

NEED AND PURPOSE FOR THE PROPOSED ACTION

The section, *Context of Purpose and Need in the EIS Process*, beginning on page 1-1, provides several elements useful in explaining the purpose and need for a proposed action. The proposed action is needed to serve projected growth in population and accompanying transportation demand and to correct existing and projected transportation system deficiencies. These needs are discussed in the following sections. The purpose of the proposed action—implementation of a major transportation facility—is to meet these identified needs.

NEED BASED ON SOCIOECONOMIC FACTORS

Projected Growth in Population, Housing, Employment, and Vehicle Miles Traveled

MAG projections (conducted in collaboration with the Arizona Department of Economic Security) indicate Maricopa County’s population will increase from 3.7 million in 2005 to 6.5 million in 2035 (MAG 2009b) (see Figure 1-6). This equates to almost 100,000 additional people per year. In turn, the housing unit numbers are projected to maintain a similar growth rate to meet population growth demand. The number of housing units is projected to increase from 1.5 million in 2005 to 2.7 million in 2035.

MAG regional employment is projected to increase at a high rate. Similar to the county’s population, employment is projected to increase from 1.7 million jobs in 2005 to 3.6 million jobs in 2035.

Although growth trends have been relatively flat since 2007, the long-term rates of population, housing, and employment growth experienced since the 1950s are projected to continue through 2035 (see sidebar on this page). And as has been the case in the past, VMT are projected to annually outpace the three socioeconomic trends discussed in this section (Figure 1-6).

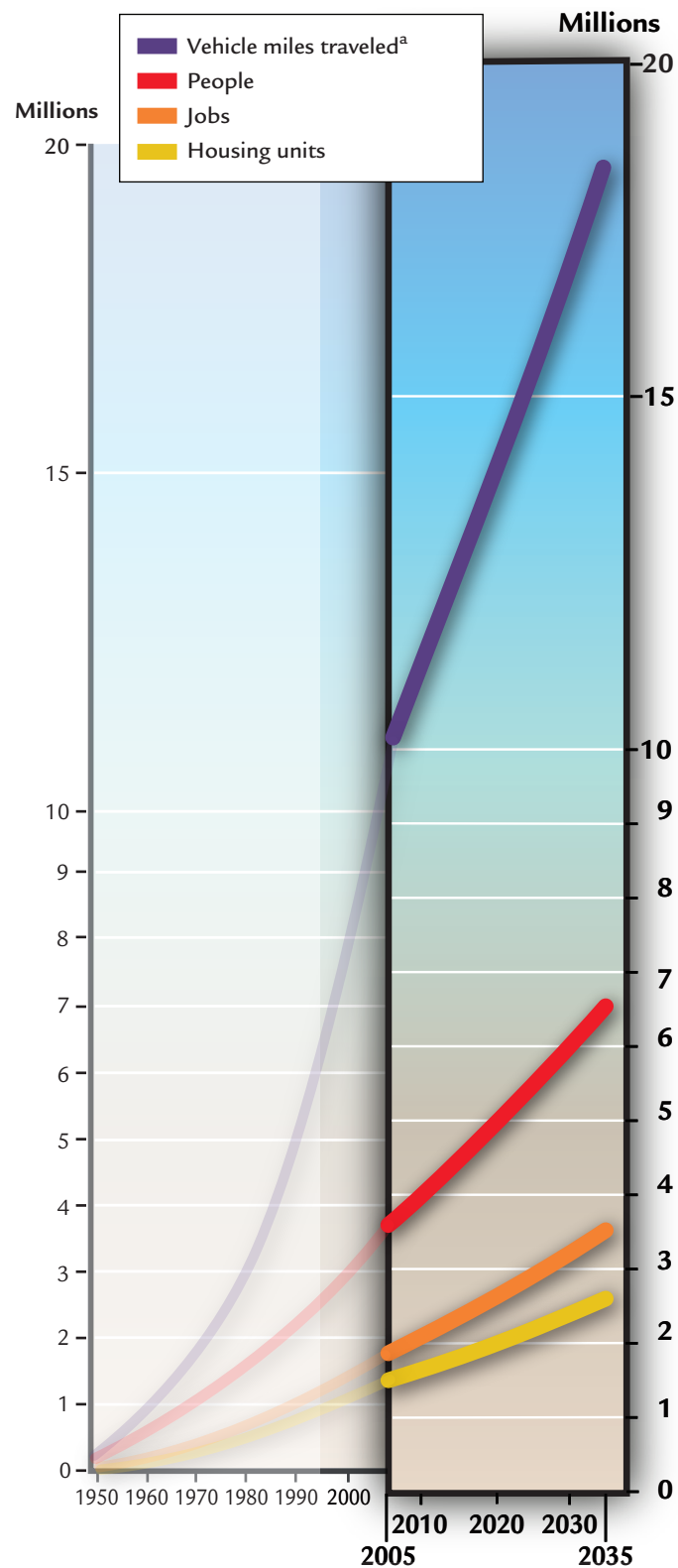
In response to the projections, MAG developed the RTP to specify what future transportation investments would be needed in the region through 2026. Almost 50 percent of the projected increases in population, housing, and employment from 2005 to 2035 are expected in 4 of 14 geographic areas, as shown in Figure 1-7, for the entire MAG region. These 4 contiguous areas are located primarily in the southern and southwestern portions of the MAG region.

Relationship of the Proposed Action to Projected Growth

Based on the above, the following conclusions are reached:

- Socioeconomic forecasts show population, housing, and employment increasing at high rates. Projections for 2035 are of a population of 6.5 million, housing of 2.7 million dwelling units, and an employment level of 3.6 million jobs (MAG 2009b).
- Increases in VMT are expected to outpace growth of the three socioeconomic trends.
- Almost 50 percent of the projected regional growth is expected to occur in areas that would be immediately served by the proposed action.
- Planned multimodal, integrated transportation improvements in the RTP are fiscally constrained responses to past and projected growth in the MAG region.
- The identified Study Area is an appropriate area for assessing the need for a major new transportation infrastructure project when considering past and existing regional transportation planning and in the context of projected socioeconomic trends in the southwestern MAG region.

Figure 1-6 Projected Growth Rates, 2000–2035



^a vehicle miles traveled reduced to one-tenth of their actual values to facilitate comparison of growth rates on the same axis

Sources: 1950–2000 U.S. Census; Maricopa Association of Governments, 2007a and 2009b

How will the economic downturn affect growth rates?

The worldwide recession that began in late 2007 has generated a sustained and substantial downturn in growth rates for new housing and employment across the United States. While opinions and predictions vary, economic recovery may not be well underway until 2012 or later. The recession may be the worst since the Great Depression of the 1930s.

Arizona has particularly suffered the effects of this recession because, beginning in the early 2000s, Arizona in general and Maricopa County specifically enjoyed some of the fastest population, housing, and employment growth rates in the country. Local economies suffering the most in the current recession are those, like Phoenix, that enjoyed a boom period linked to robust housing markets, became overbuilt, and are now stagnant. Past recessions, such as the savings and loans scandals of the late 1980s, substantially impaired the region’s growth. Many savings and loan institutions closed, commercial real estate became drastically overbuilt, and businesses left Arizona daily. Yet, in a matter of years, dramatic economic growth resumed.

