct portion of new facility		Construct new 4-lane facility	
Airport Loop Road			Construct new 2-lane facility	
Airport Boulevard			Construct new 2-lane facility	
Granite Dells Parkway			Construct new 4-lane facility	
Great Western Extension			Construct Phase I as a new 2-lane facility	Study and construct final phases of access controlled facility
Glassford Hill Extension			Construct new 4-lane facility	
Santa Fe Loop Road			Construct new 4-lane facility	
Lakeshore Drive			Widen to 4 lanes from Fain Road to Navajo Drive	
Sundog Connector			Construct new 4-lane facility	
Old Black Canyon Highway			Widen to 4 lanes between Stoneridge Drive and Country Club Bypass	
Country Club Bypass			Construct new 2-lane facility	
Chino Valley Extension				Study and construct new 4-lane access-controlled facility

Table 13 – Continued

Facility	FY2015-2020 (Funded)	FY 2020-2025	FY 2025-2040	Beyond 2040
Fain Road to SR 169 Connector				Study and construct new 4-lane access-controlled facility
SR 169 to I-17 Connector				Study and construct new 4-lane access-controlled facility
Navajo Drive				Study and construct new 2-lane facility
Willow Creek Road	Realign Willow Creek Road between Pioneer Pkwy-Deep Well Ranch Road			
James Lane	Design and construct new connector facility between Willow Creek Road and SR 89 north of Pioneer Pkwy			
Viewpoint Drive Connector	Extension of Viewpoint Drive from Manley Drive to Roundup Drive			
Enterprise Parkway	Design and construct new 2-lane facility between SR 69 and East Valley Road east of Mendecino Drive			

Table 13 – Continued

Facility	FY2015-2020 (Funded)	FY 2020-2025	FY 2025-2040	Beyond 2040
Road 4 South	Road 4 South extension from the Sun Edison Project to Peavine Trail			
Center Street	Center Street extension from Road 1 East to Peavine Trail			
Road 1 East	Road 1 East extension from Road 3 South to 1,000' north of the future alignment of Road 5 South			
Peavine Trail	Design and construct new 2-lane facility connecting Road 4 South to Center Street east of Road 1 East			
Robert Road Widening	Design and construct 2 new lanes on Robert Road from Tranquil Blvd. to Long Mesa Drive			

* Not funded

5.3 Environmental Considerations

One of the largest populations of pronghorn in Arizona is found in central Yavapai County in the area bounded by Prescott, Prescott Valley, Chino Valley, Paulden and Seligman. AGFD refers to pronghorn in this area as the Central Yavapai County Herd. The area supports 15-25 percent of the statewide pronghorn population in one of the highest density populations in the state.

A pronghorn GPS movement study within the study area was initiated by AGFD in 2009-2010. Future corridor improvement studies should coordinate with AGFD on locations and design of pronghorn crossing structures (i.e. wildlife underpasses, overpasses) and any other measures (i.e. funnel fencing, etc.) recommended to maintain permeability and mitigate the potential impacts of roadway

improvements on pronghorn movements. It is recommended that the information available from AGFD be referenced by the local jurisdictions and developers to plan future wildlife corridors as part of the development process. This will align future crossings with the preservation of future open spaces for wildlife movement. Future improvement studies should also coordinate with AGFD in cooperation with local community groups with open space, recreation, and/or habitat preservation as their mission, to assist in locating, prioritizing and conserving open space in accordance with the local area Land Use/General Plans. These lands should be considered options for conservation easements, or other legal mechanism, when CYMPO considers highway corridor planning. The CYMPO and AGFD should collaborate with these groups to seek those measures necessary to maintain habitat permeability and recognizes the role that ecological systems hold in providing green infrastructure for storm water management, as well as compatibility of multi-modal (bicycle, walking, horseback, etc.) accesses to the highway corridor for aesthetic and recreational value.

5.4 Potential Sources of Funding

This section reviews existing and potential transportation funding options available to CYMPO and its member agencies. It identifies and quantifies transportation revenue sources currently used by jurisdictions in the state, and funding options that are statutorily available but not currently used.

