III. Social, Economic, and Environmental Considerations

This chapter describes the social, economic, and environmental setting of the study area, along with the potential environmental consequences and associated mitigation measures for the considered alternatives. Technical reports for these considerations can be made available for review at ADOT Environmental Planning Group, 205 South 17th Avenue, Room 213 E, Phoenix, AZ. Due to the confidential nature of the material they contain, cultural resources technical reports can be made available to qualified professionals by request through the Historic Preservation Team at ADOT Environmental Planning Group, 205 South 17th Avenue, Phoenix, AZ.

A. LAND USE AND OWNERSHIP

1. Existing Conditions

Existing Land Use

The majority of land within the project study area falls within the jurisdiction of the City of Mesa, Maricopa County, Arizona. Figure 3-1 shows land ownership in and around the study area. A parcel of state-trust land is located within the study area between Hawes Road and Ellsworth Road, and between Elliot Road and Warner Road.

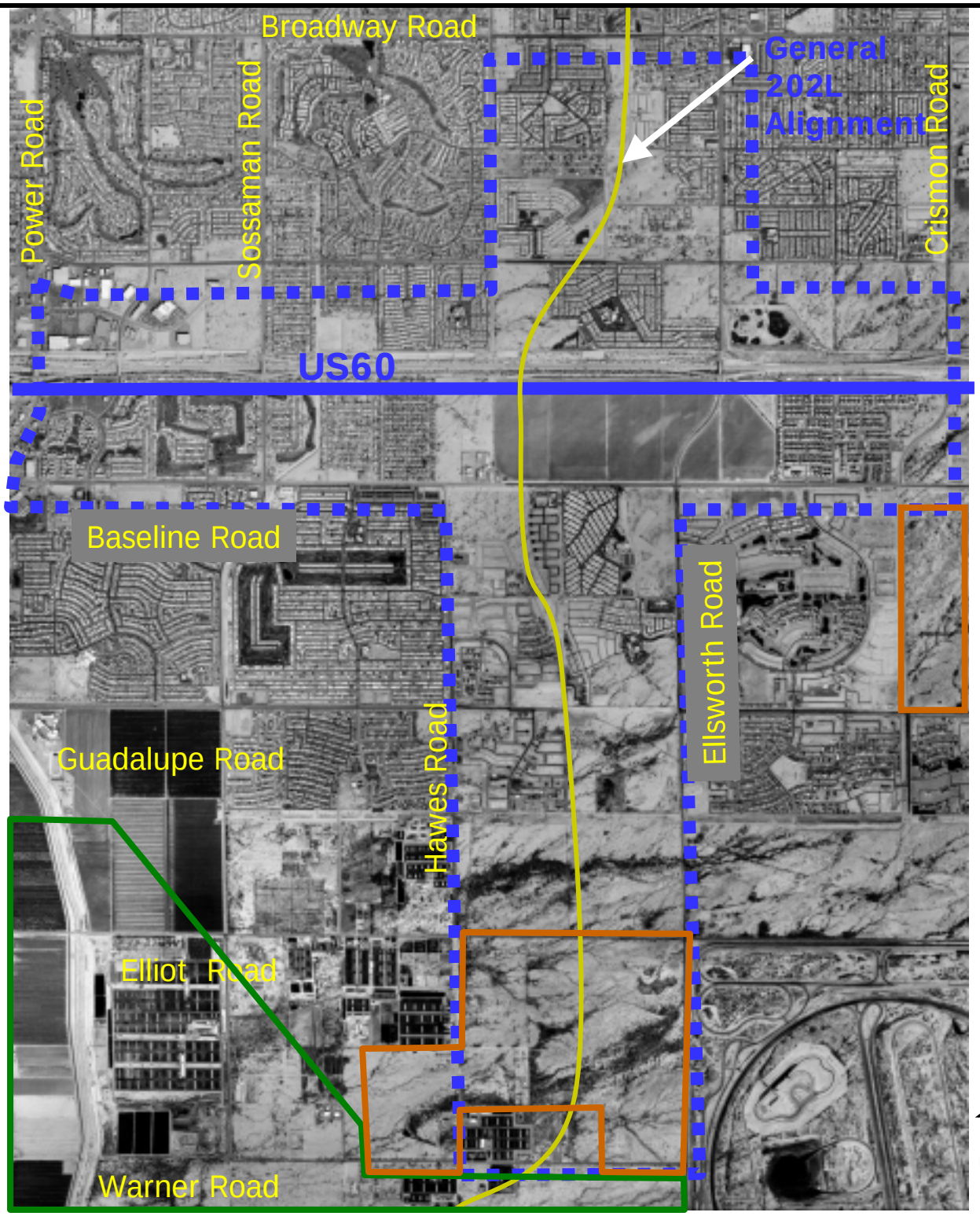
Land administered by Maricopa County is located in the following areas:

- North of Southern Avenue, east of Hawes Road, extending east to Crismon Road. The shape of the island is irregular, resulting in City of Mesa parcels at the southeast corner of Hawes Road and Broadway Road, the northeast corner of Southern Avenue and Hawes Road, the northeast corner of Southern Avenue and Ellsworth Road, and the northwest corner of Southern Avenue and Crismon Road.
- Between Elliot and Warner Roads, between Sossaman and Ellsworth Roads.

Planned Land Use

Figure 3-2 illustrates land use designations in the study area. Table 3-1 presents land uses in the study area. Section III.C includes a more detailed discussion of existing and planned parks, schools, and public facilities in the study area. During the September 7, 2000 Agency Scoping Meeting held for this project, the City of Mesa Planning Director identified several parcels of land pending development in the area of the project, including:

- *Southeast corner of US60 and Hawes Road, north of Baseline Road:* Parcel purchased by Japanese industrial group, currently inactive.



Study Area

Arizona State University, East Campus

Arizona State Trust Land

Private

Land Ownership

202L/US60 Traffic Interchange
TRACS No. 202L MA 028 H5686 01D
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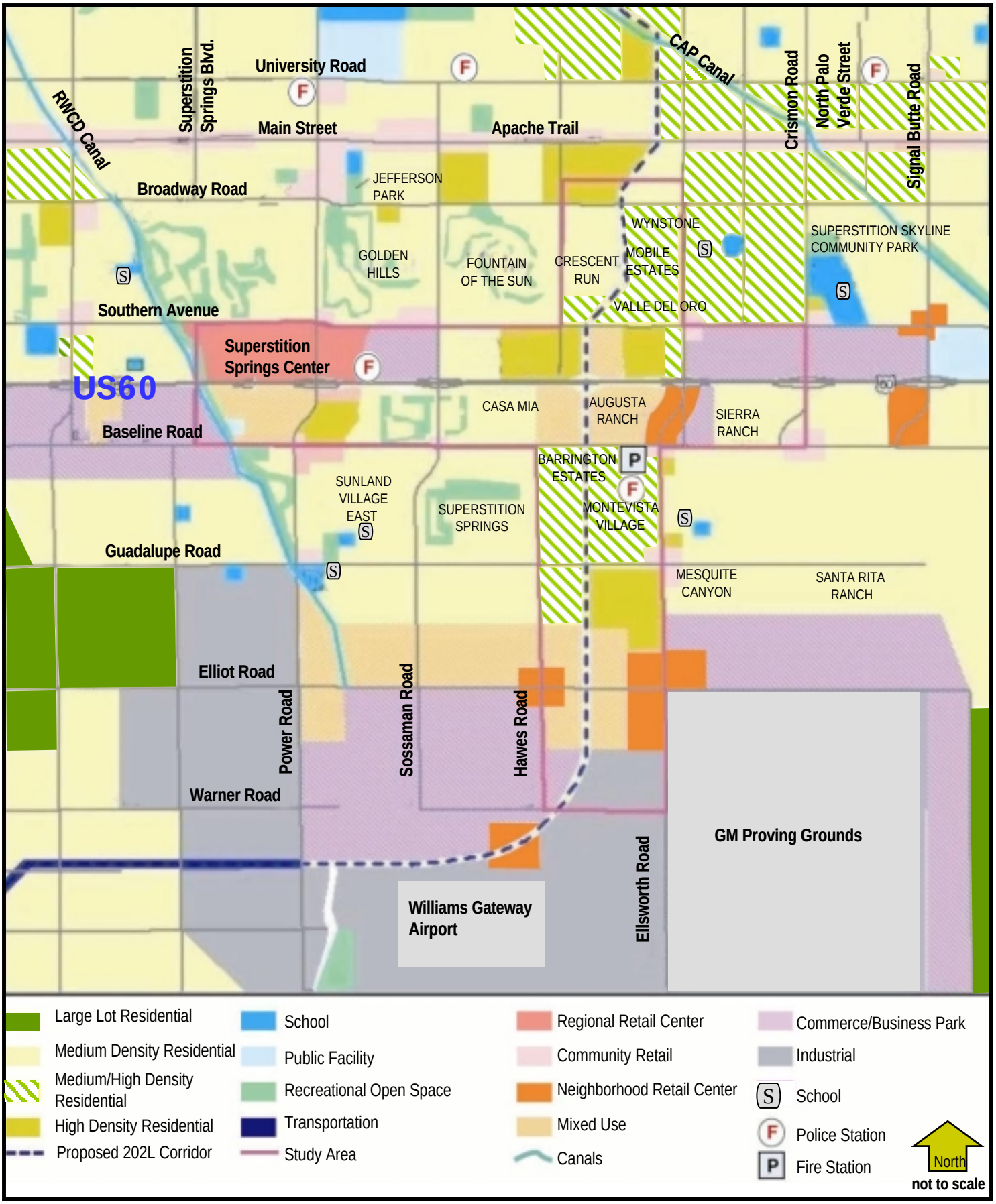
Figure 3-1



Land Use

202L/US60 Traffic Interchange
TRACS No. 202L MA 028 H5686 01D
Project No. NH-202-B(ACG)

Sources: City of Mesa General Plan, 2000
Maricopa County Planning GIS

Figure 3-2

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Table 3-1. Land Use

Quadrant	Land Use
Northwest	▶ Small lot, single-family residential development (Golden Hills, Fountain of the Sun, Brentwood Southern, Silveridge developments) ▶ Privately owned golf courses (Arizona Golf Resort, Fountain of the Sun Golf Course) ▶ Large-scale commercial at the northeast corner of US60/Power Road ▶ Multi-family apartments, strip commercial development, a hotel and a church along the west side of Power Road between US60 and Broadway Road ▶ Single-family, small-scale commercial, Jefferson Park, and church development north of Broadway Road between Power Road and Hawes Road ▶ Superstition Springs Center north of US60, west of Power Road ▶ Leisure World Country Club north of Southern Avenue, west of Power Road
Northeast	▶ Small lot, single-family residential development including the Valle Del Oro retirement community ▶ Small vacant parcels between Hawes Road and 88th Street, north of US60 ▶ Small vacant commercial parcels northwest/southwest of Southern Avenue/Crismon Road ▶ Quick Hits Golf Course east of US60/Ellsworth Road ▶ Apartment complexes and gas stations north of Broadway Road between Hawes Road and Crismon Road ▶ Superstition Skyline High School and Community Park east of Crismon Road, approximately halfway between US60 and Broadway Road ▶ Stevenson Elementary School on 96th Street, south of Broadway Road
Southeast	▶ Agricultural land (zoned for commercial use, but currently undeveloped) northeast of Baseline Road/Hawes Road ▶ Single-family residential development (Sierra Ranch, Augusta Ranch, Monte Vista Village Resort, Santa Rita Ranch, Mesquite Canyon, Arizona Skyline) ▶ Vacant land planned for commercial or residential development ▶ A police and fire station on Ellsworth Road, south of Baseline Road
Southwest	▶ Active agricultural land south of Guadalupe Road between Sossaman Road and Power Road ▶ Single-family residential development (Boulder Creek, Sonoran Springs, Superstition Springs, Sunland Village East) ▶ Highland High School south of Guadalupe Road between Sossaman Road and Power Road; Noah Webster Basic School northwest of Baseline Road/Hawes Road alignment ▶ Small-scale commercial development at Baseline Road/Sossaman Road, and northeast of Power Road/Baseline Road ▶ Monterey Park northeast of Guadalupe Road/Power Road ▶ Privately owned golf course (Desert Sands Golf Course) ▶ University of Phoenix campus site west of Power Road

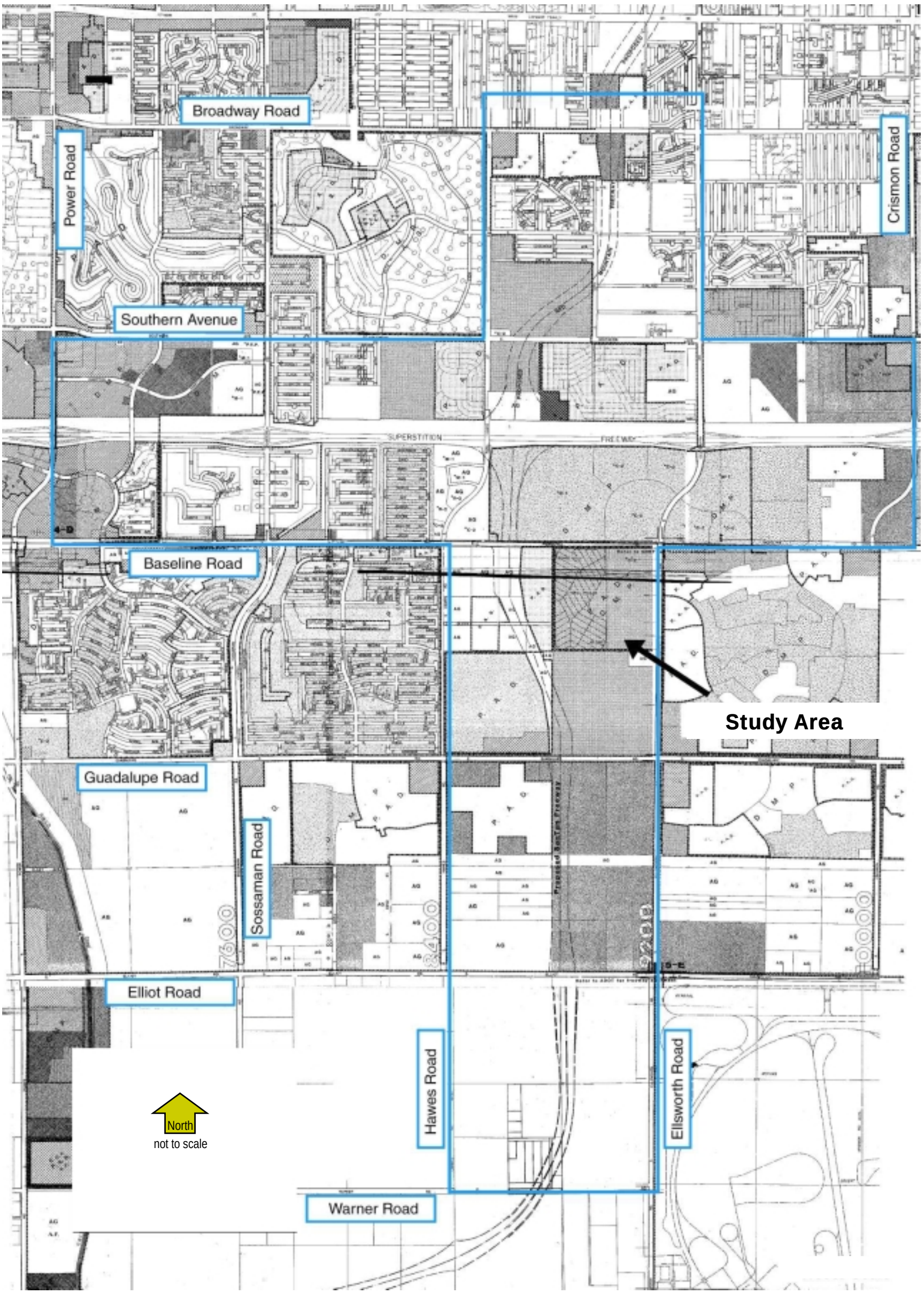
- *Southwest of 202L/US60 TI:* Single-family residential development planned. *Northeast of 202L/US60 TI:* County manufactured home park project under construction.
- *Northwest of 202L/US60 TI:* Approved recreational vehicle (RV) park.
- *Williams Gateway Campus:* Planned as an educational, research, and training facility. Airport planned as reliever airport and aerospace center to the southeast of the study area.
- *General Motors (GM) Proving Grounds:* Closure anticipated in 2004.
- *East Maricopa Floodway Corridor:* MCFCD recently completed a Conceptual Design Alternatives Report **(MCFCD 2000)** for multi-use opportunities along the East Maricopa Floodway Corridor, including recreational uses and alternative mode links. Between Broadway Road and Guadalupe Road, the floodway travels northwest/southeast immediately west of Power Road (adjacent to, but not within, the current study area).