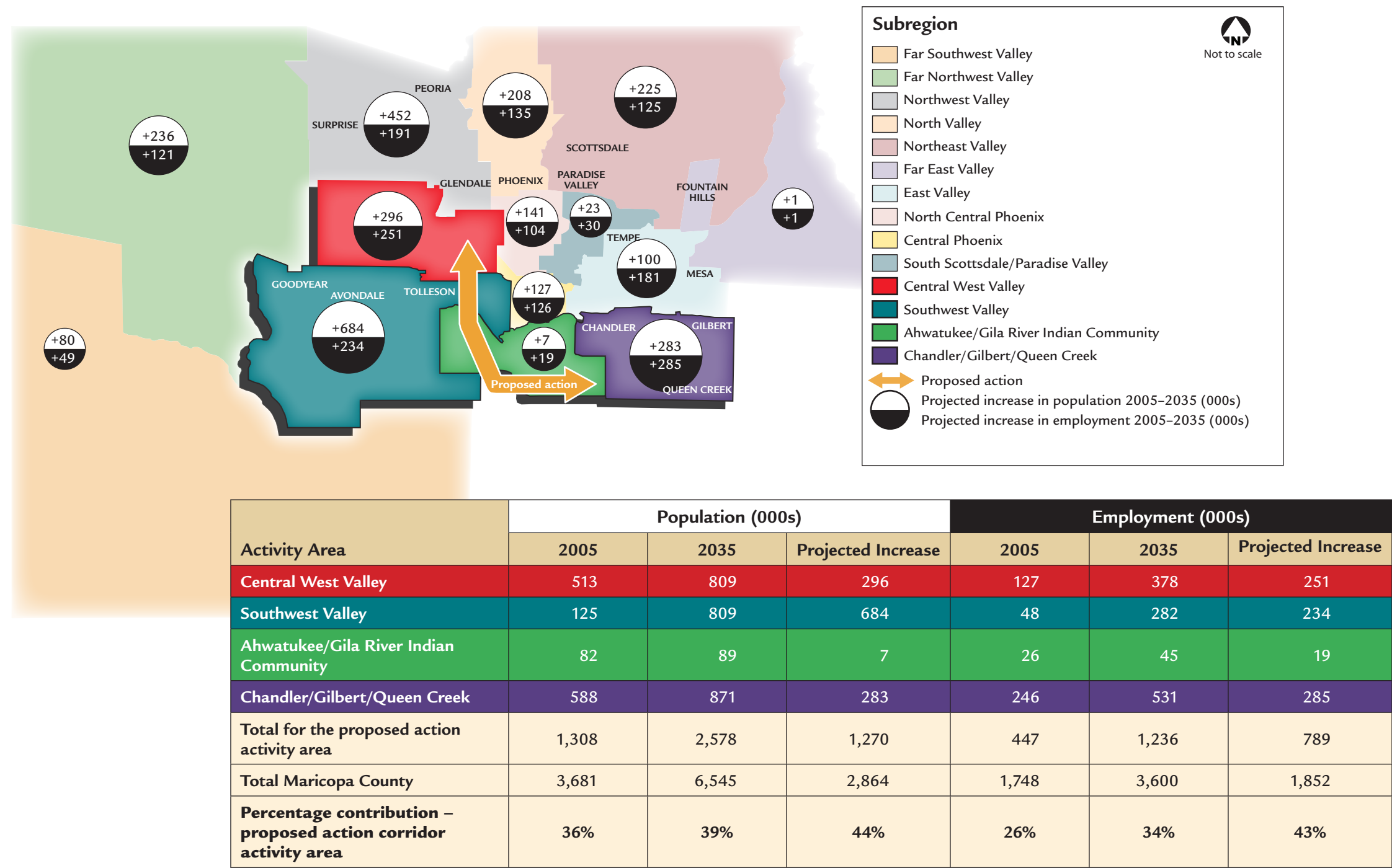
Because the need for the proposed action is predicated in part on projected growth, one might conclude the current recession will reduce that need. An economic downturn associated with a given recession is, however, generally considered a short-term phenomenon with respect to the longer-term planning horizon established for the proposed action. As described in the main text and as shown in Figure 1-4, socioeconomic indicators have steadily and consistently increased in the region since the early 1900s. The critical factors underlying these indicators remain unchanged.

Population, housing, and employment growth rates are projected to continue to rise through 2035. As with the historical trend, vehicle miles traveled are projected to outpace these socioeconomic growth trends.

How does growth in adjacent counties affect traffic volume projections?

Growth in areas outside the MAG region has become an important factor in forecasting travel demand in the MAG region. Growth in Pinal and Yavapai counties, for example, contributes to increased traffic in the MAG region. To help assess the effects of external travel on the regional travel demand model, a study was conducted in 1999 (*Phoenix External Travel Summary* [MAG 2001b]). Since the study, the region’s travel demand model network has been extended to include a large portion of Pinal County, including Queen Creek, Apache Junction, East Mesa, Casa Grande, and Maricopa. A travel study (*MAG and PAG External Travel Study* [MAG 2009c]) was conducted in 2008 using video cameras and license plate-matching technology to assess the number of external-to-internal (commuting) trips and the external-external (pass through) trips for passenger cars and heavy trucks. The results of this and many other studies help analysts predict travel demand in the MAG region.

Figure 1-7 Geographic Distribution of Projected Growth by Subregion, 2005–2035



Source: Maricopa Association of Governments, 2007a and 2009b; extrapolated analysis

Almost 50 percent of the projected population and employment growth in the Maricopa Association of Governments region is expected to occur in areas that would be immediately served by the proposed action.

NEED BASED ON REGIONAL TRANSPORTATION DEMAND AND EXISTING AND PROJECTED TRANSPORTATION SYSTEM CAPACITY DEFICIENCIES

Every day, people travel to and from various destinations throughout the MAG region. The purposes of the travel vary—work-related, personal, and the movement of goods and delivery of services. People in the region use various means for travel. Cars, buses, bicycles, and walking are all forms, or modes, of travel occurring every day in the MAG region. Taken in its entirety, the amount of travel occurring in the MAG region is referred to as transportation “demand.” To allow individuals to meet the purposes of their travel with any travel mode(s) chosen, the region must have appropriate transportation infrastructure and systems in place. The extent of transportation infrastructure and the number of systems in place to accommodate travel demand are referred to as the transportation “capacity.”

Taken in its entirety, the MAG region transportation network (including freeways, arterial streets, etc.) has the ability to accommodate a certain volume of travel during a given time frame and still manage to operate at an acceptable level of efficiency. Once that volume is exceeded (or, demand exceeds capacity), the network begins to operate inefficiently. This is referred to as “capacity deficiency.”

If the transportation network is, or is projected to be, deficient in its capacity and unable to efficiently serve existing and future transportation needs in the MAG region, analysts would determine what aspects of the network are, or are projected to be, deficient (e.g., arterial street network, Regional Freeway and Highway System, a combination) and where in the system the deficiencies would occur. To make the assessment, analysts would need to know:

- existing and projected demand for the network
- the types, modes, lengths, and durations of travel that occur in the region today and in the future (e.g., local, regional, interstate, a combination)
- where the travel occurs now and would occur in the future

If deficiencies are found in the network, analysts can suggest the types of improvements to the region’s transportation network necessary to address the deficiencies and test the suggested improvements to assess their effectiveness. The tools used by analysts to assess the need for improvements are summarized in Table 1-3.

Existing and Future Traffic Conditions in the Study Area and Immediate Surroundings

The following presents operational characteristics of the existing and future road network in the Study Area and surroundings without a major transportation facility in place. Assessment of traffic volumes, traffic conditions, travel distributions, capacity deficiency, and travel times provides analysts a basis for evaluating the need for a major transportation facility in the Study Area.

Traffic Volumes in the Study Area and Immediate Surroundings

The transportation network in the Study Area currently and in the future would contain mostly arterial streets. Exceptions would be sections of I-10 (Papago and Maricopa freeways) and SR 101L (Agua Fria Freeway) located along the periphery of the Study Area.

