

FHWA-AZ-EIS-93-02-D

Final Environmental Impact Statement

RED MOUNTAIN FREEWAY

Price Freeway to State Route 87 - Maricopa County, Arizona



LEAD AGENCIES

COOPERATING AGENCY



Federal Highway Administration



Arizona Department of Transportation



U.S. Army Corps of Engineers

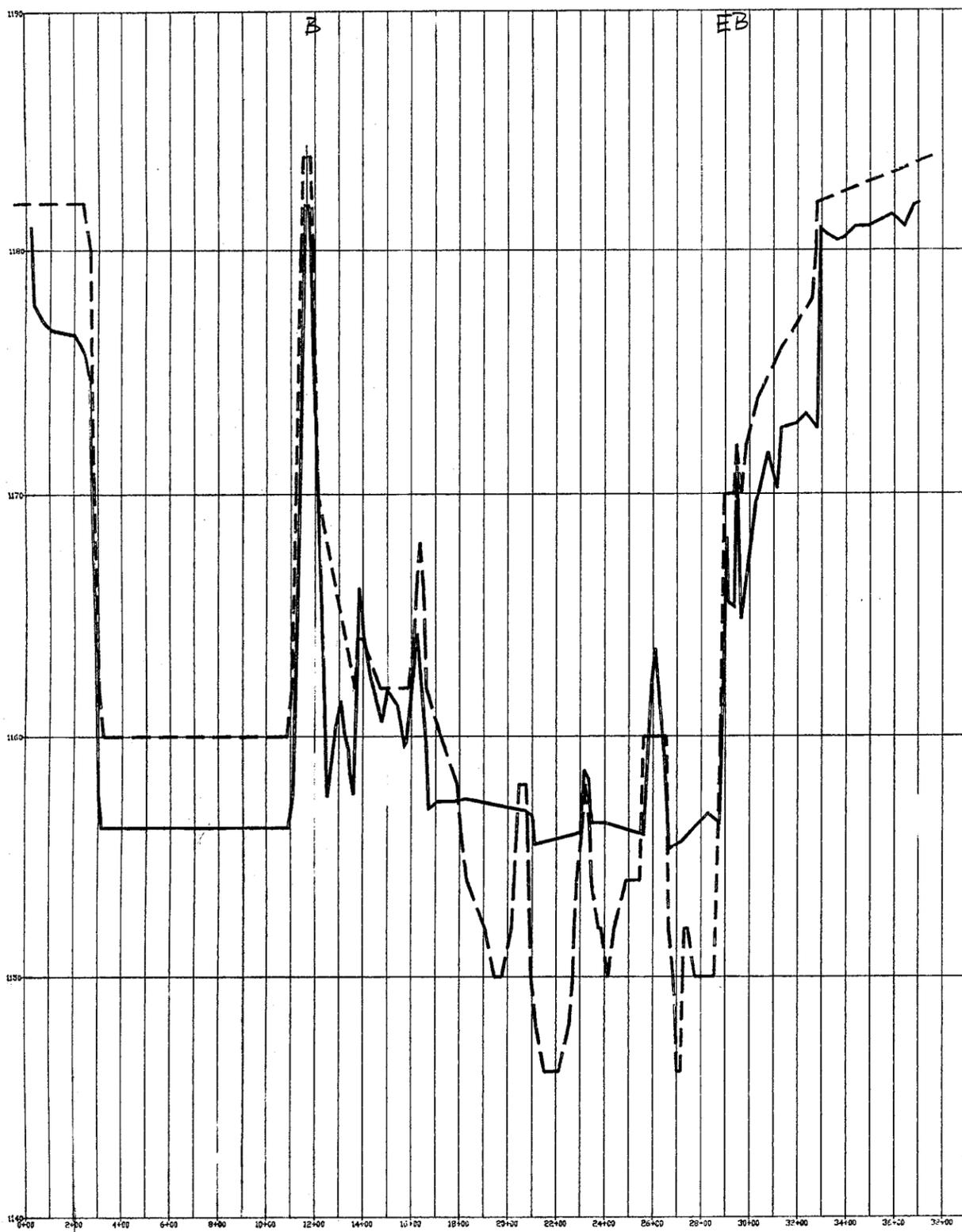
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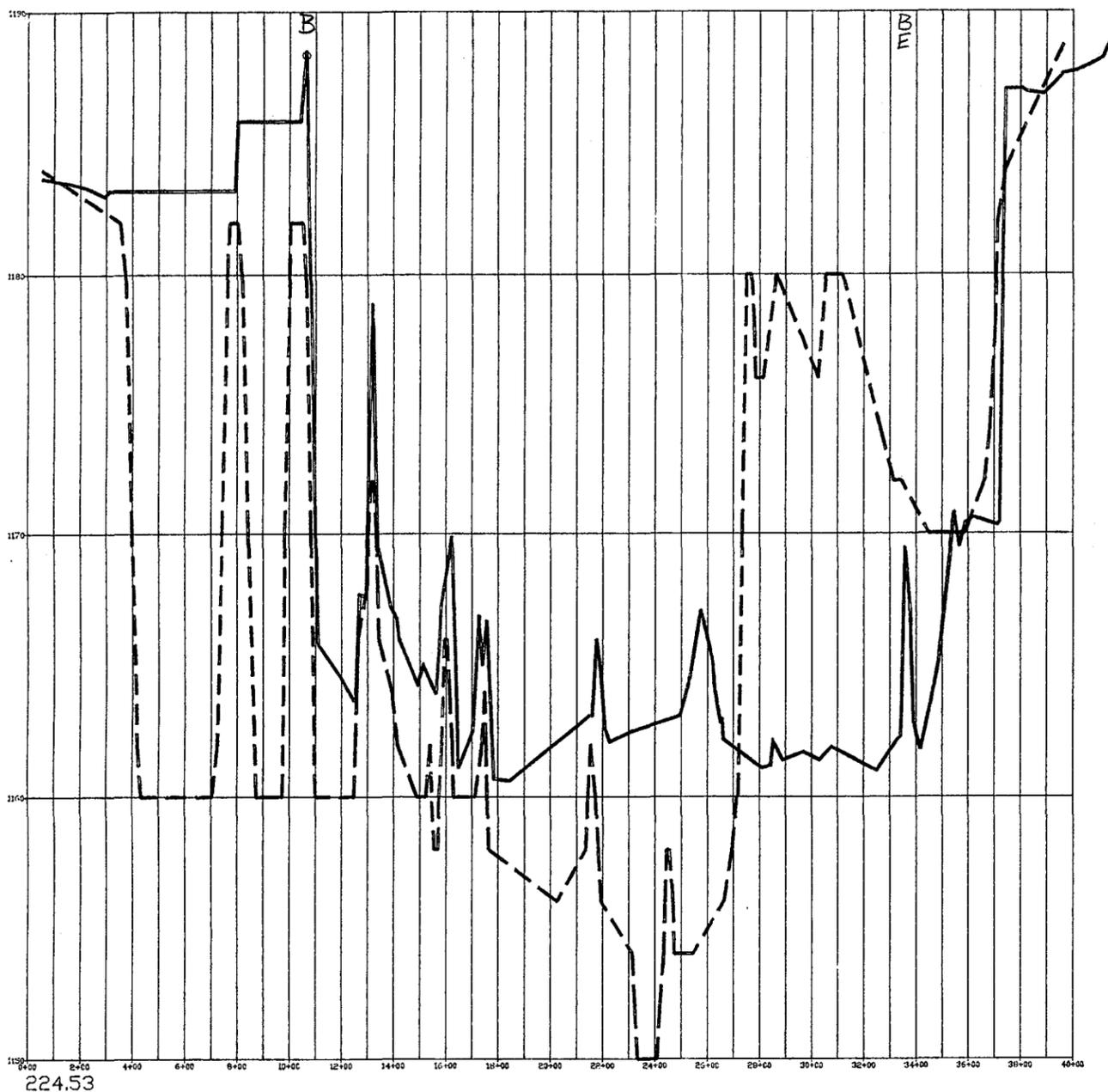
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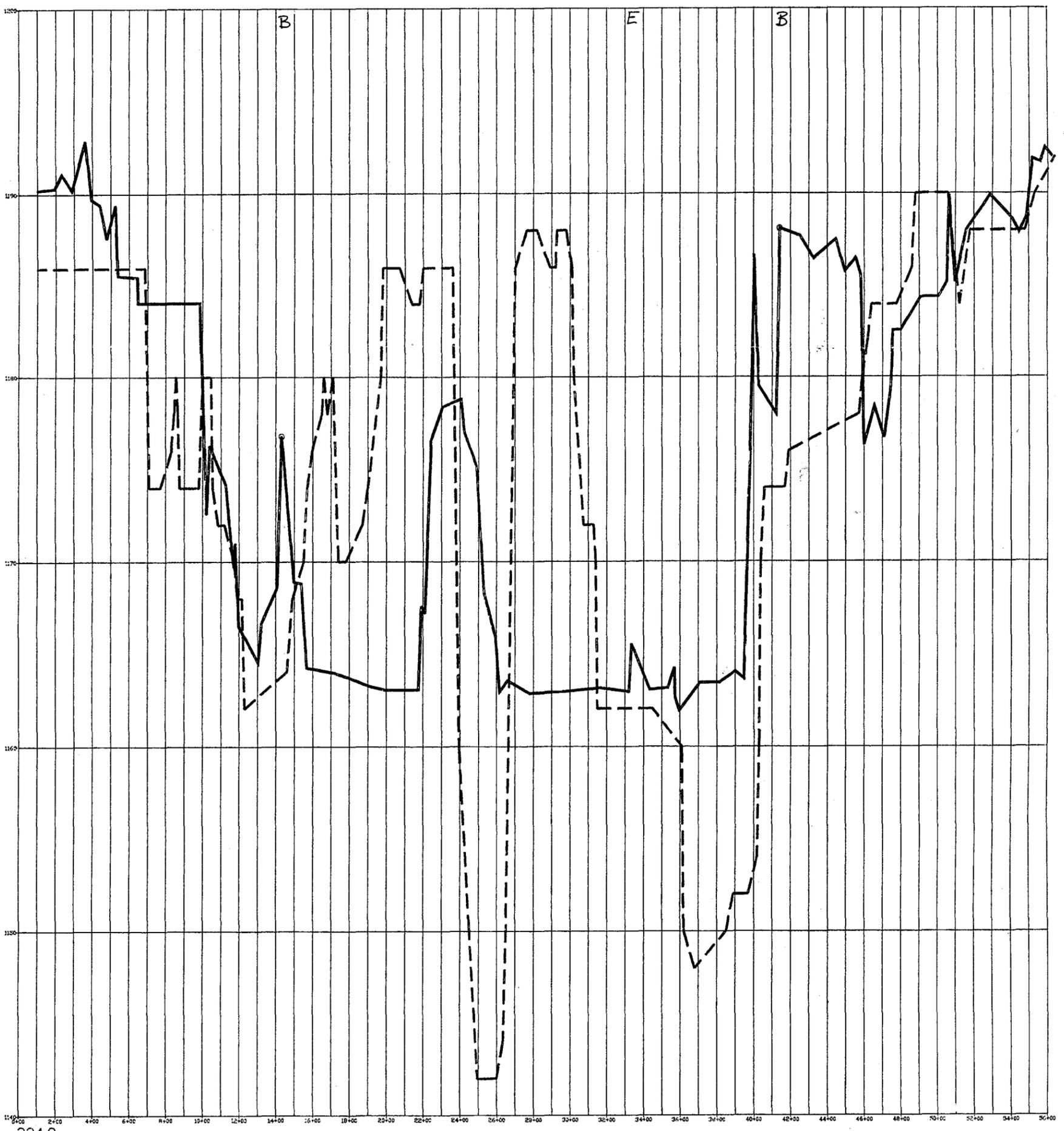
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FLOOD CONTROL DISTRICT

of

Maricopa County

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SEP 16 1994

Mr. Ken Davis, District Engineer
Federal Highway Administration
234 North Central Avenue - Suite 330
Phoenix, Arizona 85004

Subject: Final Environmental Impact Statement for the Red Mountain Freeway
(Price Freeway to SR 87)

Dear Mr. Davis:

Thank you for providing a copy of the Final Environmental Impact Statement (EIS) for the Red Mountain Freeway. Our comments on the Draft EIS have been addressed and incorporated into this document.

We agree with the recommendations for the construction of the grade-separated, access-controlled facility and the mitigation measures necessary to construct it in and adjacent to the Salt River floodplain. We anticipate that our past successful coordination with ADOT and the local jurisdictions for the projects west of the Pima Freeway will continue for the next three miles of the Red Mountain Freeway to the east.

It is stated in various sections that the regulatory Salt River floodplain may be reduced in the future as a result of the revised hydrology caused by modifications to the Theodore Roosevelt Dam. These revisions will not be adopted until FEMA approves the revisions in 1995/96. The Flood Control District recommends that the design criteria upon which the mitigation measures will be based be consistent with those criteria used for the structures west of the Pima Freeway. Improvements to the north bank and possible channelization of the Salt River, in accordance with the channelization and bank protection concept developed by the Salt River Pima-Maricopa Indian Community in 1992, require that planning consistency be maintained. We, therefore, strongly recommend that present regulatory criteria be used, and that the design flood flow be 220-225,000 cfs.

Sincerely,

Richard G. Perreault
Chief, Planning Branch

Copy to: Steve Jimenez, ADOT
Nona Baheshone, SRPMIC
Harry Kent, City of Mesa

Coord:

DRJ

Info:

DJR, SLS, EAR, PAC, CWR, DES, RGP

File: LSR (RM) 1.5



U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 REGION NINE
 ARIZONA DIVISION
 234 N. Central Ave., Suite 330
 Phoenix, Arizona 85004
 August 10, 1994

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IN REPLY REFER TO

HA-AZ
 STP-600-8(1)
 FHWA-AZ-EIS-93-02-F
 Red Mountain Freeway

Dear Reviewer:

The Final Environmental Impact Statement (FEIS) for the Red Mountain Freeway from the proposed Price Freeway to State Route 87 is enclosed for your review and comment. This document describes and analyzes the alternatives considered to develop an extension of the Red Mountain Freeway which is under construction west of Price Road.

Please direct your comments to:

Ken Davis, District Engineer
 Federal Highway Administration
 234 North Central Ave., Suite 330
 Phoenix, Arizona 85004

Written comments must be postmarked on or before September 18, 1994.

Written comments will be fully considered and evaluated in preparation of the Record of Decision.

Sincerely yours,

Stephen D. Thomas
 Sr. E. A. Wueste
 Division Administrator

To: DRJ - 8/17
 Need Cm FS - 8/24

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**RED MOUNTAIN FREEWAY (LOOP 202)
PRICE FREEWAY TO STATE ROUTE 87
FINAL ENVIRONMENTAL IMPACT STATEMENT**

Submitted Pursuant to 42 U.S.C. 4332(2)(c) by the

**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
ARIZONA DEPARTMENT OF TRANSPORTATION
AND
U.S. ARMY CORPS OF ENGINEERS
(Cooperating Agency)**

Jeffrey R. Brooks

Region 9
Federal Highway Administration
U.S. Department of Transportation

August 8, 1994
Date

William P. Belt

William P. Belt, Manager
Environmental Planning Services
Arizona Department of Transportation

4 August 1994
Date

For more information contact:

William Belt, Manager
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Arizona Department of Transportation
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ABSTRACT

The proposed project is a portion of the planned Red Mountain Freeway (Loop 202), which is an element of the Maricopa Association of Governments regional freeway system. A new transportation facility would be constructed on an alignment that generally follows the south bank of the Salt River between the Price Freeway (Loop 101) on the west and State Route 87 on the east, a distance of approximately three miles. This Draft Environmental Impact Statement analyzes the following three alternatives: (1) no-action; (2) a freeway; and (3) a major urban arterial street. Other alternatives were considered and eliminated from further study. The freeway alternative consists of six at-grade traffic lanes and elevated interchanges at the major arterial cross streets. The major urban arterial alternative consists of eight at-grade traffic lanes and at-grade intersections at the arterial cross streets. Impacts are discussed for land use, social considerations, relocation of residences and businesses, economic issues, park lands, air quality, noise, water resources, floodplains, earth resources, biological resources, cultural resources, hazardous wastes, visual resources, energy, and construction. Mitigation measures are described to reduce the level of impacts that will occur.

Comments on this FEIS must be received by the date indicated below to receive full consideration. Comments should be sent to Ken Davis at the address listed above.

September 18, 1994

SUMMARY

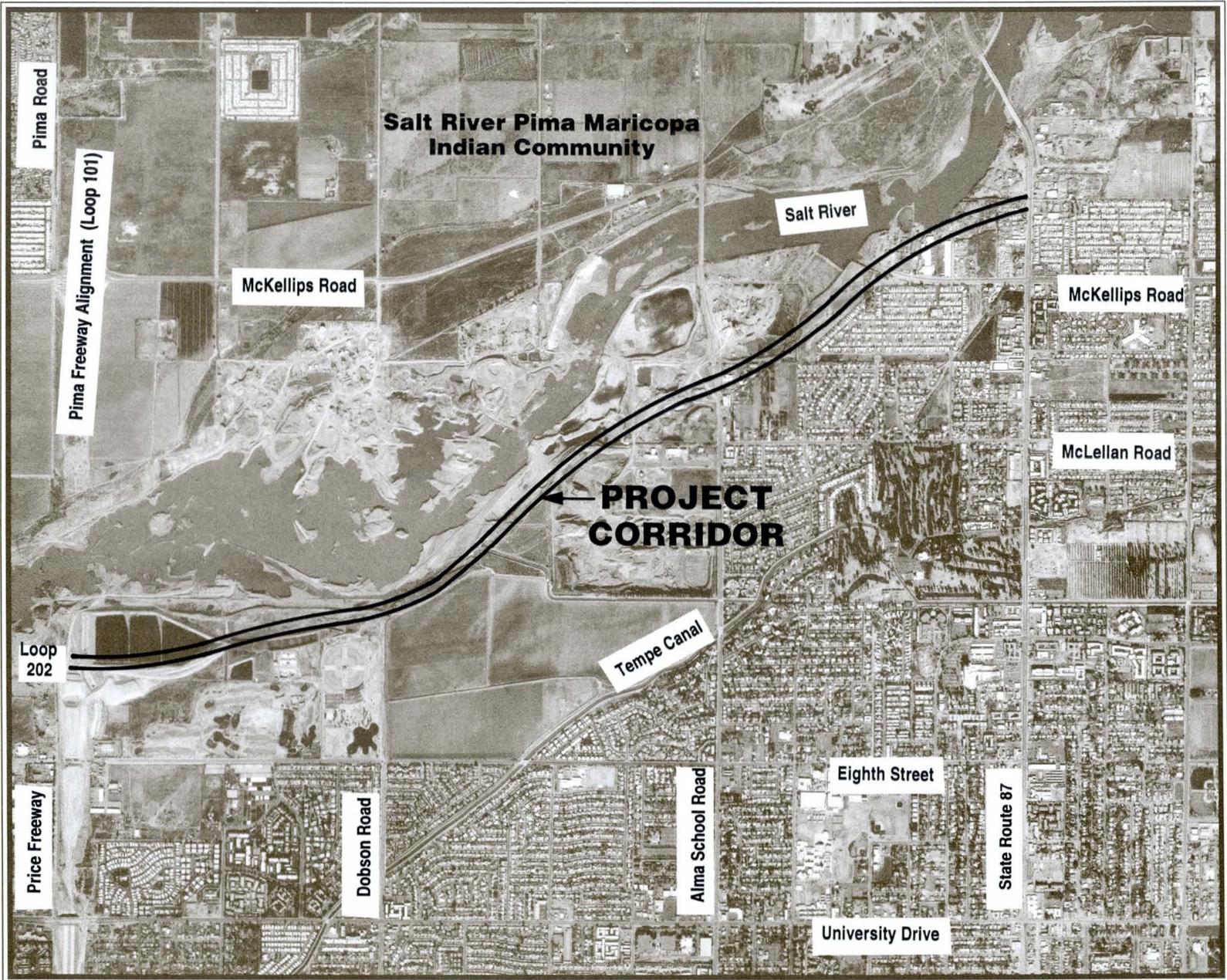
SUMMARY

Project Description

The proposed project is located in the Phoenix metropolitan area of Maricopa County, Arizona. It includes the construction of a new transportation facility along the south side of the Salt River between the Price Freeway on the west and State Route 87 on the east. The facility would be either a six-lane freeway with grade-separated interchanges or an eight-lane major urban arterial with at-grade intersections. Figure S-1 shows the project location in both a statewide and regional context. Figure S-2 provides a more precise depiction of the immediate vicinity.

As shown in Figure S-1, the proposed project is part of the Maricopa Association of Governments (MAG) regional transportation plan. It constitutes a segment of Loop 202, which is comprised of the Red Mountain, Santan, and South Mountain corridors. The western terminus of the project is the traffic interchange that connects Loop 101 and Loop 202 (the Price/Red Mountain Interchange). Loop 101, which is another major element of the regional system is comprised of the Price, Pima, and Agua Fria corridors. The eastern terminus of the proposed project is State Route 87, which is a major north-south highway on the Arizona State Highway System. The project lies almost entirely within the boundaries of the city of Mesa. Its alignment generally follows the south bank of the Salt River, which is a normally-dry channel that runs in a general east-west direction through the entire urban area.

The need for the project is based primarily on both current and future levels of traffic. A traffic analysis conducted as part of the preparation of this Environmental Impact Statement concluded that an additional east-west facility is needed. By 2015, daily traffic volumes in the study area are expected to increase by 81 percent over existing volumes. Without the construction of the proposed project, this increased traffic would cause substantial congestion on the existing elements of the circulation system. Access to land uses in the project area would be made more difficult and through traffic would require longer trip times. The congestion caused by the increased traffic would likely cause higher accident rates, especially at existing intersections.



**RED MOUNTAIN
FREEWAY**

ENVIRONMENTAL
IMPACT STATEMENT

0 feet 1200' 2400' 3600'
approx.



**Project
Vicinity**

Figure S-2

The project is also an important link in the regional transportation system which has been planned and adopted by the MAG Regional Council. This council is comprised of elected officials from local governments within the metropolitan area. In addition to MAG, the corridor has been officially approved by the State Transportation Board and the City of Mesa, within whose jurisdiction the project lies. The project would also serve projected development needs as defined by the General Plan of the City of Mesa.

The preferred alternative is a grade-separated, access-controlled facility that would be consistent with standards currently used for the MAG Regional Freeway and Expressway System. In addition to the freeway facility, the proposed action also includes the realignment and construction of Dobson Road north of 8th Street. The realigned street will connect to the freeway by means of a diamond interchange.

The typical section for the freeway mainline consists of two 36-foot-wide roadways separated by a 46-foot-wide median. These roadways would accommodate three travel lanes in each direction. The freeway mainline would generally be at or slightly above the existing ground level. Elevated diamond interchanges would be provided at Dobson Road and Alma School Road. A half-diamond interchange would be constructed at the eastern terminus at State Route 87. This interchange would be constructed to allow a full interchange to be added to accommodate a potential future freeway extension to the east. An elevated grade separation over McKellips Road would be built. If constructed, collector-distributor (C-D) roads between McKellips Road and the Alma School Road interchange ramps would provide access between McKellips Road and the freeway.

High-occupancy vehicle (HOV) lanes that are included in the portion of Loop 202 west of the Price/Red Mountain Interchange would be continued through the interchange, with a transition to the travel lanes east of the Price Freeway. Between this transition and State Route 87, the median would be reserved for the future addition of HOV lanes. The designation and timing of the addition of the HOV lanes would be coordinated with the results of the on-going MAG study of HOV lanes on the regional system.

Alternatives

This Environmental Impact Statement (EIS) analyzes the following three alternatives: (1) no-action; (2) a freeway (preferred); and (3) a major urban arterial street. Other alternatives were considered and eliminated from detailed analysis. These additional alternatives included different alignments for the build alternatives, Transportation System Management (TSM) and Transportation Demand Management (TDM) strategies, and transit improvements.

General alignment alternatives were directly related to the other features of the regional transportation system. These alternatives are associated with system connections to the west, specifically the location of the Price/Red Mountain Interchange. The interchange and general alignment alternatives were evaluated in previous location and environmental studies. The selection of the preferred location of the Price/Red Mountain Interchange determined the location of the western terminus of the proposed project. Following this selection, variations of the general alignment between the Price/Red Mountain Interchange and State Route 87 were considered. These variations provided a more detailed evaluation of the relationship of the corridor to park property, the Salt River, the Salt River Pima Maricopa Indian Community, and the preservation of options for future additions to the circulation system.

Four specific alignment alternatives were considered for the western segment of the project. These variations considered the relative impacts on Riverview Park, the Salt River floodplain, connections to Dobson Road, and the potential for the future extension of Dobson Road to the north. The selected alternative avoids direct impacts on Riverview Park, **minimizes the total hydraulic impact**, provides fully-directional access between Dobson Road and the freeway system, and preserves the option of a later Dobson Road extension to the north. Three specific alignment alternatives were considered for the eastern segment of the project. These variations considered the relative impacts on the Salt River floodplain and the potential future extension of the facility to the east. The selected alternative minimizes the hydraulic impact and preserves several options for an easterly extension.

In addition to the build alternatives, other measures that would seek to meet the needs without building a new facility were considered. Transportation System Management (TSM) and Transportation Demand Management (TDM) strategies were defined in an attempt to increase the overall efficiency of the transportation system and reduce the number of trips generated in the area.

These strategies included high-occupancy-vehicle lanes, traffic signal optimization, arterial widenings, and a trip reduction program. The transit alternative included improvements recommended in the Regional Transit Plan for Maricopa County, prepared by the Regional Public Transportation Authority (RPTA). The conclusion was reached that, while the TSM/TDM and transit alternatives do not meet the projected traffic needs in the area, they will be considered for implementation in conjunction with the preferred alternative. These measures are included in the Congestion Management System that is currently under consideration by the Maricopa Association of Governments (MAG). A preliminary report has been approved by the MAG Regional Council. This report will be the basis for the Congestion Management Plan, which is expected to be considered for adoption in October 1994. A detailed description of the congestion management strategies is included in Section 1.4 of this EIS.

The no-action alternative would result in no extension of the Red Mountain Freeway east of the Price Freeway. The Red Mountain Freeway, which begins at the Interstate 10/Squaw Peak Parkway Interchange in Phoenix, would terminate at the Price/Red Mountain Interchange. Traffic to and from the east would be required to use local arterial streets. The result would be substantial congestion on the existing elements of the circulation system.

The freeway alternative, which is the preferred alternative, is described above under project description. The identification of the preferred alternative is based on earlier design concept evaluations and environmental studies. However, the final selection of an alternative will not be made until impacts and public comments have been fully evaluated.

The major urban arterial alternative is an at-grade facility with signalized intersections at the major arterial cross streets. The alignment of the arterial alternative is the same as that of the freeway alternative. This alternative would provide four 12-foot traffic lanes in each direction separated by a 30-foot median. At-grade intersections would be constructed at Dobson Road, Alma School Road, McKellips Road, and State Route 87. Dobson Road would be extended north of 8th Street on its existing alignment.

Other Related Actions and Projects

Related actions of other governmental agencies in the area include street improvements and continuing activities associated with the Salt River channel.

Improvements to arterial streets in the area are underway by the City of Mesa. This program includes the widening and repaving of Dobson Road south of 8th Street. These improvements will be consistent with the extension and realignment of Dobson Road north of 8th Street to connect with the proposed freeway facility.

Other projects in the area include those related to the construction by the Arizona Department of Transportation of other elements of the regional freeway system. These include the Price Freeway, Pima Freeway, the Price/Red Mountain Interchange, and the Red Mountain Freeway west of the interchange. Design concept studies and environmental evaluations of these related projects have been previously prepared by ADOT. State Environmental Assessments were prepared and approved for each project. An Environmental Impact Statement for 6.5 miles of the Price Freeway between U.S. 60 on the north and Pecos Road on the south was recently completed (ROD September 15, 1993). Following the completion of the State Environmental Assessment for the Red Mountain Corridor, the proposed project between the Price Freeway and State Route 87 was identified for further study, which resulted in the preparation of this EIS. The limits of the proposed project were established based on available fiscal resources, priorities among various components of the regional system, and the timing of the projected needs for additional facilities.

Activities related to flood control on the Salt River are underway by various governmental agencies. Channelization projects in the City of Tempe are underway downstream of the project area in conjunction with the Flood Control District of Maricopa County and the Arizona Department of Transportation. Hydraulic studies by the Flood Control District will result in revisions to the definition of the floodway and floodplain. In addition, improvements by the U.S. Bureau of Reclamation to Roosevelt Dam upstream of the project area will result in a lessening of potential flood impacts of the Salt River.

Major Environmental Impacts

An analysis was conducted of the potential social, economic, and environmental consequences of the three alternatives that were selected for detailed study. This analysis covered the areas of land use, social concerns, relocation impacts, economic considerations, park lands, air quality, noise, water resources, floodplains, farmlands, biological resources, cultural resources, hazardous wastes, visual impacts, energy, and construction impacts.

No direct project-related impacts would occur for the no-action alternative. However, in some cases changes would occur as a result of other influences.

The land use and transportation plans of the affected local governments provide for the construction of a freeway along the defined corridor. Immediate land use impacts would be caused by the acquisition of the needed right-of-way. Future land use impacts are associated with the new development that would be generated by the improved accessibility between the project area and the remainder of the urban area.

Social impacts would be relatively minor. No disruption of existing neighborhood cohesion would occur. The introduction of the new road capacity would improve the general circulation and accessibility between the area and the surrounding community. No public facilities would be negatively affected.

Relocation of residences and businesses would be required. An estimated 62 mobile homes in one mobile home park would be displaced. A total of 15 businesses would be directly impacted by the acquisition of the right-of-way. These businesses include sand and gravel operations, industrial uses, and retail businesses. Except for two sand and gravel companies, these businesses would require relocation. Partial acquisition of the mining areas would be necessary.

Economic impacts would include effects on future development, property taxes, sales taxes, and revenues of the local governments. In general terms, the immediate impact of the right-of-way acquisition would be negative due to the removal of economic activities. However, the later development made possible by the new facility would cause a substantial increase in economic activity and tax revenues.

No violations of state or federal air quality standards are projected to occur. The freeway is included in the MAG Long Range Transportation Plan, which has been determined to be consistent with the emissions reduction requirements of the State Implementation Plan (SIP) and the Federal Implementation Plan (FIP). The project is included in the Transportation Improvement Plan (TIP), which has been determined to conform to the regulations based on the Clean Air Act Amendments.

Noise levels exceeding FHWA's noise abatement criteria are predicted to occur at two locations along the alignment. The construction of noise barriers would mitigate this impact.

Impacts on water quality may result from construction activities and from pollutants generated by the traffic using the completed facility. The construction impacts would be controlled by specified construction procedures. Roadway-released pollutants would be managed through the design and use of the drainage system associated with the project. The freeway would encroach on the regulatory floodway and floodplain of the Salt River as they are presently defined. Mitigation measures to manage these impacts have been defined.

An estimated 39 acres of the 314 acres of farmland in the project area would be acquired for the right-of-way. This farmland is committed to urban development by adopted plans and zoning ordinances. Therefore, it is not subject to the provisions of the Farmland Protection Policy Act.

Biological and cultural resources in the area have been heavily disturbed by sand and gravel mining, agriculture, and urban development. Thus, no substantial impacts would be caused by the project. A Programmatic Agreement has been drafted to ensure that the project would be in compliance with Section 106.

Hazardous waste concerns relate to the existence of several underground storage tanks. The location and condition of these tanks has been determined. Additional evaluation will be needed during the design phase of the project. One landfill would be impacted by the project. Preliminary investigations have concluded that no hazardous materials are present in this landfill.

Public Concerns and Issues

Public comments were requested as a part of the preparation in 1989 of a State Environmental Assessment for the Red Mountain Freeway between Dobson Road and Lindsay Road. In response to the comments received during this process, several changes were made to the alignment and design concepts of the facility. The majority of the comments were related to the issues east of State Route 87, which is outside the area covered by this EIS.

Public involvement activities have continued as a part of the preparation of this EIS. Comments received at the public information meeting expressed concerns about the following issues: impacts on sand and gravel operations; air quality; noise impacts on residential areas; impacts from interchange lighting; and floodplain relationships. No major controversial issues were raised by the citizens who attended the meeting.

Comments have been received from 16 governmental agencies. Issues raised by the agencies included the following: water quality; relationships to river channelization; hazardous waste sites; traffic effects on surrounding streets; biological resources; floodplain impacts; cultural resources; and transit operations. These issues are discussed in the EIS document.

Required Federal Actions

The project will require a National Pollution Discharge Elimination System (NPDES) permit under the provisions of Section 402 of the Clean Water Act. The need for this permit is based on the stated policy that a NPDES permit is required for "all ground disturbing activities that exceed 5 acres in impact". The permit is issued by the U.S. Environmental Protection Agency.

Also required may be a Dredge and Fill Permit under the provisions of Section 404 of the Clean Water Act. The western portion of the project is covered under a current permit issued to ADOT in conjunction with a stabilized channel associated with the Price/Red Mountain Interchange. Revisions to this permit may be needed due to proposed modifications to the Dobson Road interchange. An additional permit may be required for the eastern segment of the project. The Section 404 permit is issued by the U. S. Army Corps of Engineers following review by the Arizona Department of Environmental Quality (ADEQ). In addition, the 404 permit process triggers the requirement for a Section 401 Water Quality Certification from the ADEQ.

Mitigation Summary

Mitigation measures have been defined to avoid or minimize the environmental impacts of the proposed action. Implementation of these measures will be accomplished by their inclusion in the construction documents that will be prepared for the project. A summary of the mitigation measures is provided below. Additional details are contained in the EIS.

1. An acquisition and relocation assistance plan will be prepared that identifies the process and schedule for right-of-way acquisition and relocation of affected residents and businesses. The acquisition and relocation program will be conducted in accordance with the Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970. All replacement housing will be decent, safe, and sanitary. Last resort housing will be provided if it is found that sufficient comparable housing is not available.
2. A specific relocation plan will be developed to assist residents of the Hawaiian Mobile Home Park to find alternative housing or locations for their mobile homes. This plan will provide methods of dealing with the specific issue of relocating the older and smaller mobile homes to alternative sites. The plan will also provide measures to mitigate any disproportionate impacts that may occur on minority residents.
3. During construction of the facility, traffic through the area and access to adjacent properties will be maintained in accordance with current Arizona Department of Transportation (ADOT) traffic control management procedures for highway construction and maintenance. ADOT will coordinate traffic control actions with established procedures of the City of Mesa.
4. The design of the project will seek to minimize the acquisition of sand and gravel mining properties. Compensation for the remaining reserves of the acquired properties will be determined as a part of the standard ADOT appraisal and acquisition process.
5. A plan will be prepared to mitigate the access impacts on all sand and gravel operations. The details of these mitigation measures will be determined during the design of the project.

6. Construction impacts on air quality and noise will be controlled in accordance with current ADOT policy, as contained in the publication, "Standard Specifications for Road and Bridge Construction".
7. A sedimentation and erosion control plan will be prepared to define measures for the control of water quality impacts during construction. Potential measures for inclusion in the plan are contained in the EIS.
8. Noise impacts will be mitigated by the construction of noise barriers in preliminarily-designated locations. Refinements to the barriers will be made during the design of the facility and the public involvement process.
9. Floodplain impacts will be mitigated by measures as described in the EIS. The exact nature of these measures will be based on more detailed hydraulic studies and will be determined during the design of the facility. Potential impacts on the north side of the floodplain/floodway will be included in the detailed studies.
10. A National Pollution Discharge Elimination System (NPDES) permit, as required by Section 402 of the Clean Water Act, will be acquired prior to the beginning of project construction.
11. A Dredge and Fill Permit, as required by Section 404 of the Clean Water Act, may be required for the eastern segment of the project. If required, this permit will be acquired from the Corps of Engineers. Any required amendments to the existing permit will also be acquired for the western portion of the project. In addition, a Section 401 Water Quality Certification Letter will be obtained.
12. If well-drilling activities are necessary, the required permits will be obtained from the Arizona Department of Water Resources.

13. Further archaeological testing will be conducted to define and record information on affected sites. A testing program will be devised in consultation with the State Historic Preservation Office (SHPO) and ADOT. If previously unrecorded sites are encountered during construction, work will be suspended, ADOT Environmental Planning Services will be notified, and appropriate action will be determined in consultation with SHPO. The provisions of the Programmatic Agreement will be followed.
14. Additional hazardous materials investigation of potential contaminated sites will be conducted as described in the EIS. If previously unidentified hazardous waste sites are encountered during construction, work will be suspended and appropriate action will be determined by ADOT Environmental Planning Services.
15. Cut-off shield lighting fixtures will be used on the facility in order to reduce illumination impacts on residential areas.
16. Negative visual impacts will be mitigated by the use of landscaping and a unified treatment of wall surfaces. The noise barrier adjacent to Riverview Park will be constructed and landscaped in a manner consistent with park aesthetics. Landscape elements will be designed in accordance with the ADOT publication, "Landscape Design Guidelines for Urban Highways".

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SECTION 1

Purpose and Need for Action

1.0 PURPOSE AND NEED FOR ACTION

1.1 Introduction

This Draft Environmental Impact Statement (DEIS) has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and the corresponding regulations and guidelines of the Federal Highway Administration (FHWA), which is the lead agency. The U.S. Army Corps of Engineers has participated as a cooperating agency. The document also conforms to the requirements of the Arizona Department of Transportation, which is the project sponsor and lead state agency.

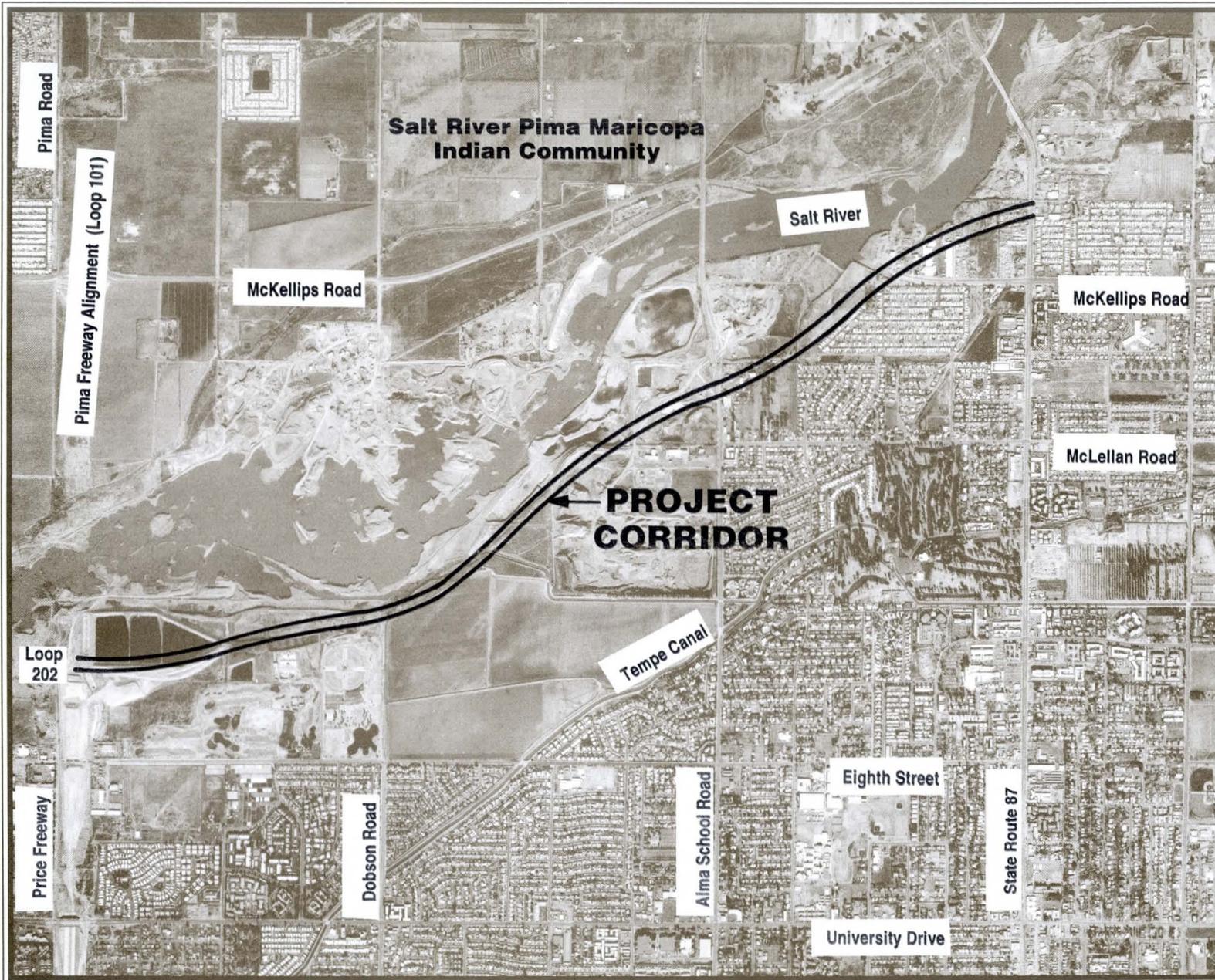
Section 1 summarizes the need for the proposed action and provides a project description. A brief background discussion is also included in order to provide an understanding of the current status of the project.

1.2 Project Location and Status

The proposed project involves the construction of a new transportation facility along the south side of the Salt River between the Price Freeway on the west and State Route 87 on the east. The facility would be either a six-lane freeway with grade-separated interchanges or an eight-lane major urban arterial with at-grade interchanges. Figure 1-1 (Page 1-2) shows the project location in both a statewide and regional context. Figure 1-2 (Page 1-3) provides a more precise depiction of the immediate vicinity of the project.

As shown in Figure 1-1, the proposed project is part of the Maricopa Association of Governments (MAG) regional transportation plan. Based on the regional plan, a MAG Life-Cycle Program has been prepared that describes the revenues, costs, activities, and schedule for the components of the plan. The proposed project is a segment of Loop 202, which is comprised of the Red Mountain, Santan, and South Mountain corridors.

The Red Mountain portion of Loop 202 is a 33-mile corridor that extends from Interstate 10 in Phoenix to US 60 in Mesa. The segment between Interstate 10 and Priest Drive in Tempe has been completed. The segment between Priest Drive and the Pima Freeway is under construction, with completion expected in 1995. This EIS covers the portion of the Red Mountain corridor between the



RED MOUNTAIN FREEWAY

ENVIRONMENTAL IMPACT STATEMENT

0 feet 1200' 2400' 3600'

approx.



Project Vicinity

Figure 1-2

Price Freeway and State Route 87, which is included for funding in the 5-year program for FY 1994-98. East of State Route 87, the portion to Gilbert Road in Mesa is included in the funding program for 1999-2006. The remainder of the corridor is not yet included in the Funded Life-Cycle Program.

The Santan portion of Loop 202 is a 23.5-mile corridor between US 60 in Mesa and Interstate 10 in Chandler. Preliminary location studies have been completed. A general plan has been completed for the segment between the Price Freeway and Interstate 10. General plan studies are underway between Dobson Road and Gilbert Road. No construction is yet included in the Funded Life-Cycle Program.

The South Mountain portion of Loop 202 is a 22-mile corridor from Interstate 10 in Chandler to Interstate 10 in Phoenix. A general plan has been completed. The portion between 19th Avenue and 51st Avenue is scheduled for construction by 2006. The remainder of the corridor is not yet included in the Funded Life-Cycle Program.

The project covered by this EIS has logical termini and independent utility and preserves reasonable alternatives for subsequent additions to the transportation system. The western terminus of the project is the traffic interchange that connects Loop 101 and Loop 202 (hereinafter called the Price/Red Mountain Interchange). Loop 101, which is another major portion of the regional system, is comprised of the Price, Pima, and Agua Fria corridors. Thus, the western terminus of the project will link Mesa and other East Valley communities to the regional system. Connections will be provided to the north on the Pima Freeway, to the south on the Price Freeway, and to the west via the Red Mountain Freeway to Interstate 10 and other elements of the regional system. The eastern terminus of the project is State Route 87, which is a major north-south highway on the Arizona State Highway System. To the south, it provides connections to Mesa, Chandler, and other communities outside the metropolitan area. To the north, it connects to the Fort McDowell Indian Community, Payson, mountain recreation areas, and other communities. In addition, State Route 87 collects traffic from other arterial and collector streets. Thus, it provides access to the proposed project from a broad area.

While the proposed project is a portion of the more extensive Red Mountain corridor, it achieves independent utility by virtue of the service that it provides. In summary, the following points describe the issues related to the independent utility of the project:

1. As described in the preceding paragraph, the project connects State Route 87 to the freeway system in the Phoenix metropolitan area. In turn, State Route 87 provides

connections to destinations both north and south of the metropolitan area. Thus, the project serves as a critical transportation link between the metropolitan area and destinations throughout the state. At present, this link does not exist in any logical routing. Thus, the proposed project would be necessary even if the remainder of the Red Mountain facility is never constructed.

2. In addition to providing a linkage to destinations throughout the state, the project will serve an important function within the metropolitan area. It will serve the immediate need to convey relatively large and increasing volumes of commuter traffic from State Route 87 and other major arterial streets to the freeway system. This traffic is generated by the current and projected urban development in the area. Elements of the existing circulation system are inadequate to serve this additional traffic.
3. The project is compatible with plans for the improvement of State Route 87. These improvements will increase the capacity of State Route 87 to serve traffic between the metropolitan area and destinations to the north, as well as the increased commuter traffic related to additional development in the area.
4. The limits of the proposed project have been influenced by fiscal constraints and established priorities among the various components of the regional system. The priorities have been established by the Maricopa Association of Governments Regional Council and the Arizona Department of Transportation Board. Considerations have been given to the relative needs of the different portions of the overall system, the available financial resources, and the appropriate timing of the implementation of the various segments of the system.
5. The location of the proposed project preserves the maximum flexibility for locating the potential future extension of Loop 202 to the east of State Route 87, as provided by the MAG regional transportation plan. As described in Section 2.1.2 of this EIS, alternatives were evaluated that considered environmental issues east of State Route 87. These issues included the possible relocation of a major radio tower and impacts on the now-closed Mesa Municipal Landfill. Only the location of the Loop 202/State Route 87 crossing and the location of Loop 202 immediately east of State Route 87 is fixed by the proposed project. The preferred alternative preserves several options for the location of an alignment east of State Route 87 within the previously-defined general corridor.

The definition of the corridor east of State Route 87 was based on the consideration of other alternatives during previous studies. Conceptualization of the Red Mountain project began in April 1983 as a result of the Mesa Transportation Study, conducted by the City of Mesa. This study identified the need for additional road capacity in the northern portion of the city. At that time a parkway was envisioned that would divert traffic from the major east-west arterials, provide improved access to existing and proposed industrial areas and provide a bypass for recreational traffic to the rivers and lakes located east of Mesa.

In 1984, the scope of the Red Mountain Parkway was changed as a result of the Eastside and Central Area Transportation Studies prepared by the Maricopa Association of Governments. These studies examined the longer-term needs of both the immediate vicinity and the entire metropolitan area. The conclusion was reached that the Red Mountain Parkway alignment should be defined as it now appears on the MAG system. In addition, the projected traffic load would require that the parkway concept be upgraded to a full freeway. In 1985, the Red Mountain Corridor became part of the MAG regional freeway plan and was placed on the state highway system.

Following the placement of the Red Mountain Corridor on the MAG and State systems, design concept studies and environmental evaluations of the proposed facility were conducted. For study purposes, the alignment was divided into two segments: Dobson Road to Lindsay Road and Lindsay Road to Baseline Road. State Environmental Assessments were prepared for these two segments in accordance with the ADOT Action Plan for State-Funded Highway Projects. The Final State Environmental Assessment for the Lindsay Road to Baseline Road segment was approved by ADOT on July 11, 1989. The Final State Environmental Assessment for the Dobson Road to Lindsay Road segment was approved by ADOT on November 27, 1989. Design concept reports for the two segments were completed in October 1988 and October 1989, respectively. A State Environmental Assessment was also prepared for the traffic interchange that connects Loops 101 and 102. The Final State Environmental Assessment for this interchange was approved by ADOT on March 5, 1991.

Following the completion of the State Environmental Assessments, the proposed project between the Price Freeway and State Route 87 was identified for further study. As stated above, the definition of the limits of the project was guided by the following factors: logical termini, independent utility, fiscal constraints, priorities among components of the regional system and the projection of future traffic needs. After consideration of the previous state environmental studies, a determination was made that an Environmental Impact Statement under the NEPA guidelines was needed. This determination was based on the conclusion that the proposed project is a Class I Action, as defined by 23 CFR 771.115(a). A Class I Action includes: (1) a new controlled access freeway, and (2) a highway project of four or more lanes on a new location.

1.3 Project Purpose and Need

The purpose of the proposed action is to construct a freeway facility between the Price/Red Mountain Interchange and State Route 87 in order to serve the identified traffic needs in the area. A preliminary determination has been made that the other alternatives considered will not provide the needed service. However, no final selection of an alternative will be made prior to a full evaluation of the impacts and a consideration of public comments.

The need for the project is based primarily on the levels of traffic that are expected to occur in the future. The project is also a critical connecting link in the overall transportation system. It will serve economic development plans and projections for the area and is consistent with current governmental policy. The need for the project in terms of these factors is described below.

1.3.1 Traffic Demand

The need for the facility was first identified in 1982 by the Mesa Transportation Study. The results of this study are briefly summarized in order to provide an historical perspective for the definition of need for the project. A current traffic analysis prepared as a part of this DEIS is then presented. Based on an analysis of future traffic demands, the 1982 study recommended the construction of a new limited access route along the northern edge of the city. The study proposed that the facility extend northeasterly from the planned Pima Freeway near Price Road to the vicinity of Thomas Road and Lindsay Road. It would then continue eastward along Thomas Road to Bush Highway and then along McKellips Road to the county line. The needs served by this new facility were described as follows:

1. The relief of traffic congestion on the existing east-west arterials. These streets, even with improvements, would not be adequate to meet future traffic demands.
2. The relief of increasing traffic congestion on U.S. 60 (Superstition Freeway).
3. Provision of a direct connection between north Mesa and the other components of the regional freeway system.
4. Provision of improved access to the rapidly-developing industrial area in north Mesa.

5. Provision of a more direct route for recreational traffic to the rivers and lakes located east of Mesa.

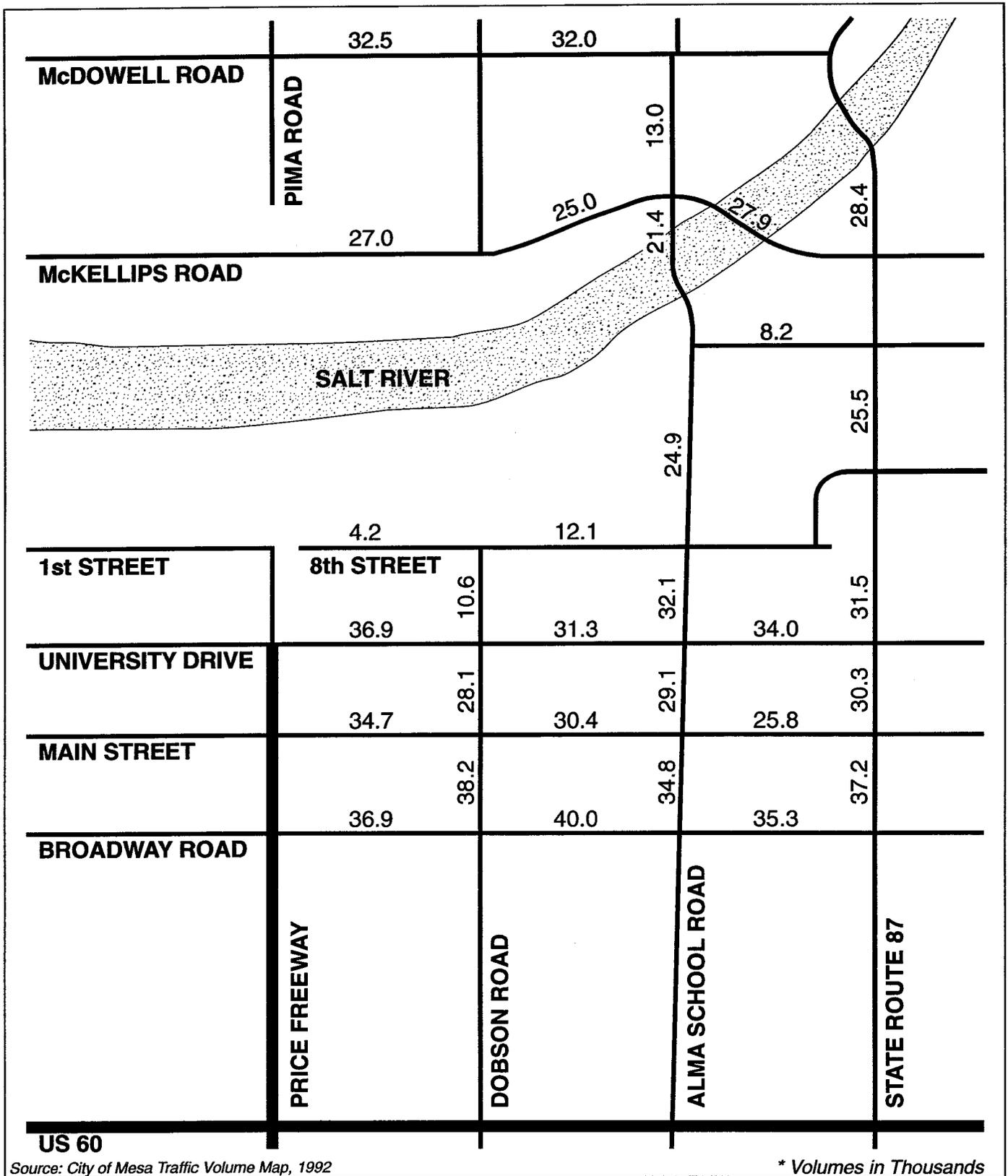
As a result of the 1982 study, the City of Mesa accepted the need for the facility as a parkway and named it the Red Mountain Parkway.

In 1984, further analysis of traffic needs was completed and published by MAG as the Eastside Transportation Analysis. The major purpose of this study was to identify and evaluate options for regional high-capacity, controlled access transportation corridors in the East Valley. The study concluded that major changes would be needed in transportation and land use plans in order to avoid future heavy traffic congestion. Among other conclusions, the study determined that, by the year 2015, at-grade intersections with the Red Mountain Parkway would be heavily congested, resulting in long traffic delays. This conclusion was the basis for the recommendation that the facility be upgraded to full freeway standards. This recommendation was accepted and the facility was placed on the regional freeway plan and the state highway system.

As a part of the preparation of this EIS, a quantitative examination of the traffic conditions in the vicinity of the project corridor was conducted. The study area for the traffic analysis is bounded by McDowell Road on the north, Broadway Road on the south, Price Road on the west, and State Route 87 on the east. Traffic conditions are presented for existing and the year 2015 no-action scenarios. The evaluation includes a comparison of the existing and future traffic and an analysis of the demand versus the capacity of the existing and planned roadways in the area.

Existing Traffic Conditions

The existing arterial street system in the study area is shown in Figure 1-3 (page 1-9). The north-south major arterials include Dobson Road, Alma School Road, and State Route 87. Both Alma School Road and State Route 87 provide three lanes northbound and three lanes southbound. Dobson Road varies from a total of four to six lanes in the study area. The major arterials serving traffic in the east-west direction are McDowell Road, McKellips Road, University Drive, Main Street, and Broadway Road. The first three provide two lanes in each direction. Main Street and Broadway Road vary from four to six lanes in the study area.



**RED MOUNTAIN
FREEWAY**



Existing Daily Traffic Volumes*

ENVIRONMENTAL
IMPACT STATEMENT

Figure 1-3

The only completed freeway in the area is the Superstition Freeway (US 60), which runs east-west and is located approximately three and a half miles south of the proposed Red Mountain alignment. The segment of the Price Freeway south of University Drive is completed and its connection to US 60 is under construction.

The existing daily traffic volumes in the study area are also shown in Figure 1-3 (page 1-9). The volumes were obtained from the City of Mesa 1992 Traffic Volume Map. The volumes on the major arterials in the area range from 10,600 vehicles on Dobson Road north of University Drive to 40,000 vehicles on Broadway Road between Dobson and Alma School Roads.

Future Traffic Conditions

Traffic for the year 2015 was obtained from the Maricopa Association of Governments (MAG) computerized travel forecasting model. The network used in the forecasting procedure assumes a number of new freeways will be completed, including the Price/Pima Freeway in the East Valley. The number of lanes on the major arterials in the study area in the year 2015 is the same as the existing conditions, with the exception of Main Street and Broadway Road. Both of these streets are expected to be widened from four to six lanes through the study area.

The 2015 daily traffic forecasts for the streets in the study area are shown in Figure 1-4 (page 1-11). The forecasts on the major arterials vary from a low of 29,700 vehicles on Alma School Road south of McKellips Road to a high of 72,500 on Main Street west of Dobson Road.

Traffic Analysis

The proposed Red Mountain freeway would serve east-west traffic in north Mesa and the surrounding area. To analyze the need for this facility, traffic on the east-west major arterials was considered. The method used for this analysis was the examination of volumes across screenlines. A screenline is an imaginary line across which all traffic flows can be counted and summed. This technique provides a convenient means for examining major travel trends. A screenline was drawn between Dobson and Alma School Roads from McDowell Road to Broadway Road to use as a baseline for comparisons.

The screenline volumes are listed in Table 1-1 (page 1-12) for the existing and future conditions.

TABLE 1-1
COMPARISON OF SCREENLINE VOLUMES
Existing and Future Daily Traffic
A North-South Screenline between Dobson and Alma School

	Existing (1992) vehicles daily	Future (2015) vehicles daily
McDowell Road	32,000	52,400
McKellips Road	25,000	53,300
University Drive	31,300	45,800
Main Street	30,400	68,400
Broadway Road	40,000	68,000
TOTAL	158,700	287,900

As shown in Table 1-1, existing traffic that crosses the screenline on a daily basis is 158,700 vehicles. In 2015, this volume increases to 287,900 vehicles which is an increase of 81 percent over the existing volume.

The capacity available to serve this traffic can be determined from the number of lanes that cross the screenline. The future number of lanes on the major arterials is taken from the MAG model. The number of lanes crossing the screenline is listed below in Table 1-2. There are a total of 20 existing major arterial travel lanes (10 in each direction) across the screenline, with a total of 24 lanes expected in the future.

TABLE 1-2
SCREENLINE TRAVEL LANES

	Existing Number of Lanes	Future (2015) Number of Lanes
McDowell Road	4	4
McKellips Road	4	4
University Drive	4	4
Main Street	4	6
Broadway Road	4	6
TOTAL	20	24

Assuming a daily capacity of 7,500 vehicles per arterial lane, the available lanes create a study corridor capacity of 150,000 vehicles per day for existing conditions and 180,000 vehicles per day for 2015.

The ratio of volume to capacity compares the traffic demand to the available lanes. A ratio of more than 100 percent means that the demand exceeds the available capacity. For the existing conditions, the screenline volume is 158,700 vehicles and the screenline capacity is 150,000 vehicles. This is a volume to capacity ratio of 106 percent, which means the existing demand exceeds the available capacity by 6 percent. In 2015, the screenline volume is 287,900 vehicles as compared to the capacity of 180,000 vehicles for a ratio of 160 percent. For the Red Mountain corridor, the demand is expected to exceed the capacity by 60 percent in the Year 2105.

Traffic Analysis Conclusion

The need exists for an additional east-west facility in the study area in order to meet the traffic demand in the year 2015. This is evidenced by the fact that the daily traffic volumes are expected to increase by 81 percent over existing volumes. Also, an analysis of the volume to capacity ratio indicates that the existing demand exceeds the capacity. Furthermore, even with the additional planned travel lanes, the 2015 volume to capacity ratio is expected to be well over 100 percent.

1.3.2 Safety

As described in Section 1.3.1, the proposed project would serve both immediate and future traffic needs in the area. The facility would alleviate traffic congestion on the surrounding arterial and local streets. Particularly important would be the lessening of congestion at the arterial intersections. These improvements would reduce the potential for accidents and improve traffic safety.

1.3.3 System Linkage

The proposed project is an important link in the regional transportation system as described by the MAG Regional Freeway/Expressway Plan. This plan was adopted by the MAG Regional Council in 1985. As shown in Figure 1-1 (page 1-3), the Red Mountain Freeway is an integral part of the planned system. The most recent update of the plan occurred in 1991. The plan update reiterated that the need for completing the 1985 plan.

The MAG Freeway/Expressway Plan is a part of the overall MAG Transportation Plan, which also describes adopted policies with regard to transit, roads of regional significance, funding, and environmental concerns. The process used in the preparation of the MAG plan provides a sound basis for the measurement of transportation needs in the region.

A common technical base is shared by the freeway and transit planning processes. Each uses the same socioeconomic forecasts, revenue projections, and transportation models. The use of these techniques has resulted in the definition of the transportation improvements that are contained in the plan. As defined in the 1991 MAG Transportation Plan Update, the elements that have been used to define these improvements are summarized below.

Socioeconomic Forecasts: The population of Maricopa County is expected to increase from 2.1 million in 1990 to 3.9 million in 2015, representing an 86 percent increase in 25 years.

Transportation Models: Transportation models are used to project traffic volumes and transit passengers of alternative networks. Recalibrations of the models are completed periodically. A 1989 recalibration was based on a survey of almost 3,000 households regarding travel behavior. The survey included detailed questions on socioeconomic characteristics and trip-making behavior.

Base Networks: In addition to socioeconomic projections, detailed information on future freeway, street and transit networks is used in the models. Local governmental jurisdictions within the MAG area provide information on long-term street needs and plans.

Transportation Projections: Based on the information noted above, nine indicators are used to project transportation conditions and needs. These indicators are population, employment, miles of freeway, lane miles of arterials, daily vehicle trips, daily vehicle miles of travel, freeway vehicle miles of travel, percent of travel on freeways, and congested intersections. A dominant feature of these factors is the growth in travel demand. For example, projections for the period between 1990 and 2015 indicate an 82 percent increase in population, an 88 percent increase in trips, and a 128 percent increase in vehicle miles of travel.

1.3.4 Future Economic Development

The proposed project is needed to serve projected new development in the East Valley, along with its associated population, employment, and public facilities and services. This projected economic activity is documented generally in the Mesa General Plan (1988) and more specifically in the Mesa Freeway Corridors Study (1988). Summary discussions of the future development are contained in Sections 3.1 and 4.1 of this EIS.

1.3.5 Governmental Policy

The proposed project is consistent with governmental mandates regarding the need for transportation facilities in the urban area. These policies have been adopted by the State of Arizona, the Maricopa Association of Governments, the City of Mesa and the City of Tempe. The project is on the adopted State Highway System and is an important segment in the MAG Regional Freeway System. It is also a part of the general plans of the cities of Mesa and Tempe. The City Council of the City of Mesa has specifically adopted a policy in support of the project. These policies are based on numerous studies of the need for additional circulation facilities.

1.3.6 Transportation System/Demand Management

Transportation System Management (TSM) activities seek to increase the capacity of the existing transportation system through relatively low-cost improvements. The TSM improvements can include such actions as traffic signal optimization, widening of arterial streets, and the addition of high occupancy vehicle (HOV) lanes, and improvement of bicycle facilities. Traffic Demand Management (TDM) strategies seek to decrease the amount of single occupancy vehicle (SOV) traffic. The TDM strategies can include carpool and vanpool programs, encouragement of pedestrian and bicycle use, staggering of work hours, telecommuting, development controls, and other measures.

As described in Section 2.2.1, a TSM/TDM alternative was defined and considered. This alternative included high occupancy vehicle (HOV) lanes, traffic signal optimization, arterial widenings of McKellips Road and University Drive, and a trip reduction program. The analysis concluded that the TSM/TDM strategy provides a slight improvement in volume-to-capacity ratio when compared to the no-action alternative. On an areawide basis, a TSM/TDM program would offer an overall reduction in traffic. However, it would have limited effectiveness in the Red Mountain Corridor. Thus, this

alternative is not adequate as a stand-alone alternative to meet the traffic needs in the corridor. However, TSM/TDM strategies will continue to be studied and implemented on an areawide basis and will assist in lowering single occupancy vehicle (SOV) traffic in the Red Mountain Corridor.

1.4 Congestion Management System Status

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 requires that Congestion Management Systems (CMS) be developed in metropolitan areas that have been designated as non-attainment areas for ozone and/or carbon monoxide. The Act prohibits the use of federal funds for highway or transit projects that increase the number of single occupant vehicles (SOV) unless the project results from an approved CMS. Prior to the full implementation of a CMS, a self-certified planning process can constitute an interim CMS. During this interim period, proposed highway projects that significantly increase SOV capacity must analyze potential travel demand reduction and operational strategies. Where the analysis demonstrates that the additional SOV capacity in a corridor is warranted, appropriate travel demand reduction and operational strategies must be identified.

Prior to the approval and implementation of the regional Congestion Management System, specific congestion management measures will be applied to the proposed project. Elements of the ADOT Freeway Management System (FMS) will be used in the design and operation of the freeway alternative. These measures will include, as a minimum, surveillance, incident management, and communication with the freeway management system control center. Where warranted, these measures will also include ramp metering, HOV bypass lanes on entrance ramps, and motorist information elements, such as changeable message signs. These components will aid in relieving congestion and maintaining speeds during peak hour traffic and under incident conditions.

In addition to the FMS measures, accommodation will be made for the future addition of HOV lanes, when warranted. The manner in which this accommodation is made is described in Section 2.4.2 of this EIS. The design of the facility will also accommodate the use of express buses and park-and-ride facilities. Following the adoption of the regional Congestion Management System, as described below, the applicable strategies will also be implemented in the Red Mountain corridor.

The development of the CMS is currently under preparation by the Maricopa Association of Governments. This plan will consider alternative strategies for inclusion in the system. These strategies will include both transportation demand management and transportation supply components. A report containing the alternative strategies has been considered by the MAG Congestion Management Task Force, which is a working group comprised of state, regional, and local officials. Upon the recommendation of the Congestion Management Task Force, the report was approved on January 26, 1994 by the MAG Regional Council, which is the governing body

comprised of local elected officials. This report will be the basis for the Congestion Management Plan, which is expected to be considered for adoption in October 1994. Following the adoption of the Congestion Management Plan, the applicable strategies will be implemented in the corridor in a timely manner. In general, the following alternative strategies are under consideration:

Employer-based TDM Programs: These are strategies that would be carried out by employers and directed primarily toward reducing commuter travel. They include ridesharing, vanpooling, preferential parking for carpools and vanpools, parking surcharges for single-occupant vehicles, encouragement of pedestrian and bicycle use, and staggered work hours.

Public Sector TDM Programs: Public sector programs seek to reduce vehicular traffic or increase the capacity of existing facilities. Included are public transit improvements, high occupancy vehicle (HOV) facilities on freeways, park-and-ride facilities, arterial street improvements, regional traffic signal coordination, congestion pricing by tolls or traffic fees, and improvements to the MAG freeway system.

Land Use Controls: Implemented by local governments, these measures would be designed to affect long-term future travel demand. Such controls could include increasing development density, site planning for transit-oriented development, mixed-use development to reduce vehicle trips, and regional job/housing balance measures to minimize the length of work trips.

Market Incentives: These measures would seek to improve the financial attractiveness of using alternatives to single occupant vehicle travel. Included in the considerations are employer or government subsidies, parking charges, preferential parking, transportation allowances, taxes, and fees.

Road Improvements: These strategies include new roadway capacity, intersection improvements, HOV facilities, intelligent vehicle highway systems (IVHS), access control management, reversible lanes, and one-way streets.

Transit Improvements: These measures include fixed-route bus service, express bus service, dial-a-ride, busway HOV facilities, park-and-ride lots, transit centers, rail transit, and other improvements.

Other Modal Options: These strategies include pedestrian facilities and support programs, bicycle facilities, and telecommuting programs.

The most promising of the congestion management strategies were combined into implementation packages to analyze their collective impact on congestion in the region. Three land use and transportation infrastructure scenarios were developed and used as the basis for the analysis. Four levels of transportation demand management strategies were then defined and evaluated for effectiveness under each of the land use and infrastructure scenarios.

The evaluation concluded that impacts on congestion are determined by a complex mix of land use, transportation infrastructure, and transportation demand management strategies. The quantitative analysis indicated that a reduction in vehicle miles traveled (VMT) of up to 14 percent can be achieved by the various combinations of land use, infrastructure, and management strategies.

Several strategies were evaluated to meet the interim CMS guidelines. As described in Section 2.2, Transportation System/Demand Management and Transit alternatives were identified. As discussed in Section 2.2, the future travel demand in the Red Mountain Corridor cannot be accommodated by either of these two alternatives. While both will contribute to the reduction of single occupant vehicle travel, neither is sufficient as a stand-alone alternative. Other regional programs are in place that will assist in meeting the interim requirements. These measures include:

Trip Reduction Program: The Trip Reduction Program, adopted by an ordinance of the Maricopa County Board of Supervisors, is administered by Maricopa County and the Regional Public Transportation Authority (RPTA). The ordinance requires employers of 75 or more employees to develop a trip reduction plan that will reduce single occupant vehicle (SOV) trips by 5 percent a year for a total of five years, or until they reach a rate of 60 percent SOV trips. Compliance with the ordinance requires the following actions by the employer: (1) designation of a transportation coordinator; (2) completion of an annual employee/student survey; (3) provision of information on alternative travel modes to all employees; and (4) preparation and implementation of an approvable plan that outlines strategies to achieve the 5 percent reduction goal.

Regional Ridesharing Program: - Regional Ridesharing is a program of the Regional Public Transportation Authority (RPTA). Its goal is to increase the number of people using alternative modes of transportation or work schedules. The program has the following major components:

Technical Assistance to Employers - Provides expertise in transportation problem-solving and matchlists for potential carpoolers and vanpoolers.

Employee Transportation Coordinator Training - Provides assistance in developing and implementing travel reduction programs, including marketing and incentive strategies and evaluation tools.

Vanpool Program - Provides new fully-insured vans to groups of seven to 15 people for a monthly fee, including a free ride and unlimited personal use of the van to the volunteer driver.

Transportation Management - Assists developers in creating transportation demand management plans for new developments and assists in the development and formation of transportation management associations.

Mass Transit: A Transit Plan has been prepared by the Regional Public Transportation Authority (RPTA). The plan provides for the following improvements :

Bus Service - Local bus service is proposed to be increased from the present 415 street miles to 885 miles by Year 5 of the plan. Express bus service is proposed to increase from 170 street miles to 230 street miles.

Dial-A-Ride Service - Designed for use by those who cannot use buses due to disabilities or location, dial-a-ride services are proposed to increase from the current 750,000 annual trips in the region to 2.5 million annual trips by Year 5 of the plan.

Rail Studies - The plan proposes rail feasibility studies and the evaluation of potential funding sources.

Transit Facilities and Special Services - Numerous provisions in the plan are directed toward increasing the comfort and convenience of using transit and other alternative modes of travel. These provisions include transit centers, park-and-ride lots, bus pullouts to relieve street congestion, provision of bicycle facilities, and emphasis on high-occupancy-vehicle lanes on the freeway system.

1.5 Major Metropolitan Transportation Investment Analysis

Section 450.318 of the metropolitan planning regulations issued in accordance with the Intermodal Transportation Efficiency Act (ISTEA) of 1991 requires that investment studies be undertaken where the need for a major metropolitan transportation investment is identified. These studies will (1) evaluate the effectiveness and cost effectiveness of alternative investments or strategies in attaining local, state, and national goals and objectives; (2) serve as the "alternatives analysis" required by the Federal Transit Act for certain projects; (3) serve as the analysis of demand reduction and operational management strategies; and (4) include environmental studies.

The regulations further provide that "where the environmental process has been initiated but not completed, the FHWA and FTA shall be consulted on appropriate modifications to meet the requirements . . ." A consultation on this question has occurred between FHWA and FTA. Prior to the consultation between the two federal agencies, discussions were held with the Maricopa Association of Governments, which serves as the metropolitan planning organization, and the Regional Public Transportation Agency, which is the local transit operator.

The conclusion of the consultation was that the MMTI requirements have been adequately addressed in this EIS and that no further major metropolitan transportation investment analysis is necessary. This conclusion is based on the following factors:

1. The environmental study process as required by the National Environmental Policy Act is almost complete. The Draft Environmental Impact Statement (DEIS) was approved by FHWA on October 27, 1993. A public hearing was held on December 14, 1993. The DEIS was circulated to the appropriate entities for review, with comments received by December 27, 1993. Responses to these comments have been prepared and are included in Section 7.2.3 of this Environmental Impact Statement.
2. A reasonable range of alternatives was considered and analyzed in the planning and environmental process. As described in Section 2.0 of this EIS, the alternatives considered included no action, a freeway, a major urban arterial street, transportation system/demand management, and transit. A number of alignment alternatives for the corridor were previously considered. Planning and environmental studies that were completed prior to the preparation of this EIS also considered numerous alternatives. These activities are summarized in Section 1.0.
3. The state transportation agency (ADOT), the metropolitan planning organization (MAG), and the transit provider (RPTA) have consulted and agree that the types of modal alternatives that can be reasonably considered are limited. As discussed in Section 2.2 of this EIS, transportation system/demand management strategies and transit actions, while important to fulfilling the overall transportation improvement strategy, do not eliminate the need for the proposed Red Mountain Freeway. The continuation of these measures, in conjunction with the proposed project, is essential to meeting the transportation needs of the region. Details of the alternative strategies that are being implemented in the metropolitan area are summarized in Section 1.4 of this EIS.

4. The cost effectiveness of the Red Mountain Freeway between the Price Freeway and State Route 87 has been compared to other major highway projects. The measure used is based on the construction cost per vehicle mile of travel (VMT). As documented in the MAG publication, "MAG Freeway Priority Options With New Funding", the cost per VMT of this portion of the Red Mountain Freeway was found to be lower than average, which is representative of both efficient construction and projected high volume use.
5. An extensive public involvement and agency coordination process has been conducted. This process included a public information meeting, contacts with public interest groups, communications with public agencies, availability of information at a project office and in ADOT publications, and a public hearing. Studies conducted prior to the preparation of this EIS also included numerous opportunities for public involvement and agency coordination.
6. Consultations have occurred among the state transportation agency (ADOT), the metropolitan planning organization (MAG), the local transit operator (RPTA), FHWA, and FTA. All agencies agree that the studies that have been completed fulfill the intent of the major investment analysis requirement. Correspondence documenting this consultation is included in Section 9.0 of this EIS.

SECTION 2
Alternatives

2.0 ALTERNATIVES

This chapter describes the project alternatives. The following three alternatives were selected for detailed study: (1) no-action; (2) a freeway; and (3) a major urban arterial street. A number of other alternatives were considered and eliminated from detailed consideration. Section 2.1 summarizes the location alternatives that were considered. Section 2.2 describes other concept alternatives that were considered and eliminated as stand-alone solutions. The alternatives that were studied in detail are described in Sections 2.3, 2.4, and 2.5. Section 2.6 provides a summary comparison of the three alternatives that were selected for detailed study.

2.1 Location Alternatives Considered

Various alternatives for meeting the defined need were identified and considered. This section describes the different alignments for the build alternatives. Reasons for eliminating certain alternatives are discussed.

Section 2.1.1 describes previously-considered alternatives for the location of the Price/Red Mountain Interchange and the general alignment of the Red Mountain Corridor. This information is included in order to provide an historical basis for the location of the interchange, which determined the western terminus of the Red Mountain Corridor. Section 2.1.2 then describes specific alignment alternatives within the general corridor that were considered by this EIS. Reasons for eliminating several of these specific alternatives are described. The result is the definition of the alternatives that were selected for detailed study.

2.1.1 Interchange and General Alignment Alternatives

The general alignment alternatives are directly related to the other features of the overall area transportation system. These alternatives are described and evaluated in the previously-completed studies identified in Section 1.2. General alignment alternatives for the eastern portion of the Red Mountain Corridor are associated with system connections to the west, specifically the location of the traffic interchange between the Price/Pima Freeway (Loop 101) and the Red Mountain Freeway

(Loop 202). The interchange and general alignment alternatives are described and evaluated in the State Environmental Assessment for the Price/Red Mountain Interchange, which was approved by ADOT on March 5, 1991. The evaluation of these interchange alternatives, as described in that document, was influenced by the following existing conditions, land uses, and facilities:

1. The Salt River.
2. The Salt River Pima Maricopa Indian Community (SRPMIC), located north of the boundaries of the cities of Tempe and Mesa.
3. Sand and gravel mining operations, located in the Salt River bed.
4. The Old Tempe Landfill, located south of the Salt River approximately 2,000 feet west of Price Road.
5. The ASU/Karsten Golf Course, located south of the Salt River and west of McClintock Drive.
6. The City of Mesa Riverview Park and Golf Course, located west of Dobson Road and north of Eighth Street.
7. The City of Mesa Water Treatment Plant and percolation ponds, located south of the Salt River between Price Road and Dobson Road.
8. The Salt River Project and Arizona Public Service 230 kv transmission lines, located along the north bank of the Salt River.
9. The FAA VOR/Vortac navigational facility, located north of Eighth Street and east of Price Road.

The interchange and general alignment alternatives that were evaluated in the State Environmental Assessment for the Price/Red Mountain Interchange are summarized below and illustrated on Figures 2-1 and 2-2 (pages 2-4 and 2-6).

Alternative A

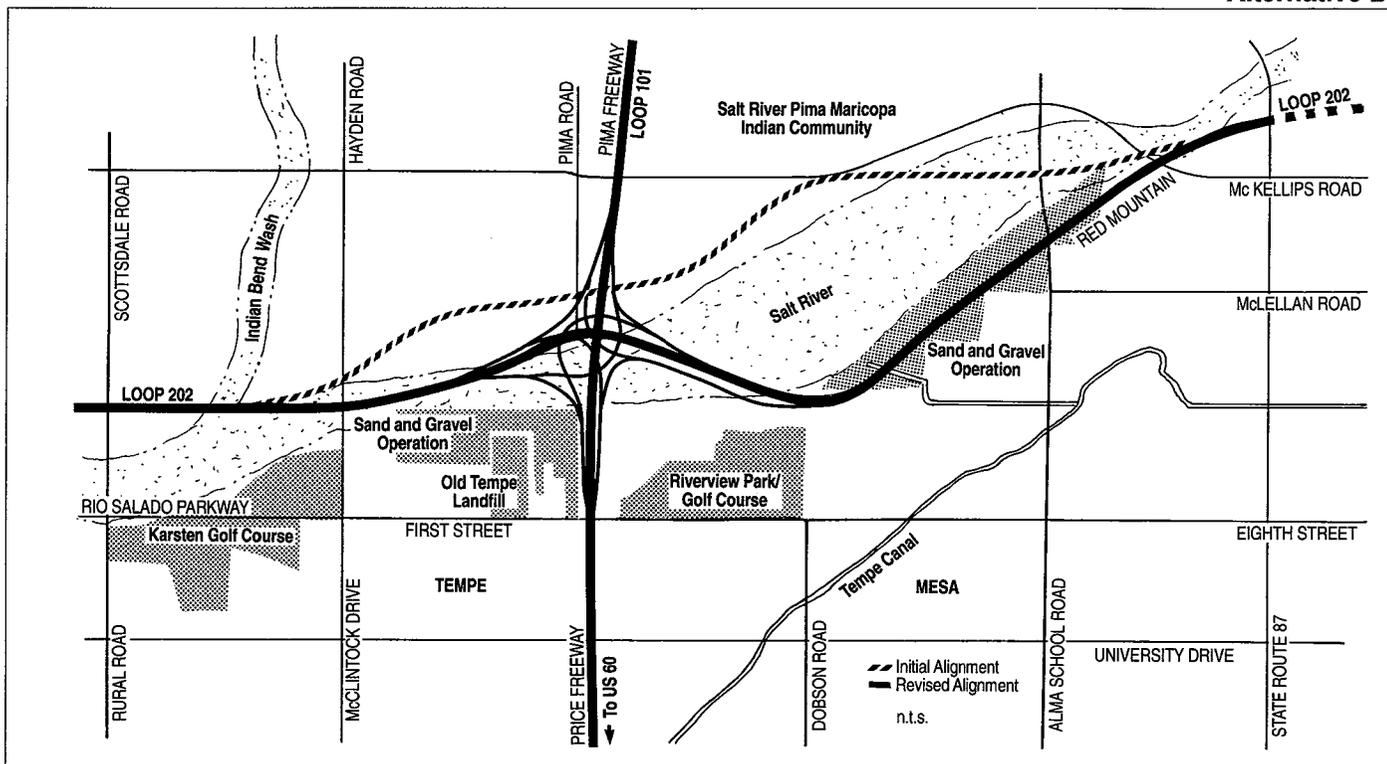
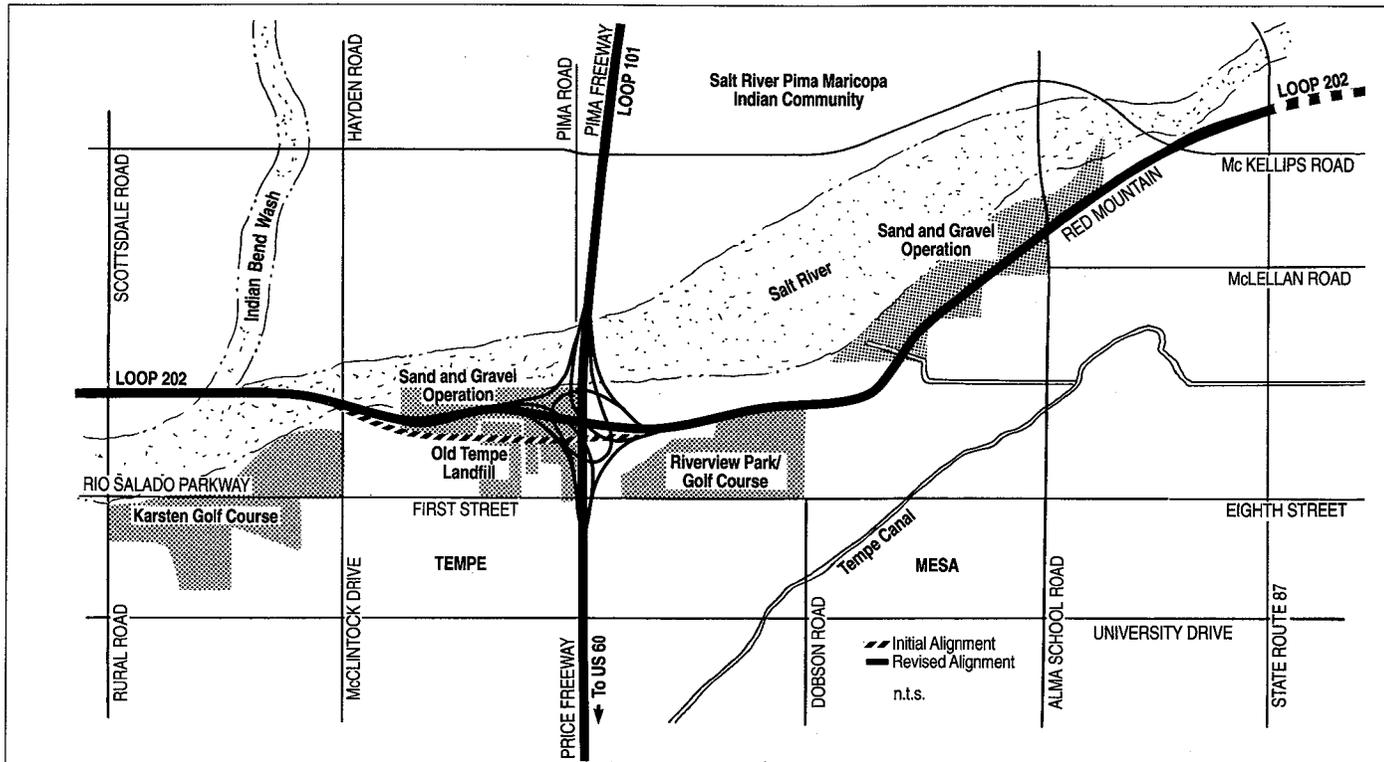
The interchange is located on the south side of the Salt River about 1,500 feet north of First Street/Eighth Street. West of the interchange, Loop 202 is aligned in a manner to minimize the length of the required bridge across the river. Two variations were considered with respect to the Old Tempe Landfill. The initial alignment crossed the landfill in a direct line between the river crossing and the interchange. A revision created an alternative curvilinear alignment that passes between the landfill and the Salt River. East of the interchange, the alignment proceeds along the south bank of the Salt River in a manner consistent with the previous studies for the Red Mountain Corridor.

Alternative A has the advantage of a relatively lower structural cost for the bridge required to span the Salt River. However, it was rejected because of issues related to hydraulics and hazardous wastes. Undesirable hydraulic effects on the Salt River would result. Partial or total acquisition of illegal dump sites west of the Old Tempe Landfill would be required, which would involve hazardous waste cleanup costs and risks.