Zoning Consistency and General Plan Compatibility

General planning and zoning provides municipalities with the authority and procedures to guide the physical development of land and promote a high standard of living, while protecting the environment for the general health, safety, and welfare of the public. The City of Mesa and Maricopa County regulate land use in the study area.

The predominant zoning classification within the study area is residential, which includes Planned Area Developments (PAD) and Development Master Plan (DMP) areas **(City of Mesa 2000)**. Several residential parcels are designated as "age-specific," referring to active adult communities. Agricultural and commercial zoning categories are also within the study area. Figure 3-3 illustrates zoning in the study area. The location of the 202L/US60 TI is designated as a freeway facility on the City of Mesa Zoning Maps **(City of Mesa 2000)**.

The *Mesa General Plan* **(City of Mesa 1996)** defines the direction of growth and type of development that is desired and expected to occur over the next 20 years. Five subareas are identified in the plan that contain unique features or land use issues that distinguish them from the remainder of the city. A portion of the study area is within City of Mesa Planning Subarea Four, titled *Williams Gateway Airport and Proving Grounds Subarea*. The area is generally bounded by Power Road on the west, Germann Road on the south, Meridian Road on the east, and Guadalupe Road on the north. A small portion of Subarea Four extends north of Guadalupe Road to Southern Avenue. This area is between Hawes Road and Sossaman Road on the west and Ellsworth Road on the east, thereby encompassing a portion of the 202L/US60 TI study area. The land uses designated for this area include Low- and Medium-Density Residential,



LEGEND:

AG	AG	Agriculture
	R1-90	Single Residence
	R1-43	Suburban Ranch
	R1- 35	Single Residence
	R1-15	Single Residence
	R1-9	Single Residence
	R1-7	Single Residence
	R1-6	Single Residence
	R-2	Restricted Multiple Residence
	R-3	Limited Multiple Residence
	R-4	General Multiple Residence
	O-5	Office - Service
	C-1	Neighborhood Commercial
	C-2	Limited Commercial
	C-3	General Commercial
	M-1	Limited Industrial
	M-2	General Industrial
	PEP	Planned Employment Park
PF	PF	Public Facilities

(Overlay Districts)

AF	Air Force
BIZ	Bonus Intensity Zone
PAD	Planned area Development
AS	Age Specific
DMP	Development Master Plan
CUP	Council Use Permit
	Main City Limits
	10' Annexation
	Study Area Boundaries

Zoning

202L/US60 Traffic Interchange
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Figure 3-3

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Commerce Park, Community Commercial, General Industrial, Proving Grounds, Public/Semi-Public, and Park/Open Space. The remaining land within the study area (located outside Subarea Four) is predominantly designated as Medium-Density Residential, with pockets of Commerce Park. The Land Element of the *City of Mesa General Plan* identifies the planned 202L Freeway and 202L/US60 TI (1999 FEIS Alternative). Completion of the MAG Freeway System is identified as a key issue in the General Plan. The City of Mesa has, whenever possible, protected right-of-way for the planned 202L Freeway and 202L/US60 TI.

The 202L/US60 TI is designated as a planned freeway facility in the *Maricopa County Comprehensive Plan* **(Maricopa County 1997a)** and associated Land Use Plan.

As discussed in the FEIS (**ADOT 1999a**), other plans also promote the development of the 202L and associated TI including the *Mesa Freeway Corridors Study* **(City of Mesa 1988)**, and the *Maricopa County Long Range Transportation Plan (LRTP)* **(Maricopa County 1997b)**.

2. Impacts

Land Use Conversions

Some conversions of non-transportation uses to transportation use would occur with any of the alternatives. As presented in Table 2-7, Alternative C has the greatest right-of-way requirements of any of the alternatives, and consequently would convert the greatest amount of non-transportation uses to a transportation use. The No-Build Alternative would convert the least amount of non-transportation uses to a transportation use.

Impacts and mitigation associated with the acquisition of land for project right-of-way is described in Section III.D.

Impacts on Adjacent Land Uses

Any of the alternatives would have temporary construction-related impacts (noise, dust, traffic congestion) on land uses sensitive to these types of impacts. These impacts and associated mitigation are described in Section III.N.

Once the project is in operation, other impacts would occur to adjacent land uses. These impacts, such as increased traffic noise and alterations to visual characteristics in the area, are presented throughout Chapter III.

Any of the action alternatives would improve access to and from adjacent land uses and is not expected to conflict with existing or proposed land uses.

Zoning Consistency and Land Use Plan Compatibility

All of the alternatives are consistent with the intent of, and general location identified in, local and regional land use plans and local zoning ordinances. The approval of individual developments has been contingent on the recognition of the future construction of the 202L and the 202L/US60 TI. The local governments would continue to require that future developments allow for accommodations for the planned freeway.

3. Mitigation

No mitigation measures are proposed for impacts as presented in this section.

4. Conclusion

The action alternatives would convert existing and planned non-transportation uses to a transportation use. However, the transportation facility has been planned for in local and regional long-range planning efforts. Therefore, the project would not result in any substantial adverse impacts to land uses in the project area.

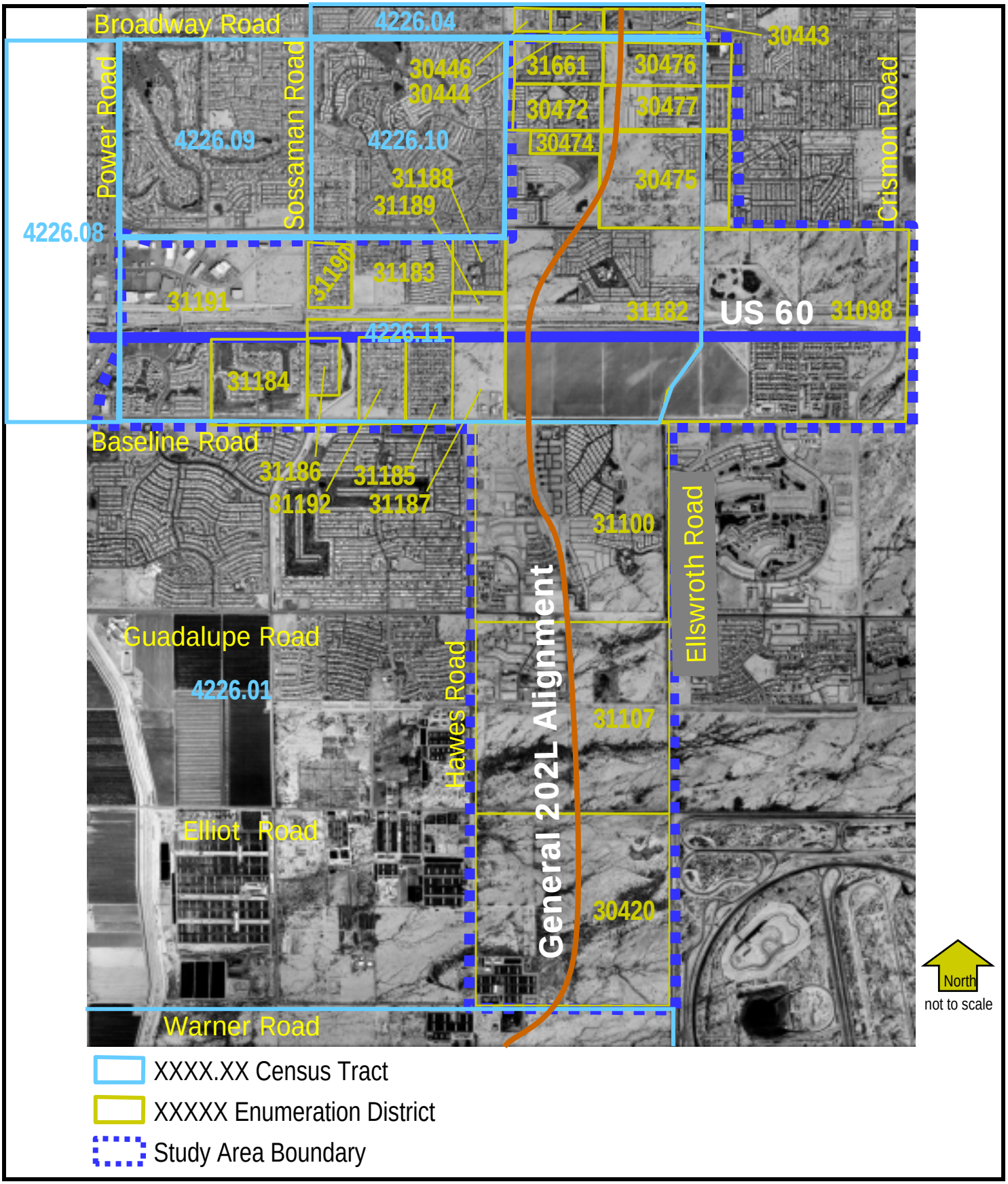
B. MINORITY CONSIDERATIONS AND ENVIRONMENTAL JUSTICE

Title VI of the Civil Rights Act of 1964 and related statutes ensure that individuals are not excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal financial assistance based on race, color, national origin, age, sex, or disability. Executive Order 12898, *Federal Actions to Address Environmental Justice Minority Populations and Low-Income Population*s, requires federal agencies to identify and address as appropriate, disproportionately high and adverse effects on minority and low-income populations.

1. Existing Conditions

Figure 3-4 shows the approximate location of each census tract and enumeration district in the study area. Demographic information for each census tract and enumeration district is summarized in Table 3-2. Two enumeration districts shown on Figure 3-4 (31661 and 31098) have been delineated as districts; however, no information is available for these areas at the enumeration district level. Information for these areas is included at the census tract level.

According to available census data, the study area has a relatively high concentration of minority and elderly populations compared to concentrations in Maricopa County and the City of Mesa. As discussed in the 1999 FEIS, the study area has a higher percentage of population 55 years and older than within the overall city or the county. This is because of the predominance of active adult communities in east Mesa.



Census Tracts/Enumeration Districts

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Figure 3-4

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Table 3-2. Demographic Information within the Study Area Boundaries

		Total Population	Total Households	Median Household Income [2,3]	Percent 55 and over	Percent White not Hispanic	Percent Minority
Maricopa County		2,551,765	957,730	$41,457	20.0	71.9	28.1
City of Mesa		338,117	125,361	$33,676	20.0	85.6	14.4
Study Area		16,484	5,880		31.3	81.8	18.2
Census Tract							
4226.01		5,521	1524 [1]	$45,714	29.3	79.6	20.4
	Enumeration District						
	30420	546			2.0	15.2	84.8
	31100	4,949			32.3	86.7	13.3
	31107	26			8.0	24.0	7.7
4226.04		1,544	645 [1]	$31,518	42	88.7	11.3
	Enumeration District						
	30443	769			21.7	83.9	16.1
	30444	590			59.5	93.4	6.6
	30446	185			70.8	94.1	5.9
4226.08		1,563	941 [1]	$55,131	9.1	85.5	14.5
	Enumeration District						
	31159	1,563			9.1	85.5	14.5

Table 3-2. Demographic Information within the Study Area Boundaries (con't)

		Total Population	Total Households	Median Household Income [2,3]	Percent 55 and over	Percent White not Hispanic	Percent Minority
Census Tract							
4226.11		7,858	2770 [1]	$39,526	35	81.3	18.7
	Enumeration District						
	30472	397			92.2	98.7	1.3
	30474	397			15.9	72.0	28
	30475	346			53.8	91.6	8.4
	30476	725			14.3	81.5	18.5
	30477	243			90.1	100.0	0.0
	31098[4]	NA			NA	NA	NA
	31182	452			89.2	98.5	1.5
	31183	1,136			39.6	83.9	16.1
	31184	284			71.5	96.5	3.5
	31185	1,131			6.7	46.9	53.1
	31186	98			63.3	98.0	2.0
	31187	603			19.6	84.9	15.1
	31188	92			65.2	100.0	0.0
	31189	63			38.1	100.0	0.0
	31190	365			47.4	94.0	6.0
	31191	753			17.9	84.3	15.7
	31192	773			13.7	79.6	20.4
	31661[4]	NA			NA	NA	NA

Source: Maricopa County Special Census 1995.
[1] Estimated households by Enumeration District.
[2] 1990 Census information.
[3] Department of Health and Human Services poverty guideline = $17,050 annual income for a family of four.
[4] Data not available.
Note: Shaded areas indicate higher minority or elderly concentrations when compared to concentrations in Maricopa County and the City of Mesa.

The *Final Department of Transportation Order on Environmental Justice* **(USDOT 1997)** defines low-income as a median household income at or below the U.S. Department of Health

and Human Services poverty guideline of $17,050 for a family of four. According to 1990 census information (most current available), there are no known low-income populations within the study area.