Average daily traffic (ADT) volumes at locations in and around the Study Area for existing conditions (2010) and future conditions (2035) are presented in Figure 1-8. The upper portion of the figure shows the change in traffic on representative segments of the Interstate and regional freeways, while the lower portion shows the change in traffic on representative arterial street segments. Freeways are intentionally designed to handle much higher ADT volumes than arterial streets. Based on lane capacities used in the MAG travel demand model, a typical six-lane arterial street could carry 51,000 vehicles per day (vpd), while a typical six-lane freeway could carry 165,000 vpd. Traffic for the two types of facilities is presented on a single scale to spotlight this difference in overall capacity and utility.

The 2035 network includes all of the improvements from the RTP except for the proposed action in the Study

Table 1-3 Traffic Analysis Tools

Issue Identification	Analysis Tool ^a	Tool Purpose
Is there currently a deficiency in network capacity and will there be a deficiency in future network capacity?	Existing and Future Traffic Volume Projections (Travel Demand Analysis) (TransCAD ^b)	Establish overall demand for use of the future network, ^c including mode, trip type, and durations; determine capacity deficiency of the network, including freeway, arterial street, and modal deficiencies
	Level of Service Analysis (TransCAD)	Determine performance of the network in terms of quality of service and efficiency
	Trip Distribution (Cut-line Analysis)	Evaluate traffic distribution between arterial streets and freeways
	Existing and Projected Travel Time and Congestion Analysis (TransCAD)	Determine projected level of delay and associated congestion
	Trip Distribution (Select Link Analysis)	Identify origins and destinations of trips to establish the types of trips occurring in a given area of the MAG ^d region

^a Analytical tools are further described in the section, *Key Traffic Modeling Definitions*, on page 3-27.

^b TransCAD is the travel demand modeling software platform used by MAG.^d

^c future transportation network analyzed without the proposed action

^d Maricopa Association of Governments

Area. Notable observations regarding the freeway traffic volumes in Figure 1-8 include:

- On I-10 (Papago Freeway) between SR 101L (Agua Fria Freeway) and Interstate 17 (I-17), at the two locations shown (11 and 12), traffic is projected to increase by 33,000 and 22,000 vpd, respectively, between 2010 and 2035.
- Through the downtown area (location 10), traffic on I-10 is projected to increase by 38,000 vpd between 2010 and 2035.
- Through the “Broadway Curve” area (location 9), traffic on I-10 is projected to increase by 103,000 vpd between 2010 and 2035.
- On I-10 (Maricopa Freeway) between US 60 and SR 202L (Santan Freeway) (location 8), traffic is projected to increase by 67,000 vpd between 2010 and 2035.
- Overall, at the 13 freeway locations shown, the average increase in traffic is 52,000 vpd, representing an increase of approximately 28 percent between 2010 and 2035.

Measurements of Traffic

Regional travel is generally reported in VMT because it combines the total number of vehicles and the length of the trip. This provides a true measure of the total travel occurring in a large area.

The traffic on a road segment is generally reported as ADT. The unit of ADT is vehicles per day. Daily traffic gives an overall metric for comparing different road segments in a region.

Peak traffic is generally reported as vehicles per hour. The LOS rating is based on traffic conditions during the peak hour. For more information on LOS, see the text box on page 1-14.

What Is Level of Service?

Transportation analysts have developed a uniform way of describing the overall quality provided by a given transportation facility, service, or network. In 1965, an LOS “report card” method was introduced, where highway quality of service was “graded” using six letters, “A” through “F,” with “A” being the best and “F” being the worst. With the LOS approach, traffic engineers were better able to explain operating and design concepts of highways to the general public and elected officials. The LOS letter approach is now commonly used throughout the United States.

LOS is most often modeled during the morning and evening commuting periods. These are the times when

most motorists are on the roads, when traffic volumes are highest. As a result, the operational efficiency of the network can be assessed under “worst-case” conditions.

For the traffic analysis, widely accepted LOS qualitative measures were applied to characterize operational conditions of traffic flow. These measures characterize traffic conditions using factors such as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. For freeways, LOS E describes operation at capacity. Operational characteristics at this level are volatile, because there are virtually no usable gaps in the

traffic. Vehicles are closely spaced, leaving little room to maneuver at speeds that still exceed 45 miles per hour (mph). Any disruption, such as vehicles entering from a ramp or a vehicle changing lanes, can establish a “disruption wave” that affects traffic flow. At capacity, the traffic has no ability to dissipate even the most minor disruption, and any incident can be expected to produce a serious breakdown with extensive traffic back-up. Maneuverability within the traffic stream is extremely limited and the levels of physical and psychological comfort afforded the driver are poor. Because of this, most transportation planners strive to design freeways to achieve LOS D or better.

- The highest percentage increase would occur between Pecos Road and Wild Horse Pass Boulevard on I-10 (Maricopa Freeway) (location 7).

The arterial street volumes shown in Figure 1-8 represent spot locations in the Study Area. Changes between the 2010 and 2035 arterial street network would be planned improvements to be made by the City of Phoenix, Maricopa County, or by private developers (with jurisdictional approval) to address local traffic needs associated with future development. The change in traffic volumes between 2010 and 2035 on the arterial street network would vary throughout the Study Area. Some locations may have large increases in projected traffic volumes, others small, and some might even experience reduced traffic. Projected traffic volumes would likely vary because motorists may seek alternative routes in response to changes in land use, such as new construction or abandonment of employment, commercial, or retail centers. When taken in its entirety, traffic on the arterial streets in the Study Area would increase at a rate comparable to that of the arterial street network in the entire MAG region.

The largest change in traffic would be anticipated on arterial streets that are:

- located in areas that are currently undeveloped but are planned to be developed in the future
- currently two lanes wide but are planned to be widened to four, five, or six lanes in the future

From observation, traffic volumes are typically higher on an arterial street when the street:

- is closer to a major freeway
- has more lanes provided in each direction and, therefore, can accommodate more vehicles
- is located within urbanized areas or near areas where land is subjected to more intensive uses

As a general observation, traffic volumes experienced on arterial streets and freeway segments in the Study Area are typical of volumes experienced throughout the MAG region.

