



Traffic Overview

In support of the
Environmental Impact Statement

South Mountain Transportation Corridor in Maricopa County, Arizona

Arizona Department of Transportation
Federal Highway Administration
in cooperation with
U.S. Army Corps of Engineers
U.S. Bureau of Indian Affairs
Western Area Power Administration



May 2014

Federal-aid Project Number: NH-202-D(ADY)
ADOT Project Number: 202L MA 054 H5764 01L



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Abstract: This document assesses and describes the effects on traffic that would occur as a result of the construction and operation of the proposed South Mountain Freeway as adopted in the 2003 *Regional Transportation Plan*. Contents of this document are presented in Chapter 1 and 3 of the South Mountain Transportation Corridor Environmental Impact Statement.

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List of Acronyms and Abbreviations

ADOT	Arizona Department of Transportation
ADT	average daily traffic
AM	morning
C	Central
E	Eastern
E1	E1 Alternative
EIS	environmental impact statement
FR	Full Reconstruction
HOV	high-occupancy vehicle
I-10	Interstate 10
I-17	Interstate 17
LOS	level of service
MAG	Maricopa Association of Governments
PHV	peak-hour volume
PM	evening
PR	Partial Reconstruction
RAZ	regional analysis zone
RTP	<i>Regional Transportation Plan</i>
R/W	right-of-way
SMTC	South Mountain Transportation Corridor
SR	State Route
TI	traffic interchange
US 60	United States Route 60
VMT	vehicle miles traveled
vpd	vehicles per day
W	Western
W101CFR	W101 Alternative, Central Option, Full Reconstruction
W101CPR	W101 Alternative, Central Option, Partial Reconstruction
W101EFR	W101 Alternative, Eastern Option, Full Reconstruction
W101EPR	W101 Alternative, Eastern Option, Partial Reconstruction
W101WFR	W101 Alternative, Western Option, Full Reconstruction
W101WPR	W101 Alternative, Western Option, Partial Reconstruction
W55	W55 Alternative
W59	W59 Alternative
W71	W71 Alternative

Glossary

Arizona Department of Transportation (ADOT)	The State agency responsible for building and maintaining roads and highways.
capacity	The maximum number of vehicles that a given section of roadway or traffic lane can accommodate.
cut line	An imaginary line placed on a map that measures the total traffic on freeway and arterial streets that would cross this given line.
Eastern Section	The portion of the Study Area located east of 59th Avenue.
environmental impact statement (EIS)	The project documentation prepared in accordance with the National Environmental Policy Act when the project is anticipated to have a significant impact on the environment.
Federal Highway Administration	A branch of the U.S. Department of Transportation responsible for administering the Federal-aid Program. The program provides financial resources and technical assistance for constructing, preserving, and improving the National Highway System along with other urban and rural roads.
level of service (LOS)	The operating performance of an intersection or roadway segment can be described using the term level of service. Level of service is a qualitative description of operation based on the degree of delay and maneuverability.
logical termini	Rational end points for a transportation project and for a review of the environmental impacts.
Study Area	The geographic area within which build alternative solutions to the problem are developed.
VISSIM	A traffic microsimulation software package. For this project, it was used to simulate the freeway main line.
volume-to-capacity ratio	The ratio of demand flow rates to capacity for a given type of transportation facility.
Western Section	The portion of the Study Area located west of 59th Avenue.

1. Project Description

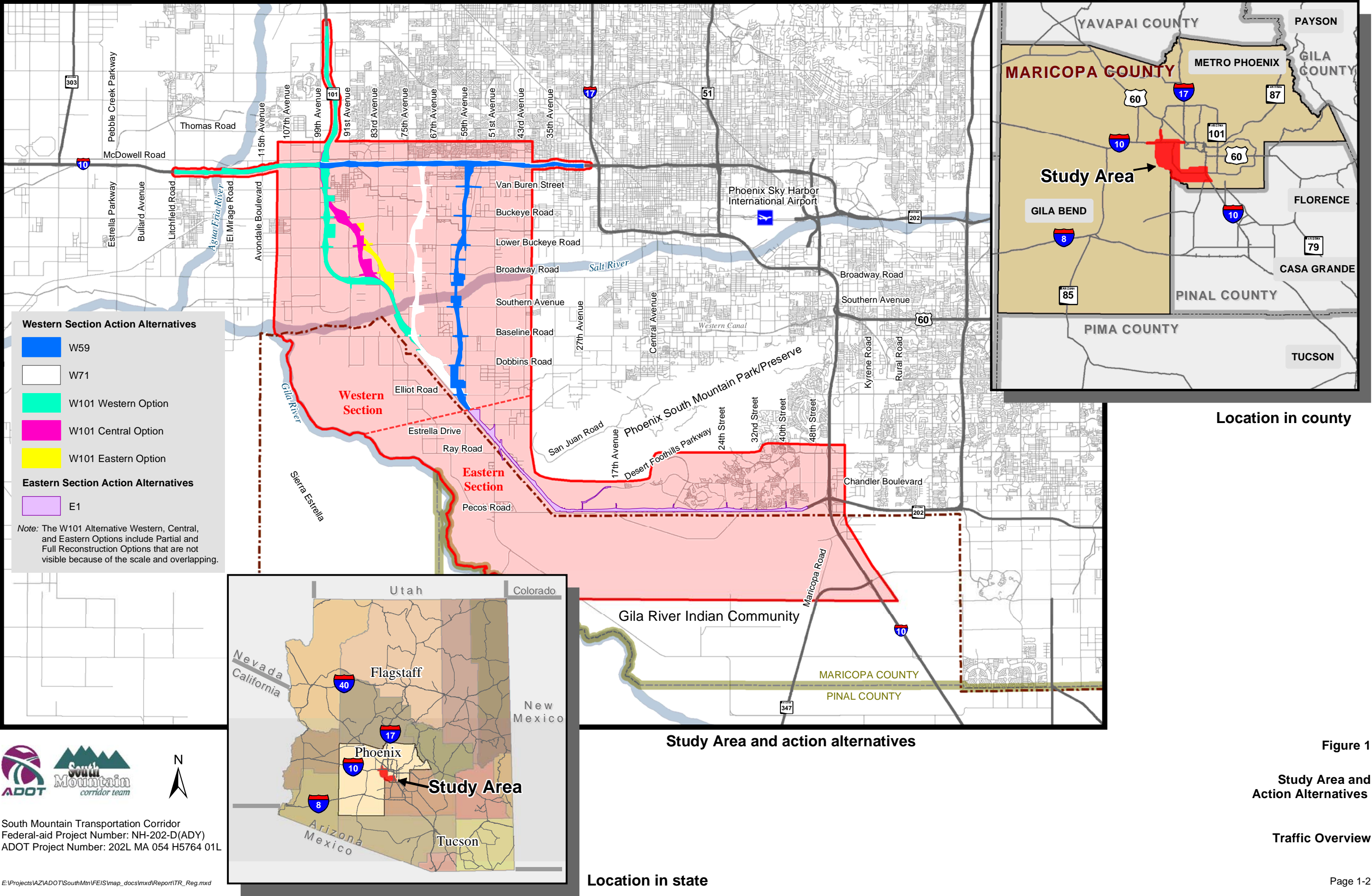
The Arizona Department of Transportation (ADOT) is studying the South Mountain Transportation Corridor (SMTC) in southern Phoenix, Maricopa County, Arizona. The South Mountain Freeway corridor was adopted into the Maricopa Association of Governments (MAG) regional freeway system in 1985 as part of the *MAG Freeway/Expressway Plan* (MAG 1985), at which time it was placed on the state highway system by the State Transportation Board. In 1988, ADOT prepared a design concept report and a state-level environmental assessment for the project, identified at that time as the South Mountain Parkway (ADOT 1988a, 1988b). As presented then, the project would connect Interstate 10 (I-10) (Maricopa Freeway) south of Phoenix with I-10 (Papago Freeway) west of the city, following an east-to-west alignment along Pecos Road through the western tip of the Phoenix South Mountain Park/Preserve, then north to I-10 between 59th and 99th avenues. Because of the time elapsed since those documents were approved and to secure eligibility for federal funding for a proposed project within this corridor, ADOT and the Federal Highway Administration are now preparing an environmental impact statement (EIS) in accordance with the National Environmental Policy Act. In November 2004, the *MAG Regional Transportation Plan* (RTP) (2003) was placed before Maricopa County voters, who approved the sales tax funding the plan. The South Mountain Freeway was included in this plan.

Alternatives considered for the SMTC included past freeway proposals as well as transportation system management, transportation demand management, transit improvements, arterial street network improvements, and land use controls. A freeway facility was determined to best address the project purpose and need. Therefore, this report discusses the potential impacts of a proposed freeway in the SMTC.

The Study Area for the EIS encompasses more than 156 square miles and is divided into a Western Section and an Eastern Section at a location common to all action alternatives (Figure 1). The division between sections occurs just east of 59th Avenue and south of Elliot Road.

Within the Western Section, three action alternatives are being considered for detailed study. These are the W59, W71, and W101 Alternatives. The W59 Alternative would connect to I-10 at 59th Avenue, while the W71 Alternative would connect at 71st Avenue. The W101 Alternative would connect to I-10 at the existing State Route (SR) 101L (Agua Fria Freeway)/I-10 system traffic interchange (TI) and has six associated options. The W101 Alternative options vary geographically among the Western (W), Central (C), and Eastern (E) Options and would vary geometrically based on a Partial Reconstruction (PR) or a Full Reconstruction (FR) of the system TI.

Improvements to I-10 (Papago Freeway) would occur for each Western Section action alternative (W59, W71, and W101). Improvements to SR 101L would occur for each option associated with the W101 Alternative.



Within the Eastern Section of the Study Area, one action alternative is being considered. The E1 Alternative would begin near Elliot Road and 59th Avenue and proceed to the southeast to Pecos Road, which it would follow to the east until connecting to I-10 (Maricopa Freeway) at the Pecos Road/I-10/SR 202L (Santan Freeway) system TI.

The action alternatives and options are summarized in Table 1.

Table 1. Action Alternatives and Options

Section	Interstate 10 Connection	Action Alternative	Option – Broadway Road to Buckeye Road	Option – State Route 101L/ Interstate 10 Connection Reconstruction	Option Name
Western	59th Avenue	W59	— ^a	—	—
	71st Avenue	W71	—	—	—
	State Route 101L	W101	Western	Partial Reconstruction	W101WPR
				Full Reconstruction	W101WFR
			Central	Partial Reconstruction	W101CPR
				Full Reconstruction	W101CFR
			Eastern	Partial Reconstruction	W101EPR
				Full Reconstruction	W101EFR
Eastern	Pecos Road	E1	—	—	—

^a not applicable

The No-Action Alternative is being considered for the entire Study Area.

Context of Traffic Overview

This report presents the traffic analysis results in support of the Final EIS. In June 2013, MAG approved new socioeconomic projections for Maricopa County. This version of the *Traffic Overview* was updated from the version prepared prior to release of the Draft EIS to reflect the new population, employment, and housing projections and corresponding projections related to regional traffic. The updated travel demand model—TransCAD (MAG 2013a) was used to generate traffic projections for the design year (2035). Traffic volumes, traffic conditions, travel distribution, capacity deficiencies, and travel time were reanalyzed to evaluate the alternatives considered in terms of responsiveness to purpose and need criteria, evaluation of lane and alignment changes, and traffic conditions with the action and No-Action alternatives.

Additional traffic-related analyses that had previously been included in the *Traffic Report* are presented in other documents being developed for the SMTTC study. Following are the report names and brief summaries of the traffic-related content:

- *Location and Design Concept Report* – This report focuses on the proposed freeway (following the alignments of the W59 and E1 Alternatives) main line and service TI operational performance. Traffic-related analyses include:
 - Development of daily morning and evening peak-hour traffic projections for the proposed freeway main line, ramps, and adjacent arterial streets. Morning and evening peak-hour turning movement projections at the ramp and arterial street intersections were also developed.
 - Highway Capacity Software analysis of main line and ramp sections.
 - Synchro analysis of service TI signals, including a sensitivity analysis.
- *Change of Access Report* – This report focuses on the operation of I-10 (Papago Freeway) as related to a request for a new system TI on the Interstate highway system for the proposed freeway (where the W59 Alternative would meet I-10 [Papago Freeway]). Traffic-related analyses include:
 - Development of daily morning and evening peak-hour traffic projections for the I-10 main line, ramps, and adjacent arterial streets. Morning and evening peak-hour turning movement projections at the ramp and arterial street intersections were also developed.
 - Highway Capacity Software analysis of the I-10 main line and ramp sections.
 - VISSIM microsimulation analysis of the I-10 main line and adjacent arterial street network, including ramp intersections.

As a key stakeholder and data source for the project, MAG has been instrumental in compiling background information and developing data to be used by the project team in the analyses. To appropriately identify the use of MAG resources, three forms of citation are used throughout this document:

- *Source: Maricopa Association of Governments, Year* – This form of citation is used when information has been extracted directly from a MAG-developed document.
- *Source: Maricopa Association of Governments, Year; used with permission* – This form of citation is used when data are presented as they were received from MAG.
- *Source: Maricopa Association of Governments, Year; extrapolated analysis* – This form of citation is used when the analysis has been performed using MAG data as inputs.

2. Purpose and Need

The proposed action is needed to address socioeconomic demands, regional transportation demand, and existing and projected transportation system capacity deficiencies. The purpose of the proposed action is to fulfill the multiple dimensions of the need. The following sections provide the information and analysis used to support the development of the purpose and need for the proposed action.

Socioeconomic Demand

A review of historic decennial census data shows that Maricopa County has experienced tremendous growth over the past 60 years. As shown by the data presented in Table 2, the population grew more than tenfold between 1950 and 2010, an annual compound growth rate of approximately 4.2 percent. To meet the demands of the increasing population, the transportation system, employment opportunities, and housing units grew at similar rates.

Table 2. Population Growth, Maricopa County, 1950–2010

Year	Population	Percentage Increase from Previous Decade
1950	331,770	—
1960	663,510	100
1970	967,522	46
1980	1,509,052	56
1990	2,122,101	41
2000	3,096,613	46
2010	3,823,900	23

Source: U.S. Census Bureau, 1950–2010

In June 2013, MAG approved new socioeconomic projections based on the 2010 Census results. Table 3 presents the projections for Maricopa County.

Table 3. Projected Growth in Population, Housing, and Employment in Maricopa County, 2010–2035

Year	Population	Housing	Employment
2010	3,823,900	1,640,700	1,706,300
2020	4,507,200	1,816,200	2,312,900
2030	5,359,300	2,132,600	2,696,900
2035	5,776,300	2,278,600	2,892,100

Source: Maricopa Association of Governments, 2013b, extrapolated analysis

Socioeconomic projections for the entire county were developed by combining projections for more than 150 regional analysis zones (RAZs), small geographic areas delineated by jurisdictional boundaries. By reviewing the individual RAZs, the project team determined where high and low growth rates should be

expected. Figure 2 shows the numbered RAZs in the region. The small RAZs were combined into geographic areas, and the socioeconomic projections for each geographic area were reviewed. The Maricopa County area that would be served by the proposed action is represented by four areas: Central West, Southwest, South Central, and Southeast. Together, these areas would experience a large portion of the projected growth for the region. Projections for population, housing, and employment are presented, by geographic area, in Tables 4, 5, and 6, respectively.

Table 4. Population Growth, by Geographic Area, 2010–2035

Geographic Area	Population		
	2010	2035	Increase
Maricopa County area (outside Study Area)			
Far Southwest	3,600	17,000	13,400
Far Northwest	21,600	116,000	94,400
Northwest	337,200	580,000	242,800
North	233,200	335,200	102,000
Far Northeast	177,400	324,600	147,200
Central East	565,700	717,500	151,800
North Central	444,600	583,100	138,500
Central	263,100	365,200	102,100
Northeast	270,500	314,000	43,500
Subtotal	2,316,900	3,352,600	1,035,700
Maricopa County area (within Study Area)			
Central West	578,400	879,700	301,300
Southwest	203,300	521,000	317,700
South Central	80,400	97,200	16,800
Southeast	645,100	925,800	280,700
Study Area subtotal	1,507,200	2,423,700	916,500
Total for Maricopa County	3,824,100	5,776,300	1,952,200
Study Area contribution	39%	42%	47%

Source: Maricopa Association of Governments, 2013b, extrapolated analysis

In each of the three socioeconomic measurements, the four geographic areas representing the area served by the proposed action would experience almost 50 percent of the projected growth between 2010 and 2035.

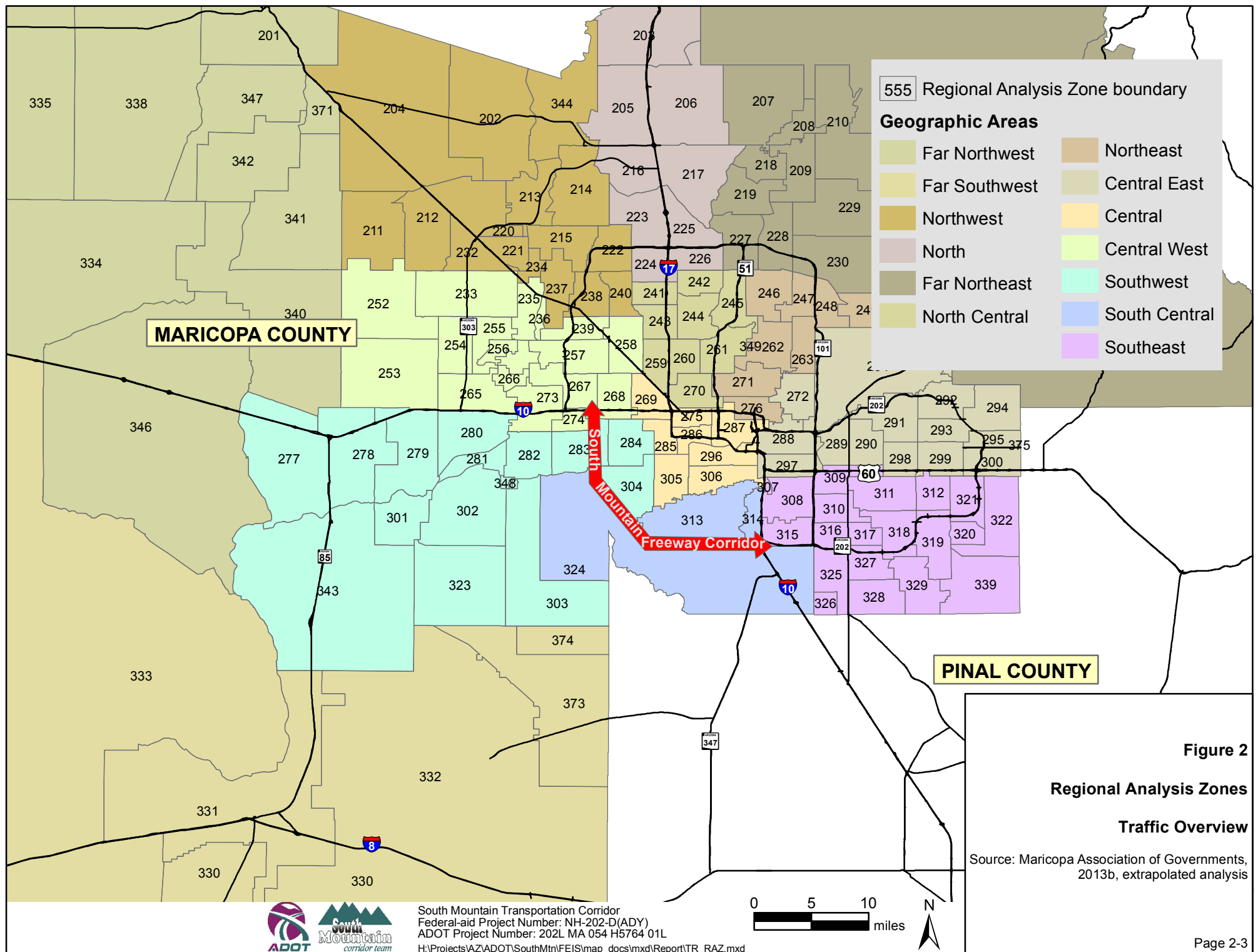


Table 5. Housing Growth, by Geographic Area, 2010–2035

Geographic Area	Housing		
	2010	2035	Increase
Maricopa County area (outside Study Area)			
Far Southwest	1,500	7,600	6,100
Far Northwest	11,200	49,600	38,400
Northwest	169,300	258,000	88,700
North	100,200	137,000	36,800
Far Northeast	90,300	149,300	59,000
Central East	277,300	320,600	43,300
North Central	200,700	235,500	34,800
Central	87,300	113,500	26,200
Northeast	137,200	145,400	8,200
Subtotal	1,075,000	1,416,500	341,500
Maricopa County area (within Study Area)			
Central West	207,800	296,800	89,000
Southwest	68,000	178,500	110,500
South Central	34,600	39,200	4,600
Southeast	255,300	347,500	92,200
Study Area Subtotal	565,700	862,000	296,300
Total for Maricopa County	1,640,700	2,278,500	637,800
Study Area contribution	34%	38%	46%

Source: Maricopa Association of Governments, 2013b, extrapolated analysis

Table 6. Employment Growth, by Geographic Area, 2010–2035

Geographic Area	Employment		
	2010	2035	Increase
Maricopa County area (outside Study Area)			
Far Southwest	1,000	8,200	7,200
Far Northwest	9,100	32,100	23,000
Northwest	88,200	163,300	75,100
North	91,100	157,000	65,900
Far Northeast	65,200	137,300	72,100
Central East	296,700	454,200	157,600
North Central	214,900	304,400	89,500
Central	249,900	343,200	93,300
Northeast	181,800	226,400	44,600
Subtotal	1,197,900	1,826,100	628,200
Maricopa County area (within Study Area)			
Central West	135,700	339,100	203,400
Southwest	58,100	189,700	131,600
South Central	26,700	40,500	13,800
Southeast	288,000	496,700	208,700
Study Area Subtotal	508,500	1,066,000	557,500
Total for Maricopa County	1,706,900	2,892,100	1,185,200
Study Area contribution	30%	37%	47%

Source: Maricopa Association of Governments, 2013b, extrapolated analysis

In June 2013, MAG approved new socioeconomic projections for Maricopa County. This section was updated to reflect the new population, employment, and housing projections. Based on the updated demographic and socioeconomic trends in the southwestern MAG region, the identified Study Area is still an appropriate area for assessing the need for a major new transportation infrastructure project.