2. Impacts Associated with Minority Populations and Environmental Justice

Minority and elderly populations in the study area would be affected essentially to the same degree by each of the alternatives. The alternatives would not substantially or disproportionately affect these populations because:

- The 202L/US60 TI is located in a planned freeway corridor.
- The 202L/US60 TI is expected to benefit all residents living regardless of age, sex, ethnicity, and income in the study area by improving mobility and access, and reducing congestion on the local street network.
- Elderly and minority persons would be relocated and would be afforded the same relocation rights as any other population would in accordance with the ADOT Relocation Assistance Program.

Equal opportunities for direct involvement have been and continue to be provided for all affected communities, including those with minority and elderly populations. A CAT has been formed, which to the extent possible, includes representatives from all affected communities. Neighborhood meetings in each community have occurred. These neighborhood meetings provided the opportunity for community members to discuss the project in a small, open, and informal atmosphere, and to discuss the project one-on-one with project team members. Community members were informed about the project components and ways to provide comments and feedback. Chapter V further describes public involvement underway for the project.

3. Mitigation

No mitigation measures are proposed.

4. Conclusion

The project would affect areas with higher concentrations of minority and elderly population when compared to overall concentrations of such populations in Maricopa County and the City of Mesa. However, because these populations will be afforded equal opportunities for direct involvement in the project, and the same relocation assistance (when warranted), the project would not cause an adverse impact to minority and elderly populations.

C. SOCIAL CONSIDERATIONS

1. Existing Conditions

Parks

The following public parks (not including private recreational facilities and private golf courses/clubs) are located in or immediately bordering the study area:

- Jefferson Park (north of Broadway Road, east of Power Road).
- Superstition Skyline Community Park (south of Broadway Road, east of Crismon Road).
- Monterey Park (north of Guadalupe Road, east of Power Road).

The City of Mesa Parks and Recreation Department indicated that no neighborhood or community parks are planned in the study area right-of-way for any of the alternatives, and no parks are proposed in the study area that would be affected by the project. Specific locations of future community and neighborhood parks in the surrounding area have not been determined at this time.

Schools

The following schools are located within or immediately bordering the study area:

- Noah Webster Basic School (8320 East Baseline Road).
- Stevenson Elementary School, (638 South 96th Street, south of Broadway Road).
- Skyline High School (845 South Crismon Road, south of Broadway Road).
- Superstition Springs Elementary School on Brighton Circle (7125 East Monterey Avenue, north of Guadalupe Road, east of Power Road).
- Highland High School (4301 East Guadalupe Road, east of Power Road).

Police, Fire, and Hospitals

The City of Mesa provides police and fire protection within the city limits. The Maricopa County Sheriff's Department provides police protection in the unincorporated areas in Maricopa County. Rural Metro, a private company, provides fire protection to the unincorporated areas in Maricopa County. A City of Mesa police station is located at the southwest corner of Ellsworth and Baseline Roads. Fire stations are at the southwest corner of Ellsworth and Baseline Roads, one-half mile north of US60 between Power and Sossaman Roads, and east of North Palo Verde

Street, north of University Drive. Valley Lutheran Hospital is on East Baywood Avenue, north of Broadway Road and west of Power Road.

Public Transit

The RPTA, under the name Valley Metro, serves the study area with five bus routes - four local routes and one express route, each of which terminates at the Superstition Springs Center. There is a park-and-ride facility at the center and the remainder of the study area is served by the East Valley Dial-A-Ride.

Two local routes through the study area provide seven-day service, one on University Drive, and the other on Broadway Road. Each route has service from the Superstition Springs Center to central Phoenix with a number of transfer connections. Two local routes through the study area are on Elliot Road and Power Road, with Monday through Saturday service connecting at the Superstition Springs Center. A Mesa Express route originates at Power Road and Decatur Road and terminates at the State Capital at 17th Avenue and Jefferson Street in Phoenix with a stop at the Superstition Springs Center. This route only runs on weekdays and has three outgoing westbound morning trips and three eastbound afternoon return trips.

The East Valley Dial-A-Ride service operates weekdays in the City of Mesa from 7:00 AM until 7:00 PM, and weekends and holidays from 7:00 AM until 5:30 PM.

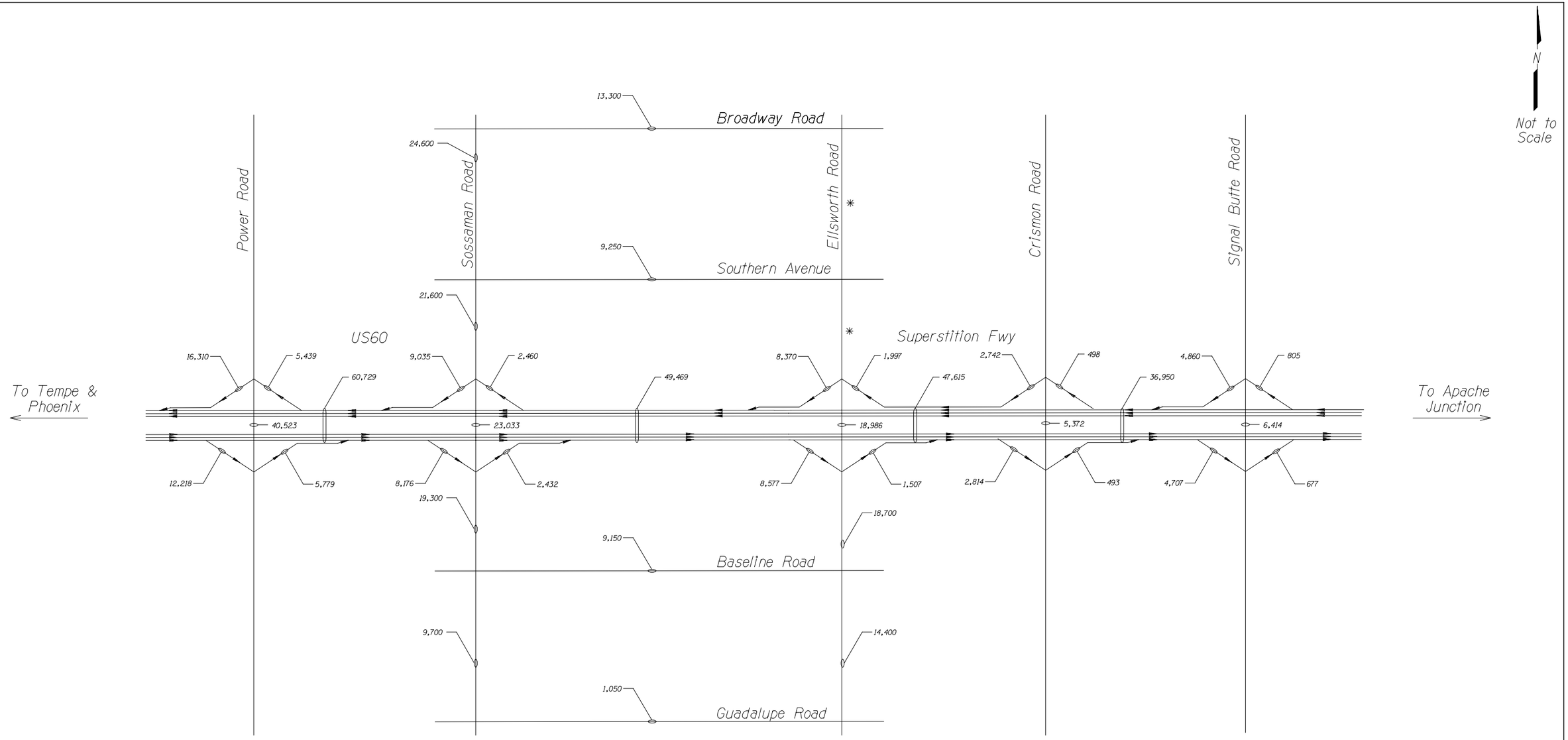
Bicycle Facilities

The City of Mesa has requested that the future facility include a bicycle crossing of the 202L, between Guadalupe and Elliot Roads. It is anticipated that this future bicycle crossing could be sited in the current Arizona Public Service Company power line easement that would cross the 202L. Design and financial details/obligations would be investigated during final design.

There is a City of Mesa bicycle route planned on Pueblo Avenue between 72nd Avenue and Crismon Road. A potential grade separation at Pueblo Avenue is being evaluated and is subject to funding as provided by the local agencies.

Travel Patterns

Existing Traffic Conditions: US60 mainline average annual daily traffic (AADT) for 1998 was obtained from the Arizona State Highway System Log. Figure 3-5 shows the 1998 daily traffic volumes for US60 between Power Road and Signal Butte Road. The daily volumes range from approximately 37,000 vpd between Crismon Road and Signal Butte Road, to approximately 61,000 vpd between Sossaman Road and Power Road.



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NOTES

- Ramp and Crossroads Traffic Volume counted March 1999 by Arizona Department of Transportation.
- 1998 US60 Average Daily Traffic from Arizona Department of Transportation.
- X,XXX represent Avenuerage Daily Traffic Volume.
- Each line depicts a single travel lane.
- Arrows indicate direction of traffic flow.

* MCDOT Roadway - No published counts available.

Average Daily Traffic Volumes

Figure 3-5

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Serving as the primary access to Phoenix from the east, US60 carries large amounts of commuting traffic from the East Valley to and from downtown Phoenix during weekdays. A number of recreational vehicle parks within the study area are primarily active during the winter months. Therefore, a large amount of recreational vehicle traffic uses US60 within the study area. The recreational vehicle traffic typically does not interfere with the weekday commuting traffic.

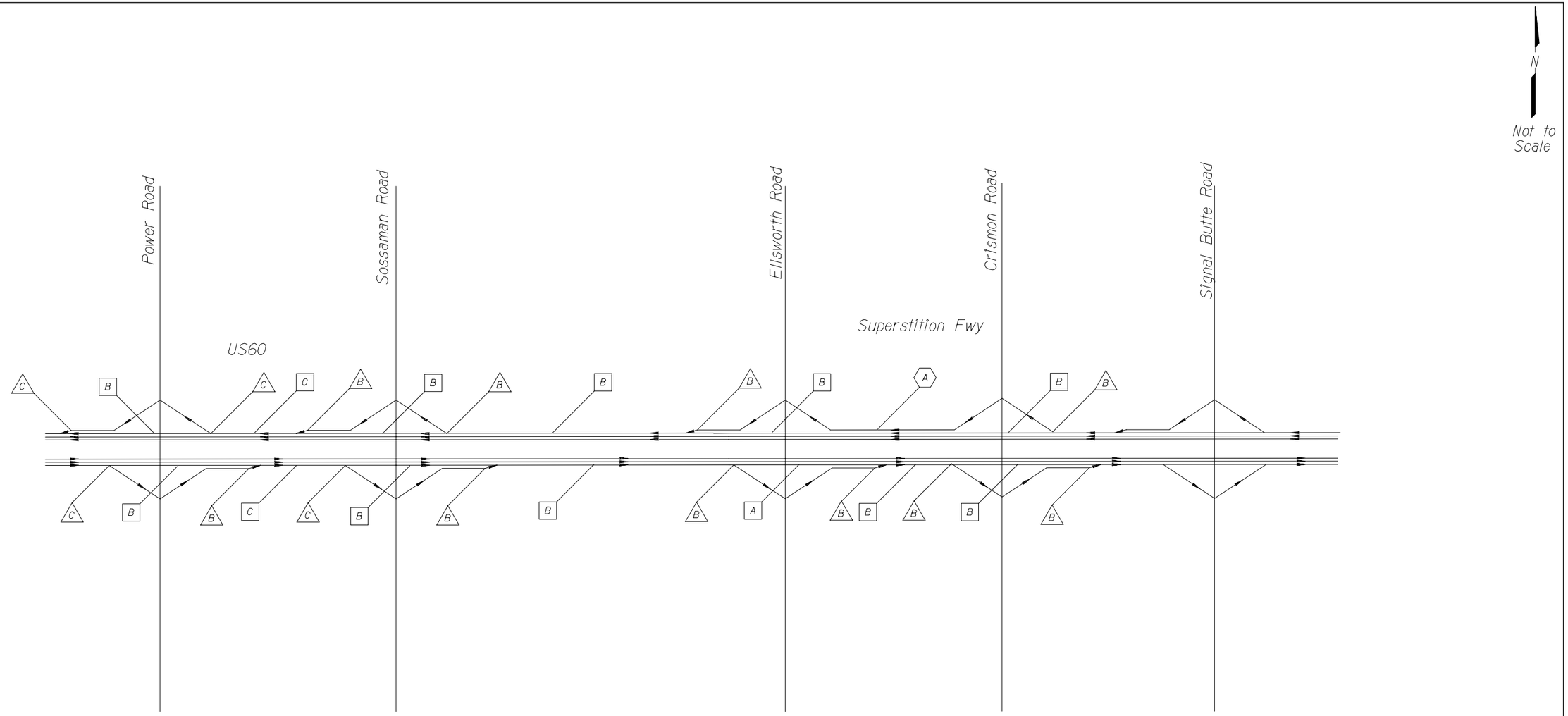
The traffic factors listed in the Arizona State Highway System indicate that the proportion of AADT occurring in the peak hour is nine percent. Peak-hour traffic volumes range from 1,800 vehicles per hour (vph) in the peak direction between Crismon Road and Signal Butte Road, to 2,900 vph between Sossaman Road and Power Road. The resultant LOS for US60 ranges from LOS A to LOS C within the study area, as shown in Figure 3-6.

Average daily traffic (ADT) volumes in 1999 for the Power Road, Sossaman Road, Ellsworth Road, Crismon Road, and Signal Butte Road TIs on US60 were obtained from ADOT. Figure 3-5 depicts the AADT for each interchange. The ADTs for each interchange range from 5,400 vpd at Crismon Road to 40,500 vpd at Power Road. In general, the west ramps carry the highest traffic volumes at each TI. This indicates that the primary traffic demand at these TIs is to the west, which is consistent with the commuting nature of the US60 corridor.

Future Baseline Conditions: Design Year 2025 traffic volume projections were provided by the MAGTPO. The MAG model was updated to include five general-purpose lanes and one HOV lane in each direction of travel on US60. The ramps that connect the 202L and US60 (directional ramps) were input as 2-lane ramps. The 202L was input as three general-purpose lanes in each direction of travel.

Figure 3-7 shows Design Year 2025 traffic volume projections. Traffic movements that would have the highest Design Year 2025 traffic demand, are summarized in order of highest volume:

- US60 eastbound and westbound (3,600 vph – 4,100 vph).
- Directional ramp movements between east US60 and south 202L (1,600 vph – 1,900 vph).
- Directional ramp movements between west US60 and south 202L (1,500 vph – 1,700 vph).
- 202L northbound and southbound (1,500 vph).
- Directional ramp movements between west US60 and north 202L (1,200 vph).
- Directional ramp movements between east US60 and north 202L (650 vph – 750 vph).