Levels of service



LOS A



LOS B



LOS C



LOS D



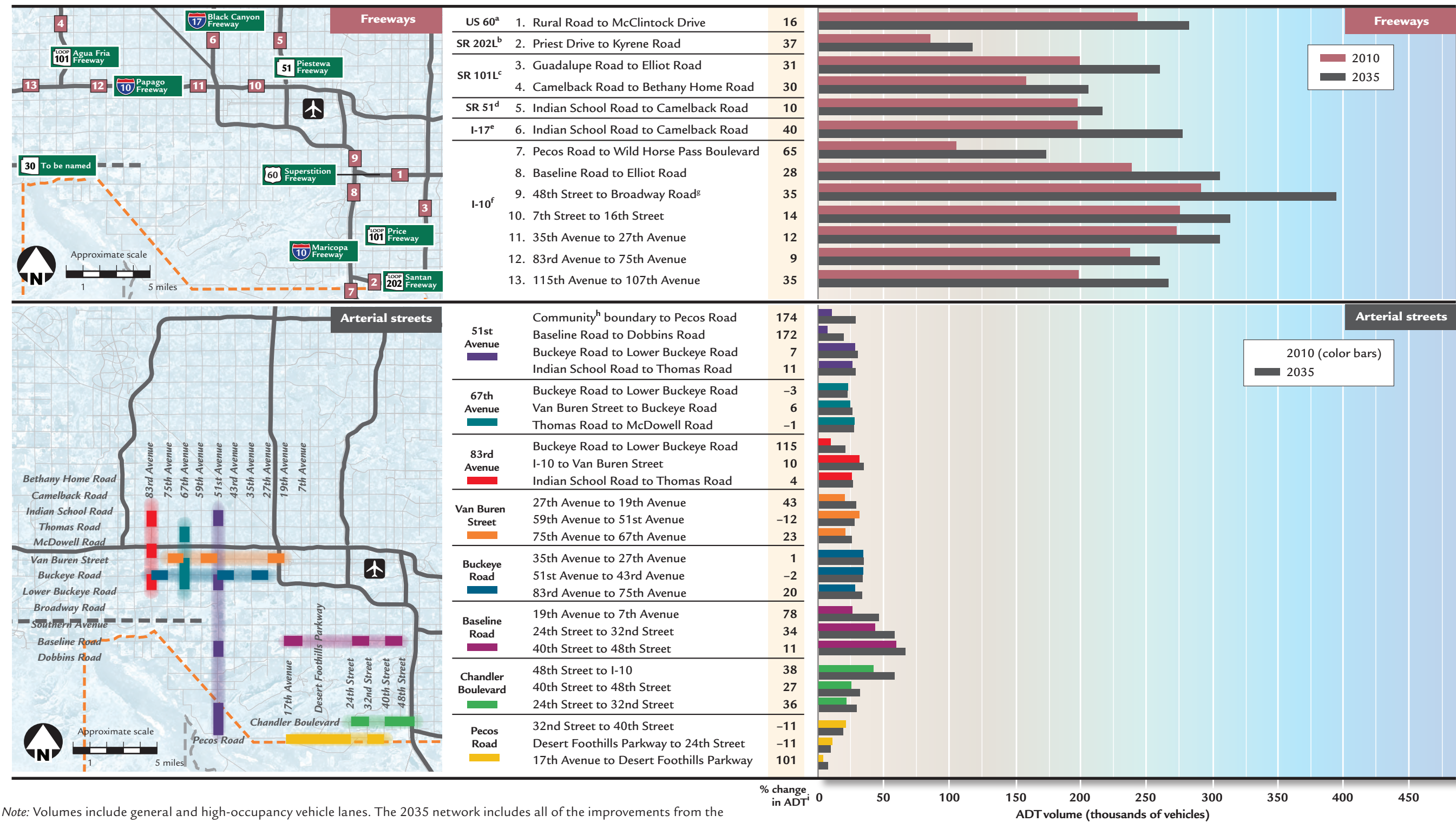
LOS E



LOS F

Source: Arizona Department of Transportation, 2007b

Figure 1-8 Average Daily Traffic Volumes on Freeways and Arterial Streets (without the Proposed Action), 2010 and 2035



Note: Volumes include general and high-occupancy vehicle lanes. The 2035 network includes all of the improvements from the Regional Transportation Plan except for the proposed action.

^a U.S. Route 60 ^b State Route 202L (Loop 202) ^c State Route 101L (Loop 101) ^d State Route 51 ^e Interstate 17 ^f Interstate 10 ^g "Broadway Curve" ^h Gila River Indian Community

ⁱ average daily traffic

Source: Maricopa Association of Governments, 2010b; extrapolated analysis

Freeways are designed to handle much higher average daily traffic volumes than arterial streets. Regardless, high travel demand on Study Area freeway and arterial street segments is expected to continue through 2035.

What is congestion?

Congestion refers to undesirable traffic conditions. Generally, congestion exists when the LOS is E or F, when traffic on a freeway is moving at an average speed of 45 mph or less, and/or the traffic flow is often stop-and-go.

Operational Conditions on Freeways in the MAG Region

The previous section concluded that traffic volumes would increase between 2010 and 2035 because of increases in capacity and demand. The following text describes how the changes in traffic volumes would affect system efficiency in terms of LOS.

Existing and future road network and socioeconomic conditions were modeled to determine operational conditions on the existing and future road network. Planned improvements from the RTP (excluding the proposed action) and other planned improvements from local, county, and private agencies make up the future road network. The duration of current and projected LOS E or F (congested) conditions on freeway sections in the MAG region during the morning and evening commute periods are shown in Figures 1-9 and 1-10, respectively.

In both periods in 2010, the region's freeways are noticeably congested and operate poorly.

Notable observations about the morning commute (Figure 1-9) include:

- The worst conditions are found with freeway traffic inbound to downtown Phoenix.
- Congestion (see sidebar on this page) lasts over 3 hours in some freeway sections, including eastbound I-10 (Papago Freeway) approaching I-17, westbound I-10 north of US 60 (the Broadway Curve), and westbound I-10 between approximately SR 143 (Hohokam Freeway) and 40th Street.
- Even with RTP-planned improvements (without the proposed action), congestion would continue to worsen through 2035.
- Implementation of RTP-planned improvements (such as widening of I-10 and construction of the SR 30 freeway) would result in only localized improvement in operational performance between 2010 and 2035.

Notable observations about the evening commute (Figure 1-10) include:

- The amount and duration of congestion on freeways in the MAG region are substantially greater in

the evening than in the morning because more non-work-based trips are occurring (e.g., trips to stores, restaurants, events).

- In 2010, congestion of more than 3 hours occurred in outbound directions from downtown Phoenix on almost every freeway. Conditions were especially poor on I-10 north of US 60 (the Broadway Curve) and in areas around system traffic interchanges between I-10 (Papago Freeway) and I-17, I-10 (Maricopa Freeway) and US 60 (Superstition Freeway), and SR 202L (Red Mountain Freeway) and SR 101L (Pima Freeway).
- Operational conditions in 2035 would be substantially worse than those in 2010.
- In 2035, undesirable LOS would occur along both directions of I-10, with few exceptions, for almost 30 miles between SR 101L (Agua Fria Freeway) and SR 202L (Santan Freeway). Large portions of the segment would experience LOS E or F for over 3 hours. In 2010, the congestion was mostly in the peak direction and for a shorter duration.
- Alternative routes to I-10 for eastbound travel, including SR 202L (Red Mountain Freeway) and SR 101L (Pima and Price freeways), would experience LOS E or F in 2035.
- Based on the projected duration of congested conditions in 2035, travelers using the I-10 corridor would experience substantial regional mobility constraints. Even with RTP-planned major transportation improvements to I-10 and construction of the planned SR 30 freeway, motorists would experience LOS E or F conditions for almost the entire peak evening commuting period.

Capacity Deficiency of Existing and Future Conditions

As presented in the previous sections, the region's freeways and arterial street network will continue to be heavily congested; in fact, congested conditions will worsen.

Another way to illustrate travel demand is through use of a cut-line analysis. A cut line is an imaginary line used to represent the total traffic on freeways and arterial streets that cross (or would cross) this given line. A cut-line

analysis is used to determine both the existing and future distribution of traffic on the freeway and arterial street networks. Six cut lines were identified through the Study Area to assess changes in total traffic on arterial streets and freeways between 2010 and 2035. In the analysis, the 2035 road network included planned improvements from the RTP (excluding the proposed action) and other planned improvements from local, county, and private agencies. Figure 1-11 presents the cut-line analysis.

Overall, ADT volumes through the six cut lines displayed an increase of approximately 1.16 million vehicles (684,000 on freeways and 474,000 on arterial streets), or a 36 percent increase between 2010 and 2035.