Regional Transportation Demand and Existing and Projected Transportation System Capacity Deficiencies

The following sections present analysis of existing and projected traffic conditions without a major transportation infrastructure project in the Study Area. The 2013 MAG regional travel demand model (TransCAD) was the main source of information for the traffic analysis presented in this section. The 2035 road network includes all of the improvements from the RTP except the proposed action.

Historical and Projected Travel in the MAG Region

Historical population growth in the region (see Table 2) greatly pressured the region's transportation system. As shown in Table 7, the growth in travel, as measured in vehicle miles traveled (VMT), has mirrored the growth in population in Maricopa County (an annual compound growth rate of approximately 5.4 percent). In 2010, travel demand reached 91 million VMT per day (MAG 2010a) and is projected to reach 149 million VMT per day in 2035 (MAG 2013a).

Table 7. Travel Growth, Maricopa County, 1960–2010

Year	Daily Vehicle Miles Traveled	Percentage Increase from Previous Decade
1960	9,600,000	—
1970	13,700,000	43
1980	23,400,000	71
1990	53,000,000	127
2000	78,500,000	48
2010	91,000,000	16

Source: Federal Highway Administration, 1960 to 2010

Traffic Volumes in the Study Area and Immediate Surroundings

Without the proposed action, most of the transportation network in the Study Area now and in the future contains or would contain only arterial streets. Exceptions would be sections of I-10 (Papago and Maricopa freeways), SR 202L (Santan Freeway), and SR 101L (Agua Fria Freeway) each located along the boundaries of the Study Area.

Average daily traffic (ADT) volumes at locations in and around the Study Area for existing conditions (2012) and future conditions (2035) are presented in Tables 8 and 9 for freeways and arterial streets, respectively.

Arterial streets and freeways are projected to experience increases in daily travel between 2012 and 2035. The largest increase (106,000 vehicles per day [vpd], or 58 percent) in freeway travel is expected on I-10 (Papago Freeway) between 115th and 107th avenues. The average freeway location's traffic volumes would increase by approximately 32 percent between 2012 and 2035. The arterial streets are projected to experience widely varying increases in traffic. The largest increases would occur in areas that are undeveloped but are planned to be developed in the future. In general, the locations and anticipated changes presented in Table 8 and 9 are typical of locations throughout the MAG region.

Table 8. Average Daily Traffic Volumes on Freeways (without the Proposed Action), 2012 and 2035

Segment		Vehicles Per Day		
		2012	2035	Change (%)
US 60	Rural Road to McClintock Drive	235,000	270,000	15
SR 202L (Santan Freeway)	Priest Drive to Kyrene Road	78,000	115,000	47
SR 101L (Price Freeway)	Guadalupe Road to Elliot Road	194,000	249,000	28
SR 101L (Agua Fria Freeway)	Camelback Road to Bethany Home Road	138,000	213,000	54
SR 51	Indian School Road to Camelback Road	190,000	211,000	11
I-17	Indian School Road to Camelback Road	204,000	278,000	36
I-10	Pecos Road to Wild Horse Pass Boulevard	96,000	134,000	40
	Baseline Road to Elliot Road	224,000	279,000	25
	48th Street to Broadway Road	229,000	301,000	31
	7th Street to 16th Street	291,000	331,000	14
	35th Avenue to 27th Avenue	275,000	334,000	21
	83rd Avenue to 75th Avenue	230,000	304,000	32
	115th Avenue to 107th Avenue	182,000	288,000	58

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

Note: Daily volumes include general purpose lanes and high-occupancy vehicle lanes. The 2035 road network includes all of the improvements from the RTP except the proposed action.

Table 9. Average Daily Traffic Volumes on Arterial Streets (without the Proposed Action), 2012 and 2035

Segment		Vehicles Per Day		
		2012	2035	Change (%)
51st Avenue	Dusty Lane to Pecos Road	9,300	11,800	27
	Baseline Road to Dobbins Road	7,600	18,800	147
	Buckeye Road to Lower Buckeye Road	22,600	27,400	21
	Indian School Road to Thomas Road	25,500	29,300	15
67th Avenue	Buckeye Road to Lower Buckeye Road	16,500	24,800	50
	Van Buren Street to Buckeye Road	18,700	27,200	45
	Thomas Road to McDowell Road	26,200	30,500	16
83rd Avenue	Buckeye Road to Lower Buckeye Road	10,200	22,800	124
	I-10 to Van Buren Street	27,900	43,100	54
	Indian School Road to Thomas Road	18,100	26,800	48
Van Buren Street	27th Avenue to 19th Avenue	15,700	26,600	69
	59th Avenue to 51st Avenue	16,600	41,800	152
	75th Avenue to 67th Avenue	11,900	22,800	92

Table 9. Average Daily Traffic Volumes on Arterial Streets (without the Proposed Action), 2012 and 2035

Segment		Vehicles Per Day		
		2012	2035	Change (%)
Buckeye Road	35th Avenue to 27th Avenue	23,500	35,700	52
	51st Avenue to 43rd Avenue	20,500	31,300	53
	83rd Avenue to 75th Avenue	19,700	25,300	28
Baseline Road	19th Avenue to 7th Avenue	18,800	37,200	98
	24th Street to 32nd Street	37,000	52,400	42
	40th Street to 48th Street	51,200	56,000	9
Chandler Boulevard	24th Street to 32nd Street	24,600	13,400	-46
	40th Street to 48th Street	27,600	40,400	46
	48th Street to I-10	37,200	44,200	19
Pecos Road	32nd Street to 40th Street	23,200	20,800	-10
	Desert Foothills Parkway to 24th Street	21,300	20,300	-5
	17th Avenue to Desert Foothills Parkway	15,800	14,300	-9

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

Note: The 2035 road network includes all of the improvements from the RTP except the proposed action.

Operational Performance of Freeways in the MAG Region

The previous section concluded that traffic volumes would increase between 2012 and 2035 because of increases in capacity (additional lanes) and demand (additional trips). This section presents the analytical results addressing how these changes in traffic volumes would affect system efficiency in terms of level of service (LOS). The analysis focuses on the region's freeway system and presents the duration of LOS E or F (congested conditions) as modeled by the MAG regional travel demand model. The duration of LOS E or F conditions is determined by comparing the ratio of the projected traffic volume to the capacity (2,030 vehicles per hour per lane) of the freeway segment as presented in Table 10. Figures 3 and 4 present the morning (AM) peak travel period results for 2012 and 2035, respectively. Figures 5 and 6 present the evening (PM) peak travel period results for 2012 and 2035, respectively.

Table 10. Duration LOS E or F as Volume-to-Capacity Ratio

Volume-to-Capacity Ratio	Duration LOS E or F
≤ 0.86	no congestion
> 0.86 to 1.01	less than 2 hours
> 1.01 to 1.06	from 2 to 3 hours
> 1.06	greater than 3 hours

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

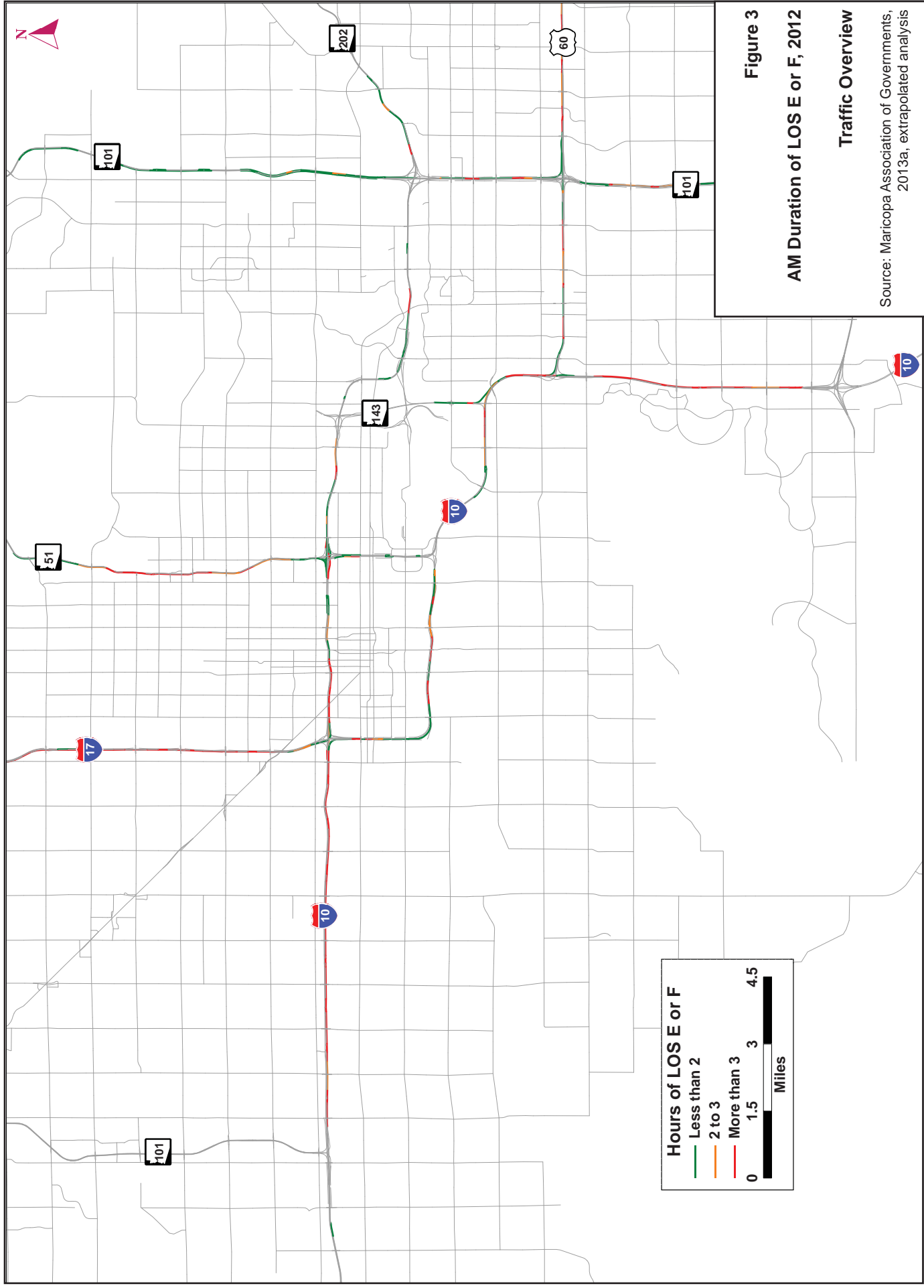


Figure 3
AM Duration of LOS E or F, 2012
Traffic Overview

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

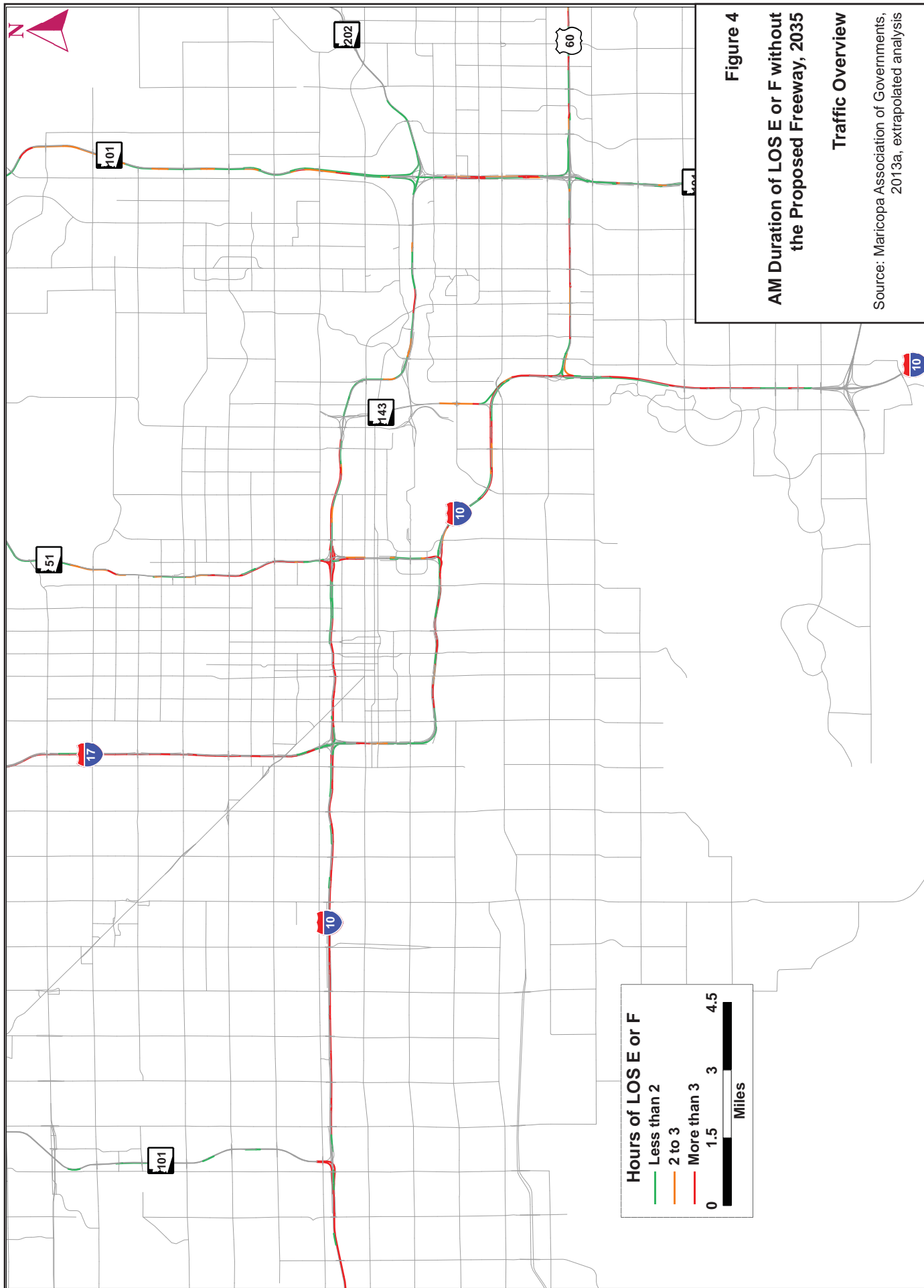


Figure 4

**AM Duration of LOS E or F without
the Proposed Freeway, 2035**

Traffic Overview

Source: Maricopa Association of Governments,
2013a, extrapolated analysis

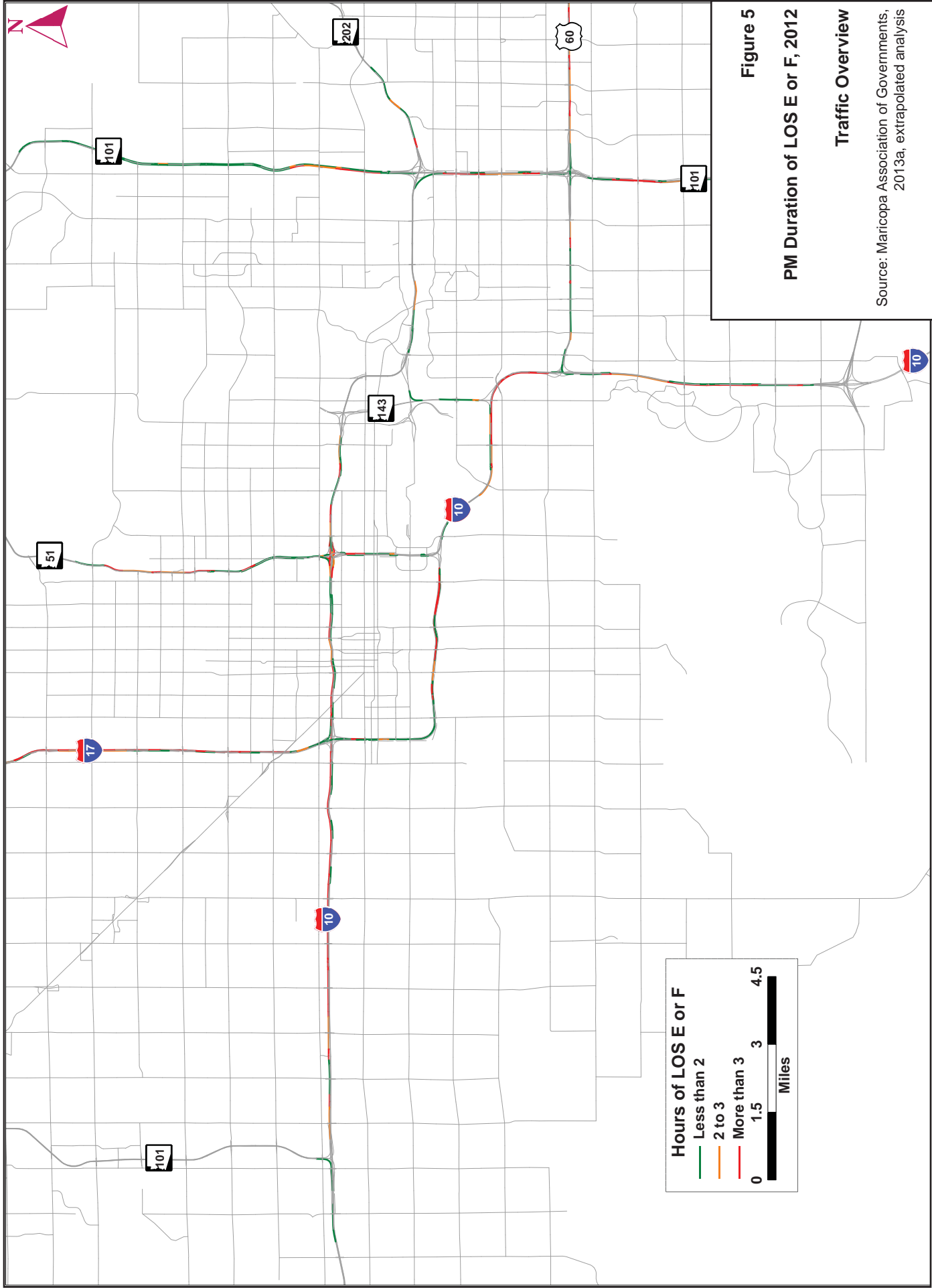


Figure 5

PM Duration of LOS E or F, 2012

Traffic Overview

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

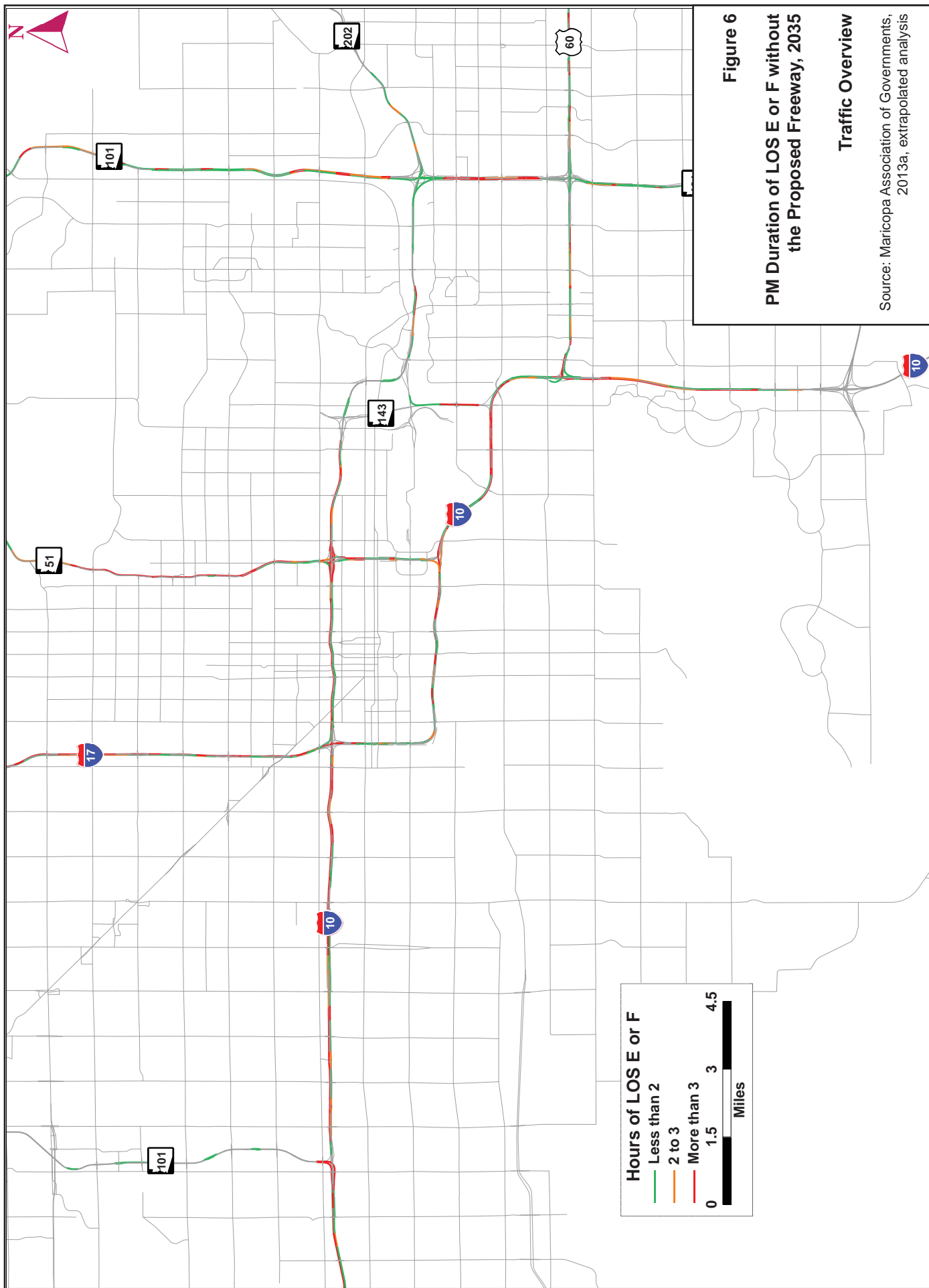


Figure 6

**PM Duration of LOS E or F without
the Proposed Freeway, 2035**

Traffic Overview

Source: Maricopa Association of Governments,
2013a, extrapolated analysis

The region's freeways were noticeably congested and operated poorly during the peak commuting periods in 2012. The heaviest congestion in 2012 and 2035 occurs in the morning inbound to downtown Phoenix and in the evening outbound from downtown Phoenix. The severity and duration of congestion is substantially worse in the evening than in the morning because more nonwork-based trips, such as to stores, restaurants, and other events, occur in the evening and overlap with commuting trips.