Alternative B

The interchange is located on the north side of the Salt River, within the boundaries of the Salt River Pima Maricopa Indian Community. Two alignments were considered. The initial alignment passes through the Indian community on the north side of the river, north of the Salt River Project transmission line. This alignment then crosses the Salt River just west of Alma School Road and continues eastward on the south bank of the river. A second alternative is located to the south of the initial alignment. It crosses the river just east of the interchange and follows a route eastward along the south side of the river.

Alternative B avoids conflicts with the Old Tempe Landfill, sand and gravel operations, the water treatment plant percolation ponds, and the FAA facility on the south bank. However, this alternative was rejected because of major impacts on the Salt River Pima Maricopa Indian Community. The initial alignment is located wholly within the boundaries of the community. The revised alignment has a lesser impact. However, both alignments were considered to have excessive right-of-way requirements on the Indian community.



**RED MOUNTAIN
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**Interchange and General Alignment
Alternatives A and B**

Figure 2-1

Alternative C

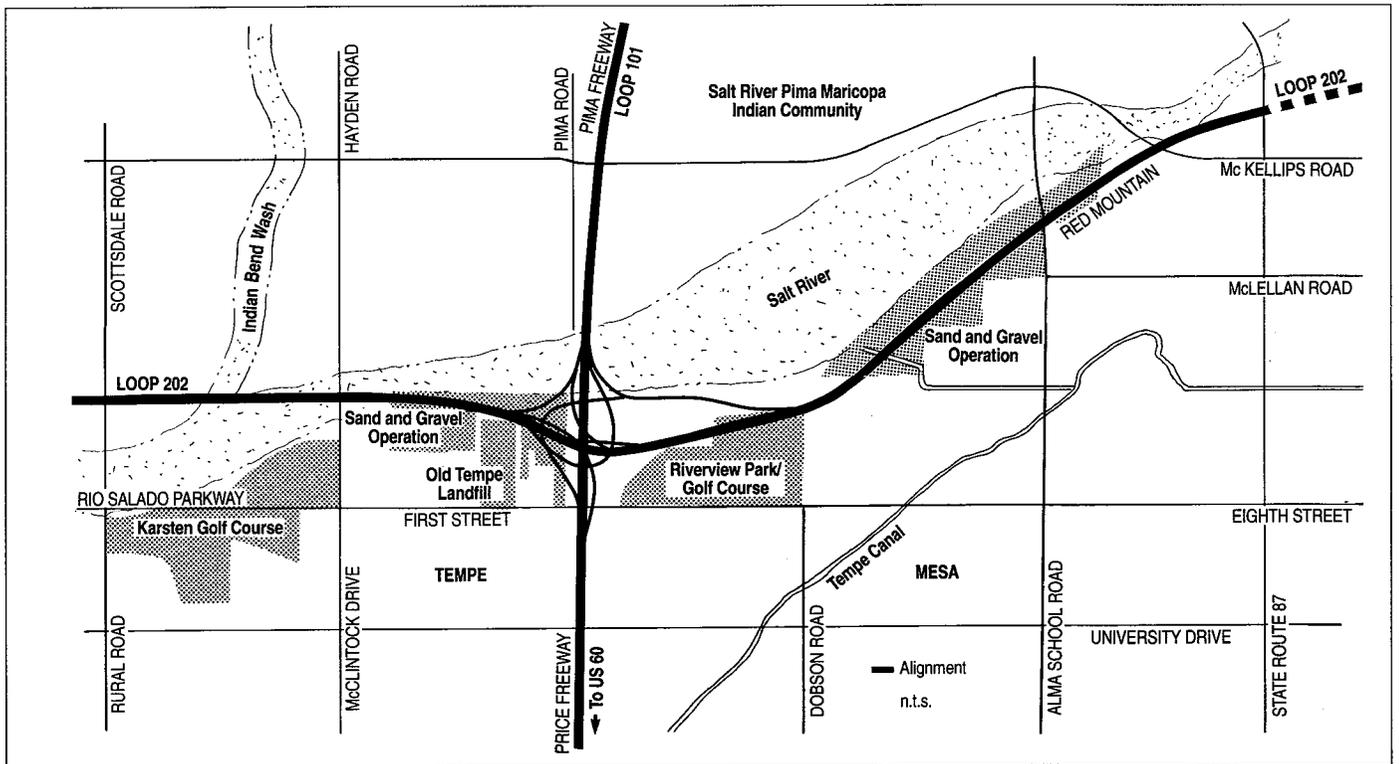
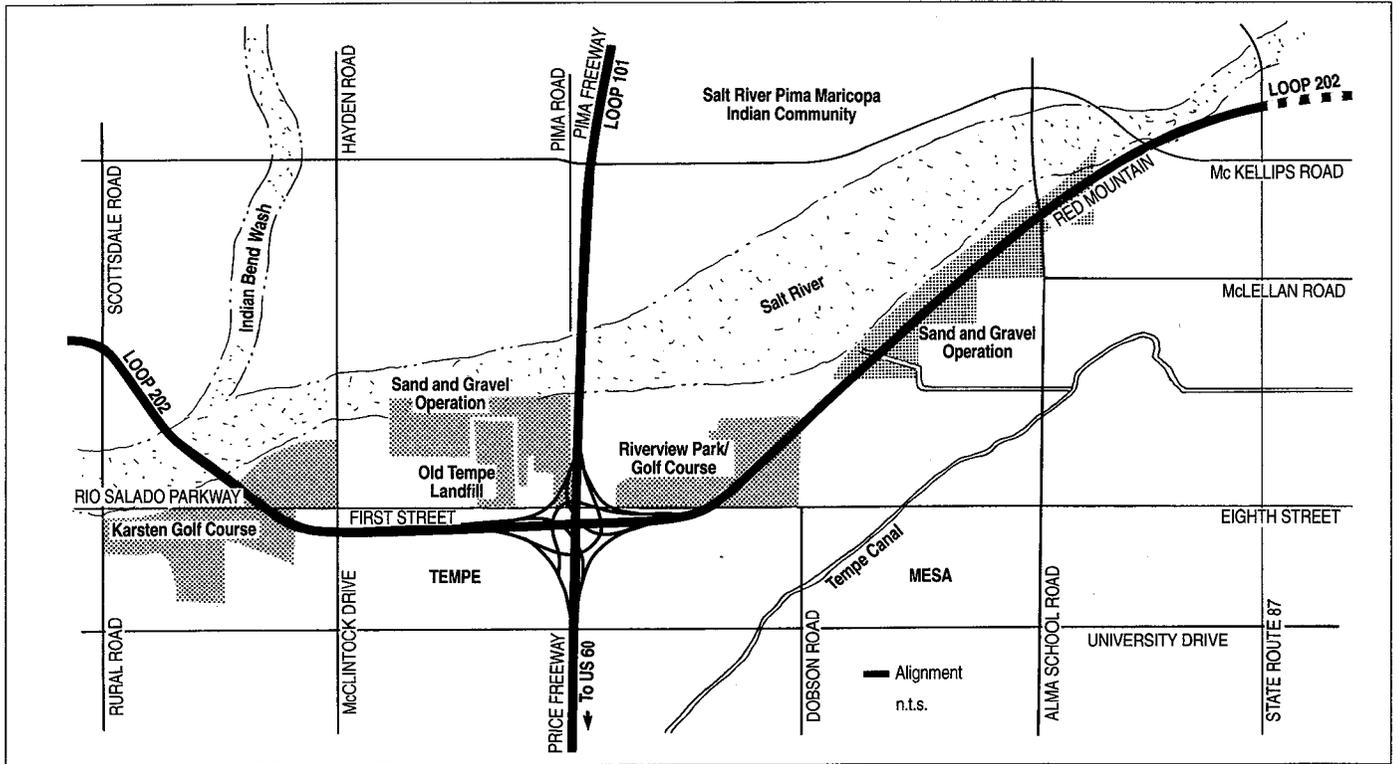
The interchange is located on the south side of the Salt River, about 500 feet south of First Street/Eighth Street. West of the interchange, the alignment crosses the Salt River between Rural Road and McClintock Drive, passes through the Karsten Golf Course, and turns eastward just south of First Street/Eighth Street. East of the interchange, the route continues eastward, passes through the Riverview Park and Golf Course, and continues along the south bank of the river.

Alternative C would avoid the Old Tempe Landfill, the sand and gravel operations west of Price Road, and the Mesa Water Plant percolation ponds. It would also provide an improved crossing of the Salt River. However, this alternative was rejected because of several serious negative influences. It would have major impacts on both the Karsten Golf Course and Riverview Park. The relocation of approximately 200 commercial and industrial businesses would be required. Bridges at four arterial streets and the Southern Pacific Railroad would need reconstruction. In addition, no access to and from the south at University Drive would be possible.

Alternative D

The interchange is located on the south side of the Salt River approximately 1,600 feet north of First Street/Eighth Street. West of the interchange, Loop 202 is placed on a structure in the Salt River between McClintock Drive and Price Road. It then proceeds eastward on an alignment south of the Indian community and north of the Old Tempe Landfill. East of the interchange, the alignment proceeds along the south bank of the Salt River in a manner consistent with the previous studies for the Red Mountain Parkway.

The major disadvantage of this alternative is the high construction cost of the river structure. However, this alternative presents several major advantages. The alignment avoids impacts on the Old Tempe Landfill, minimizes the acquisition of sand and gravel quarry operations in the riverbed, and lessens the potential for the need to dispose of hazardous wastes that have been identified on these sites. It also completely avoids impacts to the Salt River Pima Maricopa Indian Community. Alternative D was selected as the preferred location of the interchange.



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FREEWAY**

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Interchange and General Alignment
Alternatives C and D

Figure 2-2

2.1.2 Specific Alignment Alternatives

The selection of Alternative D in 1991 as the preferred location of the Price/Red Mountain Interchange determined the location of the western terminus of the segment of the Red Mountain Corridor covered by this EIS. It also was a key factor in determining the general location of the alignment between the interchange and State Route 87. This alignment is located along the south bank of the Salt River and is consistent with the previous studies of the location of the overall Red Mountain Corridor.

Following the selection of the preferred location of the Price/Red Mountain Interchange, variations of the alignment between the interchange and State Route 87 were also considered. These variations studied in more detail the relationship of the corridor to Riverview Park, the Salt River, and the Indian Community boundary. Four variations were evaluated for the western end. Three variations were considered for the eastern end. These alternatives are described and illustrated below. For purposes of describing these variations, the alignment between the interchange and State Route 87 is divided into three segments, as illustrated in Figure 2-3 (page 2-10). The specific alignment alternatives are shown in Figures 2-4 through 2-8 (pages 2-11 through 2-15).

Segment 1

Alternative 1a is based on the previously-prepared design concept report for the Red Mountain Freeway. As illustrated in Figure 2-4 (page 2-11), this alignment connects with the Price/Red Mountain Interchange on the west and proceeds easterly along the south bank of the Salt River. It crosses the northern undeveloped portion of Riverview Park. A loop ramp is provided for access between the Red Mountain Freeway and Dobson Road.

This alternative would require the acquisition of the northern portion of the Riverview Park property. The loop ramp extends into the floodway and causes negative hydraulic impacts. For these reasons, Alternative 1a was rejected.

Alternative 1b connects with the Price/Red Mountain Interchange on the west. The alignment is then shifted to the north to avoid crossing the Riverview Park property. This alignment requires a re-configuration of the loop ramp connecting to Dobson Road, resulting in tighter curves.

This alternative has the advantage of eliminating direct impacts to Riverview Park. However, the combination of the shift of the alignment to the north and the Dobson Road loop ramp causes even more negative hydraulic impacts. This alternative was eliminated because of these hydraulic impacts. Alternative 1b is illustrated in Figure 2-4 (page 2-11).

Alternative 1c connects with the Price/Red Mountain Interchange on the west, then proceeds easterly on the same alignment as Alternative 1a through the undeveloped portion of the Riverview Park property. The loop ramp to Dobson Road is eliminated and replaced with a diamond interchange located east of the present alignment of Dobson Road. This alternative requires the re-alignment of Dobson Road between Eighth Street and the diamond interchange.

While this alternative has the least hydraulic impact, it would require the acquisition of the northern portion of the Riverview Park property. It was eliminated because of this impact to the park. Alternative 1c is illustrated in Figure 2-5 (page 2-12).

Alternative 1d connects with the Price/Red Mountain Interchange on the west. As illustrated in Figure 2-5 (page 2-12), it then follows an alignment similar to Alternative 1b that avoids crossing the Riverview Park property. As in Alternative 1c, the loop ramp connection to Dobson Road is eliminated and replaced with a diamond interchange located east of the present alignment of Dobson Road. The re-alignment of Dobson Road between Eighth Street and the diamond interchange is required.

Several substantial advantages are provided by this alternative. Direct impacts on Riverview Park are eliminated and the total impact on the Salt River floodplain is lessened. The alternative also provides several traffic advantages, including the provision of fully-directional access between Dobson Road and the freeway system. It also preserves the option of a later Dobson Road crossing of the Salt River to the north. Alternative 1d was selected as the recommended alignment.

Segment 2

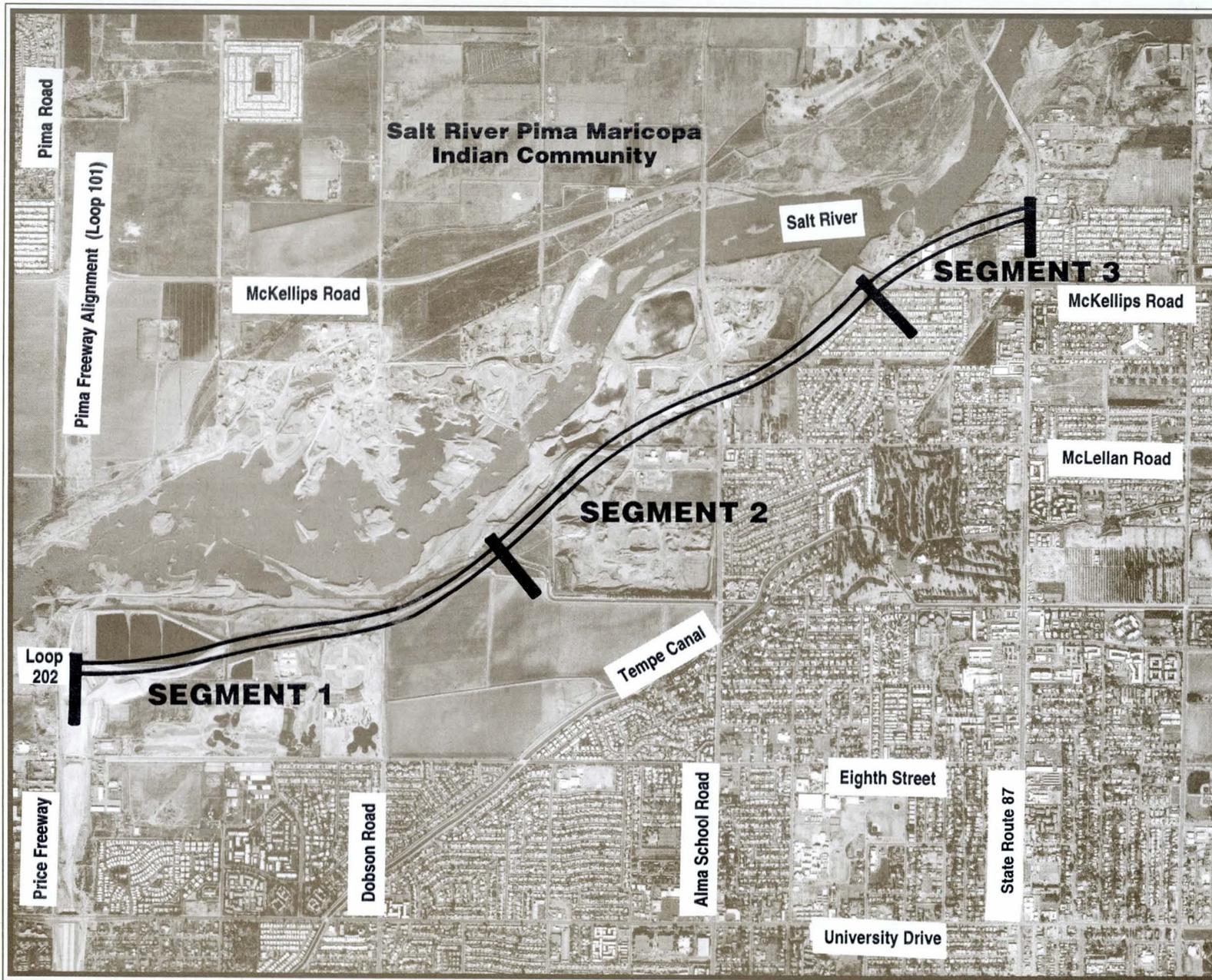
Only one alignment was considered in Segment 2 of the project area. This alignment proceeds easterly along the south bank of the Salt River. It is consistent with the results of the previous studies of the location of the Red Mountain Corridor. It is illustrated in Figure 2-6 (page 2-13).

Segment 3

Alternative 3a follows the route of the previously-prepared design concept report. After crossing McKellips Road the alignment curves to the east and intersects with State Route 87. Later studies of possible alignments of the Red Mountain Corridor east of State Route 87 concluded that Alternative 3a would cause impacts on the Mesa Municipal Landfill west of Center Street. Alternative 3a is illustrated in Figure 2-7 (page 2-14).

Alternative 3b, illustrated in Figure 2-7 (page 2-14), follows a revised alignment as defined in an amendment to the initial design concept report. The revision moves the curve in the alignment further north before its intersection with State Route 87. This change allows a possible future alignment east of State Route 87 to avoid crossing the Mesa Municipal Landfill at Center Street. The disadvantage of this alternative is its greater hydraulic impact on the Salt River floodway.

Alternative 3c, illustrated in Figure 2-8 (page 2-15), was defined as a result of the preliminary hydraulic analysis that was performed as a part of the preparation of this EIS. The analysis concluded that Alternative 3b would have a relatively substantial impact on the Salt River floodway. Alternative 3c lessens this impact and also preserves alternative alignments for a possible extension of the facility east of State Route 87. Alternative 3c was selected as the recommended alignment.



RED MOUNTAIN FREEWAY

ENVIRONMENTAL IMPACT STATEMENT

0 feet 1200' 2400' 3600'
approx.

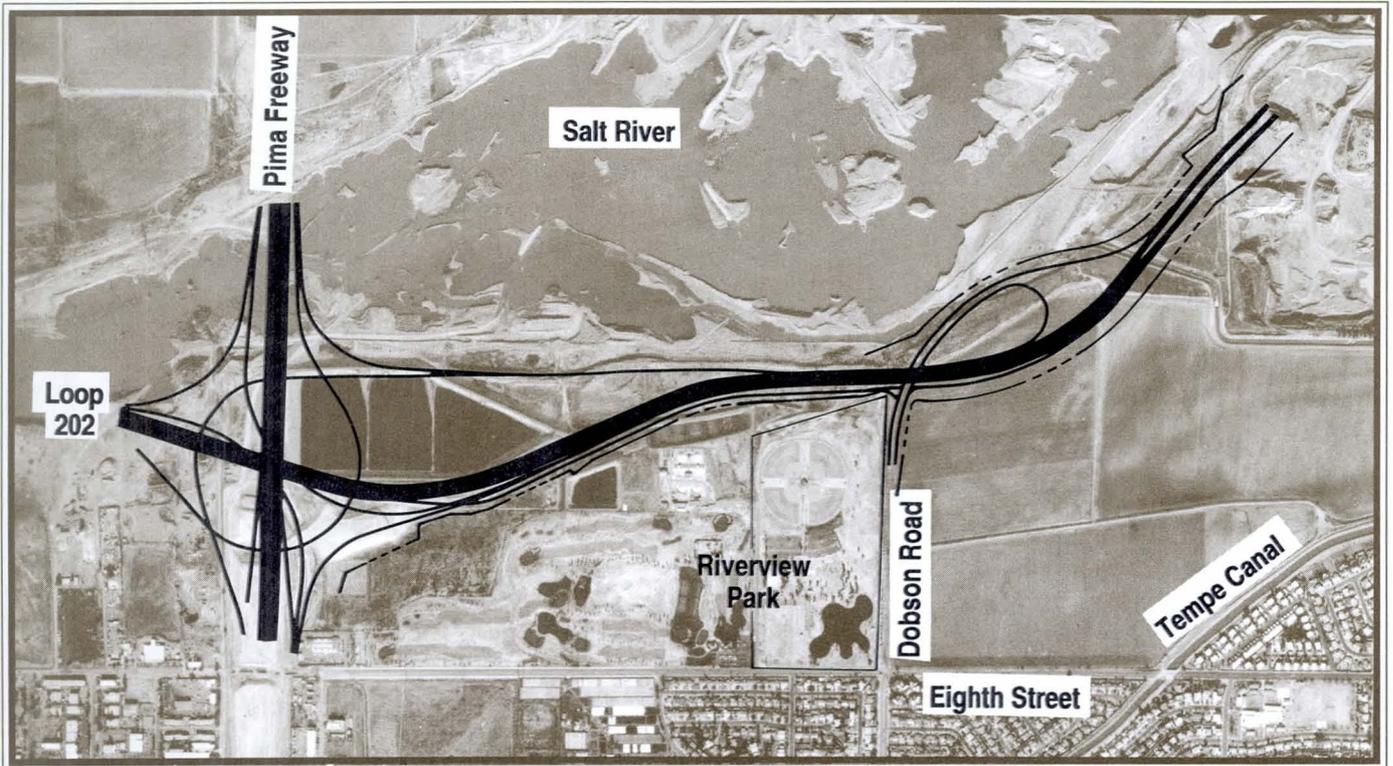
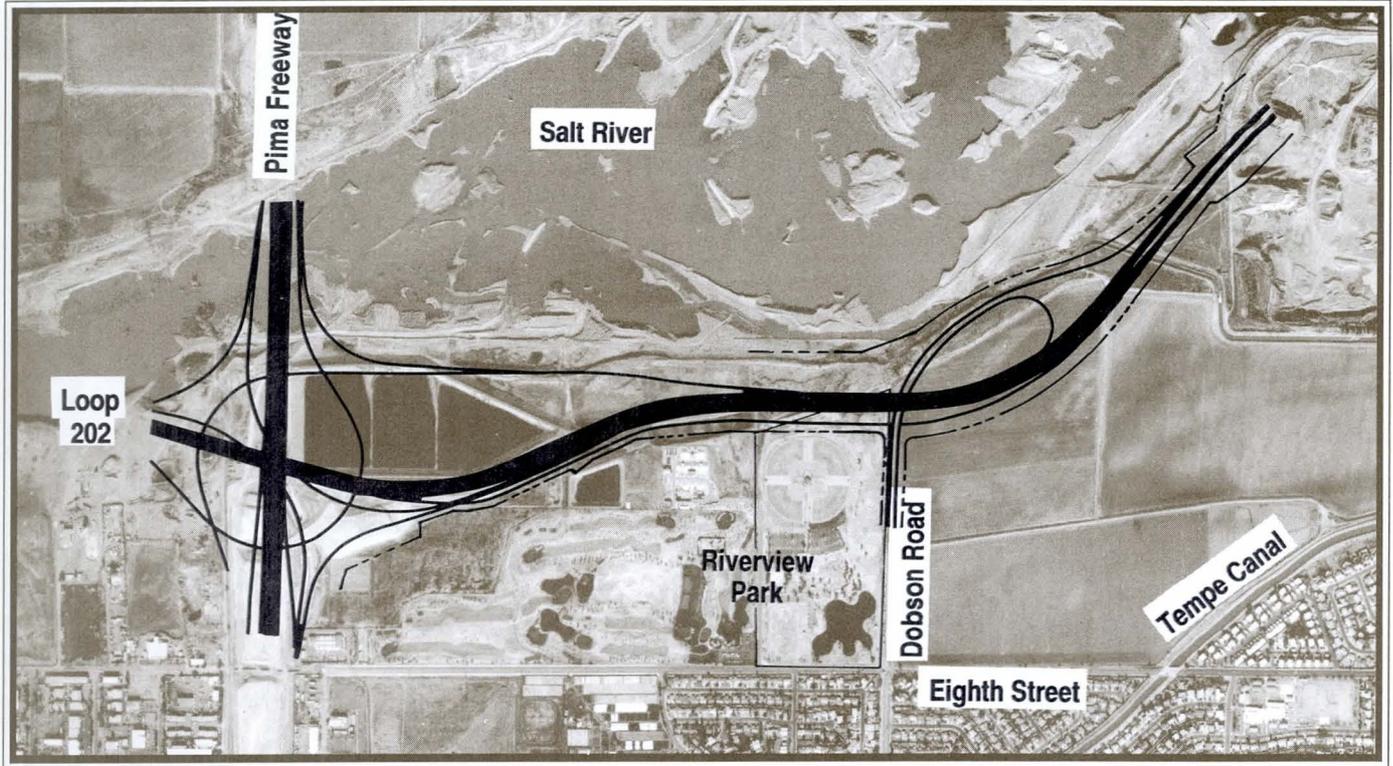


GRAPHIC LEGEND

-  Study Corridor
-  Corridor Segments

Project Corridor Segments

Figure 2-3



**RED MOUNTAIN
FREEWAY**

ENVIRONMENTAL
IMPACT STATEMENT



Specific Alignment

Alternatives 1a and 1b



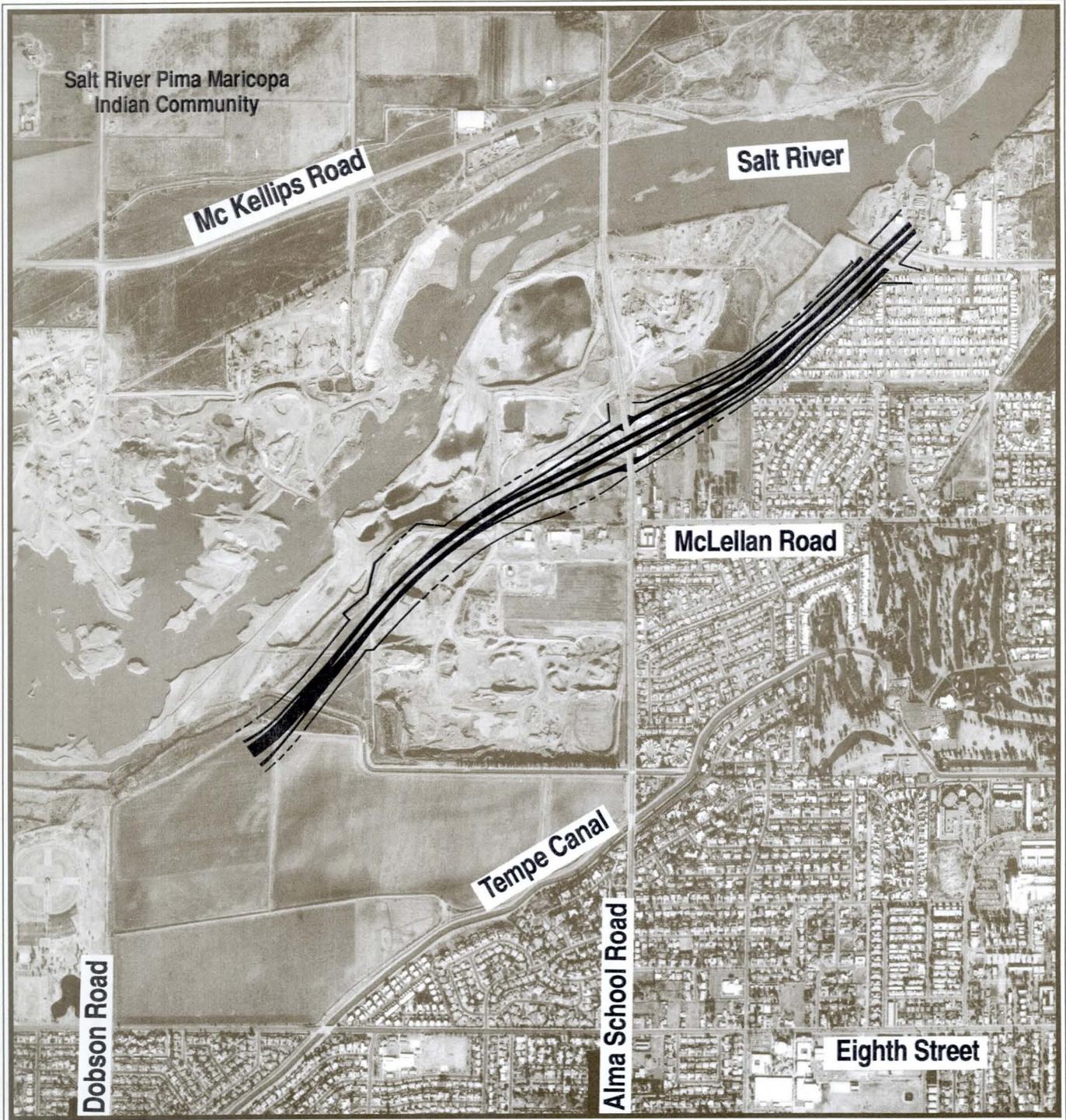
**RED MOUNTAIN
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Specific Alignment

Alternatives 1c and 1d

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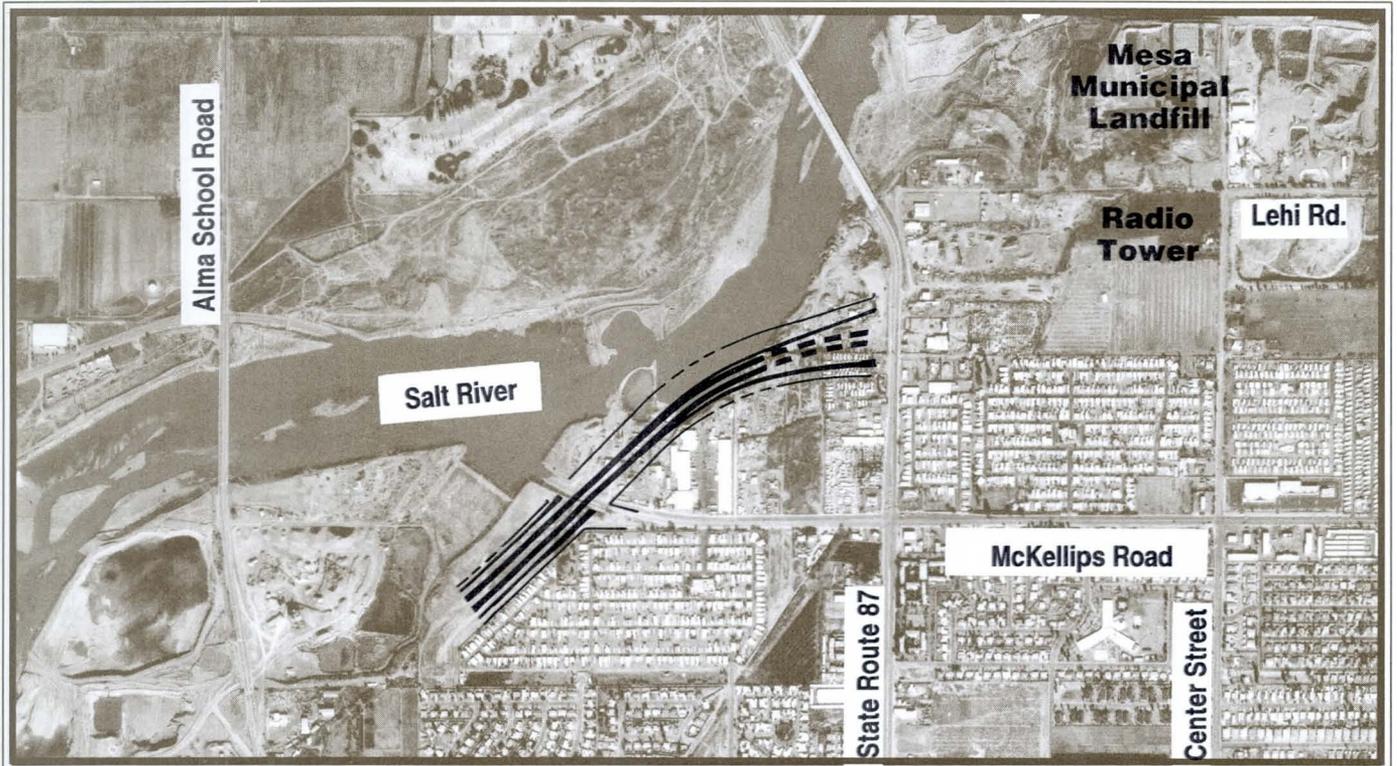
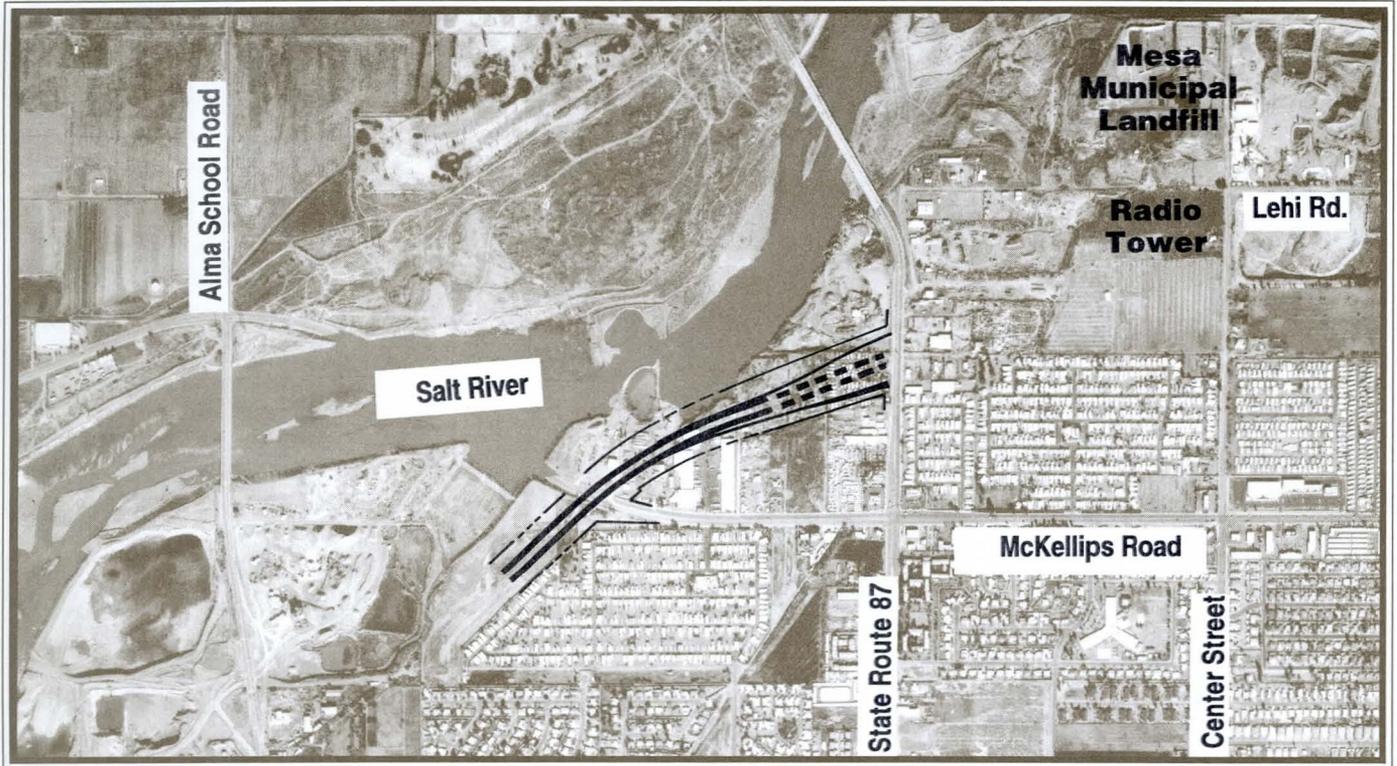


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Specific Alignment
Alternative 2a

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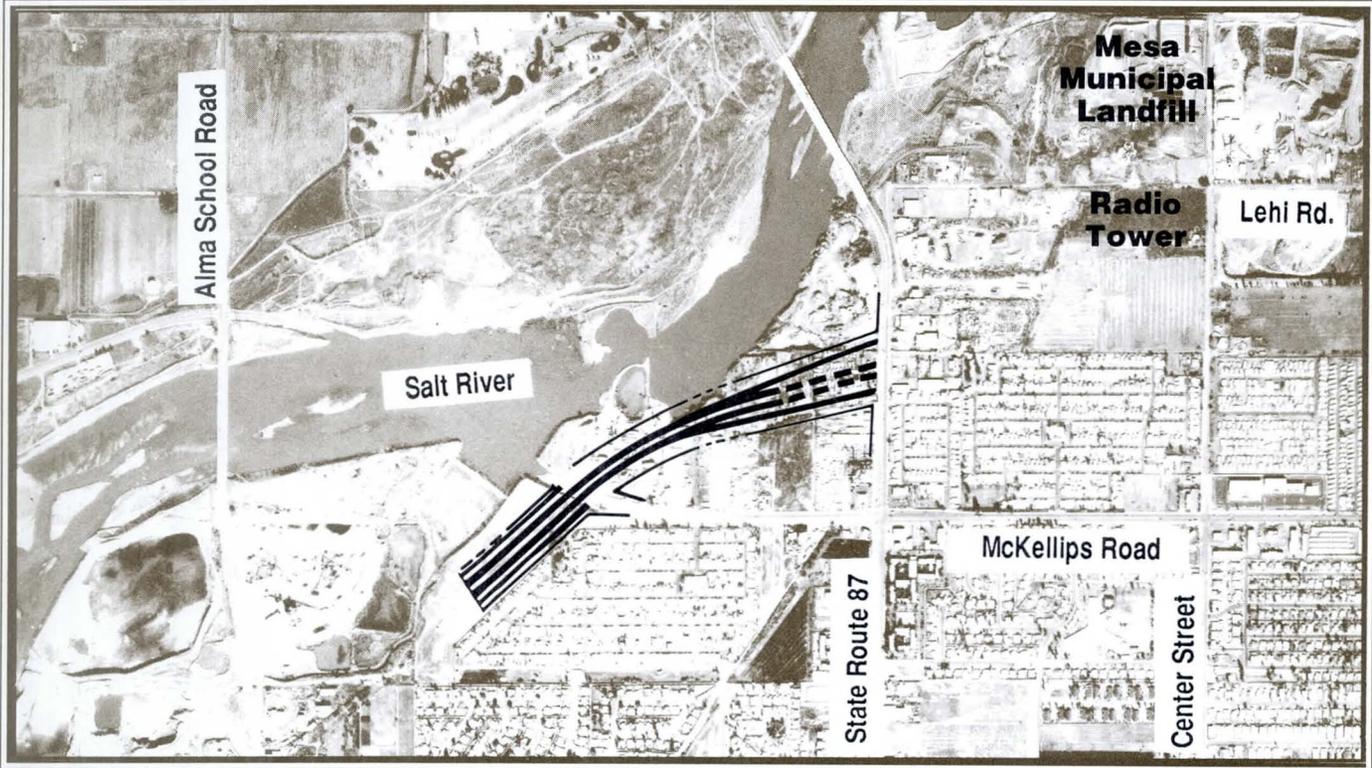
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Specific Alignment
Alternatives 3a and 3b

Alternative 3c



**RED MOUNTAIN
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Specific Alignment
Alternative 3c

ENVIRONMENTAL
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Figure 2-8
2-15

2.2 Other Concept Alternatives

This section describes measures that would seek to meet the future traffic needs without building a new facility. While these alternatives can be used in conjunction with the proposed project, they are not sufficient as stand-alone solutions.

2.2.1 Transportation System/Demand Management

The Transportation System Management (TSM) alternative includes several transportation system management and transportation demand management (TDM) strategies aimed at increasing the overall efficiency of the transportation system and reducing the number of trips generated in the area. The TSM alternative includes high occupancy vehicle (HOV) lanes, traffic signal optimization, arterial widenings (McKellips Road and University Drive), and a trip reduction program.

The traffic impact of the TSM alternative was modelled using the MAG travel forecasting model by adding lanes to the no-build network, and by modifying model parameters such as roadway speeds and capacities. Traffic forecasts were obtained for the year 2015. The forecasts indicate that the TSM alternative attracts more trips to the area. Specifically, the screenline (as defined in Section 1) volumes are expected to increase by 12 percent from 287,900 to 323,600 vehicles daily. The 2015 screenline volumes for the TSM alternative are listed in Table 2-1.

TABLE 2-1
SCREENLINE VOLUMES AND TRAVEL LANES
TSM Alternative - 2015

	2015 Traffic (vehicles per day)	Travel Lanes
McDowell Road	48,900	4
McKellips Road	64,800	6
University Drive	68,200	6
Main Street	71,800	6
Broadway Road	69,900	6
TOTAL	323,600	28

Also shown in Table 2-1 is the number of travel lanes crossing the screenline. Including the widening of University Drive and McKellips Road as described above, a total of 28 lanes cross the screenline, which equates to a capacity of 210,000 vehicles daily for 2015. The volume to capacity ratio for this alternative is 154 percent. This is a slight improvement over the no-action alternative ratio of 160 percent, as discussed on page 1-11.

The TSM alternative includes a trip reduction program. A trip reduction program could reduce the screenline volume and improve the volume to capacity ratio. The draft of the Executive Summary of the Congestion Management System Alternatives (CMSA) prepared for MAG defines a number of TDM strategies and the expected trip reduction associated with each. According to the CMSA, the highest reduction in trips that could be attained with an aggressive TDM program is 8 percent. This reduction was applied to the 2015 volumes to estimate the potential improvement in traffic service with the entire TSM alternative in place. The result shows that the screenline volume would be 297,700 vehicles daily with a resulting volume to capacity ratio of 146 percent.

The CMSA report recommends a range of alternatives for TSM/TDM. The next step for local policymakers will be to select alternatives for the region and develop a Congestion Management System. The Congestion Management System will be used to plan and implement TSM/TDM actions on a regionwide basis.

The TSM alternative provides a small improvement in traffic service in the corridor. On a regionwide basis, a TSM/TDM program offers an overall reduction in traffic. However, it would have only limited effectiveness in the Red Mountain Study corridor to improve the volume to capacity ratio. Therefore, it is eliminated as a stand alone alternative. However, regardless of the preferred alternative selected for the corridor, TSM/TDM improvements should be incorporated where appropriate. The completion of the MAG Congestion Management System will identify TSM/TDM measures that will be applied on a regional basis. These measures will be selected from those under consideration, as described in Section 1.4. These strategies will be designed to reduce the relative amount of single occupant vehicle travel and will therefore assist in reducing congestion and meeting the traffic needs in the Red Mountain Corridor. Of particular relevance to the proposed project will be the future addition of HOV lanes and the use of the ADOT freeway management system as described in Section 2.4.2.

2.2.2 Transit

The Transit Alternative for the Red Mountain corridor includes existing transit service and planned transit improvements that will increase transit usage in the region. The planned improvements to transit service in the region are the service levels which are recommended in the Regional Transit Plan for Maricopa County, Arizona prepared by the Regional Transit Citizen Advisory Committee for the Regional Public Transportation Authority (RPTA) and adopted in January 1991.

A predecessor to the current transit plan was the VALTRANS system which was presented to the public in November 1988. The system contained a number of components including elevated, automated rapid transit, bus fleet and service expansion, busways, and a commuter rail line. A one-half cent sales tax that was proposed to fund the system was defeated at a county-wide election.

Without funding for this long-range plan, the RPTA revised the transit plan for the region. The current plan includes expanding the transit system from the existing 350 bus fleet to approximately 650 buses, implementing a regional dial-a-ride service and providing transit passenger facilities, such as park-and-ride lots, bicycle racks on buses, bicycle lockers, bus shelters, benches, and transit centers.

The RPTA plan provides transit improvements on a regionwide basis. A transit program could not stand alone for this three-mile corridor. Transit-only improvements for the Red Mountain corridor are not a viable solution given the planned street system. However, if a new facility is provided, express bus service could be incorporated to serve mass transit needs.

2.3 No-action Alternative

The no-action alternative would result in no extension of Loop 202 of the regional freeway system east of the Price/Pima Freeway. The Red Mountain Freeway, which begins at the Interstate 10/Squaw Peak Parkway Interchange in Phoenix, would terminate at the Price/Red Mountain Interchange. Traffic to and from the east would be required to use local arterial streets.

As described in Section 1.3, future traffic volumes are projected to increase substantially. Without the construction of the proposed project, this increased traffic would cause substantial congestion on the existing elements of the circulation system. Access to land uses in the area would be made more difficult. Through traffic would require longer trip times. The congestion caused by the increased traffic volumes would likely cause higher accident rates, especially at existing intersections.

An important link in the proposed regional transportation system would be lacking under the no-action alternative. The system would remain incomplete, which would likely create additional congestion on the portions of the freeway network that would be built. Direct access to the regional freeway system from the areas adjacent to the proposed corridor would not exist. Developments and economic activities projected to occur would not be adequately served. While efforts may continue to implement regional programs to reduce travel demand, these measures will not, of themselves, provide the needed traffic capacity.

2.4 Freeway Alternative (Preferred)

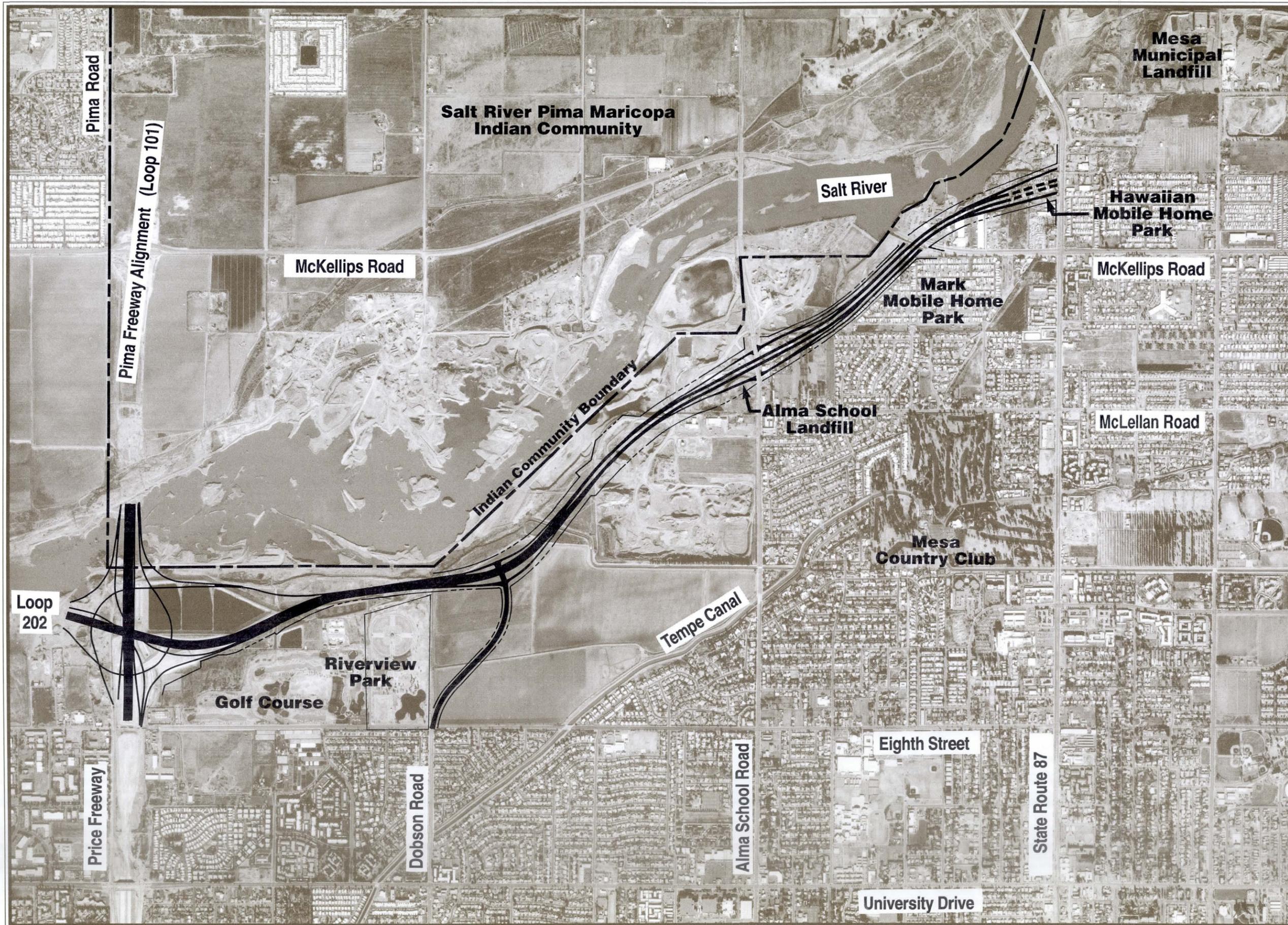
The freeway alternative is a grade-separated, access-controlled facility that would be consistent with standards currently used for the MAG Regional Freeway and Expressway System. This alternative also includes the realignment of Dobson Road north of Eighth Street. The realigned street would connect with the freeway by means of a diamond interchange. The recommended alignment and the major design features for this alternative are described below.

2.4.1 Alignment

The alignment has been defined as a result of the previous Red Mountain Corridor studies and the preliminary evaluation of alternatives as summarized in Section 2.1. It is illustrated in Figure 2-9 (page 2-20). The western terminus of the project is the Price/Red Mountain Interchange, located on the south bank of the Salt River on the north-south alignment of the Pima Freeway. The freeway alternative would connect to the interchange and provide a continuation of Loop 202 from the west, proceeding eastward along the south bank of the Salt River. The facility would pass immediately north of Riverview Park just west of Dobson Road and then on an alignment parallel to the Salt River to McKellips Road. Between McKellips Road and State Route 87, the alignment proceeds through the area between the Salt River and the Mark Mobile Home Park. The eastern terminus of the project is State Route 87.

**RED MOUNTAIN
FREEWAY**
ENVIRONMENTAL
IMPACT STATEMENT

0 feet 800' 1600' 2400'
approx.



**Freeway
Alignment**

Figure 2-9
2-20

2.4.2 Major Design Features

Design Criteria

The design criteria to be used for the freeway alternative would meet current standards in use by ADOT, FHWA, and the American Association of State Highway and Transportation Officials (AASHTO). Specifically followed will be the following publications: "Guide for Highway Geometric Design", ADOT, 1986; "A Policy on Geometric Design of Highways and Streets", AASHTO, 1990; "Urban Highway Design Procedures Manual", ADOT, 1990; and "ADOT Standards for Road and Bridge Construction", ADOT, 1990.

Typical Sections

The typical section for the freeway mainline consists of two 36-foot-wide roadways separated by a 46-foot median (including median shoulders). These roadways would accommodate three travel lanes in each direction. Paved shoulders are ten feet wide on both the outside and the inside of the travel lanes. The roadway cut-and-fill slopes correspond with ADOT standards. In areas of low fills and shallow cuts, it is intended to maintain as much of the natural terrain as possible.

Ramp typical sections consist of one 12-foot travel lane, with a two-foot left shoulder and an eight-foot right shoulder. Additional lanes may be provided at the ramp intersections with cross streets. The typical sections are illustrated in Figure 2-10 (page 2-23).

Adjustments to the typical sections may be made during the engineering design of the freeway. Such adjustments, if made, would be unlikely to increase the area impacted by the project. However, if any adjustments are made that change the environmental impacts, the changes will be considered and evaluated prior to the approval of the design.

HOV Lanes

High-occupancy vehicle (HOV) lanes are included in the portion of Loop 202 between Interstate 10 and the Price/Red Mountain Interchange. Under the freeway alternative, these HOV lanes would be continued through the Price/Red Mountain Interchange, with a transition to the travel lanes east of the Price Freeway. Between this transition and State Route 87, the designated right-of-way will accommodate the future addition of HOV lanes. It is expected that the three travel lanes in each direction will accommodate the traffic using the facility in the near future. When the fourth lane in each direction is added, the additional lanes will be designated as HOV lanes. The HOV lanes will be added when warranted by future traffic volumes.

The designation and timing of the addition of the HOV lanes between the Price/Red Mountain Interchange and State Route 87 would be coordinated with the results of the on-going MAG study of HOV lanes on the regional system. This study will identify regional HOV goals, policies, facility objectives and need criteria, and general design concepts. It will be coordinated with other transportation activities, including the MAG congestion management system, air quality planning, regional transit plans, and the ADOT freeway management system.

Freeway Management System

Appropriate elements of the ADOT freeway management system would be used in the design and operation of the freeway alternative. Included would be ramp metering, HOV bypass lanes on the entrance ramps, and congestion-creating incident monitoring and control.

In addition the HOV lanes and freeway management measures, the freeway alternative would be designed to accommodate planned TSM/TDM strategies. These strategies would include the use of express buses, park-and-ride facilities, carpooling, and vanpooling.

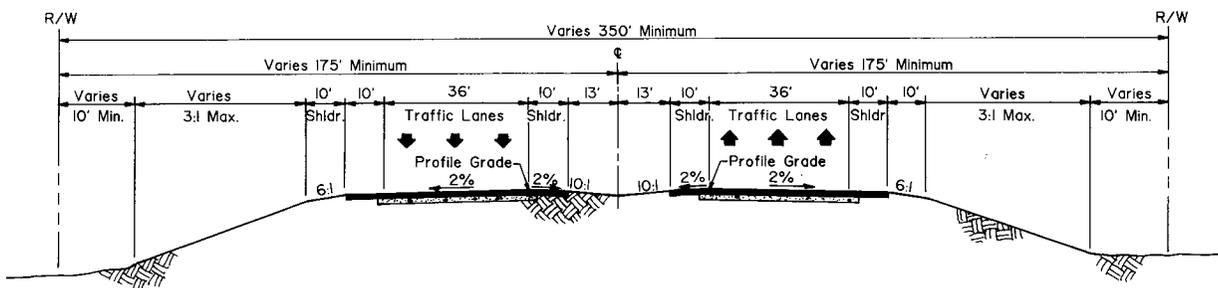
Interchanges and Grade Separations

The western terminus of the project would connect to the Price/Red Mountain Interchange, which would become a fully-directional interchange between Loops 101 and 202. Full diamond interchanges would be built at Dobson Road and Alma School Road. A half-diamond interchange would be constructed at the eastern terminus at State Route 87. This interchange would be designed to allow a full interchange to be added if the freeway is extended to the east in the future. A grade separation over McKellips Road would be built. If constructed, collector-distributor (C-D) roads between McKellips Road and the Alma School Road interchange ramps would provide access between McKellips Road and the freeway through the Alma School Road interchange. In addition to accommodating normal east-west traffic on McKellips Road, these C-D roads would alleviate problems caused by the periodic closing of the unbridged McKellips Road crossing of the Salt River during rare flooding events.

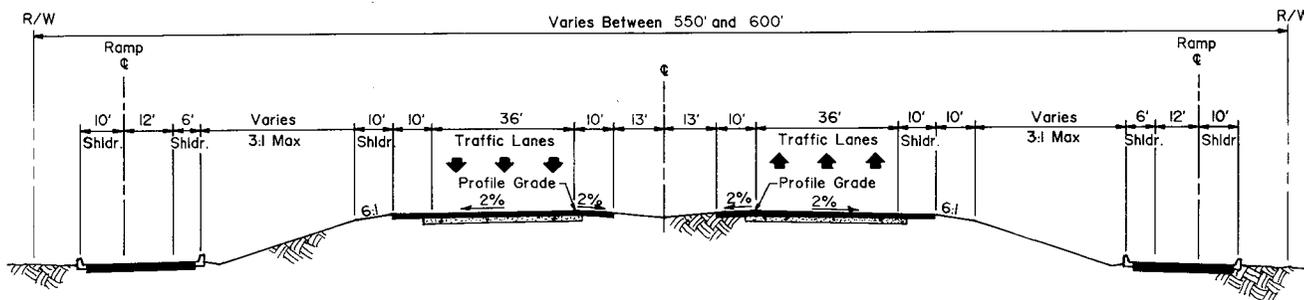
Profiles

The mainline of the freeway would generally be at or slightly above the existing ground level. The mainline would rise to approximately 25 feet over the arterial cross streets at the interchanges and grade separations that are described above.

Typical Section
(not to scale)



**Typical Section
Approaching
Interchange**
(not to scale)



**RED MOUNTAIN
FREEWAY**

ENVIRONMENTAL
IMPACT STATEMENT

Typical Sections
Freeway Alternative

Figure 2-10
2-23

Right-of Way Requirements

The proposed project would be constructed entirely on new right-of-way. The right-of-way width would generally be 350 feet for the mainline and 550 to 600 feet at the interchanges. Mainline right-of-way widths would be slightly wider in the segments that cross gravel pits in order to provide adequate width to accommodate the needed fill material. Land acquisition would also be needed to accommodate the realignment of Dobson Road. The total right-of-way would cover approximately 180 acres, although the acquisition of additional land would likely be required due to the ownership configuration. The total acquisition is estimated to be approximately 247 acres. A portion of the excess would likely be made available for other uses after the construction of the freeway.

Enhancement Opportunities

The design of the freeway alternative will include appropriate landscaping to enhance the aesthetics of the facility and to buffer its impact on adjoining properties. Aesthetic relationships with Riverview Park, especially in the design of the required noise barrier, will be considered. Low-water-use plants would be used in all landscaping. The nature of the facility and its location preclude other enhancement measures. For example, pedestrian overpasses to serve Riverview Park are not feasible because of the presence of the Salt River Channel immediately north of the alignment. No historic properties are present. Thus, no rehabilitation of such properties is possible.

2.5 Major Urban Arterial Alternative

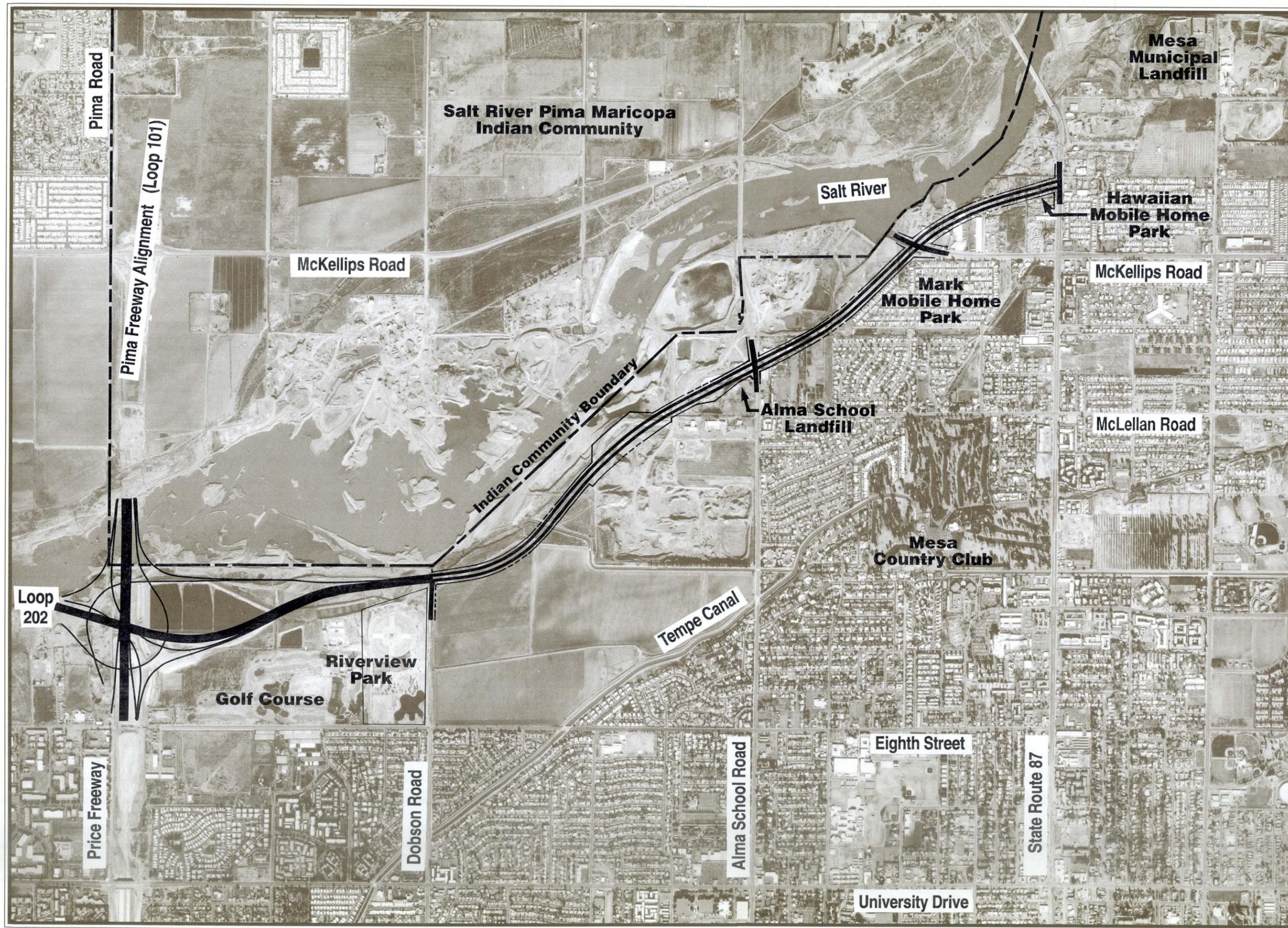
The major urban arterial alternative is an at-grade facility with signalized intersections at the major arterial cross streets. The proposed alignment and the major design features for this alternative are described below.

2.5.1 Alignment

The alignment of the urban arterial alternative is basically identical to that of the freeway alternative. The western terminus of the project is the Price/Red Mountain Interchange, located on the south bank of the Salt River on the north-south alignment of the Pima Freeway. The urban arterial alternative would connect to the Loop 202 mainline and the interchange ramps and proceed eastward generally along the south bank of the Salt River. It would then follow the alignment as described under the freeway alternative to its eastern terminus at State Route 87. The alignment is illustrated in Figure 2-11 (page 2-25).

**RED MOUNTAIN
FREEWAY**
ENVIRONMENTAL
IMPACT STATEMENT

0 feet 800' 1600' 2400'
approx.



**Urban Arterial
Alignment**

Figure 2-11
2-25

2.5.2 Major Design Features

Design Criteria

The design criteria for the urban arterial alternative would meet current standards in use by ADOT, FHWA, and AASHTO. Specifically followed would be the following publications:

"Guide for Highway Geometric Design, ADOT, January 1986.

"A Policy on Geometric Design of Highways and Streets", AASHTO, 1990.

"Urban Highway Design Procedures Manual", ADOT, March 1990.

"ADOT Standards for Road and Bridge Construction", ADOT, 1990.

Typical Sections

The typical section for the urban arterial alternative consists of four 12-foot traffic lanes in each direction, a 30-foot median, 10-foot shoulders on the outside, four-foot inside curb clearances, and 23-foot landscaping buffers on the outside. The typical section for the urban arterial is illustrated on Figure 2-12 (page 2-27).

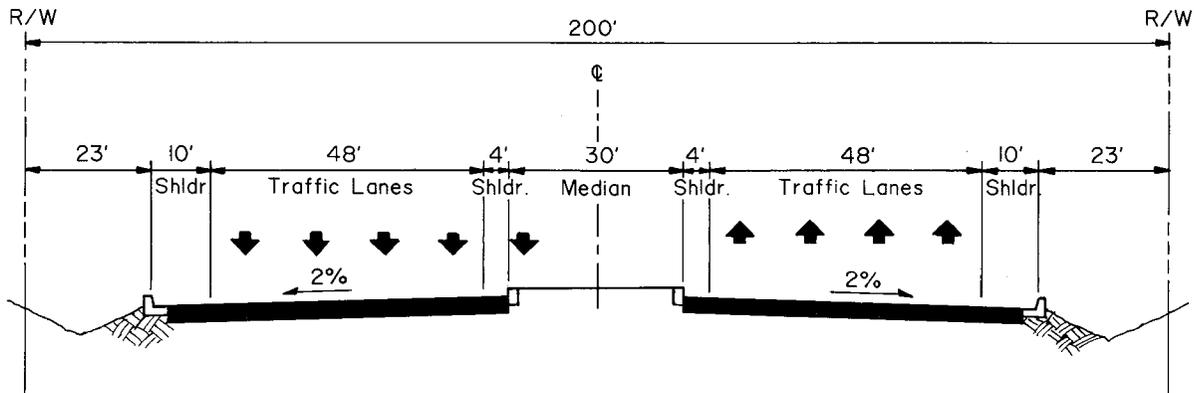
Intersections

At-grade intersections would be constructed at Dobson Road, Alma School Road, McKellips Road, and State Route 87. Dobson Road would be extended north of Eighth Street on its current alignment. The typical section at the intersections would include the eight 12-foot traffic lanes, dual left-turn lanes and a single right-turn lane. This section is illustrated on Figure 2-12 (page 2-27).

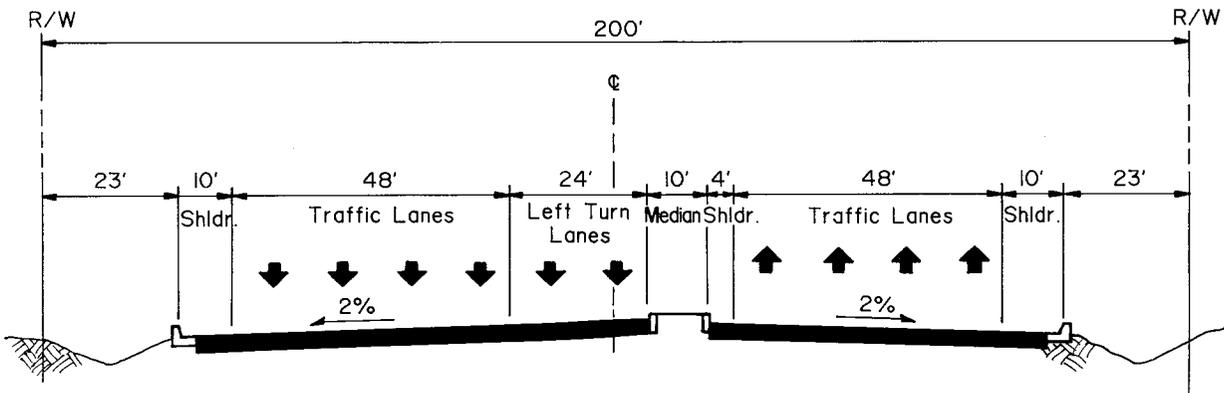
Profiles

The profile of the urban arterial alternative would be at or slightly above the existing ground level except at the interchange with the Price Freeway.

Typical Section
(not to scale)



Typical Section at Intersection
(not to scale)



**RED MOUNTAIN
FREEWAY**

ENVIRONMENTAL
IMPACT STATEMENT

Typical Sections
Urban Arterial Alternative

Figure 2-12
2-27

Right-of-Way Requirements

The urban arterial alternative would be constructed entirely on new right-of-way. The right-of-way width would generally be 200 feet. The actual right-of-way would cover approximately 100 acres, although the acquisition of additional land would likely be required because of the ownership configuration. With this alternative, Dobson Road would remain on its existing alignment. Thus, no additional right-of-way for Dobson Road would be needed.

Enhancement Opportunities

The design of the arterial alternative will include appropriate landscaping to enhance the aesthetics of the facility and to buffer its impact on adjoining properties. Aesthetic relationships with Riverview Park, especially in the design of the required noise barrier, will be considered. Low-water-use plants would be used in all landscaping. The nature of the facility and its location preclude other enhancement measures. For example, pedestrian overpasses to serve Riverview Park are not feasible because of the presence of the Salt River Channel immediately north of the alignment. No historic properties are present. Thus, no rehabilitation of such properties is possible.

2.6 Summary Comparison of Alternatives

2.6.1 Traffic Service

An examination of the 2015 traffic service provided by the three alternatives was conducted. The traffic service comparison includes daily traffic volumes, screenline volume to capacity ratios, and pm peak hour intersection level of service.

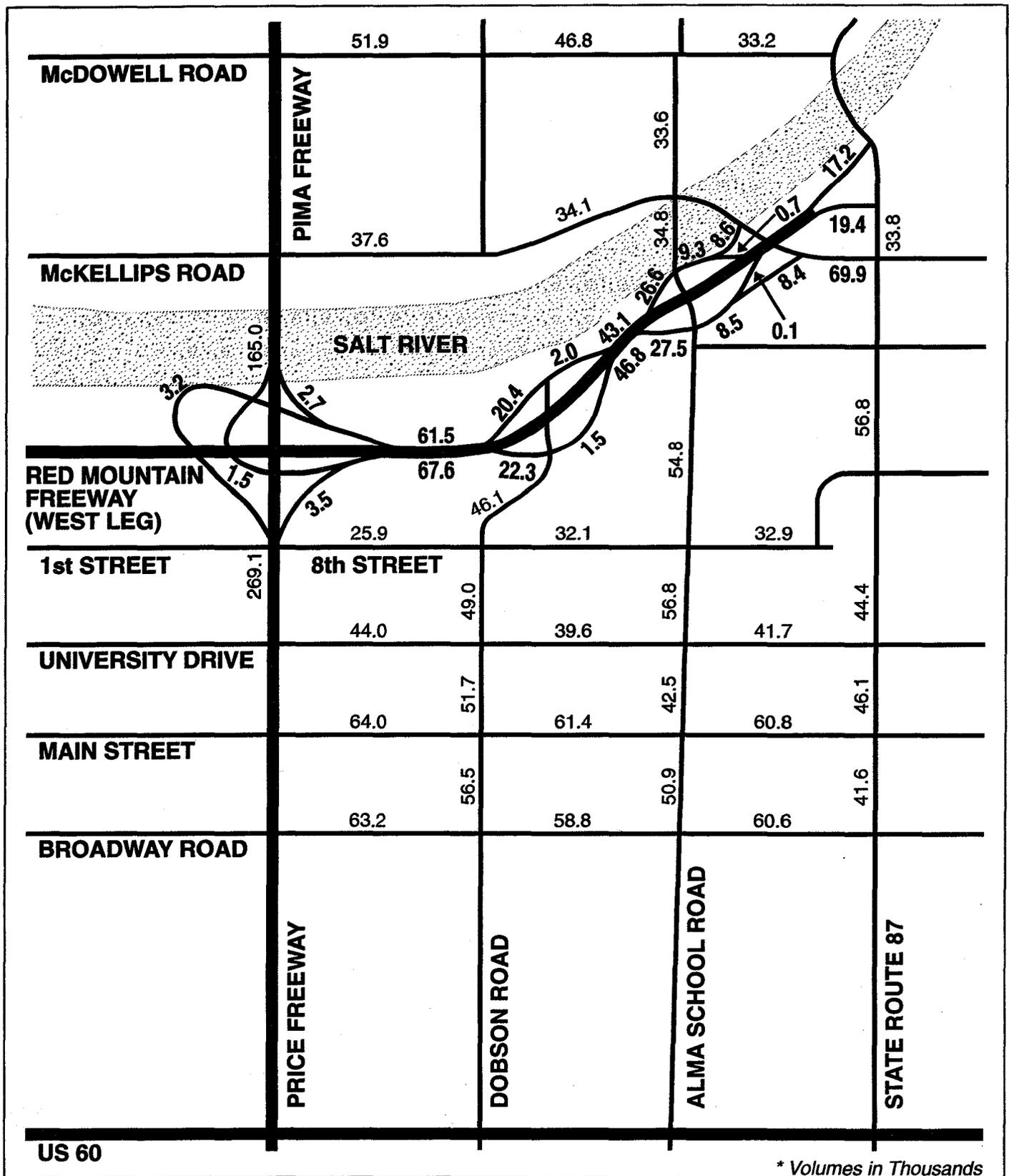
Daily Traffic

The 2015 daily traffic volumes for the three alternatives were obtained from the MAG travel forecasting model. The same base network was used for the three alternatives, except that the proposed facility was included on the Red Mountain corridor alignment. The traffic forecasts for the no-action alternative were previously described in Section 1 and shown in Figure 1-4 (page 1-10).

The network for the freeway alternative includes a 6-lane freeway with interchanges at Dobson Road, Alma School Road, and State Route 87. The traffic forecasts for the Red Mountain Freeway and the surrounding arterial streets are shown in Figure 2-13 (page 2-30). As shown in Figure 2-13, the 2015 traffic volumes for the Red Mountain Freeway range from over 129,000 vehicles daily west of Dobson Road to 36,600 vehicles daily on the easternmost segment between Alma School Road and State Route 87. On the surrounding arterial street system, the daily traffic volumes vary from 33,200 vehicles on McDowell Road, east of Alma School Road to 64,000 vehicles on Main Street west of Dobson Road.

Subsequent to the model run, modifications were made to the freeway alternative. These modifications included the Dobson Road realignment and McKellips C-D roads. Volumes were adjusted to account for the modifications. For example, the volumes shown in Figure 2-13 on the freeway between Alma School Road and State Route 87 are actually 17,000 vehicles less (with the C-D roads included) than the original model volumes.

For the major urban arterial alternative, the base network was revised to include an eight-lane arterial for the Red Mountain facility. At-grade intersections were included at Dobson Road, Alma School Road, McKellips Road, and State Route 87. Figure 2-14 (page 2-31) presents the traffic forecast for the arterial alternative. As shown in the figure, the 2015 daily traffic on the Red Mountain arterial is expected to vary from 125,200 vehicles west of Dobson Road to 42,300 vehicles at its terminus at State Route 87. Also shown are the 2015 traffic forecasts for the surrounding arterial street system, which range from 38,000 vehicles on McDowell Road east of Alma School Road to 65,400 vehicles on Main Street west of Dobson Road.



* Volumes in Thousands

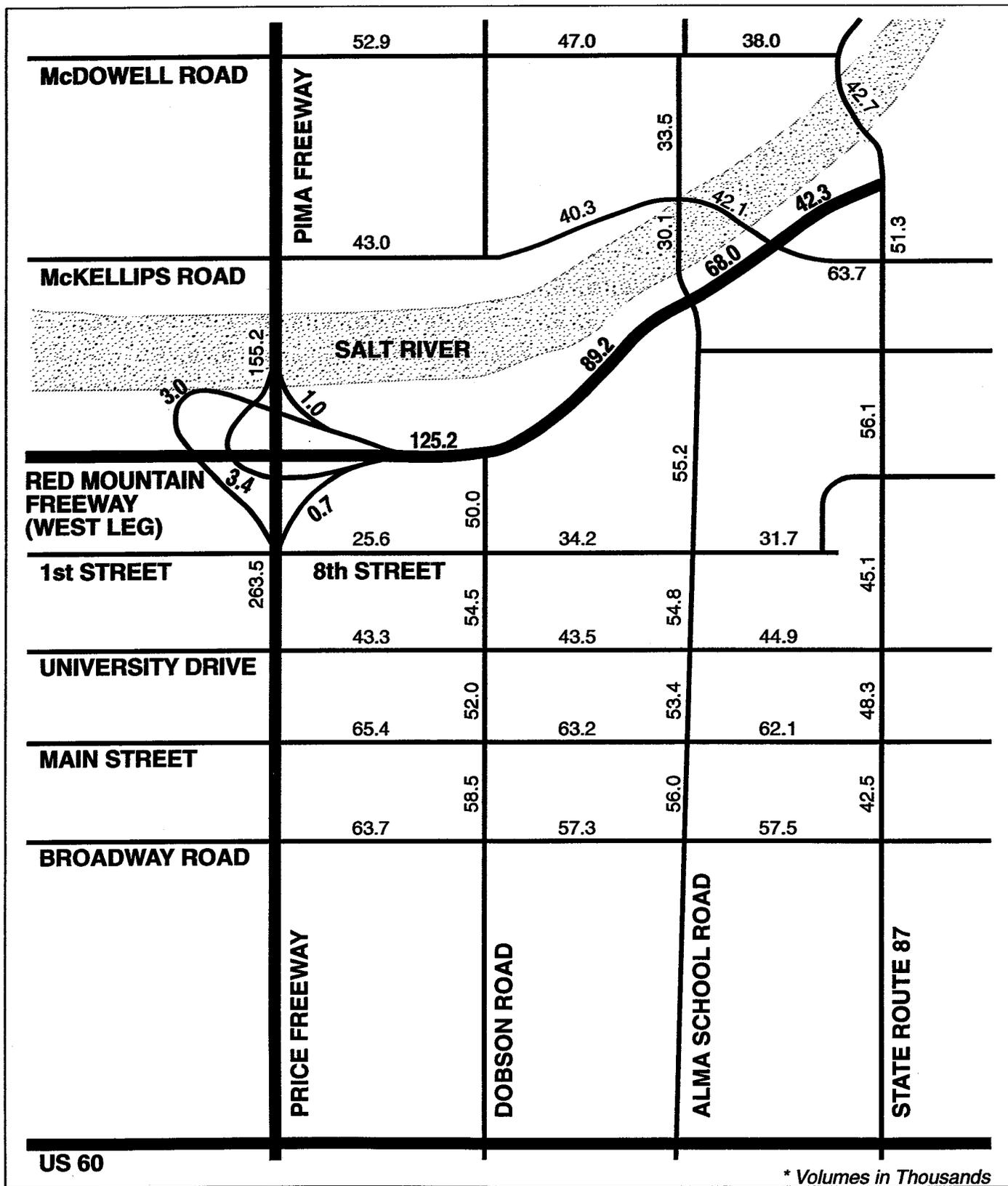
**RED MOUNTAIN
FREEWAY**



2015 Daily Traffic Volumes*
Freeway Alternative

ENVIRONMENTAL
IMPACT STATEMENT

Figure 2-13
2-30



**RED MOUNTAIN
FREEWAY**



2015 Daily Traffic Volumes*
Urban Arterial Alternative

ENVIRONMENTAL
IMPACT STATEMENT

Figure 2-14
2-31

Screenline Analysis

The screenline analysis examines the traffic demand versus the capacity provided across the screenline. As described in Section 1, the screenline used for this analysis was drawn between Dobson Road and Alma School Road crossing the major east-west arterials from McDowell Road to Broadway Road. The 2015 screenline volumes are listed in Table 2-2. The no-action volumes, which were previously presented are repeated here for comparison purposes.

TABLE 2-2
COMPARISON OF ALTERNATIVE SCREENLINE VOLUMES
2015 Traffic Forecasts (vehicles per day)
A North-South Screenline between Dobson and Alma School

	No-action Alternative	Freeway Alternative	Arterial Alternative
McDowell Road	52,400	46,800	47,000
McKellips Road	53,300	34,100	40,300
Red Mountain	n/a	89,800	77,900
University Drive	45,800	39,600	43,500
Main Street	68,400	61,400	63,200
Broadway Road	68,000	57,300	58,800
TOTAL	287,900	330,500	329,200

The traffic crossing the screenline on a daily basis is significantly higher for the two build alternatives as compared to the no-action alternative. The screenline volume for the freeway alternative is 15 percent higher than the no-action alternative. The screenline for the arterial alternative is 14 percent higher than the no-action alternative. However, it should be noted that the daily traffic expected on the arterials is lower with the build alternatives than the no-action. This indicates that the Red Mountain facility attracts traffic from the surrounding arterial streets.

The capacity across the screenline is based on the number of travel lanes. The travel lanes provided in 2015 for each of the alternatives are listed in Table 2-3.

**TABLE 2-3
SCREENLINE TRAVEL LANES BY ALTERNATIVE**

	No-action Alternative	Freeway Alternative	Arterial Alternative
McDowell Road	4	4	4
McKellips Road	4	4	4
Red Mountain	n/a	6	8
University Drive	4	4	4
Main Street	6	6	6
Broadway Road	6	6	6
TOTAL	24	30	32

An average daily capacity of 7,500 vehicles per arterial lane was used to convert the number of travel lanes to screenline capacity. This was increased by 10 percent for the Red Mountain arterial travel lanes to account for the limited access which would be provided by this facility. A freeway lane has a higher capacity than either type of arterial. For this analysis, an average daily capacity of 20,500 per lane was used. The resulting screenline capacities are listed below in Table 2-4. As shown in the table, the highest capacity is provided by the freeway alternative.

**TABLE 2-4
SCREENLINE ANALYSIS COMPARISON**

	No-action Alternative	Freeway Alternative	Arterial Alternative
2015 Daily Traffic Volume (vehicles per day)	287,900	330,500	329,200
2015 Daily Capacity (vehicles per day)	180,000	303,000	246,000
Volume to Capacity Ratio	160%	109%	134%

Also shown in Table 2-4 is a comparison of the volume to capacity ratio for each alternative. The screenline volume to capacity ratio for each alternative is more than 100 percent. This means that the demand is expected to exceed the capacity in each case. With a volume to capacity ratio of 109 percent, the freeway alternative has the lowest ratio, and thus can be expected to provide the best traffic service of the three alternatives.

PM Peak Hour Traffic

Signalized major arterial intersections in the Red Mountain corridor were also analyzed to determine expected operating conditions in 2015 for each alternative. Thirteen intersections were included for the base condition. In addition, the three interchanges of the freeway alternative and the four intersections of the arterial alternative were included for the respective alternatives.

The intersections were analyzed using 2015 pm peak hour traffic volumes obtained from MAG. Turning movement volumes were developed by assuming 20 percent left turns, 65 percent through traffic, and 15 percent right turns and adjusting for existing travel patterns and knowledge of the area.

A capacity analysis was performed for each intersection using the planning method presented in the 1985 Highway Capacity Manual (Transportation Research Board, Washington, D.C., 1985). The planning analysis takes into account hourly turning movements and the geometrics of an intersection. The procedure determines the critical volumes passing through an intersection in one hour based on the conflicting movements. The total critical volume in vehicles per hour (VPH) of the intersection is then compared to capacity criteria to determine whether an intersection is operating under, near, or over capacity. The capacity criteria are listed in Table 2-5.

**TABLE 2-5
CAPACITY CRITERIA
Planning Analysis of Signalized Intersections**

Critical volume for intersection, vph	Relationship to probable capacity
0 to 1200	under
1201 to 1400	near
greater than 1400	over

Source: Highway Capacity Manual, Transportation Research Board, Special Report 209, National Research Council, Washington, D.C., 1985, p. 9-21.

The results of the analysis is summarized in Table 2-6. Included in the table is the critical volume and resulting capacity level for each intersection by alternative.

**TABLE 2-6
INTERSECTION ANALYSIS COMPARISON
BY ALTERNATIVE FOR 2015**

Intersection	No-action Alternative Capacity Level	Freeway Alternative Capacity Level	Arterial Alternative Capacity Level
McDowell Road & Dobson Road Alma School Road State Route 87	over over over	over over near	over over near
McKellips Road & Alma School Road State Route 87	over over	over over	over over
University Drive & Dobson Road Alma School Road Country Club Road	over over over	over over over	over over over
Main Street & Dobson Road Alma School Road State Route 87	over over over	over over over	over over over
Broadway Road & Dobson Road Alma School Road	over over	over over	over over
Red Mountain Freeway & Dobson Road north side south side Alma School Road north side south side McKellips Road west side east side State Route 87 north side south side	n/a n/a n/a n/a	 under under under under over over under under	over over over over

As shown in Table 2-6, of the thirteen intersections common to all three scenarios, twelve are expected to be operating over capacity in the 2015 pm peak hour for each alternative. The intersection of McDowell and Country Club is expected to operate at near capacity only with the freeway and arterial alternatives. It would be over capacity with the no-action alternative.

The Red Mountain intersections exist only with the two build alternatives. For the freeway alternative, the three interchanges are expected to be operating under capacity in the 2015 peak hour. The analysis of the McKellips frontage road intersections indicates that both would be operating over capacity in 2015. For the arterial alternative, all four intersections are expected to be operating over capacity during the pm peak hour in 2015.

Conclusions

Three alternatives were analyzed for the Red Mountain Corridor, no-action, freeway, and arterial. The freeway alternative is expected to provide the best traffic service in 2015. This is based on the fact that the freeway would provide the highest capacity for the study corridor and the lowest volume to capacity ratio. Also, according to the pm peak hour analysis, all three alternatives would provide the same operating conditions for all but one of the thirteen existing major arterial intersections in the study area. That one intersection had a better level of service for either build alternative.

Along the Red Mountain Corridor, the freeway would provide better operating conditions for the Red Mountain intersections. The three interchanges of the Red Mountain Freeway would all be operating under capacity in 2015 as compared to the four Red Mountain arterial intersections, which would be over capacity.

2.6.2 Costs

Table 2-7 summarizes the estimated costs for the right-of-way acquisition and construction of the two build alternatives. These estimates are based on a preliminary assessment of the alternatives as defined in Sections 2.4 and 2.5. Estimated right-of-way costs are based on general estimates of land values in the area. Construction costs between the Pima Freeway and Dobson Road are the same for both alternatives because of the need to connect to the Price/Red Mountain Interchange. The numbers are subject to change and refinement following the design of the selected alternative.