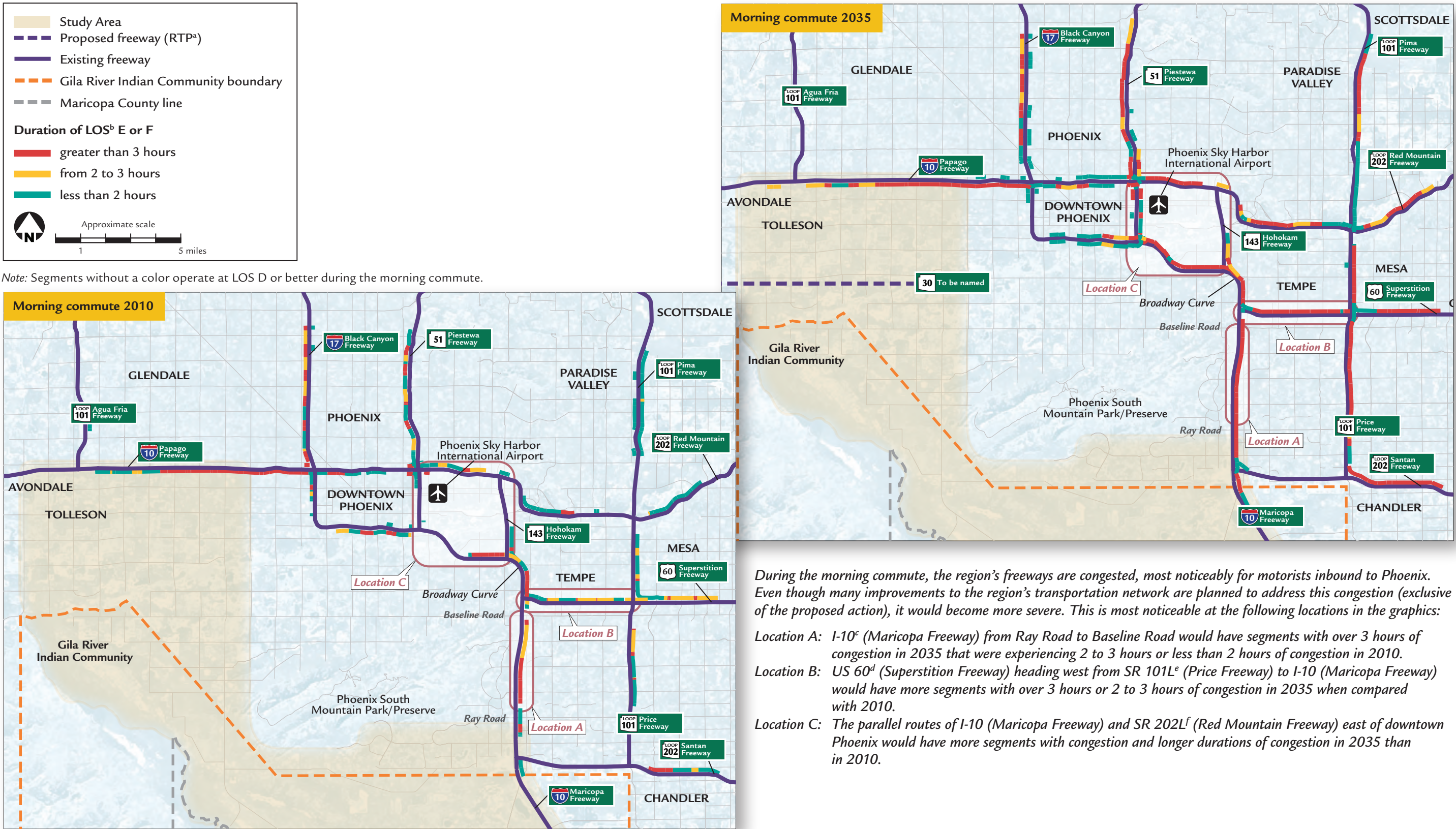
Data from the cut-line analysis presented in Figure 1-11 were used to calculate the capacity deficiency of the MAG region's road network in 2010 and 2035, assuming the network were to operate at LOS D during the peak hour of a given day. Capacity deficiency was calculated by comparing the total capacity and the total demand of all of the roads that would cross the 41st Street cut line (see Figure 1-11). Data are extrapolated from the 41st Street cut-line analysis to characterize performance for the entire MAG transportation system. According to the assessment (see Figure 1-12), the 2010 road network was able to serve 81 percent of the total demand while operating at LOS D. In 2035, however, the network would be able to serve only 76 percent of the total demand while operating at LOS D.

Between 2010 and 2035, RTP-planned major transportation improvements outside of the Study Area are to be constructed, adding additional capacity across the 41st Street cut line. Even with these improvements, travel demand will outpace the added capacity provided by RTP-planned improvements, resulting in an increase in unmet demand between 2010 and 2035.

Travel Time in the Study Area and Immediate Surroundings

In the Study Area, increased traffic congestion has resulted in decreased travel speeds throughout much of any given day on the region's road network. The amount of time a driver spends driving each day to and from the same origin and destination continues to increase. Travel time is

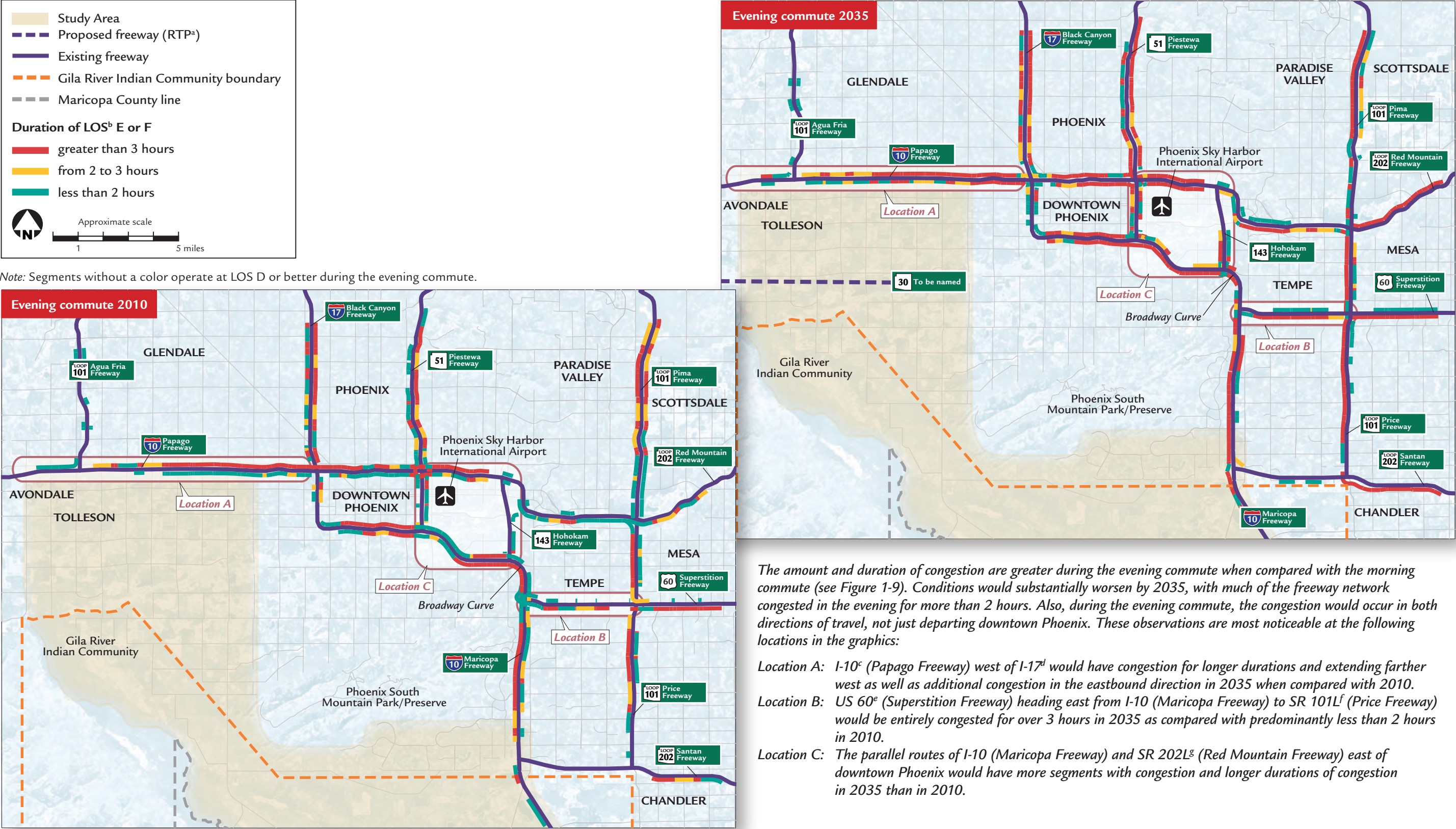
Figure 1-9 Duration of Level of Service E or F, Morning Commute on Freeways, 2010 and 2035



