2.0 PURPOSE AND NEED FOR THE PROJECT

2.1 NEED FOR THE PROJECT

The City of Glendale CACTI and the Northern Parkway Management Committee identified the following needs for the proposed transportation facility. This project is needed to serve population growth, improve travel time, provide regional connectivity, improve regional facility spacing, provide a crossing at the Agua Fria River, improve west-east traffic flow, implement regional plans, reduce crash rates, reduce congestion, and improve emergency response times.

2.1.1 Serve Population Growth

According to MAG, the area west of the Agua Fria River in the West Valley is one of the fastest-growing areas of the Phoenix metropolitan area. Rapid population growth due to continued land development is occurring in this area and is expected to continue. Population within the regional study area, as detailed in Table 2-1, is expected to grow from about 652,219 residents in 2005 to over 899,150 residents by 2030, an increase of approximately 37.9 percent. The western portion of the study area in the vicinity of SR 303L is expected to have the most significant growth, with increases of 150 percent or more. The existing limited regional and arterial road network of two-lane roadways is unlikely to serve the transportation needs associated with anticipated future growth west of the Agua Fria River adequately, ultimately resulting in an increase of traffic congestion from population growth.

Table 2-1
Regional Population Growth Projections

		Year 2005		Year 2010		Year 2020		Year 2030	
Community	**RAZ**	**Population**	**Employ-ment**	**Population**	**Employ-ment**	**Population**	**Employ-ment**	**Population**	**Employ-ment**
Surprise	233	41,695	6,731	75,830	14,056	102,885	29,411	116,743	44,049
	234	9,557	2,491	11,224	2,966	14,458	3,392	14,761	3,318
Subtotal		**51,252**	**9,222**	**87,054**	**17,022**	**117,343**	**32,803**	**131,504**	**47,367**
El Mirage	235	31,935	2,858	34,819	5,001	38,620	9,276	38,717	11,528
Youngtown	236	6,011	1,657	6,820	1,667	7,275	1,988	7,359	2,042
Maricopa County	237	34,140	10,438	34,169	10,329	34,549	10,367	35,066	10,392
Peoria	238	54,417	16,477	57,589	19,940	61,436	25,181	62,288	25,001
	239	34,614	9,189	38,059	14,194	42,558	19,469	47,271	23,202
Subtotal		**161,117**	**40,619**	**171,456**	**51,131**	**184,438**	**66,281**	**190,701**	**72,165**
Glendale	240	46,030	16,834	46,882	21,586	48,103	22,147	48,558	22,002
	254	3,761	440	10,478	3,620	22,832	15,704	23,375	21,250
	255	11,225	1,904	14,793	2,874	18,254	7,918	21,252	9,619
	256	4,058	8,707	4,059	8,705	4,060	8,697	4,061	8,713
	257	41,944	12,039	49,777	19,155	62,376	36,817	64,906	43,250
	258	100,440	29,650	102,511	38,209	106,432	40,671	106,709	42,361
Subtotal		**207,458**	**69,574**	**228,500**	**94,149**	**262,057**	**131,954**	**268,861**	**147,195**

		Year 2005		Year 2010		Year 2020		Year 2030	
Community	**RAZ**	**Population**	**Employ-ment**	**Population**	**Employ-ment**	**Population**	**Employ-ment**	**Population**	**Employ-ment**
Goodyear	265	18,225	6,760	28,582	11,053	40,060	19,968	45,051	24,466
Litchfield Park	266	6,787	1,710	8,587	2,405	10,305	3,200	10,510	4,280
Phoenix	267	65,053	8,846	74,160	13,902	83,905	21,047	85,461	26,320
	268	93,685	14,646	98,189	17,775	100,854	19,026	101,551	19,696
Subtotal		**183,750**	**31,962**	**209,518**	**45,135**	**235,124**	**63,241**	**242,573**	**74,762**
Avondale	273	48,642	9,988	58,880	16,448	65,440	27,274	65,511	34,157
	Total	**652,219**	**161,365**	**755,408**	**223,885**	**864,402**	**321,553**	**899,150**	**375,646**

SOURCE: Maricopa Association of Governments 2007

NOTE: RAZ = Regional Analysis Zone. A RAZ is an area within a Municipal Planning Area (MPA). Maricopa Association of Governments defines an MPA as an "area of planning concern for a municipality and is based upon its anticipated future corporate limits" (Maricopa Association of Governments 2007).

An improved transportation system is important to create economic vitality for local, regional, state, and national economies. With population and employment projections like those projected in Table 2-1, there would be a need to provide regional transportation facilities to help attract development that would support the regional, state, and national tax base used to provide public services.

2.1.2 Improve Travel Time

The regional north-south highways of SR 303L and US 60 are approximately 12 miles apart along the Northern Avenue corridor. If no roadway improvements were made, with no access control and existing signals remaining, the average speed along the project corridor in 2030 would be 19.3 miles per hour, and it would take motorists 42 minutes during peak hours to travel from SR 303L to US 60. The travel time needs to be improved to accommodate population projections.

2.1.3 Provide Regional Connectivity

Due to population growth projections, a high-capacity west-east corridor will be needed to connect with major routes, thereby providing a continuous high-capacity, higher-speed system that offers better traffic circulation throughout the entire region. Currently, interim SR 303L and SR 101L provide for regional north-south travel in the West Valley, while US 60 is a diagonal route providing connection to destinations in the Northwest Valley. Without improved west-east regional connectivity to those state routes, congestion would occur on Northern Avenue at SR 303L, SR 101L, and US 60, and the adjacent arterial street system in the overall area also would become congested.