Even with the RTP-planned improvements (without the proposed freeway) congestion would continue to worsen through 2035. While congestion occurs directionally in 2012, many freeways in 2035 would experience extreme levels of congestion in both directions of travel. During the PM peak hour, more than 3 hours of LOS E or F would occur along I-10 for a 30-mile stretch from SR 101L (Agua Fria Freeway) to SR 202L (Santan Freeway). These extreme levels of congestion will greatly constrain the mobility of motorists in the region.

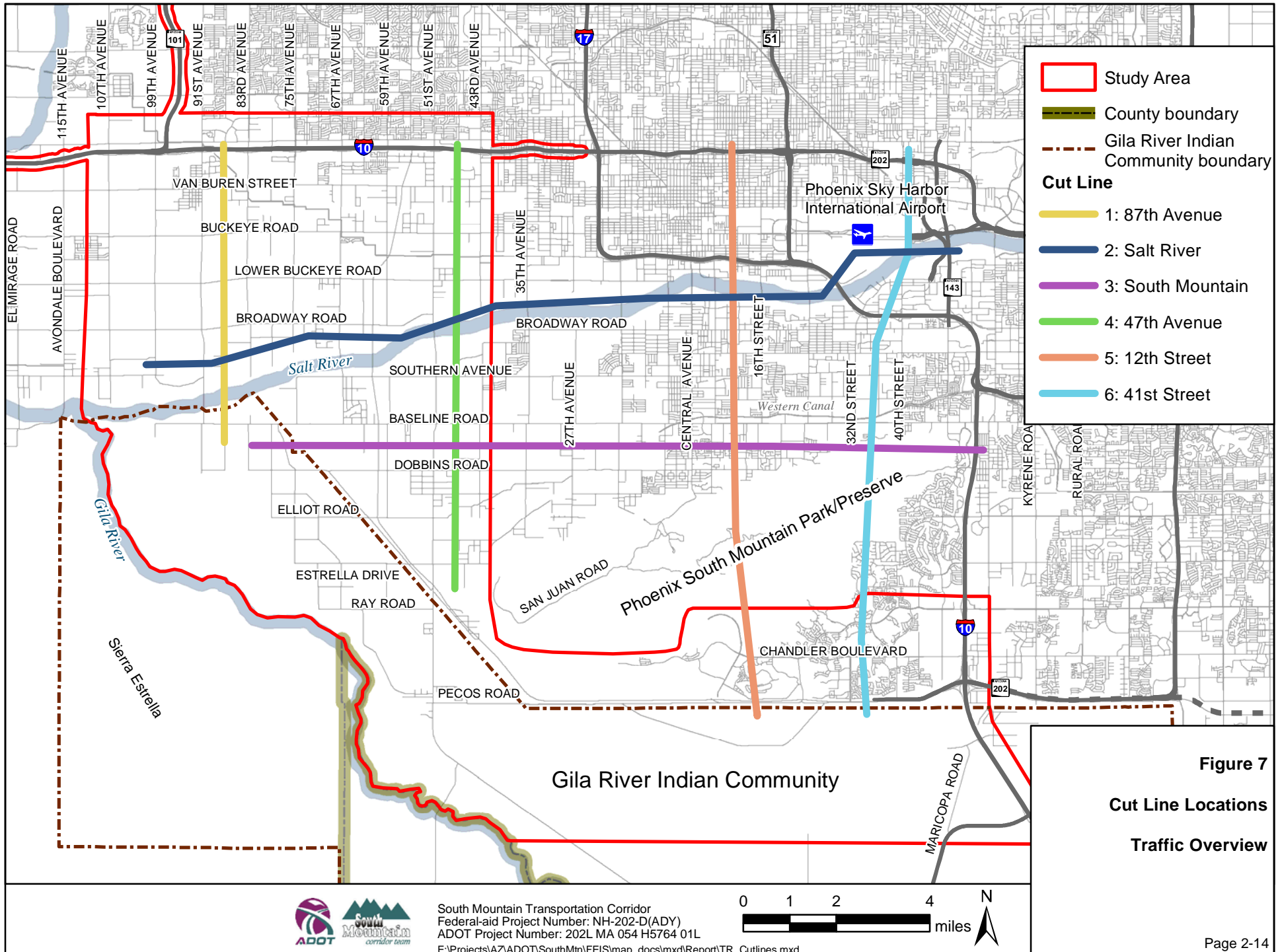
Capacity Deficiency of the Region's Road Network

Capacity deficiency refers to the condition when the transportation demand exceeds the transportation network's capacity. A way to measure travel demand is through use of a cut-line analysis. A cut line is an imaginary line placed on a map that measures the total traffic on freeway and arterial streets that would cross this given line. Six cut lines were selected throughout the Study Area to assess changes in total traffic on arterial streets and freeways between 2012 and 2035. Figure 7 presents the cut lines, and Table 11 presents the results of the analysis. The traffic volumes contributing to each cut line are detailed in Appendix A.

Table 11. Cut-line Analysis (without the Proposed Action), 2012 and 2035

Cut Line		Year	Volume (000s)			Split (%)	
			Total	Freeway	Arterial	Freeway	Arterial
1	87th Avenue: I-10 (Papago Freeway) to Baseline Road	2012	273	220	53	81	19
		2035	482	387	95	80	20
2	Salt River: 99th Avenue to SR 143 (Hohokam Expressway)	2012	631	394	237	62	38
		2035	906	576	330	64	36
3	South Mountain: 83rd Avenue to I-10 (Maricopa Freeway)	2012	288	224	64	78	22
		2035	398	279	119	70	30
4	47th Avenue: I-10 (Papago Freeway) to Estrella Drive	2012	363	269	94	74	26
		2035	542	325	217	60	40
5	12th Street: I-10 (Papago Freeway) to Pecos Road	2012	649	481	168	74	26
		2035	868	618	250	71	29
6	41st Street: SR 202L (Red Mountain Freeway) to Pecos Road	2012	731	481	250	66	34
		2035	931	611	320	66	34
All cut lines		2012	2,935	2,069	866	70	30
		2035	4,127	2,796	1,331	68	32

Source: Maricopa Association of Governments, 2013a, extrapolated analysis



From 2012 to 2035, the total traffic across the six cut lines would increase by approximately 1.19 million trips, with 727,000 additional trips using freeways and 465,000 trips using arterial streets. The total increase would be approximately 41 percent. Because the percentage increase would be greater on arterial streets than freeways between 2012 and 2035, the trend would be toward arterial streets handling a larger portion of the traffic burden, which is not a goal of the RTP.

Data from the cut-line analysis presented in Table 11 were used to calculate the capacity deficiency of the MAG region's road network in 2012 and 2035, assuming the network were to operate at LOS D during the peak hour of a given day. Capacity deficiency was calculated by comparing the total capacity and the total demand of all of the roads that would cross the 41st Street cut line (see Figure 7). When the demand is greater than the capacity (in other words, there is unmet demand) additional unacceptable delays would be imposed on vehicles crossing the cut line. Data are extrapolated from the 41st Street cut-line analysis to characterize performance for the entire MAG transportation system because the major east-west roads in central and southern Phoenix cross the 41st Street cut line. According to the assessment, presented in Table 12, the 2012 road network was able to serve 84 percent of the total demand while operating at LOS D. In 2035, however, the network would be able to serve only 69 percent of the total demand while operating at LOS D. The unmet demand in 2012 would equate to 4 additional freeway lanes or 10 additional arterial street lanes, while the unmet demand in 2035 would equate to 10 additional freeway lanes or 25 additional arterial street lanes.

Between 2012 and 2035, RTP-planned major transportation improvements outside of the Study Area are expected to be constructed, adding capacity across the 41st Street cut line. Even with these improvements, travel demand will increase more than capacity provided by the improvements, resulting in an increase in unmet demand between 2012 and 2035.

Table 12. Capacity Deficiency (without the Proposed Action), 2012 and 2035

Road	Total 2012 Peak-hour Directional Volume	Total 2035 Peak-hour Directional Volume	Total 2012 Peak-hour Directional Capacity (LOS D)^a	Total 2035 Peak-hour Directional Capacity (LOS D)^a
SR 202L (main line)	9,424	11,244	6,949	6,949
SR 202L (HOV)	1,187	1,622	1,596	1,596
Van Buren Street	1,203	1,233	1,245	1,245
Washington Street	1,102	1,186	1,245	1,245
Buckeye Road	2,611	3,344	1,245	1,245
University Drive	946	1,078	1,245	1,245
I-10 (main line)	11,933	13,917	8,935	8,935
I-10 (HOV)	1,615	3,875	1,596	3,192
Broadway Road	1,452	2,374	1,556	1,556
Southern Avenue	1,526	1,967	1,245	1,245
Baseline Road	2,427	3,318	1,818	1,818
Ray Road	1,249	1,751	1,212	1,212
Chandler Boulevard	1,050	1,683	1,818	1,818
SR 202L (main line)	not applicable	not applicable	0	0
SR 202L (HOV)	not applicable	not applicable	0	0
Pecos Road	1,389	1,244	1,212	1,212
Total	39,112	49,835	32,914	34,510
Unmet Demand				
Unmet demand (vehicles)	6,198	15,326	—	—
Unmet demand (percentage)	16	31	—	—

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

^a calculated using values for maximum service flow rate, peak-hour factor, K factor, directional factor, and number of lanes (Sources: *Highway Capacity Manual* [Transportation Research Board 2000] and MAG Travel Demand Model [MAG 2013a])

Travel Time

In the region, increased traffic congestion has resulted in decreased travel speeds throughout much of any given day. The amount of time a driver spends traveling each day to and from the same origin and destination continues to increase. Travel times to and from specific locations were calculated using the results from the MAG regional travel demand model, based on the road type and LOS. Two trip locations were selected to calculate representative increases in travel times throughout the Study Area. The descriptions of the trips and the results of the analysis are presented in Table 13.

Table 13. Travel Times (without the Proposed Action), 2012 and 2035

Year	Travel Time (minutes per vehicle)			
	51st Avenue and Elliot Road to I-10 and 7th Avenue		I-10 and Pecos Road to I-10 and Washington Street	
	Morning – Laveen to Downtown	Afternoon – Downtown to Laveen	Morning – Ahwatukee to Downtown	Afternoon – Downtown to Ahwatukee
2012	28	28	22	22
2035	38	38	28	27
Difference	10	10	6	5

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

The two trips shown in Table 13 are representative of the expected increase in travel time between 2012 and 2035. They do not represent every trip taken within and around the Study Area, but give an indication of potential impacts on future travel time. When considered in the context of hundreds of thousands of drivers each day over the course of the next 20-plus years, the total lost time because of increased congestion would be substantial.

Results of Purpose and Need Analysis

In June 2013, MAG approved new socioeconomic projections for Maricopa County. The purpose and need analysis was updated to reflect the new population, employment, and housing projections and corresponding projections related to regional traffic.

The new socioeconomic and traffic projections, while generally lower than what was predicted previously, still support the overall conclusions of the study related to purpose and need:

- Socioeconomic factors
 - Population, housing, and employment are projected to increase by approximately 50 percent between 2010 and 2035, increasing travel demand.
 - Growth in VMT is projected to equal or exceed these socioeconomic factors and to burden further the existing and planned regional transportation system.
 - Almost 50 percent of projected increases in population, housing, and employment from 2010 to 2035 for the entire MAG region would occur in the southwestern and southeastern portions of the Phoenix metropolitan area, which a major transportation facility in the Study Area would serve.
- Regional transportation demand and existing and projected transportation system capacity deficiencies
 - Transportation demand – ADT volumes on freeways and arterial streets are projected to increase substantially in and adjacent to the Study Area between 2012 and 2035.
 - Quality of traffic performance – LOS during peak commuting periods on regional transportation facilities operating in the Study Area and its surroundings are poor in 2012, with much of the

network congested for multiple hours. Even with planned improvements from implementation of the RTP (except the proposed action), travel conditions are projected to get much worse.

- Transportation capacity – According to the capacity deficiency assessment, the 2012 road network can serve 84 percent of the total demand while operating at LOS D. With planned improvements from implementation of the RTP (except the proposed action), the 2035 road network would be able to serve only 69 percent of the total demand while operating at LOS D.
- Travel time – Delays experienced daily by hundreds of thousands of drivers would continue to worsen over the course of the next 20-plus years, resulting in substantial cumulative lost time and related costs.

Without a major transportation facility in the Study Area, the region will suffer greater congestion, travel delays, and increasingly limited options for moving people and goods through the Phoenix metropolitan area.

Through an extensive alternatives development and screening process, it was determined that a freeway facility would best meet the purpose and need criteria. The following discussion presents the traffic-related analysis to support this determination.

3. Evaluation of Lane and Alignment Changes

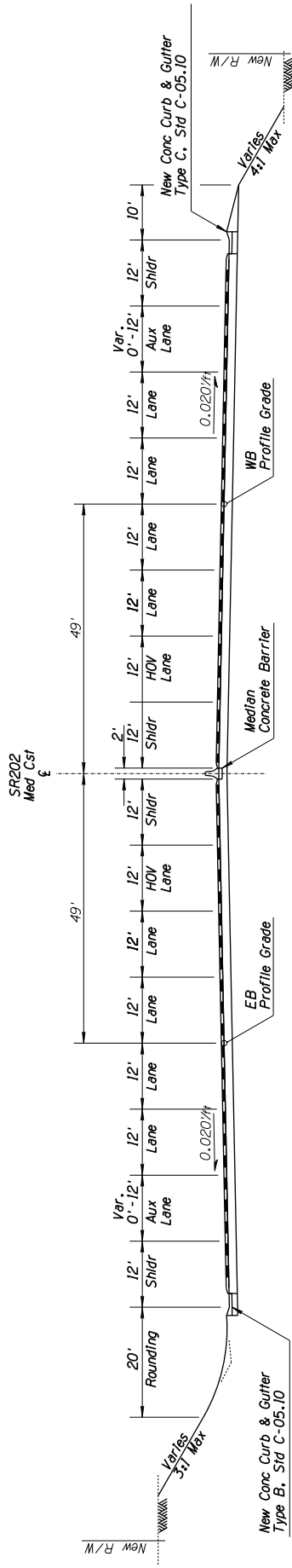
For the first time in the history of the half-cent sales tax (initially approved by Maricopa County voters in 1985), the year-over-year revenue comparison declined between 2007 and 2008. The economic recession, which began in the fall of 2007, continued to affect sales tax revenues significantly through 2009. This has resulted in a major reduction to the projected total funding available for transportation projects in the MAG region. In response to the budget shortfall created by declining revenue, MAG and ADOT studied methods to reduce project costs and balance the program's budget.

Historically, the Regional Freeway and Highway System has been implemented by constructing freeways with three general purpose lanes in each direction with enough room in the median to accommodate a high-occupancy vehicle (HOV) lane and enough room in the outside shoulder to accommodate an additional general purpose lane (resulting in a ten-lane freeway). Since the outside widening would require reconstruction of the on- and off-ramps and potentially need new right-of-way (R/W), ADOT shifted its approach with regard to the typical section and construction sequence for the proposed freeway.

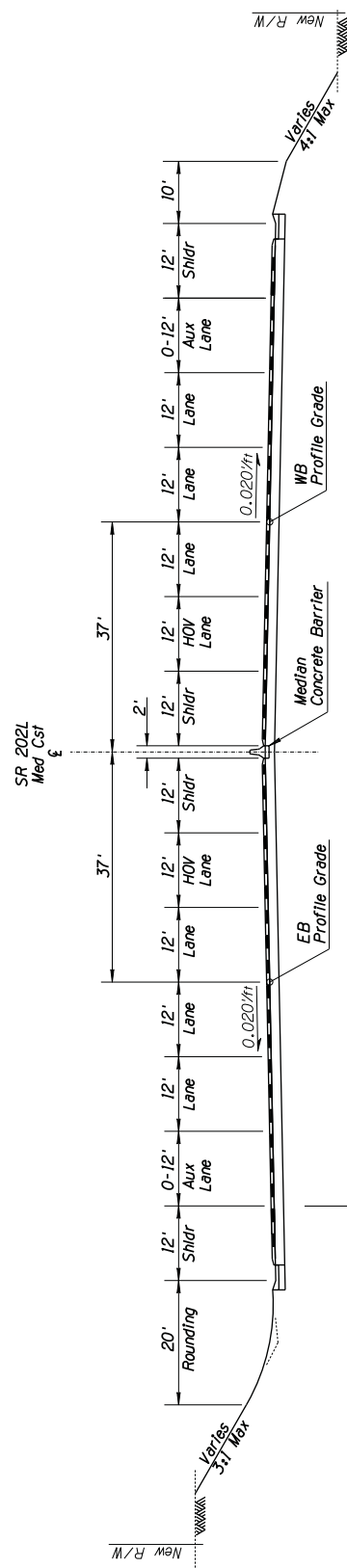
The South Mountain Freeway typical section was planned to accommodate two additional lanes in each direction in the median. Also, the freeway section was planned with side slopes according to ADOT design guidelines that avoided the use of retaining walls. This section represents the “unconstrained R/W” with ten lanes, as presented in Figure 8. In 2009, the typical section and construction sequence for the South Mountain Freeway were changed to reduce the overall project cost and to minimize residential and environmental impacts. As presented in Figure 8, the new “constrained R/W” freeway would have eight lanes (three general purpose lanes and one HOV lane in each direction), with no accommodations for future widening. In addition, the R/W was minimized to avoid costly R/W acquisitions and impacts on other sensitive areas by using retaining walls.

In 2006, the W55 Alternative was identified as the preliminary preferred alternative in the Western Section, over the W71 and W101 Alternatives. In 2009, it was suggested that a portion of the W55 Alternative could be shifted west onto 59th Avenue to take advantage of R/W owned by the City of Phoenix. This shifted alignment, called the W59 Alternative, would connect to I-10 (Papago Freeway) at 59th Avenue, which has an existing service TI. The alignments and R/W footprints for the W55 and W59 Alternatives are shown in Figure 9. The W59 Alternative would maintain the W55 Alternative alignment south of Lower Buckeye Road. North of Lower Buckeye Road, the W59 Alternative would remain parallel to and on the west side of 59th Avenue before shifting to the east side at Van Buren Street and connecting to I-10 (Papago Freeway).

The *Draft RTP–2010 Update* (MAG 2010a) included these recommendations for the South Mountain Freeway. The following sections present the traffic-related evaluation of the change from ten lanes to eight lanes and the alignment shift from the W55 Alternative to the W59 Alternative.