5.4.1 Basic Sources of Transportation Revenue

There are many sources and types of transportation revenue, each with its advantages and limitations. No single source meets all of the needs, so jurisdictions must rely on multiple revenue streams. Most major transportation sources are public revenue, levied, and collected as taxes by federal, state, and local governments. Public-private partnerships and direct private ownership, operation, and maintenance of transportation facilities do occur, however, and could become more prominent in the future.

Some transportation revenue comes from direct user taxes and fees, such as the (per gallon) tax on gasoline sales, the vehicle license tax, toll roads, and transit fares. These taxes and fees are assessed on the users of transportation systems, to offset the demands that users make for new capital investments as well as for operations and maintenance. The amount is different in Arizona than in other states because their taxes and fee structure are different. Other transportation revenue consists of indirect taxes and fees levied by governments that allocate the revenue to transportation purposes. Property taxes and sales taxes are the primary sources of indirect transportation revenue. They are considered indirect because they are imposed on the taxpaying public at large, rather than on transportation system users in particular.

Direct User Taxes and Fees

Direct user taxes and fees include motor fuel taxes, vehicle license and registration taxes and fees, fees based on vehicle weight, tolls and fares, and other fees.

Sale of Motor Vehicle Fuel

The primary component of direct user taxes and fees, these taxes are typically levied as cents per gallon. Some states impose a sales tax on fuel sales instead of, or in addition to, the cents-per-gallon tax. The federal government and the state of Arizona collect taxes on the sales of gasoline at 18.3 cents per

gallon and 18 cents per gallon. The federal government and Arizona collect taxes on diesel fuels; the federal government collects taxes on the sales of alternative fuels (such as liquefied petroleum and natural gas, compressed natural gas, and E-85), but at lower rates. Motor fuel taxes are paid by the general motoring public (passenger cars) and owners of commercial vehicles. A few states index the tax rate to inflation, but Arizona—whose fuel tax rate has not increased since 1991--does not. If adjusted for inflation since the last increase, the Arizona rate would be 39 cents today. (Source: Center for Transportation Excellence, "Paying for Progress: 2008 State Transportation Funding & Finance Scorecard.") Rates in other states range from 8 cents in Alaska to 32.9 cents in Wisconsin. Revenue from fuel sales is relatively predictable because the volume of sales changes little in response to price fluctuations (i.e., consumer demand for gasoline is inelastic with respect to price). However, improvements in vehicle fuel economy reduce fuel sales, and hence revenue from the tax. At 20 miles per gallon, a person driving 15,000 miles per year pays about $135 in Arizona gasoline tax and $137 in federal gasoline tax.

Vehicle License Tax (VLT)
A second significant source of direct user taxes and fees, the VLT is imposed by the state of Arizona and collected annually. It is a personal property tax on motor vehicles, based on statutorily defined formulas rather than direct market values. These fees are paid by all vehicle owners, at the time of initial licensing and on annual license renewal. In Arizona, the amount decreases as the vehicle depreciates. Therefore, VLT receipts are largely driven by new car sales. The VLT on a typical $25,000 new car is about $420 and drops about 16 percent per year. As discussed later, only a portion of the VLT is dedicated to transportation purposes.

Vehicle Registration/Title Fees
Vehicle registration fees and certificate of title fees typically are minor charges. For motor vehicles in Arizona, the certificate of title costs $4 and the annual registration fee is $8. These fees are collected by the state and paid by all vehicle owners.

Vehicle Weight Charges
The federal government and states also assess fees based on vehicle weight. These charges are typically levied against large trucks and trailers, to recoup some of the extra wear and tear that heavy vehicles impose on roadways. The federal government assesses sales taxes on trucks and trailers above a specified weight, and on large tires with rated loads in excess of 3,500 pounds. Both the federal government and states impose charges against "heavy-vehicle use" as well.

Arizona imposes a commercial registration fee and a "gross weight fee" for designated vehicles that increases with the vehicle weight, from $7.50 for vehicles up to 8,000 pounds gross weight to $918 for vehicles with a gross weight of 75,001 to 80,000 pounds. These charges are paid by owners/operators of large commercial vehicles.