**TABLE 2-7
COMPARISON OF ESTIMATED PROJECT COSTS**

Alternative	Right-of-Way	Construction		Total
		Pima-Dobson	Dobson-Country Club	
Freeway	\$17,400,000	\$20,000,000	\$22,600,000	\$60,000,000
Urban Arterial	\$13,500,000	\$20,000,000	8,500,000	\$42,000,000

2.6.3 Environmental Impacts Summary

An analysis was conducted of the potential social, economic, and environmental impacts of each of the three alternatives that were selected for detailed study. The results of this analysis are described in Section 4 of this Environmental Impact Statement. The purpose of Section 2.6.3 is to provide a brief comparative summary of the potential impacts. This summary uses the same subject categories as Section 4.

No direct project-related impacts would occur for the no-action alternative. However, in some cases changes would occur as a result of other influences. Where appropriate, these changes are described. The summary then focuses on the major differences in impacts that are associated with the two build alternatives.

Land Use

The land use and transportation plans of the affected local governments provide for the construction of the freeway alternative along the defined alignment. Projections of future land uses assume the existence of this facility. Regional transportation plans also include the freeway as an integral part of the overall transportation system. Thus, the freeway alternative is consistent with these local plans. The no-action and arterial alternatives are not consistent with the plans.

Immediate land use impacts would be caused by the acquisition of right-of-way for the two build alternatives. While fewer acres are needed for the arterial alternative, both would affect the same individual land uses.

Future land use impacts are associated with the development that would occur with each alternative. The freeway alternative would substantially improve the accessibility between the study area and the remainder of the urban area, thus creating the potential for development and redevelopment of the area. These developments would be guided by the locally-adopted land use plans. While future development is expected to occur under the no-action or arterial alternatives, it would be of a different nature and intensity. Further discussion of this impact is included in the description of economic impacts.

Social Impacts

Social impacts of the no-action alternative would be the result of the continuing evolution of the community. They would be influenced by the land use changes that would occur without either of the build alternatives. The freeway and arterial alternatives would have social impacts similar to each other. No substantial negative impacts were defined for either build alternative.

Effects on community cohesion would be minor with either build alternative. No existing stable neighborhoods would be disrupted. Residential relocations, as described below, are confined to a small mobile home park. The physical separation between the study area and the Salt River Pima Maricopa Indian Community that is formed by the Salt River would be emphasized by the freeway alternative. However, the improvements in access would actually decrease the separation.

The introduction of the new road capacity by the freeway alternative would improve the general circulation and accessibility between the study area and the remainder of the community. Regional travel patterns for local residents would benefit. Internal traffic trips would not be adversely affected. No major facilities or access to them would be adversely affected. Travel patterns and accessibility would be improved to a lesser extent by the arterial alternative.

No public facilities would be adversely affected by either build alternative. Schools serving the study area are located outside its boundaries. Access to the schools would not be negatively affected and may be improved. Recreation areas include the Riverview Park and Golf Course, which is discussed below under Section 4(f) Lands. The provision of fire protection and police services would be enhanced by the improved accessibility.

Neither build alternative would have a substantial impact on any particular social group. Local traffic patterns for the elderly population would be unchanged, except for the beneficial nature of the improved access to regional facilities and services. The area contains a generally homogeneous population with no large racial or ethnic groups. The greatest impact on minorities would occur with the displacement of the Hawaiian Mobile Home Park, as described below under relocation impacts. Access between the Indian community north of the Salt River and other parts of the urban area would be improved.

Relocation Impacts

No acquisitions or relocations would occur with the no-action alternative. Residential and business relocations would result from either build alternative. While the freeway alternative requires more acreage for the actual right-of-way, both build alternatives affect the same properties. As a result the relocation impacts are essentially the same. Residential relocations would occur at the Hawaiian Mobile Home Park, which is located west of State Route 87 and north of McKellips Road. Relocation would be required for the 62 occupied units that exist in the park. These units are estimated to house approximately 180 persons. While privacy requirements limit the available demographic information for the park, its population is estimated to be approximately 74 percent White non-Hispanic, 21 percent Hispanic, 2 percent Black, and 3 percent Asian. No American Indians are in the mobile home park.

A total of 15 businesses would be directly impacted by the acquisition of the right-of-way. These businesses include the sand and gravel operations on either side of Alma School Road, a small cluster of industrial and retail businesses along Alma School Road, and another cluster of businesses along the north side of McKellips Road west of State Route 87. Except for two of the sand and gravel companies, all of these businesses would require relocation. Partial acquisition of the mining areas would be required. Because of the difficulty of relocating sand and gravel operations, the acquisition of these properties may result in the irretrievable loss of a portion of the reserves. Final determination of the need for complete relocation of these firms must await the design of the facility and acquisition negotiations.

The acquisition and relocation of all residences and businesses will be conducted in accordance with the Uniform Relocation Assistance and Real Properties Acquisition Policies Act of 1970, as amended. Last resort housing will be provided if it is found that sufficient comparable housing is not available.

Economic Impacts

Economic impacts include effects on future development conditions, property taxes, sales taxes, and fiscal aspects of the local governments. These economic conditions with the no-action alternative would change as a result of the continuing development process that would occur without either build alternative. Under these conditions, vacant and agricultural land in the study area is expected to be developed. However, this development would be less intense and of a different land use mix than would occur with the build alternatives.

The economic impacts of the build alternatives would occur in two stages. The first stage would be the immediate aftermath of the construction, whose greatest effect would be the acquisition of specific parcels and relocation of several businesses. The second stage would be the development that would occur as a result of the improved transportation accessibility. In general terms, the first stage would result in negative economic impacts due to the removal of economic activities within the right-of-way. At full development, however, the new development would result in substantial additional economic activity. The freeway alternative would generate a larger amount of this activity than would the arterial alternative. A summary comparison of the economic impacts is provided by Table 2-8.

TABLE 2-8
SUMMARY COMPARISON OF ESTIMATED ECONOMIC IMPACTS
Study Area

	Existing	Freeway Alternative		Arterial Alternative	
		Construction	Development	Construction	Development
Developed Acreage	1,466	1,344	1,830	1,386	1,876
Residential Units	3,885	3,814	5,417	3,814	5,766
Population	8,827	8,628	13,052	8,628	14,018
Employment	1,270	847	5,440	931	3,497
Property Tax Revenue (\$1,000)	\$179	\$107	\$6,458	\$105	\$4,746
Sales Tax Revenue (\$1,000)	\$1,701	\$356	\$8,023	\$436	\$5,177

Section 4(f)/Section 6(f) Lands

Section 4(f) lands in the study are the Riverview Park and the Riverview Golf Course, located west of Dobson Road. Riverview Park is also a Section 6(f) property. The alignment for both the freeway and the arterial would pass immediately north of the northern boundary of the park. Neither build alternative would have a direct physical impact on these facilities. Thus, there is no need to complete either the Section 4(f) or Section 6(f) process.

Potential indirect impacts are related to air quality, noise, and visual issues. Carbon monoxide levels in the park are predicted to either remain the same as existing levels or be slightly increased by the freeway alternative. Predicted levels for the arterial alternative are predicted to increase more than those for the freeway. No violations of air quality standards would occur in either case. Noise levels in the northern portion of the park are projected to slightly exceed the noise standards with either build alternative. Noise barriers are proposed to mitigate these impacts. Relatively minor visual impacts would occur with both alternatives. Views directly to the north would be of noise barrier walls, which would be constructed and landscaped in a manner consistent with the park aesthetics.

Air Quality

Maximum one-hour and eight-hour carbon monoxide levels were predicted at sensitive receptors along the proposed alignment. No violations of the state or federal standards are predicted for either build alternative. The freeway alternative is included in the Long Range Transportation Plan for the MAG planning area. An emissions analysis conducted by MAG demonstrated that the plan is consistent with the emissions reduction requirements of the State Implementation Plan (SIP) and the Federal Implementation Plan (FIP). The project is included in the Transportation Improvement Program (TIP), which has been determined to conform to the regulations based on the Clean Air Act Amendments.

Noise

Future noise levels were predicted for each of the three alternatives at sensitive receptor sites along the proposed alignment. For the freeway alternative, noise barriers would be needed at two locations: Riverview Park and the Inglewood Street residential area. The arterial alternative would require a noise barrier at Riverview Park.

Water Resources

Impacts on water quality could result from construction activities and from pollutants generated by the traffic using the completed facility. Construction impacts could be somewhat higher for the freeway alternative due to the wider right-of-way and more extensive construction activities. The total amount of roadway-released pollutants would be approximately the same for all alternatives.

Floodplains

No project-related floodplain impacts would occur under the no-action alternative. However, sand and gravel mining operations would continue to affect the characteristics of the Salt River floodplain. Without further flood control measures, major flood events would also alter the configuration of the channel.

Both build alternatives impact the regulatory floodway and floodplain. The freeway generally encroaches on the floodplain to a slightly greater extent than the arterial alternative. The differences result from the differing right-of-way requirements. Encroachments into the floodway are similar for both alternatives. The only difference is in the segment immediately east of Alma School Road, where the freeway alternative causes a slightly greater encroachment than the arterial alternative. Measures to mitigate these impacts have been identified. A slight encroachment will occur on the waters of the U.S., as defined by the Corps of Engineers under the Clean Water Act. Thus, a Section 404 permit will be required.

Earth Resources

Approximately 314 acres of farmland are located in the study area. No direct impacts would be caused by the no-action alternative. With the freeway alternative, an estimated 39 acres of the farmland would be acquired for the right-of-way. The arterial would require an estimated 29 acres.

Urban development is expected to replace all of the farmland in the future under any of the three alternatives. The affected farmlands are committed to urban development by the general plans and zoning ordinances of the City of Mesa and Maricopa County. Thus, these farmlands are not subject to the Farmland Protection Policy Act.

Biological Resources

Biological resources in the study area have been heavily disturbed by sand and gravel mining, agriculture, and urban development. Virtually no undisturbed open space areas remain. The two build alternatives would impact the remaining vegetation. Based on a field survey and discussion with the U.S. Fish and Wildlife Services, no protected species of vegetation or wildlife is expected to occur in the area. Future urban development would impact the area under any of the three alternatives.

Cultural Resources

The construction of either build alternative would impact any cultural resources that lie within the right-of-way. However, preliminary studies have concluded that the corridor is generally void of archaeological materials. The area has been greatly disturbed by modern sand and gravel operations, farmland activities, and by the movement of the Salt River. The one area most likely to contain archaeological deposits is located just west of Riverview Park and south of the proposed alignment. A site containing Classic period trash deposits, as well as a prehistoric canal, may be located in this area. Both of the build alternatives could impact these resources. For the freeway alternative, the realignment of Dobson Road north of Eighth Street could have an additional effect. An archaeological testing program will be conducted prior to construction of the project. No historic sites would be impacted. A Draft Programmatic Agreement (PA) has been prepared and is currently under consideration by the appropriate agencies. Adherence to the program described in the PA will ensure that the project would be in compliance with Section 106.

Hazardous Wastes

A Phase 1 Environmental Site Assessment was conducted for the project area. All relevant environmental data bases were reviewed and a site assessment was conducted. Sites of concern to the project include several underground storage tanks. Three sites were specifically identified that may present potential contaminant sources. These sites would be affected in the same manner by either build alternative. A testing program will be conducted at these locations prior to any construction. One landfill would be impacted by the project. Only construction debris has been deposited in this landfill. Investigations have concluded that no hazardous wastes are present.

Visual Resources

Impacts on views in the study area are expected to be relatively minor for both build alternatives. Existing visual aesthetic values are generally low. The freeway profile would be at-grade except for the interchanges over the arterial cross-streets. Thus, relatively minor impacts would be caused by the mainline. More substantial impacts would be created by the interchanges. The arterial alternative would be entirely at-grade and would thus create less visual impact.

2.6.4 Mitigation Summary

Mitigation measures have been defined to avoid or minimize the environmental impacts that are described in Section 4 of this DEIS. Implementation of these measures will be accomplished by their inclusion in the construction documents that will be prepared for the project. A summary of the mitigation measures is provided below. Additional details are contained in Section 4.

1. An acquisition and relocation assistance plan will be prepared that identifies the process and schedule for right-of-way acquisition and relocation of affected residents and businesses. The acquisition and relocation program will be conducted in accordance with the Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970. All replacement housing will be decent, safe, and sanitary. Last resort housing will be provided if it is found that sufficient comparable housing is not available.
2. A specific relocation plan will be developed to assist residents of the Hawaiian Mobile Home Park to find alternative housing or locations for their mobile homes. This plan will provide methods of dealing with the specific issue of relocating the older and smaller mobile homes to alternative sites. The plan will also provide measures to mitigate any disproportionate impacts that may occur on minority residents.
3. During construction of the facility, traffic through the area and access to adjacent properties will be maintained in accordance with current Arizona Department of Transportation (ADOT) traffic control management procedures for highway construction and maintenance. ADOT will coordinate traffic control actions with established procedures of the City of Mesa.

4. The design of the project will seek to minimize the acquisition of sand and gravel mining properties. Compensation for the remaining reserves of the acquired properties will be determined as a part of the standard ADOT appraisal and acquisition process.
5. A plan will be prepared to mitigate the access impacts on all sand and gravel operations. The details of these mitigation measures will be determined during the design of the project.
6. Construction impacts on air quality and noise will be controlled in accordance with current ADOT policy, as contained in the publication, "Standard Specifications for Road and Bridge Construction".
7. A sedimentation and erosion control plan will be prepared to define measures for the control of water quality impacts during construction. Potential measures for inclusion in the plan are contained in the EIS.
8. Noise impacts will be mitigated by the construction of noise barriers in preliminarily-designated locations. Refinements to the barriers will be made during the design of the facility and the public involvement process.
9. Floodplain impacts will be mitigated by measures as described in the EIS. The exact nature of these measures will be based on more detailed hydraulic studies and will be determined during the design of the facility. Potential impacts on the north side of the floodplain/floodway will be included in the detailed studies.
10. A National Pollution Discharge Elimination System (NPDES) permit, as required by Section 402 of the Clean Water Act, will be acquired prior to the beginning of project construction.
11. A Dredge and Fill Permit, as required by Section 404 of the Clean Water Act, may be required for the eastern segment of the project. If required, this permit will be acquired from the Corps of Engineers. Any required amendments to the existing permit will also be acquired for the western portion of the project. In addition, a Section 401 Water Quality Certification Letter will be obtained.

12. If well-drilling activities are necessary, the required permits will be obtained from the Arizona Department of Water Resources.
13. Further archaeological testing will be conducted to define and record information on affected sites. A testing program will be devised in consultation with the State Historic Preservation Office (SHPO) and ADOT. If previously unrecorded sites are encountered during construction, work will be suspended, ADOT Environmental Planning Services will be notified, and appropriate action will be determined in consultation with SHPO. The provisions of the Programmatic Agreement will be followed.
14. Additional hazardous materials investigation of potential contaminated sites will be conducted as described in the EIS. If previously unidentified hazardous waste sites are encountered during construction, work will be suspended and appropriate action will be determined by ADOT Environmental Planning Services.
15. Cut-off shield lighting fixtures will be used on the facility in order to reduce illumination impacts on residential areas.
16. Negative visual impacts will be mitigated by the use of landscaping and a unified treatment of wall surfaces. The noise barrier adjacent to Riverview Park will be constructed and landscaped in a manner consistent with park aesthetics. Landscape elements will be designed in accordance with the ADOT publication, "Landscape Design Guidelines for Urban Highways".

SECTION 3

Affected Environment

3.0 AFFECTED ENVIRONMENT

This section includes a summary description of the existing social, economic, and environmental setting of the area affected by the project. The information is drawn from published reports, agency discussions, and field reconnaissance. All subject areas that are related to potential impacts and needed mitigation measures are included.

In general, the area served by the project is the entire metropolitan area. Therefore, general social and economic background is provided for Maricopa County. For the purpose of describing the background for more specific impacts, a study area has been defined. Covering slightly more than 2,000 acres, this study area is bounded by Price Road on the west, State Route 87 on the east, University Drive and the Tempe Canal on the south, and the Salt River on the north. Subareas of this study area have also been defined on the basis of similar land use, social organization, and population characteristics. This study area, which is illustrated on Figure 3-1 (page 3-3), is used as the basis for describing certain social and economic conditions. In some subject areas, the actual project corridor is used as the area for describing the setting.

3.1 Land Use

3.1.1 Existing Land Use

The general land uses patterns that exist in the study area are illustrated in Figure 3-2 (page 3-4). These patterns are characterized by major sand and gravel mining and processing operations, public facilities, agricultural areas, industrial uses, residential areas, and commercial establishments.

The composition of the land uses in the study area is summarized in Table 3-1. There are 741 acres of developed residential areas, 1,039 acres of non-residential uses, and 257 acres of vacant land. Several different density configurations are included in the residential areas, which are concentrated in the eastern and southern portions of the study area. The non-residential land uses include agricultural areas, general industry, sand and gravel operations, and institutional facilities. The institutional uses are located north of Eighth Street between Price Road and Dobson Road.

Industrial uses are clustered along Alma School Road south of the Salt River and north of McLellan Road, as well as along State Route 87 north of McKellips Road. The sand and gravel operations are located along the bank of the Salt River in the central and eastern portions of the study area. A brief description of the land use characteristics of each subarea is presented following Figure 3-2 (page 3-4).

**TABLE 3-1
LAND USE COMPOSITION IN THE STUDY AREA**

Land Use	Acres	Housing Units
Residential	741	3,885
Single Family Detached	---	1,228
Single Family Attached	---	471
Duplex or Fourplex	---	354
Apartments (5-9 units/acre)	---	102
Apartments (10 or more units/acre)	---	995
Mobile Homes	---	735
Commercial	36	---
Office	1	---
Industrial	241	---
Agriculture	314	---
Public/Semi-Public	447	---
Vacant	257	---
TOTAL	2,037	3,885

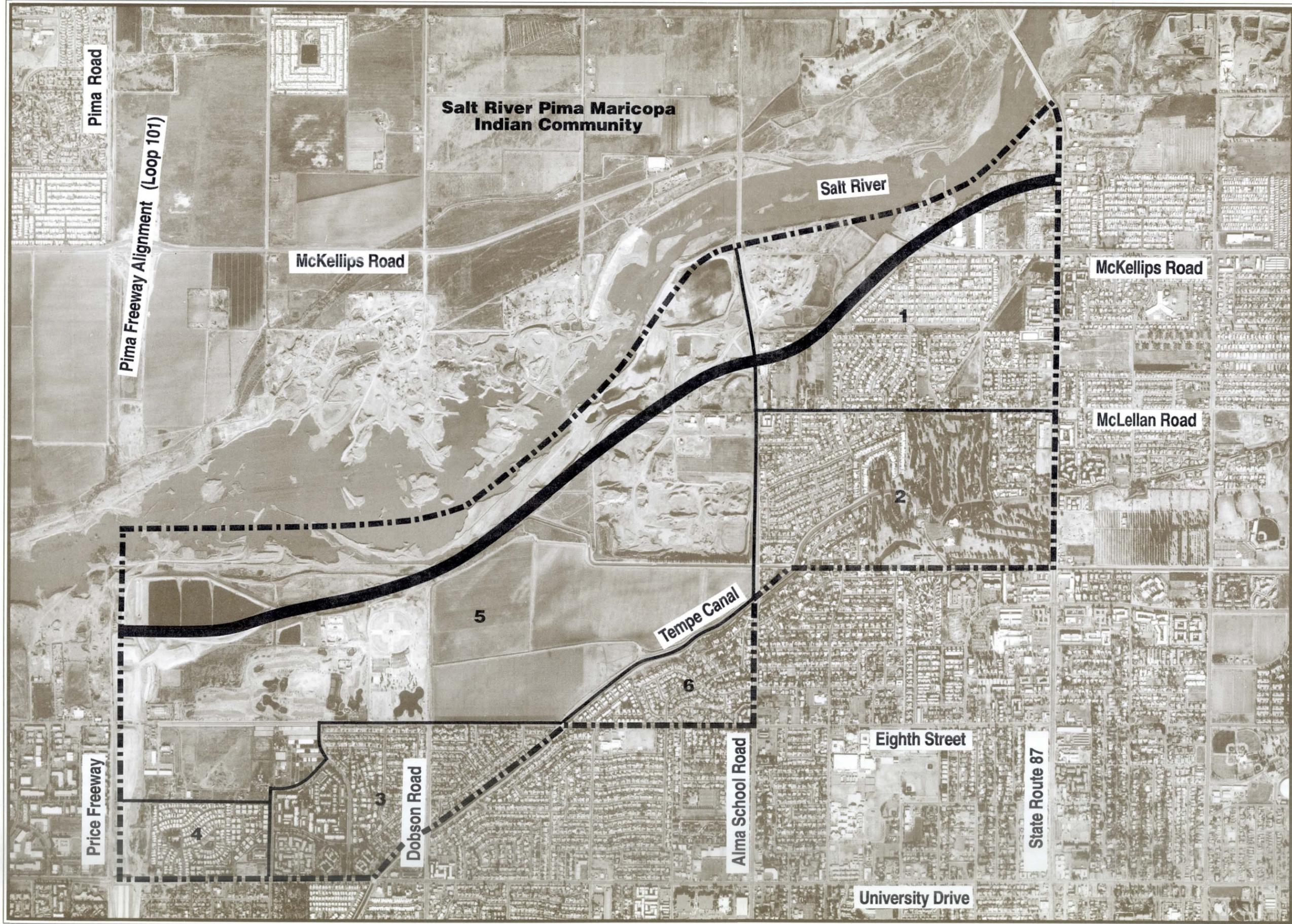
**RED MOUNTAIN
FREEWAY**
ENVIRONMENTAL
IMPACT STATEMENT

0 feet 800' 1600' 2400'
approx.



GRAPHIC LEGEND

-  Project Area Boundary
-  Subarea Boundaries



**Study Area
and Subareas**

Figure 3-1
3-3

**RED MOUNTAIN
FREEWAY**

ENVIRONMENTAL
IMPACT STATEMENT

0 feet 800' 1600' 2400'
approx.



NORTH

GRAPHIC LEGEND

SF Single Family Residential

MF Multi-family Residential

CO Commercial/Employment

MI Mining

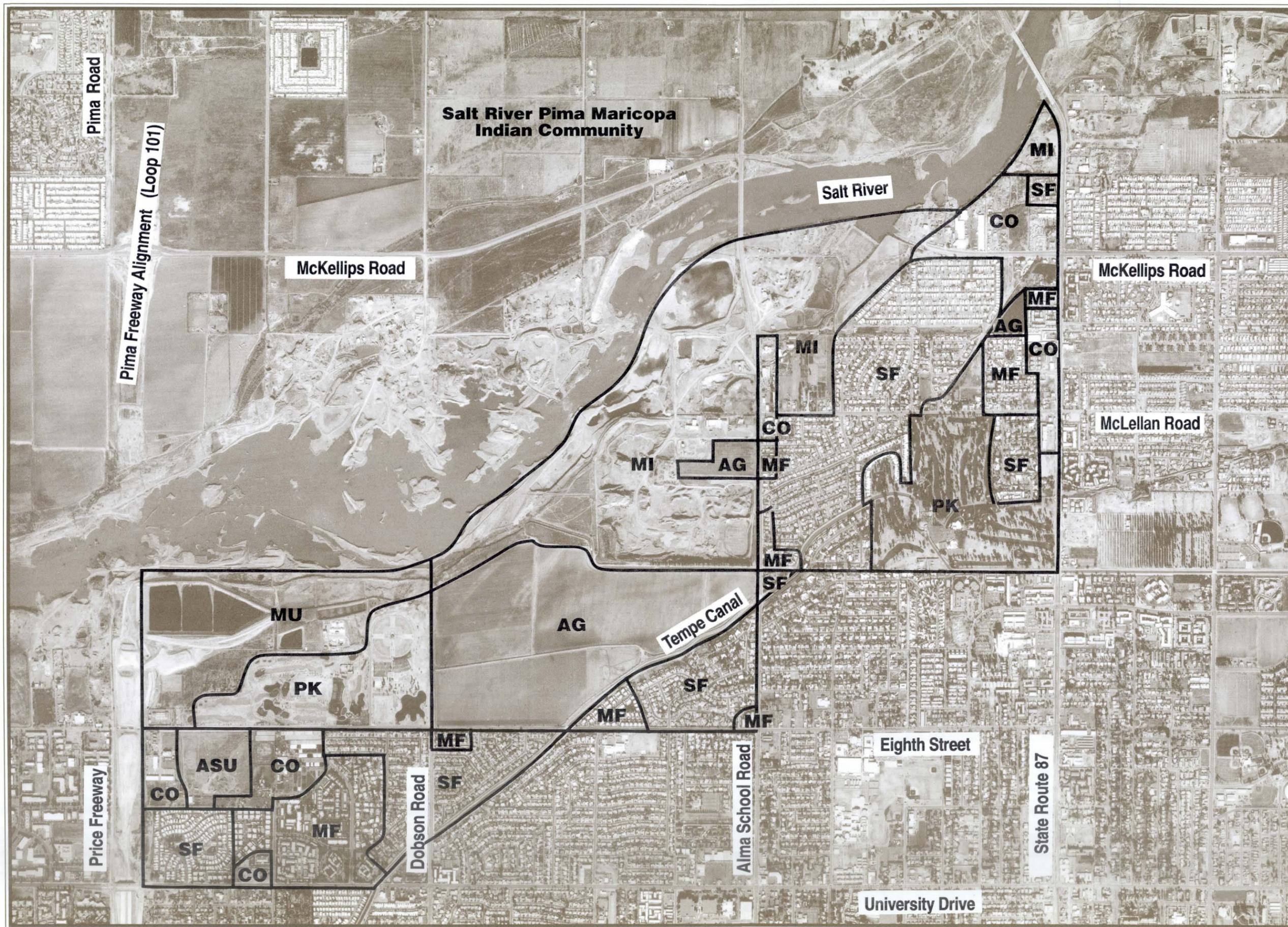
AG Agricultural

MU Municipal Property

ASU Arizona State University

PK Park/Open Space

Source: Field reconnaissance; Mesa
Zoning Map.



**Existing
Land Use**

Figure 3-2
3-4

Subarea 1

Subarea 1 is located in the northeastern corner of the study area. A major portion of this subarea is occupied by residential uses, including both single-family units and mobile homes. The single family homes are located in the southern portion of the subarea. Two mobile home parks occupy the central and part of the northeastern portions. Commercial uses are aligned along State Route 87. These business establishments include service retail, such as convenience stores and repair shops, and highway-related services, such as auto repair shops and storage facilities. Major sand and gravel operations occupy the northern portion along the Salt River bank.

Subarea 2

Subarea 2 is located south of McLellan Road and west of State Route 87. The primary land use is the Mesa Country Club, which is a major recreational facility that includes a nine-hole golf course and ancillary uses. The area around the golf course consists of single family residences. A small number of commercial uses is located on the frontage along State Route 87, and in the northwest corner of the subarea.

Subarea 3

Subarea 3 is located in the southern portion of the study area, on either side of Dobson Road north of University Drive and the Tempe Canal. It is predominantly a residential area with a variety of housing types. Included are multifamily units, single-family detached, and single-family attached units. There are no employment-generating uses in this subarea.

Subarea 4

This subarea is in the southwest corner of the study area. The western boundary abuts the Price Freeway, now under construction. It is characterized by large numbers of mobile homes and apartment or attached housing units. It contains only one employment-generating commercial use.

Subarea 5

Subarea 5 covers a major portion of the study area. It is generally bounded by the Price Freeway, the Salt River, Alma School Road, the Tempe Canal, and Eighth Street. It is dominated by sand and gravel operations, institutional uses, and agricultural areas. Residential uses are limited and scattered. The sand and gravel operations are situated south of the Salt River and west of Alma School Road. The institutional uses include the Riverview Park and Golf Course and the Mesa Waste Water Treatment Plant. A large agricultural parcel comprises the central portion of the subarea.

Subarea 6

This subarea is in the southcentral portion of the study area. The area is entirely residential, characterized by single-family areas. Multi-family housing also exists along Eighth Street and Alma School Road.

3.1.2 Land Jurisdiction and Ownership

The study area lies almost entirely within the boundaries of the city of Mesa. A small portion in the southwest corner is inside the limits of the city of Tempe. Near the center of the study area, the sand and gravel operations along Alma School Road form an unincorporated island that is under the jurisdiction of Maricopa County. The Salt River Pima Maricopa Indian Community is located on the north of the study area, with the jurisdictional boundary defined generally by the center line of the Salt River channel.

In addition to the individual ownership of small parcels devoted to residential and business uses, several major owners of large parcels are present. The majority of these large parcels fall into the use categories of sand and gravel operations, agriculture, or public facilities of the City of Mesa. The jurisdictional boundaries and the location of the large ownership parcels are illustrated in Figure 3-3 (page 3-7).

**RED MOUNTAIN
FREEWAY**

**ENVIRONMENTAL
IMPACT STATEMENT**

0 feet 800' 1600' 2400'
approx.

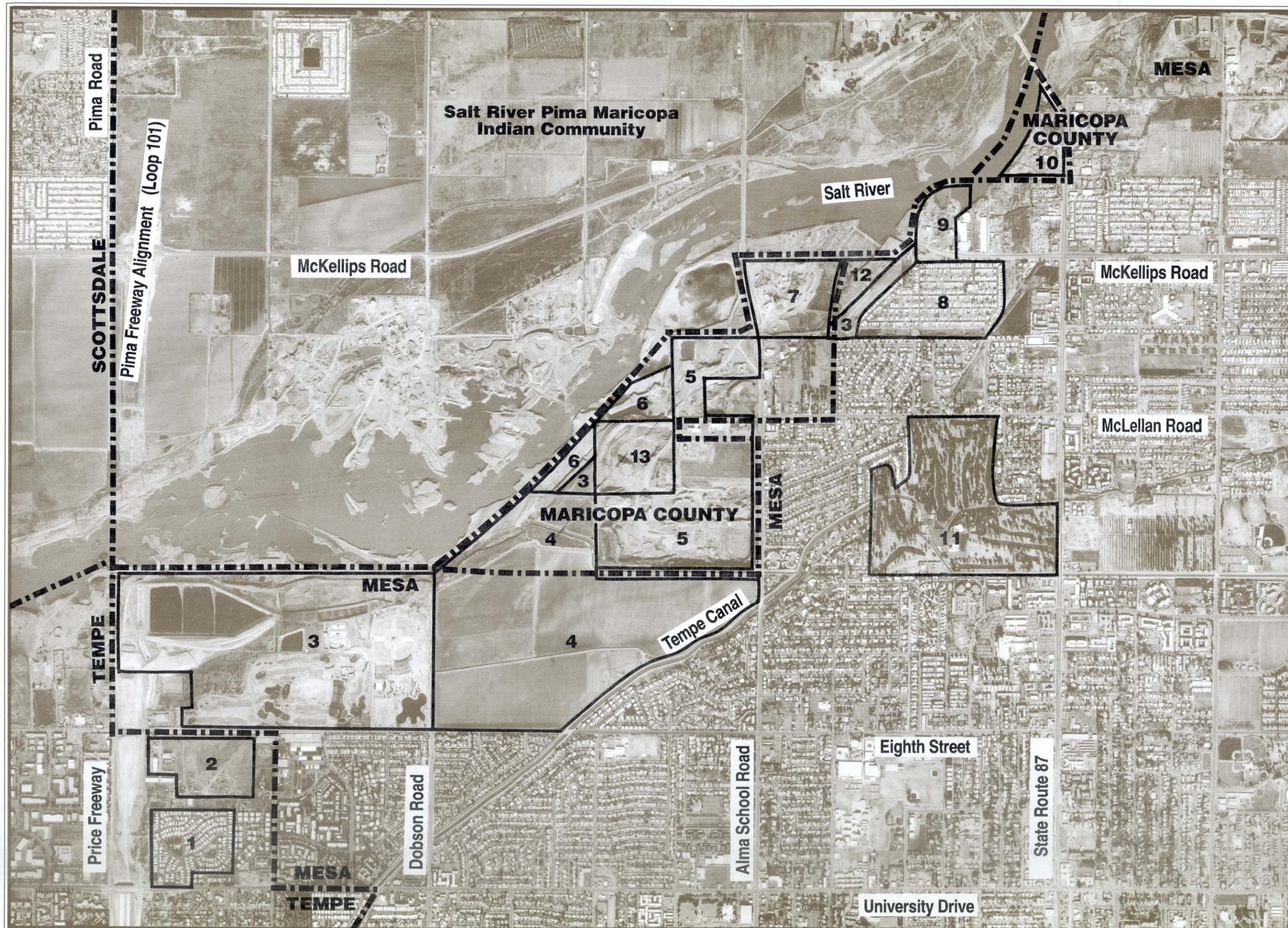
NORTH

GRAPHIC LEGEND

Jurisdictional Boundary

Ownership Boundaries

- 1 Interstate Ventures
- 2 Arizona Board of Regents
- 3 City of Mesa
- 4 Thomas Hurley
- 5 Johnson Stewart Company
- 6 Arizona Rock and Sand
- 7 PJJ Investments
- 8 De Anza Properties
- 9 EJC Investments
- 10 Bureau of Land Management
- 11 Mesa Country Club
- 12 Clarence Merritt
- 13 Calmat



**Existing
Jurisdictions
and Ownership**

Figure 3-3
3-7

3.1.3 Existing Transportation System

The existing transportation system in the study area is comprised of arterial streets and the associated collector and local streets. North-south traffic is carried by Alma School Road and State Route 87. These major arterials provide the only means of crossing the Salt River north of the study area. Dobson Road penetrates the study area from the south, but ends at Eighth Street. University Drive, at the southern edge of the study area, and McKellips Road, at the northern edge, provide the only east-west through routes. McKellips Road provides an unbridged crossing of the Salt River, which cannot be used during the rare periods when water has been released from upstream reservoirs. McLellan Road and Eighth Street provide east-west access through parts of the study area. The Price Freeway along the western edge of the study area is under construction. The portion immediately south of University Drive has been completed.

3.1.4 Land Use and Transportation Plans

Plans for the future development of the study area have been prepared and adopted by the local governmental jurisdictions. With the exception of the small area within the city of Tempe, the plans of the city of Mesa cover the study area. Eventual annexation of the county island into the city of Mesa is anticipated.

The land use element of the Mesa General Plan (1988) defines goals, objectives, and policies related to future growth and development. It also describes a general land use plan for the area within the city boundaries. Land use categories are defined and locations for the various types of uses are specified.

Within the study area, the designated future land use categories include high-density residential, medium-high-density residential, medium-density residential, commerce park, community commercial, public/semi-public, and park/open space. The location of these designated uses is illustrated on Figure 3-4 (page 3-12). A brief definition of these land use categories is provided below.

High-Density Residential: Apartments, condominiums, and townhomes with a density of ten or more units per acre. Other uses permitted include all commercial categories and public/semi-public uses.

Medium-High-Density Residential: Single family detached, townhome, and patio home development with densities ranging from six to ten dwelling units per acre. Limited high density residential and community commercial uses may also be permitted.

Medium Density Residential: Single family detached, townhome, and patio home development with densities ranging from three to five dwelling units per acre.

Commerce Park: Industrial areas that may accommodate a mix of office, industrial, and distribution uses in a planned development. Building and site development guidelines are applied.

Community Commercial: Neighborhood-oriented commercial uses, usually 10 to 15 acres per corner. Associated with controlled arterial access, medium traffic volumes, and proximity to high and medium density residential areas.

Public/Semi-Public: Uses such as churches, police or fire substations, hospitals, and schools.

Park/Open Space: Public recreational facilities or nature preserves, with other types of development precluded. Open space areas are left in a relatively natural state.

In addition to the designated future land uses in the study area, the Mesa General Plan contains other goals, objectives, and policies that pertain to the proposed Red Mountain Freeway project. Of particular relevance are the following two goals:

Transportation Goal C: Encourage and promote the rapid completion of the adopted freeway system and capitalize on its potential as a community asset. This goal is accompanied by objectives and policies that are designed to expedite the freeway construction in a manner that will accommodate future traffic volumes, provide a linked regional transportation system, and enhance the quality of life in the area. The Red Mountain Freeway Corridor is specifically designated by the General Plan.

Land Use Goal C: Maximize the development opportunities associated with future freeway construction. This goal is accompanied by objectives and policies that are designed to locate retail, service, office, and industrial land uses at designated major nodes associated with the freeway system.

The land use element of the Tempe General Plan also designates future land uses for the portion of the study area that lies within its jurisdiction. These land uses, also illustrated on Figure 3-4 (page 3-11), include industrial, retail commercial, single-family residential, multi-family residential, and institutional. Definitions of these land use categories are provided below.

Industrial: Encompasses all industrial uses. Also accommodated are office uses and commercial activities that are related to the primary commercial use.

Commercial: Permits a full scope of retail commercial development.. Also includes office uses.

Single-Family Residential: Residential development consisting of the traditional single family unit. Densities range from one to four dwelling units per acre.

Multi-family Residential: Accommodates residential development with densities over four dwelling units per acre. Specific densities are designated by the plan.

Institutional: Includes schools, churches, hospitals, fire and police stations, governmental facilities, and utilities.

In addition to the designation of the future land uses, the Tempe General Plan also provides for the western segment of the Red Mountain Freeway across the northern portion of the city. It assumes the extension of the freeway eastward into the city of Mesa.

Plans for future transportation facilities in the study area are reflected in the Mesa General Plan and the MAG Freeway and Expressway Plan. These plans provide for the continued use of the existing major arterial streets and the construction of the Red Mountain Freeway as a link within the overall regional freeway system.

A regional bicycle plan has been prepared by the Maricopa Association of Governments. The plan consists of regional goals and objectives, a review of bicycle ordinances, a physical plan for both on-road and off-road bicycle facilities, bikeway design guidelines, an implementation plan, and a funding discussion. The purpose of the physical plan is to provide a system of interconnected routes for use by commuting, recreational, or touring bicyclists. The on-road system designates locations on the existing street network that are safe for bicycle use and identifies needed roadway improvements. The off-road system consists primarily of canal banks and river channels, including the Salt River channel adjacent to the Red Mountain Corridor. The majority of the off-road system is unimproved.

3.1.5 Existing Zoning

Each of the three affected governmental units in the study area has designated zoning categories for the lands within its jurisdiction. These zones control the use to which the land may be developed. The designations range from single-family residential classifications to heavy industrial, with residential zones predominating. The residential areas are generally located along the southern portion of the study area. Industrial zones lie along the banks of the Salt River and within the riverbed, itself. Commercial zoning is located near the arterial street intersections along the arterial frontages. Figure 3-5 (page 3-13) illustrates the existing zoning pattern.

In most cases, the designated zoning is consistent with the existing land uses. An exception is the large agricultural area in the center of the study area, which is zoned for residential use. Changes in the zoning are likely to occur in the future in accordance with the land uses designated by the land use plans.

**RED MOUNTAIN
FREEWAY**

**ENVIRONMENTAL
IMPACT STATEMENT**

0 feet 800' 1600' 2400'
approx.



GRAPHIC LEGEND

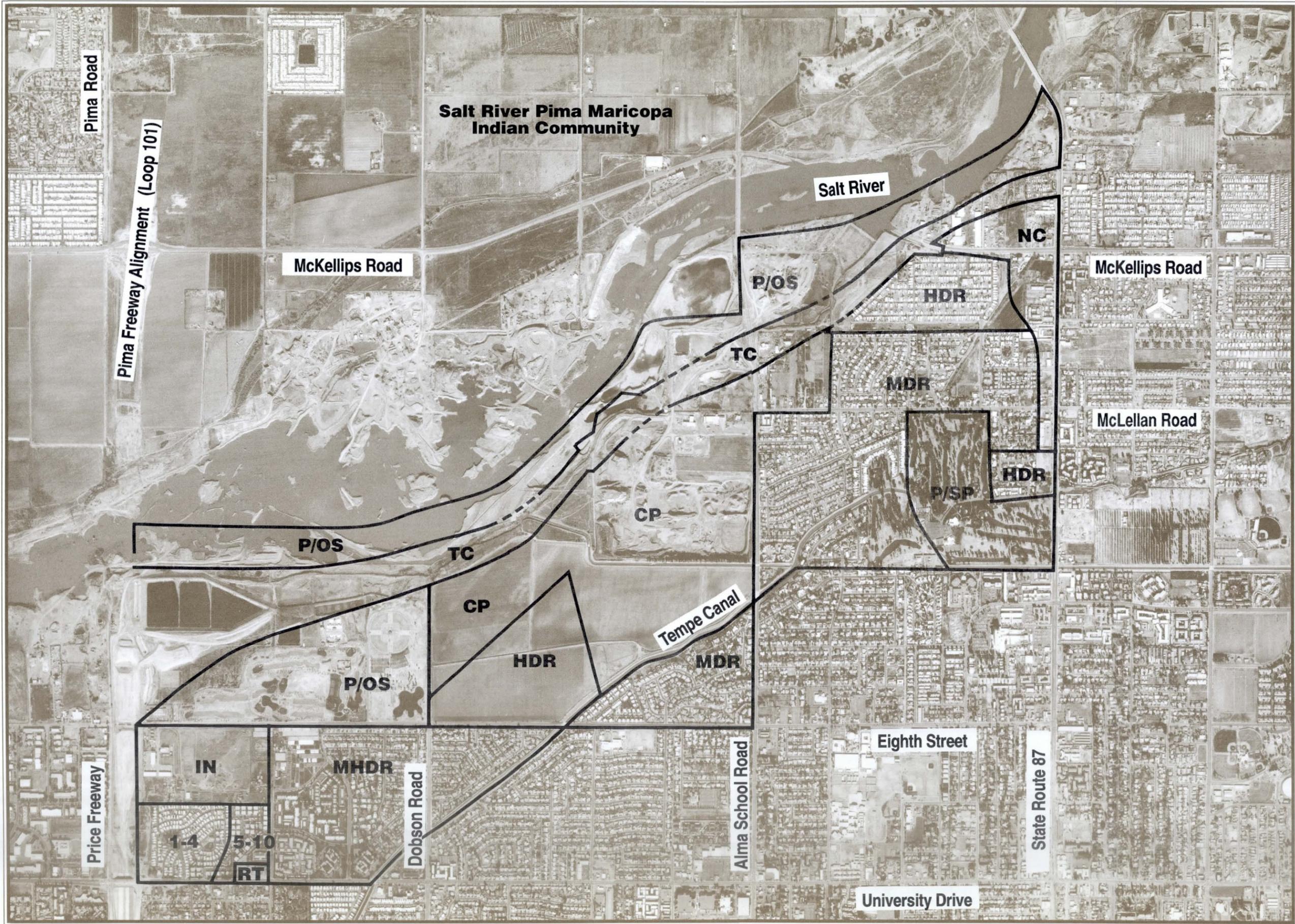
General Plan: Mesa

- TC** Transportation Corridor
- NC** Neighborhood Commercial
- CP** Commerce Park
- P/SP** Public/Semi-Public
- P/OS** Park/Open Space
- MDR** 3-5 du/ac
- MDHR** 6-10 du/ac
- HDR** 10+ du/ac

General Plan: Tempe

- IN** Industrial
- RT** Retail
- 1-4** du/ac
- 5-10** du/ac

Source: Mesa General Plan; Tempe General Plan.



**Future
Land Use**

Figure 3-4
3-12

3.2 Socioeconomic Conditions

3.2.1 Demographic Composition

According to the 1990 Census, 8,827 people reside in the study area. Residential development is a major land use and is generally located in the southern and eastern portions of the study area. A mix of residential uses and densities include single-family homes, multifamily apartments and townhouses, and mobile homes. These residential areas are generally well-established, cohesive neighborhoods.

The characteristics of the population are shown in Tables 3-2 to 3-6. These tables summarize and compare the demographic data for Maricopa County, the city of Mesa, the study area, and the subareas. Selected aspects of these characteristics are summarized below.

Age and sex distributions are shown in Table 3-2. The ratio of males to females in the study area is similar to that for Maricopa County and the city of Mesa. Age characteristics have a somewhat different composition. Over 40 percent of the population in the study area is between the ages of 25 and 44, compared with approximately 33 percent in the county and city. The proportion of residents over 60 year of age is smaller in the study area, with 7 percent in that category compared to approximately 16 percent in the county and city.

Table 3-3 shows the ethnic composition of the area. The population of the study area is predominantly white (89.2 percent) with 11.4 percent of all races being of Hispanic origin. Two percent of the study area population is black, 1.1 percent is Indian American, 1.8 percent is Asian, and 5.9 percent are other races. This distribution is reasonably similar to the racial composition of the city of Mesa and Maricopa County.

A summary of the changes in population that have occurred between 1980 and 1990 is provided by Table 3-4. Since 1980, the study area has experienced a period of substantial growth, with a population increase of more than 80 percent between 1980 and 1990. This is less than the city of Mesa, but is substantially more than the growth rate in Maricopa County. The rapid growth in the study area translates into an 88.6 percent increase in the number of housing units. Mobile homes account for a large part of this growth in housing units.

Income information is presented in Table 3-5. Almost 40 percent of the study area households have incomes over \$35,000 per year, with more than 15 percent exceeding \$50,000 per year. However, the largest group (24.8 percent) is in the \$15,000 to \$25,000 income bracket, and a further 16 percent of all households have incomes of less than \$15,000 per year. This is a lower proportion of low income residents within the study area than in the city of Mesa (19.8%) or in Maricopa County (21.2%).

More than 78 percent of the study area's adult population of 6,624 persons is in the labor force, and more than 95 percent of those are employed. The unemployment rate of a little more than 5 percent in 1990 is consistent with the unemployment rate for the city of Mesa (5.2 percent) and a little better than Maricopa County at 6 percent.

Despite the high employment rate and median income of the majority of the study area residents, approximately 8 percent of the population live below the poverty level. However, this percentage is lower than that for both Maricopa County and the city of Mesa.

The housing inventory and value is depicted in Figure 3-6 (page 3-19). Housing in the area includes a wide range of types. Less than one-third of the 3,885 units are detached single family residences, while almost 40 percent are apartments of various densities. Nearly 20 percent of the housing consists of mobile homes that are located in three mobile home parks. This distribution compares well with city of Mesa, but has a larger proportion of mobile homes and a smaller proportion of single-family homes than Maricopa County.

More than two-thirds of all households in the study area are family households. The proportion of non-family households is higher than in the city of Mesa and Maricopa County, which is likely due to the presence of the nearby Arizona State University (ASU) and student residents. This is particularly noticeable in the parts of the study area located to the west of the study area, in closer proximity to ASU.

TABLE 3-2
OVERVIEW OF THE POPULATION

	Maricopa County	City of Mesa	Subject Area	Subarea 1	Subarea 2	Subarea 3	Subarea 4&5	Subarea 6
Population								
Total Population	2,122,101	288,091	8,827	2,598	1,412	2,993	864	877
Male	1,045,778	141,470	4,442	1,309	689	1,552	416	431
Female	1,076,323	146,621	4,385	1,289	723	1,441	448	446
Male	49.3%	49.1%	50.3%	50.4%	48.8%	51.9%	48.2%	49.1%
Female	50.7%	50.9%	49.7%	49.6%	51.2%	48.1%	51.8%	50.9%
Total Households	807,560	107,863	3,486	871	489	1,398	389	312
Persons / Household	2.59	2.65	2.69	2.98	2.89	2.42	2.22	2.81
Age								
Total Population	2,122,101	288,091	8,827	2,598	1,412	2,993	864	877
Median Age	32.0	30.4	28.6	26.3	30.6	27.4	29.8	30.3
0 - 17 Years	26.2%	28.5%	27.1%	34.8%	30.8%	20.0%	18.5%	29.9%
18 - 24 Years	10.7%	11.0%	14.9%	11.4%	9.2%	21.9%	15.5%	10.7%
25 - 44 Years	33.4%	33.0%	40.6%	38.9%	34.1%	46.0%	39.2%	38.5%
45 - 59 Years	13.4%	11.6%	10.4%	9.5%	12.1%	8.5%	12.0%	15.4%
60 and Over	16.3%	15.9%	7.0%	5.4%	13.8%	3.6%	14.8%	5.5%
Totals	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

NOTE: Subareas are defined in terms of 1990 Census Tracts.

Area 1 = Tract 4211.01 - 1

Area 2 = Tract 4211.03

Area 3 = Tracts 4212.01 - 2 and 4212.01 - 3

Areas 4&5 = Tract 3184.2 (allocated at 80.67% of entire block group based on block population data figures)

Area 6 = Tract 4212.02 - 03

Source: U.S. Department of Commerce, Bureau of the Census
Economic Strategies Group

TABLE 3-3

POPULATION BY ETHNICITY

	Maricopa County	City of Mesa	Subject Area	Subarea 1	Subarea 2	Subarea 3	Subarea 4&5	Subarea 6
Total Population	2,122,101	288,091	8,827	2,598	1,412	2,993	864	877
White	84.8%	90.1%	89.2%	88.0%	88.5%	90.3%	89.0%	90.0%
Black	3.5%	1.9%	2.0%	2.6%	1.6%	2.2%	1.8%	1.1%
American Indian	1.8%	1.0%	1.1%	1.3%	0.6%	0.9%	1.7%	1.6%
Asian	1.7%	1.5%	1.8%	0.9%	1.5%	1.8%	5.4%	0.6%
Other	8.2%	5.5%	5.9%	7.2%	7.8%	4.8%	2.1%	6.7%
Totals	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Hispanic (any race)	16.3%	10.9%	11.4%	12.0%	13.7%	11.1%	9.5%	8.8%

NOTE: Subareas are defined in terms of 1990 Census Tracts.

Area 1 = Tract 4211.01 - 1

Area 2 = Tract 4211.03

Area 3 = Tracts 4212.01 - 2 and 4212.01 - 3

Areas 4&5 = Tract 3184.2 (allocated at 80.67% of entire block group based on block population data figures)

Area 6 = Tract 4212.02 - 03

Source: U.S. Department of Commerce, Bureau of the Census
Economic Strategies Group

TABLE 3-4

POPULATION CHANGE

	Maricopa County	City of Mesa	Subject Area	Subarea 1	Subareas 2&3	Subareas 4&5	Subarea 6
1980							
Total Population		152,453	4,872	2,331	1,568	548	425
Housing Units	610,772	65,299	2,060	768	786	320	186
1990							
Total Population	2,122,101	288,091	8,827	4,010	3,076	864	877
Housing Units	952,041	140,468	3,885	1,523	1,583	436	343
1980 - 1990							
Change in Total Population	613,049	135,638	3,955	1,679	1,508	316	452
Per Cent Change in Population	40.6%	89.0%	81.2%	72.0%	96.2%	57.7%	106.4%
Change in Housing Units	341,269	75,169	1,825	755	797	116	157
Per Cent Change in Housing units	55.9%	115.1%	88.6%	98.3%	101.4%	36.3%	84.4%

NOTE: Subareas are defined in terms of 1990 Census Tracts.

Area 1 = Tract 4211.01 - 1

Area 2 = Tract 4211.03

Area 3 = Tracts 4212.01 - 2 and 4212.01 - 3

Areas 4&5 = Tract 3184.2 (allocated at 80.67% of entire block group based on block population data figures)

Area 6 = Tract 4212.02 - 03

Source: U.S. Department of Commerce, Bureau of the Census
Economic Strategies Group

TABLE 3-5

HOUSEHOLDS BY INCOME GROUP

	Maricopa County	City of Mesa	Subject Area	Subarea 1	Subarea 2	Subarea 3	Subarea 4&5	Subarea 6
Total Households	808,162	107,717	3,488	874	493	1,409	379	303
Less than \$10,000	12.5%	11.1%	8.4%	9.2%	1.6%	10.6%	9.6%	5.9%
\$10,000 - \$14,999	8.7%	8.7%	7.6%	4.7%	6.1%	9.6%	11.9%	4.6%
\$15,000 - \$24,999	18.7%	20.2%	24.7%	31.0%	21.1%	19.6%	39.6%	20.8%
\$25,000 - \$34,999	16.8%	18.3%	19.5%	19.2%	17.6%	22.1%	18.1%	14.5%
\$35,000 - \$49,999	18.8%	19.8%	24.1%	25.8%	30.4%	24.2%	15.1%	14.2%
\$50,000 - \$74,999	15.3%	15.0%	10.0%	8.5%	11.8%	11.1%	5.7%	10.3%
\$75,000 or More	9.2%	6.9%	5.7%	1.6%	11.4%	2.8%	0.0%	29.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

NOTE: Subareas are defined in terms of 1990 Census Tracts.

Area 1 = Tract 4211.01 - 1

Area 2 = Tract 4211.03

Area 3 = Tracts 4212.01 - 2 and 4212.01 - 3

Areas 4&5 = Tract 3184.2 (allocated at 80.67% of entire block group based on block population data figures)

Area 6 = Tract 4212.02 - 03

**TABLE 3-6
HOUSING INVENTORY AND VALUE**

Units in Structure	Maricopa County	City of Mesa	Subject Area	Subarea 1	Subarea 2	Subarea 3	Subarea 4&5	Subarea 6
Total Housing Units	952,041	140,468	3,885	1,000	523	1,556	436	343
1-Unit, Detached	504,296	59,550	1,229	272	400	358	21	151
1-Unit, Attached	69,756	7,975	471	52	86	169	78	86
2 - 4 Units	53,346	8,845	354	107	17	118	58	54
5 - 9 Units	43,027	7,295	102	8	7	80	1	6
10 or More Units	183,993	26,696	995	122	10	814	5	44
Mobile Home, Trailer, Other	97,623	30,107	734	439	3	17	273	2
1-Unit, Detached	53.0%	42.4%	31.6%	27.2%	76.5%	23.0%	4.8%	44.0%
1-Unit, Attached	7.3%	5.7%	12.1%	5.2%	16.4%	10.9%	17.9%	25.1%
2 - 4 Units	5.6%	6.3%	9.1%	10.7%	3.3%	7.6%	13.3%	15.7%
5 - 9 Units	4.5%	5.2%	2.6%	0.8%	1.3%	5.1%	0.2%	1.7%
10 or More Units	19.3%	19.0%	25.6%	12.2%	1.9%	52.3%	1.1%	12.8%
Mobile Home, Trailer, Other	10.3%	21.4%	18.9%	43.9%	0.6%	1.1%	62.7%	0.6%
Totals	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Value								
Specified Owner-Occupied Units	420,804	48,917	1,159	236	343	339	50	174
Less Than \$50,000	39,867	2,310	130	18	12	46	13	41
\$50,000 - \$99,999	240,939	31,407	810	196	239	290	37	32
\$100,000 - \$149,000	84,760	11,150	142	9	59	2	0	71
\$150,000 - \$199,999	27,786	2,390	45	9	21	1	0	14
\$200,000 - \$299,999	16,785	1,186	24	4	9	0	0	11
\$300,000 or More	10,667	474	8	0	3	0	0	5
Median Value	\$85,300	\$86,500	\$76,200	\$69,200	\$74,400	\$71,350	\$55,400	\$106,100
Less Than \$50,000	9.5%	4.7%	11.2%	7.6%	3.5%	13.6%	25.8%	23.6%
\$50,000 - \$99,999	57.3%	64.2%	69.9%	83.1%	69.7%	85.5%	74.2%	18.4%
\$100,000 - \$149,000	20.1%	22.8%	12.3%	3.8%	17.2%	0.6%	0.0%	40.8%
\$150,000 - \$199,999	6.6%	4.9%	3.9%	3.8%	6.1%	0.3%	0.0%	8.0%
\$200,000 - \$299,999	4.0%	2.4%	2.1%	1.7%	2.6%	0.0%	0.0%	6.3%
\$300,000 or More	2.5%	1.0%	0.7%	0.0%	0.9%	0.0%	0.0%	2.9%
Totals	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

3.2.2 Public Facilities

Schools

Subareas 1, 2, 3, and 6 are served by schools of the Mesa School District. Subarea 4 is served by the Tempe School District. Specifically, the following schools are used by residents of the area:

- Whittier Elementary School at Eighth Street and Longmore;
- Webster Elementary School at Sycamore, south of University Drive;
- Whitman Elementary School at Grand and Juniper;
- Emerson Elementary School at University Drive and Westwood;
- Carson Junior High School north of Emerson Elementary School on Westwood; and
- Westwood High School at Westwood and Eighth Street.

All of these schools are located outside the study area. Local access to the schools is provided by the major north-south streets through the area in addition to Eighth Street, University Drive and minor roads and streets throughout the area.

The schools of Mesa School District are also used after regular school hours for a number of activities. These activities include after school daycare programs operated by the Mesa YMCA; sports programs operated by City of Mesa Parks and Recreation Department; and Community Education programs offered by the Community Education Department of the School District.

Recreation Areas

Public recreational facilities in the study area include Riverview Park and Riverview Golf Course. Riverview Park is a public multi-use park providing a lake for urban fishing, playground areas, four baseball diamonds, parking areas, restroom facilities, and ancillary open space with trails and pathways. Riverview Golf Course is a nine-hole public golf course with club house and parking facilities. Both recreational facilities are intensively used by the local community. The baseball fields serve as the location of baseball and softball games during the season for teams and local groups from northwest Mesa and the Mesa School District area. These facilities are discussed further in Section 3.3.

Churches

There are two churches within the study area. One is located on Evergreen Road north of University Drive. Another occupies several commercial units in the development at 1533 Country Club Drive.

Police and Fire Protection

The existing fire and police protection services in the study area are provided by the City of Mesa and the City of Tempe. Fire stations that serve this area are Mesa Fire Station #3, located at 1340 West University Drive, and Tempe Fire Station #1, located at University Drive and Rural Road. These services lie to the south of the study area. Access routes to the area include University Drive and the major arterial roads through the study area. Rural Metro responds to calls for police service in the county portions of the study area. Their Station #59 is located at 10310 East Apache Trail.

3.2.3 Business and Economic Activity

The study area contains businesses that, in total, provide 1,270 jobs and occupy approximately 1,000 acres of land and almost 600,000 square feet of building space. This economic activity is concentrated almost entirely in Subareas 1 and 5. A description of the economic characteristics of each subarea is summarized below. More specific information on the economic activity is contained in a separate technical report.

Subarea 1

Subarea 1 contains the largest share of economic activity in the entire study area. This economic activity is defined by 370,050 square feet of building space and 776 jobs, which represent 61 percent of the study area's jobs and 62 percent of its building space. This employment activity is concentrated immediately south of the Salt River and along the western frontage of State Route 87. The portion near the river primarily contains industrial activities, both sand and gravel operations and light industrial firms. In February 1993, this area contained 320,200 square feet of building space and 571 jobs. The area along State Route 87 contains almost 50,000 square feet of building space and 205 jobs. Typical businesses include service retail and highway-related establishments.

A major economic activity in this subarea is the sand and gravel operations along the south bank of the Salt River. These businesses include the following:

- Associated Trading Companies (11.25 acres). Hurley Trucking (38 employees) and Shields Trucking (2 employees) move materials from mines to processing facilities and to ultimate end-users in the northeast and southeast portions of the urban area.
- Arizona Crushing Company (ACCO) (12 acres). This company is located north of McKellips Road and west of State Route 87. With 50 employees, it processes and sells aggregate materials to other companies. There is no active mining on this parcel. All materials are purchased from the Salt River Indian Community to the north.
- Cashway Concrete and Materials (11 acres). This is a sister company to Arizona Crushing Company and is located on adjacent property. The company operates a ready-mix concrete plant and uses a fleet of mixer trucks. Materials are purchased from ACCO. The firm has 60 employees.
- Mesa Sand and Rock (37 acres). This company operates an active pit to the west of State Route 87 immediately south of the Salt River. The business is a family operation of long standing at this location. Mineral materials are mined from the river channel. Additional aggregate is purchased off-site and brought on-site for processing. The company produces and transports ready-mix concrete. The plant operates on a mining patent from the Bureau of Land Management that runs for the duration of the reserves.

Subarea 2

The major land uses in Subarea 2 are the Mesa Country Club and the surrounding single family residences. A small number of commercial establishments are located on the frontage along State Route 87. These economic activities are similar in nature to the businesses on State Route 87 that are described in Subarea 1.

Subarea 3

This subarea is comprised entirely of residential uses. No employment-generating activity is present.

Subarea 4

This subarea contains mobile homes and multifamily residential areas. Only one employment-generating activity exists.

Subarea 5

This subarea is mostly a mixture of nonresidential uses that total 85,000 square feet of building space and provide 377 jobs. Sand and gravel operations dominate the economic activity. The mining operations include the following:

- CALMAT (70 Acres). This company owns a gravel pit south of the Salt River that is currently inactive. When in production, seventy-five employees are assigned to this site. Materials extracted from this pit are transported across the dry Salt River bed and processed at the plant operated by the Salt River Pima Maricopa Indian Community on the north bank of the river. CalMat has sold its mining patent to the Indian Community.
- Johnson Stewart Johnson (63 acres). This property is located on both sides of Alma School Road south of the Salt River. The subsurface mining and use of surface rights are leased to Sunward Materials, the American operating company of CeMex, a Mexican company. Sunward employs 120 persons at this site. The aggregate materials are mined from the westerly parcel and trucked to the materials production plant east of Alma School Road.

3.3 Section 4(f)/Section 6(f) Lands

3.3.1 Section 4(f) and Section 6(f) Provisions

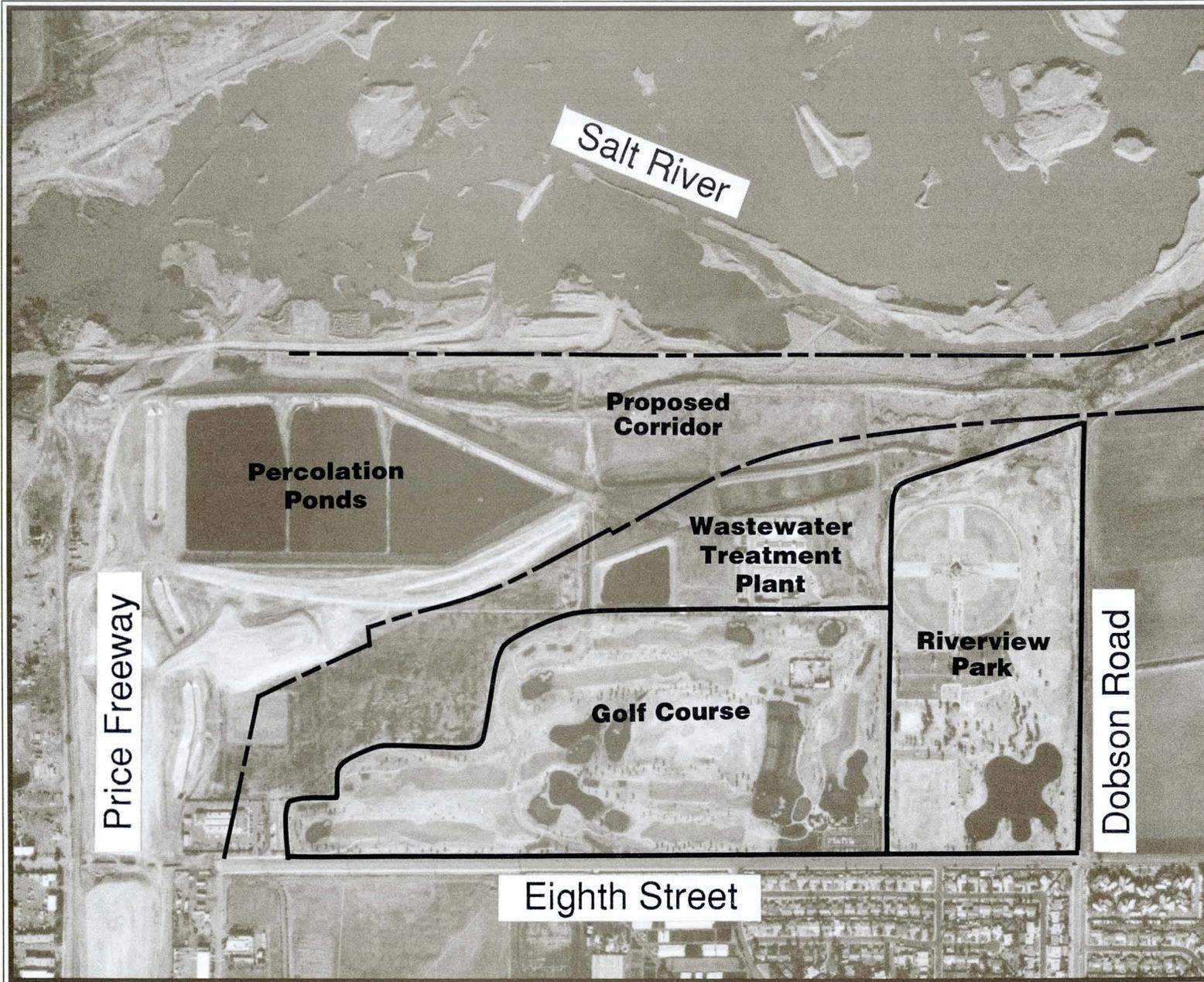
Provisions of Section 4(f) of the Department of Transportation Act of 1966 apply to publicly-owned public parks, recreational areas, and wildlife refuges, and to all historic sites, of national, state, or local significance. As stated in 23CFR 771.135, the Federal Highway Administration may not approve the use of lands in these categories "unless a determination is made that: (i) there is no feasible and prudent alternative to the use of land from the property; and (ii) the action includes all possible planning to minimize harm to the property resulting from such use."

Section 6(f) of the Land and Water Conservation Fund (LWCF) Act stipulates that "no property acquired or developed with LWCF assistance shall be converted to other than public outdoor recreation uses without the approval of the Secretary of the Interior and the substitution in accord with the Statewide Comprehensive Outdoor Recreation Plan (SCORP) of other recreation properties of at least equal fair market value and of reasonable equivalent usefulness and location."

3.3.2 Section 4(f) Lands in Study Area

Two related sites that fall within the definition of Section 4(f) are located within the study area. These facilities are the Riverview Park and the Riverview Golf Course, which are situated in the western end of the area between the Pima Freeway and Dobson Road. Riverview Park is a public multi-use park that lies immediately west of the extension of Dobson Road between Eighth Street and the Salt River. The golf course is immediately west of the park and north of Eighth Street. The locations are shown in Figure 3-6 (page 3-26).

Riverview Park is rectangular in shape, with a triangular piece at the northern end, covering an area of approximately 53 acres. It is owned and operated by the City of Mesa and functions as a community park and recreation area. Access to the facility is provided by Eighth Street. The eastern boundary lies along the unimproved extension of Dobson Road.



**RED MOUNTAIN
FREEWAY**

ENVIRONMENTAL
IMPACT STATEMENT

0 feet 400' 800' 1200'
approx.



**Section 4(f)/6(f)
Lands**

Figure 3-6

Facilities provided on the park site include softball fields, a disk golf course, basketball courts, a soccer and football field, an exercise course, picnic facilities, children's playground areas, a lake, restroom accommodations and parking. The seven-acre lake is situated in the southeastern portion of the site. This facility is part of the urban fishing program that is sponsored by the Arizona Game and Fish Department. According to city records, fifteen to thirty persons daily use the lake for fishing. Directly north of the lake is a one-acre playground, which is used by an estimated fifteen to thirty children daily.

A soccer field is situated west of the lake. This field is used for 50 weeks per year, with two weeks reserved for maintenance. Four softball fields occupy a complex in the northern portion of the park. Softball leagues use the fields five nights a week. Tournaments, which usually are attended by approximately 300 players and spectators, are held during 45 weekends each year. The disk golf course and exercise course are located north and east of the softball fields.

The triangular portion of the property situated at the northern edge north of the property is currently undeveloped and unused. No additions to the area of the park are planned by the city. Improvements to the existing facility may be made as needed. At the time of purchase by the city, a restriction was placed on the property providing that no lights would be installed along the eastern edge of the park.

Riverview Park is not located near similar facilities. The nearest City of Mesa park is over 3 miles away. Views from the park include the residential area to the south, the Mesa Waste Water Treatment Facility and the Price Freeway to the west, the dry Salt River channel and its gravel pits to the north, and agricultural lands to the east.

The Riverview Golf Course is situated on approximately 67 acres immediately west of the southern portion of the park. This facility provides a pro shop and nine holes for the use of golfers in the area. The course is managed by the City of Mesa and is open to the public on a fee basis.

As shown on Figure 3-6 and further described in Section 4.5, neither build alternative would have direct impacts on these facilities. Indirect impacts related to air quality, noise, and visual issues, and their mitigation, are also described in Section 4.5.

3.3.3 Section 6(f) Lands in Study Area

One site that falls within the definition of Section 6(f) is located within the study area. This facility is Riverview Park, which is described above in Section 3.3.2. Land and Water Conservation Funds were used for a portion of the park improvements. As shown in Figure 3-6, and further described in Section 4.5, neither build alternative would have direct impacts on these facilities.

3.4 Air Quality

3.4.1 Relevant Pollutants

Air quality impacts are quantified by the determination of air pollution levels. Air pollution is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants degrade the atmosphere by reducing visibility, damaging property, reducing the productivity or vigor of crops or natural vegetation, or by reducing human or animal health.

Seven air pollutants have been identified by the U.S. Environmental Protection Agency (EPA) as being of concern nationwide: carbon monoxide, hydrocarbons, nitrogen oxides, ozone, particulate matter, sulfur oxides, and lead.

Carbon Monoxide

Carbon monoxide (CO) is a colorless and odorless gas which is generated in the urban environment primarily by the incomplete combustion of fossil fuels in motor vehicles. Relatively high concentrations of CO are typically found near crowded intersections and along heavily used roadways carrying slow-moving traffic. CO chemically combines with the hemoglobin in the red blood cells to decrease the oxygen-carrying capacity of the blood. Prolonged exposure can cause headaches, drowsiness, or loss of equilibrium.

Hydrocarbons

Hydrocarbons (HC) include a wide variety of organic compounds emitted principally from the storage, handling, and use of fossil fuels. Though HC can cause eye irritation and breathing difficulty, their principal health effects are related to their role in the formation of ozone.

Nitrogen Oxides

Nitrogen oxides (NOx) constitute a class of compounds that includes nitrogen dioxide (NO₂) and nitric oxide (NO), both of which are emitted by motor vehicles. Although NO₂ and NO can irritate the eyes and nose and impair the respiratory system, NOx is also of concern primarily because of its role in the formation of ozone.

Ozone

Ozone (O₃), or photochemical oxidants, is a major cause of lung and eye irritation in an urban environment. It is formed through a series of reactions involving HC and NO_x which take place in the atmosphere in the presence of sunlight. Relatively high concentrations of O₃ are normally found only in the summer.

Particulate Matter

Particulate matter includes both liquid and solid particles of a wide range of sizes and composition. Of particular health concern are those particles which are smaller than or equal to 10 microns (PM₁₀) in size. The principal health effects of airborne particulate matter are on the respiratory system. Relatively little particulate matter is emitted by gasoline-fueled motor vehicles.

Sulfur Oxides

Sulfur oxides (SO_x) constitute a class of compounds of which sulfur dioxide (SO₂) and sulfur trioxide (SO₃) are of great importance. The health effects of SO_x include respiratory illness, damage to the respiratory tract, and bronchio-constriction. Relatively little SO_x is emitted from motor vehicles.

Lead

Lead is a stable element which persists and accumulates both in the environment and in animals. Its principal effects in humans are on the blood-forming, nervous, and renal systems. Motor vehicles constitute the major source of lead emissions to the atmosphere. Lead levels in the urban environment are decreasing as a result of the switch to lead-free gasoline.

3.4.2 Air Quality Regulations and Planning

Clean Air Act Amendments of 1990

The Clean Air Act Amendments of 1990 (Amendments) direct the EPA to implement strong environmental policies and regulations that will ensure cleaner air quality. These Amendments will affect proposed transportation projects such as the Red Mountain Freeway. According to Title I,

Section 101, Paragraph F of the Amendments, "No federal agency may approve, accept or fund any transportation plan, program or project unless such plan, program, or project has been found to conform to any applicable (state) implementation plan (SIP) in effect under this act." Title I of the Amendments defines conformity as follows:

1. Conformity to an implementation plan's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards (NAAQS) and achieving expeditious attainment of such standards.
2. Such activities will not:
 - (i) cause or contribute to any new violation of any National Ambient Air Quality Standard (NAAQS) in any area:
 - (ii) increase the frequency or severity of any existing violation of any NAAQS in any area;
 - (iii) delay timely attainment of any NAAQS or any required interim emissions reductions or other milestones in any area.

Federal Attainment Status and Implementation Plans

Within the Maricopa County Urban Planning Area, carbon monoxide continues to be a significant air pollution problem during the winter months. The area is currently classified as a moderate nonattainment area for CO under the new clean air act amendments. As such, it is required to attain the CO standard by December 31, 1995.

In the Phoenix Metropolitan Area, ozone monitoring data reflect a gradual decrease in concentrations between 1981 and 1989, followed by no change in 1990 and 1991. The area is currently classified as a moderate nonattainment area for ozone under the new clean air act amendments. As such, it is required to attain the ozone standard by November 15, 1996.

The Maricopa County Urban Planning Area was formally designated as a nonattainment area for particulates in April 1974. While the area experienced no violations of the 24-hour PM10 standard in

1991, it has been classified as a moderate nonattainment area under the New Clean Air Act. As such it must demonstrate a plan that will provide for attainment by December 31, 1994 or that will show that attainment by that date is impractical.

The Maricopa Association of Governments (MAG) submitted an attainment plan for particulate matter on November 15, 1991. The EPA declared the MAG plan deficient in February, 1992. EPA gave MAG 18 months to correct deficiencies in the plan. The corrections were submitted on August 4, 1993. EPA must make a completeness finding on the submitted plan.

The plan submitted to EPA contained only commitments from local governments and did not demonstrate attainment by the specified date. Commitments are still needed from the Legislature to implement state measures with large scale impacts. The 1994 goal for attainment requires a 23.1% reduction in emissions. The reduction generated with only local support is estimated to be 4.7%.

National and State Ambient Air Quality Standards

The EPA has established primary and secondary ambient air quality standards for six "criteria" pollutants. Primary standards for the protection of human health and secondary standards for the protection of human welfare have been established for carbon monoxide, ozone, inhalable particulates, nitrogen dioxide, sulfur oxides and lead. National Ambient Air Quality Standards for pollutants pertinent to the Phoenix area are shown in Table 3-7.

**TABLE 3-7
NATIONAL AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Time	Primary Standard	Secondary Standard
Carbon Monoxide	8-hour	9 ppm	same as primary
	1-hour	35 ppm	same as primary
Ozone	1-hour	0.12 ppm	same as primary
Particulate Matter	annual mean	50 pg/m3	same as primary
	24-hour average	150 pg/m3	same as primary

ppm = parts per million
pg/m3 = microgram/cubic meter

Source: Arizona Department of Transportation

3.4.3 Ambient Air Quality in the Study Area

Local Meteorology

The nature of the surrounding atmosphere is an important element in assessing the ambient air quality of an area. The project is located in the Maricopa County Urban Planning Area. This area is situated in the middle of the Salt River Valley airshed on a broad, oval-shaped flat plain, which is almost completely surrounded by mountain ranges. The airshed is relatively stable with minimal wind and air movement. This unique location subjects the study area to the meteorological phenomenon known as radiational or nocturnal temperature inversions.

Under normal lapse rate conditions (vertical temperature differentiation), the warmer air is located near the ground surface and as altitude increases, the air becomes colder. A natural mixing occurs as the warm air rises and displaces the colder air. The air movement created by natural mixing enables air pollutants to disperse into the atmosphere rather than concentrate at the ground level.

In the Maricopa County Urban Planning Area the normal lapse rate is inverted. As the sun sets, the surface of the earth rapidly loses heat and cools the lower atmosphere. The air immediately above the lower layer cools more slowly and consequently remains warmer. Forming a lid across the valley, the warm air traps the cold air near the ground surface and effectively eliminates convective circulation. As a result of the inversion conditions, the pollutants normally dispersed accumulate beneath the lid of warm air. After sunrise, the ground surface is reheated and the inversion is rapidly burned off. The temperature of the lower atmosphere increases as the warm air rises and the pollutants are then dispersed through natural vertical mixing.

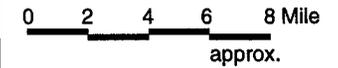
While the radiational temperature inversions occur throughout the entire year, the worst inversions occur during the winter months from October through February. Multi-day inversion conditions sometimes occur. The time of day that the inversions typically occur are from 5:00 p.m. through 9:00 a.m.

Monitored Air Quality

Air pollutant levels throughout Maricopa County, Arizona are monitored by a network of sampling stations operated under the supervision of the Office of Environmental Services, Bureau of Air Pollution Control. The monitoring locations in the study area are shown in Figure 3-7 (page 3-33). The 1989-1991 air quality data are summarized in Table 3-8.

RED MOUNTAIN FREEWAY

ENVIRONMENTAL IMPACT STATEMENT



GRAPHIC LEGEND

- 1 1845 E Roosevelt, Phoenix
- 2 4732 S Central, Phoenix
- 3 3315 W Indian School, Phoenix
- 4 6000 W Olive, Glendale
- 5 3847 W Earl, Phoenix
- 6 601 E Butler, Phoenix
- 7 13665 N Scottsdale, Scottsdale
- 8 2857 N Miller, Scottsdale
- 9 Broadway and Brooks, Mesa
- 10 1826 W McDowell, Phoenix
- 11 24301 N Alma School, Scottsdale
- 12 1475 E Pecos, Chandler
- 13 8915 W Union Hills, Peoria
- 14 2039 W Lewis, Phoenix
- 15 2035 N 52nd Street, Scottsdale
- 16 600 N 40th Street, Phoenix
- 17 4530 N 17th Avenue, Phoenix
- 18 27th Avenue/Grand/Thomas, Phoenix
- 19 10005 E Osborn, Scottsdale

Air Quality Monitoring Stations

Figure 3-7

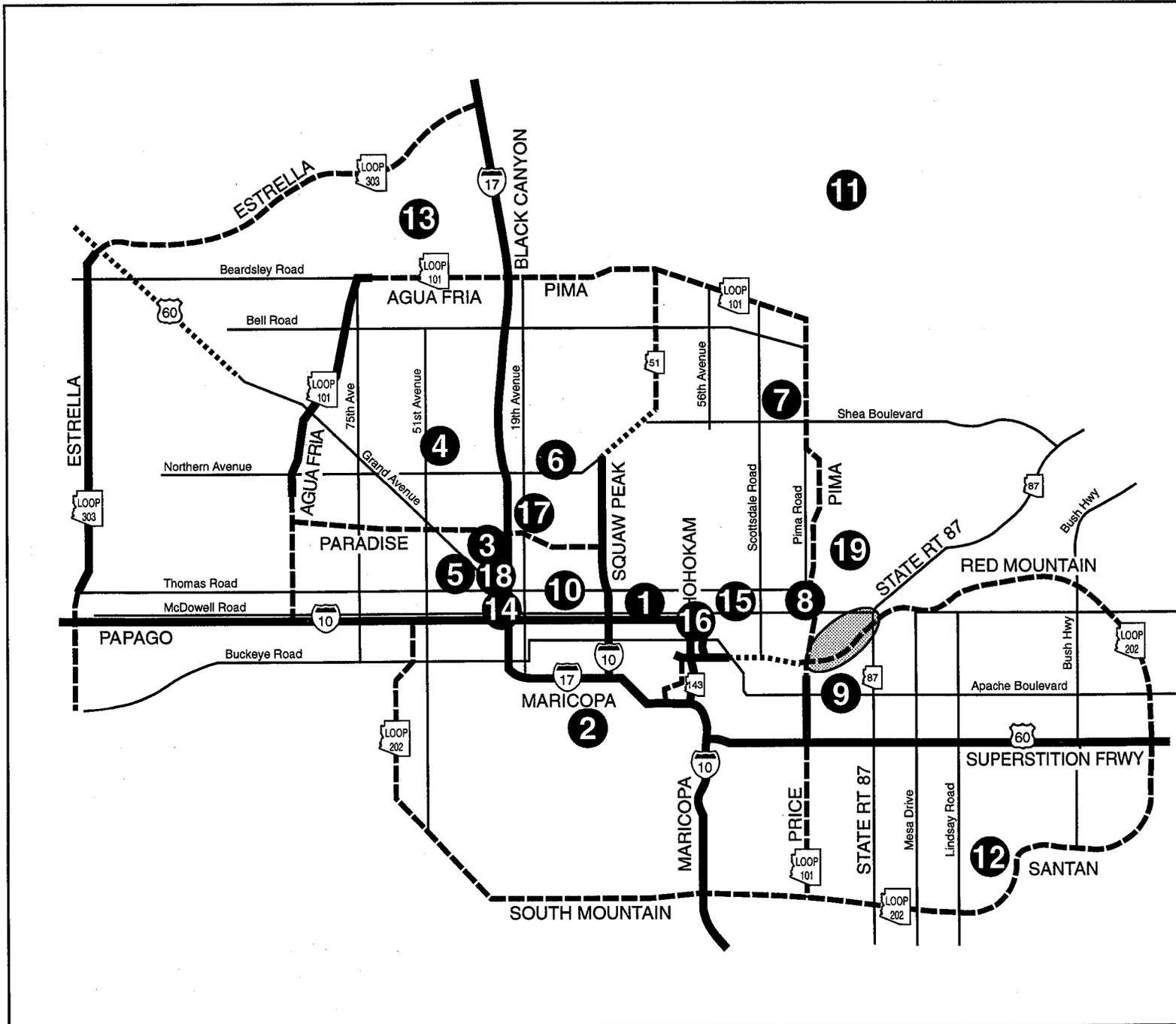


TABLE 3-8
MONITORED AIR QUALITY LEVEL

Station	Year	OZONE (PPM)				PM - 10				CARBON MONOXIDE (PPM)					
		1 Hr	Max. 2nd	# of	# of	Max. 24 hr.	Annual Arithmetic	# of Exceedences	# of samples	1 Hour Avg.		8 Hour Avg.		# of	Number of
		Max	HI day	exceedences	samples	Average (ug/m3)	Average (ug/m3)	of 24 Hr. Standard	analyzed	MAX	2nd HI	MAX	2nd HI	Exceedences	Samples
Glendale W.Olive	1989	0.10	0.10	0.0	8257.0	99.0	37.0	0.0	44.0	14.0	12.0	8.0	5.7	0.0	8543.0
	1990	0.10	0.10	1.0	8026.0	82.0	46.0	0.0	16.0	8.4	7.7	5.0	4.8	0.0	7697.0
	1991	0.11	0.11	0.0	8256.0	102.0	42.0	0.0	56.0	6.2	6.1	4.1	4.0	0.0	5341.0
Mesa Broadway	1989	0.10	0.10	0.0	8282.0	NR	NR	NR	NR	14.0	12.0	8.0	5.7	0.0	8543.0
	1990	0.10	0.10	0.0	7364.0	64.0	37.0	0.0	56.0	5.1	3.4	2.6	2.5	0.0	5293.0
	1991	0.10	0.09	0.0	5430.0	104.0	36.0	0.0	58.0	7.3	6.1	4.5	4.2	0.0	7635.0
Phoenix 52nd Street	1989	NA	NA	NA	NA	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	1990	2.00	1.00	5.0	2849.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	1991	0.11	0.11	0.0	4111.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Phoenix E.Roosevelt	1989	0.10	0.10	0.0	7778.0	NR	NR	NR	NR	15.0	14.0	11.2	10.3	2.0	8702.0
	1990	0.10	0.10	0.0	7800.0	NR	NR	NR	NR	13.2	12.7	9.5	8.8	0.0	8444.0
	1991	0.11	0.09	0.0	8387.0	99.0	47.0	0.0	47.0	10.7	10.5	9.2	7.8	0.0	7964.0
Phoenix E.Butler	1989	0.10	0.10	0.0	8458.0	NR	NR	NR	NR	16.0	14.0	6.4	6.0	0.0	8450.0
	1990	0.10	0.10	0.0	8553.0	NR	NR	NR	NR	11.6	11.3	5.6	5.5	0.0	8591.0
	1991	0.10	0.10	0.0	8408.0	118.0	45.0	0.0	57.0	10.6	10.4	5.7	5.2	0.0	8325.0
Phoenix N.40th St.	1989	0.10	0.10	0.0	3211.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	1990	0.20	0.10	6.0	2681.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	1991	0.11	0.11	0.0	4285.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Phoenix W.Earl	1989	0.10	0.10	0.0	8137.0	NR	NR	NR	NR	22.0	21.0	15.3	12.6	8.0	8056.0
	1990	0.10	0.10	1.0	8554.0	NR	NR	NR	NR	10.9	10.9	9.1	8.6	0.0	8177.0
	1991	0.11	0.10	0.0	8274.0	119.0	47.0	0.0	58.0	12.4	11.4	8.2	7.6	0.0	8571.0
Phoenix Indian Sch. Rd.	1989	NR	NR	NR	NR	NR	NR	NR	NR	18.0	17.0	13.1	12.2	18.0	7615.0
	1990	NR	NR	NR	NR	NR	NR	NR	NR	12.8	12.8	11.6	10.0	4.0	6239.0
	1991	NR	NR	NR	NR	NR	NR	NR	NR	16.1	15.1	9.8	9.8	3.0	8152.0
Phoenix S.Central	1989	0.10	0.10	0.0	8314.0	NR	NR	NR	NR	14.0	13.0	6.7	6.5	0.0	8522.0
	1990	0.10	0.10	1.0	7948.0	NR	NR	NR	NR	9.5	8.5	5.4	5.3	0.0	8177.0
	1991	0.11	0.11	0.0	8040.0	76.0	44.0	0.0	59.0	10.0	8.4	5.6	5.4	0.0	8107.0

TABLE 3-8
MONITORED AIR QUALITY LEVEL
 (Continued)

Station	Year	OZONE (PPM)				PM - 10				CARBON MONOXIDE (PPM)					
		1 Hr	Max. 2nd	# of	# of	Max. 24 hr.	Annual Arithmetic	# of Exceedences	# of samples	1 Hour Avg.		8 Hour Avg.		# of	Number of
		Max	HI day	exceedences	samples	Average (ug/m3)	Average (ug/m3)	of 24 Hr. Standard	analyzed	MAX	2nd HI	MAX	2nd HI	Exceedences	Samples
Scottsdale N.Miller	1989	0.10	0.10	0.0	7567.0	NR	NR	NR	NR	12.0	11.0	7.2	6.9	0.0	8671.0
	1990	0.10	0.10	0.0	8390.0	NR	NR	NR	NR	11.9	10.8	7.8	7.7	0.0	8200.0
	1991	0.12	0.11	0.0	7092.0	81.0	44.0	0.0	57.0	10.3	9.5	6.2	5.3	0.0	8338.0
Scottsdale N.Scottsdale	1989	0.10	0.10	0.0	8677.0	NR	NR	NR	NR	8.0	8.0	4.4	4.2	0.0	8250.0
	1990	0.10	0.10	0.0	8552.0	NR	NR	NR	NR	5.9	5.9	3.0	2.9	0.0	8699.0
	1991	0.11	0.10	0.0	7818.0	147.0	38.0	0.0	57.0	6.8	6.0	3.8	3.1	0.0	8697.0
Scottsdale N.Alma Sch.	1989	0.10	0.10	0.0	8218.0	NR	NR	NR	NR	5.0	5.0	4.3	3.8	0.0	5623.0
	1990	0.10	0.10	0.0	7868.0	NR	NR	NR	NR	5.5	5.1	1.9	1.8	0.0	2420.0
	1991	0.09	0.09	0.0	6452.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Central Phoenix	1989	NR	NR	NR	NR	137.0	56.0	0.0	60.0	NR	NR	NR	NR	NR	NR
	1990	NR	NR	NR	NR	87.0	47.0	0.0	37.0	NR	NR	NR	NR	NR	NR
	1991	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
South Phoenix	1989	NR	NR	NR	NR	116.0	55.0	0.0	61.0	NR	NR	NR	NR	NR	NR
	1990	NR	NR	NR	NR	94.0	39.0	0.0	53.0	NR	NR	NR	NR	NR	NR
	1991	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
West Phoenix	1989	NR	NR	NR	NR	228.0	70.0	3.0	56.0	NR	NR	NR	NR	NR	NR
	1990	NR	NR	NR	NR	100.0	47.0	0.0	59.0	NR	NR	NR	NR	NR	NR
	1991	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
North Phoenix Scottsdale	1989	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	1990	NR	NR	NR	NR	101.0	47.0	0.0	58.0	NR	NR	NR	NR	NR	NR
	1991	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
South Scottsdale	1989	NR	NR	NR	NR	103.0	42.0	0.0	60.0	NR	NR	NR	NR	NR	NR
	1990	NR	NR	NR	NR	69.0	39.0	0.0	57.0	NR	NR	NR	NR	NR	NR
	1991	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
North Scottsdale	1989	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	1990	NR	NR	NR	NR	95.0	34.0	NR	53.0	NR	NR	NR	NR	NR	NR
	1991	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Within the Maricopa County Urban Planning Area, carbon monoxide continues to be a significant air pollution problem during the winter months. While CO levels have generally decreased during the past three years, three exceedances in 1990 of the 8-hour CO standard were reported at the Phoenix-West Indian School Road Site. Based upon the monitored data, it is apparent that the levels of carbon monoxide closely parallel the intensity of the temperature inversion. As the inversion conditions increase in severity, carbon monoxide levels also increase. It should be noted however, that the carbon monoxide levels begin to decrease at approximately 11:00 p.m. even though intense conditions still persist. There are two factors which cause the decrease in carbon monoxide levels. The first factor is a shift in wind direction from the west to the east which generally occurs between 10:00 p.m. and 12:00 a.m. As the wind direction changes, velocity almost doubles and disperses the carbon monoxide. The second factor is a significant decrease in traffic volumes in the late evening hours. Phoenix is currently classified as a moderate nonattainment area for CO under the new Clean Air Act Amendments. As such it is required to attain the CO standard by December 31, 1995.