TYPICAL SR 202L SECTION
UNCONSTRAINED (10-LANE) R/W



TYPICAL SR 202L SECTION
CONSTRAINED (8-LANE) R/W

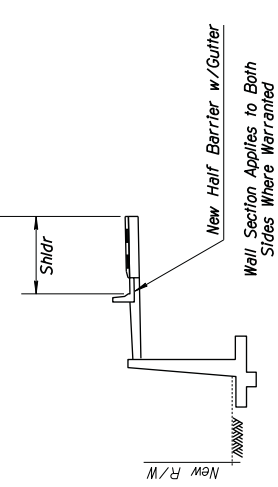


Figure 8
Unconstrained and Constrained
Typical Sections
Traffic Overview

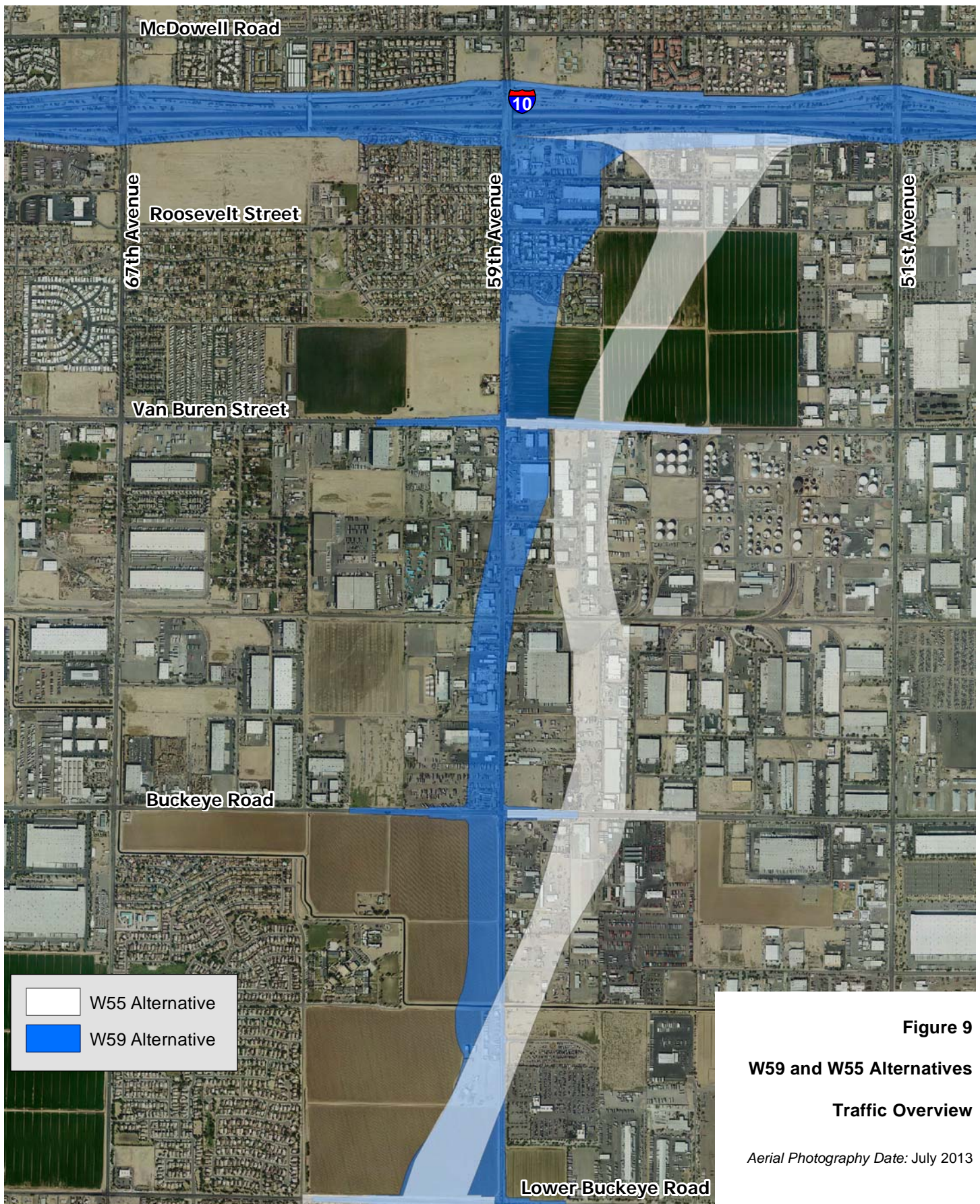


Figure 9
W59 and W55 Alternatives
Traffic Overview

Aerial Photography Date: July 2013

Comparison between the Ten-lane and Eight-lane Proposed Freeway

This section presents traffic data comparing the 2035 conditions with the eight- and ten-lane configurations of the South Mountain Freeway. The comparison is based on information related to the projected daily traffic volumes on freeways and arterial streets in and around the Study Area, projected daily volumes on the South Mountain Freeway, cut-line analysis in the southwest region, capacity deficiency, and duration of LOS E or F conditions on the region's freeways with the eight- and ten-lane configurations.

Traffic Volumes in the Study Area and Immediate Surroundings

Projected traffic volumes at locations in and around the Study Area for future conditions (2035) with eight and ten lanes on the proposed freeway are presented in Tables 14 and 15 for freeways and arterial streets, respectively.

Table 14. Projected Traffic Volumes on Freeways with the Eight-lane and Ten-lane Proposed Freeway, 2035

Segment		Average Vehicles Per Day		
		Eight Lanes	Ten Lanes	Change (%)
US 60	Rural Road to McClintock Drive	267,000	266,000	−0.4
SR 202L (Santan Freeway)	Priest Drive to Kyrene Road	157,000	159,000	1.3
SR 101L (Price Freeway)	Guadalupe Road to Elliot Road	238,000	237,000	−0.4
SR 101L (Agua Fria Freeway)	Camelback Road to Bethany Home Road	217,000	216,000	−0.5
SR 51	Indian School Road to Camelback Road	211,000	211,000	0
I-17	Indian School Road to Camelback Road	279,000	279,000	0
I-10	Pecos Road to Wild Horse Pass Boulevard	147,000	147,000	0
	Baseline Road to Elliot Road	248,000	246,000	−0.8
	48th Street to Broadway Road	269,000	267,000	−0.7
	7th Street to 16th Street	321,000	320,000	−0.3
	35th Avenue to 27th Avenue	325,000	325,000	0
	83rd Avenue to 75th Avenue	295,000	295,000	0
	115th Avenue to 107th Avenue	272,000	272,000	0

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

Note: Daily volumes include general purpose lanes and high- occupancy vehicle lanes.

Table 14 shows that the change in projected traffic volumes on the region's freeway system when comparing an eight- and ten-lane proposed freeway would be less than plus or minus 2 percent. The largest total change in traffic on freeways would be approximately 2,000 vpd.

Table 15 shows that the difference on the arterial street system would include locations with substantial changes; however, the majority of locations would experience less than a 2 percent change.

Table 15. Projected Traffic Volumes on Arterial Streets with the Eight-lane and Ten-lane Proposed Freeway, 2035

Segment		Vehicles Per Day		
		Eight Lanes	Ten Lanes	Change (%)
51st Avenue	SR 202L to Pecos Road	8,100	7,800	-4
	Baseline Road to Dobbins Road	13,800	13,600	-1
	Buckeye Road to Lower Buckeye Road	20,800	20,700	-0.5
	Indian School Road to Thomas Road	31,100	30,900	-0.6
67th Avenue	Buckeye Road to Lower Buckeye Road	16,900	19,900	18
	Van Buren Street to Buckeye Road	18,100	18,200	0.6
	Thomas Road to McDowell Road	32,600	32,500	-0.3
83rd Avenue	Buckeye Road to Lower Buckeye Road	19,500	19,400	-0.5
	I-10 to Van Buren Street	35,100	35,900	2
	Indian School Road to Thomas Road	27,800	27,200	-2
Van Buren Street	27th Avenue to 19th Avenue	25,200	25,100	-0.4
	59th Avenue to 51st Avenue	39,200	31,500	-20
	75th Avenue to 67th Avenue	21,700	21,600	-0.5
Buckeye Road	35th Avenue to 27th Avenue	30,300	32,000	6
	51st Avenue to 43rd Avenue	29,800	29,000	-3
	83rd Avenue to 75th Avenue	24,800	26,200	6
Baseline Road	19th Avenue to 7th Avenue	29,200	29,200	0
	24th Street to 32nd Street	44,700	44,700	0
	40th Street to 48th Street	48,100	48,200	0.2
Chandler Boulevard	24th Street to 32nd Street	21,200	20,500	-3
	40th Street to 48th Street	28,000	25,700	-8
	48th Street to I-10	43,600	37,000	-15

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

Traffic on the Proposed Freeway

Table 16 presents the 2035 traffic projections along the proposed freeway with eight lanes and ten lanes. The ten-lane freeway would generally serve more traffic throughout the freeway corridor.

Table 16. Projected Traffic Volumes on the Proposed Freeway with the Eight-lane and Ten-lane Configuration, 2035

Location	Vehicles Per Day		
	Eight Lanes	Ten Lanes	Change (%)
Western Section			
I-10 (Papago Freeway) to Van Buren Street	117,000	123,000	5
Van Buren Street to Buckeye Road	160,000	169,000	6
Buckeye Road to Lower Buckeye Road	139,000	147,000	6
Lower Buckeye Road to Broadway Road	128,000	136,000	6
Broadway Road to Southern Avenue	190,000	199,000	5
Southern Avenue to Baseline Road	154,000	163,000	6
Baseline Road to Dobbins Road	138,000	146,000	6
Dobbins Road to Elliot Road	130,000	144,000	11
Elliot Road to the common point ^a	118,000	125,000	6
Eastern Section			
Common point to 51st Avenue	125,000	133,000	6
51st Avenue to 17th Avenue	125,000	137,000	10
17th Avenue to Desert Foothills Parkway	128,000	133,000	4
Desert Foothills Parkway to 24th Street	129,000	133,000	3
24th Street to 40th Street	139,000	140,000	0.7
40th Street to I-10 (Maricopa Freeway)	129,000	130,000	0.8

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

Note: Daily volumes include general purpose lanes and high-occupancy vehicle lanes.

^a Common point refers to the point where the Western and Eastern Sections meet. See Figure 1.

Operational Performance of Region's Freeways

The previous sections concluded that the difference in projected traffic on the region's freeway and arterial street systems with the eight- and ten-lane proposed freeways would be limited and variable. This section presents the analytical results addressing whether the change in the number of lanes on the proposed freeway would affect system efficiency in terms of LOS. The 2035 AM conditions with an eight- and ten-lane freeway are presented in Figures 10 and 11, respectively. Figures 12 and 13 present the 2035 PM conditions with an eight- and ten-lane freeway, respectively.

The modeled LOS maps show that there would not be a substantial change in operational performance during the AM peak period. During the PM peak period, the only change would be on the proposed freeway itself, which would have more segments and longer periods of LOS E or F conditions with the eight-lane freeway than the ten-lane freeway.