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LEGEND

- US60 Mainline Level of Service (LOS).
- Ramp Merge/Diverge LOS.
- Weaving (between ramps and US60 mainline traffic) LOS

NOTES

- Each line depicts a single travel lane.
- Arrows indicate direction of traffic flow.

1998 Levels of Service

Figure 3-6

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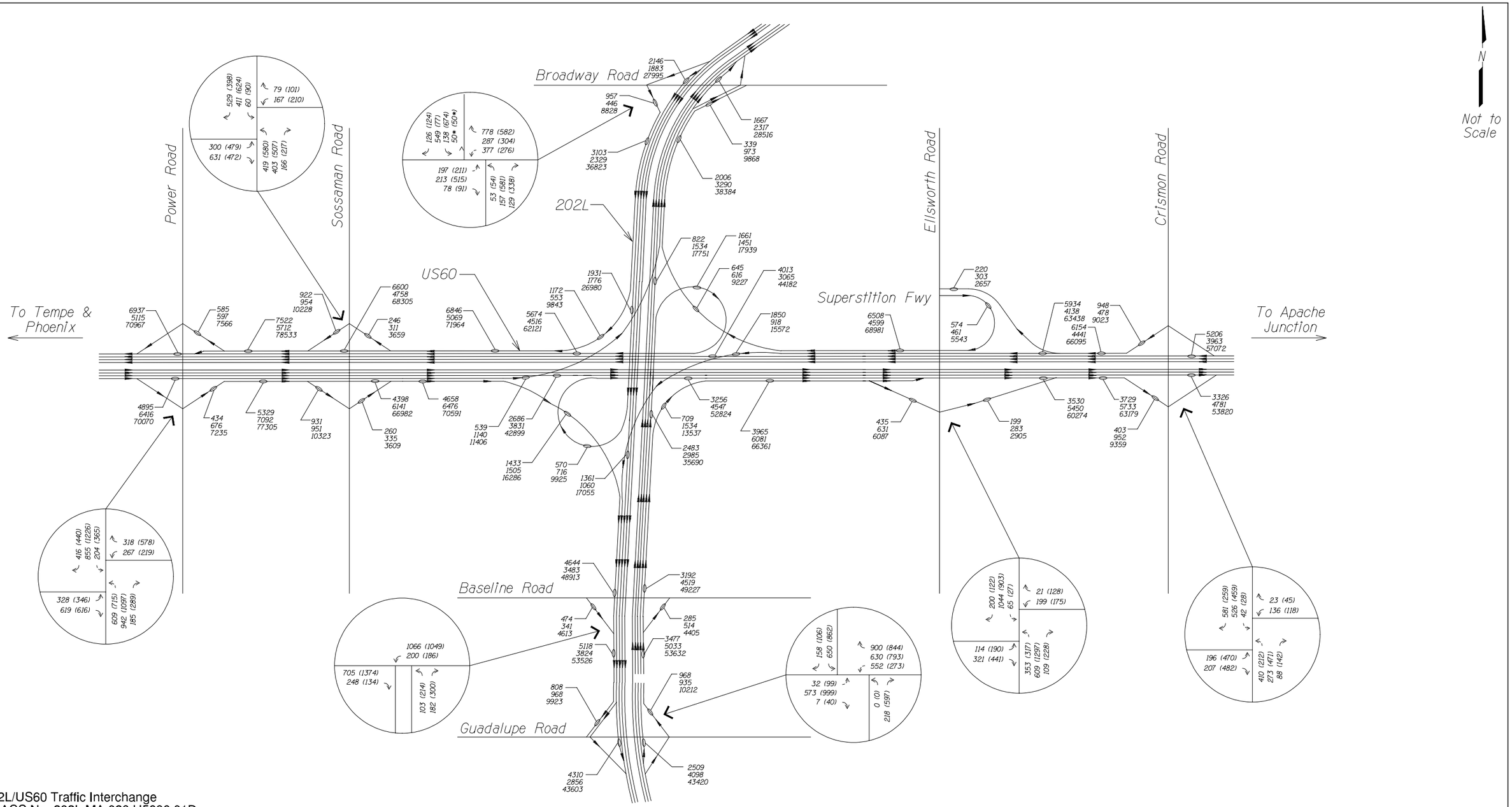

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LEGEND

XXX - 2025 AM Peak Hour
XXX - 2025 PM Peak Hour
XXX - 2025 Average Daily Traffic
For freeway related traffic
x (x) - 2025 AM (PM) Peak Hour service traffic interchanges

NOTES

- Each line depicts a single travel lane.
- Arrows indicate direction of traffic flow.
- The circled traffic information shows the number of vehicles entering and leaving the freeway during a.m. and p.m. peak hour traffic.

2025 Traffic Volume Projections

Figure 3-7

00173/001/dgn/2Fig_3-7.dgn

2. Impacts

In response to public and agency concern regarding vehicular and pedestrian access, a grade separation for Pueblo Avenue is being evaluated and would be provided only if funding is made available by the local agencies. In addition, 88th Street (an existing north-south roadway west of the 202L alignment and north of US60) would be relocated to the west, to maintain local access from Corabell Avenue to the north, through Pueblo Avenue, and continuing to Emelita Avenue to the south.

Schools

None of the alternatives would have an impact on access between the neighborhoods and the schools via the major arterial streets. Some schools use collector streets (Pueblo and Corabell Avenues) for primary access. If the Pueblo Avenue crossing is not provided, freeway crossing of these streets would require alternate bus routes. After project completion, travel time for school buses would not be substantially altered because it is projected that there would be less congestion on the arterial and collector streets used for school access. Schools in the study area are used after normal school operating hours for activities such as daycare, city-sponsored sports programs, community education programs, and general public recreational use. The alternatives would enhance the availability of these activities by improving access for residents to the school facilities.

Police, Fire, and Hospitals

The action alternatives may increase emergency response times on US60 between Sossaman and Ellsworth roads. It is anticipated that these impacts would be minimized by the identification and use of alternate routes. Coordination with the City of Mesa and Rural Metro is ongoing with respect to emergency access.

Public Transit

Upon completion, the alternatives would have no permanent impact on access to bus service. The improvements would make the express bus service more attractive to the public and increase the viability for expansion of these services. Bus service travel times could increase temporarily due to route detours during construction. This condition would discontinue once construction is completed.

Bicycle Facilities

If a Pueblo Avenue crossing were not provided, an alternate route (such as Broadway Road or Southern Avenue) for the bicycle route would be required as identified by the City of Mesa.

Travel Patterns

General Redistribution: The completion of the 202L mainline and the 202L/US60 TI would cause a change in the travel patterns, with associated changes in traffic volumes, for the arterial streets located adjacent to the mainlines. Once the 202L opens to traffic, the parallel arterial streets located near the freeway generally would experience a decrease in traffic volumes, since the majority of the regional trips will shift from the arterial streets to the freeway. At each service TI, the arterial street approaching the TI would experience an increase in traffic volumes.

The traffic currently using Ellsworth and Sossaman Roads can be categorized into three distinct categories; 1) regional trips; 2) short trip US60 traffic; and 3) short local traffic (trips less than two miles). The majority of the regional traffic and the short trip US60 traffic will shift to the 202L. Although the magnitude of traffic distribution is difficult to accurately predict, the close proximity of the 202L to Ellsworth Road would make the 202L more attractive, thereby causing the Ellsworth Road traffic to divert to the 202L.

The diversion of traffic from Ellsworth and Sossaman Roads to the 202L would result in a decrease in the traffic volumes on the ramps accessing US60 from the Sossaman Road and Ellsworth Road TIs. When comparing the existing Sossaman and Ellsworth Roads TI ramp traffic volumes, the Ellsworth Roads TI west ramps have lower projected ramp volumes in 2025 than the existing volumes. The other ramps show a moderate increase in traffic demand in 2025.

The projected decrease in traffic volumes on the Ellsworth Road TI west ramps indicates travelers would access the 202L rather than continue to use Ellsworth Road to access US60. It is expected that the majority of the traffic destined to westbound US60 from the areas north of Broadway Road and south of Guadalupe Road, currently using Ellsworth Road, would shift to the 202L mainline.

Since the 2025 Sossaman Road TI ramp volumes are higher than the existing volumes, the same magnitude of traffic redistribution is not expected to occur at Sossaman Road.

New 202L interchanges at Elliot Road, Guadalupe Road, Baseline Road and Broadway Road will cause an increase in traffic volume along these arterial streets in the vicinity of the 202L. The largest arterial street traffic volumes will occur between the 202L and Ellsworth Road.

Redistribution of Traffic Among Action Alternatives: Alternative C would provide full US60 access at Sossaman and Ellsworth Roads. Therefore, the redistribution of traffic associated with Alternatives A and B would be compared against Alternative C for the comparison analysis.

Alternative B would provide full US60 access at Ellsworth Road. Partial US60 access would be provided with the Sossaman Road TI west ramps. The elimination of the Sossaman Road TI east ramps would cause a displacement of approximately 3,600 vpd from the westbound exit ramp,

and 3,600 vpd from the eastbound entrance ramp. This displacement of traffic would cause a slight increase in traffic volumes on the adjacent arterial street system. When compared with Alternative C, the Baseline Road and Southern Avenue traffic volumes would increase by approximately 100 vph. The remaining portion of the redistributed Sossaman Road TI ramp traffic would be distributed evenly throughout the roadway network, causing less than a two percent increase in arterial volumes.

Alternative A would eliminate the Sossaman Road TI east ramps along with the Ellsworth Road TI west ramps. The elimination of the Ellsworth Road west ramps would cause a displacement of approximately 5,500 vpd at the entrance ramp, and approximately 6,000 vpd at the eastbound exit ramp. This traffic volume displacement is in addition to the volumes redistributed with Alternative B.

The elimination of the Ellsworth Road TI west ramps, combined with the elimination of the Sossaman Road TI east ramps, would increase the peak hour volume on Baseline Road by approximately 300 vph and the volume on Southern Avenue by approximately 300 vph when compared to the 2025 volumes shown with Alternative C. The remaining redistribution of traffic is regional in nature and would increase the other major arterial street volumes by less than two percent.

3. Mitigation

No mitigation measures are proposed for impacts as presented in this section.

4. Conclusion

Social services, including police and fire protection, emergency services, schools, transit and bicycle facilities, are located within the study area. Upon completion, the project would not adversely affect social services in the study area. Emergency response times may increase slightly as a result of limited access to eastbound US60 between Sossaman and Ellsworth Roads. However, this condition is considered slight when compared to the enhanced travel operations provided by the competed project.

D. DISPLACEMENTS AND RELOCATIONS

1. Impacts

Table 3-3 summarizes the approximate number of potential relocations anticipated for each of the project alternatives.

Table 3-3. Approximate Number of Potential Relocations

Location[1]	No-Build Alternative	Action Alternatives		
		A	B	C
Crescent Run	179	158	158	158
Valle del Oro	0	23	23	23
E. of Hawes Road; N. of Guadalupe Road	2	2	2	2
Hopi Avenue between Sossaman Road & Palo Verde Street	22	17	22	22
Casa Mia	0	4	4	11
Silveridge	0	0	0	29
88th Street between Pueblo Avenue & Emelita Avenue	0	10	10	10
Sossaman Road/ Inverness Avenue I/S	2	0	2	2
TOTAL	**205**	**214**	**221**	**257**

[1] See Figure 3-2 for location.

Note: The total number of potential relocations is subject to change as right-of-way requirements are refined during final design.

E.= East; N.= North; I/S= Intersection

2. Mitigation

An acquisition and relocation assistance program would be conducted in accordance with the *Uniform Relocation Assistance and Real Properties Acquisition Policies Act of 1970* (49 CFR Part 24), which identifies the process, procedures, and time frame for right-of-way acquisition and relocation of affected residents or businesses. Relocation resources would be available to all residential and business relocatees without discrimination. All replacement housing would be decent, safe, and sanitary. Replacement housing is available in the general area; however, last resort housing would be provided if it is found that sufficient, comparable housing is not available. The ADOT *Relocation Assistance Program* is included as Appendix C. If necessary, specific relocation plans would be developed to assist displaced residents of mobile homes in finding alternative sites for their mobile homes.

3. Conclusion

While as many as 257 potential relocations would occur as a result of the project, the acquisition and relocation assistance program afforded to affected residents would effectively mitigate the relocation impacts. Therefore, relocation impacts are expected to be minor.

E. ECONOMICS

1. Impacts

All of the alternatives would remove lands from private ownership and the Maricopa County tax roll, which would have a short-term negative impact on overall economic activity. The number of affected residents would be a minor percentage of the total Maricopa County tax roll. Because the project would enhance the movement of regional and local goods, materials, and services, the project would have long-term contributions to accessibility and the economy for both the City of Mesa and Maricopa County. The effect of the action alternatives on regional and community growth would be negligible; the freeway has been incorporated into the *Mesa General Plan* **(City of Mesa 1996)**, as well as the *Long-Range Transportation Plan* **(Maricopa County 1997b)**. Growth forecasts for the region are dependent, in part, on MAG's planned freeway system in place to accommodate the transportation needs of the 21st century. The completion of the 202L/US60 TI would meet a need in the region and the community for additional freeway system links for the City of Mesa and the region.

The effect that project construction and operation could have on adjacent property values is a concern to local property owners. A study completed on this issue indicates that properties abutting a highway could appreciate over time, but that the rate of appreciation would lag behind other properties further from the highway **(Langley 1981)**. A more recent study **(Wolfe 1992)** evaluated all sale transactions of single-family, detached residences between 1981 and 1990 in four Census Tracts adjacent to Route 41 in Fresno, California. The study concluded that the presence of the freeway did not substantially affect sales prices in residential areas adjacent to the freeway. However, the study indicated that the visibility of the freeway could influence prices more than distance or noise. Both studies concluded that property values would not depreciate as a result of those projects. It is expected that similar trends would apply for this project.

2. Mitigation

During construction, ADOT District office would coordinate with local businesses to ensure reasonable access to businesses would be maintained during regular operating hours.

3. Conclusion

While the project would remove some lands from private ownership and the City and County tax rolls, the enhanced movement of people and goods aid in accommodating planned growth in the study area. Therefore, this project would have little adverse effect on the overall economic activity in the City and County.

F. HAZARDOUS MATERIALS

1. Existing Conditions

Available records from the Arizona Department of Environmental Quality (ADEQ) and the U.S. Environmental Protection Agency (EPA) were reviewed in December 2000, to identify potential sites of hazardous contamination near or within the study area. No hazardous materials concerns were identified within the project corridor. Four leaking underground storage tanks were identified within 0.5 mile of the project corridor **(ADOT 2001b)**. Review of ADEQ files revealed these sites are far enough away from the project to pose no threat to the project.

2. Impacts

Construction of the project could result in the demolition of up to 257 residences based on current design. Some of these structures may contain asbestos-based materials.