^a Regional Transportation Plan ^b level of service ^c Interstate 10 ^d U.S. Route 60 ^e State Route 101L (Loop 101) ^f State Route 202L (Loop 202)

Source: Maricopa Association of Governments, 2010b; extrapolated analysis

Figure 1-10 Duration of Level of Service E or F, Evening Commute on Freeways, 2010 and 2035



The amount and duration of congestion are greater during the evening commute when compared with the morning commute (see Figure 1-9). Conditions would substantially worsen by 2035, with much of the freeway network congested in the evening for more than 2 hours. Also, during the evening commute, the congestion would occur in both directions of travel, not just departing downtown Phoenix. These observations are most noticeable at the following locations in the graphics:

Location A: I-10^c (Papago Freeway) west of I-17^d would have congestion for longer durations and extending farther west as well as additional congestion in the eastbound direction in 2035 when compared with 2010.

Location B: US 60^e (Superstition Freeway) heading east from I-10 (Maricopa Freeway) to SR 101L^f (Price Freeway) would be entirely congested for over 3 hours in 2035 as compared with predominantly less than 2 hours in 2010.

Location C: The parallel routes of I-10 (Maricopa Freeway) and SR 202L^g (Red Mountain Freeway) east of downtown Phoenix would have more segments with congestion and longer durations of congestion in 2035 than in 2010.

^a Regional Transportation Plan ^b level of service ^c Interstate 10 ^d Interstate 17 ^e U.S. Route 60 ^f State Route 101L (Loop 101) ^g State Route 202L (Loop 202)

Source: Maricopa Association of Governments, 2010b; extrapolated analysis

important to most drivers; further, increases in travel time translate to more congestion. It is important, therefore, to examine representative travel times in different locations and project what travel times would be in 2035.

Travel times to and from specific locations were calculated using the results from the TransCAD model, which predicts average speed based on the road type and LOS. Two trip locations were identified as representative of travel times occurring in the Phoenix metropolitan area, particularly in the urbanized and urbanizing areas of the region. The two trips shown in Figure 1-13 are representative of the expected increase in travel time between 2010 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. Notable observations from the information are:

- Travel time of 22 minutes for the morning commute in 2010 for Trip 1 would increase to 31 minutes in 2035; travel time of 23 minutes in the evening would increase to 32 minutes in 2035.
- Travel time of 17 minutes for the morning commute in 2010 for Trip 2 would increase to 31 minutes in 2035; travel time of 19 minutes in the evening would increase to 32 minutes in 2035.

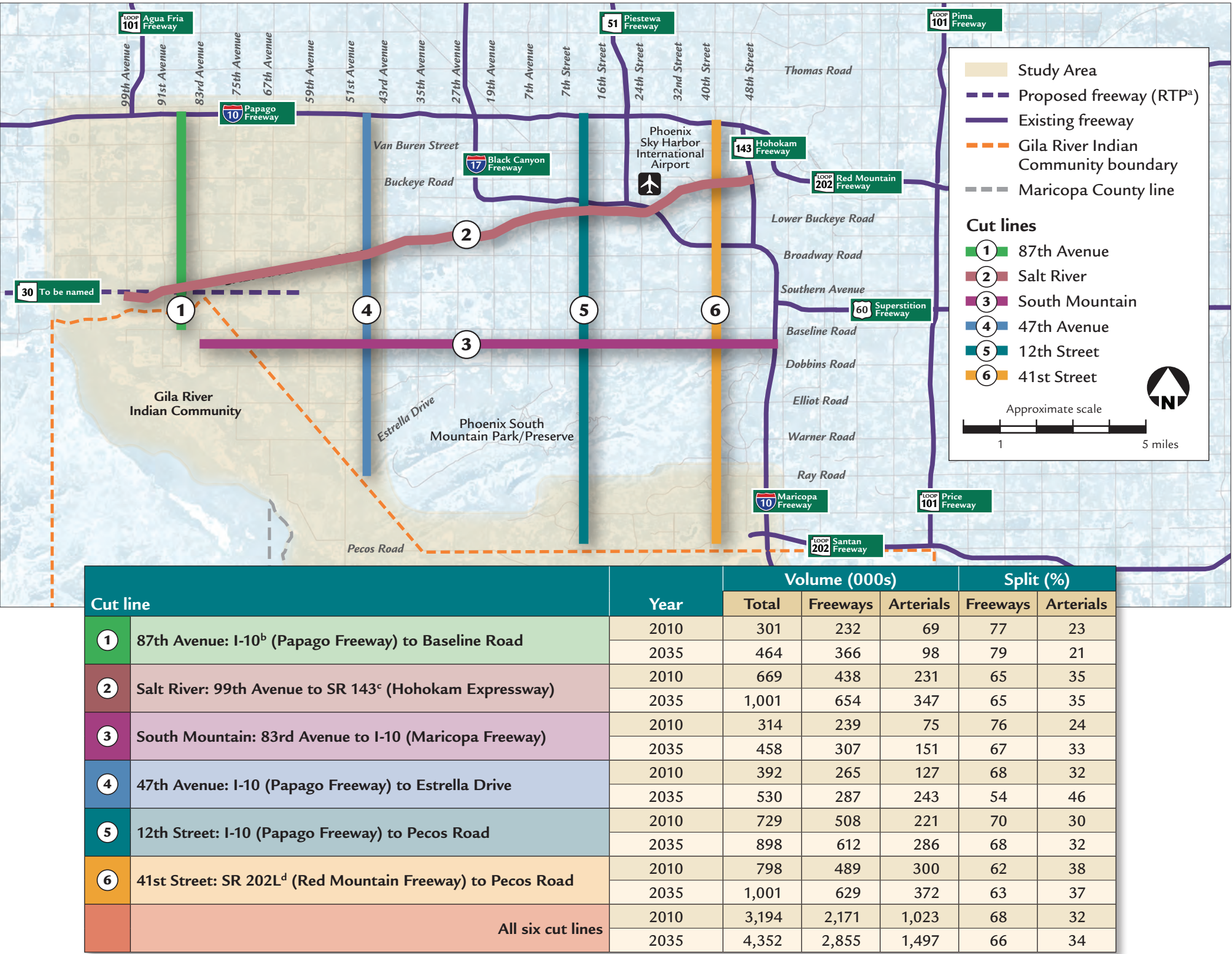
When considered in the context of hundreds of thousands of trips per day, over the course of more than 25 years, total time lost because of increased congestion—plus related personal and financial costs—would be substantial.