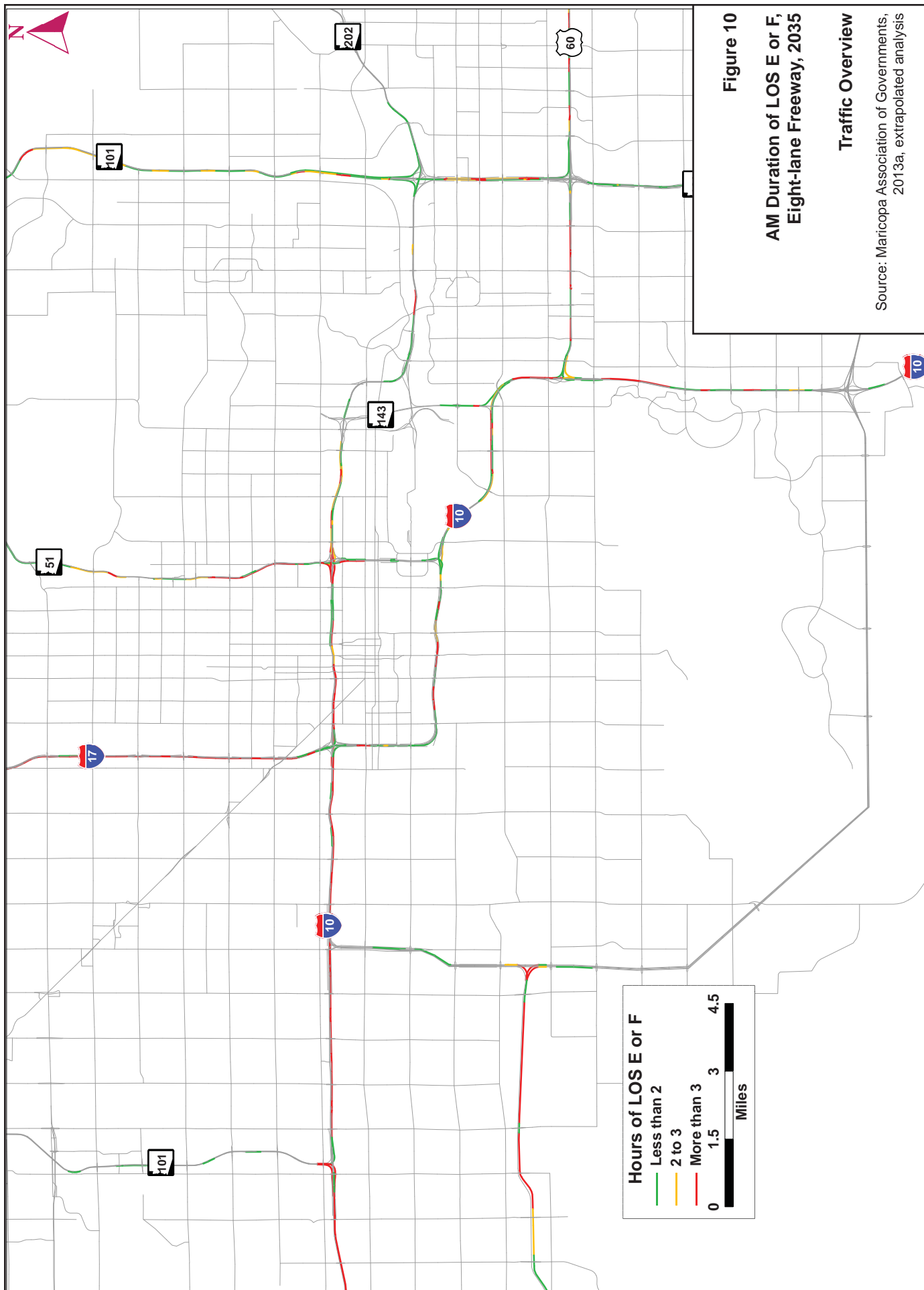


Figure 10

**AM Duration of LOS E or F,
Eight-lane Freeway, 2035**

Traffic Overview

Source: Maricopa Association of Governments,
2013a, extrapolated analysis

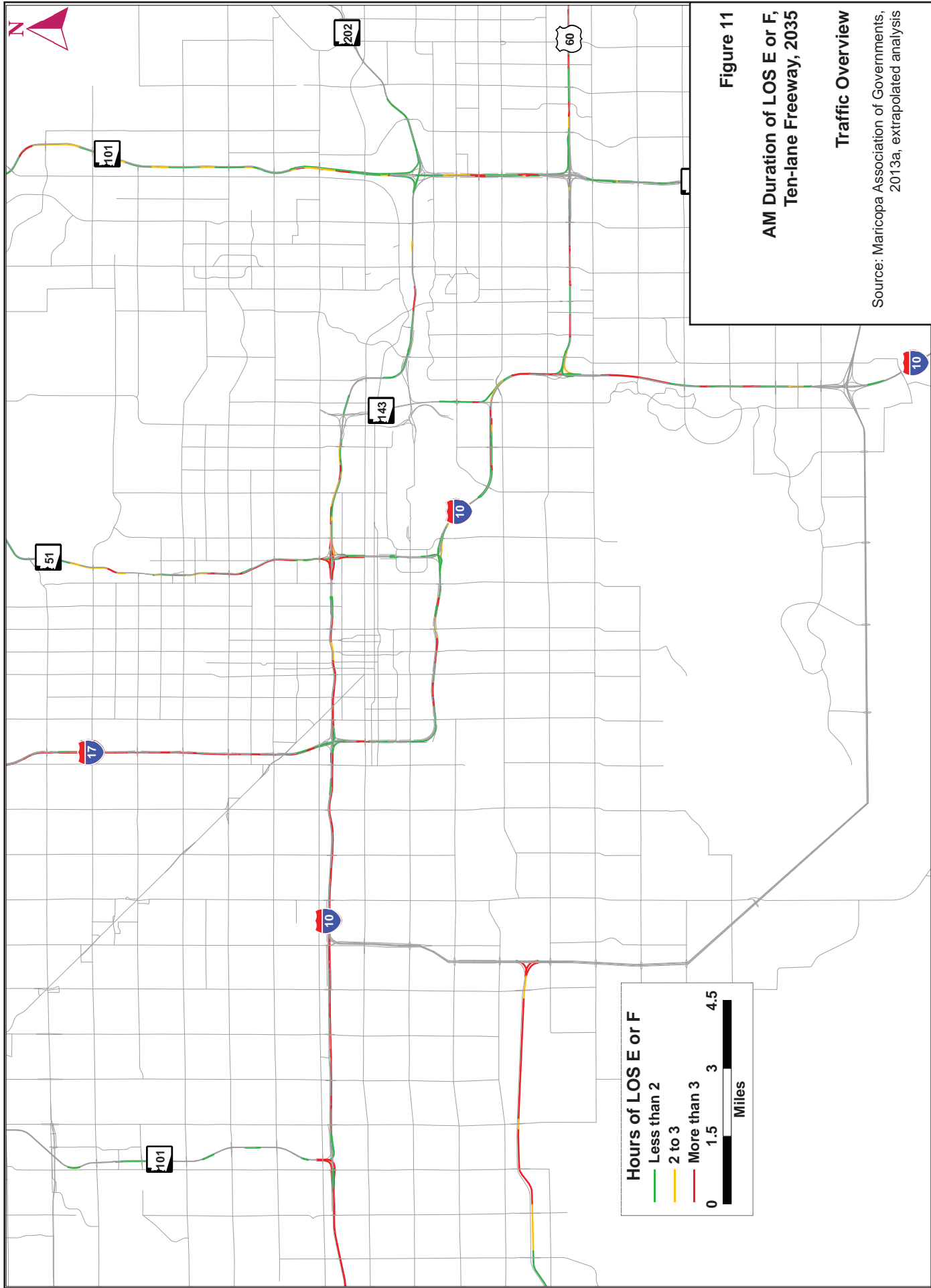


Figure 11

**AM Duration of LOS E or F,
Ten-lane Freeway, 2035**

Traffic Overview

Source: Maricopa Association of Governments,
2013a, extrapolated analysis

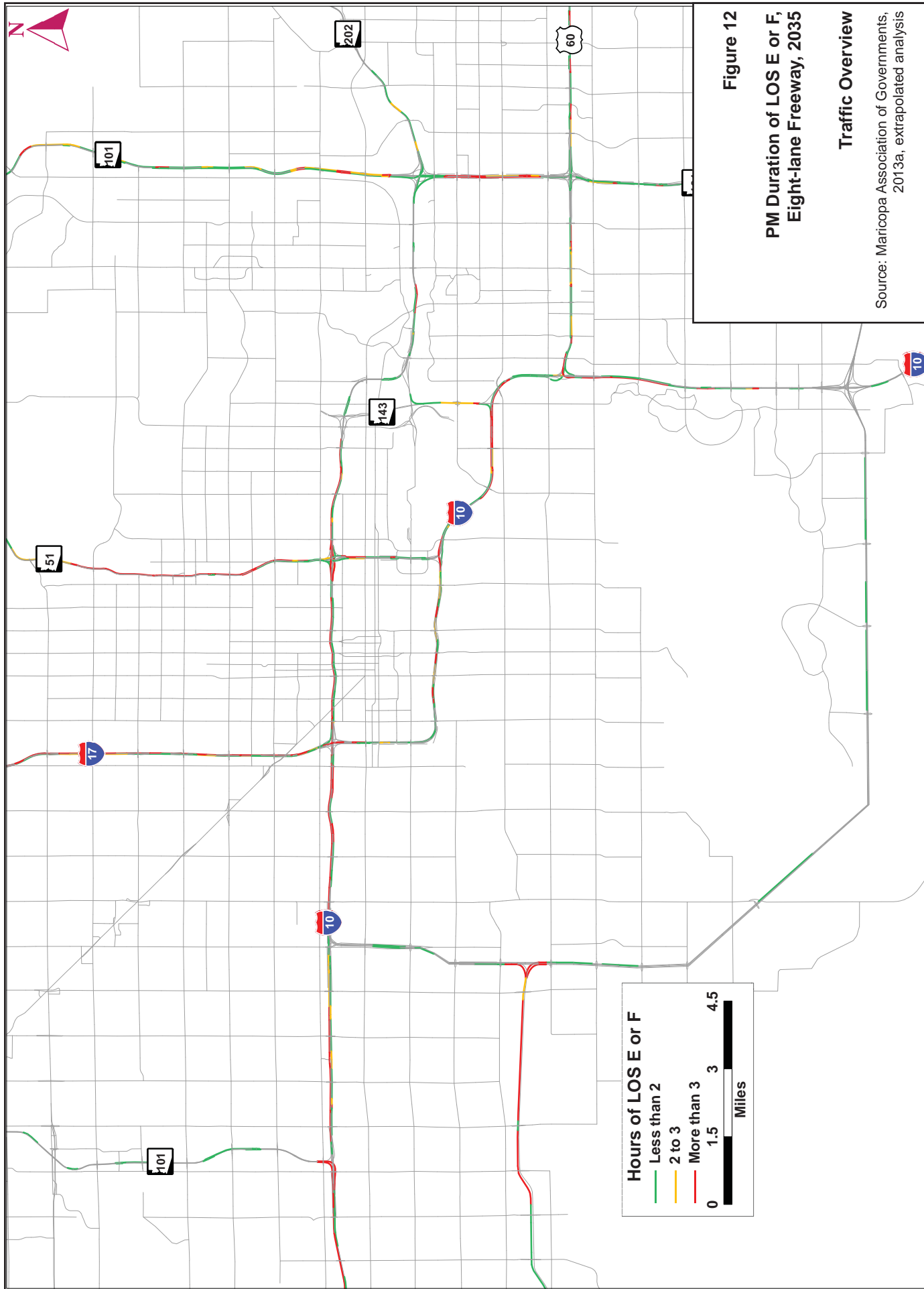


Figure 12

**PM Duration of LOS E or F,
Eight-lane Freeway, 2035**

Traffic Overview

Source: Maricopa Association of Governments,
2013a, extrapolated analysis

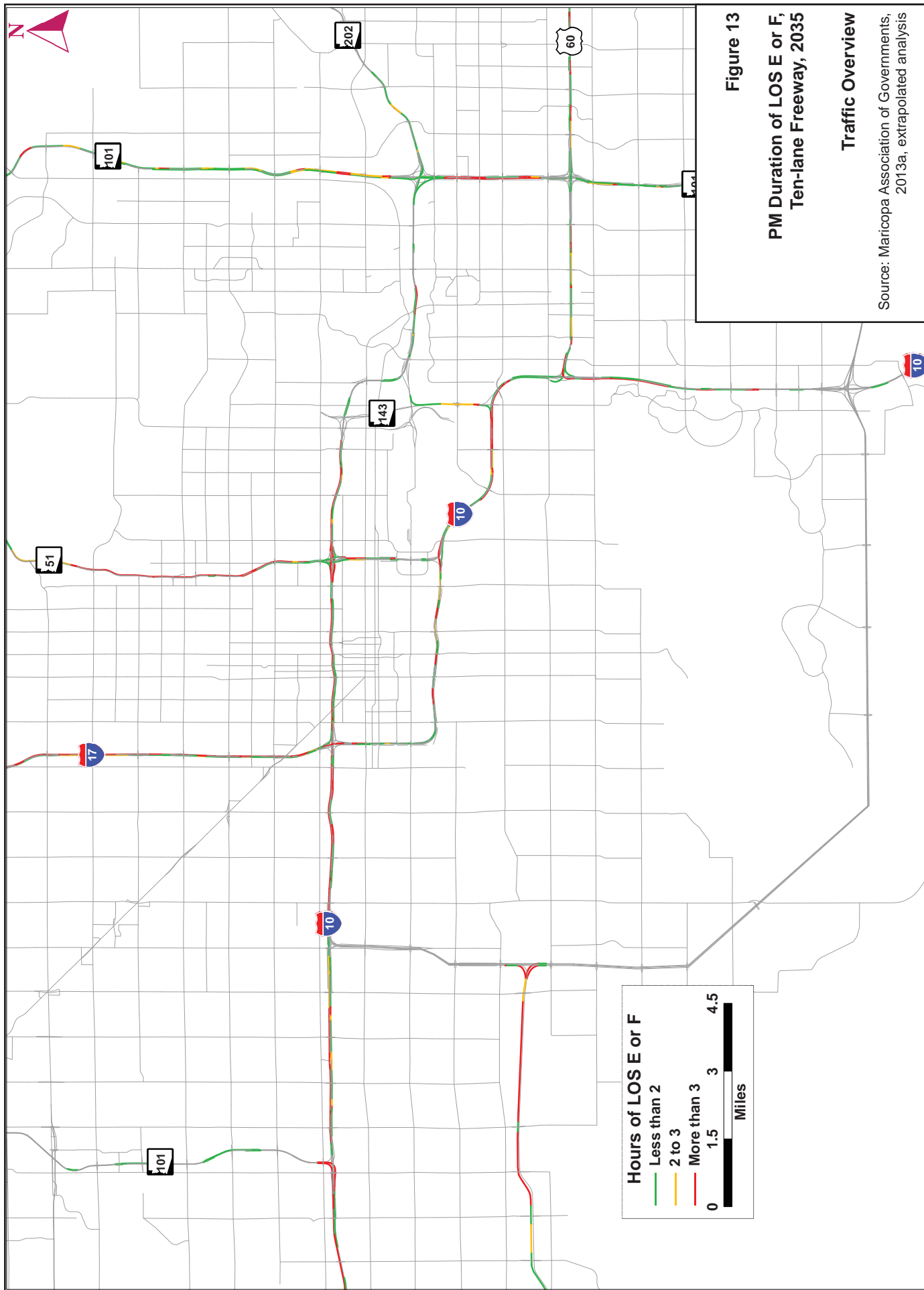


Figure 13

**PM Duration of LOS E or F,
Ten-lane Freeway, 2035**

Traffic Overview

Source: Maricopa Association of Governments,
2013a, extrapolated analysis

Capacity Deficiency of the Region's Road Network

The six cut lines shown in Figure 7 were used to assess changes in total traffic on arterial streets and freeways with the eight- and ten-lane freeway. Table 17 presents the cut-line analysis results. The traffic volumes contributing to each cut line are detailed in Appendix B.

Table 17. Cut-line Analysis, Eight-lane and Ten-lane Proposed Freeway, 2035

Cut Line		2035	Volume (000s)			Split (%)	
			Total	Freeway	Arterial	Freeway	Arterial
1	87th Avenue: I-10 (Papago Freeway) to Baseline Road	Eight lanes	512	436	75	85	15
		Ten lanes	512	438	74	86	14
2	Salt River: 99th Avenue to SR 143 (Hohokam Expressway)	Eight lanes	1,031	769	262	75	25
		Ten lanes	1,036	777	259	75	25
3	South Mountain: 83rd Avenue to I-10 (Maricopa Freeway)	Eight lanes	478	385	93	81	19
		Ten lanes	483	391	92	81	19
4	47th Avenue: I-10 (Papago Freeway) to Estrella Drive	Eight lanes	502	327	175	65	35
		Ten lanes	499	327	173	65	35
5	12th Street: I-10 (Papago Freeway) to Pecos Road	Eight lanes	907	711	1,96	78	22
		Ten lanes	911	717	1,94	79	21
6	41st Street: SR 202L (Red Mountain Freeway) to Pecos Road	Eight lanes	964	707	256	73	27
		Ten lanes	967	713	253	74	26
All cut lines		Eight lanes	4,394	3,336	1,058	76	24
		Ten lanes	4,407	3,364	1,044	76	24

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

The cut-line analysis illustrates that there would not be a large shift in the total demand or distribution of traffic on freeways and arterial streets between the eight- and ten-lane freeway. This results in no difference in the overall split between freeways and arterial streets.

Similar to the analysis presented in Table 12, data from the cut-line analysis presented in Table 17 were used to calculate the capacity deficiency of the MAG region's road network in 2035 with the eight- and ten-lane freeway, assuming the network were to operate at LOS D during the peak hour of a given day. Capacity deficiency, or unmet demand, was calculated by comparing the total capacity and the total demand of all of the roads that would cross the 41st Street cut line (see Figure 7). Data are extrapolated from the 41st Street cut-line analysis to characterize performance for the entire MAG transportation system. According to the assessment, presented in Table 18, the eight-lane configuration would have 20 percent unmet demand and the ten-lane configuration would have 16 percent unmet demand while operating at LOS D. The ten-lane freeway would capture 4 additional percentage points of additional unmet demand in 2035 compared with the eight-lane freeway.

Table 18. Capacity Deficiency, Eight-lane and Ten-lane Proposed Freeway, 2035

Road	Total Peak-hour Directional Volume		Total Peak-hour Directional Capacity (LOS D)	
	Eight Lanes	Ten Lanes	Eight Lanes	Ten Lanes
SR 202L (main line)	10,907	10,847	6,949	6,949
SR 202L (HOV)	1,571	1,572	1,596	1,596
Van Buren Street	1,198	1,191	1,245	1,245
Washington Street	1,125	1,118	1,245	1,245
Buckeye Road	3,325	3,318	1,245	1,245
University Drive	984	967	1,245	1,245
I-10 (main line)	13,030	12,942	8,935	8,935
I-10 (HOV)	3,424	3,417	3,192	3,192
Broadway Road	2,057	2,039	1,556	1,556
Southern Avenue	1,715	1,694	1,245	1,245
Baseline Road	2,925	2,895	1,818	1,818
Ray Road	1,108	1,065	1,212	1,212
Chandler Boulevard	921	876	1,818	1,818
SR 202L (main line)	5,622	6,163	5,957	7,942
SR 202L (HOV)	962	884	1,596	1,596
Total	50,873	50,988	40,850	42,836
Unmet Demand				
Unmet demand (vehicles)	10,023	8,152	—	—
Unmet demand (percentage)	20	16	—	—

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

Summary

The greatest traffic operational differences between a ten-lane freeway and an eight-lane freeway would be experienced on the freeway itself. The major benefits of the ten-lane freeway when compared with the eight-lane freeway are that it would meet 4 additional percentage points of the region's capacity deficiency, would move more vehicles through the corridor, and would do so with less congestion. During the PM peak period, the proposed freeway would have more segments and longer periods of LOS E or F conditions with the eight-lane freeway than with the ten-lane freeway. The overall benefit to the region as displayed by daily traffic volumes and duration of LOS E or F on freeways and arterial streets in and around the Study Area would be similar for both alternatives. However, the ten-lane freeway would require more R/W, affect more residences and businesses, have greater environmental impacts, and have a higher cost. In weighing the pros and cons of the two options, the project team determined that because the eight-lane freeway would still meet the purpose and need criteria for the project and would require less R/W and cost less, it would be carried forward for further consideration. Additional analysis of the eight-lane freeway's performance is presented in Section 4.

Traffic-related Effects of the W59 Alternative

The comparison between the W55 and W59 Alternatives was not updated using the 2013 MAG traffic projections because it was determined that the revised traffic projections would affect each alternative the same and there would be no change in the overall findings. The detailed traffic analysis supporting this comparison can be found in the Traffic Overview (ADOT 2012). Also, a complete comparison of the two alternatives, including residential and business displacements, cost, constructability, and environmental impacts, is presented in the *W59 Alternative Environmental and Engineering Overview Memorandum* (ADOT 2009, with updates).

4. Responsiveness of Proposed Freeway to Purpose and Need Criteria

In Part 2, *Purpose and Need*, existing and projected traffic conditions were examined assuming planned RTP improvements were implemented without construction and operation of a major transportation facility in the Study Area. It was determined that without implementation of such a facility, congestion and delays for motorists would increase. In this section, operational characteristics of 2035 traffic are again evaluated, this time assuming all planned RTP improvements are implemented, including the proposed eight-lane South Mountain Freeway (following the alignment of the W59 and E1 Alternatives) in the Study Area. This analysis was updated to reflect the new population, employment, and housing projections and corresponding projections related to regional traffic approved by MAG in 2013.

Traffic Volumes in the Study Area and Immediate Surroundings

Projected ADT volumes on the freeway are critical in considering operational characteristics. Also important is the forecast ADT on other regional freeway segments and on arterial streets. Because the RTP is an integrated system, future operational characteristics of traffic on any one component will affect and will be affected by traffic on other components. ADT volumes at locations in and around the Study Area for 2035 conditions with and without the proposed freeway are presented in Tables 19 and 20 for freeways and arterial streets, respectively.

Table 19. Projected Traffic Volumes on Freeways without and with the Proposed Freeway, 2035

Segment		Vehicles Per Day		
		Without Freeway	With Freeway	Change (%)
US 60	Rural Road to McClintock Drive	270,000	267,000	-1
SR 202L (Santan Freeway)	Priest Drive to Kyrene Road	115,000	157,000	37
SR 101L (Price Freeway)	Guadalupe Road to Elliot Road	249,000	238,000	-4
SR 101L (Agua Fria Freeway)	Camelback Road to Bethany Home Road	213,000	217,000	2
SR 51	Indian School Road to Camelback Road	211,000	211,000	0
I-17	Indian School Road to Camelback Road	278,000	279,000	0.4
I-10	Pecos Road to Wild Horse Pass Boulevard	134,000	147,000	10
	Baseline Road to Elliot Road	279,000	248,000	-11
	48th Street to Broadway Road	301,000	269,000	-11
	7th Street to 16th Street	331,000	321,000	-3
	35th Avenue to 27th Avenue	334,000	325,000	-3
	83rd Avenue to 75th Avenue	304,000	295,000	-3
	115th Avenue to 107th Avenue	288,000	272,000	-6
SR 30	83rd Avenue to 75th Avenue	81,000	140,000	73

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

Note: Daily volumes include general purpose lanes and high-occupancy vehicle lanes.

Responsiveness of Proposed Freeway to Purpose and Need Criteria

Implementation of the proposed freeway would result in the following changes to travel patterns on the region's freeways when compared with the condition without the proposed freeway:

- Connecting freeways, including SR 30, SR 202L (Santan Freeway), and I-10 (Maricopa Freeway) between Pecos Road and Wild Horse Pass Boulevard, are more effectively used, as planned in the RTP. These freeway segments would experience greater traffic as a result of having the additional east-to-west connection provided by the proposed freeway. Without the proposed freeway, they would be underused.
- Alternative east-to-west routes, such as I-10 between Baseline Road and 115th Avenue, would experience varying levels of reduced travel. This reduction would help ease congestion at these locations.

Table 20. Projected Traffic Volumes on Arterial Streets without and with the Proposed Freeway, 2035

Segment		Vehicles Per Day		
		Without Freeway	With Freeway	Change (%)
51st Avenue	SR 202L to Pecos Road	11,800	8,100	-31
	Baseline Road to Dobbins Road	18,800	13,800	-27
	Buckeye Road to Lower Buckeye Road	27,400	20,800	-24
	Indian School Road to Thomas Road	29,300	31,100	6
67th Avenue	Buckeye Road to Lower Buckeye Road	24,800	16,900	-32
	Van Buren Street to Buckeye Road	27,200	18,100	-34
	Thomas Road to McDowell Road	30,500	32,600	7
83rd Avenue	Buckeye Road to Lower Buckeye Road	22,800	19,500	-15
	I-10 to Van Buren Street	43,100	35,100	-19
	Indian School Road to Thomas Road	26,800	27,800	4
Van Buren Street	27th Avenue to 19th Avenue	26,600	25,200	-5
	59th Avenue to 51st Avenue	41,800	39,200	-6
	75th Avenue to 67th Avenue	22,800	21,700	-5
Buckeye Road	35th Avenue to 27th Avenue	35,700	30,300	-15
	51st Avenue to 43rd Avenue	31,300	29,800	-5
	83rd Avenue to 75th Avenue	25,300	24,800	-2
Baseline Road	19th Avenue to 7th Avenue	37,200	29,200	-22
	24th Street to 32nd Street	52,400	44,700	-15
	40th Street to 48th Street	56,000	48,100	-14
Chandler Boulevard	27th Avenue to 19th Avenue	13,400	21,200	58
	24th Street to 32nd Street	40,400	19,300	-52
	40th Street to 48th Street	44,200	43,600	-1

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

Implementation of the proposed freeway would reduce projected traffic volumes on almost all of the arterial street segments shown in Table 20. As planned in the RTP, the proposed freeway would help improve operational performance of the adjacent arterial street system.

Operational Performance of Region's Freeways

The previous section concluded that the proposed freeway would help optimize travel demand on connecting freeways and help reduce travel demand on parallel routes and the arterial street system. This section presents the analytical results addressing how these changes in traffic volumes would affect system efficiency in terms of LOS. The 2035 conditions without the proposed freeway in the AM and PM were previously presented in Figures 4 and 6, respectively. The 2035 conditions with the proposed freeway in the AM and PM are presented in Figures 14 and 15, respectively.

Implementation of the proposed freeway would result in the following changes to operational performance of the region's freeways when compared with the condition without the proposed freeway:

- During the morning commute, there would be little or no congestion on the proposed freeway.
- During the morning commute, the freeways inbound to downtown Phoenix, including eastbound I-10 (Papago Freeway), westbound I-10 (Maricopa Freeway) along the Broadway Curve, and westbound SR 202L (Red Mountain Freeway) would experience shorter durations of LOS E or F with the proposed freeway than without. Additionally, the inner loop freeways, I-10 and I-17, that encircle downtown Phoenix would experience shorter durations of LOS E or F with the proposed freeway.
- During the evening commute, almost all of the region's freeways experience long periods of LOS E or F conditions, including the proposed freeway.
- Because most of the system would experience more than 3 hours of LOS E or F conditions, it is difficult to identify substantial differences between the evening conditions with and without the proposed freeway. However, eastbound I-10 (Maricopa Freeway) between SR 51 and US 60 between US 60 and SR 202L (Santan Freeway) would experience shorter durations of congestion and fewer congested segments with the proposed freeway than without the proposed freeway.

Capacity Deficiency of the Region's Road Network

The six cut lines shown on Figure 7 were used to assess changes in total traffic on arterial streets and freeways with and without the proposed freeway in 2035. Table 21 presents the cut-line analysis results. The traffic volumes contributing to each cut line are detailed in Appendix C.

The cut-line analysis illustrates a shift in traffic volumes from the arterial street network to freeways if the proposed freeway were in operation in 2035. The traffic reduction on arterial streets is projected to be as high as 68,000 vpd across a single cut line. As shown in the previous section, this shift in ADT volumes from arterial streets to freeways would not adversely affect the operational performance of the freeway system. Such shifts from arterial streets to freeways are the intent of the RTP.