In the Phoenix metropolitan area ozone monitoring data reflect a gradual decrease in concentrations from 1981 through 1989, followed by no change in 1990 and 1991. Phoenix is currently classified under the new Clean Air Act Amendments as a moderate non-attainment area for ozone. As such it is required to attain the ozone standard by November 15, 1996.

In general, ozone violations in the nonattainment area occur from May through October. During these months, temperatures are high and there is very little cloud cover. Wind speeds may be very slow. When they decline to five miles per hour or less, these slow wind speeds produce stagnant air masses that trap the ozone pollution. Consequently, ozone concentrations tend to rise and exceedances may occur.

The time of day that most exceedances are recorded is from 1:00 p.m. to 5:00 p.m. Temperatures are highest during this afternoon time period. The general direction of ozone movement through the nonattainment area appears to be from east to west. This movement is resultant from the direction of the prevailing winds.

Within the Maricopa County area, particulate pollution continues to be a significant air pollution problem throughout most of the year. Particulate pollution is composed of solid particles or liquid droplets which are small enough to remain suspended in the air. In general, the particulate pollution may include dust, soot, and smoke which may be irritating but not usually poisonous. Particulate pollution may also include bits of solid or liquid substances that may be highly toxic. The formation of particulate pollution or fine particles suspended in the air is dependent upon several factors. Among these factors are stagnant air masses, low winds in the winter and high winds in the summer, severe temperature inversions, and fine silty soils characteristic of desert locations.

3.5 Noise

3.5.1 Noise Criteria

The basic unit for the measurement of sound is the decibel (dB). For purposes of assessing noise impacts, a weighting curve known as the A-weighted scale has been developed for use in approximating the sensitivity of the average human ear. The base measurement for community and transportation noise is the A-weighted decibel (dBA).

Although the basic unit of measurement is the dBA, various communities use noise metrics, calculated from A-weighted decibels, that are more representative of a particular noise source and environment. The measurement scale used by the Federal Highway Administration (FHWA) is the "equivalent noise level" (Leq). Leq is calculated by averaging the dBA noise levels measured over a specified period of time. FHWA and ADOT assess freeway noise levels in terms of a 1-hour Leq, which is the average of instantaneous dBA sound levels measured over the period of one hour.

Noise sensitive land uses and activities in the vicinity of highway projects must be identified and analyzed. Anticipated changes in noise levels for these sensitive areas must be identified during design hour conditions. Design hour usually refers to the time when the noise levels are expected to be the highest, which generally is the peak traffic hour. ADOT currently follows the FHWA Noise Abatement Criteria (NAC). These criteria specify noise levels considered to be the upper levels of acceptability for outdoor land uses and activities, as well as certain interior uses.

The FHWA noise abatement criteria are shown in Table 3-9. Noise impacts occur when predicted noise levels approach or exceed these criteria or when there is a substantial increase over existing noise levels. If either criterion is exceeded, abatement will be considered.

TABLE 3-9
FEDERAL HIGHWAY ADMINISTRATION
Noise Abatement Criteria (NAC)

Activity Category	Leq for Noisiest Traffic Hour	Description of Activity
A	57(Exterior)	Land 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.
D	--	Undeveloped lands.
E	52(Interior)	Residences, motels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Notes: Leq(h) is the one-hour energy equivalent sound level.

The interior noise levels (activity) apply to: (1) Indoor activities for those parcels where no exterior noise-sensitive land use or activity is identified, and (2) 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.

Source: 23 CFR 772

3.5.2 Existing Noise Levels

The existing noise environment was determined by a noise measurement survey conducted at three locations along the south side of the proposed project alignment. These locations represent the sensitive land uses that exist within the corridor. They include one recreational park, one mobile home park, and one single-family residential neighborhood. All lie within 500 feet of the proposed project centerline. These park and residential areas are FHWA Criteria Category B land uses and are considered the most noise sensitive receptors for this project. No Category A uses exist within the project area.

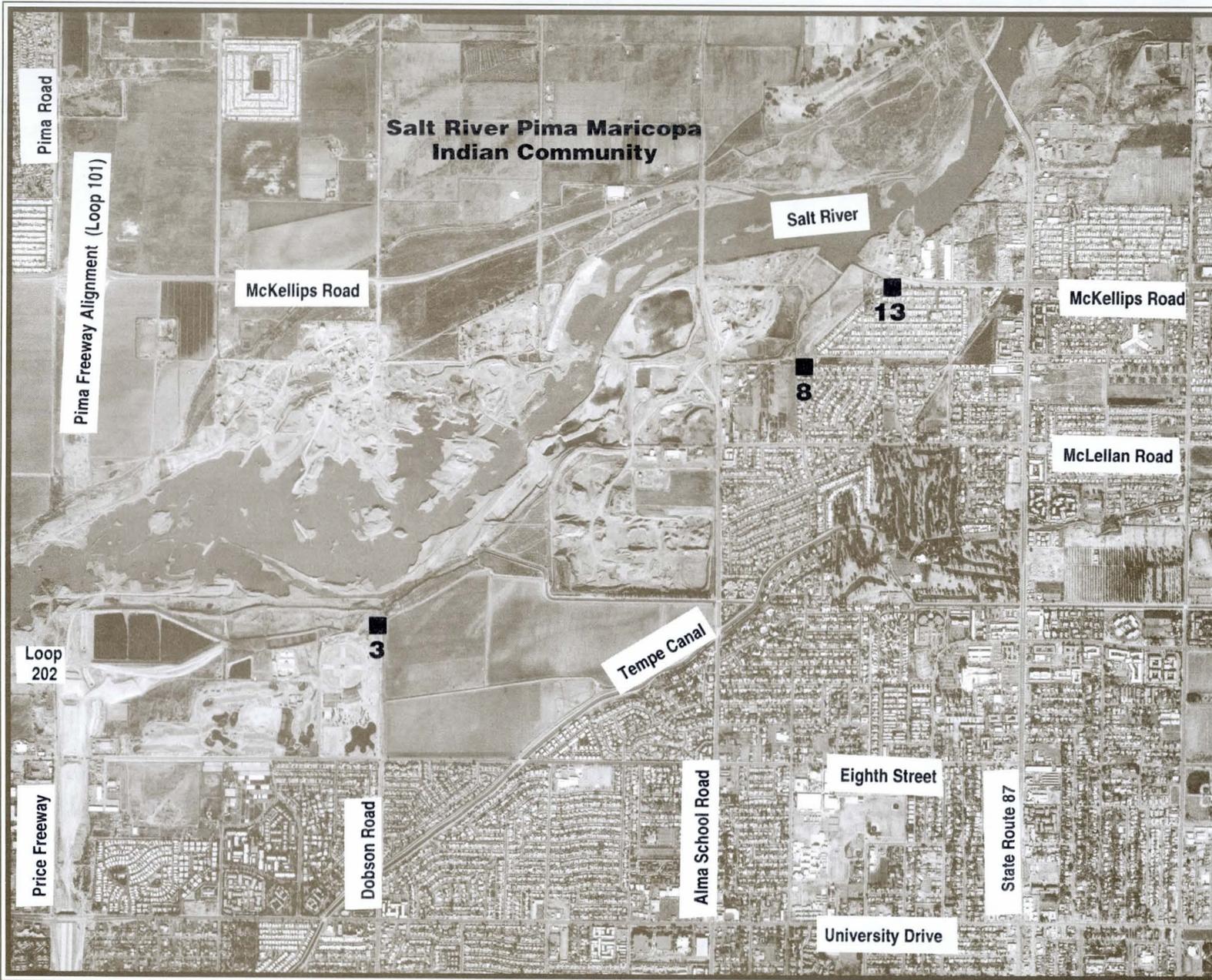
The location of the noise measurements is shown in Figure 3-8 (page 3-39). The site numbers are not sequential because an additional 13 modelled locations were added as part of the noise impact analysis, the results of which are described in Section 4.7. The 16 receptor locations are numbered sequentially from west to east. The measurement locations are the sites number 3, 8, and 13. They are briefly described below.

3. Riverview Park: This recreational park lies immediately south of the proposed corridor and west of the future Dobson Road alignment. The closest activities are a baseball field, a disk golf course, and an exercise course, all which lie within 200 feet of the proposed freeway centerline. A noise measurement was taken at the edge of the baseball field.

8. Inglewood Avenue: Approximately 20 single-family homes that are located along Inglewood, Greenbrier, and Markdale Streets could be impacted. The worst-case lot is within 200 feet of the proposed freeway centerline. No property walls exist in this neighborhood. A noise measurement was taken at the rear property line of the worst-case residence.

13. Mark Mobile Home Park: Located on McKellips Road west of State Route 87, this tract contains several hundred mobile home units. Approximately 35 homes and a playground lie within 75 feet of the proposed eastbound collector-distributor (C-D) road between McKellips Road and Alma School Road. The homes are partially shielded by an existing 5.5-foot block wall along the north property line. A noise measurement was taken at the inside of the wall adjacent to the playground.

The results of the noise measurement survey are presented in Table 3-10. The site numbers correspond to the measurement locations illustrated in Figure 3-8 (page 3-39). The values shown in Table 3-10 represent a sample of the noise environment. At one location, periodic noise from mining operations disrupted the readings. In order to assure that the future predictions represent only traffic noise, it was necessary to extract the mining effects from the measurement at Inglewood Avenue. The value at this site that is shown in Table 3-10 is two decibels lower than the value measured in the field. The project corridor is also subject to noise generated by aircraft departing Sky Harbor Airport. The noise meter was placed in the pause mode during these aircraft overflights. Failure to do so would have resulted in existing values equal to or higher than future project-related predictions.



**RED MOUNTAIN
FREEWAY**

ENVIRONMENTAL
IMPACT STATEMENT

0 feet 1200' 2400' 3600'
approx.



**Noise
Measurement
Locations**

Figure 3-8

The results of the noise measurement survey reveal that the existing Leq levels range from 58 dBA to 62 dBA. Highest existing noise levels are experienced at Riverview Park and are generated by park activity, distant aircraft traffic from Sky Harbor Airport, and distant traffic noise from Eighth Street. Noise levels at the other two receptors, were generated by occasional local traffic and resident activity. At the Inglewood Street site, distant aircraft activity was audible, but direct overflights were not included in the measurement.

TABLE 3-10
NOISE MEASUREMENT RESULTS
Leq Levels (dBA)

Receptor #	Site Name	Land Use	Station #	Existing Leq
3	Riverview Park	Recreation	113+00	62
8	Inglewood Street	Single Family	194+00	59 **
13	The Mark MHP	Mobile Homes	212+00	58

** These values originally included noise from adjacent quarry operations which increased levels by 2-3 dBA. 2 dBA was subtracted from the measurements to account for the quarry operation.

3.6 Water Resources

3.6.1 Surface Water

Watershed Description and Flow Characteristics

The proposed project lies along the south bank of the Salt River, which is the major surface water resource in the project area. This segment of the Salt River is just downstream of the confluence of the Salt and Verde Rivers, which is the point at which the Verde, Salt, and Middle Gila Basins join. West of the project area, the Salt River converges with the Agua Fria and the Gila Rivers. The combined waters then form the Gila River, which continues westward to its confluence with the Colorado River near Yuma.

The proposed project lies within the Middle Gila River Basin, which encompasses an area of approximately 12,150 square miles and includes the Phoenix metropolitan area. The location of the basin is illustrated in Figure 3-9 (page 3-43). Historically, agriculture was a major land use in this basin. However, urban population growth over the past thirty years has displaced much of the agricultural activity. Surface water diversions into the reservoirs on the Gila and Salt Rivers for agricultural and urban uses have left the streambeds in the Phoenix area dry. Surface water flow in the basin is limited to periodic releases from upstream reservoirs, wastewater treatment plants, agricultural return flows and runoff from storms on the watershed below the reservoirs.

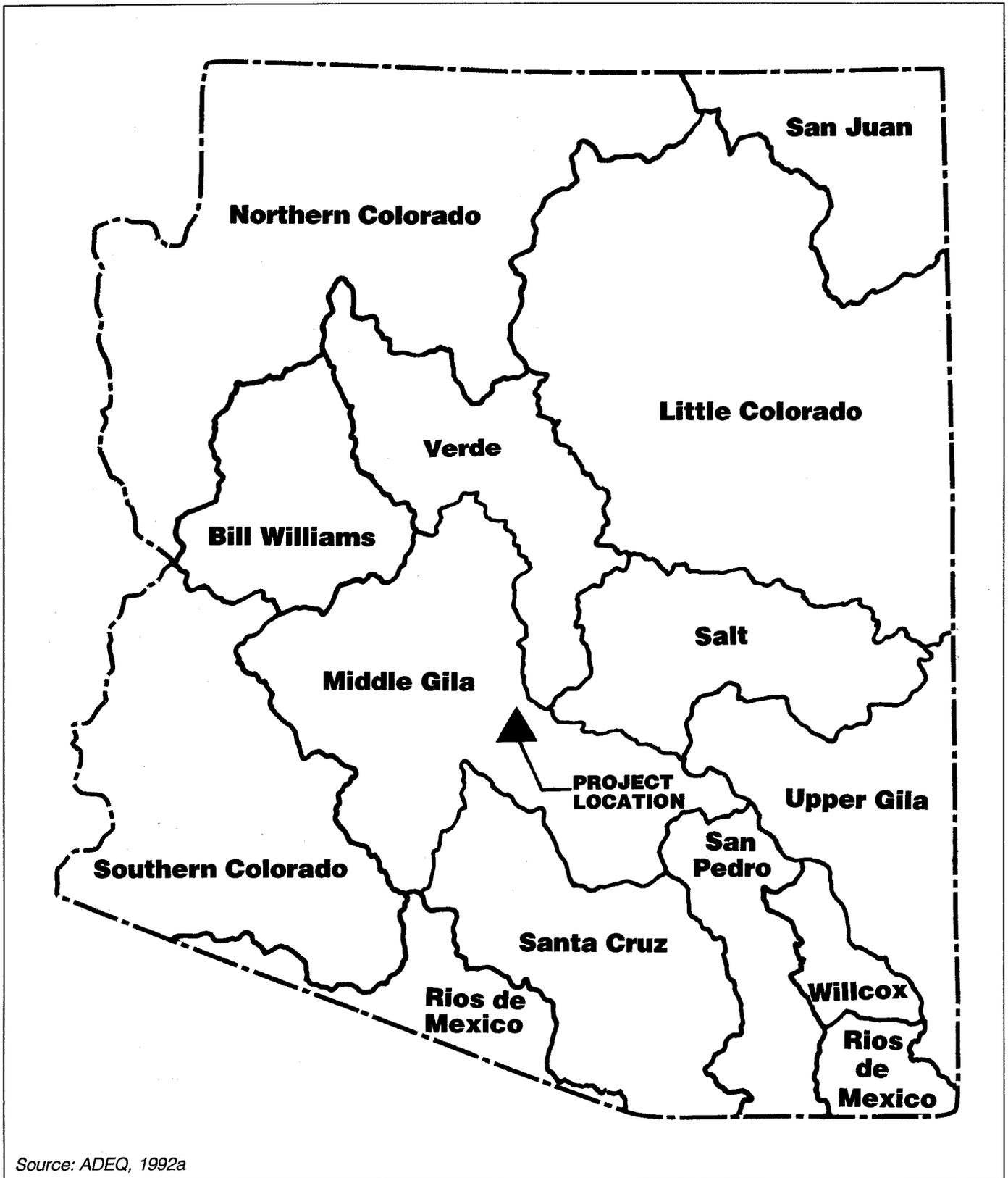
The nearby Salt River Basin encompasses approximately 6,300 square miles. The area is split evenly between tribal and national forest lands. The lower Salt River Basin contains Roosevelt Lake, Apache Lake, Saguaro Lake, and Canyon Lake. These reservoirs are a primary source of domestic and agricultural water for the metropolitan area.

The Verde River Basin encompasses approximately 6,650 square miles. A substantial portion of this basin is under the management of the U.S. Forest Service. Primary land uses are silviculture, recreation, irrigated agriculture, and mining. Bartlett and Horseshoe Reservoirs on the Verde River supply a portion of the water used in the metropolitan area.

Flow characteristics in the Salt River vary greatly from year to year. Flows are determined by the magnitude of the releases from the upstream reservoirs, which are in turn dependent upon snow and rainfall conditions on the watersheds. Historic data indicate that there were no releases between 1940 and 1965. During these years the Salt River channel through the metropolitan area remained completely dry. Between 1965 and 1992, flows have occurred as a result of higher rainfalls on the watersheds. These flows have ranged from rare major flood conditions to relatively small releases. Additional information on the historic floodflow is contained in Section 3.7.

Surface Water Quality

The quality of the water in the Salt and Verde Rivers is influenced by several factors. A principal source of salts has been traced to saline springs located above Roosevelt Lake. The name of the Salt River is derived from the historic discharges from these springs. Although the Salt River is naturally high in salts, mining and other activities in the watershed may also contribute to the problem.



Source: ADEQ, 1992a

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Surface Water Basins

ENVIRONMENTAL
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Figure 3-9

Water quality data for the Salt River below the Stewart Mountain Dam (USGS, 1993b) and for the Verde River below Bartlett Dam (USGS, 1993b) were reviewed to determine the non-attainment levels upstream of the proposed project. The Salt River was in non-attainment for dissolved oxygen for the sampling period of October 1988 to August 1992; for dissolved chloride from April 1990 to December 1991 (chloride salts may be naturally-occurring) for manganese, which exceeded the EPA standards in October 1989 for dissolved manganese, and in October 1989 and August through December 1990 for total recoverable manganese.

Water quality for the Verde River also indicates non-attainment for dissolved oxygen for the sampling period: total recoverable iron for much of the sampling period; total recoverable manganese from August 1989 to December 1990 and June 1991 to October 1991; and for dissolved manganese in August 1989 and October 1991.

The Verde River supplies high quality water, low in total dissolved solids (TDS), for agricultural and domestic purposes. A water quality trend analysis conducted between October 1976 and March 1987 by the U.S. Geological Survey in the Verde River Basin concluded that the watershed may be improving. Analysis of data collected near Horseshoe Dam, which is the site in the analysis area closest to the proposed project, indicated a reduction of TDS and sulfate concentrations from 1980 to 1987. Observed trends in other selected constituents did not indicate the existence of water quality problems in the Verde River Basin.

3.6.2 Groundwater

Groundwater Setting and Development

The principal aquifers in Arizona are composed of unconsolidated alluvium (alluvial aquifers), consolidated sedimentary rocks (sandstone aquifers), and crystalline igneous and metamorphic rocks (bedrock aquifers). These aquifers fall within three physiographic provinces of Arizona; the proposed project area is in the Basin and Range Lowlands Province.

Groundwater is a principal source of public water supplies in Arizona. In 1985, groundwater was 48 percent of the total withdrawal of 7.21 million acre feet. About 74 percent of the water pumped was used for agriculture. The remainder was used for public supply, industrial, domestic, and other purposes. Rapid population growth has resulted in cropland retirement and conversion of water supplies to urban uses. The availability of suitable quality and quantities of water has influenced the development of cities and croplands in Arizona. Agriculture depends heavily on groundwater for irrigation because the average annual rainfall is so low.

Review of USGS data for well water levels reveals that there are almost thirty wells within the project area for which data is available. The data indicate that the water well levels in the vicinity of the Salt River within the Red Mountain Freeway project limits range from 50 to 300 feet of depth from the surface. For one station location, the variation between the lowest and highest water level may vary by as much as 300 percent.

Groundwater Quality

Several areas within Arizona have groundwater quality problems. These include the presence of volatile organic compounds (VOCs); high nitrate levels; pesticide detections; high concentration of metals; and elevated levels of radiological parameters such as gross alpha and beta, radon and radium 226. The Phoenix area is among the regions of the state that contain the greatest number of potential contaminant sources. Urbanization and agricultural activities represent the two land uses with the greatest potential for contaminating groundwater.

For the Phoenix area, data summarizing the concentration of various water quality parameters have been analyzed for the period 1980 to 1991 by the Arizona Department of Environmental Quality (ADEQ). The parameters analyzed are often used to describe the general chemical composition and aesthetic characteristics of groundwater. Percentiles of the water quality parameters are compared to federal and state drinking water standards and state aquifer water quality standards [i.e. Primary and Secondary Maximum Contaminant Levels (MCL)] and state aquifer water quality standards, which are consistent with federal MCLs. The ADEQ analysis revealed the following results for the water quality parameters:

- Hardness (as CaCO_3): The concentration was approximately 400 mg/l for the 50th percentile (percentage of analyses equal to or less than indicated value) and approximately 1,500 mg/l for the 90th percentile.
- Total Dissolved Solids (TDS): The concentration was approximately 700 mg/l for the 50th percentile and approximately 1,400 mg/l for the 90th percentile. 500 mg/l is the secondary maximum concentration level for TDS.
- Nitrate (as $\text{NO}_3\text{-N}$): The concentration was approximately 8 mg/l for the 50th percentile and approximately 25 mg/l for the 90th percentile. the maximum concentration level for nitrate is 10 mg/l.
- Sulfate (as SO_4): The concentration was approximately 145 mg/l for the 50th percentile and approximately 280 mg/l for the 90th percentile. The secondary maximum concentration level for sulfate is 250 mg/l.

For the water quality parameters except TDS, the Phoenix area had the highest concentrations of 15 groundwater basins. Compared to the MCLs, the Phoenix area is presently in nonattainment for TDS, nitrate and sulfate. Groundwater contamination in Arizona for nitrate, sulfate and TDS are from the following sources:

- Application of nitrogen fertilizers for irrigated agriculture, use of septic systems, concentrated animal feeding operations, and wastewater treatment plants have resulted in widespread areas of nitrate concentration in groundwater above the State's Aquifer Water Quality Standard.
- Mining is a major contributor to sulfate contamination.
- Agriculture and mining are both major contributors to increases in TDS.

3.7 Floodplains

Floodplain conditions are related to the location of the proposed project along the south bank of the Salt River. This section describes this watercourse, summarizes the flooding history of the river, outlines the regulatory floodplain hydrology, and lists certain factors that may affect the flooding risk.

The following definitions, as contained in 23 CFR 650, are provided as a basis for this discussion.

- Base Flood: The flood having a one-percent chance of being exceeded in any given year.
- Base Floodplain: The area subject to flooding by the base flood.
- Regulatory Floodway: The floodplain area that is reserved in an open manner by federal, state or local requirements, i.e., unconfined or unobstructed either horizontally or vertically, to provide for the discharge of the base flood so that the cumulative increase in water surface elevation is no more than one foot, as established by the Federal Emergency Management Administration (FEMA) for administering the National Flood Insurance Program.

3.7.1 Watercourse Description

As the largest tributary in the Gila River Basin, the Salt River begins in rugged mountain terrain at elevations exceeding 7,000 feet and joins the Gila River at the western edge of the Phoenix metropolitan area. At the site of the proposed project, the river passes through a flat desert valley at an elevation of approximately 1,200 feet. At this point, the river drains an area of approximately 13,000 square miles.

Six upstream water-supply and hydropower dams, operated by the Salt River Project, control flows at the proposed project location. Horseshoe and Bartlett Dams are located on the Verde River, which joins the Salt River upstream of the project area on the eastern edge of the metropolitan area. Roosevelt, Horse Mesa, Mormon Flat, and Stewart Mountain Dams are located on the Salt River upstream of the confluence of the two rivers. Currently, these water-supply reservoirs have no allocated flood control storage. Granite Reef Dam, which is a diversion structure that channels water into a network of irrigation and water supply canals, is located just below the confluence of the Verde and Salt Rivers. One outfall of this system, the Alma School Drain, is located downstream of Alma School Road.

Within the urban area, the Salt River has undergone substantial changes during the past two decades. Originally, the river was a wide braided channel in the segment adjacent to the project location. Over the years, urbanization and sand and gravel mining have generally narrowed and incised the main channel.

3.7.2 Summary of Flooding History

Major flows occur in the Salt River adjacent to the project only when water is released from the upstream facilities. These releases occur when runoff from the watershed is expected to exceed the capacity of the reservoirs. In addition, minor flows may result from storms on the watershed below the upstream dams. However, the river channel adjacent to the project is typically dry and can remain dry for extended periods of time. These dry periods may be of several years duration. Figure 3-10 (page 3-48) illustrates the normal dry condition of the riverbed. The base for this figure is an aerial photograph taken on September 27, 1993. Other figures in the EIS are based on aerial photographs taken January 4, 1993, during one of the rare flooding events. The illustrated flood event represents a flow of approximately 10,500 cubic feet per second (cfs).

Hydrologic records indicate that the greatest floods have resulted from storms of the general winter type. Studies of rainfall and runoff relationships show that the most critical runoff quantities would probably occur from such storms. Table 3-11 presents the magnitude of major floods of record in the Salt River below the Verde River. These data were collected from U.S.G.S. Water Supply Papers, the Salt River Project, and other historical records.

Flood damage reports prepared by the U.S. Army Corps of Engineers indicate little or no damage to residential property adjacent to the proposed project site. Historically, the majority of flood damage along this reach has affected industrial areas, sand and gravel operations, and public facilities. This pattern is reflected in the conditions created by recent flood events.

**RED MOUNTAIN
FREEWAY**

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0 feet 800' 1600' 2400'
approx.



GRAPHIC LEGEND

-  Project Area Boundary
-  Subarea Boundaries

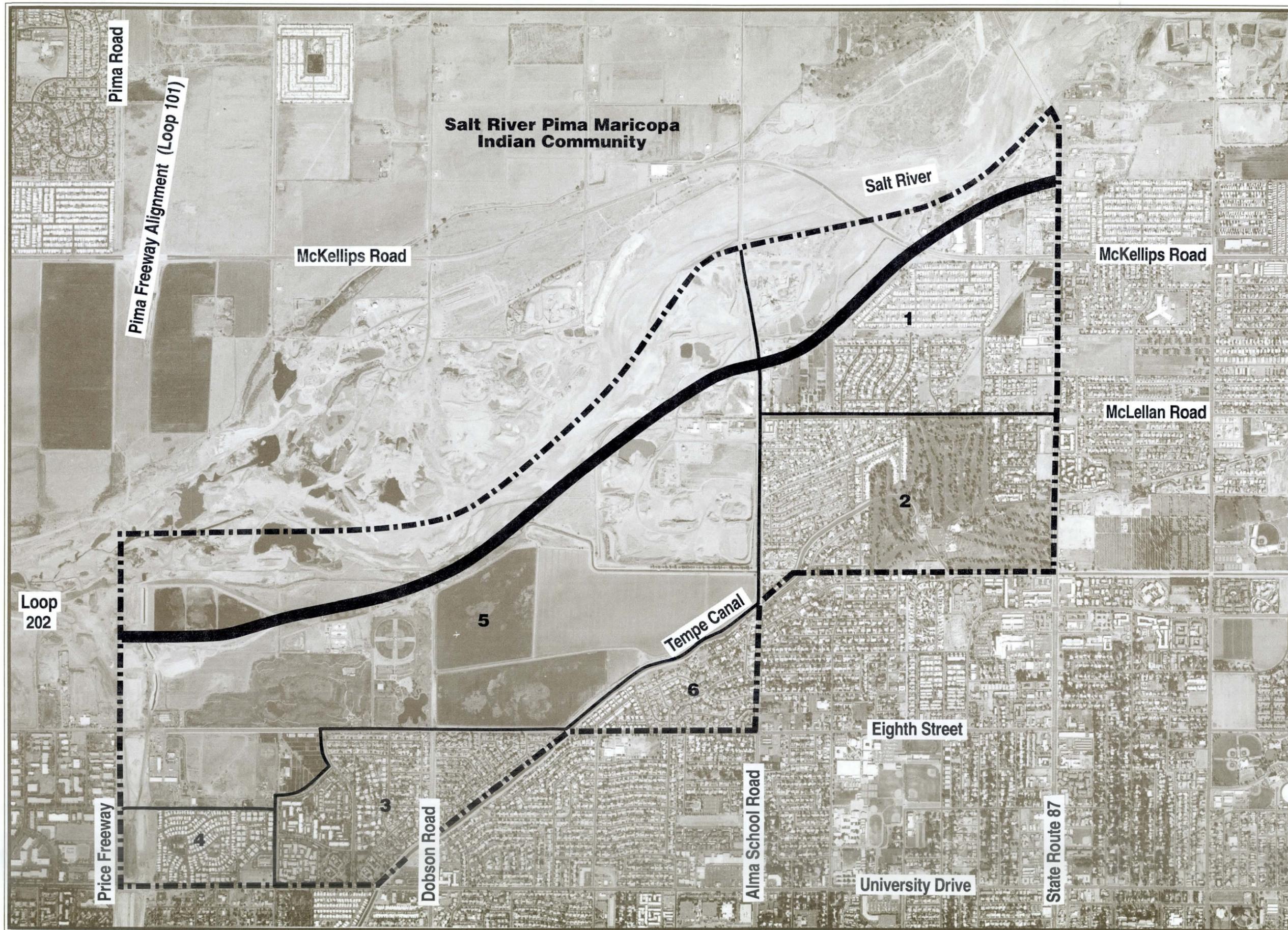


PHOTO DATE:
Sep, 27, 1993

**Existing
Dry Riverbed**

Figure 3-10
3-48

TABLE 3-11
SALT RIVER HISTORICAL FLOODS OF RECORD

Year	Month	Maximum Discharge (cfs)
1890	February	143,288
1891	Unknown	285,000
1893	March	351,514
1895	January	82,994
1905	November	199,500
1906	March	67,000
1907	March	50,770
1908	December	63,000
1910	January	83,475
1911	March	56,743
1916	January	83,475
1919	November	101,867
1920	February	108,600
1927	February	70,000
1932	February	53,000
1938	March	59,040
1965	December	64,000
1966	January	53,000
1978	March	122,000
1978	December	140,000
1979	January	87,546
1980	February	170,000
1993	January	123,000

During the 1965-66 floods, damages occurred to industrial developments near State Route 87, telephone lines in the same vicinity, oxidation ponds associated with the Mesa Wastewater Treatment Plant near Dobson Road, and sand and gravel operations. The largest single case of damage occurred to the sand and gravel operations that were situated in the normally-dry river bottom. These damages included the loss of stock-piled material, damage to equipment, emergency operations during the flood, cleanup after the flood, and extra haulage of materials caused by road washouts.

The 1980 flood caused no residential damages along the reach of the river adjacent to the project area. Public facilities sustained the greatest losses. These losses included roads and bridges, sewer systems, flood control works, and utility lines. Sand and gravel operations sustained about five percent of the losses caused by this flood.

3.7.3 Regulatory Floodplain/Floodway Hydrology

In 1982, the U.S. Army Corps of Engineers (Corps) completed a hydraulic study of the Gila River and its tributaries, including the Salt and Verde Rivers, as part of the Central Arizona Water Control Study (CAWCS). One of the study purposes was to develop a discharge frequency relationship for the existing conditions. Table 3-12 presents the results of this hydrologic analysis.

TABLE 3-12
DISCHARGE FREQUENCY VALUES FOR THE SALT RIVER
(CAWCS)

Location	Return Period Discharge (cfs)			
	10-Year	50-Year	100-Year	500-Year
Gilbert Road	100,000	170,000	230,000	345,000
Mill Avenue Bridge	93,000	160,000	215,000	330,000

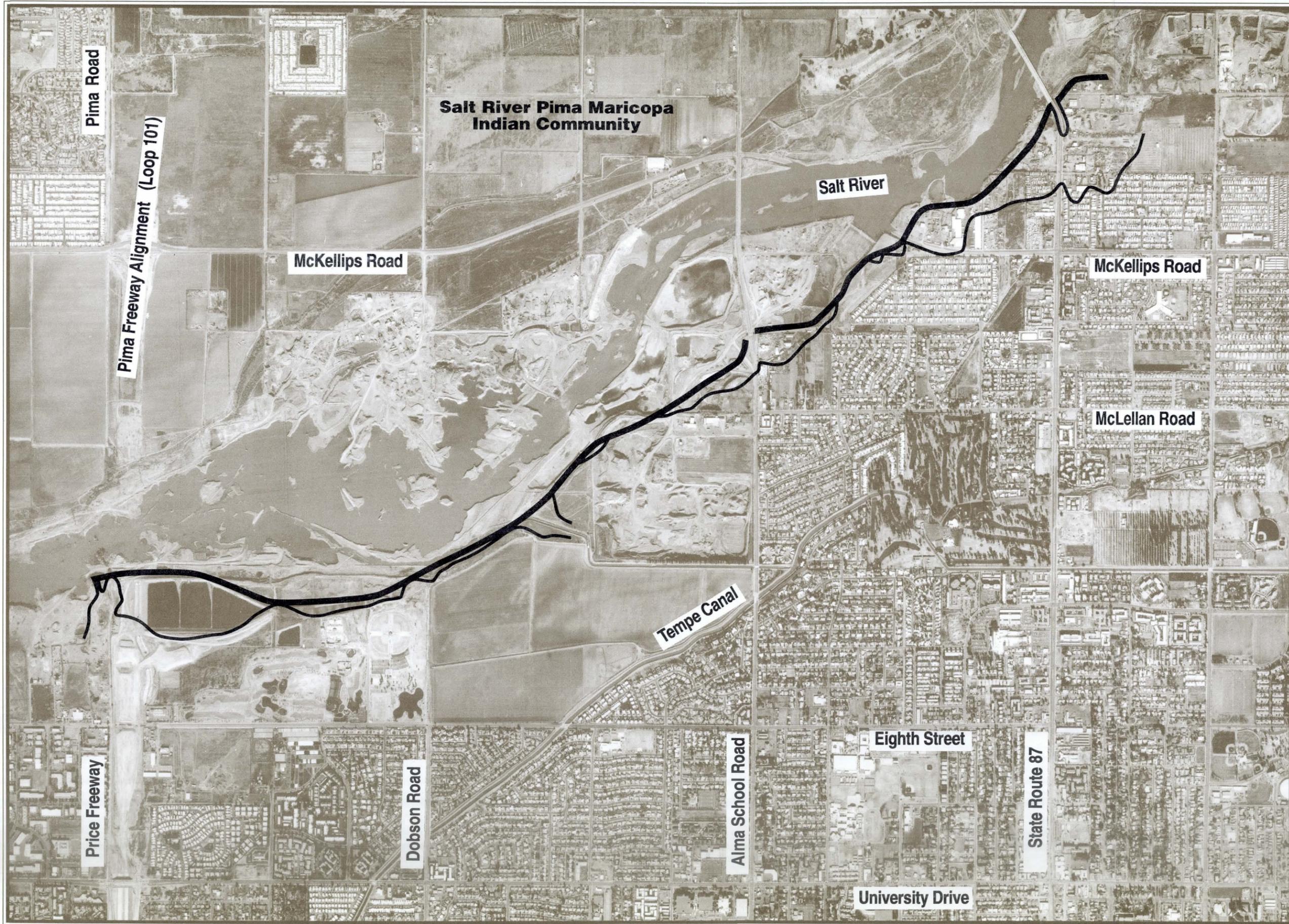
In 1983-84 the Corps performed a Flood Insurance Study (FIS) for the Flood Control District of Maricopa County. This study covered approximately 28 miles of the Salt River between State Route 87 and the confluence with the Gila River. Its results were adopted by the Federal Emergency Management Agency (FEMA) and the mapping was published in 1988 as the regulatory floodplain and floodway. The study used the hydrology developed by CAWCS and interpolated the 100-year flood discharges at intermediate points between the locations listed in Table 3-12. Table 3-13 presents the discharges used by the Corps in defining the regulatory floodplain and floodway for the reach adjacent to the proposed project.

TABLE 3-13
SALT RIVER FLOOD INSURANCE STUDY
100-Year Discharges

Location	100-Year Discharge (cfs)
Red Mountain/Pima Freeway Interchange	220,000
State Route 87	225,000

Floodplains or special flood hazard areas are divided into flood insurance rate zones that are based on floodplain boundaries determined in a Flood Insurance Study. The zone designations are assigned according to flood hazard factor, which are functions of the average difference in water-surface elevations between the 10-year and 100-year flood profiles. The reach of the Salt River between the Pima Freeway and Dobson Road lies within Zone A13, which indicates an average difference of 6.5 feet between the 10-year and 100-year profiles. The reach from Dobson Road upstream to State Route 87 falls within Zone A11, which indicates an average difference of 5.5 feet between the 10-year and 100-year profiles.

The flood insurance rate maps provide the 100-year base flood elevations (BFE). These elevations range from 1182 feet at the Red Mountain/Pima Interchange to 1,205 feet at State Route 87. The regulatory floodway for the reach adjacent to the project varies in width from a maximum of 4,380 feet near Dobson Road to a minimum of 1,040 feet just upstream of the McKellips Road at-grade river crossing. Federal and state standards limit the increase in water-surface elevation between the base flood elevation and the floodway to maximum of one foot. The regulatory floodplain and floodway are illustrated in Figure 3-11 (page 3-52).



**RED MOUNTAIN
FREEWAY**

ENVIRONMENTAL
IMPACT STATEMENT

0 feet 800' 1600' 2400'
approx.



GRAPHIC LEGEND

- Floodplain Boundary
- Floodway Boundary

**Existing
Floodplain and
Floodway**

3.7.4 Factors Affecting Flooding Risks

Several factors exist that may affect the flooding risk along the proposed project. In addition to the upstream reservoir system, these items include future water resource facilities, sand and gravel mining, and actions of the Salt River Pima Maricopa Indian Community.

Changes in water resource facilities include major modifications to Roosevelt Dam, now under construction, which include increasing the height and outlet capacity. The increased height of the dam is intended to provide dedicated flood control storage for runoff from the Upper Salt River Basin. Because operating procedures for the modified facility have not been finalized, the changes in flood conditions cannot yet be quantified. However, the modifications are expected to reduce flood flows in the Salt River adjacent to the proposed project.

Extensive sand and gravel mining operations have substantially changed the Salt River channel in the vicinity of the proposed project. A recent report estimated that the total mining production for the reach of the river between the Pima Freeway and State Route 87 was approximately 40 million tons between 1962 and 1986. The combined effect of this mining activity, major flood events, and channelization improvements has degraded the river an average of over seven feet during the past two decades.

The Salt River channel topography adjacent to the proposed project has changed substantially since the completion of the flood insurance study using 1982 topographic mapping. Several large mining operations have incised the channel along this reach. Without a detailed hydraulic analysis, the quantification of the mining impacts is difficult. However, a general conclusion is that the main channel, as a result of the mining, conveys a majority of the flood flows in a generally narrower and deeper section. Therefore, it is likely that the regulatory floodplain and floodway, as currently designated, are wider than the actual conditions that currently exist.

Other influences on the flooding risks may be the result of actions by the Salt River Pima Maricopa Indian Community, whose boundary follows a historical low-flow channel of the Salt River. A large portion of the river channel and floodplain lies within the boundaries of the community. As a sovereign nation, the Indian community enters into its own agreements regarding the use of the channel and floodplain. These agreement may include leases for sand and gravel operations.

3.8 Earth Resources

This section briefly summarizes information regarding the geology and soils of the area. Also included is a description of the farmlands within the study area. The location of soil associations and farmland is illustrated on Figure 3-12 (page 3-55).

3.8.1 Geology

The proposed project is located in the Basin and Range Physiographic Province of southern Arizona. This province is characterized by alluvium-filled basins and rugged mountain ranges. The study area falls within the boundaries of the Eastern Maricopa and Northern Pinal Counties Area Soil Survey of the U.S. Soil Conservation Service. A brief summary taken from that document is provided below.

The region is in a broad valley that is filled with alluvial materials as much as several hundred feet thick. Mountains in the area are composed of granite and schist of precambrian age, conglomerate of cretaceous-tertiary age, and andesite of tertiary age. The mountains are rugged and steep, attaining only a moderate height. The maximum elevation difference between the valley floor and the mountains is 2,420 feet. The valley floor is nearly level and contains gently-sloping soils. The transitional area between the mountains and the valley is only a few miles wide. The soils in the transitional area are moderately sloping to steep.

The physiographic feature that forms the transitional area is a waste apron composed of debris that has eroded from the highlands. Deposits of rubble, gravel, and sand are at the upper end of the apron, where the soils are moderately sloping to strongly sloping. Superimposed on the soils at the lower end of the apron are areas of recent soils that have formed in alluvium deposited by streams on floodplains and on recent alluvial fans.

The major stream is the Salt River, which transverses through the area in an east-west direction. This river was a perennial stream before storage reservoirs were constructed on the upper part of the watershed. It is now a dry channel, except for times when excess water is released from the reservoirs due to high rainfall on the watershed.

**RED MOUNTAIN
FREEWAY**

**ENVIRONMENTAL
IMPACT STATEMENT**

0 feet 800' 1600' 2400'
approx.

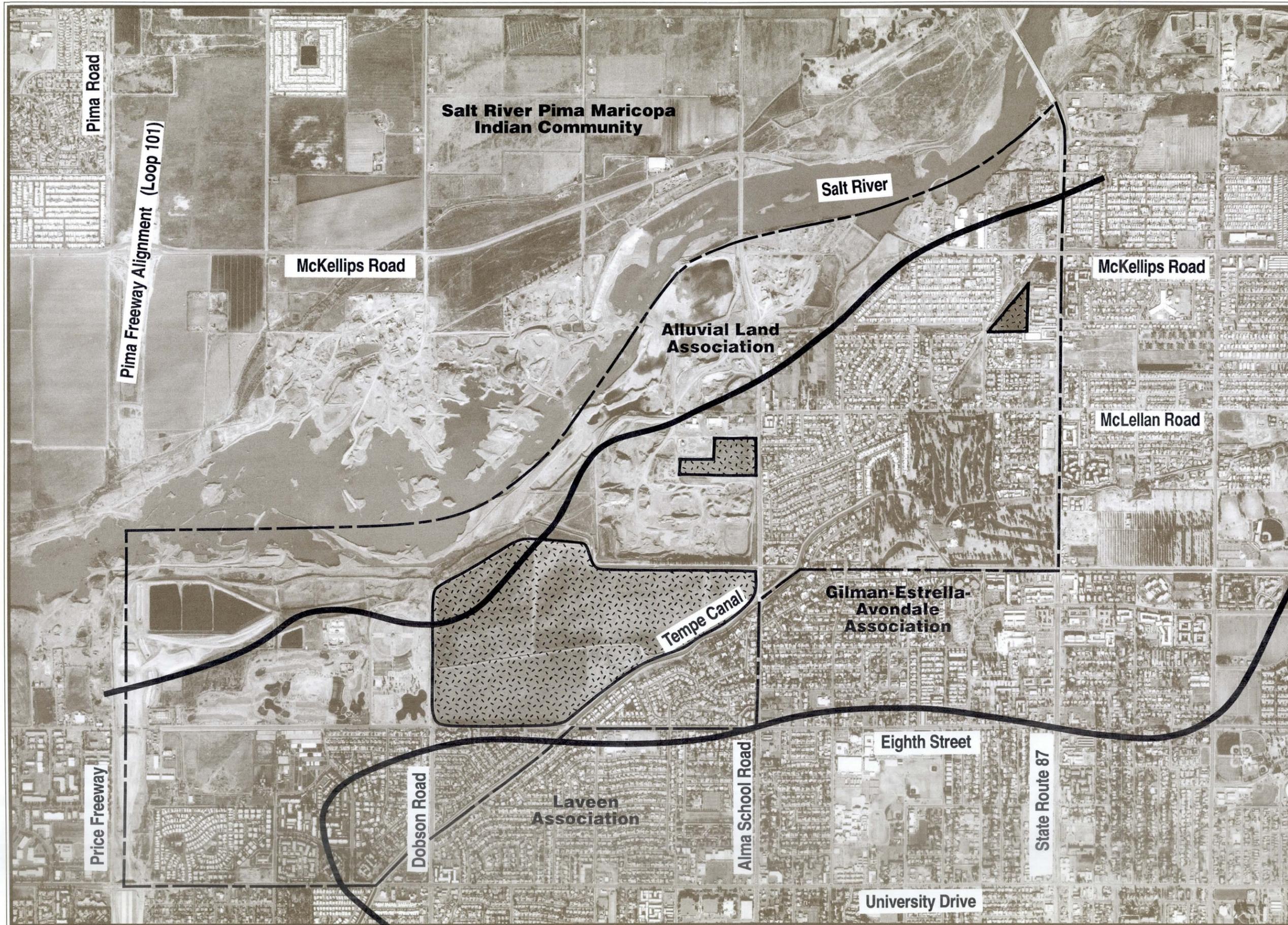


GRAPHIC LEGEND

-  Project Area Boundary
-  Farmland Areas
-  Soil Association Boundary*

* NOTE: Boundaries are approximate

Source: Soil Survey, Eastern Maricopa and Northern Pinal Counties Area, Arizona.



**Soils
and Farmlands**

Figure 3-12
3-55

3.8.2 Soils

The Soil Survey for Eastern Maricopa and Northern Pinal Counties classifies soils according to associations and specific soil type. The soil associations are documented in this report. Soil associations normally consist of one or more major soils and at least one minor soil, and is named for the major soil. Three soil associations are located in the study area. They are: Alluvial Land Association, Gilman-Estrella-Avondale Association, and Laveen Associations.

Along the Salt River channel and adjacent lowlands the Alluvial Land Association is found. This association is characterized by deep gravely sand consisting of mixed alluvium derived from many different kinds of rocks. Some areas of this association in the Salt River are more than a mile wide. Others along the side drainage ways that lead to the river are long and narrow. Texture of the surface layer ranges from gravely sand or very gravely sand to fine sandy loam. The material beneath the surface layer is very gravely sand to very fine sandy loam and loam. The Alluvial Association is not suitable for farming, but it is used as a source of sand and gravel as is evident with the mining activities located west of Alma School Road just south of the river.

The Gilman-Estrella-Avondale Association is located on the flood plains and alluvial fans of the Salt River. The association is deep, well-drained, nearly level loams and clay loams. The surface layer of the association is loam with varying sublayers. The underlying materials extend to a depth of 60 inches. The predominant soils are Gilman soils (65 percent) followed by Estrella soils (15 percent). Soils of this association are used for irrigated crops, for grazing, and some mining.

The Laveen association is located on the terraced and old alluvial fans associated with the Salt River. The association consists of well-drained, deep soils. Laveen soils have a surface layer of brown loam or clay loam. Below the surface layer and extending to a depth of 60 inches or more is light-brown loam that is more than 15 percent lime. Laveen soils comprise approximately 85 percent of the association, with the remaining 15 percent Rillito, Pinal, Contine, Mohall, and Avondale soils. The soils of this association can be used to grow irrigated crops. Golf courses, baseball fields, and the major part of the City of Mesa are within this association.

3.8.3 Farmland

Approximately 314 acres of farmland are located within the study area. The majority lies in the central portion of the study area between Dobson Road and Alma School Road. A small agricultural parcel also remains within the sand and gravel area immediately west of Alma School Road.

Communications with the U.S. Soil Conservation Service (SCS) have been conducted. Following a field visit and evaluation, the SCS has indicated that the farmland within the study area should be classified as prime farmland under the Farmland Protection Policy Act (FPPA). However, in accordance with the FHWA guidelines "Farmland Protection Policy Act - Supplemental Guidelines for Implementing the Final Rule for Highway Projects," prime farmland that is committed to urban development is, by definition, not subject to the FPPA. Commitment to urban development is documented by a zoning code or ordinance that has been adopted by a state or local government. As described in Section 3.1.4 and illustrated on Figures 3-4 and 3-5 (pages 3-12 and 3-13), the farmland in the study area is designated for urban development by both the local general plans and the zoning ordinances of the City of Mesa and Maricopa County. This conclusion has been confirmed by SCS, as shown in the correspondence included in Section 9.

3.9 Biological Resources

Information on biological resources was obtained from a field survey of accessible portions of the project area and from contacts with state and federal agencies. A brief summary of this information is provided below.

3.9.1 Vegetation

The proposed project site is heavily disturbed by sand and gravel mining, agriculture, and urban development. Virtually no undisturbed natural open space areas remain. No federal or state-listed threatened or endangered plant species were identified by the U.S. Fish and Wildlife Service, the Arizona Game and Fish Commission, or the Arizona Department of Agriculture. The small amount of existing vegetation is characteristic of the Lower Colorado Subdivision of the Sonoran Desertscrub Biome, at an elevation of approximately 1,200 feet. The following four habitat types were found within the general project area: ruderal/disturbed, xero-riparian, and riparian strand. Each of these habitat types is briefly described below. No illustration is provided of the locations of the vegetation because of the small and scattered nature of their occurrence.

Ruderal disturbed

This upland habitat type is the most common habitat type within the project area and is characterized by heavy disturbance from sand and gravel mining, agriculture, and urban development. The vegetation is predominantly annual weeds, with an occasional desert broom (*Baccharis sarothroides*) and blue palo verde (*Cercidium floridum*)

Xero-riparian

This habitat type is found intermittently in a narrow band along the bank of the Salt River. It is dominated almost exclusively by desert broom, with an occasional blue palo verde.

Riparian Strand

This habitat type is very sparsely vegetated with desert broom and is limited to the sandy river bottom in the Salt River. Several sand and gravel operations are located within this habitat type.

3.9.2 Wildlife

Two special-interest species, the desert tortoise (*Xerobates agassazii*) and the Yuma clapper rail (*Rallus longirstris yumanensis*) were identified by Arizona Game and Fish Department and the U.S. Fish and Wildlife Service as species that may occur in the general region. The potential of each species to occur within the project area was evaluated, as discussed below.

Desert Tortoise

The desert tortoise (Sonoran Desert population) is listed as a Federal Category 2 candidate within its Arizona range. A Federal Category 2 candidate is a species for which there is some evidence of vulnerability, but for which there are not enough data to support proposal at this time. The Sonoran desert tortoise inhabits rocky slopes and bajadas of the Arizona Upland and Lower Colorado subdivisions of the Sonoran Desertscrub biome, as well as Semidesert Grassland, Mohave desertscrub, and Interior Chaparral biomes to elevations up to 4,350 feet. Boulders, outcroppings, and natural cavities, such as caliche dens in the side of arroyos, are utilized as cover sites. The proposed project site is within the Sonoran Desertscrub biome but no suitable desert tortoise habitat exists within the project area. It is unlikely that desert tortoise would naturally occur within the project area.

Yuma Clapper Rail

The Yuma clapper rail, a subspecies of the clapper rail, is a federally-endangered and state-threatened bird that resides in shallow, freshwater marshes containing dense stands of cattail (*Typha latifolia*), bulrush (*Scirpus acutus*), or other tall thick emergent wetland vegetation that exceeds 15 inches in height. Its range includes the lower Colorado River from California and Arizona into Mexico. The Yuma clapper rail requires a wet substrata, such as a mudflat, sandbar or slough bottom for foraging. There are documented occurrences of this species approximately 10 miles upstream of the project area, near Granite Reef diversion dam, but no sightings have been documented within the proposed project area. During field reconnaissance, suitable habitat for this species was not found within the project area.

3.10 Cultural Resources

Cultural resource studies were conducted as a part of the previously-prepared Environmental Assessment for the Red Mountain Corridor between Price Road and Lindsay Road. As a part of the preparation of this Environmental Impact Statement for the portion of the Red Mountain Corridor between Price Road and State Route 87, the previous studies were reviewed and a field visit was made. The findings of the earlier work were confirmed by this review. The results of these investigations are summarized below.

3.10.1 Previous Research

The studies conducted for the previous Environmental Assessment included a records search and a field survey. Based on an approximate alignment of the corridor, an overview of known prehistoric and historic cultural resources in the vicinity was prepared. The results of the records search are recorded in "Red Mountain Freeway Phase I Historic Property Survey Report", Soil Systems Technical Report 87-1, Phoenix, February 1987. The results of the field survey are recorded in "Archaeological Survey and Evaluation of the Western Portion of the Proposed Red Mountain Freeway Corridor", Soil Systems Technical Report 88-28, December 1988.

The 1987 records search covered the entire proposed Red Mountain Corridor. This corridor begins at Price road, extends eastward to Ellsworth Road, and then turns southward to US 60 (Superstition Freeway). Only the three-mile portion between Price Road and State Route 87 is applicable to this EIS.

The 1988 field survey covered the proposed corridor between Price Road and Lindsay Road. Only the three-mile portion between Price Road and State Route 87 is applicable to this Environmental Impact Statement. The surveyed corridor width varied from 350 feet to 850 feet. Where surface visibility was moderate to high, the ground surface was visually examined by walking in parallel transects that were spaced between 50 and 80 feet apart. Portions of the western end of the corridor, primarily the modern floodplain, were examined using transects between 100 and 170 feet apart. A portion of the alignment contained buildings or ground cover that precluded the examination of the ground surface. Other areas were disturbed by modern quarrying operations.

3.10.2 Research Findings

While a number of archeological and historic sites were identified by the records search, only two prehistoric and no historic sites were found to be listed for the portion of the corridor between Price Road and State Route 87. The two archeological sites are described below.

Site AZ U:9:6 (ARS) is located just south of the Salt River on either side of the extension of Dobson Road. The site was tested in the late 1970's by Archaeological Research Services (ARS). The testing program found a Civano phase (Classic period) trash area that was approximately 75 feet long and 15 to 20 feet wide. This trash deposit varied in depth from 1.6 feet to 2.0 feet below the ground surface. This find suggests that Classic period habitation units are nearby.

In addition to Site AZ U:9:6 (ARS), a prehistoric canal, called Canal Muertos, has been recorded in this area. This canal reportedly began at the Salt River approximately midway between Dobson Road and Alma School Road, extended in a southwesterly direction across the project corridor, and crossed Dobson Road just south of Site AZ U:9:6. Canal Muertos was an extensive canal system that extended at least 10 miles to the south and eventually reached Los Muertos, a large Classic period Hohokam village.

The 1988 field survey, found the corridor between Price Road and State Route 87 to be generally void of archaeological materials. This area has been greatly disturbed by modern sand and gravel operations and by the movement of the Salt River. The one area most likely to contain intact archeological deposits is near Site AZ U:9:6 (ARS). No surface materials were observed during the survey, but the site may extend into the corridor. No evidence of the Canal Muertos was observed. However, as with other canal investigations, it is possible that additional canal branches may have existed in the area. The field survey found no historic resources between Price Road and State Route 87.

Potential impacts of the build alternatives on these resources are discussed in Section 4.12.

3.11 Hazardous Wastes

A Phase I Environmental Site Assessment (ESA) was conducted of the project area in March, 1993. The purpose of the Phase I ESA was to identify areas of potential hazardous material and petroleum contamination that could impact the proposed project. The assessment included preliminary coordination with the Arizona Department of Environmental Quality (ADEQ), a review of federal and state regulatory data bases, a review of previous reports, personal interviews, and a site reconnaissance. Its content was identical to an ADOT Pre-Initial Site Assessment. The details of the study and its results are contained in a separate technical report entitled "Red Mountain Freeway Project, Price/Pima to State Route 87, Phase I Environmental Site Assessment" This report is available for review at ADOT, Environmental Planning Services, 205 South 17th Avenue, Phoenix, Arizona 85029. A summary of the inventory portion of the report is presented below.

3.11.1 Regulatory Data Base Review

Potential sources of contamination were first identified from federal and state records. The following databases were reviewed:

Federal Records

- National Priorities List (NPL), which is part of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) or Superfund, updated September 1, 1992. Identifies sites that qualify for inclusion to the federal Superfund program.

- NPL/Potentially Responsible Parties (PRP) database, updated August 14, 1992. Lists PRPs that are associated with identified NPL sites.
- CERCLA Sites database, also known as CERCLIS, updated September 1, 1992. Includes sites that are, or were, under investigation for reported violations to the CERCLA program and may be included on the NPL list.
- Resource Conservation and Recovery Act (RCRA) Treatment, Storage, or Disposal (TSD) Facilities database, September 1, 1992. Identifies facilities that are permitted by the EPA for on-site treatment, storage, or disposal of hazardous waste activities.
- RCRA Generators and Transporters database, updated September 1, 1992. Lists those facilities that are registered with the EPA for on-site generation of hazardous waste or transport hazardous wastes.
- RCRA Corrective Action database, updated August 15, 1992. Identifies sites that have been investigated by the EPA for inappropriate actions related to the use, storage, treatment, or disposal of hazardous wastes.
- RCRA Subtitle D Landfills database, updated August 15, 1992. Identifies sites that are regulated by the EPA under Subtitle D (solid waste) of RCRA.
- Facility Index System (FINDS) database, updated October 30, 1992. Identifies sites and facilities that have been investigated or have applied for permits under several federal and state environmental programs. Those sites that are listed in the database did not appear on any of the other databases.
- Emergency Response Notification System (ERNS) database, also known as the Hazardous Material Spills database, updated August 15, 1992. Identifies sites and facilities where containment and/or clean up of spills have been required by emergency response teams. Reported illegal dumping incidents are also included in the list.
- Superfund Amendments and Reauthorization Act (SARA) III Facilities database, also known as Toxic Release Identification System (TRIS), updated December 31, 1991. Lists sites included in the federal Community-Right-to-Know program. These sites are listed for their use and presence of hazardous substances regulated under the act.

State of Arizona Records

- State Superfund Sites database, updated June 12, 1992. Lists sites that qualify for inclusion on the state Superfund program. These sites do not meet specific criteria for inclusion to the federal Superfund program, but warrant a regulatory action for the presence of contamination in the soil and/or groundwater.
- State Landfills database, updated July 1, 1992. Lists sites regulated under state solid waste regulations.
- Registered Underground Storage Tanks (UST) database, updated July 6, 1992. Notification of the presence of underground storage tanks is required under RCRA and is administered by the Arizona Department of Environmental Quality. Facility owners that are out of business may not have registered on-site tanks.
- Leaking Underground Storage Tanks (LUST) database, updated August 14, 1992. Lists sites of known releases of hydrocarbons from underground storage tanks. Underground storage of hazardous substances and petroleum products is regulated under RCRA. The database indicates if the release has been cleaned up (file closed) or is under remediation.

The records search focused on an area within one-quarter-mile of the centerline of the proposed alignment and the eastern and western termini. A one-mile distance was used for data bases that generally list the most hazardous sites. In some cases, the data search revealed sites that were situated beyond both the one-mile and quarter-mile limits. These sites are identified in the technical report.

For purposes of describing the potential hazardous wastes that may impact the proposed project, identified sites within the quarter-mile radius are summarized below.

- Comprehensive Environmental Response Compensation and Liability Act (CERCLA)

This data base includes sites that are, or were, under investigation for reported violations to the CERCLA program. Two sites were reported within the one-quarter-mile search area. They are located just west of the Price/Pima alignment, outside the project area. Both sites underwent a preliminary assessment, with the result that no further action is planned.

- Emergency Response Notification System (ERNS)

Also known as the Hazardous Material Spills data base, this source identifies sites where containment and/or clean up of spills have been required by emergency response teams. Nine sites were identified. However, all were either remediated or were of such small quantity that no impact to the project is anticipated.

- Resource Conservation and Recovery Act (RCRA) Facilities

This list identifies facilities that are permitted by EPA for on-site treatment, storage, or disposal of hazardous waste activities. Eight sites were listed within the one-quarter-mile search area. All are located west on the Price/Pima alignment and are thus outside the project area. These facilities are unlikely to affect the proposed project for the following reasons: the sites are west and hydraulically lateral from the alignment, depth to groundwater is over 150 feet, and no reported violations were listed in the data bases reviewed.

- Facility Index System (FINDS)

This database identifies sites and facilities that have been investigated or have applied for permits under several federal and state environmental programs. The review identified five facilities. Three of the facilities had no address listed, but were not located during the site reconnaissance. The other two facilities are located west of the Price/Pima alignment outside the project area. These two sites should not affect the project because of their location west and hydraulically lateral from the alignment and because the depth to groundwater is over 150 feet.

- State Landfill Data Base

This data base lists sites that are subject to state solid waste regulations. The review identified one solid waste landfill within the one-quarter-mile search area. The Alma School Landfill is located at the northwestern corner of Alma School Road and McLellan Road.

In May 1989, a preliminary evaluation of the Alma School Landfill was conducted as part of the State Environmental Assessment that was completed for the Red Mountain Freeway. This evaluation included a records review, site reconnaissance, water sample collection, and interviews. The results are described in a technical report entitled, "Phase I Environmental Audit for Selected Sites Along the Proposed Alignment of the Red Mountain Freeway", May 1989.

The 1989 study determined that the excavation of the 10-acre site occurred in 1979 as a result of gravel mining operations. Disposal of inert materials, as provided by permit, began in 1986. The site reconnaissance revealed that construction debris had been deposited in parts of the pit. A small amount of plastic-type material, which would be a violation of the permit, was found in the northern portion of the site. Interviews with the owner and users of the site confirmed that only construction materials had been deposited.

A small pond, formed from precipitation runoff, was encountered at the deepest point of the pit. Water samples were collected and analyzed for volatile organics and halogenated volatiles. Note of the parameters tested presented a violation or indication of hazardous waste disposal. No records of illegal activity, storage, or disposal of hazardous substances were found by EPA, Arizona Department of Environmental Quality, Maricopa Association of Governments or Maricopa County. At the time of the 1993 site reconnaissance, the landfill had apparently stopped accepting trash, had been capped with topsoil, and the gates to the entrances were closed.

The potential for encountering hazardous wastes at the Alma School Landfill is slight. Disposal of hazardous waste and substances is not suspected by the federal or state agencies and no information was found to indicate any possibility of hazardous waste burial.

- Registered Underground Storage Tanks Data Base (RUST)

This data base is administered by the Arizona Department of Environmental Quality and lists the presence of underground storage tanks as reported under RCRA requirements. Twenty-two sites were identified. The majority of these sites are located in the eastern portion of the project area along Alma School Road and State Route 87. Several are also located near the western terminus of the project. The locations of 21 of these sites are shown on Figure 3-13 (page 3-66). An additional site was listed as being located just off Price Road, but no address was given. Detailed information on each site is contained in the technical report.

**RED MOUNTAIN
FREEWAY**

**ENVIRONMENTAL
IMPACT STATEMENT**

0 feet 800' 1600' 2400'
approx.



GRAPHIC LEGEND

-  Registered Underground Tanks
-  Leaking Underground Tanks
-  Alma School Landfill



**Hazardous
Waste Sites**

Figure 3-13
3-66

- Leaking Underground Storage Tank Data Base (LUST)

This data base lists sites of known releases of hydrocarbons from underground storage tanks. Six of the previously-identified 22 sites were listed on the LUST database. Four of the sites are located near the eastern terminus of the project along State Route 87 and two are located west of Price Road just outside of the project area. Five of these sites are identified on Figure 3-13. The sixth site was listed as being located just off Price Road, but no address was available. Detailed information on these sites is also contained in the technical report.

3.11.2 Review of Previous Reports

The 1993 Phase I Site Assessment reviewed previous reports that were prepared for Maricopa Association of Governments (MAG) to investigate the presence of Volatile Organic Chemicals (VOCs) in groundwater and for the Arizona Department of Transportation (ADOT) for a site related to the Price/Red Mountain Interchange.

The results of the MAG study, performed in 1986, are contained in the report entitled, "Volatile Organic Chemicals and DBCP in Groundwater in the Mesa Area." The investigated area included the portion of the project study area east of Alma School Road. Groundwater contamination investigated by this study is not anticipated to affect the proposed project due to the depth to groundwater of 150 feet.

A study was performed for ADOT in 1991 for a parcel located near the south bank of the river at Eighth Street and Price Road. This study was performed in conjunction with evaluations related to the Price/Red Mountain Interchange. Potential impacts on this site have been mitigated in conjunction with that project.

3.11.3 Site Reconnaissance

A site reconnaissance of the project corridor between Price Road and State Route 87 was conducted on February 4 and 5, 1993. The reconnaissance was conducted from public access areas. It involved confirming the locations of potential contaminant sources that were identified by the data base review and identifying possible contaminant source sites not previously identified.

Construction debris and yard wastes were observed in the area north of Riverview Park. East of Dobson Road, the alignment passes through agricultural lands that had recently been tilled. The past use of pesticides or herbicides at this location is not known. East of the agricultural property, the alignment passes through property that has previously been mined for sand and gravel.

The alignment then proceeds easterly in the vicinity of the Sunward Materials Plant and the Johnson Stewart cement batch plant, both located immediately west of Alma School Road. The exact location of the underground storage tank listed to be at the Sunward plant was not identified. The alignment then passes over the northwestern one-third of the Alma School Landfill.

East of Alma School Road, the alignment passes through property currently occupied by several businesses. One business, Trevizo Hay, is listed in the UST data base as currently having an underground storage tank. Two large above-ground storage tanks were observed on this property. Both tanks are within a shallow, plastic-lined berm. The contents were not identified. Junked vehicles and scrap iron was also observed in this vicinity.

Southwest of McKellips Road, the undeveloped area has been subjected to minimal dumping of construction and landscaping debris. One abandoned automobile was also observed. East of McKellips Road, the alignment passes through several industrial business properties. They include a prefabricated home manufacturing firm, an auto body repair facility, a wood working plant, and a small construction firm. Several open drums were observed in the yard of the construction firm. This site has also been the subject of remediation for hydrocarbons of surface soils. The exterior of the prefabricated manufacturing firm was posted with a National Fire Protection Association diamond placard, indicating that specified levels of health hazards exist.

East of these businesses, the route proceeds to the vicinity of a scrap metal salvage company. Stained soil was observed underneath a track-mounted crane that was being dismantled. Three large fiberglass tanks were observed on the property, one of which had a large hole in the top.

3.12 Visual Resources

A visual field reconnaissance of the study area was conducted in May 1993. The results are briefly summarized in this section. Photo documentation of representative views is provided by Figures 3-14, 3-15a and 3-15b (pages 71-73).

The overall visual character of the study area is diverse and dependent upon a number of factors. Several prominent features exert strong influences. These features include the normally-dry Salt River channel, sand and gravel mines and processing plants, open fields, and areas developed in urban uses. These developments include a varied mixture of residences, businesses, and commercial establishments. Variations in topography and vegetation also influence the visual character of the immediate area. The views range from closely-restricted perspectives to extended panoramas in which the distant mountain ranges are visible. View characteristics related to the previously-defined subareas are summarized below.

Subarea 1, which is located in the northeastern portion of the study area has a variety of view characteristics. Single-family and mobile home residences characterize the central portion of the subarea. Views from these residential areas are restricted due to limited variation in elevations, vegetation, and block walls. Land uses on the eastern, northern, and western periphery of this subarea include commercial, industrial, and mining. Views of the Salt River to the north, as well as the mountains in the distance, are available from the open portions of this area.

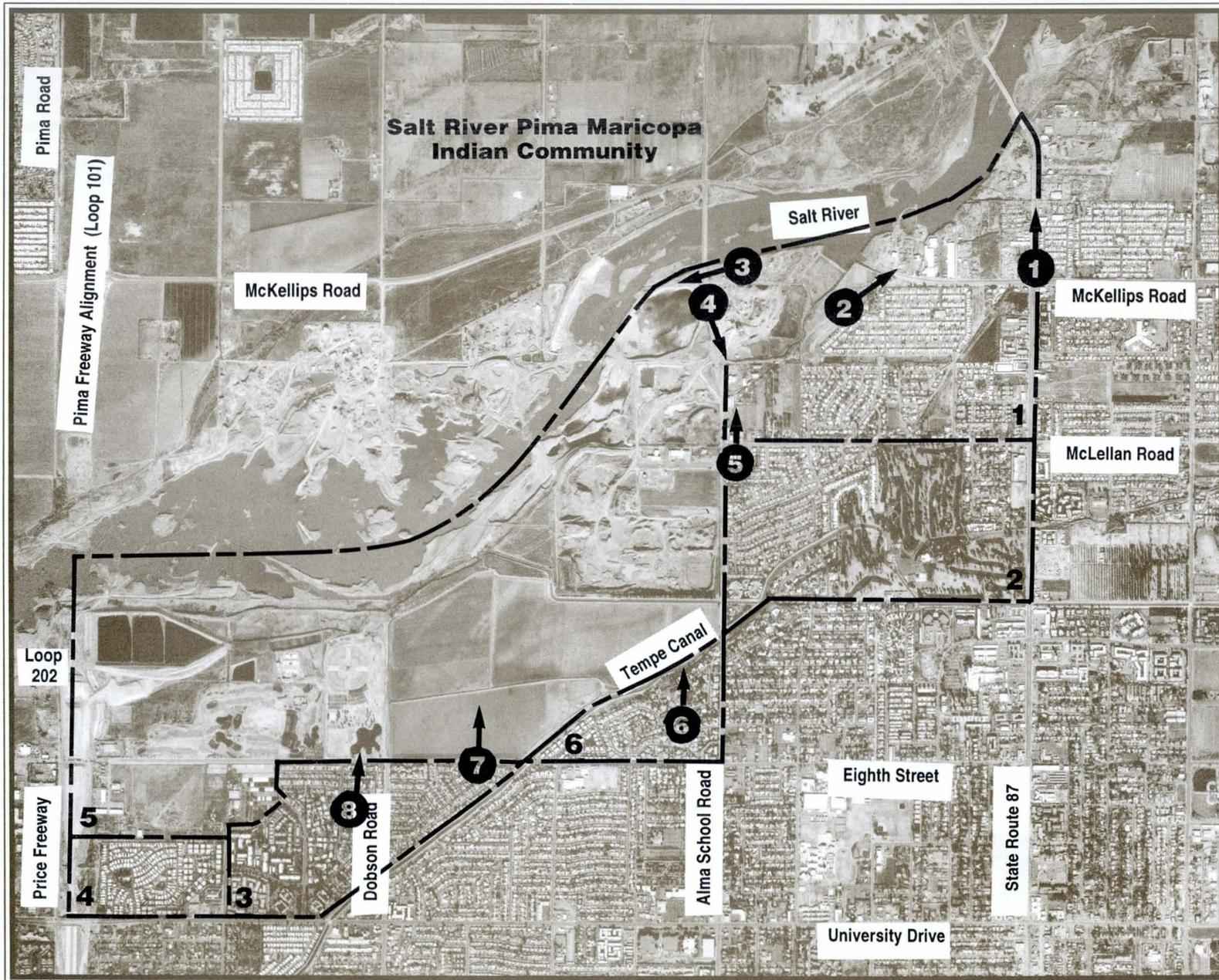
Subarea 2 is located directly south of Subarea 1. It is comprised entirely of single-family residences surrounding the Mesa Country Club. Mature vegetation provides visual diversity to the homes adjacent to the golf course. Views from this area are restricted by the structures and vegetation.

Subareas 3 and 4, in the southwestern portion of the study area, are dominated by single-family and multi-family residential development. Views from these areas are restricted by landscaping and block walls. Views are also restricted by the relatively flat terrain, which does not afford opportunities for views from high points.

Subarea 5, located north of Subareas 3 and 4, is a relatively large and diverse area that contains Riverview Park, agricultural lands, sand and gravel mines, and industrial areas. The park and associated golf course create an area of landscaped open space in an otherwise generally bleak landscape. Views from the park include the residential area to the south, the Mesa Waste Water Treatment Plant and future Pima Freeway to the west and north, the agricultural field to the east, and

the normally-dry Salt River and its gravel pits to the north. Distant views to the north include the McDowell mountain range. Views from the centrally-located agricultural area are generally unrestricted. Toward the north, the view includes the mining operations and Salt River in the foreground against the backdrop of the McDowell Mountains in the distance.

Subarea 6 is comprised solely of single-family residences. Views within the subdivision are restricted by houses, landscaping, and walls. However, a tier of homes on the northern edge along the canal has backyard views of features to the north. These views are somewhat extended by a slight rise in elevation. The agricultural field provides the foreground, sand and gravel operations are somewhat visible along the river, and the McDowell Mountains can be seen in the distance.



RED MOUNTAIN FREEWAY

ENVIRONMENTAL IMPACT STATEMENT

0 feet 1200' 2400' 3600'
approx.



NORTH

GRAPHIC LEGEND

 Direction of Photographs

 Subarea Boundary

Viewpoint Locations

Figure 3-14



(View looking north on State Route 87 at eastern project terminus)

Existing View #1



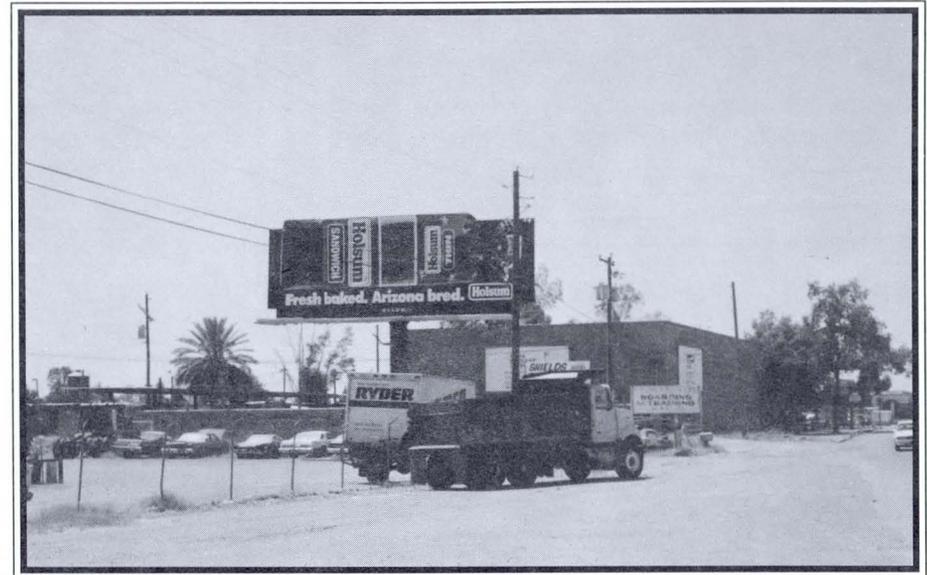
(Industrial area on McKellips Road west of State Route 87)

Existing View #2



(View of sand and gravel area from Alma School Road)

Existing View #3



(Business area on Alma School Road at point of project alignment)

Existing View #4

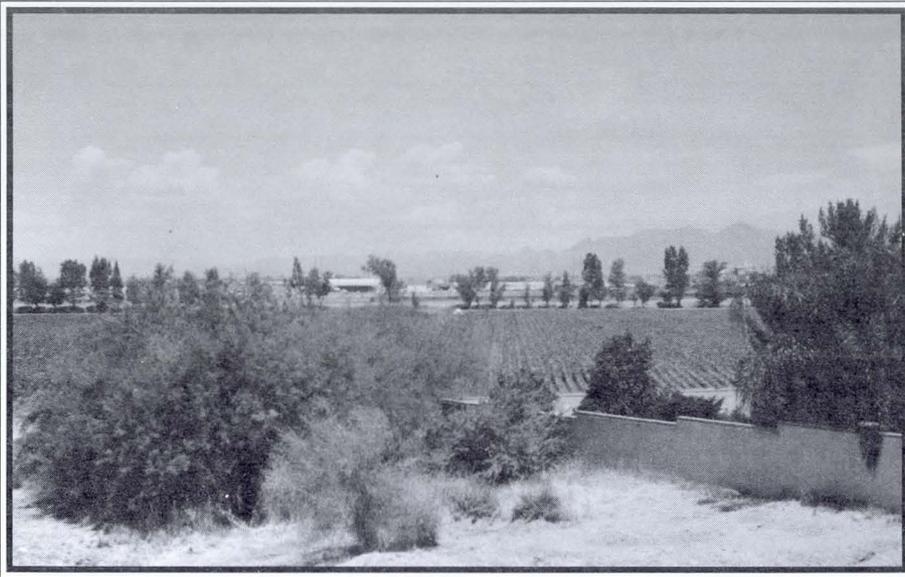
**RED MOUNTAIN
FREEWAY**

ENVIRONMENTAL
IMPACT STATEMENT

3-72

Existing Views

Figure 3-15a



(View of mountains looking north across open field in Subarea 1)

Existing View #5



(View looking north from residence backyard in Subarea 6)

Existing View #6



(View of agricultural area looking north from 8th Street)

Existing View #7



(View looking north from Riverview Park)

Existing View #8

**RED MOUNTAIN
FREEWAY**

Existing Views

Figure 3-15b

SECTION 4

Environmental Consequences and Mitigation

4.0 ENVIRONMENTAL CONSEQUENCES AND MITIGATION

This section describes the potential social, economic, and environmental effects of the three alternatives that were selected for detailed study. These alternatives are: (1) no-action; (2) freeway; and (3) major urban arterial street. In addition to the description of potential impacts, appropriate mitigation measures to avoid or reduce the impacts are described. Section 4.0 is organized using the analysis categories as major headings. The three alternatives are then compared for each of these subjects.

4.1 Land Use

This section describes the relationships between the alternatives and the existing and proposed land uses in the area. The compatibility of each alternative with adopted development plans is assessed. More specific impacts related to relocation and economic activity are described in Sections 4.3 and 4.4.

4.1.1 No-action Alternative

Under the no-action alternative, no project-related influences on the land use in the study area would occur. No land would be acquired for right-of-way purposes. The existing residential land use patterns in Subareas 1, 2, 3, 4, and 6, which are illustrated in Figure 3-1 (page 3-3), are likely to be maintained. However, other existing trends and economic forces would likely continue to exert some influence for change.

Sand and gravel operations, which are located primarily in Subarea 5, are long-standing and believed to contain substantial reserves of the resource. Under the no-action alternative, these mining operations would be expected to continue for some time into the future. However, the resource will eventually be depleted or mined to a depth that precludes the continuation of an economically-feasible operation. Upon termination of the mining activity, the active pit areas are expected to be reclaimed.

Following the restoration of the mined areas, it is likely that development would occur. While the majority of the mining areas are presently located on land that is within the jurisdiction of Maricopa County, long-term land use will be consistent with the policies of the City of Mesa. The Mesa General Plan provides for future development of the sand and gravel areas as industrial uses.

A change in use is also likely for the large parcel located in the central portion of Subarea 5. Currently in agricultural use, this area may be underlain with sand and gravel resources. Demand for these resources may create incentives to mine the area. Such an action would require a permit from the City of Mesa. Alternatively, the parcel may be developed into another use. It is currently zoned for residential use, except for a strip of commercial zoning along the east side of the extension of Dobson Road. The Mesa General Plan designates most of the area as commerce park, with a portion also allocated for high-density residential. If neither the proposed freeway nor the alternative major arterial is constructed, the only transportation improvement in the area is likely to be the extension of Dobson Road north of Eighth Street. Under this scenario, the parcel would have moderate pressure to develop. This level of accessibility would likely support residential development, rather than the more intense planned uses.

The no-action alternative is not consistent with the Mesa General Plan, the Tempe General Plan, or the MAG Regional Transportation Plan. All of these locally-adopted plans provide for the construction of the Red Mountain Freeway between the Pima Freeway and State Route 87.

4.1.2 Freeway Alternative

The freeway alternative is consistent with the applicable local government plans that pertain to the area. These plans include the Mesa General Plan, the Tempe General Plan, and the MAG Regional Transportation Plan, and the MAG Regional Bicycle Plan. Each of these documents, which have received the approval of the appropriate local governing body, provide for the construction of the Red Mountain Freeway. Adjoining land uses are also planned to be compatible with the existence of the freeway on the preferred alignment.

The MAG Regional Bicycle Plan designates both on-road and off-road facilities. In the vicinity of the Red Mountain Corridor, State Route 87 is designated as an on-road route. The Salt River channel adjacent to the proposed alignment is designated as an off-road route. The freeway alternative would be consistent with these designations. No conflicts with the bicycle route would be created.

With the addition of the freeway, future land uses would be expected to conform to the general plans for the area. The Mesa General Plan would be the dominant guide for this new development. The portion of the study area within the jurisdiction of the City of Tempe is already largely developed. The unincorporated island currently under the jurisdiction of Maricopa County is expected to be annexed into the City of Mesa. Future land uses would include additional residential, commercial, and industrial developments. Institutional uses would continue. The major change is expected to occur between Dobson Road and Alma School Road on the parcels presently in agricultural and mining uses. This area is designated for commerce park development, which includes office parks, research and development, light industrial, and high technology uses.

Specific land use changes that would be caused or influenced by the freeway alternative are related to the acquisition of the needed right-of-way and the influence that the facility would have on future development. The specific acquisitions and relocations are detailed in Section 4.3. A general description of these right-of-way impacts, as well as the development influences, is provided below.