No immediate hazardous materials concerns have been identified in the study area.

3. Mitigation

Any structures to be demolished would be reviewed for asbestos and if present, all applicable federal regulations and guidelines concerning the identification, removal and disposal of asbestos would be adhered to including EPA National Emission Standards for Hazardous Air Pollutants (NESHAP), Occupational Health and Safety Administration regulations and Resource and Conservation Recovery Act requirements for solid waste disposal.

If suspected hazardous materials concerns are encountered during construction, work would cease at that location. An ADOT engineer would be contacted by the contractor to arrange for proper treatment and assessment of those materials.

4. Conclusion

Because no immediate hazardous materials are known to exist in the study area, and specific procedures are in place for the handling of hazardous materials, such as asbestos, in the event that they are discovered, the potential release of harmful materials from this project is minimal.

G. AIR QUALITY

The potential air quality impacts associated with this project are a type of effect that may extend outside the immediate freeway corridor. Each of the alternatives developed were evaluated for potential air quality impacts. In summary, none of the alternatives would result in a violation of federally established air quality standards for carbon monoxide (CO). Further, the results of the

modeling performed for this project reveal that the alternatives are very comparable with regard to their predicted impacts on existing air quality.

1. Regional Overview

The *Clean Air Act Amendments of 1990* authorized the EPA to designate areas as nonattainment, and to classify them according to their degree of severity. This classification initiates a set of control requirements designed to achieve attainment by a specified date. A nonattainment area is an area in which compliance with the National Ambient Air Quality Standards (NAAQS) has not been established for one or more air pollutants. The NAAQS for other applicable criteria pollutants are presented in Table 3-4.

Table 3-4. National Ambient Air Quality Standards

Pollutant	Averaging Time	Primary	Secondary
Carbon Monoxide	1-hr	35 ppm	**
	8-hr	9 ppm	**
Nitrogen Dioxide	Annual	100 $\mu g/m^3$	100 $\mu g/m^3$
Ozone	1-hr	0.12 ppm	0.12 ppm
	8-hr	0.08 ppm	0.08 ppm
PM_{10}	24-hr	65 μg/m3	65 $\mu g/m^3$
	Annual	15 $\mu g/m^3$	15 $\mu g/m^3$

Notes: ppm = parts per million; $\mu g/m^3$ =micrograms per cubic meter; ** = no standard
Source: Arizona Department of Environmental Quality, 1996a.

Per the *Clean Air Act Amendments of 1990*, the NAAQS are not to be exceeded more than once per year, with the exception of ozone (O_3) and particulate matter with diameters of 10 microns or less (PM_{10}).

The project area lies within an air quality nonattainment area for CO, O_3, and PM_{10}. CO is a colorless, odorless gas, which primarily affects the cardiovascular system. Vehicular emissions are a major source of CO. Due to temperature inversions, the worst CO readings within the MAG Urban Planning Area occur during the winter months from October through February. The Maricopa County CO nonattainment area was reclassified form “moderate” to “serious” by the EPA effective August 28, 1996. The reclassification requires MAG to prepare, within 18 months of the effective date, a State Implementation Plan (SIP) that demonstrates attainment of the NAAQS for CO by December 31, 2001. A draft CO plan was prepared in September 1998. The plan was revised in response to comments received at a public hearing held in May 1999. MAG submitted the revised plan to the EPA in July 1999. The EPA issued its finding of completeness in September 1999 and the plan is currently under review.

O_3 is a product of reactions among chemicals produced by burning coal, gasoline, and other fuels, and chemicals found in products including solvents and paints. O_3 affects the respiratory system. On December 6, 1997, the EPA issued a final rule, which reclassified the Maricopa County O_3 attainment by November 15, 1999. A direct final rule was issued in November 1998 to extend the December 8, 1998 deadline to March 1999. The plan is currently being revised in response to comments received during the pubic comment period.

Particulate matter may cause irritation and damage to the respiratory system. Particulate matter includes dust, soot, and other tiny bits of solid materials that are released into and move around in the air. Particulates are produced by many sources, including burning of diesel fuels by trucks and buses, incineration of garbage, mixing and application of fertilizers and pesticides, and road construction. In 1987, the EPA revised the particulate standard to address those particles with diameters of 10 microns or less. These smaller particles are referred to as PM_{10}.

The Maricopa County PM_{10} nonattainment area was reclassified by the EPA from “moderate” to “serious” with an effective date of June 10, 1996. The reclassification requires MAG to prepare a new SIP within 18 months of the effective date that demonstrates attainment of the NAAQS for PM_{10} before December 31, 2001. A PM_{10} plan was prepared in December 1997. The plan was revised in response to comments received from the EPA. MAG submitted the revised plan and five-year extension request in July 1999. The EPA issued its findings of completeness in December 1999 and the plan is currently under review.

This project is located in an air quality nonattainment area, which has transportation control measures in the State and Federal Implementation Plans. Completion of the conformity analysis and final approval of the 2001-2005 Transportation Improvement Program (TIP) occurred on July 26, 2000. The 2001-2005 TIP includes this project. The MAG LRTP Summary Update includes the project in its entirety.

2. Project-Level Analyses

Project-level analyses were performed to assess the potential air quality impacts associated with the project. These analyses focused on vehicular emissions of CO. Other pollutants, such as PM_{10}, nitrogen oxides (NO_X), and O_3, are also components of vehicular emissions; however, the impacts of CO are most easily assessed and provide a convenient measure of air quality impacts.

The modeled impacts were compared to applicable ambient air quality standards to determine whether any of the project alternatives would result in localized violations. The methodology used for the analyses is industry-standard, and is described further in the *Air Quality Technical Report, 202L/US60 Traffic Interchange* **(ADOT 2001c)**, available at the ADOT Environmental Planning Group, 205 South 17th Avenue, Phoenix, Arizona.

Maximum one-hour concentrations of CO were modeled at 14 receivers in the study area for the four alternatives for the year 2025 build conditions. Traffic volume projections consistent with peak morning (AM) values were used in the analysis of all alternatives. The AM peak was chosen for this analysis because the meteorological conditions at that time lead to the highest CO concentrations.

Table 3-5 summarizes the model results. The 8-hour concentrations were estimated by multiplying the 1-hour values by the EPA-recommended default persistence factor of 0.7.

Table 3-5. Maximum Predicted Carbon Monoxide Concentrations in 2025 (ppm)[1]

Receptor	Alternative A		Alternative B		Alternative C	
	1-hour	8-hour	1-hour	8-hour	1-hour	8-hour
1	5.1	3.6	5.2	3.6	5.1	3.6
2	5.2	3.6	5.3	3.7	5.3	3.7
3	4.8	3.4	4.8	3.4	4.8	3.4
4	5.2	3.6	5.1	3.6	5.1	3.6
5	5.1	3.6	5.0	3.5	5.0	3.5
6	4.9	3.4	5.0	3.5	5.1	3.6
7	5.0	3.5	4.9	3.4	5.1	3.6
8	4.8	3.4	4.8	3.4	4.9	3.4
9	4.8	3.4	4.8	3.4	4.8	3.4
10	4.8	3.4	4.8	3.4	4.9	3.4
11	4.7	3.3	4.7	3.3	4.8	3.4
12	4.7	3.3	4.7	3.3	4.7	3.3
13	5.0	3.5	5.0	3.5	5.4	3.8
14	5.0	3.5	5.0	3.5	5.0	3.5
Overall Maximum	**5.2**	**3.6**	**5.3**	**3.7**	**5.4**	**3.8**

[1] ppm = parts per million
[2] All 1-hour concentrations include one-hour background CO of 4.4 ppm used for 2025 conditions
Note: The overall maximums for the No-Build Alternative are 5.3 ppm for the 1-hour NAAQS and 3.7 ppm for the 8-hour NAAQS for CO. The 1-hour NAAQS for CO is 35 ppm. The 8-hour NAAQS for CO is 9 ppm.

3. Project Level Impacts

The greater Phoenix area, including the study area in the City of Mesa, is designated as a serious nonattainment area for CO because of measured violations of the 8-hour NAAQS of 9 parts per million (ppm). However, monitoring data from recent years indicates that these violations occur in the heart of the Phoenix metropolitan area, rather than in the outlying areas. Table 3-6 is a

summary of 1999 CO monitoring data **(ADEQ 2000)** for monitors located in the central and eastern portions of the metropolitan area. The data in Table 3-6 demonstrate that maximum CO concentrations decrease substantially in moving from the center to the eastern edge of the Phoenix metropolitan area. The monitoring sites listed at the top of the table are nearer the center of the metropolitan area, while the sites at the bottom of the table are nearer the edge of the metropolitan area, as one moves generally eastward from downtown Phoenix toward Apache Junction, on the eastern edge of the metropolitan area.

Table 3-6. Summary of 1999 Carbon Monoxide Monitoring Data

City	Site Location	1-hour Concentration (ppm)[1]		8-hour Concentration (ppm)	
		Max. [2]	2nd Max.	Max.	2nd Max.
Phoenix	27th Ave/Grand	18.4	13.5	10.5	8.0
Scottsdale	2857 N. Miller	6.0	5.8	4.3	4.1
Chandler	163 S. Price	4.3	4.0	2.9	2.8
Mesa	Broadway and Brooks	7.2	5.8	4.4	4.0
Gilbert	525 N. Lindsay	3.8	3.7	2.4	2.4
Apache Junction	Highway Yard	1.9	1.7	0.9	0.8

[1] ppm = parts per million
[2] Max. = Maximum

The modeling results in Table 3-5 indicate that the maximum predicted CO concentrations in the year 2025 near the alternatives are well below both the 1-hour NAAQS for CO of 35 ppm and the 8-hour NAAQS for CO of 9 ppm.

Modeled impacts from the project contributed 1.0 ppm or less on a 1-hour average. Added to the background 1-hour CO concentrations of 4.4 ppm, this gives a total maximum 1-hour concentration of 5.4 ppm or less for all of the alternatives evaluated, compared to the 1-hour NAAQS of 35 ppm. Multiplying the maximum 1-hour concentration of 5.4 ppm by the persistence factor of 0.7 ppm gives a maximum 8-hour concentration of 3.8 ppm or less for all alternatives, compared to the 8-hour NAAQS of 9.0 ppm.

Some temporary deterioration of air quality could be expected because of the operation of construction equipment and the slower traffic speeds associated with a construction zone. However, this would be localized and discontinued upon completion of construction. Fugitive

dust generated from construction activities must be controlled in accordance with the *Arizona Department of Transportation Standard Specifications for Road and Bridge Construction*, Section 104.08 **(ADOT 2000a)**, special provisions, and local rules or ordinances. The roadway contractor shall also obtain an approved *Application for Earth Moving Permit, Demolition, and Dust Control Plan* (Appendix D).

The CO project-level air quality analysis demonstrates that none of the evaluated alternatives would cause or contribute to violations of NAAQS based on year 2025 projected traffic conditions.

4. Mitigation

In accordance with Maricopa County Rule 310, *Fugitive Dust Ordinance*, before beginning construction, an approved *Application for Earth Moving Permit, Demolition, and Dust Control Plan* would be obtained from the Maricopa County Environmental Services Department. The permit would describe measures to control and regulate air pollutant emissions during construction (Appendix D).

Control measures that would be implemented at the construction site include, but are not limited to:

- Site Preparation
  - Minimize land disturbance.
  - Use watering trucks to minimize dust.
  - Cover materials (dirt) when hauling.
  - Stabilize the surface of dirt piles if not removed immediately.
  - Use windbreaks to prevent accidental dust pollution.
  - Limit vehicular paths and stabilize temporary roads.
  - Pave all unpaved construction roads and parking areas to road grade for a length no less than 50 feet where such roads and parking areas exit the construction site to prevent dirt from tracking onto paved roadways.
- Construction
  - Cover truck contents when transferring materials.

- Use dust suppressants on traveled paths, which are not paved.
- Minimize unnecessary vehicular and machinery activities.
- Minimize dirt track-out by washing or cleaning trucks before leaving the construction site (alternative to this strategy is to pave a few hundred feet of the exit road just before entrance to the public road).

▶ Post Construction

- Revegetate any disturbed land not used.
- Remove unused material.
- Remove dirt piles.
- Revegetate all vehicular paths created during construction to avoid future off-road vehicular activities.

In order to minimize the amount of emissions generated by traffic during construction, every effort should be made during the construction phase to limit disruption to traffic, especially during peak travel periods.

5. Conclusion

The CO project level analysis clearly shows that nine of the action alternatives would not substantially contribute to air quality degradation or result in exceeding the NAAQS. Additionally, the implementation of mitigation measures, as outlined in *Maricopa County Rule 310* would ensure effective control of fugitive dust, during construction.

H. NOISE

A traffic noise analysis was conducted to determine potential impacts on noise-sensitive land uses located in the project vicinity. An analysis of impacts was performed for the action alternatives. Mitigation of impacts was investigated for Alternatives A, B, and C. The mitigation for the No-Build Alternative is presented in the 1999 FEIS **(ADOT 1999a)**.

Noise-sensitive land uses and activities in the vicinity of highway projects must be first identified and analyzed. Anticipated changes in noise levels for these sensitive areas must be identified during design hour conditions when the noise levels are expected to be the highest. Table 3-7 displays the FHWA noise abatement criteria (NAC) for varying land activity categories as presented in FHWA's *Procedures for the Abatement of Highway Traffic and Construction Noise* (23 CFR 772*)*. These criteria specify noise levels considered to be the upper levels of acceptability for outdoor and certain indoor activities.

Table 3-7. Noise Abatement Criteria

Activity Category	L_{aeq1h}[1] (dBA)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above
D	--	Undeveloped lands
E	52 (Interior)2	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

[1] L_{aeq1h} is the one-hour a-weighted energy equivalent sound level.

[2] The interior sound levels (activity) apply to: indoor activities for those parcels where no exterior noise-sensitive land use or activity is identified; and those situations where the exterior activities are either remote from the highway or shielded in some manner so that the exterior activities will not be affected by the noise, but the interior activities will be affected.

Source: 23 CFR 772.

ADOT also adopted a *Noise Abatement Policy for Federal Aid Projects* **(ADOT 2000d)**, which indicates that a traffic noise impact occurs under either of the following conditions:

- When the predicted level approaches or exceeds the FHWA's NAC. "Approaches" is defined as within 3 dBA of the NAC, or 64 dBA L_{aeq1h} or greater, for residential areas, schools, and parks; or

- When the predicted level substantially exceeds the existing noise level. "Substantial" is defined as 15 dBA or greater.

If an impact is predicted, then FHWA's procedures and ADOT Policy indicate that mitigation should be considered. Noise abatement measures must be both reasonable and feasible. For a discussion of reasonable and feasible criteria for noise abatement, refer to the *202L/US60 Traffic Interchange Noise Technical Study* (**ADOT 2001d)**.