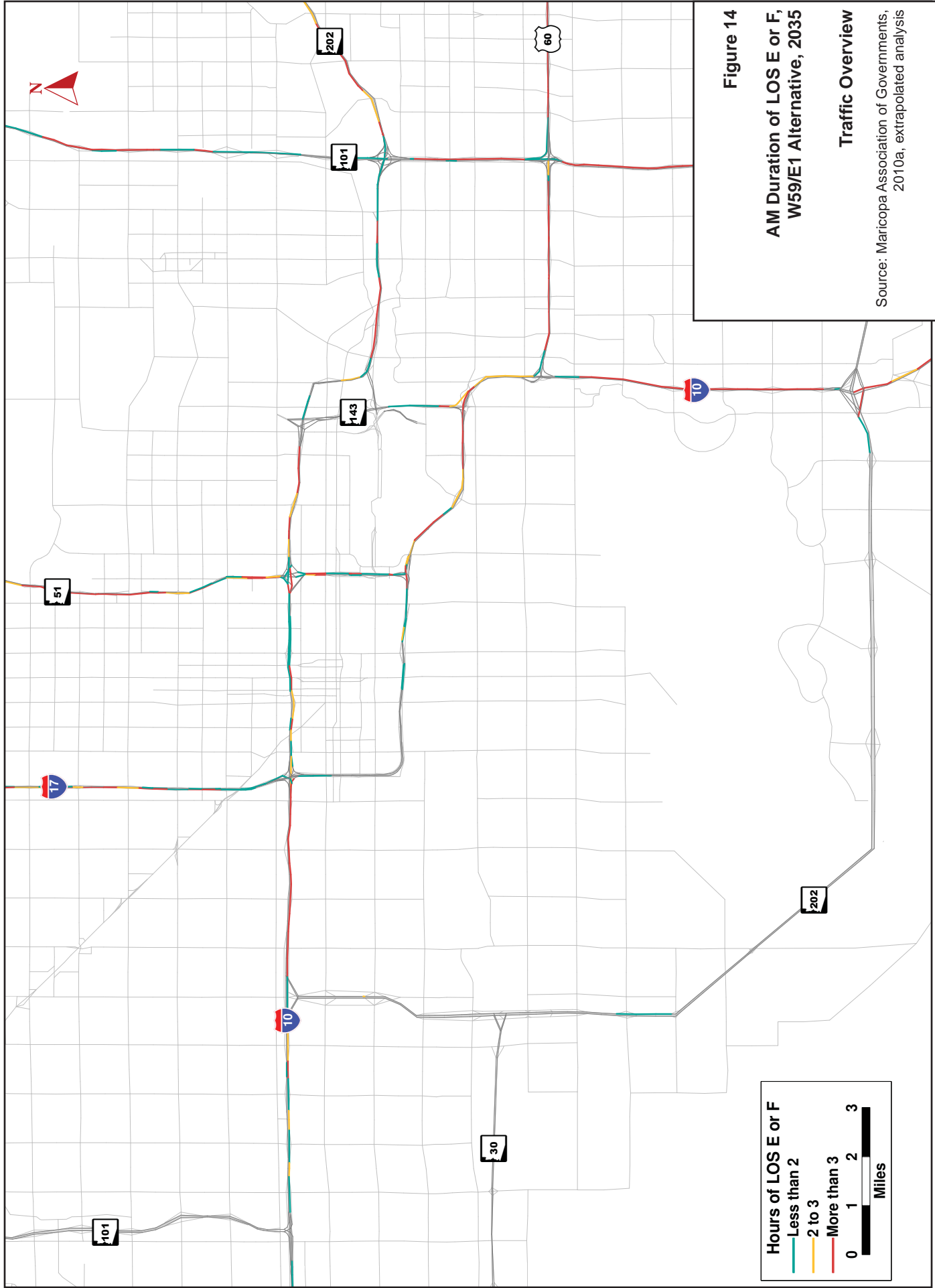


Figure 14

**AM Duration of LOS E or F,
W59/E1 Alternative, 2035**

Traffic Overview

Source: Maricopa Association of Governments,
2010a, extrapolated analysis

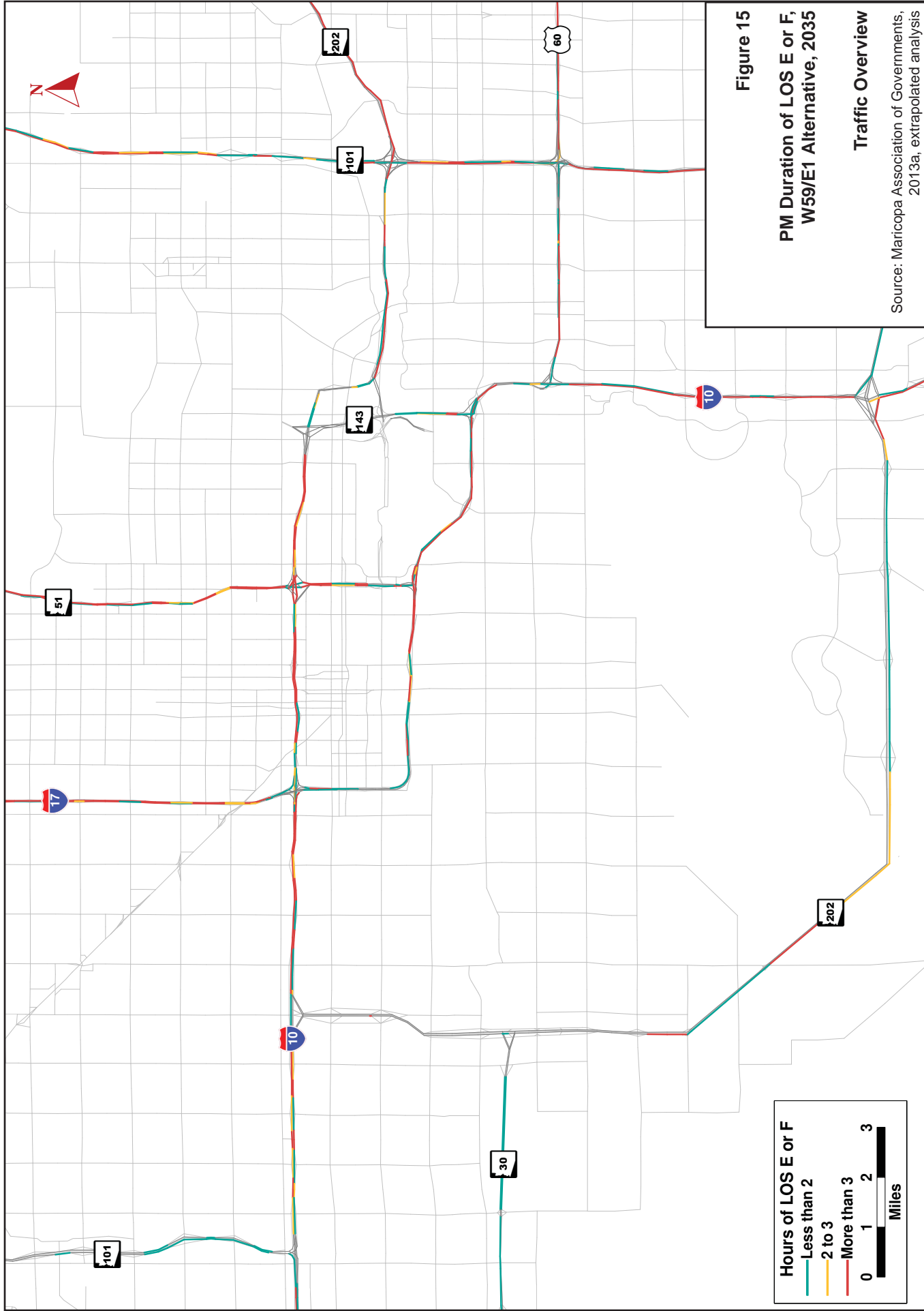


Figure 15

**PM Duration of LOS E or F,
W59/E1 Alternative, 2035**

Traffic Overview

Source: Maricopa Association of Governments,
2013a, extrapolated analysis

Table 21. Cut-line Analysis without and with the Proposed Freeway, 2035

Cut Line		2035	Volume (000s)			Split (%)	
			Total	Freeways	Arterials	Freeways	Arterials
1	87th Avenue: I-10 (Papago Freeway) to Baseline Road	Without freeway	482	387	95	80	20
		With freeway	511	436	75	85	15
2	Salt River: 99th Avenue to SR 143 (Hohokam Expressway)	Without freeway	906	576	330	64	36
		With freeway	1031	769	262	75	25
3	South Mountain: 83rd Avenue to I-10 (Maricopa Freeway)	Without freeway	398	279	119	70	30
		With freeway	478	385	93	81	19
4	47th Avenue: I-10 (Papago Freeway) to Estrella Drive	Without freeway	542	325	217	60	40
		With freeway	502	327	175	65	35
5	12th Street: I-10 (Papago Freeway) to Pecos Road	Without freeway	868	618	250	71	29
		With freeway	907	711	196	78	22
6	41st Street: SR 202L (Red Mountain Freeway) to Pecos Road	Without freeway	931	611	320	66	34
		With freeway	963	707	256	73	27
All cut lines		Without freeway	4,127	2,796	1,331	68	32
		With freeway	4,392	3,335	1,057	76	24

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

Similar to the analysis presented in Table 12, data from the cut-line analysis presented in Table 22 were used to calculate the capacity deficiency of the MAG region's road network in 2035 with and without the proposed freeway, assuming the network were to operate at LOS D during the peak hour of a given day. Capacity deficiency was calculated by comparing the total capacity and the total demand of all of the roads that would cross the 41st Street cut line (see Figure 7). Data are extrapolated from the 41st Street cut-line analysis to characterize performance for the entire MAG transportation system. According to the assessment presented in Table 22, the 2035 road network without the proposed freeway would be able to serve 69 percent of the total demand while operating at LOS D. With the proposed freeway, however, the network would be able to serve 80 percent of the total demand while operating at LOS D. The proposed freeway would capture 11 percentage points of the unmet demand in 2035.

Table 22. Capacity Deficiency without and with the Proposed Freeway, 2035

Road	Total Peak-hour Directional Volume		Total Peak-hour Directional Capacity (LOS D)	
	Without Freeway	With Freeway	Without Freeway	With Freeway
Capacity Deficiency				
SR 202L (main line)	11,244	10,907	6,949	6,949
SR 202L (HOV)	1,622	1,571	1,596	1,596
Van Buren Street	1,233	1,198	1,245	1,245
Washington Street	1,186	1,125	1,245	1,245
Buckeye Road	3,344	3,325	1,245	1,245
University Drive	1,078	984	1,245	1,245
I-10 Local-Express lanes	0	0	0	0
I-10 (main line)	13,917	13,030	8,935	8,935
I-10 (HOV)	3,875	3,424	3,192	3,192
Broadway Road	2,374	2,057	1,556	1,556
Southern Avenue	1,967	1,715	1,245	1,245
Baseline Road	3,318	2,925	1,818	1,818
Ray Road	1,751	1,108	1,212	1,212
Chandler Boulevard	1,683	921	1,818	1,818
SR 202L (main line)	not applicable	5,622	0	5,957
SR 202L (HOV)	not applicable	962	0	1,596
Pecos Road	1,244	0	1,212	0
Total	49,835	50,873	34,510	40,850
Unmet Demand				
Unmet demand (vehicles)	15,326	10,023	—	—
Unmet demand (percentage)	31	20	—	—

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

Travel Time

Travel times to and from specific locations were calculated using the results from the MAG regional travel demand model, based on the road type and LOS. The descriptions of the trips (the same as presented in Table 13) and the results of the analysis are presented in Table 23. Additional trips, shown in Table 24, were included in this analysis to provide a regional perspective.

Table 23. Travel Times without and with the Proposed Freeway, 2035

2035	Travel Time (minutes per vehicle)			
	51st Avenue and Elliot Road to Interstate 10 and 7th Avenue		Interstate 10 and Pecos Road to Interstate 10 and Washington Street	
	Morning – Laveen to Downtown	Afternoon – Downtown to Laveen	Morning – Ahwatukee to Downtown	Afternoon – Downtown to Ahwatukee
Without proposed freeway	38	38	28	27
With proposed freeway	36	34	26	26
Difference	–2	–4	–2	–1

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

Table 24. Regional Travel Times without and with the Proposed Freeway, 2035

Begin	End	Direction/Time	Travel Time (minutes)		
			Without Freeway	With Freeway	Change
Avondale	Downtown Mesa	Westbound/AM	65	63	–2
		Eastbound/PM	66	64	–2
Avondale	Downtown Scottsdale	Westbound/AM	67	65	–2
		Eastbound/PM	67	65	–2
Avondale	Arizona State University (Tempe Campus)	Westbound/AM	60	58	–2
		Eastbound/PM	61	59	–2
I-10 (Maricopa Freeway)/ SR 202L (Santan Freeway) System Traffic Interchange	I-10 (Papago Freeway)/SR 101L (Agua Fria Freeway) System Traffic Interchange	Westbound/AM (via I-10)	57	53	–4
		Eastbound/PM (via I-10)	50	44	–6
		Westbound/AM (via SR 202L or I-10)	57	54	–3
		Eastbound/PM (via SR 202L or I-10)	50	27	–23
Ahwatukee Foothills Village	Phoenix Sky Harbor International Airport	Northbound/AM	57	32	–25
		Southbound/PM	47	41	–6
Ahwatukee Foothills Village	Downtown Scottsdale	Northbound/AM	57	33	–24
		Southbound/PM	41	37	–4
Ahwatukee Foothills Village	Downtown Phoenix	Northbound/AM	18	18	0
		Southbound/PM	23	22	–1

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

The trips shown in Tables 23 and 24 are representative trips and show the difference in operational performance of other regional freeway segments in 2035 with and without the proposed freeway. When considered in the context of hundreds of thousands of drivers, each day, over the course of the next 20-plus years, the total travel time savings with the proposed freeway would be substantial.

Additional Benefits of the Proposed Freeway

Selection of a freeway as the preferred mode for a major transportation facility in the Study Area resulted in additional benefits related to the purposes of the project. The proposed freeway would also provide system linkage, improved regional mobility, and consistency with local and regional planning.

System Linkage

The Regional Freeway and Highway System was designed to function as part of an integrated surface transportation network consisting of an arterial street network, a system of loop freeways, and major freeways connecting to cities outside the region. System continuity is critical in optimizing:

- the effectiveness of individual network segments
- the use of transit
- freeway management strategies

The RTP-planned improvements for the Regional Freeway and Highway System assumed that a freeway would be located in the Study Area by 2035. If a freeway were not built to provide this capacity, future traffic distributions and volumes would vary from those used to plan and design other major facilities. Because of these differences, recent improvements could be oversized (e.g., too many lanes), undersized (e.g., too few lanes), and/or could operate in a manner that would not satisfy the intended uses. As an example, the proposed freeway was planned as a portion of SR 202L, in part to accommodate longer trips in the MAG region and to reduce demand on other parts of the regional freeway, Interstate, and arterial street networks. Without the connecting link created by the proposed freeway, SR 202L (Santan Freeway) would be underused in 2035. Because I-10 (Maricopa Freeway) would not have the capacity to accept the full traffic volume the Santan Freeway could deliver to it, motorists who might have used the Santan Freeway might choose other available, congested routes.

The proposed freeway would also serve as an important link to proposed transportation facilities in the region. Two transportation projects in initial planning stages and adjacent to the Western Section preliminary preferred alternative would be affected if the No-Action Alternative were to be selected: SR 30 and Avenida Rio Salado/Broadway Road. Both projects have been planned to address east-to-west travel demand and to provide motorists with alternatives to using the heavily congested I-10 (Papago Freeway). If the No-Action Alternative were the Selected Alternative, both SR 30 and Avenida Rio Salado/Broadway Road would need to be reassessed in terms of purpose and need and logical termini and to be reanalyzed in terms of traffic performance.

Regional Mobility

As presented in Part 2, *Purpose and Need*, the Study Area for the proposed freeway is located such that it would serve an area that would experience almost 50 percent of the projected increases in population, housing, and employment between 2010 and 2035 for the entire MAG region.

As an important component of the loop route function of the region's freeways, the proposed freeway would help address east-to-west regional mobility needs. Figure 16 and Table 25 present the results of a

Responsiveness of Proposed Freeway to Purpose and Need Criteria

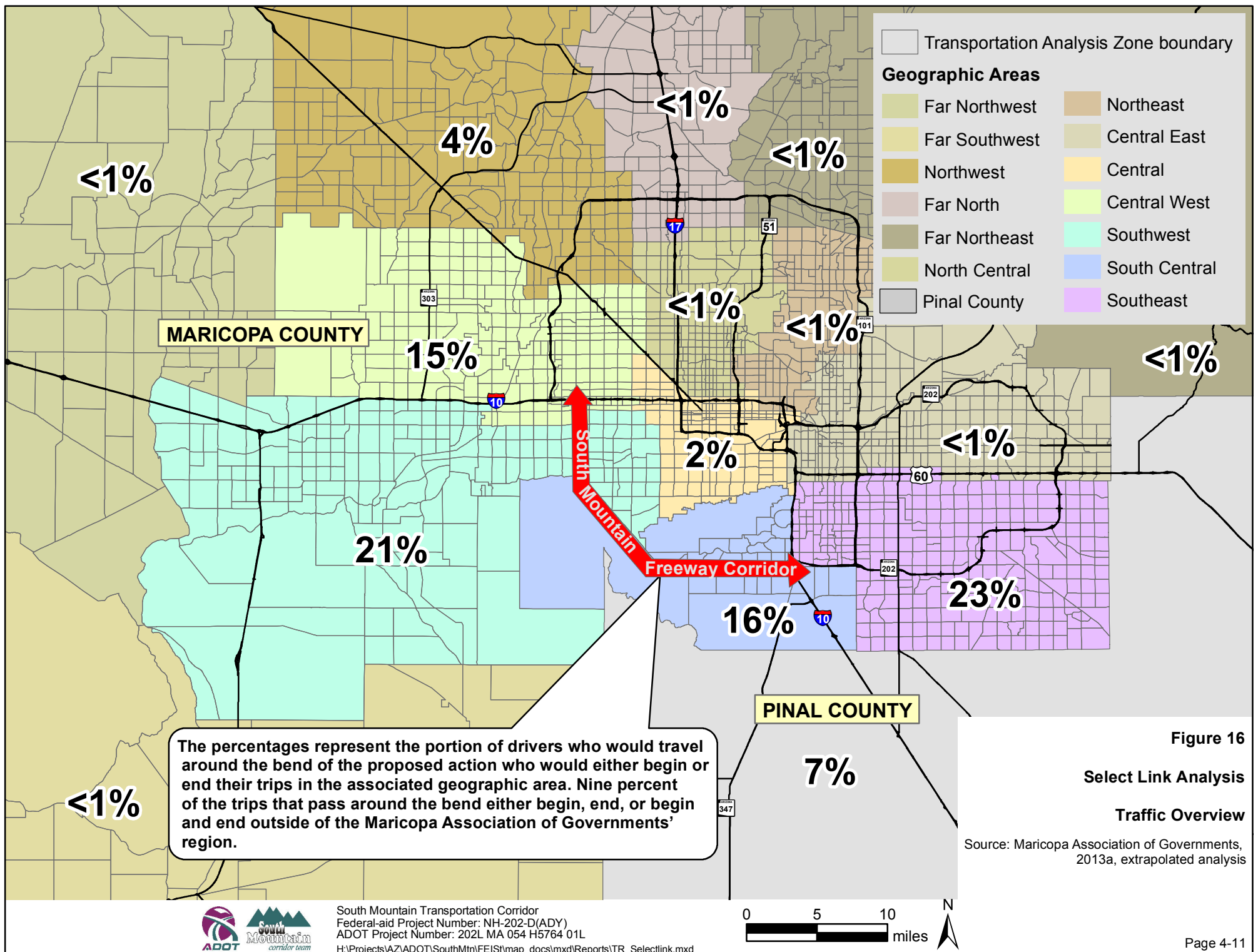
select link analysis. Select link is a tool within the MAG regional travel demand model that allows analysts to select a single road link and determine the origins and destinations of the vehicles that use that road link. In this analysis, the origins and destinations of all vehicles forecast to be on the proposed freeway through the South Mountains were plotted. A projected 75 percent of the travelers who might use the proposed freeway would have origins and/or destinations near the Study Area. The proposed freeway would be used heavily by traffic from the eastern and western areas of the MAG region. The external area represents any trip that would have one or both of its ends outside of the MAG region (which includes portions of Yavapai and Pinal counties). The results show that 17 percent of the projected users of the proposed freeway would come from Pinal County or other areas outside of the region. MAG regularly studies travel from neighboring counties and recently updated its model to reflect the findings of a joint study with the Pima Association of Governments (2009). The proposed freeway would provide an alternate route to I-10 through downtown for travelers passing through the Phoenix area.

Table 25. Select Link Analysis Results

Geographic Area^a	Trips^b	Percentage of Total
Outside Maricopa County		
External	11,610	9
Pinal County	8,840	7
Maricopa County area (outside of Study Area)		
Far Northwest	1,040	1
Far Southwest	40	<1
Northwest	4,990	4
Far North	230	<1
Far Northeast	10	<1
North Central	870	1
Northeast	1	<1
Central East	120	<1
Central	2,680	2
Subtotal	30,431	25
Maricopa County area (within Study Area)		
Central West	18,950	15
Southwest	26,490	21
South Central	20,140	16
Southeast	28,220	23
Study Area	93,800	75
Total	124,231	100

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

^a see Figure 16 ^b vehicles per day



Summary

The new MAG socioeconomic and traffic projections for Maricopa County were used to determine whether the proposed freeway was still the type and mode of transportation improvement that would best meet the purpose and need criteria for the proposed action. The modeling analysis was updated using 2013 MAG projections for 2035. Traffic volumes, traffic conditions, travel distribution, capacity deficiencies, and travel time were reanalyzed to evaluate the alternatives considered in terms of responsiveness to purpose and need criteria. The new socioeconomic and traffic projections, while generally lower than what was previously predicted, still support the overall conclusions of the study related to purpose and need.

- The proposed freeway would serve as a planned and critical link in the Regional Freeway and Highway System, causing traffic on the region's freeways to be redistributed. In most cases, the proposed freeway would remove traffic from some segments of freeways, while other segments would experience RTP-intended increases in daily volumes. The proposed freeway would increase the capacity of the region's freeways in response, in part, to projected regional travel demand.
- The proposed freeway would appropriately shift travel demand from the arterial street network to the freeway network in 2035. Within the Study Area, travel demand would remain relatively the same with or without the proposed freeway, demonstrating that the proposed freeway would absorb the majority of volume projected in the Study Area.
- The proposed freeway would increase projected 2035 network capacity by capturing approximately one-third of the projected 2035 capacity deficiency.
- Travel times during the morning and evening commuting periods at representative locations of the regional transportation network would be shorter with the proposed freeway in operation in 2035 than without the proposed freeway.
- Motorists would place a high demand for the proposed freeway in the Study Area.

When considering the historical context of the proposed freeway, its context in regional transportation planning, and analyses of existing and projected regional transportation demand and capacity, the proposed freeway is a needed element of the integrated transportation infrastructure network.

5. Traffic Conditions with the Action and No-Action Alternatives, 2035

This section expands on the analysis of the future conditions by presenting the differentiating traffic-related characteristics among the alternatives studied in detail. The three action alternatives in the Western Section combined with the E1 Alternative in the Eastern Section are included along with the No-Action Alternative in the analysis. This analysis was updated to reflect the new population, employment, and housing projections and corresponding projections related to regional traffic approved by MAG in 2013.

Traffic Volumes in the Study Area and Immediate Surroundings

Projected ADT volumes at locations in and around the Study Area for 2035 conditions with the No-Action and action alternatives are presented in Tables 26 and 27 for freeways and arterial streets, respectively.

Table 26. Projected Traffic Volumes on Freeways with the No-Action and Action Alternatives, 2035

Segment		Vehicles Per Day			
		No-Action	W59/E1	W71/E1	W101/E1
US 60	Rural Road to McClintock Drive	270,000	267,000	266,000	265,000
SR 202L (Santan Freeway)	Priest Drive to Kyrene Road	115,000	157,000	160,000	162,000
SR 101L (Price Freeway)	Guadalupe Road to Elliot Road	249,000	238,000	238,000	239,000
SR 101L (Agua Fria Freeway)	Camelback Road to Bethany Home Road	213,000	217,000	218,000	227,000
SR 51	Indian School Road to Camelback Road	211,000	211,000	211,000	211,000
I-17	Indian School Road to Camelback Road	278,000	279,000	279,000	278,000
I-10	Pecos Road to Wild Horse Pass Boulevard	134,000	147,000	147,000	148,000
	Baseline Road to Elliot Road	279,000	248,000	249,000	251,000
	48th Street to Broadway Road	301,000	269,000	268,000	269,000
	7th Street to 16th Street	331,000	321,000	321,000	320,000
	35th Avenue to 27th Avenue	334,000	325,000	321,000	320,000
	83rd Avenue to 75th Avenue	304,000	295,000	284,000	290,000
	115th Avenue to 107th Avenue	288,000	272,000	276,000	284,000
SR 30	83rd Avenue to 75th Avenue	81,000	140,000	114,000	111,000

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

Note: Daily volumes include general purpose lanes and high-occupancy vehicle lanes.

Table 27. Projected Traffic Volumes on Arterial Streets with the No-Action and Action Alternatives, 2035

Segment		Vehicles Per Day			
		No-Action	W59/E1	W71/E1	W101/E1
51st Avenue	SR 202L to Pecos Road	11,800	14,600	14,800	14,800
	Baseline Road to Dobbins Road	18,800	14,100	16,300	18,600
	Buckeye Road to Lower Buckeye Road	27,400	20,900	23,300	24,900
67th Avenue	Buckeye Road to Lower Buckeye Road	24,800	20,200	13,000	24,000
	Van Buren Street to Buckeye Road	27,200	18,500	14,100	25,800
83rd Avenue	Buckeye Road to Lower Buckeye Road	22,800	19,500	20,300	18,800
	I-10 to Van Buren Street	43,100	36,200	35,700	33,000
99th Avenue	Buckeye Road to Lower Buckeye Road	34,000	30,100	29,600	16,000
	I-10 to Van Buren Street	40,400	35,800	34,800	24,600
Van Buren Street	27th Avenue to 19th Avenue	26,600	25,300	25,000	24,500
	59th Avenue to 51st Avenue	41,800	39,300	30,600	30,800
	75th Avenue to 67th Avenue	22,800	17,700	31,100	22,300
	107th Avenue to 99th Avenue	29,600	28,300	28,600	28,100
Buckeye Road	35th Avenue to 27th Avenue	35,700	32,300	30,700	32,700
	51st Avenue to 43rd Avenue	31,300	29,000	28,300	25,400
	83rd Avenue to 75th Avenue	25,300	23,400	28,200	27,000
	107th Avenue to 99th Avenue	21,800	20,000	20,000	24,900
Baseline Road	19th Avenue to 7th Avenue	37,200	29,700	29,800	30,500
	24th Street to 32nd Street	52,400	45,200	45,100	45,800
	40th Street to 48th Street	56,000	60,400	60,100	60,800
Chandler Boulevard	24th Street to 32nd Street	13,400	21,100	22,300	22,600
	40th Street to 48th Street	40,400	21,600	33,000	37,200
	48th Street to I-10	44,200	32,600	39,100	39,200

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

Notable observations when comparing the No-Action Alternative with the three action alternatives with regard to daily traffic volumes on freeways and arterial streets in the Study Area and immediate surroundings include:

- Nearly all segments of I-10 would experience a reduction in ADT with implementation of any of the action alternatives. The reduction would be approximately 30,000 vpd between Baseline and Elliot roads and 32,000 vpd between 48th Street and Broadway Road. The reduced volumes would result in better traffic conditions along this section of I-10. An exception to this occurs between Pecos Road and Wild Horse Pass Boulevard, which would experience an increase of approximately 13,000 vpd.
- The action alternatives would provide a necessary link in the system that would result in more desirable traffic distributions. A six-lane freeway is intended to carry approximately 165,000 vpd.