Because the freeway alternative would be a new facility on a new alignment, the total right-of-way area would require acquisition. The acquisition of this area would have impacts of residential, commercial, industrial, sand and gravel mining, agricultural, and public uses. All of the property to be acquired lies within Subareas 1 and 5. Beginning at the western terminus of the project, the land use impacts of the right-of-way acquisitions can be summarized as follows:

Price Freeway to Dobson Road

This area is owned by the City of Mesa. Acquisition of the northern portion of the property would be required. The acquired area is north of the Mesa Waste Water Treatment Plant and Riverview Park. No portion of the developed portion of these facilities would be acquired. Thus, no land use changes would occur. The existing public facilities would continue. A reconfiguration of the percolation ponds associated with the water treatment plant would be needed to accommodate the ramps associated with the Price/Red Mountain Interchange.

Dobson Road to Alma School Road

Acquisition in this area would include the northern edge of the agricultural parcel in the center of Subarea 5. This acquisition would not preclude the continued use of the property for agriculture nor its future development to other uses. A secondary impact on this property would be caused by the

realignment of Dobson Road. Additional right-of-way would be acquired through the parcel between Eighth Street and the Dobson Road Interchange with the freeway. Agricultural uses would not be severely affected by this acquisition until after changes in land use occur.

To the east of the agricultural parcel, the acquisition would affect the sand and gravel mining operations along the riverbank on either side of Alma School Road. A portion of the sand and gravel resource areas would be acquired. An additional effect would relate to the potential for the continued operation of the mining and processing activities.

Alma School Road to State Route 87

East of the sand and gravel operations along Alma School Road, acquisitions would include general industrial parcels. Several are related to the sand and gravel industry. Also in this segment would be impacts on residential uses in the form of the acquisition of a mobile home park just west of State Route 87. This impact is described in detail in Section 4.3.

4.1.3 Major Urban Arterial Alternative

The urban arterial alternative is not consistent with the applicable local government plans that pertain to the area. Each of these plans provide for the construction of a freeway facility. However, the arterial alternative would not conflict with the provisions of the MAG Regional Bicycle Plan.

While the construction of the arterial alternative would assist in providing additional accessibility and visibility to the study area, it would not accomplish the goals of the adopted plans. Arterial traffic would experience higher levels of congestion than the freeway alternative and would not provide the same level of access to the larger community. The future development would likely be somewhat similar to the uses provided by the plans, but at a less intense and varied level.

Specific land use impacts caused by the acquisition of the right-of-way would affect the same properties as the freeway alternative. The 200-foot right-of-way would require less acreage than the 350-foot freeway right-of-way. However, the actual parcel acquisition and impacts would be similar. These impacts can be summarized as follows:

Price Freeway to Dobson Road

Acquisition and impacts in this segment would be the same as the freeway alternative. This condition would be caused by the need to connect the arterial to the Price/Red Mountain Interchange and by the transition from the freeway on the west to the arterial on the east.

Dobson Road to Alma School Road

Acquisition in this area would include the northern edge of the agricultural parcel in the center of Subarea 5. The acreage required would be less than that for the freeway alternative. Dobson Road would not be realigned. Thus, no additional right-of-way for Dobson Road would be needed. The adjoining property could still be used for agriculture and could be developed in the future. To the east of the agricultural parcel, the impacts would be similar to those of the freeway alternative, except that less acreage would be taken.

Alma School Road to State Route 87

Acquisition in this segment would affect the same parcels as the freeway alternative. The acreage acquired would be less, but the business and residential impacts would be the same.

4.2 Social Impacts

This section describes the impacts of each alternative on the social fabric of the study area. Included are discussions related to community cohesion, accessibility, public facilities, safety, and demographic groups.

4.2.1 No-action Alternative

With the no-action alternative, no social impacts would be caused. Any social changes would occur as a result of the continuing evolution of the community. These changes would be influenced by the land use changes and traffic congestion that would occur without either of the build alternatives, as described in Section 4.1.1.

4.2.2 Freeway Alternative

Community Cohesion

The impact of the freeway alternative on the integrity and cohesion of the existing neighborhoods would be minor. The proposed roadway lies along the northern edge of the study area on the south bank of the Salt River. The river presently forms a natural barrier between the development in the study area and the undeveloped land on the Salt River Pima Maricopa Indian Community north of the river. The jurisdictional boundary, which is defined by the river, separates the two areas that have different development policies and philosophies. Thus, no disruption to either area would be created. While the physical separation created by the river may be emphasized by the freeway, it does not create additional separation. As discussed below, potential for access between the two communities would be improved.

Within the study area, the freeway alternative would not disrupt the existing stable neighborhoods that lie in the southern portion of the study area. No residential neighborhoods would be divided, nor would barriers be created between the neighborhoods and the remainder of the community. The only residential impact would be the taking of the Hawaiian Mobile Home Park located just west of State Route 87. The required relocations are described in detail in Section 4.3.

Travel Patterns and Accessibility

The introduction of the new road capacity would improve the general circulation and accessibility within the study area and between the study area and the remainder of the community. Access between the residential areas within the study area and the employment, commerce, and cultural areas in the larger community would improve. Access among the business and industrial areas within the study area would also improve.

The improved accessibility would create improved opportunities for development in the study area. The extensive areas of land presently in agricultural use, sand and gravel operations, low-intensity industrial uses, and vacant lots would be suitable for industrial and commercial development. These development influences could also extend to properties in the surrounding area.

Local residents would benefit from increased accessibility to the wider regional roadway system. Internal traffic trips would not be expected to be adversely affected due to existing roadway upgrades. Local travel times may be improved because through traffic would be diverted to the freeway system. Non-vehicular traffic in the area would be unchanged.

The peripheral location of the project in the study area means that no major facilities, or access to them, would be affected. In addition, while the freeway may appear to be a barrier between the Indian community and the study area, the location of intersections on all access streets that link the two communities would minimize this effect.

Public Facilities

Public facilities that may be potentially affected by the freeway could include schools, recreation areas, churches, and police and fire protection.

As described in Section 3.2, the schools that serve the study area are located outside of its boundaries. Access from the neighborhoods to the schools is provided by the major arterial streets. The project would have no impact on this access. School bus routes would not be affected. Buses transporting students from the Salt River Indian Community to schools in the district could experience minor temporary delays during the construction period, but travel time would be either unchanged or improved upon completion of the project. The distribution of school catchment areas is expected to change somewhat upon the completion of a new elementary school to be located southeast of Whitman Elementary School, which is located on Grand Street south of McKellips Road and east of State Route 87. Adjustments to school bus routes could result, but accessibility would remain unchanged by the freeway.

The schools of the Mesa School District are also used after regular hours for a number of other activities. These activities include after-school daycare, sports programs operated by the City of Mesa, and community education programs offered by the school district. The addition of the freeway would not affect the availability of these activities. Access for residents living at a distance from the school facilities would be improved.

Recreational facilities in the area include the Riverview Park and Golf Course, both of which are used extensively by the community. Impacts are described in detail in Section 4.5. The freeway would improve access to these facilities. The extension of Dobson Road and its intersection with the freeway would enhance the accessibility of the park from the east and the west.

The two churches in the study area would not be affected by the freeway. They would share the general benefits of improved circulation in the area. All other churches lie outside the study area. None are likely to receive any direct or indirect impacts from the project.

Fire protection and police services are provided by the cities of Mesa and Tempe. In addition, Rural Metro, a private company, provides fire protection to the unincorporated area under the jurisdiction of Maricopa County. These services originate from the south of the study area. The major arterial streets provide the means of access into the area. No disruption of service is anticipated as a result of the freeway project. Temporary rerouting is unlikely to be required. The long-term effect would be to improve access to the northern portions of the study area by providing alternative access routes to McKellips, Alma School, and Dobson Roads from the east and west.

Social Groups

As described in Section 3.2, approximately 7 percent of the study area population is 60 years of age or over. The greatest concentration of this group is in Subarea 2, where almost 14 percent of the residents fall in this category. Most reside in the residential area surrounding the Mesa Country Club. In Subarea 4, the elderly comprise 15 percent of the population. In general, the proportion of elderly in the entire study area (7%) is relatively low in comparison to the city of Mesa or Maricopa County (approximately 16%).

Subarea 4 is somewhat isolated from the residential area to the south by University Drive and by the construction of the Price Freeway on the west. However, it does form a contiguous bank of residential land use to the east along University Drive. The freeway would have little further impact on this area than that already experienced due to major roadway development in the area. Vacant land to the north shields and separates the area from direct impact.

Local traffic patterns for the elderly population are likely to be unchanged. All service and retail areas lie to the east and south and will not be directly affected by the freeway on the north. The overall impact is expected to be beneficial in terms of improved access to regional facilities and services.

The study area contains a generally homogeneous population with no large racial or ethnic groups. The Salt River Pima Indian Community lies north of the study area. The freeway is not expected to reduce traffic to and from the Indian community. The freeway may represent a psychological barrier in addition to the Salt River and may underline the separateness of the Indian community. However, the addition of the freeway would actually improve access between the Indian community and facilities and services to the south. As described in Section 4.3.2, the project will affect a mining parcel on which the Indian Community has acquired ownership of the mining patent. The State will comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, without discrimination, for all properties acquired, and all businesses displaced.

The greatest impact on minorities would occur with the displacement of the Hawaiian Mobile Home Park. As discussed in more detail in Section 4.3, the U.S. Census shows a larger share of minorities residing there. Over 20 percent are of Hispanic origin, compared with 11 percent in the study area and the City of Mesa. Another 20 percent are black, Asian, and "other races", compared with 9.7 percent in the study area. As described in Section 4.3, a relocation plan will be required.

4.2.3 Major Urban Arterial Alternative

Social impacts of the arterial alternative would be similar to those of the freeway alternative. It is located on the same alignment along the south bank of the Salt River and therefore would have a minimal impact on the social cohesion of the community. Travel patterns and accessibility would be improved, although not to the degree caused by the freeway alternative. Relationships to public facilities would be similar to those of the freeway. One difference in this regard relates to Riverview Park. With the arterial alternative, the extension of Dobson Road would form the eastern boundary of the park as compared to the realignment of Dobson Road further to the east with the freeway alternative. Impacts of the various social groups would be virtually identical to those described for the freeway alternative.

4.3 Relocation Impacts

Relocation impacts deal with the properties and land uses that would be directly affected by the acquisition of the needed right-of-way. This acquisition and the associated relocation program would be conducted in accordance with federal law, specifically the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. The relocation impacts would affect both residential and business properties. The needed acquisitions for the build alternatives have been identified based on the conceptual location of the alignments. The impacts associated with these acquisitions are described in this section. Exact definitions of property to be acquired will be made by ADOT following the engineering design of the selected alternative.

4.3.1 No-action Alternative

Under the no-action alternative, no property would be acquired and no relocations would occur.

4.3.2 Freeway Alternative

The relocation impacts of the freeway alternative deal with the properties and land uses that would be directly affected by the acquisition of the needed right-of-way. These impacts would affect both residential and business properties.

Residential Relocation

The area of residential development to be displaced is located in Subarea 1, south of the Salt River and north of McKellips Road. The right-of-way requirements in this location would directly affect the Hawaiian Mobile Home Park. The park is an older development containing units that are older and smaller than would be found in most mobile home parks in the general area. Pads for 68 mobile homes and six apartment units are provided on 4.15 acres. In May 1993, the park contained 62 occupied mobile homes.

Detailed demographic information for the park is limited due to privacy requirements. However, a general description of the demographic composition can be estimated by considering data for the Census block in which it is located. The racial composition is estimated to be approximately 74 percent White non-Hispanic, 21 percent Hispanic, 2 percent Black, and 3 percent Asian. No American Indians reside in the census block. Children from the mobile home park attend nearby schools in the Mesa School District. These schools include Whitman Elementary School, located east of State Route 87 on Grand Avenue, and secondary schools located south of the area on Westwood between Eighth Street and University Drive.

Over 80% of the Hawaiian Mobile Home Park property lies within the proposed right-of-way. Thus, the entire development would require acquisition. Relocation of the 62 occupied units would be required. The units that would be acquired are estimated to house approximately 180 persons, or 1.8 percent of the residential population in the study area.

In addition to the residential relocations, two other residential areas are indirectly affected by the right-of-way. The first involves three parcels on the north side of McLellan Road east of Alma School Road. These parcels are narrow with depths ranging from approximately 475 feet to 1,100 feet. Residences are located at the southern end of the parcels on McLellan Road. The right-of-way crosses their northern edge and will require the acquisition of an estimated 50 feet to 100 feet of the parcels. No direct impact will occur on the residential structures. The other affected area is a single-family residential lot, approximately 1.2 acres, that is located adjacent to the Mark Mobile Home Park on McKellips Road. The acquisition of approximately 20 percent of the lot may be required. Disruption of the residence is not anticipated. The exact extent of the impact will depend upon the final design of the freeway. An alternative access may be required between this lot and McKellips Road.

Available housing to meet the needs of the relocatees can be found in the general area. Within the study area, mobile homes comprise almost 20 percent of the total housing stock. The affected park is the smallest in the area. The others are the Mark Mobile Home Park on McKellips Road west of State Route 87 and the Tempe Cascades Mobile Home Park on University Drive east of Price Road.

In addition to those in the vicinity, numerous mobile home parks are located in the adjacent residential areas of north Mesa east of State Route 87. Twenty percent of all housing within the city of Mesa is comprised of mobile homes. In 1990, over 16,000 units were vacant. However, two problems may occur with regard to the relocation of the mobile homes in the Hawaiian Mobile Home Park. First, many of the parks require that the units meet specified size and age standards. The mobile homes to be relocated may not meet these standards. Second, rental rates for the pads in the other parks generally exceed the current rates at the Hawaiian Park. Thus, special assistance may be required to locate suitable replacement housing.

Business Relocations

A total of fifteen businesses will be directly impacted by the acquisition of the needed right-of-way. These businesses are located on Alma School Road and on McKellips Road between Alma School Road and State Route 87. They include the sand and gravel operations on either side of Alma School Road, a small cluster of industrial and retail businesses along Alma School Road, and another cluster of businesses along the north side of McKellips west of State Route 87. The fifteen businesses are described below.

Sunward Materials: This firm is the American operating company of CeMex and is located south of the Salt River on both sides of Alma School Road. This portion west of Alma School Road provides the area from which the sand and gravel materials are extracted. Sunward also leases land from Johnson Stewart that is located on the east side of Alma School Road adjacent to the Salt River. This leased property is the location of the processing plant operated by Sunward Materials, as well as the area used for equipment storage, material stockpiles, and other ancillary materials. An access road runs beneath Alma School Road and provides a direct link between the two parcels. Raw materials are trucked to the processing plant without interrupting traffic flows on Alma School Road. This operation provides 120 jobs.

A portion of this property, most of which is located immediately west of Alma School Road would require acquisition. A small portion of the site east of Alma School Road is also within the proposed right-of-way. The southern-most parcel west of Alma School and the majority of the processing plant site would not be acquired. In addition to the property acquired, the freeway project would have the effect of severing the Sunward Materials processing operations from the materials source. Initial indications suggest that the land requirements and access impact may cause the closure of this sand and gravel operation unless appropriate mitigation measures are taken. Mitigation measures are described in Section 4.3.4.

CalMat: This sand and gravel company owns land that is located to the west and north of the Sunward Materials active mining areas. These mining areas are currently inactive, but could be brought to active use at any time. The property is now used for equipment storage. When active, the materials from this pit are transported directly across the normally-dry Salt River bed to a processing plant on the north side of the river. This plant is operated by the Pima Salt River Maricopa Indian Community. An estimated 225 jobs would be provided by a renewal of this activity. Access to the site is provided from Alma School Road across the Sunward Materials property.

The central portion of this property lies within the right-of-way and would require acquisition. The construction of the freeway could potentially remove access to the remainder of the parcel and leave it landlocked. In that case, the mine could become inoperable. It has been reported that the Indian Community has acquired ownership of the mining patent associated with this property. If the mining operation is closed, compensation to the Indian Community under the Uniform Relocation Act will be available. Such compensation will be identified following the determination during final design of the exact impacts and the rights held by the Indian Community.

Six Businesses: A cluster of six businesses is located on Alma School Road south of the Sunward Materials processing plant. These businesses includes Mesa Precast Supply, Busby Metals, Ryder Trucks, Shields Trucking, and Gomez Tire on the east side of Alma School Road. One additional business, the Ten X Stone and Nursery Company, is located on the west side of Alma School Road. These businesses employ a total of 66 persons. All are within the proposed right-of-way and would require acquisition and relocation to alternative sites.

Arizona Crushing Company: Located on the north side of McKellips Road just south of the Salt River, this business is an active mining operation and also processes gravel for wholesale and retail trade. The property contains the active mine, processing and rock crushing operation, material stockpiles, and equipment yards. The company both mines raw materials and purchases materials from other suppliers. A total of 50 persons are employed by this firm. A substantial portion of the Arizona Crushing Company property would be acquired. Relocation would be required.

Cashway Concrete: This company is a sister firm with Arizona Crushing. It purchases materials from the other company and produces and transports ready-mix concrete. It employs 60 persons. Acquisition and relocation would be required.

Cyevco Industrial Park: This development is located on the north side of McKellips Road west of State Route 87. Seven businesses occupy space in three buildings. Two buildings on the west side of the development are directly impacted. These buildings are currently leased to Park West Industries and Colonial Coach, which employ a total of 46 persons. Acquisition of this property and relocation of the two businesses would be required. The building on the east side of the development, which contains five businesses, would not be directly impacted by the right-of-way.

Mesa Sand and Rock: This operation is located just west of State Route 87 on the south bank of the Salt River. It has operated for over 40 years on land leased from the U.S. Bureau of Land Management. The company has a mining patent to extract materials from the subsurface, as well as right to the surface use of the property. It provides 20 jobs. A small portion of the property lies within the right-of-way and would require acquisition. However, the business could remain in operation. Issues related to access from the site to State Route 87 would require attention during project design.

Southwest Auto Sales: This business on State Route 87, which employs one person, is located within the right-of-way. Acquisition and relocation would be required.

Trout Haven: This retail business, which is located on State Route 87 adjacent to the Hawaiian Mobile Home park, is within the right-of-way. It employs four persons. Acquisition and relocation would be required.

Hawaiian Mobile Home Park: The displacement of this development, as described in the residential relocation section, would also end its function as a business. Three employees would be affected.

The affected businesses presently occupy approximately 163,000 square feet of building space and provide 370 jobs. If the CalMat mine were in full operation, an additional 225 jobs would be impacted. Many of these businesses are mutually supportive and dependent. They supply services and materials to each other. Proximity is essential for their well-being. The impact of removing sand and gravel extraction operations sets off a domino effect upon all related economic activities.

Potential relocation of the sand and gravel activities is restricted to limited resource locations throughout the metropolitan area. These locations include other sites along the Salt River, the Queen Creek area to the southeast, sections of Deer Valley in the northwest, and the western periphery of the region along the Agua Fria River. The relocation of the sand and gravel operations presents special considerations. In addition to the limited locations of the resource, transportation costs of this heavy material dictate that it be mined as near as possible to its ultimate use. Relocation is often complicated by the potential social and environmental impacts of the operation. The acquisition of the required zoning and permits is often difficult. Thus, the acquisition of sand and gravel properties may result in an irretrievable loss of the resource. As described in Section 4.3.4, the design of the project will seek to minimize the acquisition of sand and gravel properties.

Other than the mining activities, the relocation of the other displaced businesses could occur in various locations. In response to interviews, a majority of the affected businesses stated that they would consider relocating in the study area or elsewhere in the City of Mesa. A smaller proportion would consider relocating outside the City of Mesa. Seven would consider closing their businesses permanently.

The businesses that prefer to relocate within the study area could use available space in the employment clusters at Alma School Road and McLellan Road and on vacant land on McKellips and State Route 87. Existing development with vacant units are located on State Route 87 between McKellips and McLellan Roads. There are also a number of vacant lots on State Route 87 that are zoned for neighborhood commercial uses.

Future land use plans for the study area include areas designated for commerce park, high density residential, and commercial uses. These planned land uses would preclude the relocation of some of the existing industrial businesses within the study area. However, their relocation elsewhere within the city of Mesa is feasible in the vicinity of University Drive between Main Street and Broadway, and near the Superstition Freeway between State Route 87 and Stapley Drive.

Alternative locations for commercial and some industrial uses will thus be possible in the study area or adjacent areas within the city of Mesa. However, several of the existing businesses are closely associated with the sand and gravel resources or the processing plants. These businesses may seek alternative locations elsewhere or close permanently.

4.3.3 Major Urban Arterial Alternative

The actual right-of-way requirements for the arterial alternative are less than those for the freeway. However, the need to acquire complete parcels will cause the relocation impacts to be similar.

The required residential relocations will be identical to those for the freeway alternative. The Hawaiian Mobile Home Park would be acquired. The relocation of the 62 occupied units would be required.

The business relocations would also be similar. In the case of the CalMat and Sunward Materials properties, the acquisition of less acreage would be required, but the severance effect would still occur. A more usable area of land remains to the north of the right-of-way and may provide a materials source for the construction of the arterial. The CalMat reserves to the south would be landlocked by the arterial alternative.

The impact on the cluster of six businesses on Alma School Road in terms of land requirements would be less for the arterial alternative than for the freeway. However, the overall effect could be the same because buildings, storage areas, and ancillary facilities would be disturbed or displaced. The remaining land areas that would not be required for the right-of-way may be too small for existing business operations.

With regard to the businesses on the north side of McKellips Drive west of State Route 87, the alignment of the arterial would closely follow that of the freeway through this area. Although the physical land requirements of the narrower right-of-way are less, the impact is similar.

4.3.4 Mitigation of Relocation Impacts

Relocation and related impacts will be mitigated by the following measures.

- An acquisition and relocation assistance program will be developed that identifies the process, procedures and time frame for right-of-way acquisition and relocation of affected residents or businesses.
- The acquisition and relocation program will be conducted in accordance with the Uniform Relocation Assistance and Real Properties Acquisition Policies Act of 1970, as amended. This act provides for relocation advisory services, comparable replacement housing payments, moving cost reimbursement, and appeal rights for persons displaced. Relocation resources will be available to all residential and business relocatees without discrimination.
- All replacement housing will be decent, safe, and sanitary. Last resort housing will be provided if it is found that sufficient comparable housing is not available.
- A specific relocation plan will be developed to assist residents of the Hawaiian Mobile Home Park to find alternative housing or locations for their mobile homes. This plan will provide methods of dealing with the specific issue of relocating the older and smaller mobile homes to alternative sites. The plan will also provide measures to mitigate any disproportionate impacts that may occur on minority residents.
- Traffic through the construction areas and access to adjacent properties will be maintained during construction in accordance with Arizona Department of Transportation traffic control management procedures for highway construction and maintenance.
- The design of the project will seek to minimize the acquisition of sand and gravel mining properties. Compensation for the remaining reserves of the acquired properties will be determined as a part of the standard ADOT appraisal and acquisition process.
- A plan will be prepared to mitigate the access impacts on all sand and gravel operations. Specifically included will be methods of minimizing impacts on the Sunward Materials site both during and after construction. The plan will address the issue of the needed access

between the two portions of the operation. The details of such measures will be determined in conjunction with the preliminary engineering design of the project. It will include access arrangements and special design standards to avoid the closure of the operation.

4.4 Economic Impacts

This section addresses the economic and fiscal impacts of the alternatives. The analysis describes the impact of the project on future development conditions, property taxes, and sales taxes. It also summarizes fiscal impacts on the City of Mesa and other governmental jurisdictions. The analysis is based on data from the following sources: interviews with affected businesses and governmental planners, budgetary data from the City of Mesa and other jurisdictions, parcel-level data from the Maricopa County Assessor, building inventory data from Kammrath Associates, and the 1990 U.S. Census.

The existing land use distribution in the study area was used as the basis for calculations of future economic impact. All of the parcels that would be affected by the project were identified. These affected parcels include those that would be fully-acquired, partially-acquired, or otherwise affected. Based on the adopted land use plans, an estimate was made of the likely reuse of the impacted acres that are not required for the right-of-way. Also estimated was the likely future use of other vacant parcels in the study area. These calculations enabled the description of future development conditions for each of the build alternatives.

The economic impacts of the project are likely to occur in two stages. The first stage would be the immediate aftermath of the freeway construction, whose greatest effect would be the acquisition of specific parcels. The second stage would be the development that will occur as a result of the improved transportation accessibility and consequent increase in development pressure. The impacts at these two stages are described for each of the build alternatives.

4.4.1 No-action Alternative

With the no-action alternative, no project-related economic impacts would occur. Economic conditions would change as a result of the normal development process, as described in Section 4.1.1.

4.4.2 Freeway Alternative

Future Development Conditions

The construction of the freeway alternative would improve the accessibility between the study area and other parts of the region. As a result, a substantial amount of new development and redevelopment is likely to occur. The nature of the future development is well-described by the general plans of the cities of Mesa and Tempe. These plans provide the information needed to quantify the long-term economic impacts of the freeway.

All of the directly-impacted property is located in Subareas 1 and 5. A summary of the future development profile for the freeway alternative is provided in Table 4-1. This table compares the development for existing conditions, for the period immediately after the freeway construction, and for the ultimate build-out condition.

**TABLE 4-1
ECONOMIC IMPACT SUMMARY
Freeway Alternative**

	Existing Level	At Construction Level	Impact	At Development Level	Impact
Acreage by Land Use	2,037	2,037	0	2,037	0
Residential	741	725	(16)	830	89
Commercial	36	29	(7)	94	58
Office	1	1	0	53	52
Industrial	241	56	(185)	274	33
Public/Semi-Public	447	533	86	579	132
Agriculture	314	275	(39)	4	(310)
Vacant	257	281	24	66	(191)
Freeway Right-of-way	0	137	137	137	137
Residential					
Housing Units	3,885	3,814	(71)	5,417	1,532
Occupied Housing Units	3,486	3,419	(67)	4,862	1,376
Population	8,827	8,628	(199)	13,052	4,225
School-age Population	1,554	1,511	(43)	2,422	868
Non-residential					
Building Area	596,715	494,461	(102,254)	3,411,256	2,814,541
Vacant Space	68,311	58,963	(9,348)	350,643	282,332
Employment	1,270	847	(423)	5,440	4,170

As indicated by Table 4.1, the initial construction of the freeway would remove 247 acres from developed uses. The largest decrease would be industrial, with 185 acres, and agricultural, with 39 acres. The major loss in the industrial category would be sand and gravel mining. These reductions would result in the loss of an estimated 199 residents and 423 jobs in the study area. At full development, the land use patterns would change substantially. The major effect would be the conversion of the agricultural and vacant lands to additional residential, commercial, industrial and other developments. The study area would then have approximately 4,225 new residents and provide 4,170 additional jobs.

Property Tax Impacts

Changes in property tax receipts would be caused by the changes to the existing development pattern. These changes would be caused by the acquisition of right-of-way (total and partial takes of individual parcels) and the expanded use of remaining parcels that would be the result of improved access to the area.

Property taxes paid to the governmental units with jurisdiction in the study area would be calculated by applying the applicable tax rate to the assessed value of the property. The assessed value is a percentage of the full cash value. This percentage varies with the different land uses. The full cash value averages about 80 percent of the actual market value.

Table 4-2 summarizes the property tax impacts of the freeway. The information is presented for all parcels that would be directly impacted, either by full takes, partial takes, or expanded uses. The table shows the full cash value, assessed value, and property tax revenues for existing conditions, for the period immediately following the construction of the freeway, and for the ultimate development build-out condition. Using rounded figures, the property tax impacts are summarized below.

The existing full cash value of the directly-impacted parcels is approximately \$13 million, which represents an assessed value of about \$1.7 million. This assessed value produces a total property tax revenue of approximately \$179,000.

TABLE 4-2
VALUATION & PROPERTY TAX IMPACT SUMMARY
Freeway Alternative
(Thousands of Dollars)

	Existing	At Construction		At Development	
		Level	Impact	Level	Impact
Full Cash Value Study Area	\$13,357	\$9,609	(\$3,748)	\$283,273	\$269,916
State	\$13,357	\$9,609	(\$3,748)	\$283,273	\$269,916
County	\$13,357	\$9,609	(\$3,748)	\$283,273	\$269,916
Mesa School District	\$13,357	\$9,609	(\$3,748)	\$283,273	\$269,916
City of Mesa	\$7,291	\$4,991	(\$2,300)	\$156,890	\$149,599
City of Tempe	\$3,054	\$3,054	\$0	\$19,592	\$16,537
Assessed Valuation Study Area	\$1,689	\$1,047	(\$642)	\$62,989	\$61,300
State	\$1,689	\$1,047	(\$642)	\$62,989	\$61,300
County	\$1,689	\$1,047	(\$642)	\$62,989	\$61,300
Mesa School District	\$1,689	\$1,047	(\$642)	\$62,989	\$61,300
City of Mesa	\$1,156	\$820	(\$336)	\$38,219	\$37,063
City of Tempe	\$75	\$75	\$0	\$4,898	\$4,823
Property Taxes Study Area	\$179	\$107	(\$72)	\$6,458	\$6,279
State	\$8	\$5	(\$3)	\$296	\$288
Community College	\$15	\$9	(\$6)	\$536	\$521
Flood Control	\$7	\$4	(\$3)	\$246	\$239
Library	\$1	\$0	(\$1)	\$27	\$26
C.A.P.	\$2	\$1	(\$1)	\$88	\$86
Fire District Cont.	\$0	\$0	\$0	\$6	\$6
County	\$31	\$19	(\$12)	\$1,099	\$1,068
Mesa School District	\$114	\$68	(\$46)	\$4,094	\$3,980
City of Mesa	\$0	\$0	\$0	\$0	\$0
City of Tempe	\$1	\$1	\$0	\$66	\$65

Immediately upon the completion of the freeway construction, the assessed value of the property would decline from \$1.7 million to \$1.05 million. This decrease in assessed value would result in a decrease of annual tax revenues from \$179,000 to \$107,000, a loss of \$72,000. This loss would be shared by the Mesa School District (\$46,000), Maricopa County (\$12,000), Community College District (\$6,000), and various other agencies (a total of \$8,000).

Upon build-out of the planned development as a result of the improved access created by the freeway, major increases in valuation and tax revenues would occur. Full cash value would increase by \$270 million to \$283 million, which would represent an increase in assessed value of \$61 million. Annual property tax revenues would then be over \$6 million greater than existing conditions. The principal beneficiaries would be the Mesa School District (\$4 million), Maricopa County (\$1.1 million), the Community College District (\$521,000), the State of Arizona (\$288,000), and the Flood Control District (\$239,000).

Thus, while there would be a temporary disruption in property tax revenues due to the freeway construction, a substantially increased stream of revenues would result from the improved developability of the area. This additional development would be consistent with approved local plans for the area.

Sales Tax Impacts

Sales tax impacts were estimated for existing conditions, immediately after construction, and at development build-out. Estimates of taxable sales were made using the following three approaches:

- For the sand and gravel operations and related businesses, sales were estimated based on the number of employees in each business and the sales-to-job data provided by the Arizona Rock Products Association.
- For industrial land uses, average sales are assumed to be \$150 per square foot, of which 10 percent is assumed to be taxable.
- For retail land uses, average sales of \$200 per square foot are assumed, of which 90 percent is assumed to be taxable. In the case of "commerce park" designated land, 10 percent of the new building area is assumed to be retail use.

Based on these assumptions, current taxable sales in the study area are estimated to be \$39.8 million. Upon completion of construction, taxable sales are projected to drop substantially to an estimated \$8.6 million. However, under conditions of ultimate build-out, taxable sales are projected to increase to \$125 million. The sales tax impacts are summarized in Table 4-3.

TABLE 4-3
DIRECT* SALES TAX IMPACT SUMMARY
Freeway Alternative
(Thousands of Dollars)

	Existing	At Construction		At Development	
		Level	Impact	Level	Impact
Taxable Sales Study Area	\$39,813	\$8,626	(\$31,186)	\$125,148	\$85,335
State	\$39,813	\$8,626	(\$31,186)	\$125,148	\$85,335
County	\$17,795	\$7,119	(\$10,676)	\$11,198	(\$6,597)
City of Mesa	\$22,018	\$1,508	(\$20,510)	\$103,192	\$81,174
City of Tempe	\$0	\$0	\$0	\$10,759	\$10,759
Sales Tax Generation Study Area	\$1,701	\$356	(\$1,345)	\$8,023	\$6,322
State	\$1,282	\$298	(\$984)	\$6,257	\$4,975
County	\$199	\$43	(\$156)	\$626	\$427
City of Mesa	\$220	\$15	(\$205)	\$1,032	\$812
City of Tempe	\$0	\$0	\$0	\$108	\$108

* Does not compute revenues shared back to the county and the cities by the State.

The sales tax impact of the freeway construction would be substantial. Presently, the study area generates \$1.7 million in annual sales taxes. Upon initial freeway construction, annual sales tax generation within the study area would drop to \$356,000. A portion of this loss would be expected to be recovered elsewhere by the relocation of a portion of the displaced businesses. However, no estimate was made of the amounts of these expected revenues. Within the study area, the ultimate build out of the area would result in substantial increases in sales tax revenue. With the planned development, the area is projected to generate annual sales taxes of over \$8 million, an increase of over \$6 million. The portion of this amount that will be received by each jurisdiction, which is based on population, is shown in Table 4-3.

City of Mesa Fiscal Impact

Most of the study area is either presently within the City of Mesa or will likely be annexed to it upon completion of the freeway. This section analyzes the revenue and cost impacts to the city that are likely to occur. The analysis is based on an examination of past operation and maintenance revenues and expenditures. The revenues and appropriations are associated with both the general fund and the utility fund. As a part of the general fund, sales tax revenues comprise only 17 percent of the total operation and maintenance revenues. The City of Mesa does not have a sales tax.

Table 4-4 summarizes the impacts of the freeway on the operating and maintenance revenues and expenditures of the City of Mesa. The table compares major revenue categories, expenditure categories, and net fiscal balance.

TABLE 4-4
ESTIMATED CITY OF MESA OPERATION & MAINTENANCE FISCAL IMPACT
Freeway Alternative
(Thousands of Dollars)

	Existing	At Construction Level	Impact	At Development Level	Impact
Revenues	\$5,362	\$4,800	(\$562)	\$10,805	\$5,444
Taxes	\$1,101	\$875	(\$226)	\$2,339	\$1,238
Licenses & Permits	\$68	\$60	(\$9)	\$167	\$99
Intergovernmental	\$1,127	\$1,077	(\$50)	\$1,886	\$759
Charges for Services	\$58	\$52	(\$5)	\$122	\$64
Fine & Forfeits	\$87	\$79	(\$8)	\$182	\$95
Misc. Revenue	\$128	\$120	(\$8)	\$234	\$106
Other Revenue	\$17	\$16	(\$1)	\$31	\$14
Utility Fund Revenue	\$2,776	\$2,521	(\$255)	\$5,844	\$3,069
Appropriations	\$5,381	\$5,038	(\$343)	\$9,949	\$4,569
General Government	\$262	\$252	(\$10)	\$427	\$165
Mgmt, Planning & Engning	\$272	\$255	(\$17)	\$498	\$226
Public Safety	\$1,444	\$1,355	(\$89)	\$2,644	\$1,200
Public Works	\$298	\$279	(\$19)	\$545	\$247
Parks, Recreation & Library	\$505	\$494	(\$11)	\$747	\$242
Other	\$100	\$97	(\$3)	\$147	\$47
Utility Fund Appropriations	\$2,500	\$2,306	(\$194)	\$4,941	\$2,441
Balance	(\$19)	(\$237)	(\$219)	\$856	\$875

Presently, the land uses in the study area are estimated to have a slightly negative fiscal impact on the city . The study area generates revenues estimated to be \$5.36 million and takes revenues estimated at \$5.38 million. At the initial construction of the freeway, there is estimated to be a greater loss of revenues than expenditures. The City is projected to lose \$226,000 in taxes, \$255,000 in utility fund revenues, \$50,000 in intergovernmental revenues, and \$31,000 in other revenues for a total revenue loss of \$562,000. The drop in expenditures is estimated to be \$343,000, thus creating a net fiscal deficit of \$219,000.

Similar to other economic impacts, the ultimate build-out following the freeway-based general plan is estimated to create a substantial fiscal surplus. Overall at build-out, the study area is projected to create approximately \$5.4 million in revenues and use approximately \$4.6 million in appropriations. The result is a net fiscal balance of \$875,000.

Revenue Impact on Other Jurisdictions

Table 4-5 summarizes the sales and property tax impact for the other jurisdictions affected by the eventual development of the study area. With the exception of the City of Tempe, which does not presently gain many revenues from this area, all jurisdictions would lose revenues upon the freeway's immediate construction, but gain much greater dollars with the eventual build-out according to the general plans. The following impacts are projected to occur for each of the affected jurisdictions:

- The State of Arizona would lose \$0.99 million at construction, but gain \$5.26 million annually at build-out.
- The Mesa School District would lose \$46,000 at construction, but gain \$4 million at build-out
- Maricopa County would lose \$168,000 at construction, but gain \$1.46 million at build-out.
- The City of Tempe would remain unchanged at construction, but gain \$173,000 at build-out.

TABLE 4-5
SALES AND PROPERTY TAX IMPACT SUMMARY FOR OTHER JURISDICTIONS
FREEWAY ALTERNATIVE
(Thousands of Dollars)

	Existing	At Construction		At Development	
		Level	Impact	Level	Impact
State of Arizona	\$1,290	\$303	(\$987)	\$6,553	\$5,263
Sales Tax	\$1,282	\$298	(\$984)	\$6,257	\$4,975
Property Tax	\$8	\$5	(\$3)	\$296	\$288
Maricopa County	\$230	\$61	(\$169)	\$1,694	\$1,464
Sales Tax	\$199	\$43	(\$156)	\$626	\$427
Property Tax	\$31	\$18	(\$13)	\$1,099	\$1,068
Mesa School District					
Property Tax	\$114	\$68	(\$46)	\$4,094	\$3,980
City of Tempe	\$1	\$1	\$0	\$174	\$173
Sales Tax	\$0	\$0	\$0	\$108	\$108
Property Tax	\$1	\$1	\$0	\$66	\$65

4.4.3 Major Urban Arterial Alternative

Future Development Conditions

The construction of the urban arterial alternative would improve the accessibility between the study area and the other parts of the region. However, the level of improvement would be less than that for the freeway alternative. New development and redevelopment would be likely to occur, but not to the extent that would occur with the freeway alternative. The overall nature of the new development would be guided by the general plans of the cities of Tempe and Mesa. However, the density and mix of development would be different.

The parcels that would be directly impacted by the arterial alternative would be similar to those for the freeway. While less acreage is needed for the actual right-of-way, all of the same parcels would be affected. Thus, the conditions that would exist immediately following the construction of the arterial would be similar to those for the freeway at the same stage of development. Slight variations would exist because of the differences in the required right-of-way.

An estimate was made of the likely reuse of the impacted acres that are not required for the right-of-way. Also estimated was the likely future use of other vacant parcels in the study area. A summary of the future development profile for the arterial alternative is provided in Table 4-6. This table compares the development for existing conditions, for the period immediately after the freeway construction, and for the ultimate build-out condition.

TABLE 4-6
ECONOMIC IMPACT SUMMARY
Arterial Alternative

	Existing Level	At Construction Level	Impact	At Development Level	Impact
Acreage by Land Use	2,037	2,037	0	2,037	0
Residential	741	725	(16)	955	213
Non-residential	725	660	(65)	921	196
Commercial	36	29	(6)	75	39
Office	1	1	0	28	28
Industrial	241	66	(175)	188	(53)
Public/Semi-Public	447	563	116	630	183
Agriculture	314	285	(29)	15	(299)
Vacant	257	293	37	73	(184)
Freeway Right-of-way	0	73	73	73	73
Residential					
Housing Units	3,885	3,814	(71)	5,766	1,881
Occupied Housing Units	3,486	3,419	(67)	5,176	1,690
Population	8,827	8,628	(199)	14,018	5,191
School-age Population	1,554	1,511	(43)	2,619	1,065
Non-residential					
Building Area	596,715	494,961	(101,754)	2,189,034	1,592,319
Vacant Space	68,311	58,995	(9,316)	228,402	160,091
Employment	1,270	931	(339)	3,497	2,227

Property Tax Impacts

Table 4-7 summarizes the property tax impacts of the arterial. The information is presented for all parcels that are directly impacted, either by full takes, partial takes, or expanded uses. The table shows the full cash value, assessed value, and property tax revenues for existing conditions, for the period immediately following the construction of the arterial, and for the ultimate development build-out condition.

The existing full cash value of the directly-impacted parcels is approximately \$13 million, which represents an assessed value of about \$1.7 million. This assessed value produces a total property tax revenue of approximately \$179,000.

Immediately upon the completion of the arterial construction, the assessed value of the property would decline from \$1.7 million to \$1.03 million. This decrease in assessed value would result in a decrease of annual tax revenues from \$179,000 to \$105,000, a loss of \$74,000. This loss would be shared by the Mesa School District (\$47,000), Maricopa County (\$13,000), Community College District (\$6,000), and various other agencies (a total of \$8,000).

Upon build-out of the planned development as a result of the improved access created by the arterial, increases in valuation and tax revenues would occur. These increases would be less than those associated with the freeway alternative because the future development associated with the arterial would be of a lesser density and different type than would occur with the freeway alternative. Annual property tax revenues would increase approximately \$4.6 over existing conditions. The principal beneficiaries would be the Mesa School District (\$2.88 million) and Maricopa County (\$0.77 million).

Sales Tax Impacts

The sales tax impact of the arterial construction is substantial. Presently, the study area generates \$1.7 million in annual sales taxes. Upon arterial construction, annual sales tax generation within the study area would drop to \$436,000. A portion of this loss would be expected to be recovered elsewhere by the relocation of a portion of the displaced businesses. However, no estimate was made of the amounts of these expected revenues. Within the study area, the ultimate build out of the area would result in substantial increases in sales tax revenue. With the planned development, the area is projected to generate annual sales taxes of \$5.2 million.

TABLE 4-7
VALUATION & PROPERTY TAX IMPACT SUMMARY
Arterial Alternative
(Thousands of Dollars)

	Existing	At Construction		At Development	
		Level	Impact	Level	Impact
Full Cash Value Study Area	\$13,357	\$9,548	(\$3,808)	\$231,541	\$218,184
State	\$13,357	\$9,548	(\$3,808)	\$231,541	\$218,184
County	\$13,357	\$9,548	(\$3,808)	\$231,541	\$218,184
Mesa School District	\$13,357	\$9,548	(\$3,808)	\$231,541	\$218,184
City of Mesa	\$7,291	\$4,684	(\$2,607)	\$118,471	\$111,180
City of Tempe	\$3,054	\$3,054	\$0	\$19,592	\$16,537
Assessed Valuation Study Area	\$1,689	\$1,026	(\$663)	\$46,119	\$44,430
State	\$1,689	\$1,026	(\$663)	\$46,119	\$44,430
County	\$1,689	\$1,026	(\$663)	\$46,119	\$44,430
Mesa School District	\$1,689	\$1,026	(\$663)	\$46,119	\$44,430
City of Mesa	\$1,156	\$772	(\$384)	\$24,676	\$23,521
City of Tempe	\$75	\$75	\$0	\$4,898	\$4,823
Property Taxes Study Area	\$179	\$105	(\$74)	\$4,746	\$4,567
State	\$8	\$5	(\$3)	\$217	\$209
Community College	\$15	\$9	(\$6)	\$392	\$378
Flood Control	\$7	\$4	(\$3)	\$180	\$173
Library	\$1	\$0	(\$1)	\$20	\$19
C.A.P.	\$2	\$1	(\$1)	\$65	\$62
Fire District Cont.	\$0	\$0	\$0	\$5	\$4
County	\$31	\$18	(\$13)	\$805	\$774
Mesa School District	\$114	\$67	(\$47)	\$2,997	\$2,884
City of Mesa	\$0	\$0	\$0	\$0	\$0
City of Tempe	\$1	\$1	\$0	\$66	\$65

TABLE 4-8
DIRECT* SALES TAX IMPACT SUMMARY
Arterial Alternative
(Thousands of Dollars)

	Existing	At Construction Level Impact		At Development Level Impact	
Taxable Sales Study Area	\$39,813	\$10,834	(\$28,979)	\$82,211	\$42,398
State	\$39,813	\$10,834	(\$28,979)	\$82,211	\$42,398
County	\$17,795	\$9,326	(\$8,469)	\$12,545	(\$5,250)
City of Mesa	\$22,018	\$1,508	(\$20,510)	\$58,907	\$36,889
City of Tempe	\$0	\$0	\$0	\$10,759	\$10,759
Sales Tax Generation Study Area	\$1,701	\$436	(\$1,265)	\$5,177	\$3,476
State	\$1,282	\$367	(\$915)	\$4,069	\$2,787
County	\$199	\$54	(\$145)	\$411	\$212
City of Mesa	\$220	\$15	(\$205)	\$589	\$369
City of Tempe	\$0	\$0	\$0	\$108	\$108

* Does not compute revenues shared back to the county and the cities by the State.

City of Mesa Fiscal Impact

Table 4-9 summarizes the impacts of the arterial on the operating and maintenance revenues and expenditures of the City of Mesa. The table compares major revenue categories, expenditure categories, and net fiscal balance.

With the construction of the arterial, the City of Mesa is projected to lose \$225,000 in tax revenues, \$214,000 in utility fund revenues, \$45,000 in intergovernmental revenues, and \$26,000 in other revenues. This total revenue reduction of \$510,000 would create a net fiscal deficit of \$215,000. Upon build-out, the study area would produce a modest net positive balance of \$82,000.

TABLE 4-9
ESTIMATED CITY OF MESA OPERATION & MAINTENANCE FISCAL IMPACT
Arterial Alternative
(Thousands of Dollars)

	Existing	At Construction		At Development	
		Level	Impact	Level	Impact
Revenues	\$5,362	\$4,850	(\$510)	\$9,435	\$4,074
Taxes	\$1,101	\$875	(\$225)	\$1,769	\$669
Licenses & Permits	\$68	\$61	(\$7)	\$136	\$68
Intergovernmental	\$1,127	\$1,082	(\$45)	\$1,881	\$754
Charges for Services	\$58	\$53	(\$4)	\$107	\$49
Fine & Forfeits	\$87	\$80	(\$7)	\$160	\$73
Misc. Revenue	\$128	\$121	(\$7)	\$221	\$94
Other Revenue	\$17	\$16	(\$1)	\$29	\$12
Utility Fund Revenue	\$2,776	\$2,562	(\$214)	\$5,131	\$2,355
Appropriations	\$5,381	\$5,085	(\$296)	\$9,372	\$3,992
General Government	\$262	\$253	(\$9)	\$433	\$171
Mgmt, Planning & Engring	\$272	\$257	(\$15)	\$471	\$200
Public Safety	\$1,444	\$1,367	(\$77)	\$2,504	\$1,061
Public Works	\$298	\$282	(\$16)	\$516	\$219
Parks, Recreation & Library	\$505	\$494	(\$11)	\$802	\$297
Other	\$100	\$97	(\$3)	\$158	\$59
Utility Fund Appropriations	\$2,500	\$2,335	(\$165)	\$4,487	\$1,987
Balance	(\$19)	(\$235)	(\$215)	\$63	\$82

Revenue Impacts on Other Jurisdictions

Table 4-10 summarizes the sales and property tax impacts for the other jurisdictions affected by the eventual development of the study area. With the exception of the City of Tempe, which does not presently gain many revenues from this area, all jurisdictions lose revenues upon the arterial's immediate construction, but gain greater dollars with the eventual build-out. The following impacts are projected to occur for each of the affected jurisdictions:

- The State of Arizona would lose \$921,000 at construction, but gain almost \$3 million annually at build-out.

- The Mesa School District would lose \$47,000 at construction, but gain \$2.9 million at build-out
- Maricopa County would lose \$169,000 at construction, but gain \$986,000 at build-out.

TABLE 4-10
SALES AND PROPERTY TAX IMPACT SUMMARY FOR OTHER JURISDICTIONS
Arterial Alternative
(Thousands of Dollars)

	Existing	At Construction Level		At Development Level	
			Impact		Impact
State of Arizona	\$1,290	\$369	(\$921)	\$4,286	\$2,996
Sales Tax	\$1,282	\$367	(\$915)	\$4,069	\$2,787
Property Tax	\$8	\$5	(\$3)	\$217	\$209
Maricopa County	\$230	\$61	(\$169)	\$1,216	\$986
Sales Tax	\$199	\$54	(\$145)	\$411	\$212
Property Tax	\$31	\$7	(\$24)	\$805	\$774
Mesa School District					
Property Tax	\$114	\$67	(\$47)	\$2,997	\$2,884
City of Tempe	\$1	\$1	\$0	\$174	\$173
Sales Tax	\$0	\$0	\$0	\$108	\$108
Property Tax	\$1	\$1	\$0	\$66	\$65

4.5 Section 4(f)/Section 6(f) Lands

Section 3.3.2 describes the two related sites in the study area that fall within the definition of Section 4(f). These sites are the Riverview Park and the adjoining Riverview Golf Course, which are located in the western portion of the study area between the Pima Freeway and Dobson Road. Section 3.3.3 identifies the Section 6(f) property, which is the Riverview Park as described in Section 3.3.2. This section describes the potential impacts of the proposed project on these facilities.

4.5.1 No-Action Alternative

Under the no-action alternative no project-related impacts to the park facilities would occur. The park and golf course would continue to function as at present.

4.5.2 Freeway and Major Urban Arterial Alternatives

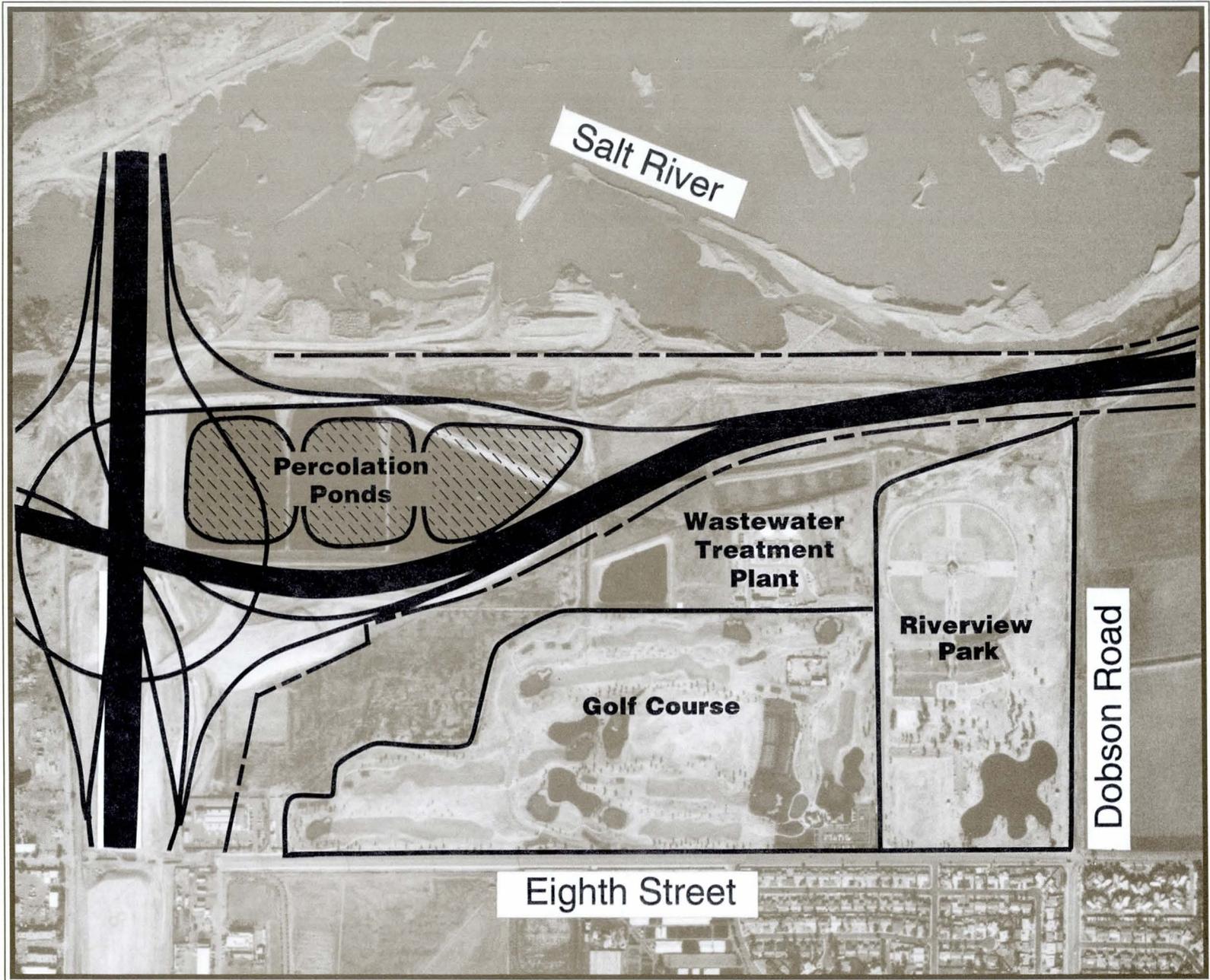
As described in Section 2.1, several specific alignment alternatives were considered for the western segment of the project. A major consideration in the selection of the preferred alternative was the potential physical impact on Riverview Park. The proposed alignment, which is the same for both build alternatives, passes immediately north of the park boundary. The relationship of the alignment to the park is illustrated in Figure 4-1 (page 4-32).

Neither build alternative will have a direct physical impact on either Riverview Park or the adjoining Riverview Golf Course. No land from the park property will be used and no existing or planned activity will be disrupted. With the freeway alternative, Dobson Road would be realigned north of Eighth Street and thus not extended along the eastern boundary of the park. With the arterial alternative, this extension would occur on right-of-way owned by the City of Mesa outside the park boundaries. An at-grade intersection between Dobson Road and the arterial would be constructed at the northeast corner of the park. Neither the extension nor the intersection would use land from the park property or disrupt any activity of the park. The golf course is located further south of the alignment and would not be directly impacted.

The proposed project will have no direct impact on Riverview Park or Riverview Golf Course. Potential indirect impacts are related to air quality, noise, and visual issues. These impacts, and their mitigation, are described in detail in Sections 4.6, 4.7, and 4.14, respectively. Thus, there is no need to complete either the Section 4(f) or Section 6(f) process.

Three receptor sites within Riverview Park were included in the air quality analysis. Predicted carbon monoxide levels at these sites either remained the same or were slightly increased by the freeway alternative. Predicted levels for the arterial alternative increased more than those for the freeway alternative. No violations of air quality standards would occur in either case.

Four receptor sites within Riverview Park were included in the noise analysis. Noise levels at one of these sites, near the softball fields in the northern part of the park are projected to exceed the noise criteria under both build alternatives. Mitigation of this impact would be achieved in either case by the construction of a noise barrier along the southern edge of the proposed facility. For the freeway



**RED MOUNTAIN
FREEWAY**

ENVIRONMENTAL
IMPACT STATEMENT

0 feet 400' 800' 1200'
approx.



**Section 4(f)/6(f)
Lands Impacts**

Figure 4-1

alternative, the existing noise level of 62 dBA is projected to increase to 68 dBA. A six-foot-high barrier is suggested for a 1,600-foot length along the edge of shoulder. This mitigation measure would reduce the noise level to 60 dBA. For the arterial alternative, the existing noise level of 62 dBA is projected to increase to 67 dBA. A ten-foot-high barrier is proposed for a distance of 1,250 feet and an additional 150-foot wrap-around along Dobson Road. This mitigation measure would reduce the noise level to 61 dBA.

Visual impacts would occur for both alternatives. Views from the park to the north would be affected. Immediately north of the park, the future view would be of the noise barrier, which would be constructed and landscaped in a manner consistent with the park aesthetics. The noise barrier would be most visible from the softball fields at the northern edge of the park. Views from the southern portions are already affected by the facilities of the ball fields. The Dobson Road interchange of the freeway alternative would be visible toward the northeast. When compared to existing views from the park, the new facility would not create a major visual impact.

4.6 Air Quality

4.6.1 Pollutants for Analysis

Pollutants that can be traced principally to motor vehicles are those that are of relevance to evaluating the impacts of the project. These include carbon monoxide (CO), hydrocarbons (HC), nitrogen oxides (NO_x), ozone (O₃), and PM₁₀.

HC and NO_x emissions from automotive sources are of concern primarily because of their role as precursors in the formation of ozone. Ozone is formed through a series of reactions which take place in the atmosphere in the presence of sunlight. Since the reactions are slow and occur as the pollutants are diffusing downwind, elevated ozone levels are often found many miles from sources of the precursor pollutants. The effects of HC and NO_x are therefore generally examined on a regional or "mesoscale" basis.

Of the various vehicular emitted air pollutants, carbon monoxide (CO) is the primary concern. The emission level of CO from transportation sources far exceeds those of all other mobile source pollutants. Carbon monoxide impacts are localized. As such, carbon monoxide is a project-by-project concern. Consequently, it is appropriate to predict concentrations of CO on a localized or "microscale" basis.

A microscale analysis procedure to determine particulate matter levels is currently being developed by the U.S. Environmental Protection Agency (EPA).

While the addition of capacity along the Red Mountain Freeway is expected to lessen local congestion, it is not expected to demonstrate any large-scale regional improvement. Therefore no analysis of regional pollutants such as HC or NO_x was conducted. A microscale study of CO was done to quantify the local effects of the project.

4.6.2 Microscale Air Quality Analysis

The analysis of mobile sources, which must be undertaken for a localized (microscale) area, applies mathematical models that simulate physical conditions to predict carbon monoxide (CO) concentrations at specific receptor locations. Mobile source dispersion models are the basic analytical tools used to estimate carbon monoxide concentrations expected under given conditions of traffic, roadway geometry and meteorology. The mathematical expressions and formulations that comprise the various models attempt to describe an extremely complex physical phenomenon. However, because all models contain simplifications and approximations of actual conditions, most of these dispersion models are conservative.

Microscale air quality modeling was performed using the EPA mobile source emission factor model (MOBILE 4.1) and the CAL3QHC version 2 air quality dispersion model to estimate existing, no build, and build CO levels in the project area.

Vehicular Emissions

Vehicular Emissions were estimated using the EPA Mobile 4.1 vehicular emission factor model (User's Guide to MOBILE 4.1, Mobile Source Emission Factor Model, Publication No. EPA-AA-TEB-91-01, Ann Arbor, Michigan, July 1991). As of the date of this analysis, MOBILE 4.1 is the most recent version of the EPA's mobile source emissions program.

Total emissions are affected by the type of vehicles using the facility. The percentages of each type of vehicle used for this analysis were based on recommendations from the Arizona Department of Transportation (ADOT).

Emissions estimates account for three possible vehicle operating conditions: cold-vehicle operation, hot-start operation and hot stabilized operation. CO emissions are greatest when engines are cold (cold-vehicle operation) and when engines are restarted shortly after they were shut off (hot-start operation). Vehicular operating conditions used in this analysis (20.6 percent cold, 27.3 percent hot), based on national averages, were recommended by ADOT.

Emissions are also greatly affected by speed, ambient temperature, vehicle age and mileage distribution. Ambient temperature was recommended by ADOT, as was the usage of national average vehicle age and mileage distribution. Emission estimates included the implementation of Arizona's inspection and maintenance (I/M) program and anti-tampering program (ATP).

Dispersion Model

The CAL3QHC version 2 air quality dispersion model is a modification of the CALINE3 model (CALINE3: A Versatile Dispersion Model for Predicting Air Pollutant Levels Near Highways and Arterial Streets, Report Number FHWA/CA/TL-79/23). CALINE3 is a mainframe computer-based air quality dispersion model developed by the California Department of Transportation. The model estimates air pollutant concentration downwind of a roadway based on the assumptions that pollutants emitted from motor vehicles traveling along a segment of roadway can be represented as a "line source" of emissions, and that pollutants will disperse in a Gaussian or "normal" distribution from a defined "mixing zone" over the roadway being modeled.

Principal inputs to the CAL3QHCV2 Model include:

- The geometry of the roadway being evaluated, including its length, height, width, and number and location of lanes;
- The locations of the sites for which air quality estimates are being completed (i.e., receptor locations);
- An estimate of the rate of vehicular emissions (based on number and type of vehicles) for each pollutant for which estimates are computed;
- Assumed meteorological conditions, including wind speed, wind direction, atmospheric stability class, temperature, and mixing height.

The principal output from the model is an estimate of pollutant concentrations at each receptor location. Given source strength, meteorology, site geometry, and site characteristics, the CALINE3 model can reliably predict pollutant concentrations for receptors located within 150 meters of a roadway. The model is limited to the prediction of the concentration of inert (non-reactive) pollutants, including CO.

A complete description of the CAL3QHC model can be found in Parsons Brinckerhoff Quade & Douglas, Inc. "User's Guide to CAL3QHC A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections," U.S. Environmental Protection Agency, Technical Support Division, Research Triangle Park, North Carolina, September 1990.

CAL3QHC has undergone extensive testing by EPA and has been found to provide reliable estimates of inert (non-reactive) pollutant concentrations resulting from emissions from motor vehicles. The EPA has approved CAL3QHC for nationwide usage. CAL3QHC version 2 is an updated edition of the CAL3QHC model. Version 2 allows the user to specify certain parameters such as capacity, signal type and progression, which had previously been internally set. This model has been approved by the EPA for nationwide usage.

Receptor Locations

CO levels resulting from motor vehicles using the proposed project and associated roadways were estimated at 8 locations using the CAL3QHC model. Sites were selected on the basis of existing and estimated future traffic conditions and included the locations where the greatest project-related air quality impacts could occur. Sites included sensitive receptors, such as residences, along the project alignment. The receptor locations are illustrated in Figure 4-2 (page 4-38).

Meteorological Conditions

The transport and concentration of pollutants emitted from motor vehicles are influenced by three principal meteorological factors: wind direction, wind speed, and the temperature profile of the atmosphere. The values for these parameters were chosen to maximize pollutant concentrations at each prediction site (i.e., to establish a conservative worst case situation).

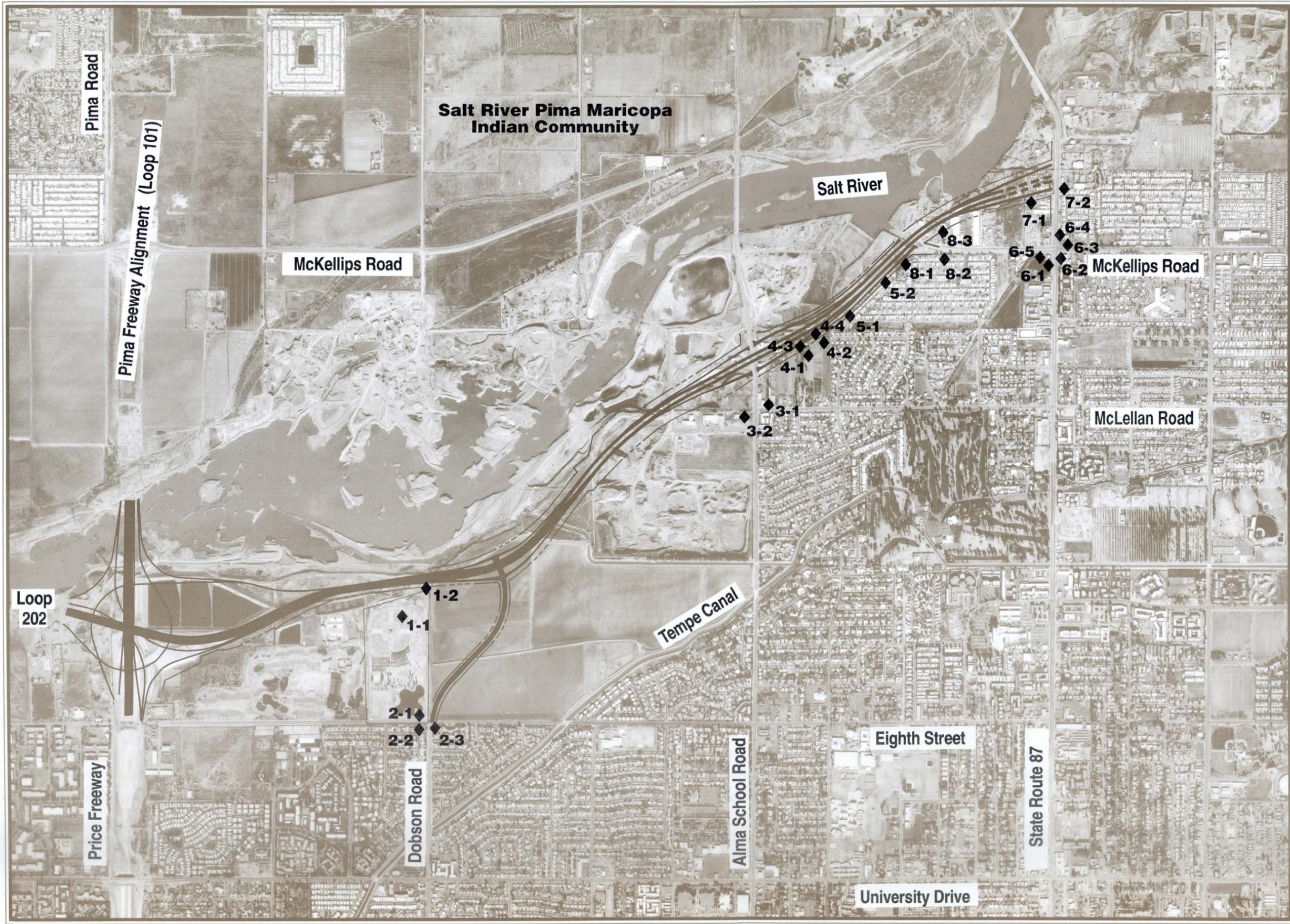
- Wind Direction. Maximum CO concentrations are normally found when the wind is assumed to blow approximately parallel to a single roadway adjacent to the receptor location. At

**RED MOUNTAIN
FREEWAY**
ENVIRONMENTAL
IMPACT STATEMENT

0 feet 800' 1600' 2400'
approx.



GRAPHIC LEGEND



**Air Quality
Receptor
Locations**

Figure 4-2
4-38

complex intersections, however, it is difficult to predict which wind angle will result in maximum concentrations. At each receptor location, therefore, the approximate wind angle that would result in maximum pollutant concentrations was used in the analysis. All wind angles from 0 to 360 (in 5 increments) were considered.

- Wind Speed. CO concentrations are greatest at low wind speeds. A conservative wind speed of 1 meter per second (2.2 miles per hour) was used to predict CO concentrations during peak traffic periods.
- Temperature and Profile of the Atmosphere. An ambient temperature of 42 F, a "mixing" height (the height in the atmosphere to which pollutants will rise) of 1000 meters, and "D" or neutral atmospheric stability conditions were used in estimating microscale CO concentrations. The selection of these meteorological parameters was based on recommendations from the Arizona Department of Transportation. This data was found to be the most representative of the conditions existing along the project area.

The CO levels estimated by the model will generally be the maximum concentrations which could be expected to occur at each air quality receptor site analyzed because they result from assuming the simultaneous occurrence of all worst case parameters (peak hour traffic conditions, conservative vehicular operating conditions, low wind speeds, low atmospheric temperature, neutral atmospheric conditions, and the maximizing wind direction).

Persistence Factor

Peak 8-hour concentrations of CO were obtained by multiplying the highest peak hour CO estimates by .7. This factor, recommended by ADOT, takes account of the fact that over eight hours (as distinct from a single hour) vehicle volumes will fluctuate downwards from the peak, vehicle speeds may vary, and meteorological conditions including wind speeds and wind direction will change to some degree as compared to the very conservative assumptions used for the single hour.

Background Concentrations

Microscale modeling is used to predict CO concentrations resulting from emissions from motor vehicles using roadways immediately adjacent to the location at which predictions are being made. A CO "background" level must be added to this value to account for CO entering the area from other sources upwind of the location at which predictions are being made. A CO background level will

generally be lower than the values obtained from a hotspot monitor. A hotspot monitor, similar to those presented in Figure 3-7, measures both ambient (or background) pollutant levels and locally-generated pollutants. Because the modelling procedure described in this section will predict the locally-generated pollutants, the use of hotspot data would result in a double counting of locally-generated pollutants.

A one-hour value of 5.0 ppm and an eight hour value of 3.5 ppm were used for the 1 and 8 hour background levels respectively. These values were taken, on the recommendation of Arizona Department of Transportation based on monitored data from the Maricopa County Air Quality Monitoring Network. It was assumed that these values will remain constant for all years of analysis. This is a conservative assumption due to the predicted future decreases in CO levels.

Traffic Information

All traffic information was developed from an analysis of MAG traffic projections. Signal timing was developed using information received from the Maricopa County Department of Transportation.

4.6.3 Summary of Potential Impacts

Maximum 1-hour and 8-hour carbon monoxide (CO) levels were predicted at sensitive receptor sites along the proposed Red Mountain Freeway. The results of this analysis are given in Tables 4-11 and 4-12. As shown in these tables, no violations of the 1 or 8 hour CO standard are predicted.

Areas located near congested intersections generally have elevated air quality levels. This is due to vehicular queueing and congestion. The levels predicted in this analysis are expected to be the highest microscale impacts due to the project within the study area.

No violations of the one or eight hour State and Federal CO standards are predicted within the study area. All the intersections analyzed have generally low or failing level of services (LOS) with or without the project. These low LOS's result in increased vehicle queueing and thus high carbon monoxide levels. Levels are slightly higher in the build scenarios as compared to the no build due to the introduction of entrance/exit ramps and the creation of new signalized intersections. This increase is generally less than 1 ppm for the one-hour scenario and .7 ppm for the eight-hour scenario.

The project is in a nonattainment area for PM₁₀, thus care must be taken during construction to reduce the amounts of particulates generated. Construction guidelines described in Section 4.6.5 should be followed.

TABLE 4-11
RED MOUNTAIN CORRIDOR ALTERNATIVES
Predicted 1-Hour Carbon Monoxide Levels
(ppm)*

Site #	Site Location	Receptor Description	Existing	No-Build 2015	Build-Freeway 2015	Build-Arterial 2015
1	Dobson & Red Mountain Freeway	1-1 Baseball field 1-2 ROW	5.0 5.0	5.0 5.0	5.0 5.8	5.6 7.7
2	Dobson & 8th	2-1 Riverview Park 2-2 Residence 755 Santa Anna/2020 Dixon 2-3 Willow Parc Apartments- #161 & #162	5.2 5.4 5.3	6.6 7.0 7.1	6.7 7.1 7.0	7.5 7.9 7.5
3	McLellan & Alma School	3-1 Residence 1132 McLellan 3-2 Residence 1556 Alma Sch	5.9 6.1	5.4 5.4	5.4 5.4	5.3 5.3
4	Alma School & Red Mountain Freeway	4-1 Residence 964 Inglewood 4-2 Residence 4-3 ROW 4-4 ROW	5.0 5.0 5.0 5.0	5.1 5.0 5.1 5.0	5.2 5.1 5.3 5.1	5.8 5.6 6.0 5.7
5	Mobile homes-Date/ Red Mountain Fwy	5-1 Mobile home - Date Ave. 5-2 Mobile home	5.0 5.0	5.0 5.0	5.0 5.1	5.3 5.2
6	State Route 87 & McKellips	6-1 Residence 1910 Country Club 6-2 Apartments 1910 Country Club 6-3 Country Club Village Mobile home #480 6-4 Country Club Village Mobile home 6-5 Residence 427 McKellips	8.2 9.5 9.4 9.1 8.9	7.8 8.3 8.1 8.2 8.0	7.8 8.5 8.0 8.1 8.0	7.5 8.9 8.3 8.3 8.0
7	State Route 87 & Red Mountain Freeway	7-1 Hawaiian Mobile homes 2134 Country Club 7-2 Country Club Village Mobile home	5.1 5.3	5.2 5.6	5.6 6.1	5.4 5.8
8	McKellips & Red Mountain Freeway	8-1 Residence 8-2 Residence 8-3 Residence	5.1 5.3 5.1	5.2 5.7 5.2	6.0 6.2 5.6	6.5 7.3 6.5

*One hour background = 5.0 ppm

TABLE 4-12
RED MOUNTAIN CORRIDOR ALTERNATIVES
Predicted 8-Hour Carbon Monoxide Levels
(ppm)*

Site #	Site Location	Receptor Description	Existing	No-Build 2015	Build-Freeway 2015	Build-Arterial 2015
1	Dobson & Red Mountain Freeway	1-1 Baseball field	3.5	3.5	3.5	3.9
		1-2 ROW	3.5	3.5	4.1	5.4
2	Dobson & 8th	2-1 Riverview Park	3.6	4.6	4.7	5.3
		2-2 Residence 755 Santa Anna/2020 Dixon	3.8	4.9	5.0	5.5
		2-3 Willow Parc Apartments- #161 & #162	3.7	5.0	4.9	5.3
3	McLellan & Alma School	3-1 Residence 1132 McLellan	4.1	3.8	3.8	3.7
		3-2 Residence 1556 Alma Sch	4.3	3.8	3.8	3.7
4	Alma School & Red Mountain Freeway	4-1 Residence 964 Inglewood	3.5	3.6	3.6	4.1
		4-2 Residence	3.5	3.5	3.6	3.9
		4-3 ROW	3.5	3.6	3.7	4.2
		4-4 ROW	3.5	3.5	3.6	4.0
5	Mobile homes-Date/ Red Mountain Fwy	5-1 Mobile home - Date Ave.	3.5	3.5	3.5	3.7
		5-2 Mobile home	3.5	3.5	3.6	3.6
6	State Route 87 & McKellips	6-1 Residence 1910 Country Club	5.7	5.5	5.5	5.3
		6-2 Apartments 1910 Country Club	6.6	5.8	6.0	6.2
		6-3 Country Club Village Mobile home #480	6.6	5.7	5.6	5.8
		6-4 Country Club Village Mobile home	6.4	5.7	5.7	5.8
		6-5 Residence 427 McKellips	6.2	5.6	5.6	5.6
7	State Route 87 & Red Mountain Freeway	7-1 Hawaiian Mobile homes 2134 Country Club	3.6	3.6	3.9	3.8
		7-2 Country Club Village Mobile home	3.7	3.9	4.3	3.9
8	McKellips & Red Mountain Freeway	8-1 Residence	3.6	3.6	4.2	4.6
		8-2 Residence	3.7	4.0	4.3	5.1
		8-3 Residence	3.6	3.6	3.9	4.6

*Eight hour background = 3.5 ppm

4.6.4 Project Conformity

EPA has promulgated the final rule that outlines the criteria and procedures for determining conformity to state or federal implementation plans of transportation plans, programs, and projects [58 Fed. Reg. 62188 (1991)]. This final rule was effective on December 27, 1993, a date later than the approval of the DEIS for this project. The requirements affecting the Red Mountain Freeway project include: (1) microscale carbon monoxide and PM10 analyses in nonattainment areas; and (2) conformity with an approved TIP.

A CO microscale analysis was conducted. It was determined that no violation of the national or state ambient air quality standards would be caused by the project. As of the date of this EIS, EPA has not issued guidance on PM10 microscale modelling. Until this guidance is issued, microscale modeling of PM10 is not required to determine project conformity.

The Red Mountain Freeway was included in the Maricopa Association of Governments TIP for FY 1993. It was also included in the Long Range Transportation Plan for the Maricopa planning area. An emission analysis conducted by MAG for the Long Range Plan demonstrated that the plan is consistent with the emissions reduction requirements of the state implementation plan and the federal implementation plan.

In the revision of the TIP for 1994-1998, the Red Mountain Freeway project was inadvertently omitted. A formal request has been made to the ADOT Transportation Planning Division to correct this omission by amending the 1994 MAG TIP and Statewide TIP. Since the project conformed under the 1993 TIP, it is expected to conform under the 1994 TIP. Once it is again listed in the TIP, the project will conform to the guidelines set forth in the EPA final rule.

4.6.5 Construction Impacts on Air Quality

The air quality impacts of the proposed action would be limited to short-term increased fugitive dust and mobile source emissions during construction.

Fugitive Dust Emissions

Fugitive dust is airborne particulate matter, generally of a relatively large particulate size. Construction-related fugitive dust would be generated by haul trucks, concrete trucks, delivery trucks, and other earth moving vehicles operating around the construction sites. This would be due primarily to particulate matter resuspended ("kicked up") by vehicle movement over paved and unpaved roads and other surfaces, dirt tracked onto paved surfaces from unpaved areas at access points, and material blown from uncovered haul trucks.

Generally, the distance that particles drift from their source depends on their size, emission height, and wind speed. Small particles (30 to 100 micron range) can travel several hundred feet before settling to the ground, depending on wind speed. Most fugitive dust, however, is made up of relatively large particles (i.e., particles greater than 100 microns in diameter). These particles are responsible for the reduced visibility often associated with this type of construction. Given their relatively large size, these particles tend to settle within 20 to 30 feet of their source.

In order to minimize the amount of construction dust generated, the guidelines below should be followed. Since the project is in a PM₁₀ non-attainment area, all the proposed particulate control measures related to construction activities should be followed. The following preventative and mitigative measures, as provided by ADEQ, should be taken to minimize the possible particulate pollution problem:

- I. Site Preparation
 - A. Minimize land disturbance;
 - B. Use watering trucks to minimize dust;
 - C. Stabilize the surface of dirt piles if not removed immediately;
 - D. Use windbreaks to prevent any accidental dust pollution;
 - E. Limit vehicular paths and stabilize these temporary roads; and
 - F. 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 washing onto paved roadways.

- II. Construction
 - A. Use dust suppressants on traveled paths which are not paved;
 - B. Minimize unnecessary vehicular and machinery activities; and

- C. 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 entering the public road).

III. Post Construction

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

These measures will be taken in accordance with Section 107.14, Prevention of Air and Noise Pollution, "ADOT Standard Specifications for Road and Bridge Construction."

Mobile Source Emissions

As discussed previously, carbon monoxide (CO) is the principal pollutant of concern when considering localized air quality impacts of motor vehicles. Since emissions of CO from motor vehicles increase with decreasing vehicle speed, disruption of traffic during construction could result in short-term elevated concentrations of CO, the temporary reduction of roadway capacity, and the increased queue lengths. In order to minimize the amount of emissions generated, every effort should be made during the construction phase to limit disruption to traffic, especially during peak travel periods.

4.7 Noise

4.7.1 Methodology and Assumptions

Noise impacts were determined using TrafficNoiseCAD Version 2.0 (Bowby and Associates, 1992), which is an AutoCADD-driven version of the FHWA Stamina 2.0 highway traffic noise modeling program (FHWA-DP-58-1). TrafficNoiseCAD is a graphical interactive program that works in conjunction with a modified version of Stamina 2.0 that is fitted with the FHWA reference sound emission curves. Reference sound levels are calculated using these speed-dependent reference noise emissions curves. The model uses traffic volume, vehicle mix, vehicle speed, and roadway geometry to compute the "equivalent noise level".

Peak hour traffic data and speeds for the year 2015 were used to model future noise impacts for the build alternatives. Traffic data for the pm peak hour were generated in conjunction with the preparation of this EIS. Except for the frontage roads between McKellips Road and Alma School Road, the vehicle mix was assumed to be 92 percent automobiles, six percent medium vehicles, and two percent heavy vehicles. For the frontage roads, the mix was assumed to be 96 percent automobiles, three percent medium vehicles, and one percent heavy vehicles. Speeds for the freeway alternative were set at 55 MPH for the mainlines, 45 MPH for off-ramps, and 40 MPH for on-ramps. Speeds for the arterial ranged from 30 MPH to 50 MPH, as estimated by the traffic analysis.

4.7.2 Predicted 2015 Traffic Noise Levels

Projections of future noise levels were made for each of the measurement locations described in Section 3.5.2. The results of the peak hour noise level computations for the three measurement sites are shown in Table 4-13. This table compares the measured existing noise levels with predicted levels for the freeway alternative and the arterial alternative. Changes caused by the build alternatives are indicated.

TABLE 4-13
NOISE IMPACTS OF ARTERIAL AND FREEWAY ALTERNATIVE
Leq Levels (dBA)

1 Receptor No.	2 Site Name	3 Land Use	4 Station No.	5 Existing Leq	6		8	
					Freeway Build	Change	Arterial Build	Change
3	Riverview Park	Recreation	113+00	62	68	6	67	5
8	Inglewood Street	Single Family	194+00	59**	66	7	62	3
13	The Mark MHP	Mobile Homes	212+00	58	64	6	61	3

** This value originally included noise from adjacent mining operations, which increased the level by two to three dBA. Two dBA was subtracted from the measurement to account for this mining operation.

In addition to the three measurement sites, 13 supplemental modeling receptors were identified. These additional sites were used to ensure that the noise impacts and the effectiveness of mitigation measures are assessed at several locations in each neighborhood. The location of the sixteen sites is illustrated on Figure 4-3 (Page 4-47).

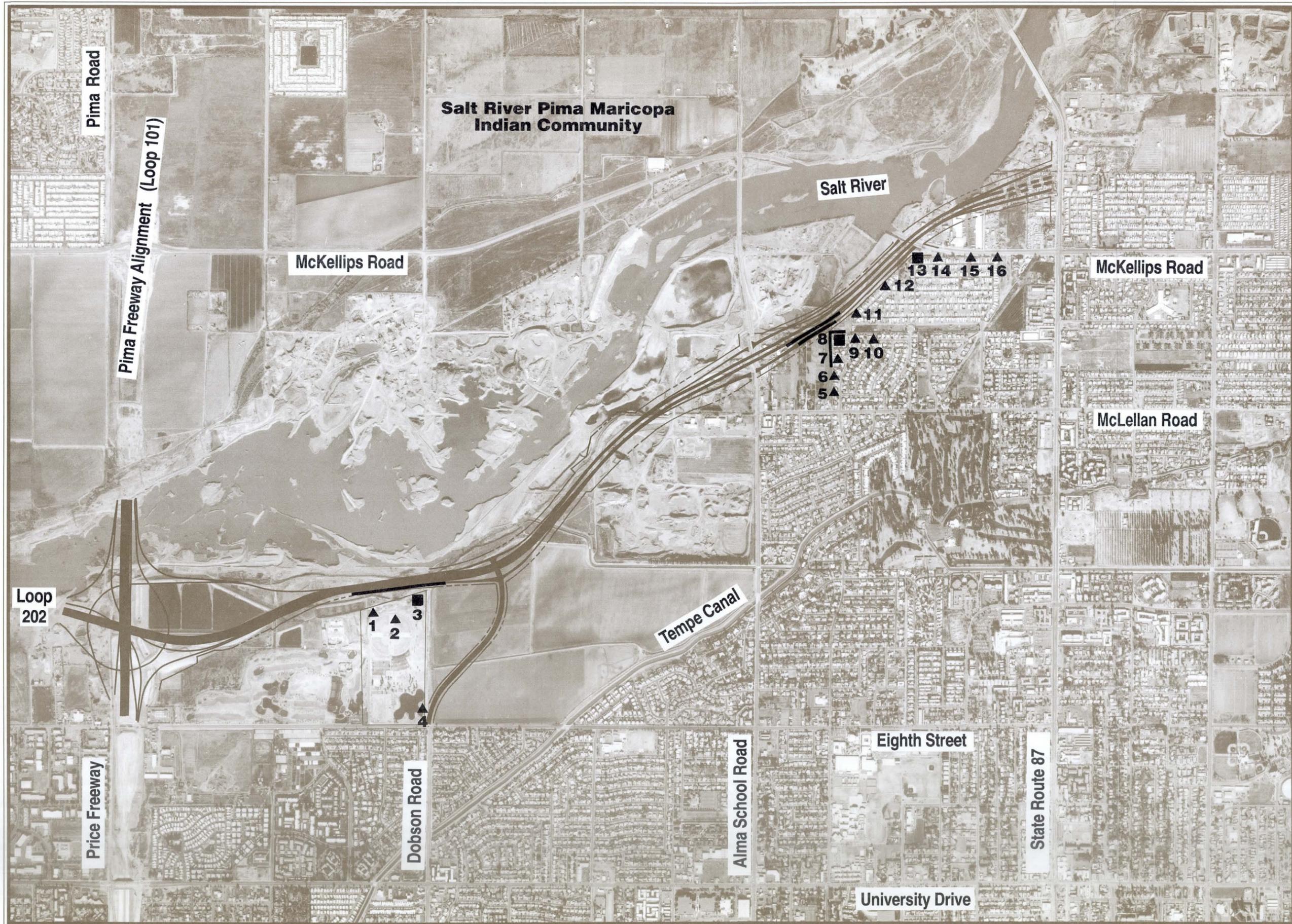
**RED MOUNTAIN
FREEWAY**
ENVIRONMENTAL
IMPACT STATEMENT

0 feet 800' 1600' 2400'
approx.



GRAPHIC LEGEND

-  Noise Barrier
-  Noise Receptor Location
-  Noise Modeling Location



**Noise Receptor
and Barrier
Locations**
Freeway Alternative

Figure 4-3
4-47

4.7.3 No-Action Alternative

Noise conditions for the no-action alternative are essentially the same as those for existing conditions. Noise sensitive receptors adjacent to the project corridor are not expected to be substantially impacted by the increased traffic on the local network. No major roadway noise sources exist near the receptors that could be modeled. Therefore, the existing noise levels are assumed to represent the future no-action conditions. All noise levels at the sensitive receptor sites are therefore below the FHWA noise abatement criteria.