1. Methodology and Assumptions

Roadway geometry and sensitive receiver locations were established from the roadway plan drawings and cross-sections. Topographic features and elevations were derived from electronic files. In instances where exact locations of sensitive receivers were not shown on the electronic files, aerial photography and existing mapping were used to determine their locations.

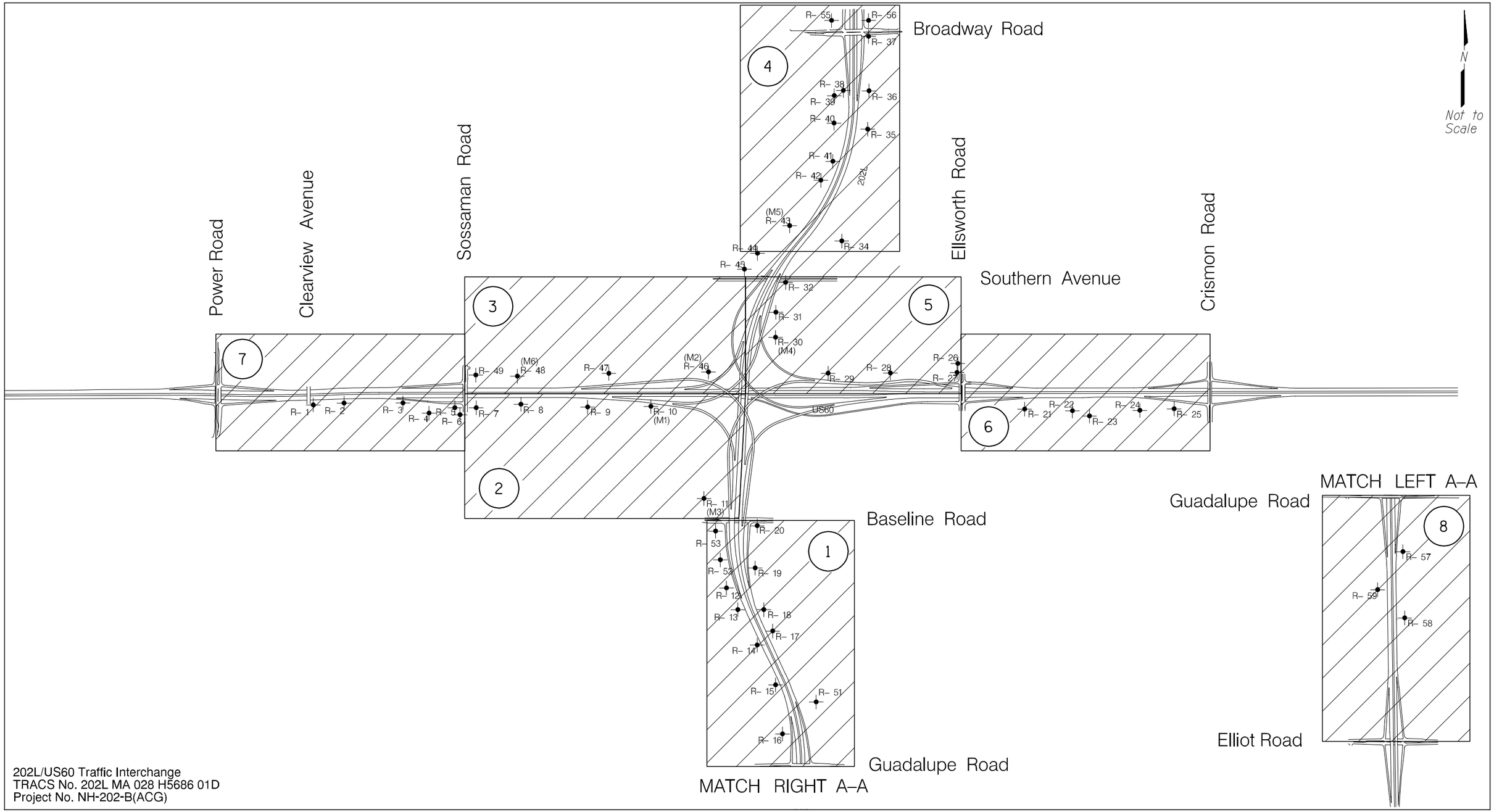
Table 3-7 presents NAC classifications for types of activities that have varying sensitivities to noise. Sensitive receivers within the study area are classified within activity Category B as defined in Table 3-7.

The project area was subdivided into eight representative noise areas. Analysis of noise impacts was performed for 56 sensitive receivers within the study area for each Build Alternative and 53 sensitive receivers for the No-Build Alternative. Figure 3-8 depicts the eight representative noise areas and locations of sensitive receivers in each.

Projected future noise levels for all four alternatives were estimated for the Design Year 2025 using the FHWA's approved noise model, *STAMINA 2.0*. The modeling performed included the:

- 202L/US60 TI ramps.
- Future northbound and southbound lanes of 202L between Hawes Road and Broadway Road.
- Existing eastbound and westbound lanes of US60 between Crismon Road and Superstition Springs Boulevard.

Modeling also considered noise generated by the associated service TI ramps linking these freeways to major cross streets. These occur at Broadway Road, Baseline Road, and Guadalupe Road along the 202L. Along US60, service TIs currently exist at Crismon Road, Ellsworth Road, Sossaman Road, and Power Road.



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LEGEND:

(#) = Noise Area

✦ = Noise Receiver Location

R–# = Receiver Number

(M#) = Monitoring Locations

NOTE:

The representative noise areas, sensitive receiver locations, and monitoring locations shown apply to Build Alternatives A, B, C, and the No Build Alternative, which is the alternative presented in this figure.

Representative Noise Areas and Receiver Locations

Figure 3-8

00173/001/dgn/Fig3–8.dgn

Traffic volumes, speeds, and mix (percentage of cars, medium trucks, and heavy trucks) affect traffic noise levels, and were, therefore, incorporated into the model. Traffic volumes and speeds used represent "worst case" traffic conditions for noise levels (at or better than LOS C). The following vehicle operating speeds were used:

- 65 miles per hour (mph) for the 202L and US60 mainline.
- 50 mph for the 202L/US60 TI ramps, 47 mph for the service TI ramps.
- 45 mph for major cross-streets.

2. Noise Impacts

Environmental consequences of traffic noise consist of impacts to sensitive receivers. These impacts can occur during construction of a roadway improvement project from equipment used to construct the freeway, and after the project is completed if it involves added traffic capacity. Ambient or existing noise level readings were taken at six representative locations chosen from 56 sensitive receivers. This was done to assess whether existing noise levels exceed the ADOT Policy "Approach" to the FHWA NAC, and to set a baseline for which a substantial (15 dBA) noise increase could be measured against predicted future noise levels for each design alternative. Coordination with the CAT helped to identify locations for field monitoring of existing traffic noise in the study area. These receivers, designated as monitoring (**M**) locations, are shown in Figure 3-8 and the average recorded noise levels at these locations are given in Table 3-8.

Table 3-8 also summarizes the modeling results for traffic noise generated by the 202L/US60 TI, freeway mainlines, and service TIs in the Design Year 2025 for the alternatives. The table further depicts the predicted reductions in noise levels when mitigation is appropriately proposed. In summary, of the 53 selected sensitive receivers modeled, the following number of receivers per alternative would experience noise impacts, as defined by ADOT because predicted noise levels exceed the NAC:

- 48 receivers - Alternative A.
- 46 receivers - Alternative B.
- 47 receivers – Alternative C.

Table 3-8. Summary of Existing Noise and Mitigation of Future (2025) Noise Levels at Representative Receivers

[a]Receiver No.	[b]Existing (2000) Noise Level: Monitored Laeq1hd (dBA)	ADOT NAC[e] Approach of FHWA NAC Laeq1hd (dBA)	Future (2025) Noise Level: Modeled Laeq1hd (dBA)								
			Alternative A			Alternative B			Alternative C		
			Unmitigated	Mitigated	Reduction	Unmitigated	Mitigated	Reduction	Unmitigated	Mitigated	Reduction
Area 7											
R1	-	64	76	63	13	76	63	13	76	63	13
R2	-	64	75	63	12	75	63	12	75	63	12
R3	-	64	74	63	11	74	63	11	74	63	11
R4	-	64	69	63	6	69	63	6	69	63	6
R5	-	64	72	62	10	72	62	10	72	62	10
R6	-	64	72	68	4	72	68	4	72	68	4
Area 2											
R7	-	64	71	61	10	71	63	8	72	62	10
R8	-	64	73	63	10	73	63	10	72	63	9
R9	-	64	68	63	5	68	62	6	70	63	7
R10	65(M1)	64	67	62	5	66	60	6	69	63	6
R11	-	64	64	63	1	64	63	1	64	63	1
Area 1											
R12	-	64	63	-	-	63	-	-	63	-	-
R13	-	64	67	62	5	67	62	5	67	62	5
R14	-	64	71	63	8	71	63	8	71	63	8
R15	-	64	71	63	8	71	62	9	71	63	8
R16	-	64	66	59	7	66	59	7	66	59	7
R17	-	64	70	62	8	70	62	8	70	62	8

Table 3-8. Summary of Existing Noise and Mitigation of Future (2025) Noise Levels at Representative Receivers (con't)

[a]Receiver No.	[b]Existing (2000) Noise Level: Monitored Laeq1hd (dBA)	ADOT NAC[e] Approach of FHWA NAC Laeq1hd (dBA)	Future (2025) Noise Level: Modeled Laeq1hd (dBA)								
			Alternative A			Alternative B			Alternative C		
			Unmitigated	Mitigated	Reduction	Unmitigated	Mitigated	Reduction	Unmitigated	Mitigated	Reduction
R18	-	64	70	63	7	69	63	6	70	63	7
R19	-	64	67	62	5	67	63	4	66	63	3
R20	-	64	70	62	8	70	62	8	70	62	8
R51	-	64	63	-	-	63	-	-	63	-	-
R52	-	64	64	61	3	64	61	3	64	61	3
R53	-	64	65	62	3	65	62	3	65	62	3
Area 6											
R21	-	64	70	62	8	70	62	8	70	62	8
R22	-	64	69	61	8	69	61	8	69	61	8
R23	-	64	67	60	7	67	60	7	67	60	7
R24	-	64	69	63	6	69	63	6	70	63	7
R25	-	64	71	63	8	71	63	8	71	63	8
Area 5											
R26	-	64	70	63	7	70	63	7	70	63	7
R27	-	64	71	62	9	71	63	8	70	63	7
R28	-	64	66	60	6	66	61	5	66	60	6
R29	-	64	68	60	8	68	63	5	68	60	8
R30	57(M4)	64	63	-	-	62	-	-	62	-	-
R31	-	64	64	60	4	62	-	-	64	60	4
R32	-	64	67	62	5	65	60	5	66	60	6

Table 3-8. Summary of Existing Noise and Mitigation of Future (2025) Noise Levels at Representative Receivers (con't)

[a]Receiver No.	[b]Existing (2000) Noise Level: Monitored Laeq1hd (dBA)	ADOT NAC[e] Approach of FHWA NAC Laeq1hd (dBA)	Future (2025) Noise Level: Modeled Laeq1hd (dBA)								
			Alternative A			Alternative B			Alternative C		
			Unmitigated	Mitigated	Reduction	Unmitigated	Mitigated	Reduction	Unmitigated	Mitigated	Reduction
Area 4											
R34	-	64	62	-	-	62	-	-	62	-	-
R35	-	64	63	-	-	63	-	-	63	-	-
R36	-	64	67	62	5	67	62	5	67	62	5
R37	-	64	65	59	6	65	59	6	65	59	6
R38	-	64	63	-	-	63	-	-	63	-	-
R39	-	64	64	59	5	64	59	5	64	59	5
R40	-	64	64	58	6	64	58	6	64	58	6
R41	-	64	68	63	5	68	63	5	68	63	5
R42	-	64	70	62	8	70	62	8	70	62	8
R43	53(M5)	64	65	59	6	65	59	6	65	59	6
R44	-	64	61	-	-	62	-	-	62	-	-
R45	-	64	64	63	1	64	63	1	64	63	1
R55	-	64	66	59	7	66	59	7	66	59	7
R56	-	64	62	-	-	62	-	-	62	-	-
Area 3											
R46	64(M2)	64	65	60	5	63	-	-	60	-	-
R47	-	64	64	59	5	65	62	3	65	60	5
R48	65(M6)	64	68	63	5	68	63	5	70	62	8
R49	-	64	70	63	7	69	63	6	70	63	7

For the No-Build Alternative, 46 receivers would experience noise impacts. The differences in the predicted impact among the alternatives are slight. Where differences do occur, they are attributable to one, or a combination of, the following factors:

- Variations in predicted traffic volumes among alternatives.
- Minor differences in roadway geometry among alternatives.
- Variations in ramp locations and height relative to receiver locations.
- The location of existing structures such as privacy walls with respect to receiver locations.
- The use of jersey barriers as noise attenuators.

3. Mitigation

Mitigation considerations for traffic noise exceeding the ADOT Policy "Approach" of the FHWA NAC due to highway improvements include:

- Shifting the roadway horizontal alignment.
- Depressing the roadway.
- Acquiring real property.
- Managing traffic.
- Constructing noise barriers.

For this project, construction of noise barriers is the recommended mitigation option. Table 3-8 summarizes the predicted reductions in noise levels resulting from proposed mitigation. Additional tables and figures describing and depicting the preliminary locations and dimensions of noise barriers are presented in Appendix E. Generally, barriers would be located:

- Adjacent to the 202L and US60 mainline.
- Atop jersey barriers on TI ramps.
- Adjacent to service TI ramps along sections where these roadways are elevated above affected receivers.

- At the edge of right-of-way where the roadway is at-grade or below impacted receivers, barriers are proposed at the right-of-way. A combination of the two is proposed in some areas.

From a transportation noise perspective, Alternatives A, B, and C would represent less change from current noise levels than the No-Build Alternative. Since the No-Build Alternative actually incorporates construction of the proposed 202L/US60 TI, noise levels may be expected to increase from the existing condition; however, it appears that the roadway geometry for each of the action alternatives would produce less of an impact in general. Impacts of each of the action alternatives are fairly consistent, differing by 3 dBA or less at each of the 56 sensitive receivers analyzed for these alternatives, with the exception of R46, where the difference is 5 dBA.

Applying the FHWA NAC and the ADOT Noise Abatement Policy:

- 48 of these receivers are impacted by Alternative A.
- 46 are impacted by Build Alternative B.
- 47 are impacted by Build Alternative C.

Noise barriers are proposed to provide mitigation from traffic noise generated by the 202L and US60 mainlines, the 202L/US 60 TI ramps, and along segments of selected arterials streets.

In some areas, the project would have a beneficial effect on adjacent sensitive receiver locations. Some properties, such as residential developments along the south side of US60 between Crismon and Ellsworth Roads (R21 through R25) experience unmitigated noise impacts from US60 traffic. The project would locate noise barriers through this area to reduce noise levels. Without the project, such areas would continue to experience unmitigated noise impacts from US60.