With the No-Action Alternative, SR 30 (if it were to be funded and built at all without implementation of the proposed action) and SR 202L (Santan Freeway) would carry only 81,000 vpd and 115,000 vpd, respectively.

- Overall, the action alternatives would result in lower ADT volumes on the arterial street network. This represents an intended outcome from the RTP—the redistribution of regional traffic from arterial streets to regional freeways.

Notable observations when comparing among the action alternatives with regard to daily traffic volumes on freeways and arterial streets in the Study Area and immediate surroundings include:

- SR 101L (Agua Fria Freeway), between Camelback and Bethany Home roads, would experience greater ADT volumes with implementation of the W101 Alternative than with any of the other action alternatives. Additional improvements along SR 101L would be needed to convey this additional traffic.
- SR 30 would have higher traffic volumes with the W59 Alternative than would be the case with the W71 or W101 Alternative. This additional demand for SR 30 would result in lower traffic volumes on I-10 (Papago Freeway) between 115th and 107th avenues.

Traffic on the Proposed Freeway

Projected ADT volumes on the action alternatives are presented in Table 28.

Table 28. Projected Traffic Volumes on the Action Alternatives, 2035

Location	W59/E1	W71/E1	W101/E1
Western Section			
I-10 (Papago Freeway) to Van Buren Street	117,000	123,000	169,000
Van Buren Street to Buckeye Road	160,000	162,000	196,000
Buckeye Road to Lower Buckeye Road	139,000	150,000	168,000
Lower Buckeye Road to Broadway Road	128,000	136,000	138,000
Broadway Road to Southern Avenue	190,000	166,000	166,000
Southern Avenue to Baseline Road	154,000	140,000	166,000
Baseline Road to Dobbins Road	138,000	139,000	140,000
Dobbins Road to Elliot Road	130,000	123,000	122,000
Elliot Road to the common point	118,000	117,000	117,000
Eastern Section			
Common point to 51st Avenue	125,000	117,000	117,000
51st Avenue to 17th Avenue	125,000	128,000	129,000
17th Avenue to Desert Foothills Parkway	128,000	132,000	134,000
Desert Foothills Parkway to 24th Street	131,000	129,000	131,000
24th Street to 40th Street	131,000	136,000	138,000
40th Street to I-10 (Maricopa Freeway)	119,000	123,000	125,000

Source: Maricopa Association of Governments, 2013a, extrapolated analysis

Notable observations when comparing daily traffic volumes on the action alternatives include:

- In general, ADT volumes on the proposed freeway in the Eastern Section would not vary substantially among the action alternatives.
- In the Western Section, the W101 Alternative would experience higher volumes approaching I-10 (Papago Freeway) because of traffic connecting directly to SR 101L (Agua Fria Freeway).
- The highest ADT volumes for the W59 and W71 Alternatives would be between Broadway Road and Southern Avenue, just south of the planned SR 30 connection. The highest ADT volumes for the W101 Alternative would be between the planned SR 30 connection and I-10 (Papago Freeway).

Operational Performance of Region's Freeways

This section presents the analytical results addressing how the alternatives studied in detail (No-Action and three action alternatives) would affect system efficiency in terms of LOS. The 2035 conditions with the No-Action Alternative (without the proposed freeway) in the AM and PM were previously presented in Figures 4 and 6, respectively. The 2035 conditions with the W59/E1 Alternative in the AM and PM were also previously presented in Figures 14 and 15, respectively. The 2035 W71/E1 Alternative conditions in the AM and PM are presented in Figures 17 and 18, respectively. The 2035 W101/E1 Alternative conditions in the AM and PM are presented in Figures 19 and 20, respectively.

For the action alternatives, there would be little or no LOS E or F conditions during the AM peak period along the proposed freeway. During the PM peak period, each action alternative would experience LOS E or F conditions. These all relate to the high traffic volumes.

When comparing traffic performance along I-10 (Papago Freeway) between SR 101L (Agua Fria Freeway) and I-17 among the No-Action Alternative and action alternatives, the following observations can be made:

- The No-Action Alternative would result in the greatest number of sections along I-10 that would operate at LOS E or F, and for the longest duration.
- When comparing the action alternatives during the morning commute, all would result in more than 3 hours of LOS E or F on eastbound I-10 from 91st Avenue to I-17.
- During the evening commute, all of the action alternatives would result in more than 3 hours of LOS E or F on westbound I-10 from I-17 to approximately 67th Avenue. On I-10 from 67th Avenue to SR 101L (Agua Fria Freeway), they would result in varying lengths of segments with between 2 to 3 hours and less than 2 hours of LOS E or F.
- The W71 and W101 Alternatives would provide the best access to destinations west and north of downtown Phoenix.
- As noted previously, I-10 traffic conditions would be greatly improved with construction of the proposed SR 30. Without construction of SR 30, however, the traffic conditions associated with any of the action alternatives would be worse than what are shown by this analysis.

Summary

Part 4 concluded that a proposed freeway (as represented by the W59 and E1 Alternatives) in the Study Area would meet the purpose and need criteria for the project. The modeling analysis for all of the action alternatives and No-Action Alternative was updated using 2013 MAG projections for 2035. Traffic volumes and operational performance were reanalyzed to evaluate the alternatives considered in terms of responsiveness to purpose and need criteria. This section has shown that the W71 and W101 Alternatives would still provide traffic operational benefits similar to those of the W59 Alternative when compared with the No-Action Alternative. Based on the relative performance of each action alternative combination, the project team concluded that all would meet the purpose and need criteria. The advantages of the W101 Alternative would be its direct connection to SR 101L (Agua Fria Freeway) and the operational benefits that it would provide along I-10 (Papago Freeway). The advantage of the W59 Alternative would be to attract more vehicles onto SR 30, thereby reducing traffic on I-10 (Papago Freeway) west of the W59 Alternative system TI because it is closer to downtown Phoenix.

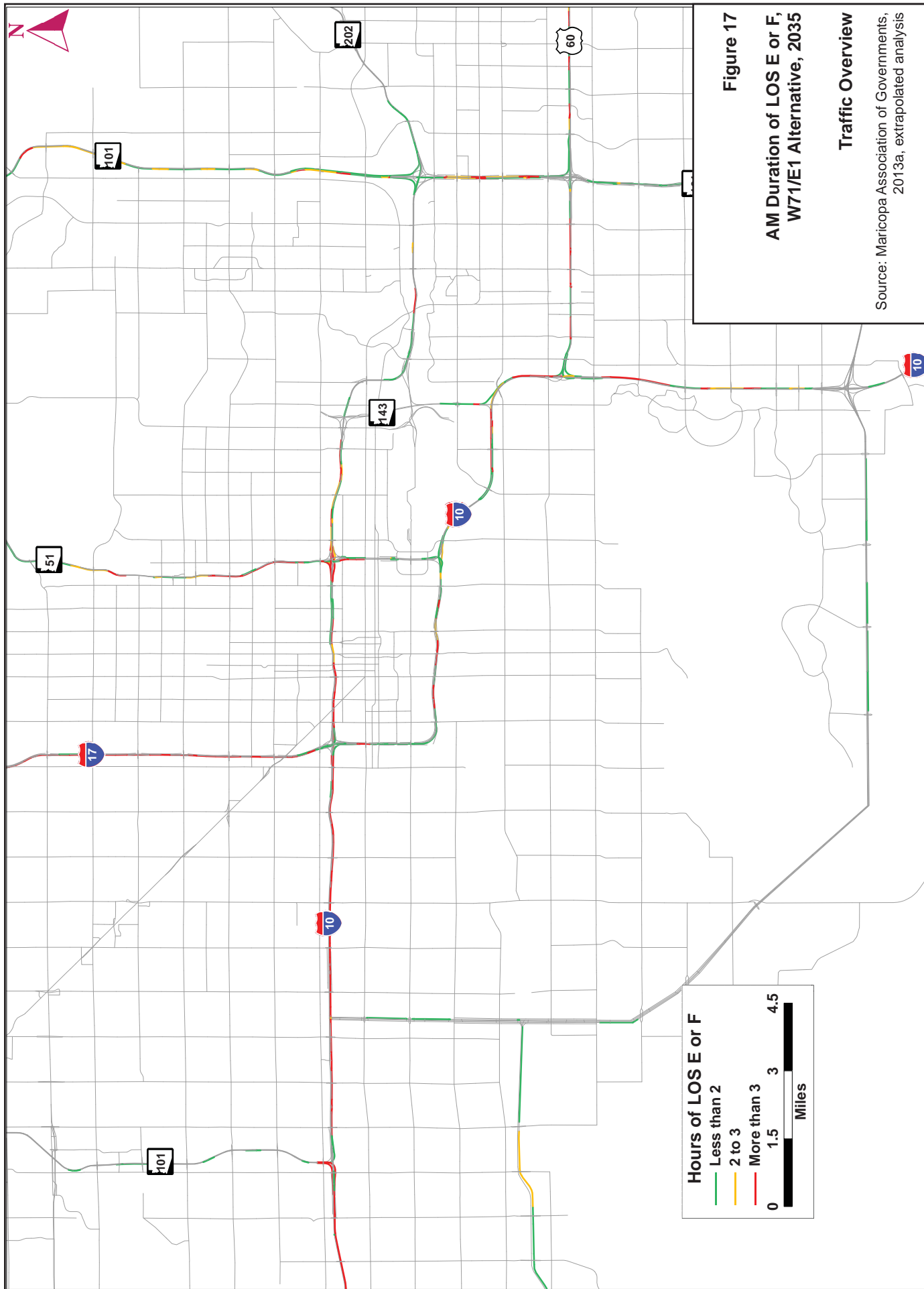


Figure 17

**AM Duration of LOS E or F,
W71/E1 Alternative, 2035**

Traffic Overview

Source: Maricopa Association of Governments,
2013a, extrapolated analysis

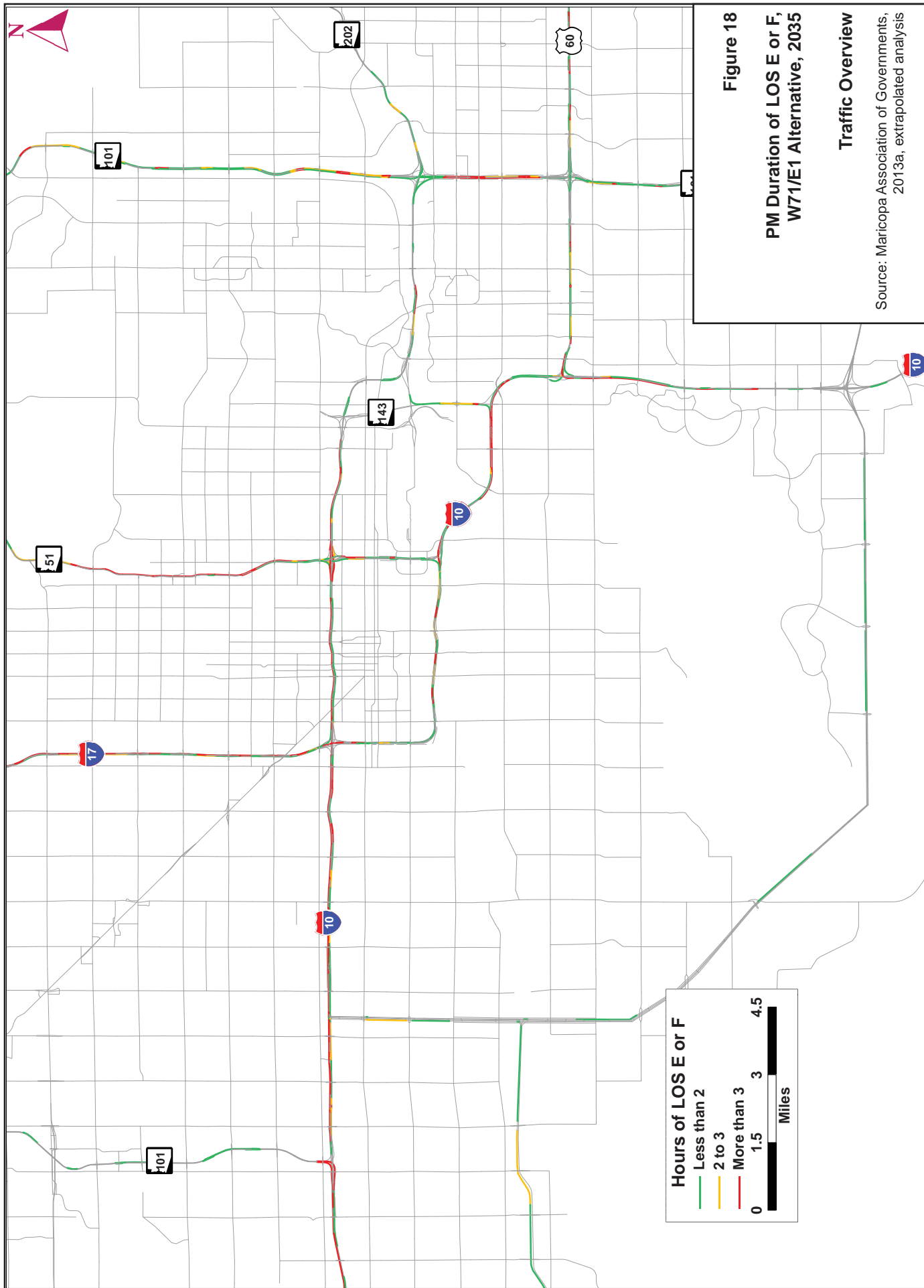


Figure 18

**PM Duration of LOS E or F,
W71/E1 Alternative, 2035**

Traffic Overview

Source: Maricopa Association of Governments,
2013a, extrapolated analysis

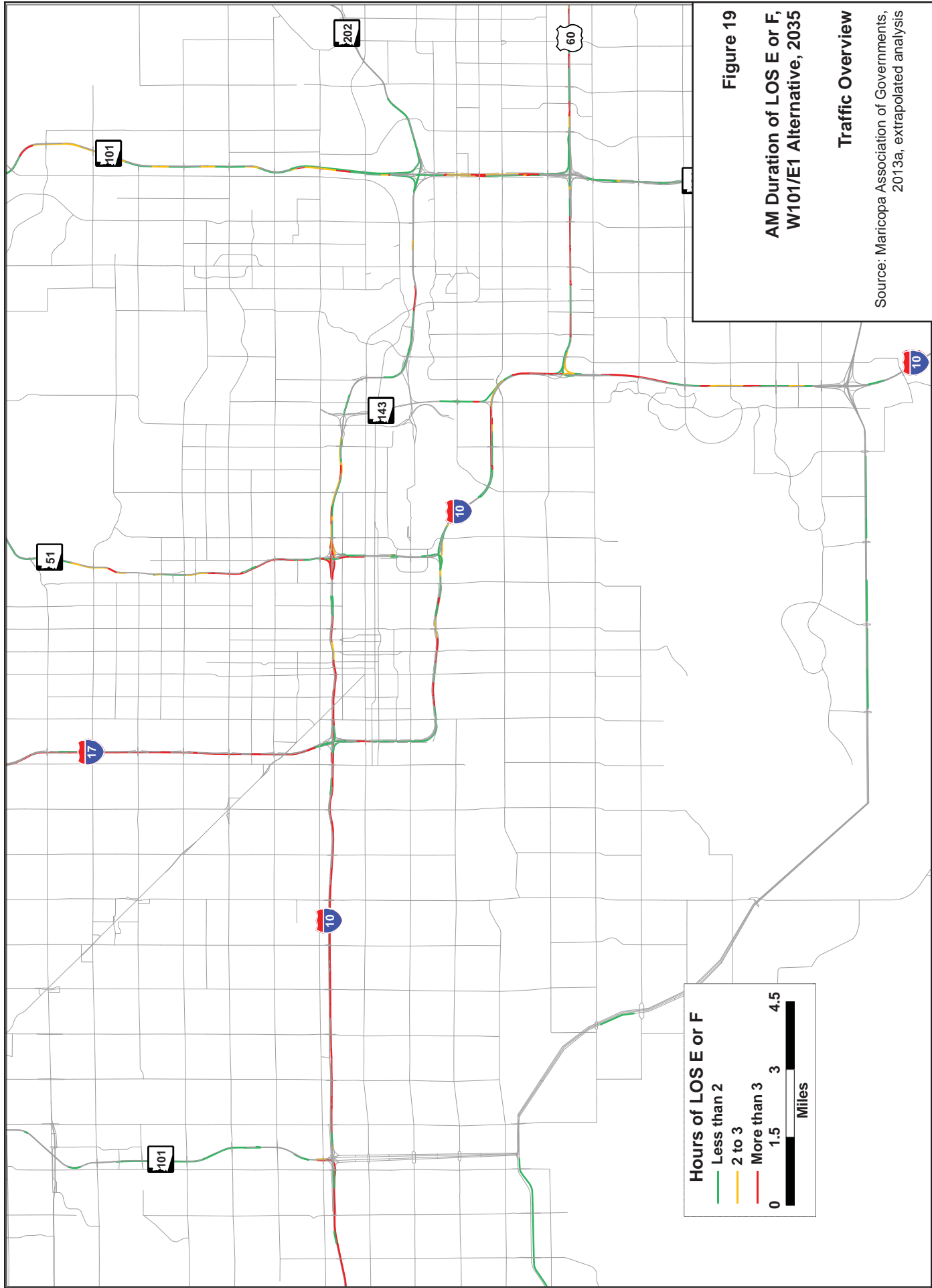


Figure 19

**AM Duration of LOS E or F,
W101/E1 Alternative, 2035**

Traffic Overview

Source: Maricopa Association of Governments,
2013a, extrapolated analysis

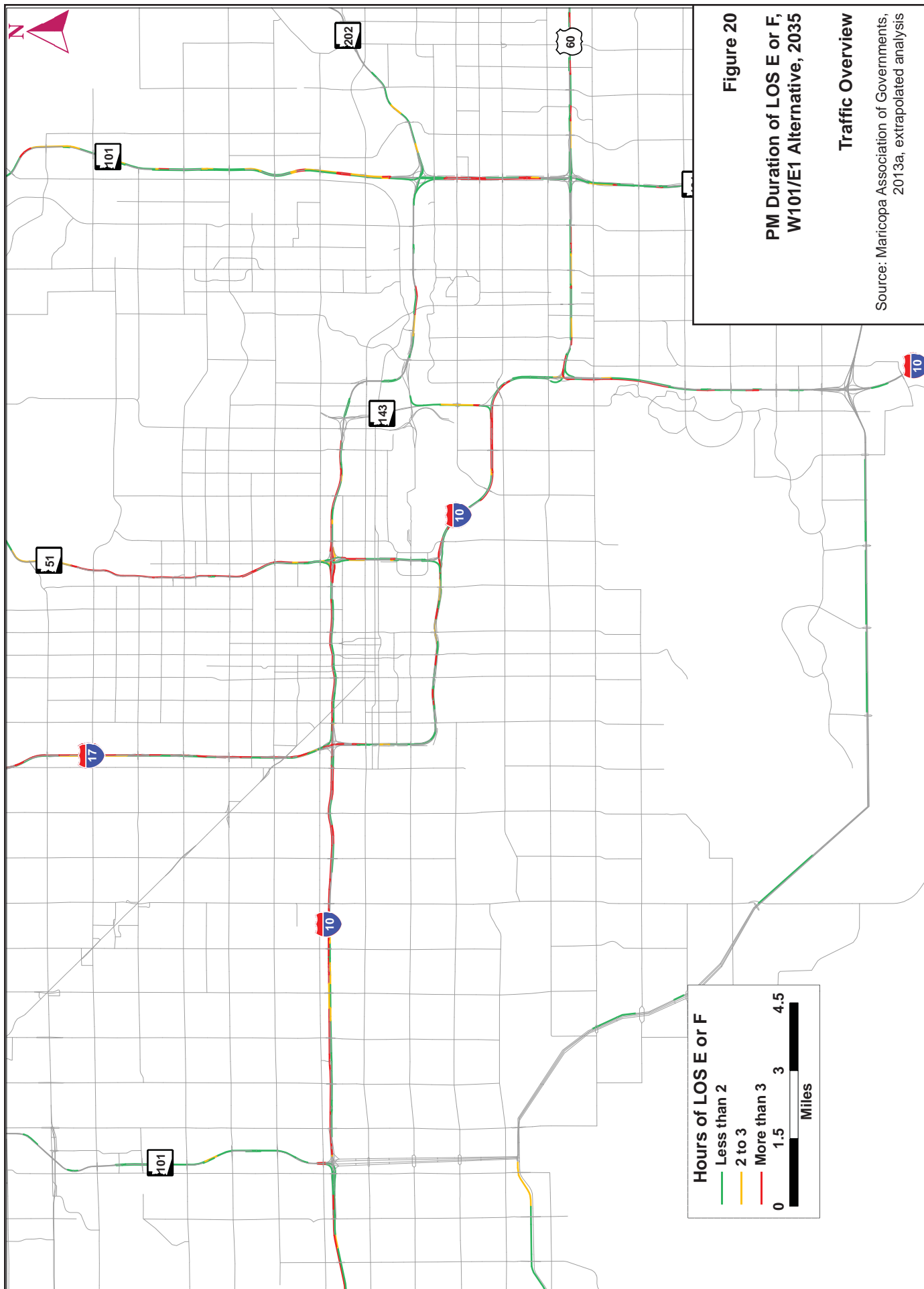


Figure 20

**PM Duration of LOS E or F,
W101/E1 Alternative, 2035**

Traffic Overview

Source: Maricopa Association of Governments,
2013a, extrapolated analysis

6. Conclusions

This summary builds on the observations and comparisons made in the previous parts of this report, with conclusions summarized in Table 29.