4.7.4 Freeway Alternative

Table 4-14 provides a summary of the results of the noise analysis for the freeway alternative. Existing noise levels for the three measurement locations are shown in Column 5. Column 6 displays the predicted unmitigated levels for all 16 receptor locations.

Future noise levels for the freeway alternative are predicted to exceed or approach the noise abatement criteria (NAC) of 67 dBA at the Riverview Park and Inglewood Street sites. The predicted level at Riverview Park exceeds the NAC of 67 dBA by one dBA. Additionally, the worst-case homes along Inglewood Street would be exposed to conditions that approach the NAC, with levels as high as 66 dBA. Receptors in the Mark Mobile Home Park would experience noise levels between 53 and 65 dBA. Project-related increases range from one to seven dBA along the corridor. The highest increase of seven dBA is predicted to occur at the Inglewood Street location.

Noise barriers at the two locations were assessed, with the objective of reducing the future noise to a level below 67 dBA. An additional objective was to provide a minimum noise reduction of five dBA at the worst-case receptor behind each barrier. The results of the assessment for the freeway alternative are summarized in Table 4-14. Unmitigated noise levels are compared to mitigated levels for different barrier heights for each of the 16 receptor locations. The conceptual noise barriers for the two locations are summarized below. The locations of the barriers are illustrated in Figures 4-4 and 4-5 (pages 4-51 and 4-52).

Riverview Park

A new six-foot noise barrier is proposed for a 1,600-foot length along the freeway edge of shoulder. The wall should be located at the top of the slope along the freeway. Noise levels with a six-foot wall for each of the receptor locations are shown in Table 4-14. Mitigated noise levels at the park are predicted to range from 57 to 61 dBA. These levels compare to an unmitigated range from 62 to 68 dBA. The cost of a masonry block wall at this location is estimated to be approximately \$100,000.

Inglewood Street

Two alternatives for the mitigation of the noise impacts at the Inglewood Street location were defined. A decision on the alternative to be used will be made following the public comment period. The results of the analysis of the two alternatives are shown in Table 4-14. The alternatives are described below.

Alternative 1 would provide two overlapping 8-foot noise barriers, with a total length of 2,200 feet, within the freeway right-of-way. These barriers are needed to reduce noise impacts at one home on Inglewood Street. This barrier would also result in partial benefits to an additional nine homes. The dual wall reduces noise from the elevated mainline and the eastbound McKellips C-D road/eastbound freeway on-ramp configuration. One wall would be located at the edge of pavement of the mainline between Stations 186+50 and 198+60. The second wall would be located along the edge of shoulder for the eastbound on-ramp between Station 189+80 and 198+40. At Station 198+40, the wall would be connected to the existing wall of the Mark Mobile Home Park. Alternative 1 is illustrated on Figure 4-5 (page 4-52).

With Alternative 1, mitigated noise levels within the Inglewood Street neighborhood are expected to range from 54 to 61 dBA. These levels compare to an unmitigated range from 55 to 66 dBA. The cost of the two walls is estimated to be approximately \$185,000, which is about \$18,500 per residence. The cost per residence is based on providing a benefit to ten homes. The length of the barriers is necessary to reduce the noise impacts on the worst-case receptor. The barrier would also provide partial benefits to an additional nine homes.

Alternative 2 would provide a noise barrier ranging in height from 6 feet to 12 feet, with a total length of 460 feet, along the property line of the residences to be protected. Alternative 2 is also illustrated on Figure 4-5. The north-south portion of this barrier would be 130 feet long. Its northern 80 linear feet would be 12 feet high. The southern 50 feet would taper from 12 feet high to 6 feet high at the south end. The east-west portion of this barrier would be 230 feet long. Its western 130 linear feet would be 12 feet high. The eastern 200 feet would taper from 12 feet high to 6 feet high at the east end.

With Alternative 2, mitigated noise levels within the Inglewood Street neighborhood are expected to range from 56 to 61 dBA. These levels compare to the unmitigated range of 58 to 66 dBA. The noise barrier would provide shielding for approximately six homes. The total cost of this barrier is estimated to be \$43,000.

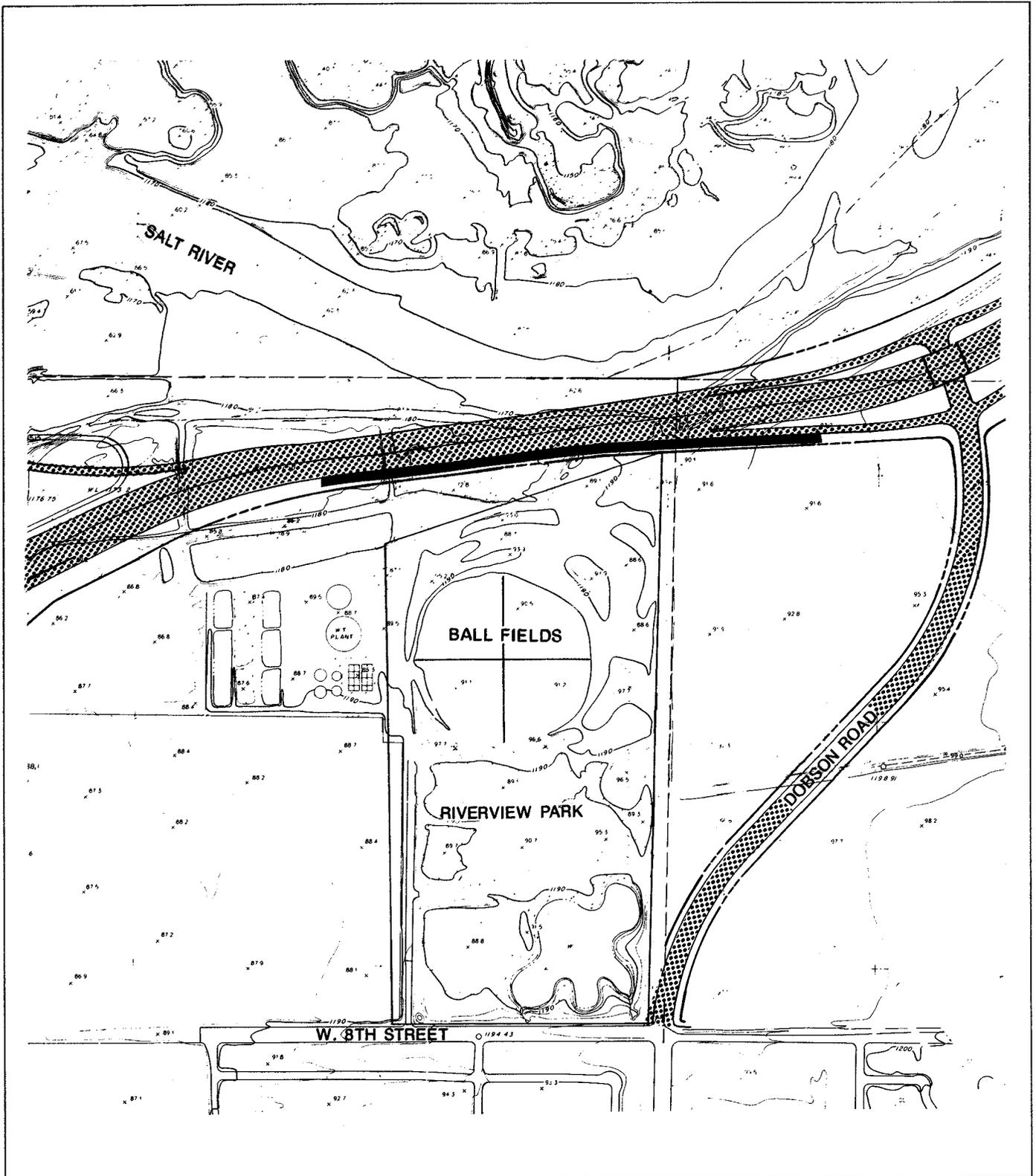
TABLE 4-14
PEAK HOUR Leq LEVELS (dBA)
Freeway Alternative

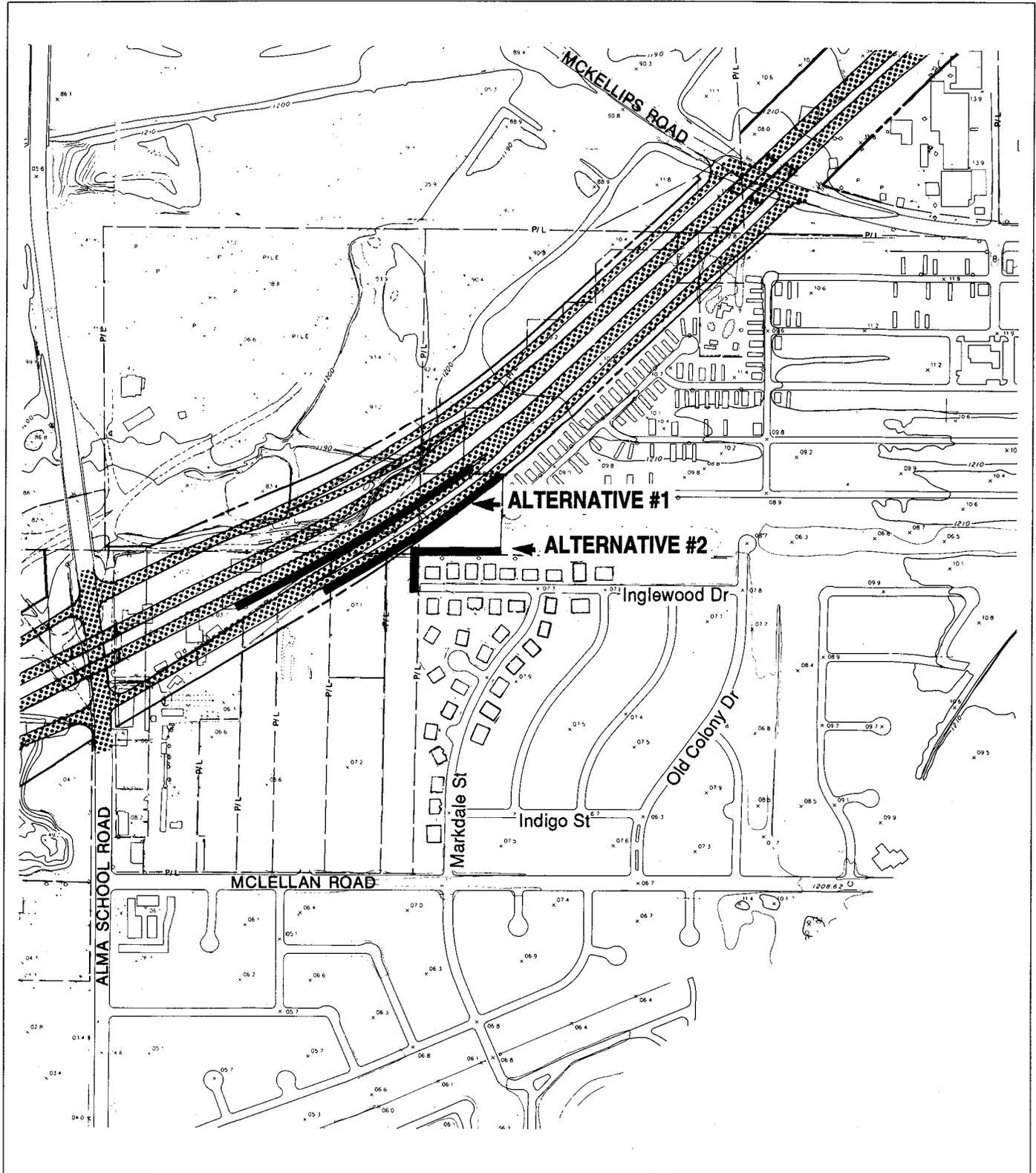
Receiver #	SITE NAME	LAND USE	STATION #	PEAK HOUR LEQ								
				Existing	BUILD	MITIGATED BUILD						
					No	6 ft	8 ft		10 ft		12 ft	
					Mitigation	Wall	Wall*		Wall*		Wall*	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)		(9)		(10)	
						Alt. 1	Alt. 1	Alt. 2	Alt. 1	Alt. 2	Alt. 2	
1	Riverview Park	Recreation	103+50	62	64	59						
2	Riverview Park	Recreation	107+00		62	57						
3	Riverview Park	Recreation	113+00		68	60						
4	Riverview Park	Recreation	113+00		63	61						
5**	Inglewood St	Single Family	190+00	59*	55	55	54		54			
6**	Inglewood St	Single Family	192+00		58	57	56	58	56	57	56	
7**	Inglewood St	Single Family	193+00		61	59	59	61	58	60	59	
8**	Inglewood St	Single Family	194+00		66	62	61	64	60	62	61	
9**	Inglewood St	Single Family	196+00		63	61	60	61	59	59	59	
10**	Inglewood St	Single Family	198+00		59	58	58		58			
11**	The Mark MHP	Mobile Homes	198+00	58	65	65	64		64			
12	The Mark MHP	Mobile Homes	204+00		65							
13	The Mark MHP	Mobile Homes	212+00		64							
14	The Mark MHP	Mobile Homes	216+00		59							
15	The Mark MHP	Mobile Homes	220+00		55							
16	The Mark MHP	Mobile Homes	223+00	53								

Numbers in bold type are for the recommended level of mitigation.

* These values originally included noise from adjacent quarry operations which increased levels by 2-3 dBA. 2 dBA was subtracted from the measurements to account for the quarry operation.

** The results for sites 5 - 10 were obtained with a dual barrier system (refer to text).





**RED MOUNTAIN
FREEWAY**



ENVIRONMENTAL
IMPACT STATEMENT

Noise Barrier Location
Freeway Alternatives - Ingewood

Figure 4-5
4-52

4.7.5 Major Urban Arterial Alternative

Table 4-15 provides a summary of the results of the noise analysis for the arterial alternative. Existing noise levels for the three measurement locations are shown in Column 5. Column 6 displays the predicted unmitigated levels for all 16 receptor locations.

Future noise levels for the arterial alternative are predicted to exceed the NAC of 67 dBA at Riverview Park. The remainder of the receptors would experience noise levels in the 50 to 62 dBA range. Project-related increases range from three to five dBA along the corridor. The highest increase of five dBA is predicted to occur at Riverview Park. The other locations are expected to experience increases of one to three dBA.

A noise barrier at the Riverview Park location was assessed, with the objective of reducing the future noise levels to a level below 67 dBA. An additional objective was to provide a minimum noise reduction of five dBA at the worst-case receptor behind the wall. The results of the assessment for the arterial alternative are summarized in Table 4-15. Unmitigated noise levels are compared to mitigated levels for the Riverview Park receptors. Levels for unmitigated conditions are shown for the remainder of the 16 receptor locations.

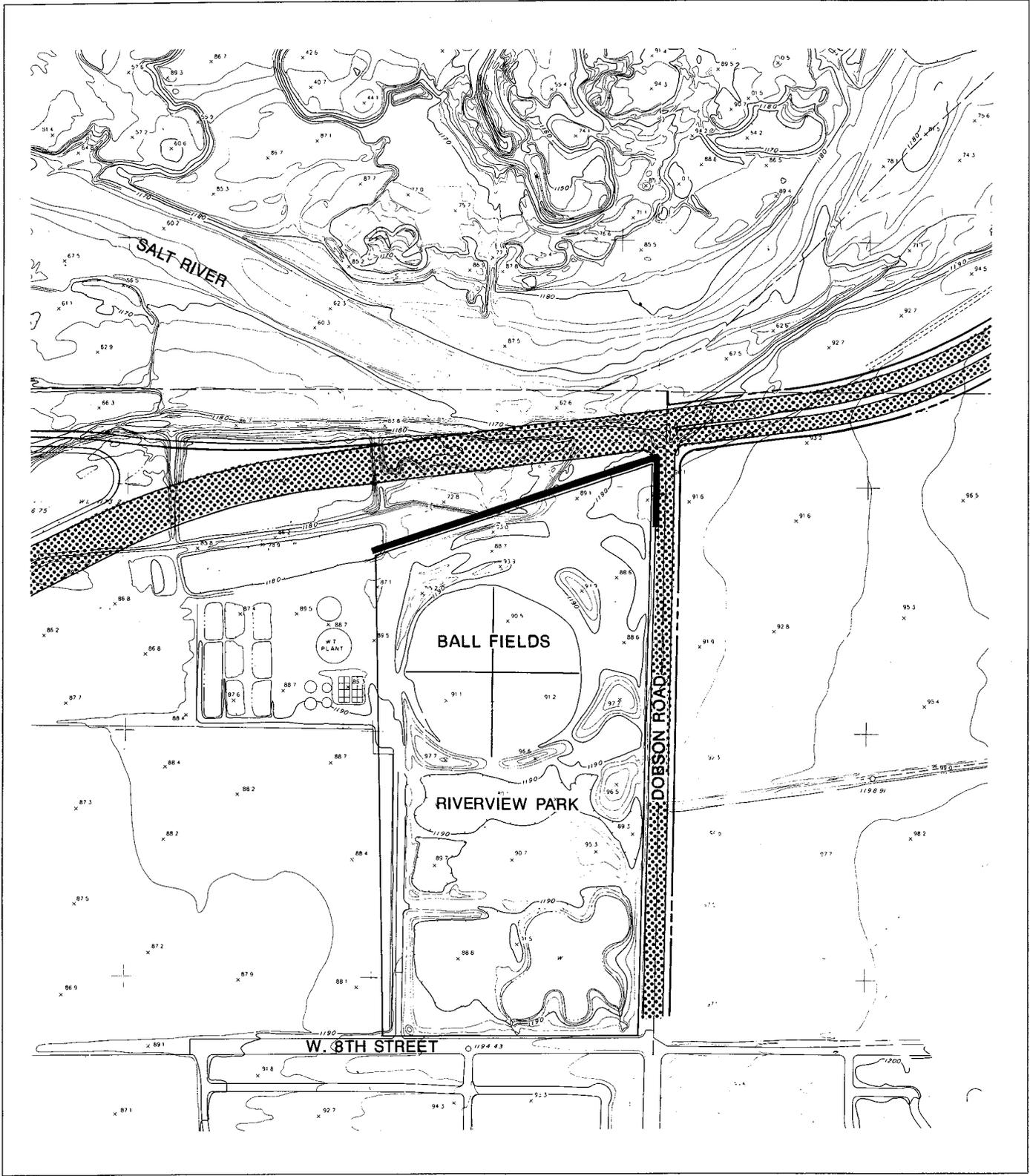
The proposed mitigation at Riverview Park is a ten-foot noise barrier for a distance of 1,250 feet along the northern property line of the park, as well as an additional 150-foot wrap-around along Dobson Road. This barrier would reduce the noise impacts at the existing baseball field. The location of this barrier is illustrated on Figure 4-6. Noise levels at wall heights ranging from six to ten feet, as well as the future unmitigated values at all receptors, are shown in Table 4-15. Mitigated levels at the park are predicted to range from 58 to 61 dBA. These levels compare to and unmitigated range from 60 to 64 dBA. The cost of a masonry wall is estimated to be approximately \$150,000.

TABLE 4-15
PEAK HOUR Leq LEVELS (dBA)
Arterial Alternative

Receiver #	SITE NAME	LAND USE	STATION #	PEAK HOUR LEQ				
				Existing	BUILD	^MITIGATED BUILD		
					No Mitigation	6ft Wall	8ft Wall	10ft Wall
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Riverview Park	Recreation	103+50		64	62	60	59
2	Riverview Park	Recreation	107+00		62	60	59	59
3	Riverview Park	Recreation	113+00	62	67	64	63	61
4	Riverview Park	Recreation	113+00		60	58	58	58
5	Inglewood St	Single Family	190+00		53			
6	Inglewood St	Single Family	192+00		55			
7	Inglewood St	Single Family	193+00		58			
8	Inglewood St	Single Family	194+00	59*	62			
9	Inglewood St	Single Family	196+00		60			
10	Inglewood Ave	Single Family	198+00		57			
11	The Mark MHP	Mobile Homes	198+00		62			
12	The Mark MHP	Mobile Homes	204+00		62			
13	The Mark MHP	Mobile Homes	212+00	58	61			
14	The Mark MHP	Mobile Homes	216+00		56			
15	The Mark MHP	Mobile Homes	220+00		52			
16	The Mark MHP	Mobile Homes	223+00		50			

Numbers in larger type are for the recommended level of mitigation.

* These values originally included noise from adjacent quarry operations which increased levels by 2-3 dBA. 2 dBA was subtracted from the measurements to account for the quarry operation.



**RED MOUNTAIN
FREEWAY**



ENVIRONMENTAL
IMPACT STATEMENT

Noise Barrier Location
Urban Arterial Alternative - Riverview Park

Figure 4-6
4-55

4.7.6 Construction Noise Impacts

Short-term noise impacts may be experienced during the construction of either build alternative. The quantification of such impacts is difficult without data on construction schedule and equipment use. Therefore, several assumptions were made in order to predict an approximate noise level at the right-of-way. These predictions are based on the use of the noisiest equipment that is expected to be used during each construction stage of a typical roadway and interchange project. Data on construction equipment noise were obtained from the U.S. Department of Transportation document entitled "Highway Construction Noise: Measurement, Prediction, and Mitigation".

The analysis was conducted by assessing the collective impact of the two noisiest pieces of equipment that would be expected to be used for each construction phase. The maximum noise levels (L_{max}) were calculated at the right-of-way line. The distance between the right-of-way and the construction activity was estimated based upon the type of work being performed. The results of these calculations are presented in Table 4-16.

**Table 4-16
PEAK NOISE LEVEL DURING CONSTRUCTION PHASES**

Phase	Equipment	L_{max} at 50'	Distance to ROW	L_{max} at ROW
Site Clearing	Dozer	84 dBA	50 Feet	---
	Backhoe	85 dBA	50 Feet	88 dBA
Grading/Earthwork	Scraper	92 dBA	75 Feet	---
	Grader	91 dBA	75 Feet	93 dBA
Foundation	Backhoe	85 dBA	100 Feet	---
	Loader	84 dBA	100 Feet	85 dBA
Base Preparation	Compressor	85 dBA	100 Feet	---
	Dozer	84 dBA	100 Feet	85 dBA

The results of the preliminary estimates shown in Table 4-16 indicate that sensitive receptors could be substantially impacted by construction noise. The highest noise levels would occur during the grading/earthwork phase at the right-of-way adjacent to such receptors as Riverview Park and the Mark Mobile Home Park. Residents in these areas would experience the noise levels for short periods of time during the construction of lanes and ramps. The construction noise levels would be similar for both build alternatives, with the exception that the construction of the interchanges of the freeway alternative could cause more impact than the arterial intersections.

Although there are no noise standards for construction activities, general mitigation measures are recommended as guidelines for the development of a construction plan that considers the adverse noise impacts. These measures are presented below.

1. Design Considerations - During the early stages of construction plan development, natural and artificial barriers, such as ground elevation changes and existing buildings can be considered for use as shielding against construction noise. Strategic placement of stationary equipment, such as compressors and generators, could reduce impacts at the sensitive receptors.
2. Sequence of Operations - Several noisy operations can be scheduled concurrently to take advantage of the fact that the noise levels would not be significantly greater than if the operations were implemented separately.
3. Construction of noise barriers during initial stages - Noise barriers planned to ultimately be constructed along the right-of-way as part of the project for traffic noise abatement could be constructed during the initial stages where feasible to reduce the impacts of construction. Initial construction of noise barriers would significantly reduce construction noise impacts at the sensitive receptors.
4. Alternate Construction Methods - Certain phases of highway construction work such as pile driving may produce noise levels in excess of acceptable limits, even when feasible noise reduction methods are used. These impacts may be reduced by using alternate methods of construction. In the case of pile driving, vibration of hydraulic insertion could be used instead. Drilled holes for cast-in-place piles are another alternative that would produce significantly lower levels of noise.
5. Source Control - Noise emissions can be controlled at the source in a number of ways. Most importantly, the use of noise reducing muffler systems which lower exhaust noise by at least 10 dBA could be utilized. A program to ensure proper maintenance of machinery used on-site. Poorly maintained equipment can cause high noise levels; loose parts, metal to metal contact and poorly tuned engines are common sources of increased noise.
6. Time and Activity Constraints - The majority of noisier activity involving large machinery could be limited to daytime hours when a majority of people normally impacted are either not present or engaged in less noise sensitive activities. Nighttime construction could be limited to quieter activities such as the paving and striping process, manual digging and forming.

4.8 Water Resources

4.8.1 No-Action Alternative

Under the no-action alternative, no project-related water quality impacts will occur. No construction will occur that could create additional erosion or sediment deposits in existing watercourses. Because no highway facility would exist along the proposed alignment, runoff associated with highway pollutants would not occur. However, such pollutants would continue to be generated by the increased traffic on the surrounding street system. Current potential sedimentation associated with materials operations and bank erosion would continue. Either build alternative could improve these conditions.

4.8.2 Freeway and Major Urban Arterial Alternatives

Changes in water quality can potentially be caused by the following aspects of transportation facilities: (1) activities related to the construction of the facility; (2) pollutants generated by the traffic using the completed facility; and (3) stabilization of unprotected banks and materials operations in the river channel. This section describes the potential for these types of impacts. It also outlines permitting requirements and procedures that are associated with water quality.

Construction Impacts

The potential construction impacts are considered to be the major water quality issue related to this project. Construction activities such as excavation, grading, equipment staging, and other related activities could result in soil erosion and an increase of sediments in receiving watercourses. Mud slides could occur if the open slopes are not properly protected against erosion and slippage. The materials entering the Salt River as a result of the construction would be similar to materials normally associated with storm events or upstream releases. These conditions could persist until the project is completed and permanent protective measures are established to stabilize the right-of-way and the construction staging areas. After the completion of the project construction, the paved surfaces and erosion control measures would increase the impervious areas. The extent of silt erosion and sediment transport would thus be reduced. As a result, the continuation of this impact would not be substantial.

These construction-related water quality impacts would be similar for the two build alternatives. The type of material would be identical. However, the amount of material would be less for the arterial alternative than for the freeway alternative. The narrower right-of-way and different design of the arterial would result in less excavation and grading.

Operational Impacts

Following construction, water quality impacts would be associated with pollutants generated by the vehicles using the facility. The addition of pavement would increase the amount of impervious area, thus increasing the quantity of runoff and the peak rates of flow during rainstorms. The increased runoff would transport the pollutants generated by automobile traffic to the watercourses.

Pollutants associated with highway runoff accumulate during dry weather. They may have high concentrations of lead, zinc, filterable residue, chemical oxygen demand, and total nitrogen. These pollutants are transported into the receiving drainage facilities during rainfall events at the beginning of wet weather periods. Because of the length of dry season in southern Arizona and the high volume of traffic expected to use the Red Mountain facility, relatively high levels of pollutants may be created by the "first-flush" effect of the initial rainfall.

The total amount of the roadway-released pollutants would be approximately the same for all alternatives. The traffic levels in the general area are projected to increase whether or not the project is constructed. The overall volume of combined freeway and street traffic is expected to be the same under any of the alternatives. Under the build alternatives, a higher proportion of the traffic would use the new facility, with the freeway alternative carrying a higher proportion than the arterial alternative. Thus, with the build alternatives, the potential for high-peak concentrations would be greater. Under the no-action alternative, more traffic would use the surrounding street system, which would result in the deposit of more contaminants on those facilities. In any case, the total load of contaminants would be similar. The build alternatives would concentrate the contaminants on a smaller surface area, thus enabling the design of more effective mitigation measures.

Water flows from the completed project are expected to be directed to existing and new drainage facilities. Aside from the slight reduction in water penetration caused by the increase in impervious surfaces, no impacts to groundwater resources are expected to occur.

Bank Stabilization Impacts

Existing conditions in the normally-dry Salt River are characterized by unstable bank conditions and numerous sand and gravel mining operations in the riverbed. These conditions contribute to increased sedimentation during rainfall and periodic flood events caused by releases of water into the channel from upstream reservoirs. The construction of either build alternative would result in the stabilization of the unprotected banks and materials operations, which would result in a lessening of sedimentation impacts.

4.8.3 Mitigation of Potential Water Quality Impacts

General measures to mitigate water quality impacts during construction include the following:

1. Under Section 402(P) of the Clean Water Act, a Stormwater Pollution Prevention Plan (SWPPP) will be prepared and a notice of intent will be filed with the Arizona Department of Environmental Quality prior to beginning construction. The SWPPP will include Best Management Practices (BMP) as outlined in the ADOT Erosion and Pollution Control Manual for Highway Design and Construction. The BMP's outlined in the SWPPP will be implemented, monitored and revised as necessary during and after construction. ADOT will also comply with Surface Water Quality Standards Rules.
2. General measures to mitigate water quality impacts may include the following:
 - a. Cut and fill slopes will not be steeper than 2:1 unless geological or engineering analysis indicates that steeper slopes are safe and erosion control measures are specified.
 - b. Earthen or paved interceptors and diversions will be installed at the top of cut or fill slopes where there is a potential for surface runoff on constructed slopes. Control devices and measures may be required to absorb energy and reduce the velocity of runoff.
 - c. Fills placed against watercourses will have suitable protection against erosion during rainfall events and storm flows. Excavated material will not be deposited or stored in or alongside watercourses to prevent materials from being washed away.
 - d. Where drainage swales are used to divert surface water, the swales will be protected to minimize erosion.

- e. Vegetation removal and soil disturbance will be limited to areas required for actual construction, access, and storage only. Mature vegetation will remain protected where possible.
- f. Where construction occurs on soil that has been contaminated with hazardous materials, a management plan will be developed for the safe handling, treatment or disposal of the contamination. Hazardous material will be prevented from entering the drainage system due to construction activities.
- g. Highway and drainage design will be reviewed with the local fire department and hazardous spill response team so that the features needed to help contain typical hazardous spills can be incorporated in the final design.

Potential impacts during the operation of either the freeway or arterial alternative would be mitigated by diverting storm runoff from the roadway into the drainage system to be designed as part of the facility. Roadway sweeping and cleaning could be scheduled during the dry season to reduce the first-flush concentration of pollutants. Immediately after construction, some sediment may be transported from newly-exposed cut-and-fill slopes. Sediment transfer from these slopes will be minimized through erosion-control measures that include seeding and mulching of the areas.

4.8.4 Water Quality Permit Requirements

Several sections of the Clean Water Act provide for the protection of water and water-related resources. These provisions are summarized below.

National Pollution Discharge Elimination System (NPDES) Permit

Section 402 of the Clean Water Act establishes a permitting system for the discharge of any pollutant, except dredge or fill material, into the "waters of the United States". Each state is required to divide water bodies into segments for planning and implementation purposes. In Arizona, this function is performed by the Arizona Department of Environmental Quality (ADEQ). The NPDES permit is issued by the U.S. Environmental Protection Agency (EPA).

The definition of "waters of the United States" is very broad. It includes dry washes, canals, dry stream beds, dry lakes, rivers, streams, and tributaries. ADEQ has determined that most construction and land-disturbing activities in floodplains are regulated under Section 402. As of

October 1, 1992, a NPDES permit is required for "all ground disturbing activities that exceed 5 acres in impact". Thus, a NPDES permit under Section 402 would be required for either of the build alternatives.

Dredge and Fill Permits

Section 404 of the Clean Water Act establishes a permit program for activities that will discharge dredged or fill material into the waters of the United States. This permit is issued by the U.S. Army Corps of Engineers (Corps). Prior to issuance by the Corps, ADEQ must review the proposed permit for compliance with water quality standard. If compliance is demonstrated, ADEQ issues a Water Quality Certification Letter, in accordance with ADEQ policies and Section 401 of the Clean Water Act.

In March 1993, the Corps defined the jurisdictional limits of the Clean Water Act as the ordinary high water mark and/or wetland boundary of the south bank of the Salt River between Dobson Road and State Route 87. The Corps has no permit authority under Section 404 of the Clean Water Act in the area outside these limits. However, any activity that discharges dredged or fill material into the designated jurisdictional area requires a Section 404 Permit. The jurisdictional determination presented will remain in effect for three years unless an unusual flood event occurs. After the three year period or after an unusual flood event alters the stream conditions, the Corps has the authority to retain the original jurisdictional limits or to establish new jurisdictional limits as conditions warrant.

In July of 1992, ADOT received authorization from the Los Angeles District of the U.S. Army Corps of Engineer (Corps) to discharge dredged and/or fill material to accommodate the alignments of the East Papago, Pima, and Red Mountain Freeway systems. One of the activities approved in the 404 Permit (application 90-495-CL) included the construction of bank stabilization along the south bank of the Salt River from 300 feet east of Dobson Road to the west through the proposed Price/Red Mountain Interchange (Segment 1). The approved permit activity within Segment 1, which was based on a previous design concept report, assumed Alternative 1a (Figure 2-4, page 2-11) which was revised through the DEIS process to the preferred Alternative 1d (Figure 2-5, page 2-12). As a result, the DEIS process has reduced the proposed project encroachments into the waters of the United States to less than what is currently permitted for this segment of the Red Mountain Freeway.

A portion of Segment 3 of the preferred alignment build alternative is located near the boundary of the waters of the United States between McKellips Road and State Route 87. During the initial hydraulic investigation for the DEIS, the original alignment Alternative 3b was revised to the

Alternative 3c (Figure 2-7 and 2-8, pages 2-14, 15) to reduce the proposed impacts on the Salt River regulatory floodway. Additionally, the preferred alternative (3c) also virtually eliminated the impact of the proposed project on the waters of the United States. While the proposed right-of-way creates an encroachment of less than one acre, the construction of the roadway would be completely outside the waters of the U.S. However, to protect the proposed project from the destabilizing effect of Salt River flood flows, it is anticipated that the south bank of the Salt River may require stabilization. Because the extent of the south bank stabilization can only be determined through analyses performed during the detailed design process, the intent at this time is to pursue a nationwide permit (NWP-13 Bank Stabilization) to stabilize the adjacent south bank of the Salt River to protect the proposed project. Therefore, the alternatives analyses and mitigation concerns outlined in the Section 404 (b) (1) have been adequately addressed.

Coordination with the Corps of Engineers has occurred throughout the preparation of this EIS. The Corps has assisted in accordance with its role as a cooperating agency. Included was the provision of information and the review of the results of the hydraulic analysis, as described in Section 4.9. See Corps of Engineer's letter dated July 20, 1994 in Section 9.0 stating that an individual permit for this project will not be required at this time.

4.9 Floodplains

This section describes the impacts that may be caused by the project on the regulatory floodplain and floodway of the Salt River. It also discusses other floodplain issues, including potential revisions to the regulatory floodplain and floodway. The following definitions, as contained in 23 CFR 650, are provided as a basis for this discussion.

- Base Flood: The flood having a one-percent chance of being exceeded in any given year.
- Base Floodplain: The area subject to flooding by the base flood.
- Regulatory Floodway: The floodplain area that is reserved in an open manner by federal, state or local requirements, i.e., unconfined or unobstructed either horizontally or vertically, to provide for the discharge of the base flood so that the cumulative increase in water surface elevation is no more than one foot, as established by the Federal Emergency Management Administration (FEMA) for administering the National Flood Insurance Program.

Floodways shown on National Flood Insurance Program (NFIP) maps are developed as part of a detailed Flood Insurance Study (FIS) and have been adopted to establish sound floodplain management programs. Restricting development in a designated floodway preserves the conveyance area necessary of the passage of floodwaters and prevents significant increases in flood elevations.

The limits of a floodway are determined through detailed hydraulic analyses in which the rise in the base flood elevation (the surcharge) is calculated due to encroachment within the 100-year floodplain. FEMA has established as a standard a maximum allowable surcharge of one-foot. However, where a stream with a regulatory floodway forms the boundary between two communities or two states the allowable surcharge permitted by each community or state is limited to 0.5 foot, unless a more stringent standard has been established.

4.9.1 Summary of Location Hydraulic Studies

FHWA policies and procedures for the location and hydraulic encroachments on floodplains are described in 23 CFR 650. This section summarizes the evaluation of the proposed project in accordance with the pertinent parts of those regulations.

Risks Associated with the Action

Risks are defined as the consequences associated with the probability of flooding attributable to the encroachment. The potential impacts of the two build alternatives are described in Sections 4.9.3 and 4.9.4 and summarized in Section 4.9.5. Mitigation measures are specified in Section 4.9.6. With the implementation of these mitigation measures, neither build alternative will create a potential for property loss or hazard to life. The project would actually contribute to the control of periodic floods in the Salt River through the stabilization of the south bank. Developments to the south of the facility would have a higher level of flood protection than now exists.

As described in Section 3.7, the portion of the Salt River adjacent to the project has been substantially altered from its natural condition. Upstream dams and reservoirs have resulted in the channel being totally dry most of the time. Major flows occur only when water is released from the upstream facilities. The dry channel has been subjected for many years to major sand and gravel mining, which has greatly altered the natural terrain and the configuration of the channel. These mining activities are continuing.

As a result of these conditions and influences, no fish, wildlife, or vegetation exists in the affected portion of the channel. None of the other activities that fall within the definition of natural and beneficial floodplain values are present. Thus, the proposed project would have no such impacts.

Support of Incompatible Floodplain Development

As described in Sections 4.1 and 4.4, the proposed project is consistent with existing development plans of local governments. The facility would provide improved access to future development areas. These developments will be consistent with floodplain regulations. The construction of the project would actually improve the flood protection of the developments to the south. Thus, neither alternative would support incompatible floodplain development.

Measures to Minimize Floodplain Impacts

Floodplain and floodway impacts for each build alternative are described and summarized in Sections 4.9.3 through 4.9.5. Based on the initial hydraulic analysis, adjustments were made to the recommended alignment to minimize the potential impacts. Additional mitigation measures associated with the impacts of the revised alignment are described in Section 4.9.6.

Measures to Restore Natural and Beneficial Floodplain Values

As described above, no impacts to natural and beneficial floodplain values would occur. Therefore, no restoration measures would be needed.

Alternatives to Longitudinal Encroachments

Encroachments into the floodplain and floodway of each alternative are described in Sections 4.9.3 through 4.9.5. As described in Section 2.1, earlier studies and evaluations considered alternative alignments that would be located further from the river channel. These alternatives were considered to have serious social and economic impacts. This DEIS then considered variations of the recommended alignment that would minimize the longitudinal encroachments. Following the initial hydraulic analysis, adjustments were made to the alignment that resulted in a reduction of the encroachments. Mitigation measures, described in Section 4.9.6, were then identified to further minimize the impacts.

As described in Section 4.9.7, the existing Salt River topography is substantially different from the topography used to define the current regulatory floodplain and floodway. These changes have been the result of flood events and mining activities. It is expected that these events have incised the channel and narrowed the floodplain and floodway. Thus, the encroachments described in Sections 4.9.3 through 4.9.5 may be greater than those that would actually occur. As described in Section 4.9.7, a study to determine the existing topography is underway by the Flood Control District of Maricopa County. Preliminary data from this study are expected to be available in February 1994, after which the process to revise the regulatory floodplain and floodway would be followed.

out of date

When was our topog taken b/t Price-5287? Need to update in response

Potential for Significant Encroachment

23 CFR 650 defines "significant encroachment" as one that would involve one or more of the following: (1) significant potential for interruption or termination of a transportation facility which is needed for emergency vehicles or provides a community's only evacuation route; (2) a significant risk; or (3) a significant adverse impact on natural and beneficial floodplain values."

As described above, the project would not create a substantial risk nor would it adversely affect natural or beneficial floodplain values. The facility would improve the operation of emergency vehicles in the community and access to evacuation routes. Therefore, this project will not have a significant encroachment on the floodplain.

Alignment of north bank could have more impact than the mined condition on the floodplain

4.9.2 No-Action Alternative

With the no-action alternative, no project-related floodplain impacts would occur. However, sand and gravel mining operations would continue to affect the characteristics of the floodplain and floodway. Without further flood control measures, major flood events would also alter the configuration of the channel.

4.9.3 Freeway Alternative

The proposed freeway alignment generally parallels the south bank of the Salt River and encroaches on the 100-year base floodplain. In addition, some segments of the alignment encroach into the regulatory floodway. Described below are the floodplain and floodway encroachments and their associated potential hydraulic impacts. For purposes of description, the alignment is divided into three segments. The relationship of the floodplain and floodway to the proposed alignment is illustrated on Figure 4-7 (page 4-68).

Segment 1 - Price Freeway to Dobson Road

On the western end of the project area, the Price/Red Mountain Interchange encroaches into both the regulatory floodplain and floodway. The south boundary of the floodway, which averages approximately 2,000 feet wide in this vicinity, generally follows the north side of the percolation ponds that are associated with the Mesa Waste Water Treatment Plant. The encroachment reduces the floodway width by approximately 5 percent. In this area, in-stream mining operations have lowered the average channel elevation, which would offset the effects of the encroachments. The cumulative effect of the freeway and the mining operations is a water-surface elevation surcharge of less than one foot.

The proposed freeway mainline would encroach into the floodplain and floodway between the Price/Red Mountain Interchange and the existing Dobson Road alignment. Along this segment, the floodway averages approximately 3,800 feet in width, which would be reduced about 10 percent by the encroachment. A large sand bar in the channel creates a physical constriction adjacent to Dobson Road. The combination of this constriction and the freeway encroachment would produce a hydraulic impact on the proposed Dobson Road interchange. The cumulative impact may be a floodway surcharge greater than one-foot.

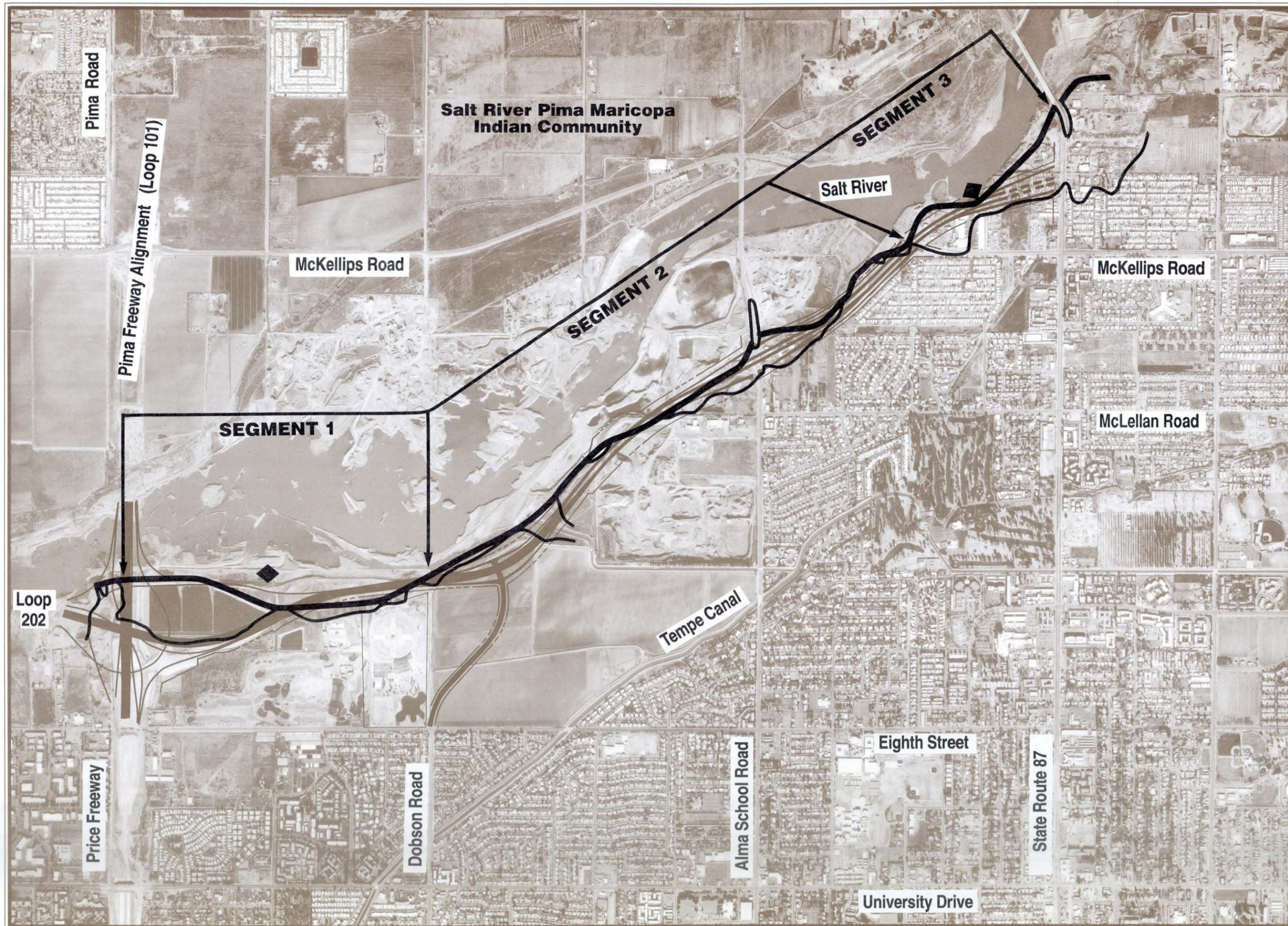
**RED MOUNTAIN
FREEWAY**

**ENVIRONMENTAL
IMPACT STATEMENT**

0 feet 800' 1600' 2400'
approx.



GRAPHIC LEGEND



**Floodplain
Impacts**

Figure 4-7
4-68

The proposed Dobson Road Interchange is located outside the floodplain and floodway. At the eastern edge of this interchange, the freeway would cross over the Alma School Drain, which is an open channel outfall to the Salt River for the Salt River Project canal system. The floodplain extends up this channel as a result of the backwater associated with the Salt River. As it crosses the drain, the freeway would encroach on this floodplain but would produce no hydraulic effect on the Salt River. However, the downstream encroachment could affect the hydraulic performance of the outfall.

Discussions w/ AOOT
& others has been
initiated re: Alma
School
Drain

Segment 2 - Dobson Road to McKellips Road

In the segment east of the Alma School Drain to Alma School Road, the freeway alignment would encroach into the floodplain and floodway. The floodway widens from 2,000 feet at a point upstream from the Alma School Drain to 2,800 feet just downstream of the Alma School Road interchange. This section of freeway would reduce the floodway width approximately 10 percent. The cumulative effect of the downstream encroachments could be a surcharge of more than one foot.

The Alma School Road crossing of the Salt River is comprised of two bridges separated by an island. The freeway alignment would encroach upon the floodplain, but would not encroach into the floodway at Alma School Road. The Flood Insurance Study (FIS) mapping indicates that the 100-year floodplain actually extends south of the southern bridge. Based on this mapping, the proposed overpass and encroachment at Alma School Road could compromise the integrity of the existing bridge structures. Preventing flood flows from outflanking the southern bridge structure would require the entire flood discharge to pass through the existing bridges. The resulting encroachment could increase velocities and undermine the integrity of the existing banks. Mining operations around the Alma School Road bridges may have reduced the limits of the floodplain and floodway. However, a detailed hydraulic analysis would be needed to accurately characterize the mining impacts.

Baker
model
?

Immediately west of McKellips Road, the alignment would be generally outside the floodplain and floodway. The proposed McKellips Road overpass would have a small encroachment, which would create only minor upstream impacts. However, because McKellips Road would be an at-grade crossing of the Salt River, water could enter the overpass area during flood events.

McDot presently
repairing damages
to north bridge
from 1/93 Flood.

Segment 3 - McKellips Road to State Route 87

The freeway alignment between McKellips Road and State Route 87 would be entirely within the floodplain. The middle portion of this section would encroach into the floodway and reduces its width by approximately 7 percent. The floodway has an average width of about 1,100 feet in the encroachment segment. This encroachment should not generate a floodway surcharge greater than one foot.

This does not seem consistent with previous encroachments of 5% & 10% => 1.0'

The proposed interchange at State Route 87 is located within the floodplain, but would not encroach upon the floodway. The State Route 87 river crossing is provided by a single bridge that spans the main channel. The FIS hydraulic analysis, which defines the floodplain and floodway, indicates that the entire 100-year discharge passes under the structure. However, the mapped floodplain shows the potential for the structure to be outflanked to the south of the south bridge abutment. If this flow should occur, the proposed freeway overpass at State Route 87 would compromise the integrity of the existing bridge. The freeway could prevent flows from outflanking the bridge and force the entire flood discharge through the existing structure. Local velocities could also increase, which could undermine the integrity of the existing banks. The flood flows could also inundate the ramps between the freeway and State Route 87, which would be constructed at the existing ground level.

4.9.4 Major Urban Arterial Alternative

The major urban arterial alignment follows the same route along the south bank of the Salt River as the freeway alternative. The narrower right-of-way of the arterial alternative would create somewhat different hydraulic effects in some locations. The encroachments and impacts are summarized below.

Segment 1 - Price Freeway to Dobson Road

Due to the need for transition from the Price/Red Mountain Interchange, the encroachment differences between the freeway and arterial alternatives are generally insignificant for Segment 1. The reduced right-of-way requirements for the arterial alternative would not substantially reduce the extent of the encroachments on the floodplain and floodway. Therefore, the extent of the encroachments for the arterial alternative would be the same as those described in Section 4.9.2 for the freeway alternative.

Segment 2 - Dobson Road to McKellips Road

Between the Dobson Road and Alma School Road interchanges, the arterial alternative would encroach into the floodplain and the floodway. The floodway width would be reduced by approximately 4 percent. In the vicinity of Alma School Road, the downstream encroachments could potentially generate a floodway surcharge of less than one foot. The impact at Alma School Road would be less for the arterial alternative than for the freeway. However, the encroachment could locally increase velocities and undermine the integrity of the existing banks. The remaining portion of Segment 2, between Alma School Road and McKellips Road, would be generally located outside the floodplain and floodway.

At the proposed Alma School Road and McKellips Road intersections, the arterial alternative would encroach upon the floodplain and not the floodway. The proposed intersections are at-grade and could be subjected to Salt River flood flows.

Segment 3 - McKellips Road to State Route 87

Between McKellips Road and State Route 87, the arterial alternative would be entirely within the floodplain. In the middle portion of this segment, the arterial would encroach into the floodway, with a resulting reduction in floodway width of approximately 7 percent. This encroachment should not generate a floodway surcharge greater than one foot.

The encroachments downstream of the State Route 87 bridge could affect the hydraulic performance and capacity of the existing structure. The backwater associated with the downstream constriction could change the hydraulic conditions at the bridge, increase the scour potential, and jeopardize the integrity of the existing structure. The arterial alternative could prevent flood flows from outflanking the southern abutment of the State Route 87 bridge and force the entire flood discharge to pass through the existing structure.

4.9.5 Summary of Encroachments and Impact

The freeway alternative would generally encroach into the Salt River regulatory floodplain and floodway to a greater extent than the arterial alternative. The differences would result from the differing right-of-way requirements. The floodplain and floodway encroachments would be similar for both alternatives in Segment 1. In Segment 2, the freeway alternative would encroach a greater distance into the floodway between the Alma School Drain and Alma School Road. Encroachments

would be similar for both alternatives along the remainder of Segment 2 between Alma School Road and McKellips Road. Both alternatives would encroach into the floodplain and floodway approximately the same extent along the entire length of Segment 3. Table 4-17 presents a comparison of the approximate reductions in the floodway width along the encroached segments of the alignment.

TABLE 4-17
REDUCTION IN THE REGULATORY SALT RIVER FLOODWAY WIDTH
Freeway and Arterial Alternative

Segment	Reach Description	Approximate % Reduction in Regulatory Floodway Width	
		Freeway Alternative	Arterial Alternative
1	Red Mountain Traffic Interchange at the Pima Freeway	5	5
1	Red Mountain Traffic Interchange at Dobson Road	10	10
2	Alma School Drain to Alma School Road	8	4
3	McKellips Road to State Route 87	7	7

The nature of the impacts caused by the encroachments would be similar for the two alternatives. Table 4-18 summarizes these potential hydraulic impacts.

TABLE 4-18
POTENTIAL HYDRAULIC IMPACTS
Freeway and Arterial Alternatives

Project Segment	Potential Hydraulic Impact
1	<ol style="list-style-type: none"> Alma School Road Drain Outfall performance. Access ramps and interchange floodwater inundation.
2	<ol style="list-style-type: none"> Compromise existing channel bank integrity. Compromise the integrity of the Alma School Road Bridges. Access ramps and interchange floodwater inundation
3	<ol style="list-style-type: none"> Compromise existing channel bank integrity. Compromise the integrity of the State Route 87 Bridge. Access ramps and interchange floodwater inundation.

A major portion of the three-mile alignment would encroach into the regulatory floodplain. At some locations encroachments into the floodway would occur. This longitudinal encroachment could have a cumulative impact on the 100-year base flood elevation locally and upstream of the project.

The encroachments associated with the freeway alternative could produce both local and upstream impacts upon the regulatory floodway. These encroachments could result in a floodway surcharge of more than one foot locally, but the upstream surcharge should be less than one foot. However, adjacent in-stream and floodplain mining operations may more than offset the project encroachments into the regulatory floodway.

The cumulative impacts of the selected build alternative will be considered during design. In addition, a detailed hydraulic analysis of the selected alternative may demonstrate that the encroachments will not generate a floodway surcharge greater than that permitted by federal or state regulations,

A positive floodplain impact resulting from the project would be the substantial flood protection that would be provided to property south of the project alignment. The southern boundary of the Salt River 100-year floodplain and floodway would be defined by the project.

The project may slightly impact the extent of the floodplain limits on the north side of the Salt River in the vicinity of Dobson Road and upstream of Alma School Road. The project should not impact lands on the north side of the floodplain/floodway along other portions of the alignment. However, an on-going study by the Flood Control District of Maricopa County to redefine the regulatory floodplain/floodway in this reach of the Salt River may indicate that the project will have no impact on lands on the north side of the floodplain/floodway. Extensive mining and minor channel modifications may negate any impact of the proposed project on adjacent properties. The impact of the project on lands to the north side of the floodplain/floodway are intended to be identified and mitigation measures incorporated during design.

The land south of the project generally slopes to the southwest and drains into the Salt River at various points along the alignment. Off-site drainage outfalls should not cause a floodplain impact. The cross-drainage facilities and roads must be properly designed to prevent adjacent property inundation originating from the Salt River or the concentration of overland flows.

4.9.6 Mitigation Measures

The previous sections have described the encroachments and potential impacts to the regulatory floodplain and floodway that are associated with the two build alternatives. This section identifies alternative mitigation measures to offset the hydraulic impacts. The mitigation measures are described for each segment of the project and are summarized in Table 4-19 (page 4-77).

Segment 1 - Price Freeway to Dobson Road

Both of the proposed build alternatives encroach into the Salt River regulatory floodplain and floodway in the vicinity of the Price/Red Mountain Interchange. The proposed encroachments reduce the existing channel width and locally increase the main channel velocities. Channel bank stabilization could mitigate the increased channel velocities along this section of the proposed project. Considering the alluvial nature of the Salt River and the size of material within the channel, soil cement could be utilized to protect the proposed project and mitigate the regulatory floodway and floodplain impacts.

The physical constriction within the Salt River channel adjacent to Dobson Road and the proposed downstream project encroachment would require mitigation measures to offset the floodplain and floodway impacts. In addition, the Salt River low-flow channel is located along the south bank on the outside of a bend and directs flood-flows toward the proposed Dobson Road Interchange. To mitigate the floodway impacts of the proposed project, minor grading would help establish an effective flood channel and bank stabilization could be constructed to protect the proposed interchange.

Mitigation will be required to offset the hydraulic impact of the proposed project on the Alma School Road Drain. Culverts with a properly designed transition and outfall could mitigate the proposed project encroachments. The design of the proposed cross-flow structure (i.e., outfall, culvert, and transition) must consider the downstream project impacts on the Salt River and the potential impact on the capacity of the SRP outfall. The transition design from the existing open channel to the proposed culvert must maintain the capacity of the drain.

Segment 2 - Dobson Road to McKellips Road

The freeway alternative will probably require mitigation of the proposed encroachment impacts on the regulatory Salt River floodplain and floodway. Since the arterial alternative encroachments may not generate a floodway surcharge greater than the one-foot, the resulting floodplain and floodway impacts may not require mitigation. However, the hydraulic impacts resulting from the encroachments may require channel stabilization to offset the locally increased channel velocities. The split south channel at Alma School Road may require improvement to increase conveyance capacity and bank stabilization to protect the proposed project.

The proposed interchanges at Alma School and McKellips Roads may be inundated by Salt River floodwaters. The Alma School Road and McKellips Road profiles should consider the floodway water-surface elevation to mitigate potential flooding south of the freeway alignment. Alternative mitigation measures include leveed Salt River banks or emergency flood gates.

Segment 3 - McKellips Road to State Route 87

Mitigation measures may be required to offset the floodplain and floodway impacts of the proposed freeway alternative east of McKellips Road. Three mitigation alternatives were identified for the floodplain and floodway impacts of the freeway alternative. The first alternative is to modify the alignment east of State Route 87 to minimize the proposed freeway encroachment into the regulatory floodway. Based on the initial results of the hydraulic analysis, an adjustment was made to the alignment. This modification resulted in a substantial reduction in the encroachment. Additional changes can be considered during project design to further reduce the impact. The second mitigation alternative would be the channelization of the Salt River between McKellips Road and State Route 87. The third alternative would be to construct the proposed freeway on structure where the recommended alignment encroaches into the regulatory Salt River floodway.

Since the arterial alternative requires less right-of-way than the freeway alternative, the encroachment of the arterial alternative into the Salt River regulatory floodway may be slightly less. The arterial alternative floodplain and floodway impacts could be mitigated using the options outlined for the freeway alternative. However, the extent of the mitigation measure selected would not be as comprehensive.

We should promote this alternative
Consistent with SRPMIC MASTER PLAN.
by BRW
3/1992.

The proposed interchange at State Route 87 may be inundated by Salt River floodwaters. The State Route 87 profile should consider the floodway water-surface elevation to mitigate potential flooding south of the freeway alignment. Alternative mitigation measures include leveed Salt River banks and emergency flood gates.

To mitigate the potential impacts of the proposed constriction between McKellips Road and State Route 87, channelization may be required to convey the 100-year flood discharge. Other mitigation alternatives are not considered feasible for the proposed downstream encroachment impacts.

Mining Impacts

Extensive in-stream and floodplain mining operations are located along the entire proposed project length. The existing mining operations impact both the proposed project and the regulatory Salt River floodplain and floodway. In-stream mining operations have generally resulted in three major impacts on the Salt River channel. Mining has generally lowered the Salt River channel, flattened the slope, and left an extensive number of abandoned open pits. The combined effect of the mining impacts is channel incisement leading to unstable main channel banks throughout the project reach. In addition, mining has likely reduced the extent of the regulatory Salt River floodplain and floodway. A combination of bank stabilization and mining restriction buffers might be utilized along the entire proposed project length to mitigate the mining impact on the proposed project. Stabilizing the Salt River south bank over the full length of the proposed project would provide a definitive regulatory floodplain and floodway limit and protect property south of the facility from future flood events.

Conversely, the proposed project build alternatives potentially impact the existing mining operations. Several of the proposed encroachments could locally increase channel velocities and potential undermine low flow dikes protecting existing in-stream mining operations. However, the mining operations located within the Salt River channel would eventually become inundated with water as a result of subsurface flows from the perched main channel into the pits.

We should encourage mining set-backs from improvements.

TABLE 4-19
HYDRAULIC IMPACT MITIGATION ALTERNATIVES

Physical Location	Proposed Mitigation Measures
<u>Segment 1</u>	
Red Mountain/Pima Freeway Interchange	1. Bank Stabilization/Channelization
Dobson Road Interchange	1. Bank Stabilization 2. Minor channel grading.
Alma School Drain	1. Cross-drainage structure (transition, culvert, outfall)
<u>Segment 2</u>	
Alma School and McKellips Road	1. Bank Stabilization (levee). 2. Minor channel grading. 3. Profile modification 4. Flood gates.
<u>Segment 3</u>	
McKellips To State Route 87	1. Alignment modification. 2. Bank Stabilization/Channel Grading 3. Alignment on structure.
State Route 87	1. Bank Stabilization/Channel Grading 2. Profile modification 3. Flood Gates.

4.9.7 Revisions to the Regulatory Floodplain and Floodway

The proposed project build alternatives would encroach upon the effective Salt River regulatory floodway at several locations. However, the existing Salt River topography is considerably different from the topography the Corps used to develop the regulatory floodplain and floodway. In-stream sand and gravel mining has generally incised the main channel of the Salt River, but some sections of the proposed project alignment will remain within the regulatory floodplain and floodway.

It may be required, by National Flood Insurance Program (NFIP) regulations (Section 65.12), to request a modification for the proposed project through the Conditional Letter of Map Revision (CLOMR) process. If the proposed project encroachments cause an increase greater than the allowable surcharge above the base flood elevation (BFE), FEMA's conditional approval must first be obtained utilizing the CLOMR process. Similarly, conditional approval must also be obtained from FEMA for a proposed encroachment into the regulatory floodway that would cause any rise in the BFE.

Need to address present schedule

A new Salt River Flood Insurance Study (FIS) adjacent to the proposed project is currently underway by the Flood Control District of Maricopa County (FCDMC). Preliminary data from this study are expected to be available in February 1994. The process by which the floodway revision request may be addressed will be dependent upon the status of this on-going Salt River FIS.

The District does not intend to submit the Salt River FIS restudy to FEMA until the new hydrology, to be defined by the U.S. Army Corps of Engineers (Corps) for the modified (post) Roosevelt Dam, is incorporated into the hydraulic analysis. Currently, the District is developing an interim hydraulic model of the Salt River using the anticipated post-Roosevelt hydrology. The interim Salt River hydraulic model is projected to be complete in August 1994, and will define the anticipated post-Roosevelt 100-year floodplain. Once the interim hydraulic analysis is complete, the District intends to put the Salt River FIS on hold. When the Corps' post-Roosevelt hydrology becomes available in 1995, the District will finalize the Salt River hydraulic model. The revised hydraulic model will then be submitted to FEMA to support the redelineation of the Salt River regulatory floodplain and floodway. The District will make available the interim Salt River hydraulic analysis to agencies that wish to utilize the information. However, any proposed revisions to the regulatory Salt River floodplain and floodway will have to utilize the existing Salt River hydrology which does not incorporate the modified Roosevelt Dam. The District indicated that the interim hydraulic model is expected to provide the most current information available on the hydraulics conditions within the study reach of the Salt River.

The project should not impact flooding potential or flood insurance rates for upstream or downstream communities. The project may potentially impact the flooding potential to adjacent lands on the north side of the floodplain/floodway thereby increasing the chances of flooding. The adjacent community, the Salt River Pima Maricopa Indian Community (SRPMIC), is not a participating community in the National Flood Insurance Program (NFIP). Therefore, no flood insurance rates have been established that could be impacted by the project. However, the impacts of the project on lands to the north side of the floodplain/floodway will be identified and appropriate mitigation measures will be incorporated during design and addressed during the Section 404 permitting process.

Floodway revisions cannot be made without adequate supporting data. Because many states require communities to follow administrative procedures for establishing and revising floodways and because the limits of the floodway are established through engineering analyses, both legal documentation and technical data must be submitted. A proposed floodway must be configured in such a way that it will continue to convey the 100-year flood discharge with no greater than a one-foot increase in the original BFE's at any point. In addition, if the floodway revision is part of a revision that results in BFE's lower than those on the map that is to be revised, the one-foot surcharge limit applies to the lower BFE's.

FEMA Coordination

The proposed project would encroach on the Salt River regulatory floodplain and floodway within the City of Mesa and Maricopa County jurisdictional limits and potentially impacts the Salt River Pima Maricopa Indian Community (SRPMIC). Both the City of Mesa and Maricopa County are participating communities in the NFIP. The effective Salt River floodway may be revised in conjunction with the proposed project if the City of Mesa, Maricopa County, the SRPMIC, and FEMA are willing to amend the established floodway.

Highway agency coordination (ADOT) with FEMA is recommended in situations where administrative determinations are needed involving a regulatory floodway or where risks in NFIP communities are significantly impacted. Since the proposed project encroaches into the effective Salt River regulatory floodway, an updated FIS is underway, and upstream communities may be potentially impacted, coordination with FEMA should be undertaken.

In summary, the proposed project build alternatives will require extensive coordination with FEMA, the City of Mesa, SRPMIC, and the FCDMC. A floodway surcharge limit will need to be defined for the proposed project so that an acceptable revised floodway can be defined. In addition, the ongoing Salt River FIS may impact the ability to define a revised floodway for the proposed project.

We want to maintain a design criteria consistent with the improvements that have been constructed d/s. $\therefore Q_D = 220-225k$ cfs.

4.10 Earth Resources

This section describes potential impacts on earth resources, which include geology, soils, and farmlands.

4.10.1 No-Action Alternative

With the no-action alternative, no project-related impacts would occur. However, continuing urban development is likely to result in the loss of the prime farmland that is located in the central portion of the study area. As described in Section 4.1, the existing trends and economic forces are expected to cause changes in the land use composition.

The approximately 314 acres of farmland in the study area are underlain with sand and gravel resources. Demand for these resources may create incentives to expand the adjoining mining operations to this area. Alternatively, the parcel may be developed into another use. While the absence of either build alternative would greatly reduce the development pressure, the future economic trends may create a demand for other development. In either event, the farmlands are likely to be converted to other uses.

4.10.2 Freeway and Major Urban Arterial Alternatives

With the freeway alternative, an estimated 39 acres of the existing 314 acres of farmland would be acquired for the needed right-of-way for the new facility. The right-of-way for the arterial alternative would require an estimated 29 acres of the farmland. However, as described in Section 4.4, future development opportunities created by either build alternative would also result in the development of the remainder of the agricultural lands. This development would include a mixture of land uses that would be different from that of the no-action alternative. The development would also likely occur more rapidly. However, the end result of the loss of farmland would be the same.

Coordination with the U.S. Soil Conservation Service (SCS) has been conducted regarding the impacts to the farmlands. As described in Section 3.8.3, the affected farmlands are committed to urban development by the General Plans and zoning ordinances of the City of Mesa and Maricopa County. Thus, these farmlands are not subject to the Farmland Protection Policy Act. This is in

accordance with the FHWA guidelines, "Farmland Protection Policy Act - Supplemental Guidelines for Implementing the Final Rule for Highway Projects." This conclusion has been confirmed by the SCS, as shown in the correspondence in Section 9. Thus, the completion and processing of Form AD 1006 is not necessary.

Soils in the area have been previously disturbed. Urban development and mining activities have greatly altered the surface throughout the study area. The freeway alternative would thus cause no adverse impacts.

Mineral resources in the area include the sand and gravel resources that have been subjected to extensive mining activities. These resources have provided an important contribution to the economy of the region. Such mining will continue, although specific operations would be affected as described in Section 4.3.

4.11 Biological Resources

4.11.1 No-action Alternative

With the no-action alternative, no project-related impacts on biological resources would occur. However, continuing urban development would affect the few remaining resources.

4.11.2 Freeway and Major Urban Arterial Alternative

The ruderal/disturbed and xero-riparian habitat types would be impacted by the construction of the freeway. There would be mass grading of the ruderal/disturbed habitat along the three-mile project alignment. The xero-riparian habitat, located along the bank of the Salt River, would be impacted in the portions of the project area that require bank stabilization. The small areas of the xero-riparian habitat that would be impacted by the bank stabilization area dominated by desert broom, which is often found in disturbed or poor quality xero-riparian habitats. There would be no impacts to the riparian stand within this reach of the Salt River near the State Route 87 bridge.

A more precise definition of the amount of habitat to be disturbed will be determined during the design of the project. The landscaping design will then provide for the replacement of the disturbed resources through the use of native vegetation. Because of the small amount of existing vegetation, it is expected that the landscaping plan will provide for more vegetation than will be disturbed by the construction of the project. Staff of the Arizona Game and Fish Department have concurred with this approach.

The comment letter received from the U.S. Fish and Wildlife Service (USFWS) indicated that the Yuma clapper rail may exist within the vicinity of the proposed project. During field reconnaissance, suitable habitat for this species was not found. Discussions with staff from the Arizona Game and Fish Department (AGFD) reported that the Yuma clapper rail has been known to occur upstream, but not within the proposed project area. The Yuma clapper rail is not expected to occur in the project area, nor be affected by the project. The USFWS concurs that the proposed project will have no effect to the Yuma clapper rail. See USFWS letter dated July 19, 1994 in Section 9.0 of this EIS.

AGFD staff also requested the consideration of any areas that, given protection, could become potential habitat for the Yuma clapper rail. The development of potentially-suitable habitat for this species would require the establishment of large areas of emergent wetland habitat with associated water areas. This reach of the Salt River is controlled by upstream dams and irrigation diversion systems and is dry much, if not all, of the year. The development of suitable marsh-type habitat in this segment of the river is extremely unlikely.

The response from the USFWS also requested that the project be located outside the ordinary high water mark and outside the 100-year floodplain. As described in Section 4.9, revisions have been made to the proposed alignment to minimize the encroachment in the floodplain and floodway. Some bank protection measures will still be needed. Future flood control improvements are likely to occur if the project is not built. However, because of the previously-altered condition of the floodplain, no riparian habitat remains to be impacted.

Further studies to determine the presence or absence of desert tortoise within the study area were recommended by the Arizona Game and Fish Department. Based upon the results of the field reconnaissance, the conclusion was reached that the project area is not suitable for desert tortoise and that it is very unlikely that this species would naturally occur in the area. Further studies, field surveys, or monitoring are unnecessary.

The consideration of wildlife crossings was recommended by the Arizona Game and Fish Department. The purpose of such crossings would be to prevent both the isolation of wildlife on either side of the proposed facility and motor vehicle/wildlife collisions. Existing land use in the area includes agriculture, sand and gravel operations, disturbed industrial lands, and urban development. Undisturbed natural open space within the project area, or connecting the project area to other tracts of undisturbed open space, does not exist. It is concluded that, given this configuration of development and associated disturbance, a wildlife crossing system would not provide benefits commensurate with its cost.

4.12 Cultural Resources

4.12.1 No-Action Alternative

With the no-action alternative, no project-related impacts on cultural resources would occur. However, other activities could affect the previously-identified Site AZU:9:6 (ARS) and prehistoric canal. These sites could be impacted by improvement to Dobson Road and the future development of the agricultural area north of Eighth Street.

4.12.2 Freeway and Major Urban Arterial Alternative

The construction of either the freeway or arterial alternative would impact any cultural resources that lie within the right-of-way. Excavation and grading, as well as the temporary use of adjoining areas for equipment staging and storing, would result in the disturbance of the terrain.

No historic sites have been identified in the corridor. The archaeological resources that may exist within the corridor are important for the information that they contain regarding the prehistoric occupation of the area. The area of most potential impact is centered on the previously-identified Site AZ U:9:6 (ARS). This site and the nearby prehistoric canal may be affected by the construction of either alternative. The proposed construction of Dobson Road north of Eighth Street may also impact these resources. An additional area of unknown resources is within the freeway right-of-way on both sides of its crossing of the prehistoric canal.

Further archaeological testing is needed to define the potential impacts and to record information from any affected sites. The areas of the needed testing include the potential location of Site AZ U:9:6 and its surroundings, the area within the corridor on either side of the prehistoric canal, and the current agricultural area through which the new alignment of Dobson Road would pass. No further testing is recommended for the area between State Route 87 and the area specified above or of the area immediately east of Price Road. These two areas have been greatly disturbed by modern activities and exhibit low likelihood of containing important archaeological resources.

An archaeological testing program will be devised in consultation with the State Historic Preservation Office (SHPO) and the Arizona Department of Transportation (ADOT). This program should have three major parts. The first part will consist of a historic overview of the project area, including archival research and reconnaissance of the project area. This activity will use the results of such efforts that have been previously conducted. The second part will be an archaeological survey of areas that are currently covered by modern construction or for which access has previously been blocked. This step can be accomplished only after the area is cleared in preparation for freeway construction. The third part of the study will be archaeological testing of the portion of Site AZ U:9:6 (ARS) that is within the affected area of either the freeway alignment or the realignment of Dobson Road. This third part will also include testing of any additional cultural properties discovered during the supplemental survey. The primary goals of the testing will be to determine the eligibility of the site or sites for inclusion on the National Register of Historic Places, to discover the site limits, to determine the types and numbers of features present, and to determine the temporal range of occupation.

Consultation is underway with the following agencies: FHWA, US Army Corps of Engineers, ADOT, Maricopa County, City of Mesa, Bureau of Land Management, Salt River Pima Maricopa Indian Community, Arizona State Historic Preservation Office, and the Advisory Council on Historic Preservation. A draft programmatic agreement (PA) has been prepared and is currently under consideration by the agencies listed above. Adherence to the program described in the PA will ensure that the project will continue to be planned and constructed in compliance with Section 106. A copy of the PA is contained in the Appendix.

4.13 Hazardous Wastes

4.13.1 No-action Alternative

With the no-action alternative, no project-related impacts on hazardous wastes would occur. However, other future development activities could affect the potentially hazardous sites that have been identified.

4.13.2 Freeway and Major Urban Arterial Alternatives

As described in Section 3.11, a Phase I Environmental Site Assessment (ESA) was conducted for the project area. The details of the study and its results are contained in a separate technical report, as cited in Section 3.11. That section also contains a summary of the inventory portion of the report.

The sites identified by the Phase I ESA that lie within the project boundaries include one landfill and 22 underground storage tanks (UST). The location of these sites is illustrated on Figure 4-8 (page 4-85). The majority of the underground storage tanks are located along the northern half of the project. One site is north and upgradient of the proposed alignment. The remainder are located south, downgradient, or hydraulically lateral from the alignment. Six of the listed sites are also in the leaking underground storage tank LUST database.

The Phase I ESA concluded that several of the sites may have an impact on the construction of either build alternative. Several other sites of concern are located west of the Pima Freeway alignment, which is outside the area for this project. Those sites have been dealt with as a part of the design of the Price/Red Mountain Interchange.

The sites of concern to the Red Mountain project alternatives include several underground storage tanks, some of which are known to be leaking. Those that present potential contaminant sources are the following:

Trevizo Hay, 1747 North Alma School Road: This site may have had a release of petroleum hydrocarbons. During an earlier ESA conducted in 1989, an employee indicated that USTs on the site at times contained water that seeped into the tanks. However, the site is not listed in the LUST database. Releases may not have yet been detected. The site is located within the project boundaries on the south bank of the Salt River on Alma School Road. It may impact the project.

RED MOUNTAIN FREEWAY

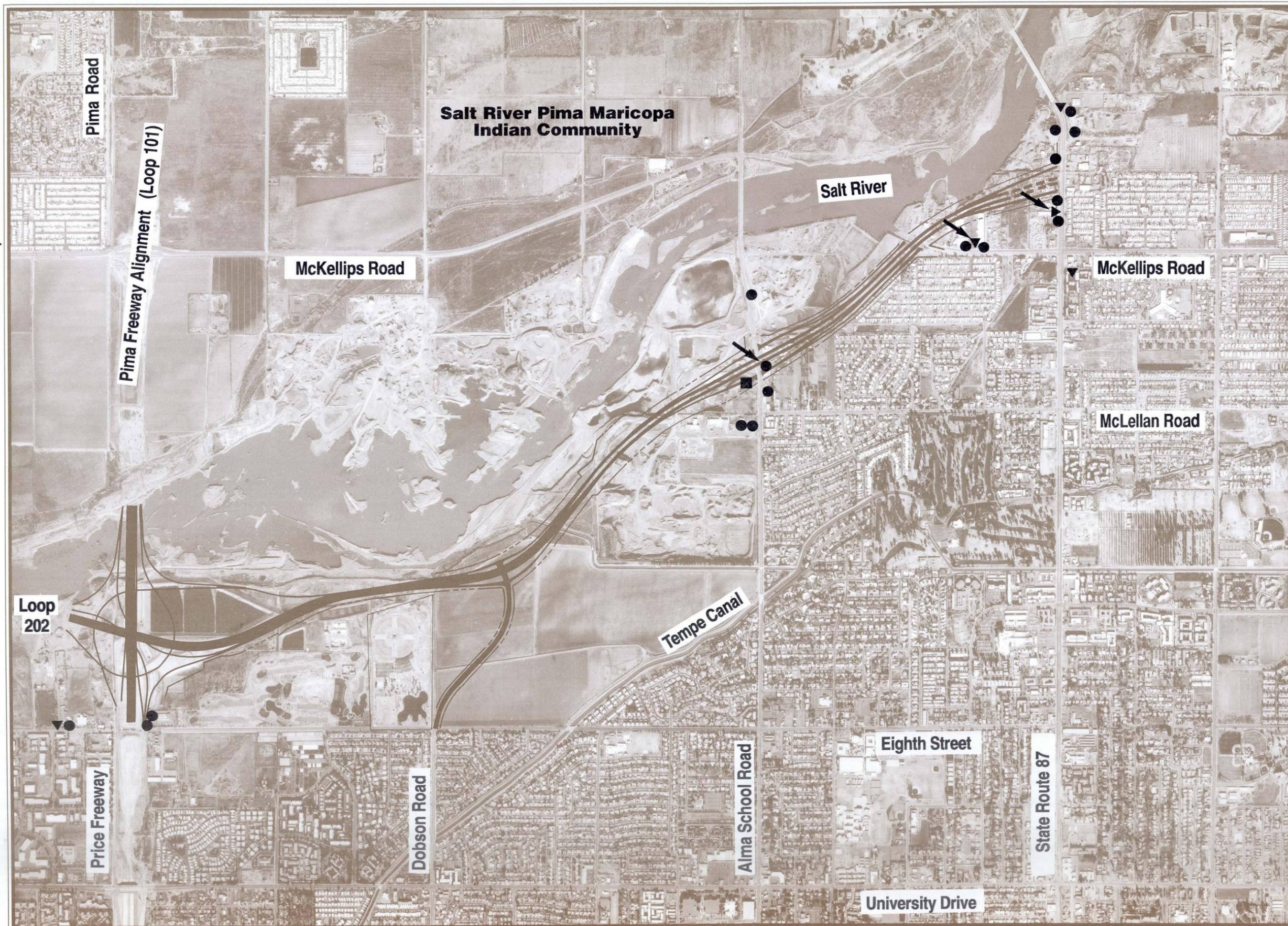
ENVIRONMENTAL IMPACT STATEMENT

0 feet 800' 1600' 2400'
approx.

↑ NORTH

GRAPHIC LEGEND

- Registered Underground Tanks
- ▲ Leaking Underground Tanks
- Alma School Landfill
- ▼ Sites Of Concern



**Impacted
Hazardous
Waste Sites**

Figure 4-8
4-86

Valley Wide Contractors, 620 West McKellips Road: A release of diesel fuel occurred at this site. The location of the release indicates that it occurred near the Salt River channel and may be within the project limits. Total Petroleum Hydrocarbon (TPH) levels detected at the site exceeded the state action limit of 100 parts per million. Bioremediation of the contaminated soils was proposed. Site personnel stated that the site had been cleaned up.

Karl Watkins, 2116 North State Route 87: Information indicates that strong hydrocarbon odors were emanating from this site. A site inspection conducted by ADEQ noted surface spillage. Three soil samples detected TPH concentrations below state action levels. The site owner indicated that several unreported USTs may exist on the site. A portion of the site is within the project boundaries at the intersection with State Route 87.

At present, none of the sites have demonstrated a substantial contaminant occurrence that may impede project completion. However, in accordance with ADOT policy, each of the sites will be investigated prior to right-of-way purchase to assess the presence of contaminants. Subsurface samples of soil and water will be analyzed to confirm the presence and magnitude of the occurrence. Health and safety procedures related to roadway construction will be assessed. Based on the results of these additional investigations, a clean-up plan will be prepared and implemented prior to construction. If previously-unknown contaminants are encountered during construction, activity will cease, ADOT will be notified, and appropriate action will be taken.

4.14 Visual Resources

This section summarizes the impacts of the project alternatives on visual resources. Two simulated views of the impacts of the freeway alternative are provided. The viewpoints for these representative simulations are shown in Figure 9 (page 4-89). The simulations are illustrated on Figure 4-10a (page 4-90) and Figure 4-10b (page 4-91).

4.14.1 No-Action Alternative

No project-related impacts to the visual resources would occur with the no-action alternative. However, future developments and other changes in the area are likely to alter the visual conditions. A substantial change could be caused in the long-term future by the eventual termination of the sand and gravel mining activity. As the mines are closed and reclaimed for other uses, the nature of the landscape would change. Other urban development that is expected to occur without the

proposed project would also affect the visual resources. The nature of these impacts will depend on the type and density of development that occurs. Distant views of mountains that currently exist from some points will likely be interrupted by these future developments. However, because of the relatively negative existing visual values, aesthetic improvements are expected to be the result of the new development.

4.14.2 Freeway Alternative

Impacts on views in the study area are expected to be relatively minor for most of the freeway alternative. The right-of-way that would be acquired is confined to vacant land, sand and gravel mining operations, industrial facilities, agricultural land, and a portion of a small mobile home park. Visual aesthetic values along the alignment are generally low. Thus, the acquisition of the land would not have a negative visual effect.

Construction of the freeway would affect certain views to some extent. The freeway profile would be at-grade except for the interchanges, which would be elevated over the arterial streets. Thus, relatively minor affects would be caused by the mainline. More substantial impacts would result from the interchanges at Dobson Road, Alma School Road, and State Route 87, as well as the grade separation at McKellips Road.

Views from Riverview Park would be affected by the freeway alternative. The freeway alignment is located immediately north of the northern boundary of the park. Looking directly north, the freeway, itself, would not be visible. The future view would be of the noise barrier, which would be constructed and landscaped in a manner consistent with the park aesthetics. This wall would be most visible from the softball fields at the northern edge of the park. Views from the southern portions are already obscured by the facilities of the ball fields. A simulated representation of this view is shown in Figure 4-10b (page 4-91). As shown by this simulation, the visual impact from the park would be minor.

Views from Riverview Park toward the northeast would be affected by the proposed interchange with the realigned Dobson Road. The elevated interchange would be visible in the distance. However, the projected future development of the agricultural area directly east of the park would eventually obscure this view. Thus, the freeway would not create a major visual impact from the park.

The elevated interchanges would have an visual impact from motorists on the arterial streets. These impacts would occur on Dobson Road and Alma School Road. The grade elevated grade separation at McKellips Road would have a similar effect. A simulated representation of the future view approaching the interchange on Alma School Road from the south is provided by Figure 4-10a (page 4-90).

Impacts on distant views from the residential areas in the southern portion of the study area would be slight. The at-grade portions of the mainline would not be visible. Because of the distance, only slight impacts would be caused by the elevated interchanges. Projected future development between the freeway and these areas would obscure this view, resulting in the freeway not being visible.

Impacts on distant views from north of the Salt River would be very slight. Existing views from these points are of the dry riverbed and the sand and gravel operations. These existing conditions would continue to dominate the views from the north.

4.14.3 Major Urban Arterial Alternative

Visual impacts caused by the arterial alternative would be similar, but somewhat less, than those associated with the freeway alternative. The arterial alternative would follow the same alignment as the freeway. Thus, the impacts caused by the acquisition of right-of-way would be virtually identical.

The profile of the arterial would be at-grade, including the intersections with the arterial cross-streets. This profile would cause a similar impact along the mainline of the facility. Impacts at the intersections would be less than those caused by the elevated freeway interchanges.

Visual impacts from Riverview Park to the north would be similar to those for the freeway alternative. A noise barrier would be constructed at the northern boundary of the park. Thus, the view would be of this wall and would be similar to the simulated representation shown in Figure 4-10b (page 4-91).



RED MOUNTAIN FREEWAY

ENVIRONMENTAL IMPACT STATEMENT

0 feet 1200' 2400' 3600'
approx.