4. Construction Noise

Construction noise differs from traffic noise in several ways:

- Construction noise lasts for the duration of the construction contract only, and it is usually limited to daylight hours.
- Construction activities are generally of a short-term nature, and depending on the nature of construction operations, could last from seconds (e.g., a truck passing a receiver) to months (e.g., constructing a bridge).

- Construction noise is intermittent and depends on the type of operation, location, and function of the equipment, and the equipment usage cycle. Traffic noise, on the other hand, is present in a more continuous fashion after construction activities are completed.

To minimize noise impacts during construction activities, the following mitigation measures will be taken:

- All exhaust systems on equipment would be in good working order.
- Properly designed engine enclosures and intake silencers would be used where appropriate.
- Equipment would be maintained on a regular basis. New equipment would be subject to new product noise emission standards.
- Stationary equipment would be located as far away from sensitive receivers as possible.
- The public would be adequately notified of construction operations. Methods, such as the provision of construction alert publications, would be provided to handle concerns in an expeditious manner.

5. Conclusion

Throughout the study, any of the action alternatives would result in operational noise levels that exceed NAC thresholds. However, with appropriate noise barriers in place, substantial reductions in noise levels below NAC thresholds would be achieved. Further, measures to be undertaken to reduce construction-related noise would contribute to quieter construction conditions. Therefore, the construction and operation of the project would not contribute substantially to the noise environment in the study area.

I. VISUAL QUALITY

1. Existing Conditions

The visual setting of the area is primarily a man-made environment with the primary feature being residential development, the local street network, and US60. Residential housing developments of varying densities dominate views throughout much of the project. The developments consist of conventionally constructed single-family homes and manufactured home communities, which house a large population of seasonal, winter visitors. US60 is a below-grade freeway with grade-separated intersections at major arterial streets.

The McDowell Mountains define the background area to the north. To the northeast, Red Mountain, and the Usery, Superstition, and Four Peaks Mountains provide distinct rugged landforms and skyline character. Twin Knolls, a small hill with a communication tower and water tank positioned on top, is the single landform rising up from low relief northwest of the 202L/US60 TI. Native plant species have been heavily impacted in this urbanizing area; however, some low-quality desert scrub vegetation covers undeveloped potions of the study area. Distant background landforms include Camelback Mountain in the City of Phoenix to the west and the Santan Mountains to the south in unincorporated Maricopa County.

US60 is the largest single man-made feature but is primarily below grade (except east of the US60/Ellsworth Road TI). This condition limits views from US60 to within the US60 corridor. Drivers would have views of the previously mentioned mountains to the east and northeast, particularly east of the US60/Ellsworth Road TI. As described in the *Santan Freeway; Price Freeway to Baseline Road Final EA* **(ADOT 1999b)**, views afforded in the area from Baseline Road to Warner Road are predominantly scattered residential developments, open fields, and distant views of the mountains to the east and northeast. The majority of properties only have views of their immediate neighborhood because of the close proximity of residential structures and the relatively flat terrain.

2. Impacts

Temporary construction features associated with any of the alternatives such as excavation areas, soil stockpiles, crane towers, equipment and materials storage, false work and other miscellaneous items would be visible from surrounding lands. Temporary visual impacts would be greatest where the alternatives are located adjacent to existing residential developments. After completion of construction, these impacts would cease.

All alternatives would introduce a substantial man-made visual component to the study area. Alternatives A, B and C would have a greater effect than the No-Build Alternative. These alternatives would locate ramps closer to neighboring residential areas and would be substantially higher in elevation (approximately 75 feet) at their highest point. The 202L immediately north of the TI, when completed for any alternative, would be elevated over Southern Avenue and would introduce a visible change for the views in the immediate area. The same condition would hold true south of US60 as the 202L crosses over Baseline Road, Elliot Road, and Warner Road. While most views from residences in the surrounding communities are limited to adjacent residences, some residences are afforded distant views of the surrounding mountains. The elevated sections of the 202L would obstruct such views when completed.

For any of the alternatives, widening of US60 would occur within the existing corridor and the resulting change in visual quality and character would be negligible. Reconstruction of the existing US60 TIs at Ellsworth Road and Sossaman Road would also have a negligible effect on visual quality once completed. In both instances (US60 widening and reconstruction of existing traffic interchanges), the modifications are affecting man-made features in a manner consistent with the existing visual setting of the freeway. Drivers on US60 would notice a negligible change in the visual setting of the US60 corridor. Figures 3-9 through 3-13 are simulations of what the TI could look like from surrounding communities once constructed.

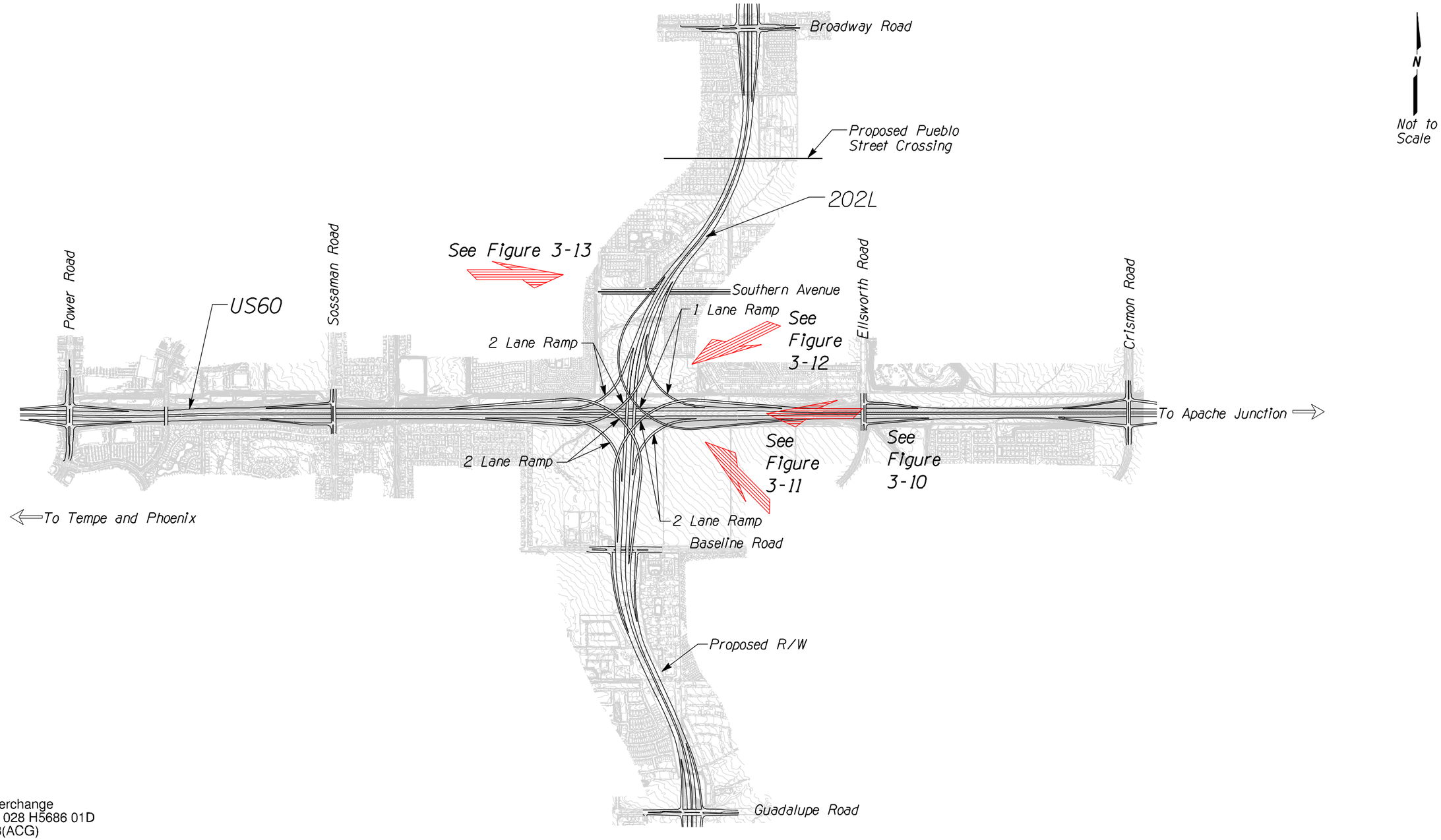
3. Mitigation

During final design, ADOT (in coordination with the City of Mesa staff) would identify and incorporate design measures to reduce overall visual impacts resulting from project construction. Methods of accomplishing this mitigation could include, but should not be limited to, providing landscaping per standard ADOT practice where practicable, and blending structures into surrounding landscape to the extent possible. For all alternatives, structures such as bridges, concrete barriers, and retaining walls would be designed to use materials with color and texture qualities similar to the surrounding landscape. Special detailing would be considered at specific locations to harmonize the structures with their surroundings.

Landscaping plans for the project would be developed in coordination with ADOT Roadside Development and the Arizona Department of Water Resources to ensure that the appropriate materials are used along the 202L/US60 project in accordance with the Phoenix Active Management Area (AMA). The Phoenix AMA Second Management Plan requires use of low-water (water-conserving) plants in public right-of-way landscaping.

4. Conclusion

All alternatives would introduce a substantial man-made feature (the 202L/US60 TI) to a primarily man-made environment. Some residences in the study area with distant views of the surrounding mountains may find such views obstructed by the project. While ADOT will work with the City of Mesa staff to incorporate aesthetically pleasing features into the project to offset impacts, some views of distant mountains will remain obstructed.



202L/US60 Traffic Interchange
TRACS No. 202L MA 028 H5686 01D
Project No. NH-202-B(ACG)

Notes

- R/W – Right of Way.
- See Figure 2–5 for lane diagram of this alternative.
- Table 2–2 describes service traffic interchange configurations.

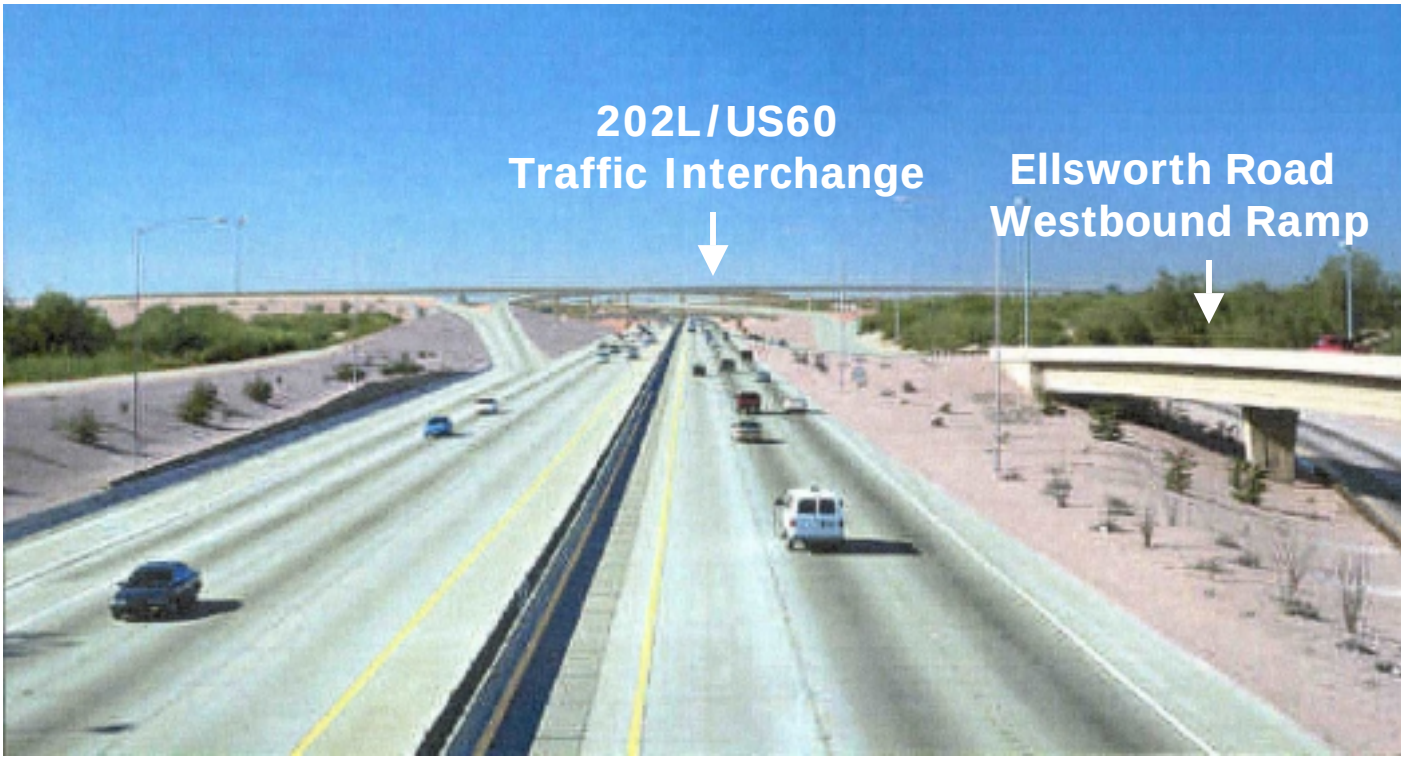
Directional View Map

Figure 3-9

00173/001/dgn/fig_3–9.dgn

202L/US60 Traffic Interchange Photo Simulations

Existing View



Proposed View

Ellsworth Road Overpass, Looking West Towards the 202L/US60 Traffic Interchange

202L/US60 Traffic Interchange
TRACS No. 202L MA 028 H5686 01D
Project No. NH-202-B(ACG)

Figure 3-10

202L/US60 Traffic Interchange Photo Simulations

Existing View

Proposed View

View Looking Northwest Towards the 202L/US60 Traffic Interchange from the Southeast

202L/US60 Traffic Interchange
TRACS No. 202L MA 028 H5686 01D
Project No. NH-202-B(ACG)

Figure 3-11

202L/US60 Traffic Interchange Photo Simulations

Existing View

Proposed View

View Looking Southwest Towards the 202L/US60 Traffic Interchange from Valle del Oro Community

202L/US60 Traffic Interchange
TRACS No. 202L MA 028 H5686 01D
Project No. NH-202-B(ACG)

Figure 3-12

202L/US60 Traffic Interchange Photo Simulations

Existing View

Proposed View

View Looking East Towards the 202L/US60 Traffic Interchange from Hawes Road/Southern Avenue Intersection

202L/US60 Traffic Interchange
TRACS No. 202L MA 028 H5686 01D
Project No. NH-202-B(ACG)

Figure 3-13

J. WATER RESOURCES

1. Clean Water Act – Section 401, 402, and 404 Permits

Project activities would require filling a total of approximately 0.26 acre of Jurisdictional Waters along two drainage crossings or washes within the project limits. The two drainage crossings are part of a larger series of washes south of the project limits, which would be affected by the continuation of the 202L to I-10. Under both projects, the drainage in the washes would be diverted into a single large concrete channel. Because of this, ADOT and the U.S. Army Corps of Engineers (COE) have agreed to treat the effects on the Jurisdictional Waters under a single Section 404 Individual Permit currently being addressed as part of the project to the south. A complete delineation and mitigation, such as irrigating the washes on the downstream side of the two projects, will be presented in the FEA and addressed in the individual permit.