Major Points Regarding Projected Traffic Volume, Level of Service, Capacity Deficiency, and Travel Time

Based on the assessment of existing and projected traffic volume, LOS, capacity deficiency, and travel time, the following conclusions are reached:

- Traffic volume
 - Between 2010 and 2035, total daily VMT in the entire MAG region are projected to nearly double, from 101 million to 185 million. Daily VMT in the Study Area are projected to increase substantially during the same period.

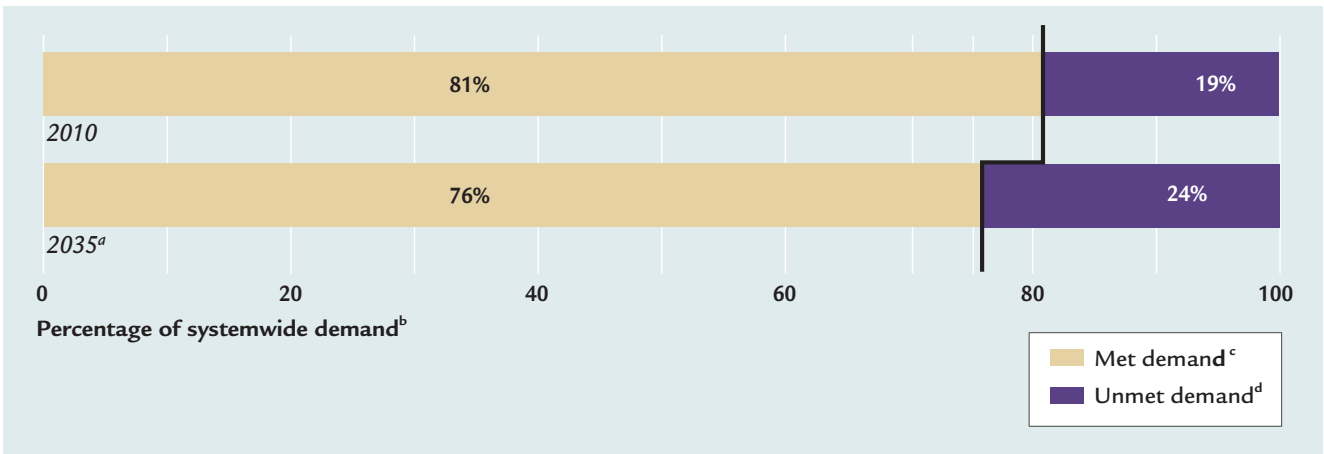
Figure 1-11 Cut-line Analysis, 2010 and 2035



^a Regional Transportation Plan ^b Interstate 10 ^c State Route 143 ^d State Route 202L (Loop 202) Source: Maricopa Association of Governments, 2010b; extrapolated analysis

The volume of traffic on local arterial streets would increase at a greater rate than would the volume on freeways. Therefore, a desired outcome of the Regional Transportation Plan—to redistribute traffic appropriately based on travel needs—would not be achieved in the Study Area and its immediate surroundings without a new major transportation facility constructed in the Study Area.

Figure 1-12 Met and Unmet Demand, 2010 and 2035



Source: Maricopa Association of Governments, 2010b; extrapolated analysis

^a The analysis assumes that the Maricopa Association of Governments (MAG) *Regional Transportation Plan* is fully implemented in 2035 (except for any major transportation facility in the Study Area).
^b Data are extrapolated from the 41st Street cut-line analysis (see text and Figure 1-11) to characterize performance for the entire MAG transportation system.
^c The demand met by the region’s transportation system.
^d Unmet demand means delays and congestion for travelers on the MAG transportation network.

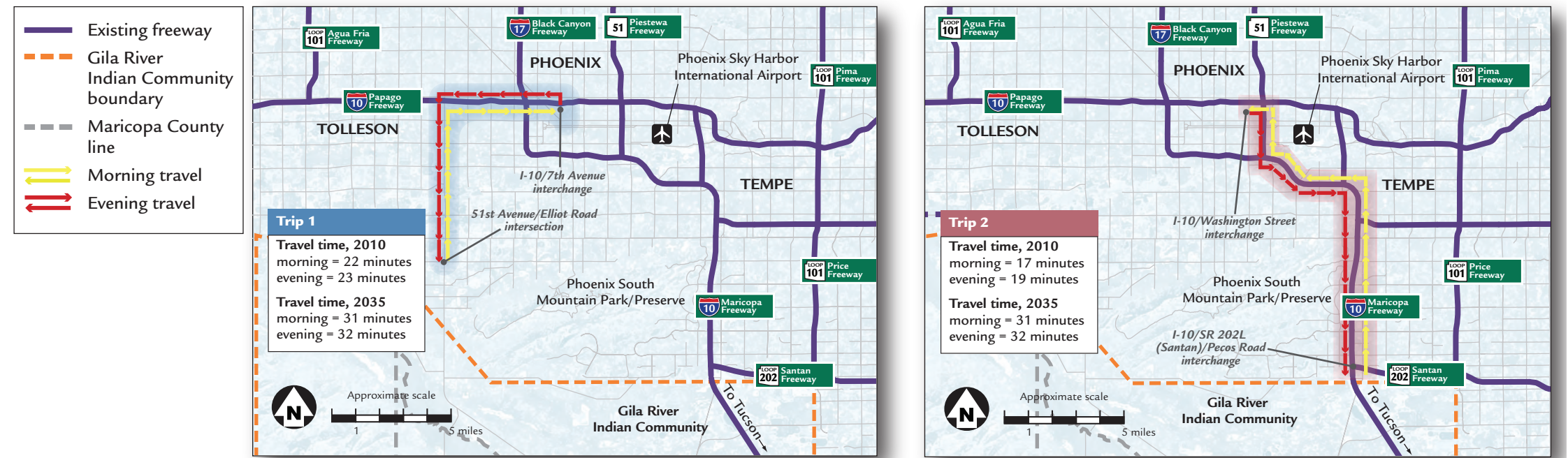
Even with improvements planned in the Regional Transportation Plan (excluding the proposed action), capacity deficiency (unmet demand) is projected to increase by 5 percentage points from 2010 to 2035.

- Traffic volumes on freeways and arterial streets in the Study Area and its immediate surroundings are projected to increase substantially between 2010 and 2035.
- LOS
 - During the morning and evening commutes in 2010, the region’s freeways were noticeably congested and operated poorly.
 - Even with RTP-planned improvements (without the proposed action), congestion conditions in 2035 would be worse than those in 2010.
- Capacity deficiency
 - The transportation system will continue to be unable to meet regional travel demand.
 - In 2010, the regional transportation system’s operating capacity was able to meet 81 percent

- of existing travel demand. Even with the major transportation improvements planned in the RTP (except for the proposed action), the 2035 system would be able to meet only 76 percent of projected travel demand.
- Travel time
 - Trips between locations in the Study Area and downtown Phoenix would take much longer in 2035 than they did in 2010; the projected travel time would increase by between 39 and 82 percent.

Based on the consideration of existing traffic conditions in the MAG region and the Study Area, the need for a major transportation facility in the Study Area exists today. Based on projections of 2035 traffic conditions, the need for such a facility will be even greater in the future.

Figure 1-13 Modeled Travel Times without the Proposed Action, 2010 and 2035



Source: Maricopa Association of Governments, 2010b; extrapolated analysis

The changes in travel time represent what can be expected throughout the Maricopa Association of Governments region. When considered in the context of hundreds of thousands of trips per day, over the course of more than 25 years, total time lost because of increased congestion—plus related personal and financial costs—would be substantial.