↑ NORTH

GRAPHIC LEGEND

↑ Direction of Photographs

Simulated Viewpoints

Figure 4-9

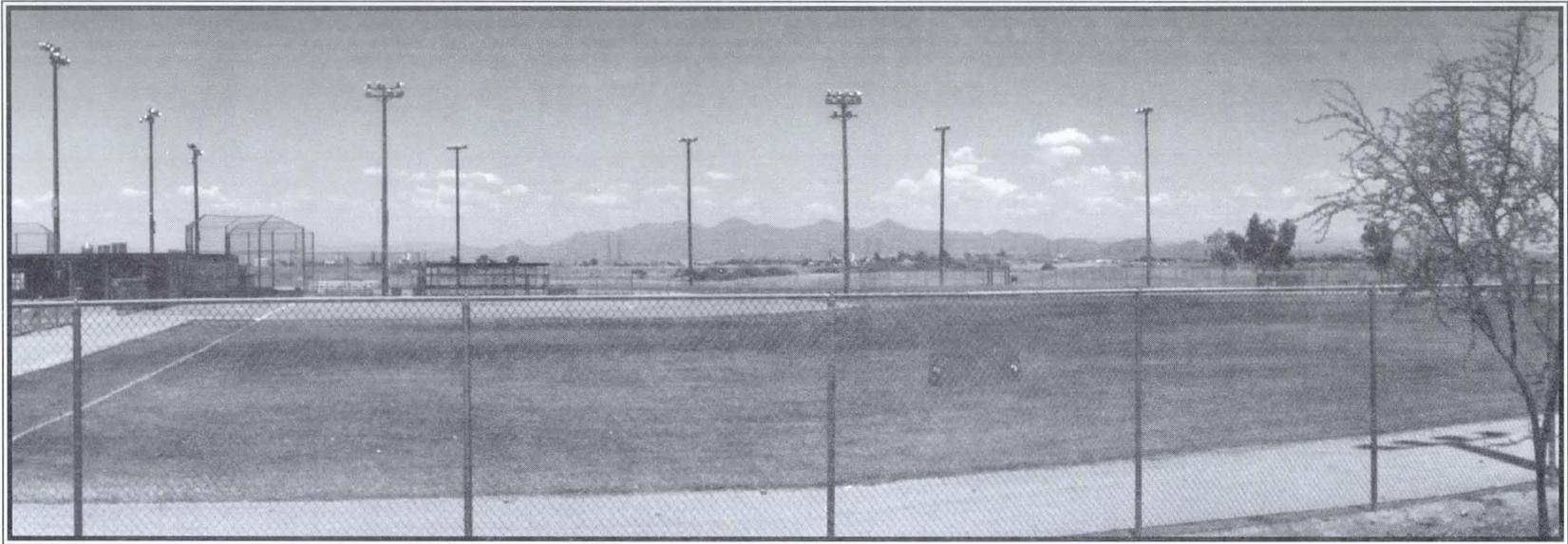


Existing View



Simulated View #1

(View looking north on Alma School Road approaching Freeway Interchange)



Existing View



Simulated View #2

(View looking north from Riverview Park)

4.15 Energy Impacts

A quantitative assessment was conducted of the impact of the proposed project on transportation-related energy consumption in the metropolitan area. The analysis is based on the Federal Highway Administration (FHWA) report entitled "Energy and Transportation Systems", which was published in 1983 by the Caltrans Transportation Laboratory. Energy consumption is quantified in British thermal units (Btu) and also translated into equivalent barrels (Bbl) of crude oil.

Both direct and indirect energy consumption were analyzed. Direct energy, which is energy consumed by vehicle propulsion, is a function of such traffic characteristics as volume, speed, distance traveled, vehicle mix, and the fuel thermal value. Indirect energy involves the one-time expenditure of energy associated with the construction of the project.

4.15.1 Direct Energy Analysis

Vehicular fuel consumption estimates were calculated based on vehicle miles traveled (VMT) and annual travel speeds. Vehicle mix information was obtained from the Arizona Department of Transportation (ADOT). Estimated fuel consumption figures take into account expected improvements in fuel efficiency.

Table 4-20 summarizes the total VMT and annual fuel consumption for the three alternatives. The direct energy consumption estimates are similar for all alternatives. The freeway alternative demonstrates energy consumption levels that are 6 percent less than the no-action alternative. The energy consumption levels of the arterial alternative are under 5 percent less than the no-action alternative. These small differences are due to the small differences in the total annual VMT among the alternatives.

**TABLE 4-20
DIRECT ENERGY CONSUMPTION**

	No-Action	Freeway	Arterial
Total Annual VMT	113,063,000	113,101,000	113,061,000
Passenger Vehicles			
Annual VMT	108,540,480	108,576,960	108,538,560
Gallons Consumed:			
<i>Gasoline and Cat.</i>	5,906,708	5,484,135	5,566,226
<i>Diesel</i>	120,545	111,921	113,596
Btus (millions)	866,586	804,590	816,634
Trucks			
Annual VMT	4,522,520	4,524,040	4,522,440
Gallons Consumed:			
<i>Gasoline</i>	393,944	421,417	419,100
<i>Diesel</i>	131,315	140,472	139,700
Btus (Millions)	75,992	81,291	80,844
Direct Energy Totals			
Btus Consumed (Million)	942,578	885,881	897,478
Bbl Consumed	162,513	152,738	154,738
Total Fuel Cons. (Gal.)	6,552,511	6,157,946	6,238,623
Fuel Efficiency (mpg)	17.3	18.4	18.1

4.15.2 Indirect Energy Analysis

Indirect energy is the energy needed to construct, operate, and maintain the proposed facility. The analysis of indirect energy impacts was based on the number of lane-miles for each alternative. The construction of both surface and elevated segments was considered. Construction energy factors were then applied that estimate the amount of energy necessary to extract raw materials, manufacture construction materials, transport the materials to the site, and complete the construction activities.

Table 4-21 summarizes the results of the indirect energy analysis. Indirect energy consumption for the freeway alternative would be approximately 48,000 barrels of crude oil, which compares to approximately 58,000 barrels for the arterial alternative. The no-action alternative would demonstrate no energy consumption due to construction.

**TABLE 4-21
INDIRECT ENERGY CONSUMPTION**

Type of Construction	Number of Lane Miles	Btus Consumed (Millions)	Bbl Consumed	Bbl per Lane Mile
Freeway Alternative				
Surface	17.8	247,153	42,613	2,394
Elevated	0.2	28,683	4,945	22,479
Total	18.0	275,836	47,558	2,639
Arterial Alternative				
Surface	24.0	333,240	57,455	2,394
Elevated	0.0	0	0	0
Total	24.0	333,240	57,455	2,394

4.16 Construction Impacts

The construction of the proposed project would create temporary impacts that are commonly associated with any large-scale project. These impacts would occur with regard to air quality, noise, water quality, business operations, and traffic flow.

4.16.1 Air Quality

Air quality impacts during construction would be limited to short-term increases of fugitive dust and mobile source emissions. Construction-related fugitive dust would be generated by haul trucks, concrete trucks, delivery trucks, and earth-moving vehicles operating on the construction site.

Particulates would include matter resuspended by vehicle movement over paved and unpaved surfaces, dirt tracked onto paved surfaces from unpaved areas at access points, and material blown from uncovered haul trucks. Mobile source emissions would include increased carbon monoxide from vehicles whose speeds are decreased by traffic disruptions caused by the construction activity.

A more detailed discussion of construction impacts on air quality and mitigation measures is included in Section 4.6.5.

4.16.2 Noise

Construction noise impacts would be created by the operation of machinery and other construction activities. These impacts would exist for either of the build alternatives. Estimates of peak noise levels during the various phases of construction are described in Section 4.7.6. Mitigation measures are also included.

4.16.3 Water Quality

Water quality impacts during construction may result from soil erosion caused by excavation, grading, and other related activities. These conditions could exist until the project is completed and permanent protective measures are installed. Measures to mitigate these temporary impacts are described in Section 4.8.3.

4.16.4 Business Impacts

Construction activities may temporarily affect accessibility to businesses in the study area. Interviews with business operators indicated that business operations would be affected. However, the responses suggested that most of the businesses would be affected moderately or lightly. Because the project would be constructed on a new alignment, the number of businesses impacted is low. Most are located on Alma School Road.

Mitigation of the business access impacts would be accomplished in accordance with the ADOT traffic control management procedures as provided by Section 104.03, Maintenance of Traffic, and Section 107.08, Public Convenience and Safety, "ADOT Standards and Specifications for Road and Bridge Construction, 1990." Traffic through the construction areas and access to adjacent properties will be maintained during construction.

4.16.5 Traffic

In addition to the effects on adjoining businesses, the construction of the project may cause temporary disruptions in through-traffic flows, which could result in short-term congestion and delays. These impacts would be limited to the points at which the new alignment intersects with the existing arterial streets. Thus, temporary impacts would occur only on Alma School Road, McKellips Road, and State Route 87. Mitigation of these impacts will also follow standard ADOT procedures.

4.17 Secondary and Cumulative Impacts

The consideration of secondary and cumulative impacts is related to possible indirect consequences of the proposed action. Secondary impacts are defined as indirect effects that are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable" (40 CFR 1508.8). Cumulative impacts are defined as those that result from "the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions" (40 CFR 1508.8).

By their nature, some secondary and cumulative impacts are difficult to identify and quantify. However, relationships between the proposed project and other environmental influences can be generally described. These relationships are described below for each of the relevant environmental subject areas.

Socioeconomic Conditions

The MAG freeway network system plan, adopted in 1985, and the MAG Life-Cycle Program has facilitated the existing and projected growth patterns for the Phoenix metropolitan area. As a result, the associated municipal governments reserved portions of the right-of-way on agricultural and undeveloped land. Development and urban growth has resulted based on the approximately 250 mile transportation network. Several projects will have cumulative impacts on the relocation of residences and businesses in and around the project corridor. Approximately six single-family residences would be displaced by the Price Freeway Project. Minor impacts on three businesses would also occur. The Red Mountain Freeway Project will relocate 62 homes from a small mobile

home park and about 15 businesses. An anticipated project east of State Route 87 to continue the Loop 202 identified a possible impact on a major radio tower. The impacts anticipated from the Santan and South Mountain segments are expected to be similar in nature. In all cases where relocation is required, adequate replacement property is available except for the possible displacement of the sand and gravel operations as discussed beginning on page 4-11. However, to the extent possible, displacement of the sand and gravel operation will be avoided.

The Gila River Indian Community has designated the area southwest of the Price/Santan traffic interchange for industrial, commercial, and recreational developments.

Air Quality

The study area is in a non-attainment area for air quality standards, so avoidance of further air pollution is mandatory and the Clean Air Act of 1990 must be complied with. The traffic forecasts used for the air quality analysis were based on the traffic generated by existing and anticipated future land uses within the MAG regional planning area. Since all past, present, and future highway projects must be approved for the regional transportation long-range plan and be found in conformity with the State Implementation Plan, the cumulative air quality impacts from all projects in the MAG plan must be found to reduce the severity and number of violations of the National Ambient Air Quality Standards.

Floodplains

The Salt River floodway and floodplain is the only major type in the project vicinity. In 1982, the U.S. Army Corps of Engineers completed a hydraulic study of the Gila River and its tributaries, as part of the Central Arizona Water Control Study. Activities related to flood control on the Salt River are underway by various governmental agencies. Channelization projects in the City of Tempe are underway downstream of the project and are in connection with the Flood Control District of Maricopa County and ADOT. Hydraulic studies by the Flood Control District will result in revision to the definition of the floodway and floodplain. Improvements by the U.S. Bureau of Reclamation to Roosevelt Dam upstream of the project area will result in a lessening of potential flood impacts of the Salt River. In combination, the above activities are expected to result in improved flood control in the area.

Biological Resources

Biological resources in the project area have been heavily disturbed by sand and gravel mining, agriculture, and urban development. The cumulative impacts of these activities have left virtually no undisturbed open spaces. Future urban development, with or without the proposed project, will impact any remaining vegetation and wildlife, which contains no protected or valuable species. There were no endangered species and sensitive habitats found in the Price or Red Mountain Projects and it is anticipated that the likelihood of encountering any such areas in the continuation of the Loop 202 project is small. The Santan and Southern Mountain projects would pass through undeveloped desert and agricultural lands and are expected to be lost by the projected urbanization with the MAG Regional Transportation Plan.

Water quality impacts from the projects in the MAG corridor would be derived from construction and operational activities. Construction activities such as excavation, grading, equipment staging, and other related activities could result in soil erosion and an increase in sediments in receiving watercourses. The materials entering the Salt River as a result of construction would be similar to materials normally associated with storm events or upstream releases. Following construction, water quality impacts associated with pollutants would be generated by the vehicles using the facility. Because of the length of the dry season and the high volume of traffic expected, relatively high levels of pollutants may be created by the "first-flush" effect of the initial rainfall. These construction and operational-related water quality impacts would be similar for the Price, Red Mountain and other projects in the vicinity. Section 402(P) of the Clean Water Act requires that Best Management Practices and other erosion and pollution control measures be implemented, monitored and revised as necessary during and after construction and these requirements will be met. Water quality permit requirements will be issued as required by the Arizona Department of Environmental Quality and the U.S. Environmental Protection Agency.

Cultural Resources

Preliminary studies have concluded that the project corridor is generally void of archaeological materials. Mining and development activities, as well as the movement of the Salt River, have disturbed the resources that may have existed. The few known cultural sites may be affected by the project and by future development that is expected to occur. Archaeological testing of these limited resources should occur prior to any further disruption. Since the archeological sites which have been found in the Price and Red Mountain projects were mitigated with data rediscovery and

programmatic agreements, it is anticipated that any future related projects in the Santan and Southern Mountain Projects would have similar impact and agreements. Even though there may be a disturbance of archeological sites, their informational value will be preserved through data collection and contribute to the understanding of past societies.

Hazardous Wastes

Extensive review of potential sources of contamination are identified from federal and state databases with close coordination with the Arizona Department of Environmental Quality. The Price Freeway Project disclosed findings of four aboveground and two underground storage tanks in the project area. The Red Mountain Project impacts one landfill and 22 underground storage tanks. It is anticipated that other proposed and future projects along the MAG regional transportation corridor will have similar impacts. To date, none of the sites have demonstrated a substantial contaminant occurrence that may impede project completion. As accorded by ADOT policy, all sites directly impacted by the highway projects will be thoroughly investigated and cleaned up prior to construction.

4.18 Irreversible and Irretrievable Commitment of Resources

Construction and use of the proposed project would require the expenditure of various types of resources, including construction materials, fuels, land, labor, and financial assets. Some of these resources would require an irreversible commitment during the life of the project. Others are not retrievable even beyond that time. In general, both build alternatives would require a similar commitment of these resources.

Land within the right-of-way would be unavailable for other purposes during the time that it is used as a highway facility. Conversion of land currently used as farmland, sand and gravel mining, and urban development would thus be irreversible during this time. However, the land could be converted to another use at the time that the proposed facility is no longer needed. A return of the land to farming would be unlikely. Thus, the loss of the farmland would be permanent and irretrievable. Conversion of the land back to sand and gravel mining or industrial development would be possible. However, such a conversion is not likely to be necessary or desirable.

Considerable amounts of fuels, labor, and construction materials would be expended in the construction of the facility. These materials are generally not retrievable. However, their use is not expected to have an adverse effect on the continuing supply for other purposes. The commitment of these resources is based on a public policy that the project would provide measurable benefits to the residents of the area. These benefits include improved accessibility among the various segments of the community, a reduction in traffic congestion, an improved availability of community services, and opportunity for economic development and job creation.

A substantial expenditure of public funds would be required to construct the proposed project. These funds, which are derived from taxes imposed at different levels of government, are not retrievable. However, their use is the result of the decision of elected officials to provide public facilities that are needed by the citizens of the area. The expenditure of these funds would also create new opportunities for economic activities that would result in the generation of increased tax revenues.

4.19 Short-Term Uses Versus Long-Term Productivity

Short-term impacts caused by the proposed project would be similar for both of the build alternatives. These impacts would occur during and immediately after the construction of the facility and would tend to have a relatively negative effect. Long-term impacts would occur over the life of the facility and would have a positive effect.

As described in Section 4.16, the construction phase would temporarily affect air quality, noise, water quality, traffic congestion, and business operations. Relocations of residences and businesses would occur. Immediately following construction, the displacement of businesses would result in a lessening of economic activity in the immediate area. The consequence would be a temporary decrease in property and sales taxes. These tax losses would be somewhat offset by the construction jobs that are created by the project.

Long-term impacts would be generally beneficial. Accessibility between the immediate area and the general community would be enhanced. Traffic congestion would be reduced and safety improved. More efficient energy use and a decrease in vehicle emissions would result.

Completion of the proposed project would serve future economic development in the area. The new development would create additional jobs and generate a substantial increase in sales and property taxes. The proposed freeway and its associated development are consistent with all of the relevant local governmental land use and transportation plans.

On balance, the use of resources and the associated short-term impacts lead to beneficial long-term impacts in the area. These benefits apply to the immediate study area, the city of Mesa, and the metropolitan area.

SECTION 5

List of Preparers

5.0 LIST OF PREPARERS

The following individuals participated either as preparers or reviewers in the preparation of this Draft Environmental Impact Statement.

Federal Highway Administration

Kenneth H. Davis, P.E., District Engineer, B.S. Civil Engineering with 24 years of experience in highway and transportation projects.

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Arizona Department of Transportation

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Robert W. Hill Jr., Hazardous Wastes; B.S. Geology, University of Miami; M.S. Environmental Science Candidate, University of Colorado; 13 years experience in hazardous waste engineering, geology and hydrogeology.

Robert Motschall, Water Quality; Ph.D. Land Resources, University of Wisconsin; M.S. Watershed Management and B.S. Natural Resource Recreation Planning, University of Arizona; 15 years experience in preparing environmental impact statements and environmental impact reports.

Kendall Jue, Water Quality; B.A. Geography, University of California, Los Angeles; M.S. Coursework for Environmental Studies completed, California State University, Fullerton; 13 years experience in environmental impact assessment with emphasis in transportation planning.

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PSM², Inc.

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SECTION 6

EIS Distribution

6.0 EIS DISTRIBUTION

Federal Agencies

U.S. Soil Conservation Service, Phoenix, Arizona
U.S. Army Corps of Engineers, Phoenix, Arizona
U.S. Bureau of Land Management, Phoenix, Arizona
U.S. Bureau of Indian Affairs, Scottsdale, Arizona
U.S. Fish and Wildlife Services, Phoenix, Arizona
U.S. Bureau of Reclamation, Phoenix, Arizona
U.S. Environmental Protection Agency, San Francisco, California
U.S. Geological Survey, Tempe, Arizona

State Agencies

Arizona Department of Agriculture, Phoenix, Arizona
Arizona Game and Fish Department, Mesa, Arizona
Arizona State Parks, Phoenix, Arizona
Arizona Department of Environmental Quality, Phoenix, Arizona
Arizona Department of Commerce, Phoenix, Arizona
Arizona Department of Mines and Mineral Resources, Phoenix, Arizona
Arizona Department of Water Resources, Phoenix, Arizona
Arizona State Land Department, Phoenix, Arizona
Arizona State Clearinghouse, Phoenix, Arizona
Arizona Department of Commerce, Phoenix, Arizona
Arizona Department of Economic Security, Phoenix, Arizona

Local Agencies

Maricopa Association of Governments

Maricopa County

Department of Transportation, Phoenix, Arizona

Parks and Recreation Department, Phoenix, Arizona

Planning and Development Department, Phoenix, Arizona

Flood Control District of Maricopa County, Phoenix, Arizona

Maricopa County Air Pollution Control District, Phoenix, Arizona

Central Arizona Water Conservation District, Phoenix, Arizona

Regional Public Transit Authority, Phoenix, Arizona

Phoenix Transit, Phoenix, Arizona

City of Tempe

Department of Community Development

Fire Chief

Police Chief

Public Works Department

City of Mesa

City Engineer

Department of Community Development

Fire Chief

Parks and Recreation

Police Chief

Mesa Unified School District, Mesa, Arizona

Indian Communities

Salt River Pima Maricopa Indian Community

Other

Arizona Rock Products Association, Phoenix, Arizona

Lehi Homeowners Association, Mesa

SECTION 7

Comments and Coordination

7.0 COMMENTS AND COORDINATION

An extensive process of communication and coordination with governmental agencies and the general public has been used in the consideration of the Red Mountain Freeway project. The process began with the early studies of the potential need for the facility and continued through the preparation of this Environmental Impact Statement. Section 7.0 summarizes the major activities in this process.

7.1 Previous Coordination Activities

Numerous coordination and public involvement activities were conducted as part of the early studies by the City of Mesa related to the need for a new transportation facility along the northern edge of the city. These studies covered the entire Red Mountain corridor, which at that time began at Price Road near the boundary between the cities of Tempe and Mesa, extended eastward along the northern edge of the city of Mesa, turned southward along the east side of the city, and connected to U. S. 60 (Superstition Freeway) and the planned Santan Freeway. Thus, the previous coordination activities included the portion of the corridor that is the subject of this Environmental Impact Statement.

Prior to 1986, the City of Mesa held numerous meetings with property owners and citizen groups in conjunction with the early corridor studies. Following the definition of the initial alignment of the Red Mountain Parkway, a formal public hearing was held in December 1983. This hearing covered the then-defined alignment between Price Road on the west and Meridian Road on the east, which forms the eastern boundary of Maricopa County.

Additional studies were conducted following the placement of the Red Mountain Corridor on the state highway system in 1985. These efforts, which also resulted in the addition of the corridor to the regional freeway system of the Maricopa Association of Governments (MAG), included a design concept study and the preparation of an Environmental Assessment in accordance with the ADOT Action Plan for State-Funded Highway Projects. Extensive agency coordination and public involvement activities were included in these studies.

The major agency coordination forum was the Technical Advisory Committee (TAC), which was comprised of representatives of the relevant governmental agencies. This committee met over 30 times during the period between early 1986 and late 1989 to consider the technical issues related to the overall alignment. In addition to the TAC meetings, approximately 70 additional meetings and discussions were held with a variety of individual agencies, public interest groups, elected officials, homeowners associations, and citizen advisory groups.

The preparation of the State Environmental Assessment for the segment of the corridor between Dobson Road and Lindsay Road included agency coordination and public involvement activities. Scoping letters were sent to 37 federal, state, and local agencies with a potential relationship to the project. The letters described the project, its purpose, and alternatives under consideration. Information was requested regarding the requirements of each agency and issues that should be considered. Responses were received from nine agencies. Meetings of the previously-described Technical Advisory Committee also continued during the preparation of the State Environmental Assessment.

A formal public hearing was held on January 25, 1989 to consider the design concepts and environmental impacts of the freeway between Dobson Road and Lindsay Road. The Draft State Environmental Assessment had been previously prepared and made available for review. At the hearing, presentations were made regarding the design concepts and potential environmental impacts. Statements were made by 28 of the 203 persons in attendance. An additional 16 written statements were also received and included in the official transcript of the hearing.

Following the public hearing, additional meetings were held with several homeowners associations, officials of the Salt River Pima Maricopa Indian Community, and individual citizens and property owners. On July 25, 1989, a public meeting and open house was held to present ADOT's responses to the comments and recommendations that had been received. Approximately 75 persons attended. In response to the comments, several changes were made to the alignment and design concepts of the facility.

Following the completion of the State Environmental Assessment, the proposed project between the Price Freeway and State Route 87 was identified for further study. The definition of the limits of the project was determined by the consideration of available fiscal resources, logical termini, independent utility, priorities among components of the regional system, and the projection of future traffic needs. Based on the State Environmental Assessment, a determination was made that an Environmental Impact Statement under the NEPA guidelines was needed.

7.2 Environmental Impact Statement Coordination

Coordination and public involvement activities have continued as a part of the preparation of this Environmental Impact Statement. These activities have been conducted in accordance with a Coordination and Public Involvement Plan, which was prepared at the beginning of the environmental study. The plan describes the process for the involvement of related governmental agencies, public interest groups, and the general public. The overall intent of the process is to ensure that all relevant issues and factors are considered.

7.2.1 Agency Coordination

At the beginning of the EIS process, an initial contact letter was sent to 37 federal, state, and local agencies. This letter provided information about the project and requested the identification of environmental issues that should be considered. Responses were received from 16 agencies. Copies of the letter, mailing list and the responses received are included in Appendix 9.1.

In addition to the agency letter, an informal coordination committee was created as a means of ensuring communication among the directly-related agencies. This committee is comprised of representatives from the Federal Highway Administration (FHWA), ADOT Environmental Planning Services, ADOT Statewide Project Management, City of Mesa, and the project consultant. Meetings of the committee have been held as needed throughout the preparation of the EIS.

7.2.2 Public Information Meeting

An opportunity for the early participation of the general public was provided by a public information meeting that was held on February 23, 1993, at the Whitman School, 1829 North Grand Street, Mesa, Arizona. The specific purposes of the meeting were to: (1) describe the purpose and scope of the study and the procedures to be used; (2) provide background information on the project; (3) present the identified engineering and environmental issues that must be addressed; (4) present the alternatives that have been identified; (5) request comments on the alternatives and issues; and (6) receive other comments.

Notice of the public meeting was provided in several ways. Advertisements were published in the Arizona Republic on February 8 and 16, 1993; and in the Tempe Daily News/Tribune and the Mesa Tribune on February 8 and 15, 1993. Notices were posted at businesses and community centers throughout the area. Door hangers were distributed to individual residences within and near the study area. Letters were sent to public interest groups and to all agencies that received the initial contact letter.

The meeting was held in an open house format with the public invited to attend at any time between 4:30 P.M. and 8:00 P.M. Displays provided an overview of the study process, major issues to be considered, and alternatives to be evaluated. A written summary and a comment form were also provided.

The public meeting was attended by 77 persons. Fifteen comment forms were received. The responses are summarized below.

- A full clover leaf interchange instead of the traffic signal should be built at State Route 87. This interchange would eliminate noise, pollution, and traffic congestion.
- A concern is the potential impact from interchange lighting on nearby residential and recreational facilities.
- Impacts on sand and gravel operations, both current and long-range resources, are an important issue.
- The proposed project would assist in solving the present crisis regarding the need for more efficient east-west traffic flows.
- More discussion is need for the no-build alternative
- Consideration should be given to improvements in the river channel similar to the Indian Bend Wash in Scottsdale.
- The project appears well planned. A minimum of residential and business displacements will occur. Project should be extended beyond State Route 87. Air quality impacts will occur if traffic congestion continues.

- If the freeway is extended east of State Route 87 in the future, an alignment 1/2 to one mile north of McDowell is preferred if possible.
- Concern exists among residents of the Mark Mobile Home Park regarding air and noise pollution. However, early completion of the project is favored.
- Questions exist concerning the impact of Salt River flows on the project. With regard to the river, the re-introduction of the Rio Salado concept in Mesa is favored.
- The proposed freeway would be a boost for the economy. It should be pursued at full speed.
- Concern exists for the impact of noise generated by a surface or elevated freeway design. Consideration should be given to earthen berms or sound walls.

7.2.3 Public Hearing

The Draft EIS was approved by the Federal Highway Administration on October 27, 1993. A notice of the availability of the Draft EIS and the schedule for the public hearing was published in the Federal Register on November 12, 1993. An advertisement announcing the availability of the Draft EIS and the public hearing was published on November 30, 1993 and December 7, 1993, in the Arizona Republic, the Phoenix Gazette, and the Mesa, Tempe, and Chandler editions of the Tribune newspapers.

In addition to the public notices, a copy of the Draft EIS and a notification of the public hearing were sent to federal, state, and local agencies, as listed in Section 9. A copy of the Summary of the Draft EIS and a notification of the public hearing were sent to members of the general public who attended the public information meeting on February 23, 1993. Copies of the Draft EIS were also provided to public libraries in the area.

The public hearing was held on December 14, 1993, at the Whitman School, 1829 North Grand Street, Mesa, Arizona. The major purposes of the hearing were: (1) to summarize the process used in the preparation of the Draft Environmental Statement; (2) to present the findings and recommendations of the environmental impact study, as described in the Draft EIS; and (3) to receive comments from agencies and the public on the proposed project and environmental studies.

An open house format was used for the hearing. Displays concerning the project were available for viewing by those in attendance. These displays provided information on the project need, EIS study process, study organization, public involvement opportunities, alternatives considered, and potential environmental impacts. Participants were given a written description of the hearing purpose and format, a copy of the Draft EIS Summary, and a comment form. Representatives of FHWA, ADOT, and project consultants were in attendance to answer questions. A public stenographer was available to record oral statements.

The public was invited to submit comments on the project in any of the following ways: (1) make an oral statement to the public stenographer at the hearing; (2) complete and submit a comment form at the hearing; (3) submit a written statement, exhibit, or comment form to ADOT Environmental Planning Services. The end of the comment period was December 27, 1993.

7.2.4 Comment Letters and Responses

The comments received on the Draft EIS are included on the following pages. The letters received are duplicated and written responses to the comments are provided. Comments submitted on comment forms and oral comments given the public stenographer are summarized and responses provided where appropriate.

Comments were received from the following agencies and individuals:

Federal Agencies

Comment 1: Environmental Protection Agency

Comment 2: Department of the Interior, Office of the Secretary

State Agencies

Comment 3: Department of Water Resources

Comment 4: State Parks, State Historic Preservation Office

Comment 5: Department of Environmental Quality

Comment 6: Game and Fish Department

County and City Agencies

- Comment 7: Maricopa County Department of Transportation
- Comment 8: Maricopa County Planning and Development
- Comment 9: Maricopa County Division of Air Pollution Control
- Comment 10: Flood Control District of Maricopa County
- Comment 11: City of Mesa, Office of the City Manager

Businesses

- Comment 12: Johnson-Stewart Company
- Comment 13: Sunward Materials

Individuals

- Comment 14: Toni Abrams
- Comment 15: Jamie Baca
- Comment 16: Dennis Benzing
- Comment 17: Trampis T. Cornwell
- Comment 18: Sandra and Richard Fickau
- Comment 19: Leon K. Galloway
- Comment 20: Don Hammerle
- Comment 21: Clinton B. Hartwell
- Comment 22: Garry Jagers
- Comment 23: Merrill Johnson
- Comment 24: Betty Lee
- Comment 25: Sandra Marietta
- Comment 26: Margaret M. Mitchell
- Comment 27: Kathleen Peters
- Comment 28: Priscilla Wainscott

Response 1-1

Section 4.8.4 (Water Quality Permit Requirements) (Pages 4-61 and 4-63) addresses Section 404 of the Clean Water Act regarding activities that may discharge dredged or fill material into the waters of the United States. Two general locations of potential fill activity into the waters of the United States are illustrated on Figure 4-7 (Page 4-68). These locations are in Segment 1, where modifications to the existing 404 permit may be needed and in Segment 3, where a new permit will be required. Paragraphs 3 and 4 on Page 4-62 and Paragraphs 1 and 2 on Page 4-63 have been revised in order to clarify the potential impacts on the waters of the United States and the type of Section 404 permit that will be needed.

Response 1-2

The hydraulic study conducted as a part of this EIS considered the alternative impacts of the project on both the floodplain and adjoining developed areas. The following points are pertinent to this issue: (1) The hydraulic investigation resulted in the revision of the previously-defined alignment in order to minimize the impacts on the floodplain. These alignments are illustrated on Figures



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, Ca. 94105-3901

December 22, 1993

Ken Davis, District Engineer
Federal Highway Administration
234 North Central Avenue, Ste. 330
Phoenix, AZ 85004

Re: Draft Environmental Impact Statement
Red Mountain Freeway between Price Freeway & SR 87
Mesa, Arizona

Dear Mr. Davis:

The U. S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for the Red Mountain Freeway proposed for the Phoenix metropolitan area of Maricopa County, Arizona. We provide our comments pursuant to the National Environmental Policy Act (NEPA), Section 309 of the Clean Air Act and the Council on Environmental Quality's (CEQ) Regulations for Implementing NEPA.

The project sponsors propose to build a 3-mile segment of Loop 202 from the Price Freeway to State Route 87, following the south bank of the Salt River. The DEIS evaluates three alternatives, which include a freeway alternative, a major urban arterial alternative and a no build alternative. It identifies the freeway alternative as the preferred alternative. The freeway alternative would be a six-lane facility with grade-separated interchanges.

Based on our review of the DEIS, we have classified this document as EC-2, Environmental Concerns, Insufficient Information. (See enclosed "Summary of Rating Definitions and Follow-up Action".) We are rating the document 2, "Insufficient Information," because it does not include sufficient information to demonstrate compliance with the conformity requirements of the Clean Air Act. Further, the potential impacts to waters of United States should be quantified and detailed enough to determine the need for a Clean Water Act Section 404 permit; if a permit would be required, the DEIS should provide sufficient documentation to evaluate compliance with EPA's 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material [40 C.F.R. Part 230]. The project is rated EC, "Environmental Concerns," because the roadway encroaches into the Salt River floodplain and floodway to the extent that such encroachment may require a Conditional Letter of Map Revision, and result in a request to amend the established floodway. We believe that a better approach would be to avoid development in

1-1 []
1-2 []

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1-2 [flood-prone areas that will require continued modification of the Salt River channel. If locating a project in these areas is unavoidable, then sufficient information should be available to explain why the preferred alternative was chosen.]

We appreciate the opportunity to review and provide comments on this Draft EIS. Please send two copies of the Final EIS to this office at the same time it is officially filed with our Washington, DC office. If you have any questions, please feel free to contact me at (415) 744-1574, or have your staff contact Kathryn Mazaika of my staff at (415) 744-1575.

Sincerely,

David J. Farrel, Chief
Environmental Review Section
Office of Federal Activities

Enclosure: (1) 5 pages of detailed comments
(2) NEPA/404 Concurrent Process
(3) Rating Sheet

MI# 001715: REDMTFWY.DEI

cc: Jeffrey Brooks, FHWA - IX
Stephen Thomas, FHWA - Arizona Division
William Belt, Arizona Department of Transportation
Cindy Lester, Army Corps of Engineers-Phoenix
Ira Domsy, Arizona DEQ

2-7 and 2-8, Pages 2-14 and 2-15. (2) Any further revision to reduce the floodplain impact would require a realignment to the south, which would have a major impact on established residential and commercial areas. Such a realignment would also conflict substantially with expressed preferences of the general public and City of Mesa plans. (3) Mitigation measures for the remaining impacts are specified. These measures will not only protect the proposed facility from flooding, but will assist in solving flood control problems in the general area of the Salt River. (4) The existing Salt River topography is substantially different from the topography used to define the current regulatory floodplain and floodway.

These changes have been the result of flood events and mining aggregate activities. The on-going Flood Insurance Study (FIS) of the Flood Control District of Maricopa County will likely result in a narrowing of the regulatory floodway and floodplain. The completion of additions to Roosevelt Dam upstream will also reduce the width of the floodplain. Thus, the proposed project will likely be outside of the newly-defined floodplain.

The conclusion of the hydraulic analysis was that the project will not have a "significant encroachment" on the floodplain, as defined by 23 CFR 650. Further discussion of these issues is located in Section 4.9.1, Summary of Location Hydraulic Studies, and Section 4.9.6, Mitigation Measures.

SUMMARY OF RATING DEFINITIONS AND FOLLOW-UP ACTION

Environmental Impact of the Action

LO-Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC-Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU-Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of environmental quality, public health or welfare. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommend for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1-Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3-Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From: EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

Premature to make this statement!

Response 1-3

The entire Loop 202 project is a major part of the regional freeway system that is included in the Maricopa Association of Governments (MAG) regional transportation plan. Loop 202 serves the eastern, southern, and part of the western sections of the metropolitan area. It covers a disparate area with a wide variety of potential issues. The construction of this facility will occur over a long period of time. The broad issues associated with the route were considered in the preparation of the MAG regional transportation plan. Because of the limited funding availability and the long-range nature of the implementation of the route, the decision was made to prepare the environmental documents on a project basis. While a tiered approach would have provided the overall context for the later consideration of the detailed environmental issues, the timing issue would have likely rendered such a document obsolete long before the completion of the entire project.

A major portion of Loop 202 has been and will be constructed with local funds. Each of the segments is an independent, stand-alone project with logical termini. A State Environmental Assessment has been prepared for each of the segments constructed solely with local funds. These assessments have considered all of the issues that would be considered in the federal process.

NEPA COMMENTS

1. General NEPA Comments

Tiered Environmental Document

1-3 [The proposed project is a three-mile segment of Loop 202, which is proposed to ring the Phoenix metropolitan area. Although the DEIS states that the project limits of this action were based on available fiscal resources and priorities among other components of the regional system, the Loop 202 corridor and its overall potential impacts might have been considered in a broad environmental document from which the specific proposed segment might be tiered. We recommend that the Final EIS discuss the extent to which the project sponsors considered evaluating the overall impacts of the entire Loop 202 project in a tiered EIS. A tiered approach could have more appropriately addressed potential impacts to waters of the U.S., for example, by discussing them comprehensively rather than in pieces, such as is seen in this project document. When providing this discussion, we recommend that the Final EIS provide an overview of the Loop 202 project, including, but not limited to, project length, potential funding sources, timing of project segments and the cumulative impacts of Loop 202 taken as a whole.]

Congestion Management Plan Status

1-4 [The DEIS states that a Congestion Management Plan is currently under preparation for Maricopa County, but that it is not available at the present time for inclusion (page 1-15). We appreciate that the DEIS describes the types of strategies under consideration. We recommend that the Final EIS update the status of this effort, and, if possible, include a quantitative analysis of how these strategies would address numbers of single occupant vehicles in the Maricopa County transportation system.]

2. Alternatives

1-5 [We appreciate the discussion in the DEIS of the various alternatives considered for the western terminus at the Price Freeway & Red Mountain interchange, and the three segments comprising the project. This background information is helpful. We encourage the project sponsors to include this type of information in future environmental documents. We also recommend expanding the discussion to address system-wide considerations as well. Those considerations might include information such as alternative locations and modes considered to address a given project purpose and need.]

An overview of Loop 202 has been added into Section 1.2 (Page 1-1).

Response 1-4

The report containing the alternative congestion management strategies was approved by the Maricopa Association of Governments (MAG) Regional Council on January 26, 1994. This report will be the basis for the Congestion Management Plan, which is expected to be considered for adoption in October 1994. The second paragraph of Section 1.4, Congestion Management System Status on Page 1-15, has been revised to reflect the current status of the plan.

The congestion management report includes an evaluation of the potential quantitative impact of the strategies on congestion in the region. A brief summary of this evaluation has been added to Page 1-16.

Response 1-5

Background information on project alternatives will be included as appropriate in future environmental documents. Alternative modes will be covered in future major metropolitan transportation investment analyses.

Response 1-6

Section 4.17, Secondary and Cumulative Impacts, has been expanded to include a discussion of potential impacts of the related projects identified in the Summary section.

Response 1-7

The CO monitoring data obtained from the stations mentioned in this comment and shown in Table 3-8 represent "hotspot" levels. Hotspot data represent the combination of ambient CO levels and local mobile CO sources. Local mobile sources of CO arise from adjacent traffic emissions. The CO modelling process employs emission and dispersion models to estimate mobile CO levels at the study site.

The use of hot spot monitoring data would be inappropriate for this type of analysis because it would "double count" the mobile source element of the CO data. To avoid this inconsistency CO background data are used. These data represent the ambient CO levels away from any immediate source of CO, such as local roadways and intersections. These monitors are often placed on rooftops or other remote areas.

The ambient data for the air quality analysis for this project (3.5 ppm for the 8-hour and 5.0 ppm for the 1-hour study periods) were recommended by the Arizona Department of Transportation. The values were derived from data collected from the Maricopa County Air Quality Monitoring Network. These ambient levels were combined with the mobile source concentrations estimated through the use of the EPA-approved models (CAL3QHC Version 2 and MOBILE4.1). These levels are presented in Tables 4-11 and 4-12. A clarification of this issue has been added to the paragraph under the heading, "Background Concentrations", on Page 4-39.

3. Secondary and Cumulative Impacts

The DEIS identifies a number of related projects in the "Summary" section (pages S-6, 7). The Final EIS should expand the "Secondary and Cumulative Impacts" section to include a discussion of potential impacts to air, water, and biological resources from these related projects, including the impacts of Loop 202. The discussion should also project how these projects, in conjunction with the proposed 3-mile project, will affect air, water and biological resources cumulatively.

AIR QUALITY

1. Background Air Quality

The air quality impacts analysis used background carbon monoxide (CO) levels of 5.0 ppm for 1-hour and 3.5 ppm for 8-hours. From 1990 to 1993, the Broadway and Brooks monitoring station in Mesa recorded second high 1-hour CO monitoring data from 3.4 to 8.5 ppm, and 8-hour CO monitoring data from 2.5 to 5.4 ppm. The North Miller monitoring station in Scottsdale recorded second high 1-hour levels from 6.1 to 10.8 ppm and 8-hour levels from 3.7 to 7.7 ppm. Elsewhere in the Phoenix metropolitan area, the monitored CO levels tend to be higher. The Final EIS should include a rationale for setting background levels.

2. Project Conformity

EPA promulgated the final rule which outlines the criteria and procedures for determining conformity to state or federal implementation plans of transportation plans, programs, and projects [58 Fed. Reg. 62188 (1993)] (hereinafter, final rule). The final rule is effective on December 27, 1993. Subsequent environmental documents for this project should reflect these requirements.

a. Transportation Plan and Program Consistency

The DEIS states that the Red Mountain Freeway is included in the Long-Range Transportation Plan for the Maricopa County Planning Area and that the project is included in the approved 1993-98 Transportation Improvement Program (TIP). It also states that the Red Mountain Freeway will not result in violations of the federal carbon monoxide (CO) standard within the area substantially affected by the project (page 4-43). The Final EIS should reflect that the final rule requires the project to be included in a federally approved transportation plan and program found to conform. The final rules also requires that:

Response 1-8

The Red Mountain Freeway Environmental Study was included as a 1993 project in the Maricopa Association of Governments TIP for 1993 - 1997. This project included the entire length of the project covered by this EIS - Price Freeway to State Route 87. In the revision of the TIP for 1994-1998, the Red Mountain Freeway Environmental Study was inadvertently omitted. This omission was likely due to the fact that the environmental study was begun in 1993. A formal request has been made to correct this omission by amending the 1994 MAG TIP and Statewide TIP to include the Red Mountain Freeway Environmental Study. Since the project conformed under the 1993 TIP, it is expected to conform with the 1994 TIP. Section 4.6.4, Project Conformity, has been revised to reflect this situation.

Response 1-9

If, at the time of final project approval, the TIP and plan have not demonstrated conformity according to motor vehicle emission budgets, the Arizona Department of Environmental Quality will be consulted.

- (1) localized CO and PM₁₀ hot spot analysis assumptions are consistent with those in the regional emissions analysis,
- (2) the design concept and scope of the project has not changed significantly from the design concept and scope in the plan, and
- (3) the design concept and scope was adequate enough at the time of the program conformity finding to determine its contribution to regional emissions.

1-8

The 1994 to 1998 TIP describes the Red Mountain Freeway project in the following manner, "202L Red Mountain Fwy, Dobson Rd. to McKellips Rd., R/W Acquisition" (1994); "202L Red Mountain Fwy, Dobson Rd. to McKellips Rd., R/W Acquisition" (1995); "202L Red Mountain Fwy, Pima to McKellips Rd., Roadway Construction" (1996). Fiscal year 1994 also includes the portion, "202L Red Mountain Fwy, Pima to McKellips, Roadway Design". The DEIS describes the project as constructing a three-mile facility between the Price Freeway and State Route 87. The Final EIS should clarify whether the TIP items noted above include the interchanges of the Red Mountain Freeway with the Price Freeway, and State Route 87, as Dobson Road is just east of the interchange, and State Route 87 is just east of McKellips Road. It should also provide a description of the design concept and scope appearing in the Long-Range Transportation Plan.

If the Price/Red Mountain freeway and the Red Mountain/State Route 87 freeway interchanges are not included in a federally approved TIP, the project sponsors must either amend the TIP and the plan to include these portions of the project, or revise the EIS to reflect the portion of the project included a plan and program found to conform. The project sponsors should note that should you choose to revise the plan and TIP, a new conformity finding will be necessary prior to making a conformity finding for the project.

1-9

If, at the time of final project approval, the TIP and plan have not been demonstrated to conform according to transitional period criteria (i.e., motor vehicle emissions budgets), then the project sponsor must consult the State air agency so that emissions for the existing plan and TIP are compared to those in the implementation plan submission or in the plan under development. This consultation must occur prior to making a conformity finding for a project which is regionally significant and increases single-occupant vehicle capacity to ensure (1) that the TIP and plan can meet emissions budget commitments and (2) that the capacity increasing project will not interfere with meeting the budget commitments.

Response 1-10

Predicted CO values for the Price/Red Mountain Interchange, as described in the State Environmental Assessment approved on March 5, 1991, do not correspond to the maximum predicted CO concentrations in this EIS. The levels predicted in the EA employed air quality parameters that, while appropriate in 1991, are not valid today. Changes include the use of oxygenated fuels and new modelling programs. Due to these time-driven inconsistencies, the levels predicted in the EA were not included in this EIS.

Response 1-11

Localized PM10 hot spot analysis has not been conducted. At the time of this analysis, a localized PM10 analysis was not required. EPA final rule [58 Fed. Reg. 62188 (1993)], published on November 24, 1993 and effective on December 27, 1993, was issued after the air analysis was conducted. The requirement for a localized PM10 analysis will not take effect until EPA releases modelling guidance with an appropriate announcement in the Federal Register. As of the date of this EIS, EPA has not released this guidance.

Response 1-12

Measures outlined to mitigate the impacts of construction on particulate matter were provided by the Arizona Department of Environmental Quality. These measures will be implemented in accordance with Section 107.14, Prevention of Air and Noise Pollution, in "ADOT Standard Specifications for Road and Bridge Construction". The Record of Decision will include a commitment to these measures. FHWA will obtain written commitments to implement the measures.

b. Carbon Monoxide (CO) Impacts

1-10

Table 4-11 lists maximum predicted CO levels from Dobson Road & Red Mountain Freeway to McKellips & Red Mountain Freeway. The DEIS includes background information regarding the Red Mountain Interchange which was evaluated in a state environmental assessment (EA) approved by ADOT on March 5, 1991 (page 2-2). The Final EIS should incorporate predicted CO values for the Price/Red Mountain freeways interchange evaluated in that EA. It should also provide information regarding the models and assumptions used in the analysis to make these predictions.

c. Particulate Matter < 10 microns (PM₁₀) Impacts

1-11

The final rule also requires that projects not cause or contribute to any new localized PM₁₀ violations or increase the frequency or severity of any existing PM₁₀ violations [40 C.F.R. § 93.116]. EPA will issue guidance for localized PM₁₀ modeling in the near future. The Final EIS should incorporate this guidance.

1-12

We appreciate your outlining the measures you plan to take to mitigate the impacts of construction on particulate matter levels (page 4-44). The Record of Decision should include a commitment to implementing and monitoring these measures for their effectiveness in controlling PM₁₀ emissions. Additionally, FHWA should obtain written commitments from the project sponsor and/or operator to implement the same mitigation and control measures [40 C.F.R § 93.133(a)].

WATER RESOURCES

Waters of U.S. including Wetlands

The DEIS indicates that impacts in the western portion of the project area may be covered under an existing Section 404 permit to accommodate East Papago, Pima and Red Mountain Freeway alignments (Application 90-4959-CL) (page 4-62). It also states that impacts in "Segment 3", the eastern segment, of the road may also need a Section 404 permit.

a. Potential Regulatory Floodplain/Floodway Impacts

The DEIS discusses the following potential floodplain/floodway impacts of the proposed alternatives:

Segment 1-Price Freeway to Dobson Road-The proposed freeway would encroach into the floodplain and floodway; the cumulative impact may be a floodway surcharge greater than one-foot (page 4-67).

Response 1-13

See Response 1-1.

Segment 2-Dobson Road to McKellips Road-The portion of the freeway from Alma School Drain to Alma School Road would encroach into the floodplain and floodway; the cumulative effect of downstream encroachments could be a surcharge of more than one foot (page 4-69).

Segment 3-McKellips Road to State Route 87-This segment would be entirely within the floodplain; the middle portion of the freeway would encroach into the floodway. The interchange with State Route 87 would be in the floodplain (page 4-70).

To mitigate the potential impacts described above, the DEIS outlines options to: stabilize the channel using soil cement, build levees or emergency floodgates on the Salt River banks, modify the alignment, channelize the Salt River, or construct the freeway on a structure in locations where the alignment encroaches the regulatory floodway. Although the DEIS discusses floodplain/floodway impacts as noted above, the potential impacts to regulated waters of the U.S. remain unclear.

1-13

b. Clean Water Act Section 404 Permit

The Final EIS should specify the potential impacts, by acre, along the entire proposed project and indicate the type of Section 404 permit that will be needed. Should these impacts require an individual permit, we recommend considering the impacts in a single permit, rather than several permits.

As you know, EPA, Federal Highway Administration and U.S. Army Corps of Engineers have been meeting, along with state highway agencies, to develop a process to integrate the requirements of NEPA and Section 404. For your reference, we are including a copy of the "Concurrent Process" embodied in the Memorandum of Understanding signed by participating agencies. You will need to follow this process should an individual permit be needed for the project.

Response 2-1

The Parks Department of the City of Mesa, which is the owner and operator of Riverview Park and Riverview Golf Course, has been consulted regarding the relationship of the proposed project to these facilities. Documentation of this consultation and the Department's position on the project is contained in the letter on Page 9-34.

Response 2-2

A signed copy of the programmatic agreement is included in Section 9.2.

Response 2-3

The exact amount of sand and gravel property to be acquired will be determined in conjunction with the design of the project. The design will seek to minimize these acquisitions and maintain access to remaining areas. The determination of the quantity of remaining reserves and the compensation for these reserves will be determined as a part of the normal acquisition process. Remaining reserves are considered in determining the property value that will be compensated. A clarification of



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

ER-93/0888

Mr. Edward A. Wuesta
Division Administrator
Federal Highway Administration
234 N. Central Avenue, Suite 330
Phoenix, Arizona 85004

Dear Mr. Wuesta:

This is in response to the request for the Department of the Interior's comments on the draft environmental/Section 4(f)/6(f) statement for the Red Mountain Freeway (from Price Freeway to SR-87), Maricopa County, Arizona.

SECTION 4(f) STATEMENT COMMENTS

Park and Recreation Resources

2-1 [The statement indicates that the proposed project will have no direct impacts on Riverview Park and the Riverview Golf Course and that the noise barrier adjacent to Riverview Park will be constructed and landscaped in a manner consistent with park aesthetics. The park authority should be consulted on this matter and evidence to that effect should be documented in the final statement.]

Cultural Resources

2-2 [The statement indicates that some archeological resources and the prehistoric canal may be affected by the proposed project and that a programmatic agreement will be prepared to mitigate impacts to cultural resources. A signed copy of the agreement should be included in the final statement.]

ENVIRONMENTAL STATEMENT COMMENTS

Extensive sand and gravel mining has occurred in this area, and freeway construction would result in negative impacts to existing operations, as noted in the statement. Alignment of the highway through Sumward Materials may result in its closure unless mitigation measures are taken to preserve access to the processing plant from the materials source area. Other material-related operations to be relocated or directly impacted by acquisition of the right-of-way include those owned by Calnat, Arizona Crushing Co., Mesa Sand and Rock, and Cashtay Concrete.

this point has been added to the discussion of mitigation measures on Page 4-15 and to the summary of mitigation measures on Page 2-45.

The major access issue is the potential severing of the Sunward Materials processing operations from its materials source. The project would not result in the severing of any remaining sand and gravel operations from the surrounding transportation system. In fact, access to the local and regional system will be enhanced. A commitment to the mitigation of the internal severance issue was originally included in the list of mitigation measures on Page 4-16. This provision has been revised to include all sand and gravel operations, in addition to the specific reference to the known issue at Sunward Materials. An expanded discussion and clarification of this measure has also been added to the mitigation summary on page 2-45.

It is recognized that some loss of sand and gravel resources may occur. The amount of this loss will depend upon the extent of the acquisitions determined to be necessary by the design of the facility. Extensive resources exist to the north of the project and will be unaffected. Other resources also exist in other parts of the metropolitan area. An expanded discussion of this issue has been added to the environmental consequences section on Page 4-14 and to the summary of environmental impacts on Page 2-39.

2-3

Although the statement contains a fairly thorough impacts analysis, we have concerns with relocations demanded by the preferred freeway alternative. First, it is not clear what quantity of sand and gravel reserves remain at the affected sand and gravel mines and to what extent owners would be compensated for reserves remaining in the ground. Sand and gravel resources are difficult to replace in urban areas. Additionally, because it is high volume material and expensive to transport, sand and gravel must be mined near its customers (i.e., in or near metropolitan areas). Even if other nearby land parcels containing economic sand and gravel resources exist, obtaining suitable zoning, permitting, and inevitable local opposition actions, often makes relocating a mine impossible.

We believe the effects on local sand and gravel operations in the study area could be quite significant, depending on how much natural material remains in the area to be acquired. Coupled with this impact is the severing of access to remaining reserves by running a freeway alignment through existing mining properties. A temporary positive impact may occur for operators who can market their product for freeway construction, but the overall picture appears to be of significant negative impact to local sand and gravel resource production. Because sand and gravel resources are difficult to relocate, freeway land requirements may create an irretrievable loss of local resources (ironically, the same ones required for this freeway as well as future Phoenix-area freeway construction). This reality should be noted in the environmental impacts summary-relocation impacts section (p. 2-39) and in the environmental consequences and mitigation section (p. 4-12 and 4-13). The mitigation section also should note whether owners would be compensated for remaining reserves. Furthermore, we urge project planners to do more than consider (p. 2-45) mitigating access needs of property owners. At a minimum, they should design the freeway to mitigate access needs for any company (not just Sunward Materials) that would have its property severed from transportation routes by the proposed alignment. For questions concerning sand and gravel resources, please contact Jean A. Dupree, Bureau of Mines, Intermountain Field Operations Center, P.O. Box 25086, Building 20, Denver Federal Center, Denver, Colorado 80225, telephone (303) 236-0451.

SUMMARY COMMENTS

The Department of the Interior has no objection to Section 4(f) approval of this project by the Department of Transportation, providing the mitigation measures discussed above are adequately addressed in the final statement.

We appreciate the opportunity to provide these comments.

Sincerely,



Jonathan P. Deason
Director
Office of Environmental Policy
and Compliance

Response 3-1

All required permits from the Department of Water Resources will be obtained prior to construction activities. An addition has been made to the Mitigation Summary, Page 2-45.

ARIZONA DEPARTMENT OF WATER RESOURCES

Phoenix Active Management Area
15 South 15th Avenue, Phoenix, Arizona 85007
Telephone (602) 542-1512
Fax (602) 542-3383



FIFE SYMINGTON
Governor
RITA P. PEARSON
Director

November 29, 1993

William P. Belt, Manager
Environmental Planning Services
Arizona Department of Transportation
205 South 17th Avenue, Mail Drop 619B
Phoenix, Arizona 85007

Dear Mr. Belt:

The Department of Water Resources has reviewed the Draft Environmental Impact Statement for the Price Freeway to State Route 87 portion of the Red Mountain Freeway. The report accurately reflects the Department's Second Management Plan right-of-way landscaping provisions, as expressed in our comments made on February 3, 1993, which appear in chapter nine of the Draft Impact Statement. The Phoenix Active Management Area appreciates the attention given to the right-of-way low water use plant provision and the positive way it was presented on page 2-24 under *enhancement opportunities*.

3-1

In addition, please note that if well drilling activities are necessary to carry out this project, the necessary permits must be obtained from the Arizona Department of Water Resources well in advance of any drilling activities. This may include dewatering permits, withdrawal permits for construction water or dust control, and others.

If you have any question, please contact myself or Gordon Wahl at 542-1512.

Sincerely,

Mark Frank
Phoenix Active Management Area Director

cc Rita Pearson
Gordon Wahl

mfk

Letter 4

No response necessary.



ARIZONA
STATE
PARKS

1300 W. WASHINGTON
PHOENIX, ARIZONA 85007
TELEPHONE 602-542-4174

November 29, 1993

William P. Belt, Manager
Environmental Planning Services, 240 E
Arizona Department of Transportation
206 South 17th Avenue
Phoenix, AZ 85007

RE: Red Mountain Freeway, Price Freeway to State Route 87 Draft
Environmental Impact Statement, ADOT, DOD-Corps and FHWA

Dear Mr. Belt:

Thank you for sending us a copy of the draft EIS for the above proposed federal undertaking. I have reviewed those portions of the draft EIS that apply to cultural resources and not that the EIS adequately describes those cultural resources that may be impacted by the project and it sets forth a process for consultation with our office. Therefore, this office accepts the draft EIS as written.

We appreciate your continued cooperation with this office in complying with the historic preservation requirements for Federal undertakings. If you have any questions, please contact me at 542-7137 or 542-4009.

Sincerely,

Robert E. Gasser
Compliance Coordinator
State Historic Preservation Office

cc: Cindy Lester, DOD-Corps/Phoenix

FIFE SYMINGTON
GOVERNOR

STATE PARKS
BOARD MEMBERS

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M. JEAN HASSELL
STATE LAND COMMISSIONER

KENNETH E. TRAVOUS
EXECUTIVE DIRECTOR

CHARLES R. EATHERLY
DEPUTY DIRECTOR

Response 5-1

ADOT will prepare a Stormwater Pollution Prevention Plan (SWPPP) and file a notice of intent with the EPA prior to beginning construction. A reference to the SWPPP has been added to Page 4-60. ADOT is committed to minimizing erosion and controlling sedimentation on all construction projects. Details of the Best Management Practices to be used on the project will be included in the SWPPP.

Response 5-2

Sanitary waste treatment and disposal will be conducted in accordance with federal, state, and local laws and regulations. Such measures are addressed in ADOT's Standard Specifications for Road and Bridge Construction.

Response 5-3

The drainage system will be designed to avoid pollution to the waters of the State. The standard ADOT design process will ensure that culverts are adequately sized and set, stormwater discharges are properly managed, and drainage from paved areas will not result in direct discharge to environmentally-sensitive waters.



ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Fife Symington, Governor Edward Z. Fox, Director

Nonpoint Source Unit
3rd Floor
1-800-234-5677
(602) 207-4511
FAX (602) 207-4528

November 15, 1993

Mr. William P. Belt, Manager
Environmental Planning Services
Arizona Department of Transportation
205 South 17th Avenue, Mail Drop 619E
Phoenix, Arizona 85007

Re: Draft Environmental Impact Statement - Red Mountain Freeway (Price Freeway to State Route 87), Your Letter 11-03-93

Dear Mr. Belt:

The Department of Environmental Quality, Office of Water Quality, Nonpoint Source Unit, appreciates the opportunity to comment upon the Draft Environmental Impact Statement - Red Mountain Freeway (Price Freeway to State Route 87). The Arizona Department of Environmental Quality offers the following comments:

1. The Salt River (HUC 15060106-001) was evaluated as non-attaining for bacteria, Dissolved Oxygen (DO), organics, and pH in the 1988 NPS Assessment Report, (see enclosed Surface Water Assessment Middle Gila River Basin).
2. The Salt River (HUC 15060106-001) was monitored as non-attaining for flow, phenols, Biological Oxygen Demand (BOD), Suspended Solids (SS), copper, and chromium in the 1990 305(b) Report, (see enclosed Surface Water Assessment Middle Gila River Basin).
3. The Salt River (HUC 15060109-001) was monitored as partial and non-attaining for pH, Total Dissolved Solids (TDS), and mercury in the 1991 205(j) Report, (see enclosed Surface Water Assessment Middle Gila River Basin).
4. The Salt River (HUC 15060106-001) was monitored as partial and nonsupport due to Biological Oxygen Demand (BOD), chlorine, flow, mercury, metals, pH, phenols, soluble solids (SSS), and Total Dissolved Solids (TDS) in the 1992 305 (b) Report (see enclosed Surface Water Assessment Middle Gila River Basin).

A surface water hydraulic connection exists between the Salt River and the Red Mountain Freeway (Price Freeway to State Route 87) by the tributary rule.

3033 North Central Avenue, Phoenix, Arizona 85012, (602)207-2300

William P. Belt
Page 2

The Arizona Department of Environmental Quality recommends that the following water quality concerns be addressed in the report:

- 5-1 [1. Best Management Practices should be implemented during and after construction phases to protect riparian areas, to maintain adequate vegetative cover, and to minimize the discharge of sediment, turbidity, petroleum, nutrients, bacteria, and other pollutants to the Salt River. Runoff and seepage from roadways, embankments, and other alterations of the natural environment must not cause a violation of Water Quality Standards for Navigable Waters, A.A.C. Title 18, Chapter 11, Article 1.]
- 5-2 [2. Sanitary waste facilities during construction phases shall be planned and developed in such a manner to ensure protection of both surface and groundwater resources;]
- 5-3 [3. If culverts are used they should be adequately sized to handle the expected flow and properly set with the ends protected from erosion. Storm water discharges should be managed to minimize the pollution of the waters of the State. Drainage from paved areas should not result in direct discharge to canals or environmentally sensitive waters.]
- 5-4 [4. A monitoring program should be implemented to evaluate effectiveness of management practices in protecting waters of the State; and]
- 5-5 [5. ACC R18-11-109, Surface Water Quality Standards Rules must be complied with as set forth in section G (enclosed).]

Enclosed for your information and reference please find a copy of AAC R18-11-107/108/109, Surface Water Standards Rules.

The Arizona Department of Environmental Quality would appreciate being kept informed on the progress of this project. Thank you for your cooperation and should you have any questions please feel free to give me a call at (602) 207-4511.

Sincerely,

Anastasia Dragun

Anastasia Dragun
Nonpoint Source

Enclosures

cc: Don Shroyer
Larry Stephenson
Mike Hill
Kris Randall
Peter Jagow
Karl Meyer

Response 5-4

ADOT will implement mitigation measures and Best Management Practices by incorporating details into the construction document and by construction monitoring. After construction, ADOT maintenance crews continue to monitor the project during maintenance operations to ensure that mitigation features are functioning properly. (See document revisions referenced under Response 5-1.)

Response 5-5

ADOT will comply with all federal, state, and local laws and regulations. A specific statement on compliance with the Surface Water Quality Standards Rules has been added to Page 4-60. (See Response 5-1.)

Response 6-1

As described in Sections 3.9 and 4.11, the proposed project site has been heavily disturbed by sand and gravel mining, agriculture, and urban development. Because of the small and scattered nature of its occurrence, the quantification of the remaining habitat was deemed unnecessary. However, during the design of the project, the number of trees to be removed will be determined. The landscaping design for the project will then provide for the replacement of the disturbed resources through the use of native vegetation. Because of the small amount of existing vegetation, it is expected that the landscaping plan will provide for more vegetation than will be disturbed by the construction of the project. An attempt will be made to create a linear riparian habitat between the freeway and the Salt River. The landscaping plan will be made available for review by the Arizona Game and Fish Department. Section 4.11.2 has been revised to clarify this approach. The presence of water in the gravel pit settling pond is intermittent. Thus, wetland values are marginal. However, an effort will be made during the design of the project to avoid impacts to the pond.

December 29, 1993

William P. Belt
Environmental Planning Services
Arizona Department of Transportation
205 South Seventeenth Avenue, Mail Drop 619E
Phoenix, Arizona 85007

Re: Comments on Draft Environmental Impact Statement (DEIS) for the Red Mountain Freeway from the proposed Price Freeway to State Route 87.

Dear Mr. Belt:

The Arizona Game and Fish Department (Department) has reviewed the DEIS for the above mentioned freeway project and submits the following comments. We apologize for the tardiness of this response letter.

The Department agrees that the area in question is degraded and presently holds minor value for wildlife. We would categorize this area as "Resource Category IV", per our Department Operating Manual, Section I2.3. Habitats in this category are "of medium to low value for Arizona wildlife species, due to proximity to urban developments...". Our mitigation goal for this Category is to minimize loss of habitat and recommend ways to avoid or minimize habitat losses. Should losses be unavoidable, the Department may recommend compensation based on the significance of the loss.

In December, 1993, Department employees visited the proposed Red Mountain freeway right-of-way corridor along the south bank of the Salt River in Mesa. Three raptors and numerous songbirds were observed. There were also small pockets of grassland and desert riparian habitats along the proposed right-of-way. There is no mention in your DEIS of the quantity or type of habitat to be disturbed by this freeway proposal. In section 4.11.2, page 4-81, you state that "No mitigation would be required for impacts to the ruderal/disturbed habitats within the project area. The small areas of xero-riparian habitat that would be impacted by bank stabilization activities are dominated by one species, desert broom. No mitigation would be required for impacts to this

Mr. William P. Belt
December 29, 1993
2

habitat." This statement does not quantify the habitat disturbance by this proposed freeway. Although most of the right-of-way is currently heavily disturbed by human activity, there will be some impacts to area wildlife habitat by this proposed freeway and this may require some form of compensation.

6-1

The Department believes the final Environmental Impact Statement should include quantifications of habitat disturbance by this project proposal. This information will assist in the determination of compensation needs, if any, for this project. Past Environmental Impact Statements (EIS) on sections of the Red Mountain Freeway along the Salt River (i.e. East Papago) that have similar desert riparian habitats have included these quantifications and compensation was sought for habitat impacts. Furthermore, the proposed highway right-of-way appears to pass close to the south of a small gravel pit settling pond west of Alma School Road on the south side of the Salt River. This pond has some wetland habitat values and should be avoided if possible.

6-2

The National Environmental Policy Act (NEPA) Council on Environmental Quality (CEQ) Regulations, section 1508.7, require that indirect effects of all actions be evaluated in an EIS. Much of the area to be impacted by the planned construction is currently occupied by gravel operations. Although these gravel pits presently have generally little value to wildlife, we are concerned that this project will displace these businesses to other localities. The new sites for these gravel pits will most likely be along water courses and will likely disturb important wildlife habitat. The Department believes the displacement of these gravel pits and subsequent disturbance of wildlife habitat is an indirect effect of the planned highway construction as described in section 1508.7 of the CEQ Regulations. These indirect effects may be significant and need to be evaluated in the EIS. The Department furthermore recommends that existing materials pits be utilized for freeway construction purposes. The locations and amounts of materials needed for this project were not included in the DEIS. If new materials pits are necessary, we recommend that an array of alternative locations be considered so that a site with the least potential to impact wildlife habitat can be chosen.

Response 6-2

The exact nature of the displacement of sand and gravel operations will be determined during the design of the facility. Preliminary design investigations indicate that the facility can be designed to allow the continuation of the sand and gravel operations. If the continuation of this activity is found to be unfeasible, the business may be purchased, with no resulting relocation. In this case, no indirect impacts would occur. If the decision is made to relocate the operations, the indirect impacts will be considered during the relocation process. The needed relocation of sand and gravel operations will require the identification of alternative sites. Environmental analyses will be included in this relocation process. It is also likely that various permits will be required in order to relocate the sand and gravel operations. For example, a Section 404 permit would be required if the new location impacted the waters of the U.S. The Section 404 permitting process requires that environmental impacts be assessed. (Also see Response 2-3.)

Mr. William P. Belt
December 29, 1993
3

Thank you for the opportunity to comment on this proposed freeway project. If we can be of any assistance in determining habitat quantification and compensation, please feel free to call me at 981-9309 X216.

Sincerely,



Thomas R. McMahon
Habitat Evaluation Specialist

TRMC:trMc

cc: Kelly Neal, Region VI Supervisor
Dave Walker, Habitat Branch, Phoenix
Mark Weise, Mesa District Wildlife Manager
Sam Spiller, USFWS, Ecological Services, Phoenix
Ed Swanson, Arizona Dept. of Environmental Quality

AGFD# 11-05-93 (02)

Comment 7-1

The screenline analysis concluded that the freeway alternative would be 9% over capacity in the design year of 2015. However, the facility will provide the needed service for several years prior to 2015. The conceptual design of the freeway includes three travel lanes in each direction separated by a 46-foot-wide median. This median will be reserved for the future addition of lanes as traffic volumes increase, thus increasing the capacity of the facility. Future additions to the regional freeway system, as provided by the MAG regional plan, will also accommodate additional traffic volumes. Other improvements to the overall system, including enhancement of the surrounding arterial streets, will also likely be addressed by appropriate governmental entities, including Maricopa County and the City of Mesa. ADOT will continue to coordinate its program with other governmental agencies.

D. E. Sagramoso, P.E.
Director



DEPARTMENT OF
TRANSPORTATION

December 21, 1993

Mr. William P. Belt, Manager
Environmental Planning Services
Arizona Department of Transportation
205 South 17th Avenue, Maildrop 619E
Phoenix, Arizona 85007

Dear Mr. Belt:

Subject: Red Mountain Freeway, Draft Environmental Impact Statement

The Maricopa County Department of Transportation has reviewed the DEIS and supports the preferred freeway alternative. Additionally we agree that the specific alignment alternatives of 1d, 2a, and 3c, will best serve the area traffic needs while minimizing potential impacts.

MCDOT agrees that the collector-distributor(C-D) road element between Alma School Road and McKellips Road as shown in alternative 2a(page 2-13) is an important component to the freeway alternate, and integral to efficient regional traffic movement. Traffic projections noted in the DEIS and analysis by MCDOT show the C-D roads to carry substantial volumes even when the McKellips Road low flow crossing is open. The C-D roads are more important when McKellips Road is closed. Over the last 3 years(1991-1993) McKellips Road at the Salt River has been closed approximately 350 days; 64 days in 1991, 80 days in 1992 and 200+ days this year.

7-1 [The Screenline analysis on page 2-33 describes the proposed Freeway Alternative as being over capacity in the design year and thus unable to handle anticipated traffic volumes. How will this excess traffic be accommodated? MCDOT would like to work with ADOT to address the apparent traffic capacity problem in this east-west corridor. Maricopa County's and the City of Mesa's experience in dealing with area arterial congestion; and McKellips Road closures, indicates corridor improvements beyond the Red Mountain Freeway are needed. An integral part of those improvements would be a bridge over the Salt River in the McKellips Road corridor.]

2901 West Durango Street • Phoenix, Arizona 85009 • (602) 506-8600 • (FAX) 506-4858



Comment 7-2

During the design process, ADOT will coordinate with MCDOT and the City of Mesa regarding the relationship of the project to a potential bridged crossing of the Salt River at McKellips Road.

Comment 7-3

The attainment status for carbon monoxide and ozone is discussed on Page 3-36. For clarification, statements concerning the attainment status for these pollutants has been added to Page 3-30.

Comment 7-4

The location of Monitor 13 on Figure 3-7, Page 3-33 has been corrected.

Comment 7-5

At the time of the analysis and publication of this EIS, the Arizona Department of Environmental Quality had not issued its final report on the monitoring data for 1992.

It is important to note that even with a bridge in the McKellips Road corridor, traffic projections show the C-D roads to have significant value when compared to the cost.

7-2 [As discussed with Steve Jimenez of the Statewide Project Management staff, ADOT will be a key player in the development of a bridge to insure compatibility with the Red Mountain Freeway design. Similarly, MCDOT requests that our Traffic Engineering Division have the opportunity for plan review in the design and construction stages of the Red Mountain Freeway. As MCDOT and Mesa have joint traffic control responsibilities during flood-related closures of McKellips, and overall circulation and freeway access interests; an opportunity to participate in the design process would be appreciated.]

Additional staff comments on the DEIS are of a technical or typographical nature:

7-3 [Page 3-30; Federal Attainment Status - The discussion does not note nonattainment status for Carbon Monoxide and Ozone.]

7-4 [Page 3-33; Figure 3-7 - Monitor 13 is incorrectly located north of Beardsley Road.]

7-5 [Page 3-36; Monitored Air Quality - CO violations in 1992 were not noted.]

Thank you for the opportunity to comment on the DEIS; the Maricopa County Department of Transportation fully supports the timely construction of the Red Mountain Freeway and looks forward to working with you on McKellips Road bridge planning and regional traffic planning.

Sincerely,



Thomas R. Buick, P.E.
Chief, Transportation Planning Division

cc: Louis Schmitt, Assistant County Manager
Dan Sagramoso, Transportation Director
Jeff Martin, City of Mesa
Greg Holverson, Transportation Planning Division
Al Letzkus, Traffic Engineering

Letter 8

No response necessary.



Maricopa County
Planning and Development

November 16, 1993

William P. Belt, Manager
Environmental Planning Services
Arizona Department of Transportation
205 South 17th Avenue, Mail Drop 619E
Phoenix, AZ 85007

Dear Mr. Belt:

Thank you for referring the Draft Environmental Impact Statement for the Red Mountain Freeway from the proposed Price Freeway to State Route 87. We have no comments.

Sincerely,

A handwritten signature in cursive script that reads "Debra W. Stark".

Debra W. Stark
Planner III
Advance Planning

2901 West Durango • Phoenix, Arizona 850 0



Response 9-1

An application for an Earth Moving Permit and a comprehensive Dust Control Plan for Construction/Earth Moving Activity will be submitted to the Division of Air Pollution Control as least 14 days prior to construction.

Response 9-2

ADOT will notify the Division/Control Officer of the Pre-construction Conference for the project.



ENVIRONMENTAL MANAGEMENT AND TRANSPORTATION AGENCY

DIVISION OF AIR POLLUTION CONTROL
2406 South 24th Street, Suite E-214
Phoenix, Arizona 85034

(602) 506-6700
(602) 506-6862 (FAX)

December 22, 1993

Mr. William P. Beit, Manager
Environmental Planning Services
Arizona Department of Transportation
205 South 17th Avenue, Mail Drop 619E
Phoenix, AZ 85007

SUBJECT: Comments to Draft Environmental Impact Statement (DEIS)
for the Red Mountain Freeway Project

Dear Mr. Beit:

I am enclosing comments to the DEIS for the proposed Red Mountain Freeway Project. This document was reviewed by two members of the Department of Environmental Management:

1. Johanna Kuspert
Air Quality Planner
Division of Air Pollution Control
506-6710
2. Georgia Lindsey
Environmental Policy Risk Assessment Administrator
Office of Environmental Policy
506-6014

Their comments are reflected in the two memorandums of December 15, 1993.

Construction and other earth moving activities would have a significant impact on air quality if the proposed freeway is built. Various sections of the DEIS have been cited by the reviewers. These sections identify proposed activities that would fall under the Division of Air Pollution Control's (DAPC) rules and regulations for dust control measures, asbestos removal, volatile organic compounds (VOC), etc.

Proposed Red Mountain Freeway Project
Page 2 of 2

I have also enclosed a copy of the Division's:

- o Application for an Earth Moving Permit
- o Dust Control Plan for Construction/Earth Moving Activity
- o Rule 310: Open Fugitive Dust Sources

We hope that you will find our comments helpful in the development of this project.

If you should have questions on the Division's comments to the DEIS, feel free to call Ms. Kuspert or Ms. Lindsey at the above numbers. You may also call me at 506-6701.

Sincerely,


Violette V. Brown
Acting Manager

Enclosures

cc: Johanna Kuspert/Jo Crumbaker, Planning & Analysis Program
Georgia Lindsey/Roland Berger, Office of Environmental Policy
Karen Heidel, PhD, Department Director, w/o Enc.
Lou Schmitt, P.E., Assistant County Manager, w/o Enc.



ENVIRONMENTAL MANAGEMENT AND TRANSPORTATION AGENCY

DIVISION OF AIR POLLUTION CONTROL
2406 South 24th Street, Suite E-214
Phoenix, Arizona 85034

(602) 506-6700
(602) 506-6862 (FAX)

TO: Vi Brown
Acting Manager

FROM: Johanna M. Kuspert
Environmental Planner

DATE: December 15, 1993

SUBJECT: Federal Highway Administration/Arizona Department of Transportation
Draft Environmental Impact Statement, October, 1993
Red Mountain Freeway
Price Freeway to State Route 87

I have reviewed the draft Environmental Impact Statement for the Red Mountain Freeway, which describes and analyzes the alternatives considered to develop a three mile extension of the Red Mountain Freeway which is under construction west of Price Road, and I have the following comments:

- 9-1 [1. An application for an Earth Moving Permit must be submitted to the Control Officer at least 14 days prior to construction.]
- 9-2 [2. A comprehensive Dust Control Plan for Construction/Earth Moving Activity must be submitted to the Control Officer with the Earth Moving Permit at least 14 days prior to construction.]
- 9-2 [3. The Division requests that the Federal Highway Administration/Arizona Department of Transportation notify the Division/Control Officer when the Pre-Construction Conference for this project will be held to enable the Division to be represented at such pre-construction meeting.]

Responses 9-3

The predicted carbon monoxide levels presented in the EIS were determined by the consulting firm of Parsons Brinckerhoff, Inc. as a part of the preparation of the EIS. These levels were determined by the use of the methodology described in Section 4.6. These predictions were evaluated against the National Ambient Air Quality Standards set forth by the USEPA and adopted by the State of Arizona. (Also see Responses 1-7 to 1-10.)



**ENVIRONMENTAL MANAGEMENT
AND TRANSPORTATION AGENCY**

**DIVISION OF AIR POLLUTION CONTROL
2406 South 24th Street, Suite E-214
Phoenix, Arizona 85034**

(602) 506-6700
(602) 506-6862 (FAX)

TO: Vi Brown
Acting Manager

FROM: Georgia Lindsey, Policy & Planning
Johanna M. Kuspert, Environmental Planner

DATE: December 15, 1993

SUBJECT: **INFORMATIONAL NOTES**
Federal Highway Administration/Arizona Department of Transportation
Draft Environmental Impact Statement (EIS), October, 1993
Red Mountain Freeway
Price Freeway to State Route 87

- 9-3 [
1. Air quality is specifically discussed on Pages 2-41, 3-28, 3-32, 4-32, 4-34, 4-43, 4-44, 4-45, 4-94, 4-98 of EIS.
 2. No violations of state or federal air quality standards are projected to occur (Page S-8 of EIS).
Who made the predictions for the maximum one-hour and eight-hour carbon monoxide levels at sensitive receptors along the proposed alignment? And who evaluated such predictions?
 3. The freeway is included in the MAG Long Range Transportation Plan, which has been determined to be consistent with the emissions reduction requirements of the State Implementation Plan (SIP) and the Federal Implementation Plan (FIP) (Page S-8 of EIS).
 4. The project is included in the Transportation Improvement Plan (TIP), which has been determined to conform to the regulations based on the Clean Air Act Amendments (Page S-8 of EIS).
 5. An estimated 39 acres of the 314 acres of farmland in the project area would be acquired for the right-of-way (Page S-9 of EIS).
-]

Response 9-4

Dust control measures related to construction in farmland will be included in the Dust Control Plan for Construction as required in the ADOT Standard Specifications.

Response 9-5

Access to adjacent properties will be maintained during construction in accordance with established ADOT procedures. These procedures will be made available to the Division of Air Pollution Control in order to provide the basis for monitoring the construction impacts. Temporary increases in CO levels that may result from traffic congestion during construction are not expected to be substantial. Adherence to ADOT's traffic control procedures is expected to minimize any increase in CO levels.

Response 9-6

As stated, construction impacts on air quality and noise will be controlled in accordance with "Standard Specifications for Road and Bridge Construction". This publication will be made available to the Division of Air Pollution Control to provide the basis for monitoring the construction impacts.

9-4	Specific dust control measures must be used when constructing in virgin soils and on farmland. Virgin soils are usually less moist than soils on which development has already occurred. Control measures must be addressed in Dust Control Plan for Construction.
6.	During construction of the facility, traffic through the area and access to adjacent properties will be maintained in accordance with current Arizona Department of Transportation (ADOT) traffic control management procedures of highway construction and maintenance (Page S-11 of EIS). In order to minimize the amount of emissions generated, every effort should be made during the construction phase to limit disruption to traffic, especially during peak travel periods (Page 4-45 of EIS).
9-5	Specifically describe how and where access to adjacent properties will be maintained during construction; Or does the Division have a copy of ADOT traffic control management procedures, which Division will refer to when monitoring construction and when "enforcing" County rules and regulations? Are higher CO readings predicted during this time? If so, what are the circumstances?
7.	Construction impacts on air quality and noise will be controlled in accordance with current ADOT policy, as contained in the publication, "Standard Specifications for Road and Bridge Construction" (Page S-11 of EIS). Specifically describe how construction impacts on air quality will be controlled; Or does the Division have a copy of ADOT policy, as contained in the publication, "Standard Specifications for Road and Bridge Construction", which Division will refer to when monitoring construction and when "enforcing" County rules and regulations?
9-6	
8.	Alternative D described on Page 2-5 of the EIS does not describe the impacts on the sand and gravel operations and on Riverview Park/Golf Course. According to the map of Alternative D in Figure 2-2, it appears that the proposed freeway will impact the sand and gravel operations and the Riverview Park/Golf Course.
9-7	
9.	The proposed project will allow for the future addition of HOV lanes and the use of the ADOT freeway management system (Page 2-17 of EIS).
10.	Express bus service to serve mass transit needs could be incorporated into the proposed freeway system (Page 2-18 of EIS).
11.	Without the construction of the proposed project, increased traffic would cause substantial congestion on the existing elements of the circulation system (Page 2-19 of EIS).
9-8	Building the freeway seems like it will attract more traffic to the area; thus, creating the need for more roadways? What would happen to the area ("an important link in the proposed regional transportation system") if the proposed

Response 9-7

Alternative D was presented as a description of one of the previously-considered alternatives for the location of the Price/Red Mountain Interchange and the general alignment of the Red Mountain Corridor. Variations of this general alignment were then identified. These specific alignment alternatives are described in Section 2.1.2 of this EIS. As described on Page 2-8 and illustrated on Figure 2-5, Specific Alignment Alternative 1d was selected as the recommended alternative. The environmental effects of this alignment, including the impacts on the sand and gravel operations and Riverview Park, are then evaluated in the various sections of the EIS.

Response 9-8

As described in Section 1.2, future traffic volumes are projected to increase substantially in the area. Without the construction of the proposed project, this increased traffic would cause substantial congestion on the existing elements of the circulation system. This congestion would limit access to the land uses in the area, create longer travel times, and cause higher accident rates. The screenline analysis on Page 2-32 compares the traffic service that would be provided by the three alternatives under consideration. It concludes that the freeway alternative would provide the best traffic service in 2015.

Response 9-9

Page 2-43 provides a brief summary paragraph of the potential for hazardous waste impacts. Section 3.11 (Pages 3-61 to 3-68 provides a more detailed description of potential contaminated sites. The relationship of these sites to the project alternatives is described in Section 4.13 (Pages 4-84 to 4-86). Sites of potential concern include several underground storage tanks, which are listed on Page 4-86. As noted on Page 4-86, none of the sites have demonstrated a substantial contaminant occurrence that may impede project completion. However, in accordance with ADOT policy,

each of the sites will be further investigated prior to right-of-way purchase. Appropriate action, including the acquisition of all necessary permits, will then be taken prior to construction. As described on Page 3-65, an earlier evaluation of the Alma School Landfill concluded that the potential for encountering hazardous wastes is slight. No information was found to indicate any possibility of hazardous waste burial, including asbestos.

Response 9-10

Figure 3-3 on Page 3-7 illustrates both the governmental jurisdiction and the ownership of large parcels. The ownership of the property south of Parcel 7 is divided among several small parcels. Thus, the individual ownership is not illustrated. As shown by the jurisdictional boundary, this area is under the governmental jurisdiction of Maricopa County.

Response 9-11

The Phase I Environmental Audit, as described in Section 3.11 and 4.13, concluded that none of the sites studied demonstrated a substantial contaminant occurrence that could impede project construction. However, in accordance with ADOT policy, investigations to assess the presence of contaminants will occur prior to right-of-way acquisition. If previously-unknown contaminants are encountered, activity will cease and appropriate action will be taken.

		freeway were not built? And how does this relate to the Screening Analysis described on Page 2-32 of EIS?
	12.	This project is part of a larger project for which an Environment Assessment was completed in 1989. The current effort will update and expand the environmental considerations that were addressed in the previous document (Page 9-4 of EIS). EIS appears to have addressed the concerns expressed in Section 9.1 - Agency Contact Letters and Responses.
9-9	13.	Sites of concern to the project include several underground storage tanks. Three sites were specifically identified that may present potential contaminant sources (Page 2-43 of EIS). Is a soil remediation permit necessary? See also Page 3-67 of the EIS for more information.
	14.	One landfill, Alma School Landfill, would be impacted by the project. Only construction debris has been deposited in this landfill (Page 2-43 of EIS). The potential for encountering hazardous wastes at this landfill is slight (Page 3-65 of EIS). Is there asbestos in the landfill debris? If so, who will be responsible for removing it?
9-10	15.	Near the center of the study area, the sand and gravel operations along Alma School Road form an unincorporated island that is under the jurisdiction of Maricopa County (Page 3-6 of EIS). Who has jurisdiction over the property south of ownership boundary #7, Page 3-6 of the EIS?
	16.	The project is located in the Maricopa County Urban Planning Area; situated in the middle of the Salt River Valley airshed on a broad, oval-shaped flat plain, which is almost completely surrounded by mountain ranges (Page 3-32 of EIS).
	17.	Within Maricopa County Urban Planning Area, carbon monoxide continues to be a significant air pollution problem during the winter months (Page 3-36 of EIS).
9-11	18.	Several areas within Arizona have groundwater quality problems; these include the presence of VOCs (Page 3-45 of EIS). Will soil remediation be necessary in any area of the proposed freeway construction? VOCs, particularly relating to fertilizer, was part of the 1990 CO and Ozone Inventories; Is any regulation by the Division relating to VOCs from fertilizer necessary for this project and in the future when disturbed slopes are stabilized.
	19.	The proposed project is located in the Basin and Range Physiographic Province

Response 9-12

The predicted CO levels for the receptor sites in question are presented in Tables 4-11 and 4-12. The analysis to determine these levels was conducted by Parsons Brinckerhoff, Inc. The levels were determined by following the methodology described in Section 4.6. The increase in CO at the three receptors in question (Receptors 1-1, 1-2, and 2-1) ranges from 0-.8 ppm for the one-hour analysis period of the freeway alternative. The range becomes 0-.7 ppm for the eight-hour analysis. The predicted levels are below the National and State Ambient Air Quality Standards. The levels predicted are the result of the modeling technique described in Section 4.6. The levels do not affect the modelling. Rather, the modelling affects the levels.