Indirect Taxes and Fees

Direct user taxes and fees typically do not generate enough revenue to meet all capital, operation, and maintenance costs of the transportation system. Many local governments enhance transportation revenue by levying indirect taxes and fees on the two principal sources of local revenue – real property and retail sales.

Real Property Taxes and Fees

Real property taxes and fees can be primary or secondary property taxes, taxes against improvement districts or community facilities districts, or development impact fees.

Primary Property Taxes

Primary property taxes are collected by local governments, based on assessed valuations ("ad valorem" in Latin), and collected annually. Primary property taxes are deposited in the local government's general fund, and some governments allocate a portion of this revenue to transportation.

Secondary Property Taxes

Secondary property taxes are also "ad valorem", but they are levied to pay debt service on general obligation bonds approved by voters. General obligation bond debt has been used to fund transportation capital investments in Arizona and around the country.

Improvement Districts or Community Facilities Districts

Many local governments form improvement district or community facilities districts, which are special taxing districts that can be formed to fund capital improvements, operations and maintenance, or both. The districts are funded through assessments placed on all benefiting properties within the district. The Arizona enabling legislation is slightly different for counties than for municipalities.

Development Impact Fees, Exactions, and "In Lieu" Fees

Development impact fees have become a common source of revenue for local governments, notably for transportation capital improvements. Impact fees are charged against new development, usually both residential and non-residential, to offset the costs of new travel demand generated by the development. These fees are paid by developers at the time of building permit issuance, and are typically passed along to the owners and tenants. The fees cannot be used to cure existing deficiencies or for non-capital expenditures. In Arizona, jurisdictions that impose impact fees must prepare annual reports that simplify tracking the revenue. Impact fees for roads range from a few hundred dollars to $10,000 per new house. The fees for non-residential uses also vary widely. Impact fees must be demonstrably proportionate to the actual cost of accommodating travel demand due to the development.

Property development may also generate transportation revenue in the form of private contributions, such as exactions and other conditions of rezoning, developer contributions (typically of right-of-way for public improvements), and direct developer construction of improvements or payments "in lieu" of construction. Contributions may be either in cash or in kind.

Local Sales Taxes

Sales taxes are a major source of transportation revenue in many states, including Arizona, where local sales taxes are levied in addition to the state rate of 5.6 percent, of which 0.6 percent is earmarked for public education and 5 percent goes to the state's general fund. Local sales taxes may be levied for general purposes or earmarked for specific uses such as transportation. Unlike cities and towns, Arizona counties lack the authority to charge a general sales tax.

Local General Sales Taxes (Cities and Towns)

Local general sales taxes are levied against all taxable sales, typically as a percent of the purchase price, and are usually deposited in the general fund. Some local governments allocate a portion of their

general fund revenue to transportation. The total local sales tax rate is not prescribed by state law, but may be limited by municipal charter.

Most cities charge a 1.5 percent to 2.0 percent sales tax. In communities with balanced land uses, sales taxes are large and relatively reliable revenue producers, typically generating at least $150 per capita per year for each percent of the tax rate.

Transportation Sales Taxes
Some local governments levy transportation sales taxes on all taxable sales, with all of the proceeds dedicated to transportation. This revenue is typically deposited in special accounts and tracked separately from other government accounts. In Arizona, governments have used both regional transportation sales taxes, levied countywide, and local transportation sales taxes, levied by cities and towns. In many cases, voters are asked to approve a sales tax for specific projects, such as the roadway and transit improvements in the adopted MAG Regional Transportation Plan.

Construction Sales Taxes
In addition to general sales tax, some municipalities levy incremental sales taxes on certain construction-related activities. (Counties cannot impose this type of sales tax.) This revenue, which is statutorily based on 65 percent of the sale or contract price, is then earmarked for transportation. The tax is collected on new homes and other activities that involve a construction contract, such as installing a swimming pool, re-roofing, or recurring structural maintenance. Activities subject to the tax are defined by local policy or adopted ordinance. A 2 percent construction sales tax on a typical $300,000 new home generates about $3,900 ($300,000 x 2 percent x 0.65) in revenue. (The factor of 0.65 is imposed by state law.)