Table 29. Traffic Overview Summary

Part	Conclusion
Purpose and Need	When considering the historical context of the proposed action; socioeconomic factors; and the analyses of the existing and projected transportation capacity and demand, quality of traffic operational performance, and travel time, the proposed action is a needed element of the transportation network in the MAG region. The need exists for a major transportation facility in the Study Area. The purpose of the proposed action is to fulfill the multiple dimensions of this need.
Evaluation of Lane and Alignment Changes	Because the eight-lane freeway would still meet the purpose and need criteria for the project and would do so with lower costs, less R/W acquisition, and fewer impacts than the ten-lane freeway, the eight-lane freeway was carried forward for further consideration.
	The W59 Alternative was carried forward for further consideration because of its traffic-related advantages over the W55 Alternative, including improved arterial street signal operation and improved I-10 (Papago Freeway) performance.
Responsiveness of Proposed Freeway to Purpose and Need Criteria	The proposed freeway meets the purpose and need criteria of the project by redistributing travel demand among the region's freeways as planned in the RTP, shifting travel demand from the arterial street network to the freeway network, reducing the transportation network's capacity deficiency, and reducing travel times throughout the region. When considering this and the historical context of the proposed freeway, along with its context in regional transportation planning, the proposed freeway is a needed element of the integrated transportation infrastructure network.
Traffic Conditions with the Action and No-Action Alternatives, 2035	Each action alternative meets the purpose and need criteria for the project. The advantage of the W101 Alternative is its direct connection to SR 101L (Agua Fria Freeway) and the operational benefits that it provides along I-10 (Papago Freeway). The advantage of the W59 Alternative is that it is closer to downtown Phoenix and, therefore, attracts more vehicles to use SR 30 also. This produces a greater reduction in traffic on I-10 (Papago Freeway) west of the W59 Alternative system TI.

The new MAG socioeconomic and traffic projections for Maricopa County were used to update the analysis in this version of the *Traffic Overview*. The traffic volumes, traffic conditions, travel distribution, capacity deficiencies, and travel time were reanalyzed to evaluate the alternatives considered in terms of responsiveness to purpose and need criteria. The new socioeconomic and traffic projections, while generally lower than what was previously predicted, still support the overall conclusions of the study related to purpose and need, evaluation of lane and alignment changes, responsiveness of the proposed freeway to purpose and need, and traffic conditions with the action and No-Action alternatives.

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Appendix A

Cut-line analysis detailed data, 2012 and 2035 (without the proposed freeway)

1. Cut Line 87th Avenue: I-10 (Papago Freeway) to Baseline Road

Roadway	2012	2035
<i>Freeways</i>		
I-10 (Papago Freeway, GP)	195,004	269,684
I-10 (Papago Freeway, HOV)	25,029	36,766
SR 30	0	80,700
Total	220,033	387,150
<i>Arterial streets</i>		
Van Buren Street	9,315	19,738
Buckeye Road	16,532	23,534
Lower Buckeye Road	12,975	20,408
Broadway Road	5,227	15,272
Baseline Road	8,605	15,855
Total	52,654	94,807

Source: Maricopa Association of Governments, 2013a; extrapolated analysis

2. Cut Line Salt River: 99th Avenue to SR 143 (Hohokam Expressway)

Roadway	2012	2035
<i>Freeways</i>		
SR 30	0	80,700
I-10 (Papago Freeway, GP)	256,639	296,167
I-10 (Papago Freeway, HOV)	27,086	75,081
SR 143 (Hohokam Freeway)	109,803	123,950
Total	393,528	575,898
<i>Arterial streets</i>		
99th Avenue	1,781	281
91st Avenue	8,927	17,129
67th Avenue	17,648	40,096
51st Avenue	26,169	33,864
35th Avenue	27,456	39,881
19th Avenue	27,386	38,517
7th Avenue	25,395	31,825
Central Avenue	23,533	31,166
7th Street	24,799	32,455

2. Cut Line Salt River: 99th Avenue to SR 143 (Hohokam Expressway)

Roadway	2012	2035
16th Street	27,107	32,384
24th Street	14,445	18,293
44th Street (SR 153)	12,359	14,134
Total	237,005	330,025

Source: Maricopa Association of Governments, 2013a; extrapolated analysis

3. Cut Line South Mountain: 83rd Avenue to I-10 (Maricopa Freeway)

Roadway	2012	2035
Freeways		
I-10 (Maricopa Freeway, GP)	199,918	245,441
I-10 (Maricopa Freeway, HOV)	23,648	33,207
Total	223,566	278,648
Arterial streets		
59th Avenue	2,025	10,948
51st Avenue	7,607	18,759
43rd Avenue	8,237	13,233
35th Avenue	3,761	8,604
27th Avenue	2,991	6,080
19th Avenue	5,394	10,007
7th Avenue	1,424	2,119
Central Avenue	6,549	12,276
7th Street	1,296	2,555
16th Street	7,636	12,276
48th Street	17,021	21,986
Total	63,941	118,843

Source: Maricopa Association of Governments, 2013a; extrapolated analysis

4. Cut Line 47th Avenue: I-10 (Papago Freeway) to Estrella Drive

Roadway	2012	2035
Freeways		
I-10 (Papago Freeway, GP)	234,977	280,155
I-10 (Papago Freeway, HOV)	34,035	44,696
Total	269,012	324,851
Arterial streets		
Van Buren Street	21,944	35,267

4. Cut Line 47th Avenue: I-10 (Papago Freeway) to Estrella Drive

Roadway	2012	2035
Buckeye Road	20,515	31,298
Lower Buckeye Road	14,133	31,764
Broadway Road	0	43,898
Southern Avenue	13,179	25,916
Baseline Road	17,076	26,905
Dobbins Road	2,836	15,857
Estrella Drive	4,520	5,982
Total	94,203	216,887

Source: Maricopa Association of Governments, 2013a; extrapolated analysis

5. Cut Line 12th Street: I-10 (Papago Freeway) to Pecos Road

Roadway	2012	2035
Freeways		
I-10 (Papago Freeway, GP)	240,179	271,616
I-10 (Papago Freeway, HOV)	50,991	59,040
I-17 (Maricopa Freeway, GP)	185,041	245,366
I-17 (Maricopa Freeway, HOV)	4,793	42,379
Total	223,566	278,648
Arterial streets		
Van Buren Street	14,071	18,684
Washington Street	12,031	17,337
Jefferson Street	11,955	16,915
Buckeye Road	12,519	21,968
Broadway Road	26,272	45,188
Southern Avenue	24,146	35,088
Baseline Road	20,943	31,156
Dobbins Road	7,636	12,276
Chandler Boulevard	21,698	37,025
Pecos Road	16,646	14,318
Total	16,7917	249,955

Source: Maricopa Association of Governments, 2013a; extrapolated analysis

6. Cut Line 41st Street: SR 202L (Red Mountain Freeway) to Pecos Road

Roadway	2012 Average Daily Traffic	2035 Average Daily Traffic
<i>Freeways</i>		
SR 202L (Red Mountain Freeway, GP)	187,670	223,922
SR 202L (Red Mountain Freeway, HOV)	23,640	32,307
I-10 (Maricopa Freeway, GP)	237,634	277,157
I-10 (Maricopa Freeway, HOV)	32,157	77,160
Total	481,101	610,546
<i>Arterial streets</i>		
Van Buren Street	20,079	20,581
Washington Street	18,399	19,797
Buckeye Road	43,595	55,833
University Drive	15,792	17,999
Broadway Road	24,243	39,634
Southern Avenue	25,472	32,844
Baseline Road	40,516	55,404
Ray Road	20,859	29,229
Chandler Boulevard	17,524	28,092
Pecos Road	23,186	20,769
Total	249,665	320,182

Source: Maricopa Association of Governments, 2013a; extrapolated analysis

Appendix B

Cut-line analysis detailed data, eight-lane and ten-lane freeway, 2035

1. Cut Line 87th Avenue: I-10 (Papago Freeway) to Baseline Road

Roadway	Eight-Lane W59/E1 Alternative	Ten-Lane W59/E1 Alternative
<i>Freeways</i>		
I-10 (Papago Freeway, GP)	261,677	261,874
I-10 (Papago Freeway, HOV)	34,556	34,781
SR 30	140,249	141,439
Total	436,482	438,094
<i>Arterial streets</i>		
Van Buren Street	18,195	18,236
Buckeye Road	21,355	21,050
Lower Buckeye Road	17,779	17,644
Broadway Road	11,959	11,790
Baseline Road	5,886	5,201
Total	75,174	73,921

Source: Maricopa Association of Governments, 2013a; extrapolated analysis

2. Cut Line Salt River: 99th Avenue to SR 143 (Hohokam Expressway)

Roadway	Eight-Lane W59/E1 Alternative	Ten-Lane W59/E1 Alternative
<i>Freeways</i>		
SR 30	140,249	141,439
SR 202L (South Mountain Freeway, GP)	140,856	152,029
SR 202L (South Mountain Freeway, HOV)	20,428	18,465
I-10 (Papago Freeway, GP)	279,318	277,637
I-10 (Papago Freeway, HOV)	67,580	67,427
SR 143 (Hohokam Freeway)	120,628	119,917
Total	769,059	776,914
<i>Arterial streets</i>		
99th Avenue	390	390
91st Avenue	7,206	6,579
67th Avenue	13,427	12,501
51st Avenue	26,920	26,340
35th Avenue	33,582	33,212
19th Avenue	33,166	32,997
7th Avenue	28,307	28,146

2. Cut Line Salt River: 99th Avenue to SR 143 (Hohokam Expressway)

Roadway	Eight-Lane W59/E1 Alternative	Ten-Lane W59/E1 Alternative
Central Avenue	27,942	27,733
7th Street	30,073	29,899
16th Street	30,216	30,055
24th Street	16,816	16,748
44th Street (SR-153)	14,222	14,071
Total	262,267	258,671

Source: Maricopa Association of Governments, 2013a; extrapolated analysis

3. Cut Line South Mountain: 83rd Avenue to I-10 (Maricopa Freeway)

Roadway	Eight-Lane W59/E1 Alternative	Ten-Lane W59/E1 Alternative
<i>Freeways</i>		
SR 202L (South Mountain Freeway, GP)	118,113	128,163
SR 202L (South Mountain Freeway, HOV)	19,647	17,508
I-10 (Maricopa Freeway, GP)	219,753	218,008
I-10 (Maricopa Freeway, HOV)	27,755	27,674
Total	385,268	391,353
<i>Arterial streets</i>		
59th Avenue	3,997	3,899
51st Avenue	14,082	13,626
43rd Avenue	13,504	13,373
35th Avenue	5,363	5,264
27th Avenue	5,313	5,236
19th Avenue	8,312	8,243
7th Avenue	1,608	1,597
Central Avenue	10,137	9,883
7th Street	1,903	1,885
16th Street	9,896	9,752
48th Street	18,986	18,995
Total	93,101	91,753

Source: Maricopa Association of Governments, 2013a; extrapolated analysis

4. Cut Line 47th Avenue: I-10 (Papago Freeway) to Estrella Drive

Roadway	Eight-Lane W59/E1 Alternative	Ten-Lane W59/E1 Alternative
<i>Freeways</i>		
I-10 (Papago Freeway, GP)	283,777	282,932
I-10 (Papago Freeway, HOV)	43,529	43,938
Total	327,306	326,870
<i>Arterial streets</i>		
Van Buren Street	32,470	32,187
Buckeye Road	28,978	29,029
Lower Buckeye Road	25,093	24,578
Broadway Road	23,316	22,675
Southern Avenue	22,557	22,514
Baseline Road	22,511	22,175
Dobbins Road	12,765	12,367
Estrella Drive	7,128	6,979
Total	174,818	172,504

Source: Maricopa Association of Governments, 2013a; extrapolated analysis

5. Cut Line 12th Street: I-10 (Papago Freeway) to Pecos Road

Roadway	Eight-Lane W59/E1 Alternative	Ten-Lane W59/E1 Alternative
<i>Freeways</i>		
I-10 (Papago Freeway, GP)	264,158	263,097
I-10 (Papago Freeway, HOV)	57,143	57,241
I-17 (Maricopa Freeway, GP)	227,579	226,279
I-17 (Maricopa Freeway, HOV)	37,422	37,160
SR 202L (South Mountain Freeway, GP)	106,005	116,497
SR 202L (South Mountain Freeway, HOV)	18,349	16,840
Total	710,656	717,114
<i>Arterial streets</i>		
Van Buren Street	18,156	18,011
Washington Street	16,451	16,283
Jefferson Street	16,256	16,164
Buckeye Road	20,481	20,278
Broadway Road	37,190	36,957
Southern Avenue	30,375	30,081
Baseline Road	26,117	25,751
Dobbins Road	9,896	9,752

5. Cut Line 12th Street: I-10 (Papago Freeway) to Pecos Road

Roadway	Eight-Lane W59/E1 Alternative	Ten-Lane W59/E1 Alternative
Chandler Boulevard	20,974	20,327
Total	195,896	193,604

Source: Maricopa Association of Governments, 2013a; extrapolated analysis

6. Cut Line 41st Street: SR 202L (Red Mountain Freeway) to Pecos Road

Roadway	Eight-Lane W59/E1 Alternative	Ten-Lane W59/E1 Alternative
Freeways		
SR 202L (Red Mountain Freeway, GP)	217,204	216,007
SR 202L (Red Mountain Freeway, HOV)	31,284	31,302
I-10 (Maricopa Freeway, GP)	259,483	257,730
I-10 (Maricopa Freeway, HOV)	68,183	68,055
SR 202L (South Mountain Freeway, GP)	111,965	122,731
SR 202L (South Mountain Freeway, HOV)	19,148	17,598
Total	707,267	713,423
Arterial streets		
Van Buren Street	19,994	19,884
Washington Street	18,778	18,664
Buckeye Road	55,517	55,392
University Drive	16,424	16,148
Broadway Road	34,350	34,045
Southern Avenue	28,641	28,286
Baseline Road	48,842	48,338
Ray Road	18,499	17,786
Chandler Boulevard	15,374	14,633
Total	256,419	253,176

Source: Maricopa Association of Governments, 2013a; extrapolated analysis

Appendix C

Cut-line analysis detailed data, with and without the proposed freeway, 2035

1. Cut Line 87th Avenue: I-10 (Papago Freeway) to Baseline Road

Roadway	W59/E1 Alternative	No-Action Alternative
Freeways		
I-10 (Papago Freeway, GP)	261,677	269,684
I-10 (Papago Freeway, HOV)	34,556	36,766
SR 30	140,249	80,700
Total	436,482	387,150
Arterial streets		
Van Buren Street	18,195	19,738
Buckeye Road	21,355	23,534
Lower Buckeye Road	17,779	20,408
Broadway Road	11,959	15,272
Baseline Road	5,886	15,855
Total	75,174	94,807

Source: Maricopa Association of Governments, 2013a; extrapolated analysis

2. Cut Line Salt River: 99th Avenue to SR 143 (Hohokam Expressway)

Roadway	W59/E1 Alternative	No-Action Alternative
Freeways		
SR 30	140,249	80,700
SR 202L (South Mountain Freeway, GP)	140,856	0
SR 202L (South Mountain Freeway, HOV)	20,428	0
I-10 (Papago Freeway, GP)	279,318	296,167
I-10 (Papago Freeway, HOV)	67,580	75,081
SR 143 (Hohokam Freeway)	120,628	123,950
Total	769,059	575,898
Arterial streets		
99th Avenue	390	281
91st Avenue	7,206	17,129
67th Avenue	13,427	40,096
51st Avenue	26,920	33,864
35th Avenue	33,582	39,881
19th Avenue	33,166	38,517

2. Cut Line Salt River: 99th Avenue to SR 143 (Hohokam Expressway)

Roadway	W59/E1 Alternative	No-Action Alternative
7th Avenue	28,307	31,825
Central Avenue	27,942	31,166
7th Street	30,073	32,455
16th Street	30,216	32,384
24th Street	16,816	18,293
44th Street (SR-153)	14,222	14,134
Total	262,267	330,025

Source: Maricopa Association of Governments, 2013a; extrapolated analysis

3. Cut Line South Mountain: 83rd Avenue to I-10 (Maricopa Freeway)

Roadway	Eight-Lane W59/E1 Alternative	Ten-Lane W59/E1 Alternative
Freeways		
SR 202L (South Mountain Freeway, GP)	118,113	0
SR 202L (South Mountain Freeway, HOV)	19,647	0
I-10 (Maricopa Freeway, GP)	219,753	245,441
I-10 (Maricopa Freeway, HOV)	27,755	33,207
Total	385,268	278,648
Arterial streets		
59th Avenue	3,997	10,948
51st Avenue	14,082	18,759
43rd Avenue	13,504	13,233
35th Avenue	5,363	8,604
27th Avenue	5,313	6,080
19th Avenue	8,312	10,007
7th Avenue	1,608	2,119
Central Avenue	10,137	12,276
7th Street	1,903	2,555
16th Street	9,896	12,276
48th Street	18,986	21,986
Total	93,101	118,843

Source: Maricopa Association of Governments, 2013a; extrapolated analysis

4. Cut Line 47th Avenue: I-10 (Papago Freeway) to Estrella Drive

Roadway	Eight-Lane W59/E1 Alternative	Ten-Lane W59/E1 Alternative
<i>Freeways</i>		
I-10 (Papago Freeway, GP)	283,777	280,155
I-10 (Papago Freeway, HOV)	43,529	44,696
Total	327,306	324,851
<i>Arterial streets</i>		
Van Buren Street	32,470	35,267
Buckeye Road	28,978	31,298
Lower Buckeye Road	25,093	31,764
Broadway Road	23,316	43,898
Southern Avenue	22,557	25,916
Baseline Road	22,511	26,905
Dobbins Road	12,765	15,857
Estrella Drive	7,128	5,982
Total	174,818	216,887

Source: Maricopa Association of Governments, 2013a; extrapolated analysis

5. Cut Line 12th Street: I-10 (Papago Freeway) to Pecos Road

Roadway	Eight-Lane W59/E1 Alternative	Ten-Lane W59/E1 Alternative
<i>Freeways</i>		
I-10 (Papago Freeway, GP)	264,158	271,616
I-10 (Papago Freeway, HOV)	57,143	59,040
I-17 (Maricopa Freeway, GP)	227,579	245,366
I-17 (Maricopa Freeway, HOV)	37,422	42,379
SR 202L (South Mountain Freeway, GP)	106,005	0
SR 202L (South Mountain Freeway, HOV)	18,349	0
Total	710,656	618,401
<i>Arterial streets</i>		
Van Buren Street	18,156	18,684
Washington Street	16,451	17,337
Jefferson Street	16,256	16,915
Buckeye Road	20,481	21,968
Broadway Road	37,190	45,188
Southern Avenue	30,375	35,088
Baseline Road	26,117	31,156
Dobbins Road	9,896	12,276

5. Cut Line 12th Street: I-10 (Papago Freeway) to Pecos Road

Roadway	Eight-Lane W59/E1 Alternative	Ten-Lane W59/E1 Alternative
Chandler Boulevard	20,974	37,025
Pecos Road	0	14,318
Total	195,896	249,955

Source: Maricopa Association of Governments, 2013a; extrapolated analysis

6. Cut Line 41st Street: SR 202L (Red Mountain Freeway) to Pecos Road

Roadway	Eight-Lane W59/E1 Alternative	Ten-Lane W59/E1 Alternative
Freeways		
SR 202L (Red Mountain Freeway, GP)	217,204	223,922
SR 202L (Red Mountain Freeway, HOV)	31,284	32,307
I-10 (Maricopa Freeway, GP)	259,483	277,157
I-10 (Maricopa Freeway, HOV)	68,183	77,160
SR 202L (South Mountain Freeway, GP)	111,965	0
SR 202L (South Mountain Freeway, HOV)	19,148	0
Total	707,267	610,546
Arterial streets		
Van Buren Street	19,994	20,581
Washington Street	18,778	19,797
Buckeye Road	55,517	55,833
University Drive	16,424	17,999
Broadway Road	34,350	39,634
Southern Avenue	28,641	32,844
Baseline Road	48,842	55,404
Ray Road	18,499	29,229
Chandler Boulevard	15,374	28,092
Pecos Road	0	20,769
Total	256,419	320,182

Source: Maricopa Association of Governments, 2013a; extrapolated analysis