2.1.4 Improve Regional Facility Spacing

Improvements in regional transportation facility spacing are needed to improve traffic flow based on future population-growth projections. One of the benefits of well-spaced regional high-capacity routes within the study area would be reduced traffic on parallel arterials so those roads could serve their dual function of providing access to major land uses and accommodating moderate vehicle commutes of 4 to 5 miles. The Transportation Research Board (Circular E-C019) suggests freeway spacing of 4 to 6 miles in urban areas, while MAG suggests spacing of 3 to 6 miles for regional roads.

2.1.5 Provide Agua Fria River Crossing

The Agua Fria River crosses Northern Avenue east of El Mirage Road. The existing road crossing consists of two dip sections. During storm events, the dip crossings are closed due to flooding. This presents a major obstruction to traffic movement. During the last five years, there have been five closures averaging 2.8 days per closure, according to MCDOT maintenance staff. Closures are problematic because emergency vehicle response time may be delayed.

With the large population increase expected west of the Agua Fria River, additional bridge crossings are needed to ensure safe, reliable access at all times. When Northern Avenue is closed due to flooding, eastbound and westbound traffic must be diverted 1 mile north to Olive Avenue or 1 mile south to Glendale Avenue. Based on projected 2030 traffic volumes, these arterial streets would become gridlocked during closure of Northern Avenue at the Agua Fria River.

2.1.6 Improve West-East Street Traffic Flow

A free-flowing west-east route that can accommodate a large amount of traffic is needed to compensate for the limited street network in the study area. In the 12 miles between I-10 and Bell Road, there are only five west-east arterials that are continuous between SR 303L and US 60: (1) McDowell Road, (2) Indian School Road, (3) Camelback Road, (4) Northern Avenue, and (5) Olive Avenue. Luke AFB, Agua Fria River, New River, and Sun City are barriers to west-east travel in the area. As a result, there are limited continuous routes in the region and limited opportunities to travel on continuous streets resulting in traffic congestion on the few continuous roads.

2.1.7 Implement Regional and Local Plans

Various regional plans have been prepared to meet the needs of improving traffic flow in the West Valley, and they are awaiting implementation. These plans include the following:

- A major roadway corridor along Northern Avenue is included in Glendale's adopted *Transportation Plan*. As the basis for approving a ½-cent sales tax, the *Glendale Transportation Study* was submitted to the voters of Glendale in 2001 and was approved, thus providing local funding for the project as well as other projects defined in the program (City of Glendale 2001).
- The voters in Peoria approved a sales tax issue in November 2005 to help fund the project and other projects in Peoria.
- The new facility is included in the *Maricopa County Major Streets and Routes Plan*.
- The new facility is also included in the comprehensive performance-based RTP prepared by MAG. Northern Avenue is shown in the RTP as a "new/improved arterial" that would provide major capacity improvements and new connections for the regional arterial street network. The RTP (MAG 2004b) provides a vision for the regional transportation system, addressing freeways and other highways, streets, transit corridors, airports, bicycle and pedestrian facilities, freight facilities (rail routes), demand management, system management (including intelligent transportation systems), and safety in Maricopa County through fiscal year 2026. The RTP is the result of a major planning effort initiated in 2001 and completed in late 2003, when it received unanimous support from the Transportation Policy Committee and approval from the MAG Regional Council. The RTP—including the proposed project—is funded through Proposition 400, which was approved by Maricopa County voters in November 2004.

2.1.8 Reduce Crash Rates

Based on projected population growth, crash rates would likely increase if there are no improvements to the current transportation system. It is estimated that as the area continues to develop there would be 24 traffic signals on Northern Avenue if the Northern Parkway improvements were not constructed. Alternative 1 would reduce this number to two while Alternatives 2 and 3 eliminate all traffic signals for through Northern Parkway traffic. Typical arterials with frequent points of access, traffic signals placed 0.25 to 0.5 mile apart, and two-way left turn lanes typically have high rates of vehicle crashes and collisions. Table 2-2 shows a correlation between the number of signals and crash rates. Basically, the more signals in place, the more crashes will occur on a typical arterial. If there are fewer than two signals per mile, the number of crashes per million vehicle miles traveled (VMT) is around three. If there are more than six signals per mile, the number of crash rate triples. Based on this information, and taking into account projected traffic growth and that all three build alternatives would reduce the number of traffic signals for through traffic compared to the No Build Alternative, the Northern

Parkway improvements would likely decrease the probable crash rate from the no build condition for the design year of 2030.

Also, building grade separated intersections and eliminating direct driveway access eliminates vehicles conflicts and also has the potential to significantly reduce accident rates compared to the No Build condition. In addition, installing median barriers or raised medians are proven measures that can reduce traffic accident rates.

Table 2-2
Signal Spacing and Crash Rates

Signals per Mile	Crashes per Million VMT
Under 2	3.53
2 to 4	6.89
4 to 6	7.49
More than 6	9.11

SOURCE: Federal Highway Administration 2003
NOTE: VMT = vehicle miles traveled

2.2 PURPOSE OF THE PROJECT

The purpose of the proposed facility improvement is to provide a high-capacity, west-east transportation corridor in the central portion of the West Valley to serve significant projected population growth. This facility would serve the citizens of Glendale, Peoria, El Mirage, and unincorporated Maricopa County, as well as future residents and businesses in the rapidly developing West Valley, by providing better traffic flow and access to regional destinations via connections to the SR 303L and SR 101L freeways and to US 60.