5.4.2 Some Basics on Federal and State Highway Revenue

This section provides basic information on federal and state of Arizona highway revenue. Both federal and state revenue are somewhat complex in their sources and allocation procedures.

Federal Highway Revenue
Federal transportation revenue and spending are governed by authorization bills enacted by Congress. The current authorizing legislation is the Moving Ahead for Progress in the 21st Century Act (MAP-21), signed into law on July 6, 2012. Federal transportation revenue is collected from motor fuel taxes and vehicle weight-related taxes. Federal funding is deposited into either the highway account or the mass transit account of the Highway Trust Fund.

The federal government collects taxes on gasoline, diesel fuel, and five forms of alternative fuels. With the exception of compressed natural gas, these taxes are imposed on a cents-per-gallon basis, with the rate for gasoline being $0.183/gallon and for diesel $0.243/gallon. These tax rates have been in effect since the early 1990s. Gasohol is also taxed at $0.183/gallon, but the tax rates on other alternative fuels are lower.

The federal government also collects taxes on the sale of tires used for vehicles with a gross vehicle weight in excess of 3,500 pounds; on the sale of trucks and trailers in excess of 55,000 pounds and 26,000 pounds (respectively); and (annually) on trucks over 55,000 pounds.

Depending on the type of fuel, 80 percent to 88 percent of the motor fuel tax revenue is deposited in the highway account of the trust fund (with the remainder going to the mass transit account). All of the truck-related taxes are deposited into this account. Revenue in the highway account is allocated among a number of programs. Four programs account for 55 percent of federal highway authorizations: Interstate Maintenance, National Highway System, Bridge, and Surface Transportation. These four, plus the Equity Bonus Program (provided to ensure a minimum rate of return to each state from its federal highway contributions), account for 76 percent of the authorizations.

State-shared Revenue

The state of Arizona shares transportation revenue with counties, cities, and towns through allocations from HURF, and through a small allocation of (non-HURF) VLT revenue to counties for transportation. The percentages of each allocation are fixed by statute. Myriad revenue sources are also shared with local jurisdictions for non-transportation purposes such as education.

HURF and VLT Revenue

Arizona collects an array of user-related taxes and fees, which are then deposited in the HURF account. HURF is a primary source of transportation funds for ADOT, municipalities, and counties.

The major transportation revenue sources that the state of Arizona collects are gasoline taxes, use fuel (diesel) taxes, vehicle license taxes, registration fees, and other fees. Over the last 20 years, gasoline taxes were the largest source of HURF revenue, providing approximately 41 percent of the total. The next largest source of revenue was the transportation-dedicated portion of the VLT, which accounted for 21 percent of collections. Diesel fuel taxes accounted for 14 percent, followed by vehicle registration fees at 12 percent. Motor carrier (commercial vehicle) fees made up 8 percent of the total, with various other fees accounting for the remaining 4 percent. All of these taxes and fees are assessed at a fixed rate (not indexed or responsive to inflation) except the VLT, which reflects the changing price of new motor vehicles.

State statutes prescribe how HURF revenue is allocated to the State Highway Fund and to cities, towns, and counties. Just over one-half of HURF (approximately 51 percent) is distributed to the State Highway Fund–including 8 percent to Maricopa and Pima counties for controlled-access highways, leaving 43 percent for ADOT discretionary programs involving state highway projects and maintenance throughout Arizona. Cities and towns receive approximately 28 percent of HURF revenue and counties 19 percent. These funds are disbursed among the jurisdictions based on population and origin of fuel sales.

5.4.3 Transit Funding

FTA typically provides about 80 percent of the cost to acquire transit vehicles, with the remaining 20 percent being local match. The service provider must fund most of the ongoing operation and maintenance costs. Farebox revenue typically recovers only about 20 percent of operating costs, or

about 10 percent of the total costs for capital and operations. The two state LTAF funds were mentioned earlier.

Transit revenue can come from many other sources such as local transportation sales tax, general fund subsidies, grants, paid advertising on buses and at bus stops, and marketing of special services. Each service provider has different funding strategies and service goals. Federal funding programs available from the FTA are numerous and complex. A complete list is available at http://www.fta.dot.gov/grants.html.