CONCLUSIONS

The information in this chapter shows that without a major transportation facility in the Study Area, the region’s transportation network will suffer. As recognized in over 25 years of transportation planning, the region’s transportation network will not be able to efficiently move goods and people throughout the region without major investments in the network. Projected growth in population, housing, and employment will force motorists to drive longer distances and will push more traffic onto regional freeways and arterial streets, especially within the Study Area. These increases in the number of vehicles and in longer-distance drives will cause increased congestion. In extreme cases, drivers could experience their afternoon commute extending well into precious evening hours. In all cases, stop-and-go traffic on the region’s freeways and arterial streets would increase and delays in getting to and from destinations would result. Correspondingly, productivity would decline.

Major points establishing the need for a major transportation facility are:

- Regional plans have recognized the need for completing the loop system around the Phoenix metropolitan area for over 25 years. The Southwest Loop Highway, a major element of the region’s freeway loop, or beltway, system was integral to the Regional Freeway and Highway System approved by Maricopa County voters in 1985. In 1988, this plan was carried forward as a State-level EA and DCR for the Southwest Loop Highway (now known as the South Mountain Freeway). The same route was approved by the STB in the same year. Although other facilities were considered a higher priority early in the Regional Freeway and Highway System, the South Mountain Freeway was a part of the initial Regional Freeway and Highway System in 1985 and has been included in every subsequent update. In 2004, Maricopa County voters approved Proposition 400, which was designed to fund completion of the remaining segments

of the Regional Freeway and Highway System, including the South Mountain Freeway. A major transportation facility in the Study Area would implement the facility recognized in over 25 years of planning.

- Since the 1950s, the MAG region has experienced rapid growth in population, housing, and employment, and this growth is expected to continue. Between 2005 and 2035, Maricopa County is projected to experience an increase in population, going from 3.7 million to 6.5 million, and in the number of housing units, going from 1.5 million to 2.7 million. Regional employment is projected to double, going from 1.7 million to 3.6 million jobs during the same period. Because of the substantial increase in population, homes, and jobs, people will drive greater distances for work, school, and recreation. As a result, VMT are expected to increase even faster than population, housing, and employment. A major transportation facility in the Study Area is needed to accommodate or displace the ever-increasing VMT.
- MAG projects that over the next 25 years, daily VMT in the entire MAG region will increase from 101 million to 185 million. Over that same period, MAG anticipates that daily VMT in the Study Area will increase at a similar high rate, from 27 million to 42 million. The increased VMT will mean more traffic on regional freeways and arterial streets. This increased transportation demand must be met; otherwise, the available lanes on the region’s roads will be at capacity, causing an unacceptable degree of congestion. A major transportation facility in the Study Area would provide an additional method of serving this increased transportation demand by removing traffic from existing freeways and arterial streets, resulting in better traffic flow on surface transportation networks of all types. All surface transportation systems in the MAG region were designed to function optimally only with implementation of a major transportation facility in the Study Area.

- Providing a major transportation facility in an area where it would not be fully used would be an unwise expenditure of public funds. Of the projected 76 percent increase in population, 80 percent increase in housing units, and 112 percent increase in jobs between 2005 and 2035, nearly half of these increases are expected in areas that would be immediately served by the proposed action. A major transportation facility in the Study Area would provide highly needed services precisely where they will be needed.
- Without a major transportation facility in the Study Area, the increased VMT described previously will cause systemwide inefficiencies in the ability to move people and goods and will result in suboptimal performance characteristics on other RTP facilities, both existing and planned:
 - Even though the region’s freeways are now congested and operate poorly, conditions in 2035 would be substantially worse. Although some areas of severe congestion currently exist, they are limited (e.g., eastbound I-10 [Papago Freeway] approaching I-17 and eastbound and westbound I-10 [Maricopa Freeway] at the Broadway Curve). By 2035, eastbound and westbound motorists on I-10 between SR 101L (Agua Fria Freeway) and SR 202L (Santan Freeway) are expected to experience stop-and-go driving for over 3 hours every day. This is a distance of nearly 30 miles. A major transportation facility in the Study Area would distribute commuters over additional facilities. As a result, the duration of stop-and-go traffic on the region’s freeways would be reduced and motorists would spend less time in the morning trying to get to work or appointments and less time in the evening trying to get home from work.
 - Congestion in 2035 will not be limited to regional freeways. In the Study Area, an increase in daily traffic volumes of approximately 32 percent on

freeways and 46 percent on arterial streets is projected between 2010 and 2035. Therefore, in addition to the stop-and-go traffic on freeways, these conditions would be replicated on arterial streets—and compounded by traffic signals. This 46 percent increase in daily traffic on arterial streets correlates to a need for 55 additional lanes of arterial street capacity in the Study Area. Constructing an additional 55 street-lanes would not likely occur because of the right-of-way (R/W) that would be needed and accompanying impacts on existing residential and commercial properties. A major transportation facility in the Study Area would provide an additional means to serve this increased transportation demand by removing traffic from arterial streets, which would result in better traffic flows and less congestion on arterial streets.

- Another way of looking at the negative effects of the projected increase in VMT is the delays experienced by the daily commuter. Increased traffic congestion would extend the amount of time spent driving to and from the same origin (home) and destination (work or school). According to transportation analyses, depending on location and time of trip, increases of up to 88 percent in the time needed to complete the same trip would be expected between 2010

and 2035. It is important to note that this is a single trip. Considering the hundreds of thousands of drivers on area roads each day, the total lost time and associated cost of increased congestion would be substantial over the course of more than 25 years. A major transportation facility in the Study Area would distribute commuters over additional facilities. As a result, delays experienced on the region's freeways and arterial streets would be reduced and commuters could spend the time savings in more productive and/or enjoyable endeavors than sitting in congestion on regional freeways and roads.

Population, housing, and employment forecasts for the Study Area and Phoenix metropolitan region show tremendous growth in the region during the next 25 years. This includes a population increase of 2.8 million people, a housing increase of 1.2 million units, and an employment increase of 1.9 million jobs. This projected growth will affect not only the freeway system but will also cause many of the arterial streets in the Study Area to experience additional congestion and traffic backups onto the existing freeways, worsening travel conditions on an already-burdened transportation system.

In 2010, the region's freeways were congested and operated poorly, but conditions in 2035 would be substantially worse than the limited areas of stop-and-go

driving experienced in 2010. By 2035, eastbound and westbound motorists on I-10 between SR 101L (Agua Fria Freeway) and SR 202L (Santan Freeway) will experience stop-and-go driving for at least 3 hours every day.

Today's freeways and arterial streets will not operate efficiently with the population, housing, and employment increases forecast for 2035. Combined, these increases will translate into higher demand for use of the existing freeway and arterial street systems. In 2010, the existing road network could serve only 81 percent (34,400 of 42,500 trips during the peak hour) of the total demand on the transportation system. During the next 25 years, daily traffic volumes in the Study Area are expected to increase by approximately 36 percent (from 3.19 million to 4.35 million daily trips) on freeways and arterial streets. Individually, the 684,000 trip increase on freeways would equate to the capacity of 26 freeway lanes, and the 474,000 trip increase on arterial streets would equate to the capacity of 55 arterial street lanes. By 2035, without the proposed action, the network will be able to accommodate only 76 percent (40,700 of 53,900 trips during the peak hour) of total transportation needs. Without a major transportation facility in the Study Area, the region will suffer even greater congestion, travel delays, and limited options for moving people and goods safely through the Phoenix metropolitan region.