The Clean Water Act Section 401 Water Quality Certification would be adhered to as issued by the Arizona Department of Environmental Quality.

Because five or more acres of land would be disturbed, a National Pollutant Discharge Elimination System (NPDES) permit would be required. The ADOT Roadside Development Section would determine who would prepare the Storm Water Pollution Prevention Plan (SWPPP). The District Construction office and contractor would submit the Notice of Intent (NOI) and the Notice of Termination (NOT) to the EPA, and copies to the ADEQ.

2. Floodplains

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps define the study area as within Zone X. FEMA describes Zone X as: “areas of 500-year flood; areas of 100-year flood with average depths of less than 1-foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.” Impacts on floodplains typically occur when the topography within a floodplain is substantially modified by either placement or removal of materials within the floodplain.

Significant impacts relevant to federally funded or approved highway projects as defined in 23 CFR, Part 650.105(q) would occur when the highway encroachment and any direct support of likely base floodplain development would involve one or more of the following construction or flood related impacts:

- Significant potential for interruption or termination of a transportation facility which is needed for emergency vehicles or provides a community’s only evacuation route;

- A significant risk (defined as the consequences associated with the probability of flooding attributable to the encroachment by the project); or
- A significant adverse impact on natural and beneficial floodplain values.

Project construction would require minimal amounts of fill within existing drainages and would be designed to safely pass flood events under or around the transportation corridor. Federal and state highway drainage guidelines require that the project be of sound hydrologic design. The project would not:

- Have the potential for interrupting or terminating transportation facilities needed for emergency vehicles or as an emergency evacuation route.
- Create a significant risk.
- Adversely affect natural and beneficial floodplain values.

Therefore, no impacts on floodplains are anticipated and no mitigation measures are warranted.

3. Impacts

The project has the potential to cause a temporary minor increase of suspended particulates and suspended solids in surface water runoff during construction. Erosion control and best management practices would be employed to prevent these impacts. No long-term effects are anticipated.

4. Mitigation

No mitigation measures are proposed.

5. Conclusion

No negative effect to surface water quality or groundwater is anticipated because of this project.

K. BIOTIC COMMUNITIES

1. Existing Conditions

Description of Ecosystem

The study area is in the Sonoran Desert scrub biotic region of the state. The vegetative community in the study area is typical of the Lower Colorado Subdivision of this biotic region. Throughout the study area, undeveloped parcels of land are separated by US60, major arterials,

and high-density residential, commercial, and industrial development. All vacant parcels have been heavily disturbed by off-highway vehicle use, garbage dumping, or clearing of vegetation for future development. Parcels with vegetation are dominated by creosote (*Larrea tridentata*) with little or no understory. More mesic areas and washes also contain xeroriparian species, including foothill paloverde (*Cercidium microphyllum*), common mesquite (*Prosopis velutina*), desert broom (*Baccharis sarothroides*), and canyon ragweed (*Ambrosia ambrosoides*). Russian thistle (*Salsola kali*) was common on highly disturbed sites.

Wildlife typical of the vegetative communities that occur in the study area includes black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus auduboni*), coyote (*Canis latrans*), and numerous small burrowing mammals such as squirrels (*Spermophilus* sp.), mice, and kangaroo rats (*Dipodomys* sp.). Common birds include Gambel's quail (*Callipepla gambelii*), mourning dove (*Zenaida macroura*), and roadrunner (*Geococcyx californianus*).

Threatened and Endangered Species/Arizona Species of Concern

The U.S. Fish and Wildlife Service (USFWS) list of threatened and endangered species for Maricopa County and a list of species of concern from the Arizona Game and Fish Department (AGFD) were reviewed by a qualified biologist (Ryan Gordon, Entranco). It was determined that no federally listed species, critical habitat, or state-listed species of concern would be affected by the construction of this project because of the lack of suitable or critical habitat.

Arizona Native Plant Law Species

Protected native plants such as foothill paloverde (*Cercidium microphyllum*), common mesquite (*Prosopis velutina*), and desert broom (*Baccharis sarothroides*) occur within the project construction limits.

Invasive Species

Under Executive Order 13112 dated February 3, 1999, projects which occur on federal lands or are federally funded must: "subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to: i) prevent the introduction of invasive species; ii) detect and respond rapidly to, and control, populations of such species in a cost-effective and environmentally sound manner; iii) monitor invasive species populations accurately and reliably; and iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded."

The study area was surveyed by a qualified invasive species authority, and it was determined that there are no listed invasive species within the study area. Therefore, this project would not result in the spread of invasive species.

2. Impacts

Threatened and Endangered Species/Arizona Species of Concern

No impacts to Threatened and Endangered Species/Arizona Species of Concern are expected.

Arizona Native Plant Law Species

Protected native plants would be removed from the project site.

Invasive Species

While there are no listed invasive species within the study area, construction activities would have the potential to introduce invasive species into the study area.

3. Mitigation

Threatened and Endangered Species/Arizona Species of Concern

No mitigation measures are warranted.

Arizona Native Plant Law Species

Therefore, the ADOT Roadside Development Section shall notify the Arizona Department of Agriculture at least 60 days before the start of construction to afford commercial salvagers the opportunity to remove and salvage these plants.

Invasive Species

All earth-moving and hauling equipment would be washed at the contractor's storage facility before entering the construction site to prevent the introduction of invasive species. Furthermore, in compliance with Executive Order 13112, all disturbed areas that will not be landscaped or otherwise permanently stabilized by construction would be seeded using species native to the project vicinity.

4. Conclusion

The project would not cause impacts to Threatened and Endangered Species, Arizona Species of Concern, or to Arizona native plants (due to mitigation associated with salvaging of such plants). Further, the project would not contribute to the spread of invasive species.

L. CULTURAL RESOURCES

1. Identification of Cultural Resources

Between October and December 2000, an intensive cultural resource field survey and a literature review (Class III Inventory) were conducted for the proposed 202L/US60 TI project **(ADOT 2001f).** The literature review included the project area, as well as a larger area beyond the boundaries of the project area, and resulted in identification of numerous previous surveys within the project area and its vicinity. The intensive field survey included a 250-foot-wide corridor on both sides of the project centerline, and designated block parcels that consisted of sufficient surface integrity that were not previously surveyed. Five cultural resource sites were identified as a result of these reviews, but none are located within the project study area.

No cultural sites (other than those five sites identified in the literature review) were recorded as a result of the intensive field survey.

2. Impacts and Mitigation

The project would not affect any known cultural resource sites (Appendix F). If previously unidentified cultural resources are encountered during activity related to the construction of the project, the Contractor shall stop work immediately at that location and shall take all reasonable steps to secure the preservation of those resources. The Engineer will contact the Environmental Planning Group immediately and make arrangements for the proper treatment of those resources.

3. Conclusion

No known cultural resources are within the study area. Therefore, the project would not adversely affect such resources.

M. SECTION 4(f)

1. Definition of Section 4(f)

Section 4(f) of the U.S. Department of Transportation Act of 1966 states that the FHWA "could approve a transportation program or project requiring public-owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state or local significance, or land of a historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if there is no prudent or feasible alternative to using that land and the program or project includes all possible planning to minimize the harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use" [49 United States Code (U.S.C.) 303].

A "use" of a Section 4(f) resource, as defined in 23 CFR 771.135(p) occurs when:

- Land is permanently incorporated into a transportation facility;
- There is a temporary occupancy of land that is adverse in terms of the statute's preservationist purposes; or
- There is a constructive use of land.

A constructive use of a Section 4(f) resource occurs when the transportation project does not incorporate land from resources, but the project's proximity impacts are so severe that the projected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired. For example, a constructive use would occur when:

- The projected noise level increase, attributable to the project, substantially interferes with the use and enjoyment of a noise-sensitive facility of a resource protected by Section 4(f);
- The proximity of the project substantially impairs aesthetic features or attributes to a resource protected by Section 4(f), where such features or attributes are considered important contributing elements to the value of the resource. An example of such an effect would be the location of a proposed transportation facility in such proximity that it obstructs or eliminates the primary views of an architecturally significant historical building, or substantially detracts from the setting of a park or historic site which derives its value in substantial part because of its setting; or
- The project results in a restriction on access, which substantially diminishes the utility of a significant public-owned park, recreation area, or historic site.

2. Existing Conditions

There are recreational facilities in the study area. However, after review, determinations have been made that the facilities and sites are not afforded protection under Section 4(f).

3. Conclusion

No public-owned park, recreation area, or wildlife and waterfowl refuge, or any significant historic site occurs in the study area; therefore, no Section 4(f) involvement would occur in the construction of this project.

N. TEMPORARY CONSTRUCTION IMPACTS

Construction activities would have a temporary impact on businesses and residences in the study area. During construction, motorists traveling US60 and people living and working in the surrounding area could experience temporary inconveniences associated with traffic delays, detours, and construction dust and noise. These impacts would be minimized through the enforcement of local and state government specifications, ordinances, and regulations. Construction activities would be performed in accordance with provisions set forth in ADOT's *Standard Specifications for Road and Bridge Construction* **(ADOT 2000b)**.

As described in Section II.E.2, *Construction Sequencing and Traffic Control*, traffic would be managed by detailed traffic control plans, and by procedures and guidelines specified in Part VI of the *Manual on Uniform Traffic Control Devices* (MUTCD), 1988 Edition, Revision No. 3 (or more recent editions as published), and by the Arizona Supplement to Part VI of the MUTCD **(USDOT 1988)**. ADOT would coordinate with potentially affected public services in planning traffic control measures. Access would be maintained during construction, and construction activities that substantially disrupt traffic would not be performed during peak travel periods. Requirements of the use of construction notices and bulletins would be identified as needed. The effectiveness of the traffic control measures would be monitored during construction and any necessary adjustments would be made.

In accordance with Maricopa County Rule 310, *Fugitive Dust* Ordinance, before construction begins, an approved *Application for Earth Moving Permit, Demolition, and Dust Control Plan* would be obtained from the Maricopa County Environmental Services Department. The permit would describe measures to control and regulate air pollutant emissions during construction (Appendix D).

O. CONCLUSION

Table 3-9 summarizes the types of potential impacts in a mitigated condition that are associated with the project.

Table 3-9. Summary of Impacts

Elements Considered	Type of Impact	Impacts			
		No-Build Alternative	Alternative A	Alternative B	Alternative C
Land Use Plans	Beneficial (after completion)	All alternatives are consistent with the intent of and general location identified in local and regional land use plans and zoning ordinances.			
Existing and Planned Land Uses	Minimal	Some conversions of existing land uses to transportation use would occur due to right-of-way acquisition. Estimated acreage converted would be:			
		354.6	355.6	368.2	376.2
Minority Considerations/ Environmental Justice	None	Alternatives would not substantially or disproportionately affect minority and elderly populations located within the study area.			
Social Conditions	Minimal (during construction)	Affected public services would experience possible delays in service times during construction.			
	Beneficial (after completion) (except No-Build)	Extreme congestion during peak hour travel would contribute to poor service times.	Social services in the study area would benefit from improved operations on local streets and the regional freeway system.		
Displacements/ Relocations	Minimal	All alternatives would displace over 200 residences, and as many as 257 residences would be displaced for alternatives.[1] An acquisition and relocation assistance program would be conducted in accordance with the Uniform Relocation Assistance and Real Properties Acquisition Policies Act of 1970. Total potential displacements would be:			
		205	214	221	257
Economics	Minimal (during construction)	Alternative access to some places of business will be necessary.			
	Beneficial (after completion)	Extreme congestion during peak hour travel would contribute to poor service times.	The project would enhance the movement of goods, materials, and services locally and regionally.		
Property Values	Negligible	Studies have shown that the presence of a freeway would not substantially affect sales prices in residential areas adjacent to the freeway.			
Hazardous Materials	None	None present.			
Asbestos	Minimal	The demolition of residences would be investigated for asbestos and if so, all applicable federal regulations and guidelines concerning the identification, removal, and disposal of asbestos would be adhered to for solid waste disposal.			
Air Quality	Minimal (during construction)	The roadway contractor shall obtain an approved *Application for Earth Moving Permit, Demolition, and Dust Control Plan* to control fugitive dust from construction.			
	Negligible	No exceedances of NAAQS for CO would occur.[2] One-hour/eight-hour projected maximum levels would be:			
		5.3/3.7	5.2/3.6	5.3/3.7	5.4/3.8

Table 3-9. Summary of Impacts (con't)

Elements Considered	Type of Impact	Impacts			
		No-Build Alternative	Alternative A	Alternative B	Alternative C
Noise	Minimal	Increases in noise would be mitigated per ADOT's Noise Policy. The number of sensitive receivers subject to mitigation measures would be:			
		46	48	46	47
Visual Quality	Negative	All alternatives would introduce a substantial man-made visual component to the study area. Elevated 202L sections could obstruct distant views of the surrounding mountains at some residences. The No-Build Alternative would be the least visually invasive. Aesthetic treatment of the structures will assist in reducing the impact.			
	Minimal	During final design, ADOT would identify measures to incorporate into design to reduce illumination spillover onto sensitive light receptors (typically residential areas). Methods of accomplishing this mitigation could include, but should not be limited to, the use of shielded or cut-off lighted fixtures or lowering the height of the light source. During final design, ADOT would identify measures to reduce glare impacts on a case-by-case basis. Methods of accomplishing this mitigation could include, but should not be limited to, lowering the illumination source, using shielded or cut-off lighted fixtures, or through the incidental use of noise barriers or other wall structures.			
Jurisdictional Waters	Minimal	Approximately 0.26 acre of Jurisdictional Waters along two drainage crossings would be affected by the alternatives. Fill required in the washes would be authorized under the terms and conditions of a Section 404 Individual Permit being prepared for the Santan Freeway project. Section 401 Water Quality Certification from the ADEQ is required for this project.			
Water Resources	Minimal	An NPDES permit would be required for the project.			
Floodplains	None	None present.			
Cultural Resources	None	None present.			
Biotic Communities	None	None present.			
Prime and Unique Farmlands	None	None present.			
Section 4(f) Resources	None	None present.			

[1] This represents the largest estimate based on current design. The number is subject to change as design is refined.
[2] NAAQS CO = National Ambient Air Quality Standards for carbon monoxide.