Response 9-13

Appropriate mitigation measures, as listed in the EIS, will be included in the Dust Control Plan for Construction/Earth Moving Activity.

of southern Arizona. The region is in a broad valley that is filled with alluvial materials as much as several hundred feet thick (Page 3-54 of EIS). There are: Alluvial Land Association, Gilman-Estrella-Avondale Association, and Laveen Associations; consists of deep gravely sand, fine sandy loam, and clay loams (Page 3-56 of EIS).

9-12 [20. A microscale study of carbon monoxide was done to quantify the local effects of the project. Three receptor sites within Riverview Park were included in the air quality analysis. Predicted carbon monoxide levels at these sites either remained the same or were slightly increased by the freeway alternative (Page 4-32 of EIS).
Who made these predictions and how were they made? How much of an increase in CO is predicted? How will this effect modelling?]

9-13 [21. Preventative and mitigative measures to minimize the possible particulate pollution problem are listed on Page 4-44 of the EIS. These measures should be detailed on the Dust Control Plan for Construction/Earth Moving Activity.
22. Roadway sweeping and cleaning could be scheduled during the dry season to reduce the first-flush concentration of pollutants (page 4-61 of EIS). Details of roadway sweeping and cleaning should be included in the Dust Control Plan for Construction/Earth Moving Activity.]

Attachment: EIS - Project Description Summary

Response 10-1

Further communication with the Flood Control District of Maricopa County has clarified the status of the Salt River Flood Insurance Study (FIS) project. An expanded description of the status of the study has been added to Page 4-78.

Response 10-2

ADOT will coordinate with the Flood Control District of Maricopa County regarding any needed modifications to the Alma School Road Drain or impacts on its operation and maintenance.



FLOOD CONTROL DISTRICT
of
Maricopa County

2801 West Durango Street • Phoenix, Arizona 85009
Telephone (602) 506-1501
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DEC 29 1993

Mr. William P. Bell, Manager
Environmental Planning Services
Arizona Department of Transportation
205 South 17th Avenue, Mail Drop 619E
Phoenix, Arizona 85007

SUBJECT: Draft Environmental Impact Statement (DEIS)
Red Mountain Freeway (Price Freeway to SR 87)

Dear Mr. Bell:

Thank you for providing a copy of the DEIS, FHWA-AZ-EIS-93-02-D, dated October 1993 for Flood Control District review and comment. The District staff have reviewed the document and we have focused our comments on those sections dealing with the Salt River and the potential impacts of the freeway on the floodplain. The DEIS is well written and has addressed most of our interests and concerns.

We offer the following comments and clarifications for your consideration and inclusion in the Final EIS:

- 10-1 [The Flood Control District will be completing the development of the new hydraulic model for the Salt River utilizing updated topographical mapping produced during 1992-1993. This information is being prepared so that we will have a continuous complete model available that can be used by the regulatory jurisdictions for floodplain planning until the new Salt River hydrology is produced by the U.S. Army Corps of Engineers for the Modified Roosevelt Dam. It is not our intention to redelimitate the regulatory floodway/floodplain until after the new hydrology is available in mid-1995. In the interim, agencies that wish to redefine the regulatory floodway/floodplain may do so, using our new information with the existing hydrology.]
 - 10-2 [The Flood Control District operates and maintains the Alma School Drain; therefore, any modifications to the Drain or impacts on its operation and maintenance must be coordinated with the District for review and approval.]
- The Flood Control District is the regulatory jurisdiction for those portions of the Salt River floodplain in unincorporated Maricopa County. The City of Mesa and the Salt River Pima Maricopa Indian Community (SRPMIC) regulate the remainder of the Salt River floodplain between the Price/Pima Freeway to SR 87.

Response 10-3

The design of the proposed project will include the necessary bank stabilization measures that are needed to protect the facility from potential flooding. This design will be consistent with the overall flood control needs in the area. The design will not limit the potential for future channelization or other flood control measures that may be needed

Response 10-4

ADOT will coordinate the design of the project with the jurisdictions with responsibility for floodplain regulation, including the Flood Control District of Maricopa County, the City of Mesa, and the Salt River Pima Maricopa Indian Community.

Mr. William P. Belt, Manager
Environmental Planning Services
Arizona Department of Transportation
Draft Environmental Impact Statement (DEIS)
Red Mountain Freeway (Price Freeway to SR 87)
Page Two

Previous sand and gravel mining and recent flood flows have significantly altered the regulated floodplain. As your aerial photographs vividly show, the river bottom between the Price/Pima Freeway and Alma School Road is very uneven and flood flows are directed at and along the south bank. The proposed mitigation measures to protect the freeway, as stated in Section 4.9.6, include bank stabilization and minor grading.

- 10-3 [While we understand ADOT's hesitancy to do more work in the floodplain than what is included in your approved Clean Water Act, Section 404 Permit, we feel that there exists an opportunity to improve the hydraulics of the river which should be pursued.
- 10-3 [Re-grading the river bottom between the Price/Pima Freeway and Alma School Road could not only improve the hydraulic conveyance capacity, it could also favorably impact the design of the south bank protection measures. Widening and channelizing the river to a more uniform cross-section between Alma School Road and SR 87 can also enhance the hydraulic conditions, reduce the flood flows against the south bank and improve the flow conditions at the existing bridge locations.
- 10-4 [We recommend that ADOT include as part of the design study, coordination with the floodplain jurisdictions for riverine improvements between the Price/Pima Freeway and SR 87.]

Please provide a copy of the Final EIS and direct future correspondence for this project to my attention.

Sincerely,


Richard G. Perreault
Chief, Planning Branch

Copies to: Nona Babeshone, SRPMIC
Harry Kent, City of Mesa

Responses 11-1

The percolation ponds are not expected to be located within the boundaries of the waters of the U.S. Thus, the ponds would not be subject to the provisions of the Section 404 permit that is described on Page S-10. Other permits that may be required with regard to the percolation ponds will be revised as necessary.

Response 11-2

ADOT will coordinate traffic control actions with established procedures of the City of Mesa. Paragraph 3 on Page S-11 has been revised accordingly.

Response 11-3

Flooding in the Salt River can be judged to be "rare" when viewed over an extended period of time. While more frequent flooding events have occurred in recent years, the use of the term "rare" is appropriate within the context of this document.

Response 11-4

The discussion of interchanges and grade separations on Page 2-22 is a part of the description of the project covered by this EIS. A new bridged crossing of the Salt River at McKellips Road is not a part of the project. Thus, its inclusion in this description would be inappropriate.



December 23, 1993

MR. WILLIAM P. BELT, MANAGER
Environmental Planning Services
Arizona Department of Transportation
205 South 17th Avenue, Mail Drop 619E
Phoenix, Arizona 85007

RE: Red Mountain Freeway (DEIS)
Price Freeway to State Route 87

Dear Mr. Belt:

After review of the Draft EIS, the City of Mesa offers the following comments and requests.

Page S-10, Second Paragraph.

11-1 [The third sentence indicates revisions to an existing permit may be needed due to the Dobson Road interchange. Revisions may also be necessary due to the revised percolation ponds, for Mesa's water reclamation plant.]

Page S-11, Paragraph #3.

11-2 [This calls for ADOT Traffic Control procedures during construction. Request that you also call for City of Mesa procedures where applicable on City streets.]

Page 2-22, Interchanges and Grade Separations.

11-3 [The periodic closing of the unbridged McKellips Road crossing is not a rare occurrence, based on recent history.]

11-4 [In addition, discussion of the C-D roads and the grade separation over McKellips Road should mention the possibility of a new bridged crossing for McKellips Road, over the Salt River. This is being discussed by the City, County and ADOT.]

Office of the City Manager
55 North Center Street • P.O. Box 1466 • Mesa, Arizona 85211-1466 • (602) 644-2011
♻️ printed on recycled paper

Response 11-5

As derived from the traffic analysis, the daily traffic volume on McKellips Road between the freeway and Alma School Road is 52.9. This number is not shown on Figure 2-13 because the scale of the drawing does not permit all traffic movements to be included. The volume on the freeway segment between McKellips Road and Alma School Road is 35.8. This number can be derived from the information on Figure 2-13.

Response 11-6

As indicated under Response 11-2, ADOT will coordinate traffic control actions with established procedures of the City of Mesa. Paragraph 3 on Page 2-44 has been revised accordingly.

Response 11-7

See Response 11-3.

MR. WILLIAM P. BELT, MANAGER
December 23, 1993
Page 2

Page 2-30, Figure 2-13.

11-5 [Please recheck the traffic volumes on McKellips Road. With 69.9 projected to the east of the proposed freeway, we're unsure of the projected volumes to the west and on the freeway segment between McKellips and Alma School.]

Page 2-44, Paragraph #3, of Section 2.6.4.

11-6 [Same comment about City of Mesa Traffic Control procedures. (See 5-11, above).]

Page 3-8, Section 3.1.3

11-7 [Same comment about RARE periods of flooding for McKellips Road. (See 2-22, above).]

General comment.

The City of Mesa supports the preferred freeway alternative, with the collector-distributor (C-D) roads between McKellips and Alma School.

Thank you for the opportunity to review the DEIS.

Sincerely,



C.K. LUSTER
City Manager

CKL/jj

xc: Bruce Crandall
Ron Krosting
Keith Nath

Individual Comments and Responses

Individuals who attended the public hearing were invited to submit comments by speaking to the public stenographer, submitting a comment form, or submitting a written statement. These comments, and the corresponding responses are provided below. Copies of the completed comment forms and the complete transcript of the hearing are available for review at ADOT, Environmental Planning Services, 205 South 17th Avenue, Room 240 E, Phoenix, Arizona 85007.

Comment 12: Johnson-Stewart Company - Stated the need for an underpass under the Red Mountain Freeway to move sand and gravel materials between 1564 North Alma School Road and 1901 North Alma School Road. Such an underpass is necessary for the continued operation of the business.

Response 12: As described in Section 4.3.4, a plan will be prepared to mitigate the access impacts of the project on all sand and gravel operations. The plan will specifically address the issue of the needed access between the two portions of the Johnson-Stewart property.

Comment 13: Sunward Materials (the operating company for the Johnson-Stewart property) - Stated the need for an underpass under the Red Mountain Freeway to move sand and gravel materials between 1564 North Alma School Road and 1901 North Alma School Road. (Comment is identical to that of Johnson-Stewart Company.)

Response 13: See Response 12.

Comment 14: Toni Adams - Stated a preference for the arterial alternative because (1) less land would be used; (2) noise levels would be lower; (3) access to local businesses would be easier; (4) less funds would be needed; and (5) property values would be maintained.

Response 14: The evaluation and comparison of the alternatives concluded that the arterial alternative would not adequately serve the future traffic needs. The arterial alternative would not provide the needed linkage with the regional freeway system.

While the freeway alternative would require slightly more land to provide the interchanges with the local major streets, the right-of-way needed for the roadway itself is similar for both alternatives. It is true that the unmitigated noise impacts of the arterial would be slightly less than those of the freeway. For example, the projected unmitigated noise levels for the residential area along Inglewood Street are 66 dBa for the freeway alternative and 62 dBa for the arterial alternative. These noise levels compare to an existing level of 59 dBa. However, the construction of appropriate noise barriers will result in similar neighborhood noise levels for either alternative. At this location, the mitigated level for the freeway would be identical to that of the arterial (61 dBa).

Access to local businesses will be maintained. A plan will be prepared to deal specifically with the issue of access to the sand and gravel operations, which present the most serious potential access problem.

It is true that the cost of the arterial would be less than the freeway. However, the inadequate service that would be provided by the arterial would not justify the lower cost. Property values are expected to be maintained and, in some areas, increased by the construction of the freeway.

Comment 15: Jamie Baca - Expressed support for the project. Will personally use the facility. Lives within two or three hundred feet of the wall and does not expect any problem.

Response 15: No response necessary.

Comment 16: Dennis Benzing - Asked for information concerning the potential location of the freeway east of Country Club Drive, with particular interest in the area of Gilbert and McDowell Roads. Also asked why the vote on the half-cent tax for freeway construction did not provide a full cent. Would like to know where the other half-cent goes.

Response 16: This EIS covers only the portion of the Red Mountain Freeway between the Price Freeway and State Route 87 (Country Club Drive). However, preliminary information is available concerning the possible extension of the

freeway east of Country Club Drive. The MAG Regional Plan provides for the extension of the Red Mountain Freeway to the east, with an eventual connection to U.S. 60. east of Bush Highway. An earlier Environmental Assessment for this route was prepared and contains more detailed information on its potential location. This information is available from ADOT, Environmental Planning Services, 205 South 17th Avenue, Room 240E, Phoenix, Arizona 85007.

The imposition of the half-cent sales tax was approved by the voters of Maricopa County in 1985. At that time, this amount was considered to be sufficient to build the then-planned freeway system. Only a half-cent per dollar of sales is collected.

Comment 17: Trampis T. Cornwell - Made no comment on the project, but requested to be added to the ADOT mailing list for notices of future project activities and the Valley Freeways publication.

Response 17: Will be added to the ADOT mailing lists.

Comment 18: Sandra and Richard Fickau - Expressed frustration with the lack of a good east/west freeway system in the East Valley. The Superstition Freeway is an inadequate system for the high amount of traffic. Considers ADOT to have had an inexcusable lack of foresight in not having provided the Red Mountain Freeway ten years earlier. The Red Mountain Freeway should be constructed immediately. Live in Hawaiian Mobile Home Park and have no objection to relocation.

Response 18: ADOT agrees with the need for an adequate freeway system. This need exists not only in the East Valley but in the entire metropolitan area. Prior lack of adequate funding has prevented the construction of the needed facilities. However, the current program is to construct the facilities as soon as possible within the constraints of relative need and funding availability. The project covered by this EIS is now scheduled for design and construction, pending the completion and approval of the environmental analysis.

Comment 19: Leon K. Galloway - Expressed support for the project. It should have been done 20 years earlier.

Response 19: No response necessary.

Comment 20: Don Hammerle - Requested information concerning the future extension of the Red Mountain Freeway east of State Route 87, with specific reference to the area near Mesa Drive. Asked if there would be a four or six lane highway at Mesa Drive in the year 2005. If so, will there be public hearings that will show if Mesa Drive will become a four or six lane super highway? Further, will relocations from the Mobile Home Park, "Happy Village", be required?

Response 20: This EIS covers only the portion of the Red Mountain Freeway between the Price Freeway and State Route 87. However, the MAG Regional Plan provides for the extension of the facility east of State Route 87 in the future. A previously-prepared Environmental Assessment provides more detailed information on the potential alignment. That document indicates that the Red Mountain Freeway would cross Mesa Drive just south of McDowell Road. No interchange with Mesa Drive is indicated. No impact on the Happy Village Mobile Home Park is evident. Additional study of this portion of the Red Mountain Freeway is anticipated in the future. Public hearings will be held in conjunction with these additional studies. Mesa Drive is a City of Mesa responsibility and would not be a part of an ADOT project, except as it may be affected by the freeway

Comment 21: Clinton B. Hartwell - Stated a preference for a freeway alignment along the north side of the Salt River, to be accomplished through negotiations with the Salt River Pima Maricopa Indian Community. If a north side location is not possible, stated a preference for the Alternative 1 noise barrier, as described in the EIS and presented at the public hearing.

- Response 21:* A freeway alignment along the north side of the Salt River through the Salt River Pima Maricopa Indian Community was considered in earlier alternative alignment studies. Based on these studies and conversations with the Indian Community, a decision was made to select the alignment described in the EIS along the south side of the river. The decision of the alternative noise barrier will be made during the design phase of the project.
- Comment 22:* Garry Jagers - Expressed preference for the freeway alternative. Also stated that the freeway should be extended to Power Road and that the schedule for the portion between McKellips Road and State Route 87 should be accelerated to a completion date of 2000.
- Response 22:* The MAG Regional Plan provides for the Red Mountain Freeway to be extended to Power Road and beyond. The schedule for such extension is unknown. The acceleration of the construction of the portion between McKellips Road and State Route 87 may occur if additional funds become available. Otherwise the currently-stated schedule will apply.
- Comment 23:* Merrill Johnson - Supported the construction of the freeway alternative at the earliest possible time. Also stated an opposition to tax-supported baseball stadiums.
- Response 23:* The freeway alternative is the preferred alternative as described in the EIS. The consideration of baseball stadiums is not related to this project.
- Comment 24:* Betty Lee - Expressed a preference for the freeway alternative. If the decision is made to choose the arterial alternative, Dobson Road should still be realigned as shown with the freeway alternative.
- Response 24:* If the arterial alternative were to be selected, the major reason for realigning Dobson Road would not exist. However, the preferred alternative is the freeway, which would include the realignment of Dobson Road.

Comment 25: Sandra Marietta - Stated opposition to the project because of the probable noise impacts on homes in the area. Also questioned the impacts on air quality. Expressed concern that the construction of the freeway would increase traffic on Alma School Road. Stated that the Alma School Road bridge should be checked for safety.

Response 25: While traffic on the freeway would increase noise levels in the area, measures will be taken to maintain the noise levels in residential areas in accordance with federal and state criteria. The air quality analysis concluded that no violations of air quality standards will occur. Increases in traffic volumes on Alma School Road will likely occur with or without the freeway. Improvements to Alma School Road are likely to accommodate any impacts caused by its relationship to the freeway. The status of the Alma School Road bridge is outside the scope of the project or jurisdiction of ADOT.

Comment 26: Margaret M. Mitchell - Agreed with the need for the Red Mountain Freeway. Delaying its construction will be detrimental to the area. There is an urgency for the facility. It should be extended past State Route 87.

Response 26: The stated preferred alternative is consistent with this comment. The construction will proceed on a schedule permitted by the available funding.

Comment 27: Kathleen Peters - Agreed with Priscilla Wainscott (Comment 28) concerning the noise level and possible decrease in property value.

Response 27: See Response 28.

Comment 28: Priscilla Wainscott - Lives on Trevor Street and is concerned with the possible noise impacts and decreased property values. Recognizes that progress will continue and that the facility is needed. Expressed a desire for the strongest sound barriers in order to limit the noise impact and maintain property values.

Response 28: While traffic on the freeway would increase noise levels in the area, measures will be taken to maintain the noise levels in accordance with federal and state criteria. The exact nature of the noise barriers will be determined during the engineering design of the project.

SECTION 8

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SECTION 9
Appendices

9.1 Agency Contact Letter and Responses

9.1 Agency Contact Letter and Responses

Prior to the preparation of the Draft EIS, an initial contact letter, dated January 15, 1993, was sent to the agencies listed below. The purpose of this letter was to provide information about the project and request the identification of issues that should be considered. The responses received were considered during the preparation of the Draft EIS. Copies of the letter and the responses received are provided following the list.

Federal Agencies

Mr. Don Gohmert
State Conservationist
U.S. Soil Conservation Service
201 East Indianola Avenue
Phoenix, Arizona 85012

Ms. Cindy Lester
U.S. Army Corps of Engineers
3636 North Central Avenue, Suite 740
Phoenix, Arizona 85012

Mr. Lester Rosenkrance, State Director
U.S. Bureau of Land Management
3707 North 7th Street
Phoenix, Arizona 85014

Mr. Wayne Zunigha, Superintendent
U.S. Bureau of Indian Affairs
Salt River Agency
10000 East McDowell Road
Scottsdale, Arizona 85256

Mr. Sam Spiller
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3616 West Thomas Road, Suite 6
Phoenix, Arizona 85019

Mr. Bruce Ellis, Chief
Environmental Division
U.S. Bureau of Reclamation
P.O. Box 9980
Phoenix, Arizona 85068

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U.S. Environmental Protection Agency
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Phoenix, Arizona 85007

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Mesa, Arizona 85207

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Arizona State Parks
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Phoenix, Arizona 85007

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Phoenix, Arizona 85012

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Phoenix, Arizona 85013

Mr. Leroy Kissinger, Director
Arizona Department of Mines and Mineral
Resources
1502 West Washington Street
Phoenix, Arizona 85007

Ms. Elizabeth Reike, Director
Arizona Department of Water Resources
15 South 15th Avenue
Phoenix, Arizona 85007

Mr. Jean Hassell, Commissioner
Arizona State Land Department
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Phoenix, Arizona 85007

Ms. Janice Dunn
Arizona State Clearinghouse
3800 North Central Avenue
Phoenix, Arizona 85013

Mr. Larry Stephenson
Non-Point Source Unit Manager
Arizona Department of Environmental Quality
3033 North Central Avenue
Phoenix, Arizona 85012

Ms. Nancy Wrona, Assistant Director
Air Quality Management Office
Arizona Department of Environmental Quality
3033 North Central Avenue
Phoenix, Arizona 85012

Local Agencies

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Maricopa County Department of
Transportation
2901 West Durango
Phoenix, Arizona 85009

Mr. Richard Turner, Acting Director
Planning and Development Department
Maricopa County
301 West Jefferson Street
Phoenix, Arizona 85003

Mr. Neil Erwin, General Manager
Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009

Ms. Vi Brown, Director
Maricopa County Air Pollution Control District
2406 South 24th Street
Phoenix, Arizona 85040

Mr. Tom Clark, General Manager
Central Arizona Water Conservation District
23636 North 7th Street
Phoenix, Arizona 85024

Mr. William Scalzo
Maricopa County Parks and Recreation
3475 West Durango
Phoenix, Arizona 85009

Mr. Kenneth Driggs, Director
Regional Public Transit Authority
302 North First Avenue, Suite 700
Phoenix, Arizona 85003

Mr. Richard Thomas, Director
Phoenix Transit
302 North First Avenue
Phoenix, Arizona 85003

Mr. Jim Jones, Director
Public Works Department
City of Tempe
31 East 5th Street
Tempe, Arizona 85281

Mr. Terry Day, Director
Department of Community Development
City of Tempe
31 East 5th Street
Tempe, Arizona 85281

Mr. Wayne Balmer, Manager
Department of Community Development
City of Mesa
55 North Center Street
Mesa, Arizona 85211

Mr. Harry Kent
City Engineer
City of Mesa
55 North Center Street
Mesa, Arizona 85211

Mr. Joseph Holmwood, Director
Parks and Recreation
City of Mesa
P.O. Box 1466
Mesa, Arizona 85211

Dr. James Zaharis, Superintendent
Mesa Unified School District
549 North Stapley Drive
Mesa, Arizona 85203

Mr. Donald Johnson, Fire Chief
City of Mesa
13 West 1st Street
Mesa, Arizona 85211

Mr. William Guy Meeks, Police Chief
City of Mesa
130 North Robson
Mesa, Arizona 85211

Mr. Cliff Jones, Fire Chief
City of Tempe
P.O. Box 5002
Tempe, Arizona 85281

Mr. David Brown, Police Chief
City of Tempe
P.O. Box 5002
Tempe, Arizona 85281

Indian Communities

Mr. Bill Jolly, Acting Director
Community Development
Salt River-Pima Maricopa Indian Community
10005 East Osborn Road
Scottsdale, Arizona 85256

Other

Mr. Phillip Gagle
Executive Director
Arizona Rock Products Association
2020 North Central Avenue, Suite 1080
Phoenix, Arizona 85004

Mr. John Kastre
Lehi Homeowners Association
322 East Lehi
Mesa, Arizona 85201

January 15, 1993

Name
Agency
Address
City, State Zip

Dear :

The Arizona Department of Transportation (ADOT) has retained Parsons Brinckerhoff Quade and Douglas, Inc. to conduct an environmental evaluation of a portion of the proposed Red Mountain Freeway in Mesa, Arizona. The segment to be evaluated lies between the Red Mountain/Loop 101 Interchange on the west and State Route 87 on the east. The purpose of this letter is to convey initial information about the study and to request your assistance in identifying environmental issues that should be considered.

The study will be conducted in compliance with the National Environmental Policy Act (NEPA) and the corresponding regulations and guidelines of ADOT and the Federal Highway Administration (FHWA). The product of the study will be the preparation of an Environmental Impact Statement. FHWA will serve as the lead federal agency. ADOT will be the lead state agency. The U. S. Army Corps of Engineers has agreed to participate as a cooperating agency.

This project is part of a larger project for which an Environmental Assessment was completed in 1989. The current effort will update and expand the environmental considerations that were addressed in the previous document. Alternatives to be considered will include no action, transportation system management, transit, and build alternatives. The potential social, economic, and environmental impacts of each alternative will be evaluated.

Enclosed is information that illustrates the area of the proposed project. Included is a general location map and a more detailed vicinity map.

Your identification of potential environmental issues from the perspective of your agency is requested. If no such issues exist, a letter to that effect would be useful. Because of the previous work done on this project, a formal scoping meeting will not be held.

Thank you for your assistance.

Sincerely,

PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC.

Dennis A. Davis, AICP
Environmental Manager



United States Department of the Interior

BUREAU OF RECLAMATION

ARIZONA PROJECTS OFFICE
P.O. BOX 9980
PHOENIX, ARIZONA 85068-0980



IN REPLY
REFER TO:

APO-150 ENV-6.00
93000936 4310

JAN 29 1993

Mr. Dennis A. Davis
Parsons, Brinckeroff,
Quade & Douglas, Inc.
1501 West Fountainhead Parkway
Tempe AZ 85282

Subject: Environmental Review of Arizona Department of Transportation's
Proposal to Extend Red Mountain Freeway (NEPA)

Dear Mr. Davis:

We are in receipt of your letter dated January 15, 1993. Thank you for the opportunity to comment on the proposal to extend the Red Mountain Freeway. Our review of the information provided in your letter shows that the proposed right-of way would not cross any canals. Therefore, we do not have any specific environmental concerns at this point.

Please be aware that the Bureau of Reclamation owns several canals in the project area. These canals are operated by the Salt River Project (SRP). If our review was incorrect or if alternatives are developed that impact canals, I recommend you contact SRP to determine the ownership of the canal. Should federally-owned canals be impacted, this office would be required to comply with environmental laws including the National Environmental Policy Act, Historic Preservation Act, and the Endangered Species Act.

Please keep us updated on the project's progress. If you have any questions, please call Mr. Kurt Flynn at 602-870-6768.

Sincerely,


Bruce D. Ellis
Chief, Environmental Division



United States
Department of
Agriculture

Soil
Conservation
Service

201 East Indianola Avenue
Suite 200
Phoenix, Arizona 85012-2054

January 26, 1993

Mr. Dennis A. Davis, AICP
Environmental Manager
Parsons Brinckerhoff Quade and
Douglas, Inc.
1501 W. Fountainhead Parkway, Suite 400
Tempe, Arizona 85282

Dear Mr. Davis:

This response is to reply to your letter of January 15, 1993, regarding the proposed Red Mountain/Outer Loop Interchange in Mesa, Arizona.

The Soil Conservation Service has responsibilities under the Farmland Protection Policy Act. It is not possible to determine if the area affected is being actively farmed without a field visit. If there are any farmlands affected by the project, we will provide a land evaluation as provided for in the Farmland Policy Protection Act.

For further assistance, please contact Dino DeSimone, District Conservationist, 33 East Comstock Drive, Suite 7, Chandler, Arizona, phone (602) 926-3631.

We appreciate the opportunity to comment on this project.

Sincerely,

GARY R. GROSS
Acting State Conservationist

ACTING FOR

cc: w/encl.

Dino DeSimone, District Conservationist, SCS, Chandler, Arizona



The Soil Conservation Service
is an agency of the
Department of Agriculture



**Parsons
Brinckerhoff**

1501 W. Fountainhead Parkway
Suite 400
Tempe, AZ 85282-1853
602-966-8295
Fax: 602-966-9234

May 26, 1993

Ms. Janet Hall
Soil Conservation Service
33 E. Comstock Suite 7
Chandler, AZ 85228

RE: Red Mountain Freeway, Environmental Impact Statement

Dear Janet:

I contacted the Soil Conservation District the week of May 10th to discuss Form AD 1006 - Farmland Conversion Impact Rating in conjunction with farmland located in the study area of the Red Mountain Freeway Environmental Impact Statement. As you know, approximately 314 acres of farmland is located adjacent to the proposed alignment. Approximately 39 acres of this farmland will be converted directly by the construction of the freeway. The remaining farmland is committed to urban development as is exhibited in the attached maps of the City of Mesa Zoning and General Plan. Based on the *Farmland Protection Policy Act - Supplemental Guidelines for Implementing the Final Rule for Highway Projects*, it is my understanding that completion of Form AD 1006 is not necessary because the farmland is committed to urban development.

Also enclosed is Form AD 1006 with Parts I, II, III, IV and V completed. Please respond with your findings and concerns at your earliest convenience.

Sincerely,
PARSONS BRINCKERHOFF QUADE & DOUGLAS

Laurel Macha
Assistant Planner

enc.

cc: D. Davis

United States
Department
of Agriculture

Soil
Conservation
Service

Chandler Field Office
33 East Comstock, ste. 7
Chandler, AZ 85225-1200

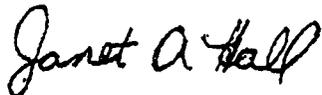
May 26, 1993

Laurel Macha
Parsons Brinckerhoff Quade & Douglas, Inc.
1501 West Fountainhead Parkway, #400
Tempe, Arizona 85282

Dear Laurel Macha,

I am responding to your request for information about prime farmlands in the vicinity of the Red Mountain study area, between Price and Country Club roads. Based on a site visit and available soil survey data, there exists approximately 314 acres which are classified as prime farmland. Our office concurs with your assessment that these lands will be lost to development in the near future.

Sincerely,



Janet A. Hall
Soil Conservationist



UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
ARIZONA ECOLOGICAL SERVICES FIELD OFFICE
3616 West Thomas Road, Suite 6
Phoenix, Arizona 85019



Telephone: (602) 379-4720 FAX: (602) 379-6629
February 10, 1993

2-21-93-I-133

Dennis A Davis
Parson, Brinckerhoff, Quade & Douglas, Inc.
1501 W. Fountainhead Parkway
Suite 400
Tempe, AZ 85282

Dear Mr Davis:

This letter is in response to your January 8, 1993, request for a list of endangered, threatened, or other species of special concern in the vicinity of the proposed Arizona Department of Transportation (ADOT) Red Mountain Freeway project in Maricopa County, Arizona.

Our data indicate that the following species may occur the vicinity of this proposed project.

ENDANGERED SPECIES:

Yuma clapper rail (Rallus longirostris yumanensis)

Endangered species must be considered in the development of projects.

In our previous correspondence dated October 4, 1988, we noted that the proposed alignment parallels the Salt River on the south bank. We would again like to request that the proposed freeway be located outside the ordinary high water mark and outside the 100 year floodplain. This would eliminate channelizing the Salt River, not require a Section 404 permit from the Army Corps of Engineers, and avoid impacting existing riparian habitat where the yuma clapper rail is found.

Please note that the Arizona Game and Fish Department may know of species in the area that are State-listed or that are of management concern.

In future communications on this project, please refer to consultation number 2-21-93-I-130. If we may be of further assistance, please contact Lorena Wada, David Leal, or me.

Sincerely,

Sam F. Spiller
Field Supervisor

cc: Director, Arizona Game and Fish Department, Phoenix, Arizona
Robert Dummer, Army Corps of Engineers, Phoenix, Arizona



GAME & FISH DEPARTMENT

2221 West Greenway Road, Phoenix, Arizona 85023-4399 (602) 942-3000

Governor
Fife Symington

Commissioners:
Gordon K. Whiting, Central, Chairman
Larry Taylor, Yuma
Elizabeth T. Woodin, Tucson
Arthur Porter, Phoenix
Nonie Johnson, Snowflake

Director
Duane L. Shroufe

Deputy Director
Thomas W. Spalding

Region VI

7200 East University, Mesa, Arizona 85207 (602) 981-9401

February 10, 1993

Dennis A. Davis, AICP
Environmental Manager
Parsons Brinckerhoff Quade and Douglas, Inc.
1501 West Fountainhead Parkway
Suite 400
Tempe, Arizona 85282

Dear Mr. Davis:

RE: Red Mountain/Outerloop Proposed Freeway

The Arizona Game and Fish Department (Department) has reviewed this proposal and offers the following comments.

Per our letter dated October 11, 1988, from Mr. Robert K. Weaver of our Habitat Branch, the Department continues to have concerns for wildlife species in the area of the proposed freeway. Javelina, reptiles, small game birds, and many small mammals (rabbits, rodents) persist in the area. Construction of this project may result in the isolation of some of these populations and impede their movements to various resources such as water. Properly designed wildlife crossings and fencing may be necessary to lessen these impacts and motor vehicle/wildlife collisions. We again request that these concerns and mitigation for impacts to area wildlife resources be addressed in the Environmental Assessment for this project.

The Department's Heritage Data Management System has been accessed and current records do not indicate the presence of any Endangered, Threatened, or other special status species in the area described in the proposal. However, there may be Sonoran desert tortoise (Gopherus agassizii) present in the vicinity of this project and these are a protected species. Further studies will need to be done, particularly in the Biological Evaluation by SWCA, to document their presence or absence.

If any work is to be conducted or material deposited within the Salt River during construction, we suggest contacting the U.S. Army Corps of Engineers to determine if a section 404 permit is required. If so, the Department will need to be consulted

Mr. Davis

2

February 10, 1993

according to the U.S. Fish and Wildlife Coordination Act on issuance of the 404 permit.

Thank you for the opportunity to review this proposal and we look forward to continued communication on this and future projects. Please forward a copy of the draft Environmental Assessment and Biological Evaluations as soon as they are available.

Sincerely,



Thomas R. McMahon
Arizona Game and Fish Department
Mesa Region

TMC:tmc

cc: Kelly Neal, Mesa
Dave Walker, Phoenix Habitat Branch
Mark Weise, Mesa District Wildlife Manager
Sam Spiller, USFWS, Phoenix
Kathryn Hawath, SWCA, Tucson

KEITH KELLY
Director



DAN F. RICE
Associate Director

Arizona Department of Agriculture

1688 West Adams, Phoenix, Arizona 85007
(602) 542-4373 FAX (602) 542-0909

PLANT SERVICES DIVISION

March 2, 1993

Mr. Dennis A. Davis
Parsons Brinckerhoff
1501 W. Fountainhead Parkway, Ste. 400
Tempe, AZ 85282

RE: Red Mountain Freeway

Dear Mr. Davis:

The Arizona Department of Agriculture has reviewed the referenced application dated January 8, 1993.

Based on the information provided, the project site is not expected to result in significant adverse impact to protected plant species.

We appreciate the opportunity to review the proposed action. If you need additional information, please contact me at 542-3292.

Sincerely,

A handwritten signature in cursive script that reads "James McGinnis".

James McGinnis
Native Plant Law Program Manager

JM:clw



ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Fife Symington, Governor Edward Z. Fox, Director

Nonpoint Source Unit
3rd Floor
1-800-234-5677
(602) 207-4518
FAX (602) 207-4528

January 29, 1993

Mr. Dennis A. Davis
Environmental Manager
Parsons Brinckerhoff
1501 W. Fountainhead Parkway
Suite 400
Tempe, Az 85282

Re: Red Mountain / Outer Loop Interchange, Your Letter 1-15-93

Dear Mr. Davis:

The Department of Environmental Quality, Office of Water Quality, Nonpoint Source Unit, appreciates the opportunity to comment upon the **Red Mountain / Outer Loop Interchange**. The Arizona Department of Environmental Quality offers the following comments:

1. The Salt River (HUC 15060106-001) was evaluated as non-attaining for bacteria, Dissolved Oxygen, organics, and pH in the 1988 NPS Assessment Report, (see enclosed Surface Water Assessment Middle Gila River Basin).
2. The Salt River (HUC 15060106-001) was monitored as non-attaining for phenols, Biological Oxygen Demand, Soluble Solids, copper, and chromium in the 1990 305(b) Report, (see enclosed Surface Water Assessment Middle Gila River Basin).
3. The Salt River (HUC 15060106-001) was monitored as partial and non-attaining for pH, Total Dissolved Solids, and mercury in the 1991 205(j) Report, (see enclosed Surface Water Assessment Middle Gila River Basin).
4. The Salt River (HUC 15060106-001) was monitored as partial and nonsupport due to Biological Oxygen Demand, chlorine, flow, mercury, metals, pH, phenols, soluble solids, and Total Dissolved Solids in the 1992 305b Report (see enclosed Surface Water Assessment Middle Gila River Basin).

A surface water hydraulic connection exists between the Salt River and the Red Mountain / Outer Loop Interchange by the tributary rule.

The Arizona Department of Environmental Quality recommends that:

1. Best Management Practices should be implemented during and after construction phases to protect riparian areas, to maintain adequate vegetative cover, and to minimize the discharge of sediment, turbidity, petroleum, nutrients, bacteria, and other pollutants to the Salt River.
2. Sanitary waste facilities during construction phases shall be planned and developed in such a manner to ensure protection of both surface and groundwater resources;
3. As of October 1, 1992, a Clean Water Act, Section 402, NPDES Permit is required for all ground disturbing activities which exceed 5 acres in impact. Contact **Robert Wilson**, (602) 207-4574 with the Department of Environmental Quality regarding assistance in applying for this federal permit;
4. A Clean Water Act, Section 404 Permit may be required for the discharge of dredged or fill material into the navigable waters. Contact the **Corp of Engineers** at (602) 640-5385 regarding a 404 Permit application. In addition a Section 401 Certification may be required and can be obtained from the ADEQ. Contact **Jim Matt** at (602) 207-4502 for assistance in obtaining certification;
5. A monitoring program should be implemented to evaluate effectiveness of management practices in protecting waters of the State; and
6. ACC R18-11-109, Surface Water Quality Standards Rules must be complied with as set forth in section G (enclosed).

Enclosed for your information and reference please find a copy of AAC R18-11-107/108/109, Surface Water Standards Rules.

The Arizona Department of Environmental Quality would appreciate being kept informed on the progress of this project. Thank you for your cooperation and should you have any questions please feel free to give me a call at (602) 207-4535.

Sincerely,



Karl F. Meyer
Nonpoint Source

Enclosures

cc: Don Shroyer
Larry Stephenson
Mike Hill
Kris Randall
Peter Jagow



ARIZONA STATE PARKS

800 W. WASHINGTON
SUITE 415
PHOENIX, ARIZONA 85007
TELEPHONE 602-542-4174

FIFE SYMINGTON
GOVERNOR

STATE PARKS
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SECRETARY
ELGIN

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WILLIAM G. ROE
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RONALD PIES
TEMPE

DEAN M. FLAKE
SNOWFLAKE

M. JEAN HASSELL
STATE LAND COMMISSIONER

KENNETH E. TRAVOUS
EXECUTIVE DIRECTOR

COURTLAND NELSON
DEPUTY DIRECTOR

February 8, 1993

Dennis A. Davis, AICP
Environmental Manager
Parsons Brinckerhoff Quade & Douglas
1501 W. Fountainhead Parkway, Suite 400
Tempe, AZ 85282

RE: Red Mountain Freeway, ADOT and FHWA

Dear Mr. Davis:

Thank you for providing us with more information about the above proposed project and its current status. I have reviewed your submittal and note that SWCA is preparing a cultural resources evaluation for a portion of the project area. When the survey report is completed, please send copies of the report to Bettina Rosenberg at ADOT; Ms. Rosenberg will then forward a copy to our office with agency comments.

The recommendations made in my letters dated October 11, 1988 and February 8, 1989 still stand. We look forward to receipt of the SWCA survey report, a proposal for archaeological testing, and a historic building/structure survey for the proposed impact area.

We appreciate your continued cooperation with this office in considering the impacts of proposed projects on historic preservation. If you have any questions, please contact me at 542-4174 or 542-4009.

Sincerely,

Robert E. Gasser
Compliance Coordinator
State Historic Preservation Office

cc: Bettina Rosenberg, ADOT



FIFE SYMINGTON
GOVERNOR

Arizona
State Land Department

1616 WEST ADAMS
PHOENIX, ARIZONA 85007



M.J. HASSELL
STATE LAND COMMISSIONER

January 27, 1993

Mr. Dennis A. Davis, AICP
Parsons Brinckerhoff Quade & Douglas, Inc.
P.O. Box 24158
Tempe, Arizona 85285-4158

RE: ENVIRONMENTAL IMPACT STATEMENT

T010N R050E S04 01
ADOT RED MOUNTAIN FREEWAY
FREEWAY
MESA, ARIZONA

Dear Mr. Davis:

The Arizona State Land Department (ASLD) is in receipt of a letter, dated 1/15/93, from Parsons Brinckerhoff Quade & Douglas, Inc. (PBQ&D) with an attached "Red Mountain Freeway Environmental Impact Statement Location Maps."

The Arizona Department of Transportation (ADOT) has retained PBQ&D to conduct an environmental evaluation of a portion of the proposed Red Mountain Freeway in Mesa, which will be used to prepare an Environmental Impact Statement. A previous Environmental Assessment was completed in 1989.

PBQ&D did not include a map with legal descriptions, however it appears that the project will impact Township 1 North, Range 5 East, Sections 4 and 8. Neither Section contains State Trust land parcels.

The ASLD has no knowledge of any potential environmental issues in the proposed area.

If you have any questions, please call me at 542-2119.

Sincerely,

Steven C. Hildreth
Environmental Resource Manager

/sch

cc: Bill Fish, Manager, Rights-of-Way Section



ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Fife Symington, Governor Edward Z. Fox, Director

April 12, 1993

Mr. Dennis A. Davis, AICP
Parsons, Brinkerhoff, Quade and Douglas, Inc.
1501 West Fountainhaid Parkway, Suite 400
Tempe, Arizona 85282

RE: NEPA EVALUATION, RED MOUNTAIN FREEWAY, OUTER LOOP INTERCHANGE
TO STATE ROUTE 87

Dear Mr. Davis:

You have previously received comments from this Department regarding the above-referenced project. We are submitting additional comments and hope that they will be useful to you as you proceed with this project. Since we have not been on site, these comments are limited to those which could be ascertained from the information you have sent us, our files and other available data sources.

OFFICE OF WASTE PROGRAMS

1. The beginning of the Freeway lies within the South Indian Bend Wash (SIBW) boundaries and is outside the SIBW boundary where the Freeway intercepts Price Road. There are two concerns which are:
 - (a) Wells used to monitor the contaminated groundwater are located in this area and may be an interference to the freeway construction, and
 - (b) depths to groundwater can vary as little as 25 feet in the areas near the Salt River bed and can range to one hundred feet or more in other areas. Planning for excavation work should consider these two concerns while construction proceeds in this area.
2. Freeway routing indicates that it passes through the boundaries of the Northeast Mesa site. Again, caution to both monitor wells and groundwater depths should be exercised. Another site, Mesa DBCP, is near the proposed

Mr. Dennis A. Davis, AICP
April 12, 1993
Page Two

routing but may not cause any concerns. The major environmental activity occurring in this area is a Falcon Field Well No. 2 located at 46th Street and Jensen Street. Groundwater level in the area is 170 to 175 feet.

OFFICE OF WATER QUALITY

1. Numeric and narrative water quality standards rules have been adopted for aquifers and navigable waters and are found in the Arizona Administrative Code, Title 18, Chapter 11. The referenced project is subject to these and other rules and requirements for environmental protection which are administered by local, State and Federal agencies. State 401 Water Quality Certification is required for all CWA permits issued except for Pre-Certified Nationwide Permits which are administered by the U.S. Army Corps of Engineers.
2. Permits or approvals may be required by the county health department, Arizona Department of Environmental Quality (ADEQ), U.S. Army Corps of Engineers or the U.S. Environmental Protection Agency if the overall project includes construction within a watercourse or a potable water supply, wastewater reuse facilities, or wastewater collection/holding/treatment/disposal facilities, or storm water facilities.
3. We recommend that the environmental analyses reports include a comparison of "Waters of the United States" (WUS) impact areas for each alternative. These areas should include the WUS that are either lost or sustain impaired functions and values (physical, biological or chemical) as a result of any activities regulated by CWA §404. If you are unable to easily delineate WUS, we recommend that the comparison be made for impact areas within the 100-year floodplain.
4. Runoff and seepage from roadways, embankments, and other alterations of the natural environment must not cause a violation of Water Quality Standards for Navigable Waters, A.A.C. Title 18, Chapter 11, Article 1.

Mr. Dennis A. Davis, AICP
April 12, 1993
Page Three

5. All off-site material sources for the project must have valid and current permits under the Federal Clean Water Act [Sections 402 (NPDES) and 404 (Dredge and Fill)] and the State Aquifer Protection Program, where necessary. Facilities and activities not covered by individual permits under these programs are not exempt from the duty to comply with water quality standards for surface waters and aquifers, and will be subject to compliance action, including possible closure if violation is documented. Other permits pertaining to air quality may be required for material sources and are the responsibility of the applicant or his agent(s).
6. Water for dust suppression, if used, must not contain contaminants that could violate water quality standards for surface waters or aquifers.
7. If culverts are used they should be adequately sized to handle the expected flow and properly set with the ends protected from erosion. Storm water discharges should be managed to minimize the pollution of the waters of the State. Drainage from paved areas should not result in direct discharge to canals or environmentally sensitive waters.

If you require additional information regarding water issues, please contact Edwin Swanson at (602) 207-4501, reference file-WQMS-383.080]. Enclosed is a recently updated booklet describing the Department's requirements for permits and approvals.

We appreciate the opportunity to provide our comments during initial project planning.

Sincerely,



Edward Z. Fox
Director

Enclosure

ARIZONA DEPARTMENT OF WATER RESOURCES

Phoenix Active Management Area
15 South 15th Avenue, Phoenix, Arizona 85007
Telephone (602) 542-1512
Fax (602) 256-0506



February 5, 1993

FIFE SYMINGTON
Governor

ELIZABETH ANN RIEKE
Director

Dennis Davis, AICP
Environmental Manager
Parsons Brinkerhoff Quade & Douglas, Inc.
P.O. Box 24158
Tempe, Arizona 85285-4158

Dear Mr. Davis:

The Department of Water Resources has reviewed the maps enclosed with your letter to the Director dated January 15, 1993. The Phoenix Active Management Area, Second Management Plan requires the use of Department approved low water use plants within public rights-of-way. This provision will pertain to the proposed segment of the Red Mountain Freeway described (Red Mountain/Loop 101 Interchange to State Route 87).

If you have any questions about this provision, please contact me at 542-1512.

Sincerely;

Gordon Wahl
Municipal Planner
Phoenix Active Management Area

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION

2901 West Durango Street
Phoenix, Arizona 85009



(602) 506-8600
FAX (602) 506-4858

February 17, 1993

Mr. Dennis A. Davis, AICP
P.O. Box 24158
Tempe, AZ 85285-4158

Dear Mr. Davis: *Dennis,*

RE: RED MOUNTAIN FREEWAY ENVIRONMENTAL ISSUES

I am in receipt of your January 15th letter of inquiry. As you requested, we identified issues we would like to add to your portion of the environmental scan for the proposed Red Mountain Freeway.

We received numerous inquiries regarding plans to improve local circulation of the area around the McKellips Road crossing of the Salt River. In developing our response, we found excessive traffic congestion on the proposed Red Mountain Freeway crossing of the river, especially during high flow periods. Further study is needed regarding the McDowell crossing, the McKellips crossing, and local circulation, as affected by the Red Mountain Freeway.

Our previous study of Alma School Road at McDowell and McKellips found extensive archeological artifacts. You may anticipate similar environmental issues in your study of the Red Mountain Freeway.

We would like to emphasize the need for close coordination of the planning efforts between the proposed freeway and MAG's Roads of Regional Significance Plan. If we can be of further assistance, please contact Greg Holverson (506-8744).

Sincerely,

Handwritten signature of D. E. Sagramoso in cursive.

D. E. Sagramoso, P.E.
Transportation Director

xc: Cynthia Donald, MC Parks and Recreation Department

kgf

PARKS AND RECREATION DEPARTMENT

3475 West Durango Street
Phoenix, Arizona 85009



(602) 506-2930

February 22, 1993

Dennis A. Davis, AICP
Environmental Manager
Parsons Brinckerhoff
1501 West Fountainhead Parkway
Suite 400
Tempe, Arizona 85282

**RE: ENVIRONMENTAL EVALUATION
RED MOUNTAIN FREEWAY
LOOP 101 INTERCHANGE TO STATE ROUTE 87**

Dear Mr. Davis:

We have reviewed the information you supplied regarding the environmental evaluation of a portion of the Red Mountain Freeway, specifically from Loop 101 Interchange on the west to State Route 87 on the east, and find that we have no significant issues to raise from our Agency's perspective at this time.

Thank you for advising us of this environmental evaluation. We would appreciate being kept apprised of its progress. Should you have any questions or require specific information, please give me a call.

Sincerely,

A handwritten signature in cursive script, appearing to read "Cynthia A. Donald".

Cynthia A. Donald, L.A.
Superintendent, Parks Planning and Development

cad/js

c: WCS

Public Works
Department

February 18, 1993

Mr. Dennis A. Davis
Environmental Manager
Parsons Brinckerhoff Quade & Douglas, Inc.
1501 W. Fountainhead Parkway #400
Tempe, AZ 85282

Re: Red Mountain Freeway from Loop 101 to SR87 Environmental Evaluation

Dear Dennis:

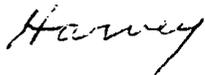
Your request for the City to comment on environmental issues for the above referenced evaluation has been considered.

We would like the following addressed in your evaluation:

1. Take into consideration potential environmental affects due to the existing channelization.
2. Evaluate the impact on the quality of flows into the Salt River from all freeways and city storm drains.
3. Determine if any sections of the proposed freeway is in the Superfund area.

On behalf of the City, I would like to express our appreciation for this opportunity to comment.

Sincerely,

A handwritten signature in cursive script that reads 'Harvey'.

Harvey Friedson, P.E.
Deputy Public Works Director

cc: Jim Jones
Bill Coughlin
George Elley
Denzil Jones
Gary Meyer

MARICOPA COUNTY DEPARTMENT OF PLANNING AND DEVELOPMENT

301 W. Jefferson Phoenix, Arizona 85003



February 22, 1993

Dennis A. Davis, AICP
Parsons Brinckerhoff Quade and Douglas, Inc.
1501 W. Fountainhead Parkway
Suite 400
Tempe, Arizona 85282

Dear Mr. Davis:

This department appreciates the opportunity to assist with the Red Mountain Freeway Environmental Impact Statement.

Because the boundaries of the Project Area lie entirely within incorporated limits, this study does not impact any County Plans, Goals or Policies. Therefore, there are no potential environmental impacts to the County from the perspective of this department.

If we can be of any further assistance, please contact our Advance Planning Section at 506-3403. We would appreciate a final copy of the study for our records.

Sincerely,

A handwritten signature in black ink, appearing to read "Richard Turner".

Richard Turner
Acting Director

JAM:rr



CITY OF
MESA

February 12, 1993

Dennis A. Davis, AICP
Environmental Manager
Parsons, Brinckerhoff,
Quaid, and Douglas, Inc.
1501 W. Fountainhead Parkway
Suite 400
Tempe, AZ 85282

Dear Mr. Davis:

This letter is in response to your request for an environmental assessment evaluation between the Red Mountain/Loop 101 interchange on the west and State Route 87 on the east.

Following a physical survey of the areas outlined in the aerial photograph vicinity maps, we noted that the vast majority of those areas indicated were outside of the City of Mesa and no existing records were available to reference either current or past conditions regarding environmental issues. Those areas surveyed, within the City of Mesa, were void of any and all registered underground storage tanks and pose no environmental risks from other hazardous materials.

Consideration may need to be given to the 300,000 gallon aboveground diesel fuel tank, approximately three-quarters of a mile southeast of the Alma School Road/McLellan Road intersection. The tank is owned by Johnson-Stewart-Johnson Mining Company and Gravel Operation and is currently full and in use.

Should you have any questions or if we can be of further assistance, please feel free to contact me at 644-2780.

Sincerely,

Thomas C. Wright
Fire Prevention Coordinator
Mesa Fire Department

TCW/sc

Fire Prevention Bureau

13 West First Street • Mesa, Arizona 85201-6613 • (602) 644-2622

9-25



CITY OF
MESA

January 26, 1993

Mr. Dennis Davis
Environmental Manager
Parsons Brinkerhoff
1501 West Fountainhead Parkway
Suite 400
Tempe, Arizona 85282

Re: Red Mountain Freeway, Loop 101 Interchange to S.R. 87
Environmental Evaluation

Dear Mr. Davis;

In response to your letter of January 15, 1993, City staff members have reviewed the potential issues within the project limits. We are not aware of any new environmental issues that need to be addressed.

For future correspondence, please submit to my attention. I will see that information is distributed to the other City departments, as needed.

For your coordination group, we have assigned Mr. Ross Renner. He will attend your monthly discussions and distribute whatever information becomes available. He will attend your initial meeting on January 28, 1993.

For your general information, I have attached a copy of a memo dated October 11, 1988, and sent to your company from our planning director. You probably already have this memo in your files, but offer this copy in case you need it.

Sincerely,

Harry Kent
City Engineer

HK/pr

xc: Bruce Crandall
Frank Mizner
Keith Nath
Ron Krosting
Ross Renner

Engineering



City of Phoenix

PUBLIC TRANSIT DEPARTMENT

January 25, 1993

Mr. Dennis A. Davis, AICP
Environmental Manager
Parsons Brinckerhoff Quade & Douglas, Inc.
1501 W. Fountainhead Parkway, Suite 400
Tempe, AZ 85282

Dear Mr. Davis:

This is in response to your request to identify potential environmental issues relative to the proposed Red Mountain Freeway between Loop 101 and State Route 87.

The City of Phoenix Public Transit Department and the Regional Public Transportation Authority are very interested in encouraging travel mode options which minimize the number of single occupant vehicles that will utilize, not only the Red Mountain Freeway, but all freeways in Maricopa County. Incentives to entice people into buses, vanpools, and carpools will help reduce traffic congestion and improve the region's air quality.

The freeway project should consider the following features for transit and rideshare modes:

1. Express bus operations would take advantage of the new freeway. Currently, only the Route 532, with two AM peak and two PM peak trips, travels in the vicinity of the freeway corridor. The Route 532 will likely be rerouted to take advantage of speeds provided by the new freeway. If funding becomes available it would be desirable to operate additional express bus service at least every ten minutes along the proposed freeway during peak hours.
2. Regional park-and-rides should be located every four or five miles along the Red Mountain Freeway. These park-and-rides would bring people to the express bus routes and would be a meeting place for the formation of carpools and vanpools. Ultimately each of these park-and-ride lots would have the capacity for 500 parked automobiles.

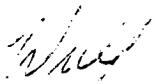
January 25, 1993
Mr. Dennis A. Davis
Page Two

We have been working with ADOT staff to locate the first of these park-and-ride lots within the northeast quadrant of the Dobson Road interchange. The initial construction phase would accommodate about 200 to 300 parking spaces.

3. Extension of the High Occupancy Vehicle (HOV) lanes on the East Papago to include the Red Mountain should be reviewed. If HOV lanes are warranted, consideration should be given to providing direct freeway ramp access from the HOV lanes to proposed park-and-ride lots.
4. If ramp metering is installed along this freeway, the construction of HOV bypasses should be included at key locations.

Thank you for the opportunity to provide our comments. Please call me if you need further assistance.

Sincerely,


Wulf Grote, PE
Deputy Public Transit Director

c: Mr. Richard C. Thomas
Mr. G. Kenneth Driggs
Ms. Tanya Collins

5508T/WG:elm



CITY OF
MESA

August 10, 1993

Mr. Gary Robinson
State Engineer
Arizona Department of Transportation
206 South 17th Avenue, MD 102A
Phoenix, Arizona 85007

Re: Red Mountain Freeway - Price Road to Country Club Drive

Dear Mr. Robinson:

The City hereby requests that a frontage road be provided on the north and south sides of the Red Mountain Freeway between Alma School Road and McKellips Road to provide a means for traffic to easily access or exit the freeway by way of McKellips Road.

Frontage roads along the Red Mountain Freeway between Alma School Road and McKellips Road are required in order to provide an acceptable level of service at the intersections of Country Club Drive/McKellips Road, Alma School Road/McKellips Road, Alma School Road/Red Mountain Freeway and Country Club Drive/Red Mountain Freeway. The majority of traffic that will use this facility presently exists on McKellips Road. By providing access to McKellips Road turning movements will be reduced, thereby improving the level of service at these intersections.

Without frontage road access at McKellips Road, some traffic will be diverted through the residential neighborhood west of Country Club Drive in order to gain access to the freeway at Alma School Road.

In addition, the frontage roads will provide improved traffic flow throughout the area when the Salt River is flowing which forces the closure of McKellips Road.

If you should have any questions or desire any additional information, please do not hesitate to contact me.

Sincerely,

Harry Kent
City Engineer

xc: Mike Hutchinson
Jack Debolske (MAG Director)
Steve Jimenez (ADOT)
Dennis Davis (Parsons Brinkerhoff)
Ron Krosting
Keith Nath
Ross Renner

robinson.prr

Engineering

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION

2901 West Durango Street
Phoenix, Arizona 85009



(602) 506-8600
FAX (602) 506-4858

September 9, 1993

(JF) 9/16/93
Mr. Gary A. Robinson
State Engineer
Arizona Department of Transportation
206 South 17th Avenue, Room 102A
Phoenix, Arizona 85007

Dear Mr. Robinson:

RE: RED MOUNTAIN FREEWAY (PIMA FREEWAY-COUNTRY CLUB SECTION)

The Maricopa County Department of Transportation (MCDOT), at the direction of our Transportation Advisory Board (TAB), evaluated the need for a McKellips Road Bridge across the Salt River. The existing low water crossing at McKellips was closed over 100 days this year and 60-80 days in 1991 and 1992. Local citizens, the City of Mesa, Representative Lela Steffey and Maricopa County are interested in finding a solution to the traffic problems resulting from the McKellips closures.

Due to the proximity of McKellips Road to the programmed Red Mountain Freeway (Pima Freeway-Country Club Section), we looked at the potential traffic service provided by the freeway. The freeway provides a fully directional interchange to Alma School which has a bridged crossing of the Salt River. This crossing, only a half-mile downstream from the McKellips low-flow crossing, would appear to be a viable option to get motorists across the river at high-flow periods. While there are a significant number of drawbacks to a full freeway interchange at McKellips and the Red Mountain, there appears to be an opportunity for parallel, two-way collector/distributor roads between McKellips and Alma School.

These proposed collector/distributor roads would connect the underpass at McKellips with the diamond interchange at Alma School, allowing motorists to use the Alma School bridge and utilize the freeway access ramps at the Alma School traffic interchange. This would provide a higher level facility and minimal out-of-direction travel for the McKellips Road users.

D.E. SAGRAMOSO, P.E.
Transportation Director

Mr. Gary A. Robinson
State Engineer
Arizona Department of Transportation
September 10, 1993
Page Two of Two

MCDOT has evaluated a McKellips Road Bridge option through the Capital Improvements Program (CIP) review process. Through the 1993-94 criteria review, a bridge missed the cut-off to be included in MCDOT's Year 2000 program due to: costs (\$10,000,000), sporadic benefit (value during wet season only), and the programmed parallel Red Mountain Freeway facility. We will reevaluate the McKellips Road Bridge in next year's CIP. While additional traffic studies and demand analysis are needed to fully evaluate the benefits of a collector/distributor road, it would appear a viable, valuable, and necessary addition to the Red Mountain Freeway. Connecting McKellips Road to freeway service roads would facilitate access to the freeway system. This would aid in taking freeway generated traffic (regional trips) off a local arterial.

Sincerely,



D. E. Sagramoso, P.E.
Transportation Director

xc: Harry Reed, ADOT
John J. DeBolske, Chairman, Maricopa Association of Governments
Ron Krosting, City of Mesa

DES:MRD:kgt



UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
ARIZONA ECOLOGICAL SERVICES STATE OFFICE
3616 West Thomas Road, Suite 6
Phoenix, Arizona 85019



Telephone: (602) 379-4720 FAX: (602) 379-6629

2-21-93-I-133

June 15, 1993

Mr. E. A. Wueste
Federal Highway Administration
234 N. Central Avenue
Suite 330
Phoenix, Arizona 85004

Dear. Mr. Wueste:

Per a telephone conversation with Mr. Steve Thomas this morning, we are providing this letter in response to Mr. Thomas' request of a concerned species list for the proposed Arizona Department of Transportation (ADOT) Red Mountain Freeway project in Maricopa County, Arizona. Mr. Thomas requested a copy of the February 10, 1993 letter we sent to Mr. Dennis Davis of Parson, Brinckerhoff, Quade & Douglas, Inc. That information is presented below.

Our data indicate that the following species may occur in the vicinity of this proposed project.

ENDANGERED SPECIES

Yuma clapper rail (Rallus longirostris yumanensis)

Endangered species must be considered in the development of projects.

In our previous correspondence with Mr. Davis of October 4, 1988, we noted that the proposed alignment parallels the Salt River on the south bank. We would again like to request that the proposed freeway be located outside the ordinary high water mark and outside the 100 year floodplain. This would eliminate channelizing the Salt River, not require a Section 404 permit from the U.S. Army Corps of Engineers, and avoid impacting existing riparian habitat where the Yuma clapper rail is found.

The State of Arizona protects some species not protected by Federal law. We suggest you contact the Arizona Game and Fish Department and the Arizona Department of Agriculture for State-listed or sensitive species in the project area.

In future communications on this project, please refer to consultation number 2-21-93-I-133. If we may be of further assistance, please contact Brenda Andrews.

Sincerely,



Sam F. Spiller
State Supervisor

cc: Director, Arizona Game and Fish Department, Phoenix, Arizona
Regulatory Branch, U.S. Army Corps of Engineers, Phoenix, Arizona
(Attn: Robert Dummer)
Plant Program Manager, Arizona Department of Agriculture,
Phoenix, Arizona



**CITY OF
MESA**

January 31, 1994

Mr. William P. Belt, Manager
Environmental Planning Services
Arizona Dept. of Transportation
Highways Division
206 South 17th Avenue
Phoenix, AZ 85007

RE: Red Mountain Freeway – Price Road to Country Club Drive

Dear Mr. Belt:

As noted in the Draft Environmental Impact Statement (EIS) for the Red Mountain Freeway referenced above, neither the Freeway nor Major Urban Arterial Alternatives will have a direct physical impact on either Riverview Park or the adjoining Riverview Golf Course. It appears either alternative will be located just north of both the park and the golf course.

Also noted in the Draft EIS, noise levels at the northern part of the park are projected to exceed the noise criteria for both build alternatives. To mitigate these projected noise levels to allowable levels, a six-foot barrier wall is requested for construction at the edge of the shoulder along the northern part of the park. After examining various barrier walls throughout the city, we recommend construction of an eight-foot barrier wall in lieu of six-foot.

Also, since the future view to the north of the park would be the barrier wall, construction of the wall and landscaping of the immediate area should be in a manner consistent with the park aesthetics. We would like to be involved with the block, color, and pattern selection approvals for the proposed barrier wall, along with the approval of the type of landscaping proposed adjacent to the barrier wall.

As this project develops, please keep us informed of any proposed impact to the Riverview Park and Golf Course. If you should have any questions, please advise.

Sincerely,

Joseph H. Holmwood, Director
Parks, Recreation and Cultural

cc: Dennis Davis (Parsons Brinkerhoff)
Bruce Crandall
Harry Kent
Keith Nath
Ross Renner

Mesa Parks, Recreation and Cultural Division

5090/A9 125 North Hobson Street • Mesa, Arizona 85203-8789 • (602) 644-2351 • FAX (602) 644-2698

printed on recycled paper

9.2 Programmatic Agreement

PROGRAMMATIC AGREEMENT

AMONG

THE FEDERAL HIGHWAY ADMINISTRATION
THE UNITED STATES ARMY CORPS OF ENGINEERS
THE ARIZONA DEPARTMENT OF TRANSPORTATION
MARICOPA COUNTY
THE CITY OF MESA

THE UNITED STATES BUREAU OF LAND MANAGEMENT
THE SALT RIVER PIMA-MARICOPA INDIAN COMMUNITY
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER
AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION

REGARDING THE

RED MOUNTAIN FREEWAY

WHEREAS, the Federal Highway Administration (FHWA) proposes to build a new three-mile freeway between the Red Mountain/Pima Freeways Loop 101L Interchange and Country Club Drive (State Route 87) in Maricopa County, Arizona, as a multiphase construction project (Project) to be completed as a sequential series of limited segments, and

WHEREAS, FHWA, as the lead agency responsible for compliance under Section 106 of the National Historic Preservation Act (16 USC 470f) for the project, as authorized by 43 CFR 2800, and the Arizona Department of Transportation (ADOT), as agent for FHWA, have participated in consultation, and

WHEREAS, FHWA has determined that the Project may have an effect on properties included in or eligible for inclusion in the National Register of Historic Places, and has consulted with the Arizona State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (Council) pursuant to 36 CFR 800.13 regarding implementation of Section 106 of the National Historic Preservation Act, and

WHEREAS, project construction will occur on lands under the jurisdiction of Maricopa County (County), the United States Bureau of Land Management (BLM), the Salt River Pima-Maricopa Indian Community (SRPMIC), and the City of Mesa (Mesa) who have participated in consultation and have been invited to concur in this Agreement, and

WHEREAS, the Corps of Engineers (COE) will be a permit-granting agency has participated in consultation, and has been invited to concur in this Agreement, and

WHEREAS, this Agreement addresses all phases and segments of the Project, and

NOW, THEREFORE, FHWA, ADOT, County, COE, BLM, SRPMIC, Mesa, SHPO, and Council agree that the Project shall be administered in accordance with the following stipulations in order to satisfy Section 106 responsibilities for all aspects of the Project.

STIPULATIONS

FHWA shall ensure that the following measures will be carried out.

I. INVENTORY, EVALUATION, AND EFFECT DETERMINATION

- A. FHWA, represented by ADOT, will assure the completion of a historic properties inventory of the proposed highway right-of-way. FHWA will ensure that this inventory shall be conducted in a manner consistent with the Secretary of the Interior's Standards and Guidelines for Identification of Historic Places. FHWA will further ensure that any additional staging or use areas related to this undertaking shall be inventoried in a manner consistent with the right-of-way inventory. Report(s) of the results of any and all inventories shall be submitted to the SHPO and other land owning/managing agencies where appropriate for review and comment.
- B. FHWA, in consultation with SHPO and other appropriate agencies, shall ensure that determinations of eligibility are made in accordance with 36 CFR 800.4(c) for all historic properties within the Project right-of-way, including any additional staging or use areas. If the FHWA and SHPO disagree on eligibility, determinations will be forwarded to the Keeper of the National Register for resolution. Appropriate Native Americans will be consulted to help identify potential Traditional Cultural Properties within each project area. FHWA will seek information from appropriate Native Americans that will aid in determining National Register eligibility and will seek Tribal comments on treatments should there be adverse effects.
- C. FHWA, in consultation with SHPO and other appropriate agencies, shall apply the criteria of Effect and of Adverse Effect in 36 CFR 800.9 to all historic properties within the Project right-of-way, including any additional staging or use areas. If FHWA, SHPO, County, COE, BLM, SRPMIC, and Mesa agree that a portion of the undertaking shall have no effect on listed or eligible properties, FHWA may provide authorization to proceed with construction in that area, subject to the conditions of any Monitoring Plan developed for the Project.
- D. FHWA will seek public comment on the effects of the undertaking on historic properties in coordination with its procedures for implementing the National Environmental Policy Act (NEPA).
- E. FHWA will identify those Native American Tribes having a potential for claiming cultural and/or ancestral affinity within the Project area under the provisions of the Arizona Antiquities Act, ARS 41-844 and the Native American Graves Protection and Repatriation Act (NAGPRA). Further, FHWA will consult with those tribes regarding appropriate procedures for the recovery, analysis, treatment, and disposition of human remains, associated grave goods, and objects of cultural patrimony in accordance with the provisions of applicable state and federal laws.

II. PREPARATION OF A TREATMENT PLAN

- A. FHWA, in cooperation with ADOT, and in consultation with SHPO and other appropriate agencies, shall ensure that a Treatment Plan is developed for the mitigation of anticipated effects on historic properties that will result from the Project and any related uses and activities. Further, FHWA, in cooperation with ADOT, and in consultation with SHPO, will ensure the development of location and property specific Data Recovery Plans for each individual phase or segment of the Project that will be considered as Supplements to the Treatment Plan.
- B. The Treatment Plan shall be consistent with the Secretary of Interior's Standards and Guidelines (48 FR 44716-44742) and the Council's handbook Treatment of Archaeological Properties.
- C. The Treatment Plan shall specify, at a minimum:
 1. The historic properties to be affected by the project as a whole and the nature of those effects.
 2. A Research Design that will contain the research questions and goals that are applicable to the Project area as a whole and that will be addressed through data recovery, along with an explanation of their relevance and importance. These research questions and goals shall reflect the concept of historic contexts as defined in National Register Bulletin 16 and shall take into consideration any such historic contexts established for the Project area.
 3. Fieldwork and analytical methods and strategies applicable to the Project area as a whole, along with an explanation of their relevance to the research questions. Such treatment methods will be developed for each class of historic property identified in the Project inventory.
 4. Proposed procedures for dealing with discovery situations.
 5. Methods to be used in data management and dissemination of data.
 6. Methods and procedures for the recovery, analysis, treatment, and disposition of human remains, associated grave goods, and objects of cultural patrimony that reflect any concerns and/or conditions identified as a result of consultations between FHWA and any affected Native American group.
 7. A Monitoring Plan to ensure that historic properties are not affected by construction-related activities. This Monitoring Plan shall specify the location of all identified properties and the means by which they will be marked and avoided if construction is allowed in nearby portions of the right-of-way.

- D. Each phase or segment specific Data Recovery Plan shall represent a dependent plan and document supplement to the Treatment Plan providing specific direction for the conduct of Data Recovery within any given Project segment. It shall conform to the general requirements of the Treatment Plan. At a minimum, it shall specify:
1. The historic properties to be affected in the specified Project segment and the nature of those effects.
 2. The research questions identified in the Treatment Plan that will be appropriate for the specified Project segment and that will be addressed through data recovery, along with any additional research questions compatible with the Treatment Plan and an explanation of their relevance to the overall research goals as established in the Treatment Plan.
 3. The specific fieldwork and analytical strategies identified in the Treatment Plan, as well as any other strategies that will be employed in the specified Project segment.
 4. A proposed schedule for submission of progress, summary, and other reports to appropriate agencies.
 5. Qualification of consultants employed to undertake the implementation of the Data Recovery Plan.

III. COMMENT ON THE TREATMENT PLAN AND DATA RECOVERY PLAN(S)

- A. Upon receipt of a draft of the Treatment Plan or of any Data Recovery Plan, FHWA will submit such drafts concurrently to SHPO, County, COE, BLM, SRPMIC, Mesa and the Council for review, after review by ADOT. All reviewing parties will have 30 days from receipt to review and provide comments to FHWA.
- B. If revisions to the Plans are needed, all signatories to this Agreement have 20 days from receipt to review and comment on the revisions. If no comments are received within this period, the FHWA may assume that the reviewer concurs with the revisions.
- C. Once the Treatment Plan is determined adequate by the reviewing parties, FHWA shall issue authorization to proceed with the development of the Data Recovery Plan(s).
- D. Once the Data Recovery Plan(s) is determined adequate by the reviewing parties, FHWA shall issue authorization to proceed with the implementation of the Plan.
- E. Final drafts of the Treatment Plan and all subsequent and supplemental Data Recovery Plan(s) will be provided to the signatories of this Agreement.
- F. The Council or any signatory may choose not to review each data recovery work plan.

IV. CONSTRUCTION

- A. FHWA, in consultation with SHPO, and other agencies where appropriate, may issue authorization to proceed with construction in those portions of the right-of-way that contain historic properties once the agreed-upon fieldwork/treatment specified in the Treatment Plan and Data Recovery Plan(s) has been completed, subject to acceptance of the adequacy of the work performed under those Plans. FHWA acceptance will be based on field inspection and review of a Preliminary Report documenting the accomplishment of the Treatment Plan and Data Recovery Plan(s).

V. CHANGES IN CONSTRUCTION CORRIDORS AND ANCILLARY AREAS

- A. If during the course of construction planning, a reroute of a portion of the proposed right-of-way or a previously unidentified staging or use area is determined to be necessary, FHWA shall ensure that the area of potential effect is inventoried in a manner consistent with the prior right-of-way inventory and the standards identified in Stipulation I. A report of the findings of such inventories and any resultant Data Recovery Plans, as appropriate, shall be submitted to all signatories for review. The Data Recovery Plan(s) for historic properties within the reroute or additional staging or use area will be consistent with the Treatment Plan and, once accepted, will be considered a supplement to the Treatment Plan.
- B. Where historic properties will be affected, FHWA shall consult with SHPO, and other agencies where appropriate, on the adequacy of the inventory and on determinations of eligibility and any proposed Data Recovery Plan(s) for any properties identified in such additional areas. If FHWA, SHPO, or other agencies disagree on eligibility, determinations will be forwarded to the Keeper of the National Register for resolution. SHPO will provide comment within 30 days of receipt. If no such comment is received within 30 days, FHWA shall assume concurrence. If FHWA and SHPO agree to the adequacy of the documentation, FHWA will be allowed to proceed with the implementation of the Data Recovery Plan(s), as appropriate. Objections to any elements of the documentation must be specifically identified and the reasons for objection documented. If the objection cannot be resolved, FHWA shall consult with the Council in accordance with Stipulation VII.
- C. If revisions are needed, all signatories to this Agreement have 20 days from receipt to review and comment on the revisions. If no comments are received within this period, the FHWA may assume that the reviewer concurs with the revisions.

- D. Where no historic properties will be affected, FHWA shall consult with SHPO on the adequacy of the inventory, on determinations of eligibility and avoidance procedures, if applicable, for any sites not to be affected by the Project. SHPO will provide comment within 20 days of receipt. If no such comment is received within 20 days, FHWA shall assume concurrence. If FHWA and SHPO agree to the adequacy of the documentation, FHWA may proceed with construction or use of the additional area. If FHWA or SHPO objects to any element of the documentation, FHWA shall consult to resolve the objection. Objections must be specifically identified and the reasons for objection documented. If the objection cannot be resolved, FHWA shall consult with the Council in accordance with Stipulation VII.

VI. CURATION

FHWA shall ensure that all records and materials resulting from identification and data recovery efforts are curated in accordance with standards and guidelines generated by the Arizona State Museum for state and private land and 36 CFR Part 79 for federal land where applicable and in consideration of any claims or conditions recognized as a result of consultation with affected Native American groups according to the provisions of the Arizona Antiquities Act and NAGPRA. All material to be returned or otherwise repatriated will be treated with dignity and respect and consideration for the specific cultural religious traditions applicable until their analysis is complete and they are returned.

VII. DISPUTE RESOLUTION

Should any signatory or concurring party to this Agreement or any interested party or Tribal group object within 30 days to any action(s) or plans provided for review pursuant to this Agreement, FHWA shall consult with the objecting party to resolve the objection. The objection must be specifically identified, and the reasons for objection documented. If FHWA determines that the objection cannot be resolved, FHWA shall forward all documentation relevant to the dispute to the Council and notify SHPO as to the nature of the dispute. Within 30 days of receipt of all pertinent documentation, the Council shall either:

- A. Provide FHWA with recommendations, which FHWA shall take into consideration in reaching a final decision regarding the dispute; or
- B. Notify FHWA that it will comment within an additional 30 days in accordance with 36 CFR 800.6(b). Any Council comment provided in response to such a request will be taken into account by FHWA in accordance with 36 CFR 800.6(c)(2) with reference to the subject of the dispute.

Any recommendation or comment provided by the Council will be understood to pertain only to the subject of the dispute; FHWA responsibility to carry out all actions under this Agreement that are not the subject of the dispute will remain unchanged.

VIII. AMENDMENT

Any party to this Agreement may request that it be amended, whereupon the parties will consult to consider such amendment in accordance with 36 CFR 800.13.

IX. TERMINATION

Any party of this Agreement may terminate its participation by providing 30 days' written notice to the other parties, provided that the parties will consult during that period to seek agreement on amendments or other actions that would avoid termination. In the event of termination, FHWA will comply with 36 CFR 800.4 through 800.6.

X. FAILURE TO CARRY OUT THE TERMS OF THE AGREEMENT

In the event that the terms of this Agreement are not carried out, FHWA shall comply with 36 CFR 800.4 through 800.6 with regard to individual actions covered by this Agreement.

XI. SCOPE OF AGREEMENT

This Agreement is limited in Scope to the Red Mountain Freeway (Loop 202L) from the Red Mountain/Pima Freeway (Loop 101L) interchange to Country Club Drive (State Route 87) project and its related facilities and is entered into solely for that purpose.

Execution and implementation of this Agreement by all signatories evidences that the Federal Highway Administration has afforded the Council an opportunity to comment on the Red Mountain Freeway project and its effects on historic properties, and has taken into account the effects of the undertaking on historic properties, and has, therefore, satisfied their Section 106 responsibilities for all individual actions of this undertaking.

SIGNATORIES

Federal Highway Administration

By: *A. G. [Signature]* Date: 12/16/93
Title: DIVISION ADMINISTRATOR

State Historic Preservation Officer

By: *James [Signature]* Date: 12/21/93
Title: AZ SHPO

Advisory Council on Historic Preservation

By: *John M. [Signature]* Date: 1/13/94
Title: Dep. Dir.

CONCURRING PARTY

Arizona Department of Transportation

By: *Ray K. [Signature]* Date: 12/16/93
Title: STATE ENGINEER

1025EN

United States Bureau of Land Management

By: Gail Acheson Date: 12/22/93
Title: Area Manager

CONCURRING PARTY

Maricopa County

By: Gail A. Schmitt Date: 12-22-93
Title: Assistant County Mgr.

CONCURRING PARTY

City of Mesa

By: D. N. Rutz Date: 12/30/93
Title: CITY MANAGER

CONCURRING PARTY

Salt River Pima Maricopa Indian Community

By: Juan Makil Date: _____
Title: _____



ARIZONA DEPARTMENT OF TRANSPORTATION



HIGHWAY DIVISION

206 South Seventeenth Avenue - Phoenix, Arizona 85007-3213

FIFE SYMINGTON
Governor

October 12, 1993

GARY K. ROBINSON
State Engineer

LARRY S. BONINE
Director

Mr. Ivan Makil, President
Salt River Pima-Maricopa Indian Community
Route 1, Box 216
Scottsdale, AZ 85256

RE: Red Mountain Freeway

Dear Mr. Makil:

The Arizona Department of Transportation (ADOT), on behalf of the Federal Highway Administration (FHWA), is preparing a federal Environmental Impact Statement (EIS) for the proposed Red Mountain Freeway between Red Mountain/Pima Freeways, Loop 101L interchange and Country Club Drive (State Route 87). Compliance with Section 106 of the National Historic Preservation Act is part of the environmental process.

One option for compliance with Section 106 for completion of the EIS is the execution of a Programmatic Agreement (PA) among all interested parties, the lead federal agency (FHWA), the State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (Council). The enclosed draft PA spells out commitments to the historic preservation process over a period of time for long-term projects.

This federal undertaking crosses Salt River Pima-Maricopa Indian Community land. Please advise this office as to whether your agency would like to be a concurring party to the historic preservation process. Also, any comments that you might have on the enclosed draft Programmatic Agreement would be appreciated.

Please respond no later than November 5, 1993, identifying the individual who will sign this document. We will then contact you in order to obtain a signature on the original PA. For further information please contact me at 602-255-8641, Chuck Hoffman at 602-255-8636, or Todd Ligon at 602-255-8638.

Very truly yours,


for BETTINA H. ROSENBERG
Historic Preservation Specialist
Environmental Planning Services

BHR:CMH:sf
Enclosure
cc: Steve Thomas
Todd Ligon
Dennis Davis ✓

3735



ARIZONA DEPARTMENT OF TRANSPORTATION



HIGHWAY DIVISION

206 South Seventeenth Avenue - Phoenix, Arizona 85007-3213

FIFE SYMINGTON
Governor

October 12, 1993

GARY K. ROBINSON
State Engineer

LARRY S. BONINE
Director

Mr. Mike Hutchinson
Assistant City Manager
City of Mesa
Box 1466
Mesa, AZ 85211

RE: Red Mountain Freeway

Dear Mr. Hutchinson:

The Arizona Department of Transportation (ADOT), on behalf of the Federal Highway Administration (FHWA), is preparing a federal Environmental Impact Statement (EIS) for the proposed Red Mountain Freeway between Red Mountain/Pima Freeways, Loop 101L interchange and Country Club Drive (State Route 87). Compliance with Section 106 of the National Historic Preservation Act is part of the environmental process.

One option for compliance with Section 106 for completion of the EIS is the execution of a Programmatic Agreement (PA) among all interested parties, the lead federal agency (FHWA), the State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (Council). The enclosed draft PA spells out commitments to the historic preservation process over a period of time for long-term projects.

This federal undertaking crosses City of Mesa (Mesa) land. Please advise this office as to whether your agency would like to be a concurring party to the historic preservation process. Also, any comments that you might have on the enclosed draft Programmatic Agreement would be appreciated.

Please respond no later than November 5, 1993, identifying the individual who will sign this document. We will then contact you in order to obtain a signature on the original PA. For further information please contact me at 602-255-8641, Chuck Hoffman at 602-255-8636, or Todd Ligon at 602-255-8638.

Very truly yours,

Craig Seguelich
for BETTINA H. ROSENBERG
Historic Preservation Specialist
Environmental Planning Services

BHR:CMH:sf
Enclosure
cc: Steve Thomas
Todd Ligon
Dennis Davis
3735



ARIZONA DEPARTMENT OF TRANSPORTATION



HIGHWAY DIVISION

206 South Seventeenth Avenue - Phoenix, Arizona 85007-3213

FIFE SYMINGTON
Governor

October 12, 1993

GARY K. ROBINSON
State Engineer

LARRY S. BONINE
Director

Ms. Gail Acheson
Phoenix Area Manager
Bureau of Land Management
2015 West Deer Valley Road
Phoenix, AZ 85027

RE: Red Mountain Freeway

Dear Ms. Acheson:

The Arizona Department of Transportation (ADOT), on behalf of the Federal Highway Administration (FHWA), is preparing a federal Environmental Impact Statement (EIS) for the proposed Red Mountain Freeway between Red Mountain/Pima Freeways, Loop 101L interchange and Country Club Drive (State Route 87). Compliance with Section 106 of the National Historic Preservation Act is part of the environmental process.

One option for compliance with Section 106 for completion of the EIS is the execution of a Programmatic Agreement (PA) among all interested parties, the lead federal agency (FHWA), the State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (Council). The enclosed draft PA spells out commitments to the historic preservation process over a period of time for long-term projects.

This federal undertaking crosses Bureau of Land Management (BLM) land. Please advise this office as to whether your agency would like to be a concurring party to the historic preservation process. Also, any comments that you might have on the enclosed draft Programmatic Agreement would be appreciated.

Please respond no later than November 5, 1993, identifying the individual who will sign this document. We will then contact you in order to obtain a signature on the original PA. For further information please contact me at 602-255-8641, Chuck Hoffman at 602-255-8636, or Todd Ligon at 602-255-8638.

Very truly yours,

Bettina H. Rosenberg
to BETTINA H. ROSENBERG
Historic Preservation Specialist
Environmental Planning Services

BHR:CMH:sf
Enclosure
cc: Steve Thomas
Todd Ligon
Dennis Davis
3735



ARIZONA DEPARTMENT OF TRANSPORTATION



HIGHWAY DIVISION

206 South Seventeenth Avenue - Phoenix, Arizona 85007-3213

FIFE SYMINGTON
Governor

October 12, 1993

GARY K. ROBINSON
State Engineer

LARRY S. BONINE
Director

Ms. Cindy Lester
U.S. Army Corps of Engineers
3636 North Central Avenue, Suite 740
Phoenix, AZ 85012

RE: Red Mountain Freeway

Dear Ms. Lester:

The Arizona Department of Transportation (ADOT), on behalf of the Federal Highway Administration (FHWA), is preparing a federal Environmental Impact Statement (EIS) for the proposed Red Mountain Freeway between Red Mountain/Pima Freeways, Loop 101L interchange and Country Club Drive (State Route 87). Compliance with Section 106 of the National Historic Preservation Act is part of the environmental process.

One option for compliance with Section 106 for completion of the EIS is the execution of a Programmatic Agreement (PA) among all interested parties, the lead federal agency (FHWA), the State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (Council). The enclosed draft PA spells out commitments to the historic preservation process over a period of time for long-term projects.

This federal undertaking requires a permit from the Corps of Engineers (COE). Please advise this office as to whether your agency would like to be a concurring party to the historic preservation process. Also, any comments that you might have on the enclosed draft Programmatic Agreement would be appreciated.

Please respond no later than November 5, 1993, identifying the individual who will sign this document. We will then contact you in order to obtain a signature on the original PA. For further information please contact me at 602-255-8641, Chuck Hoffman at 602-255-8636, or Todd Ligon at 602-255-8638.

Very truly yours,

Craig Rosenber
for BETTINA H. ROSENBERG
Historic Preservation Specialist
Environmental Planning Services

BHR:CMH:sf

Enclosure

cc: Steve Thomas
Todd Ligon
Dennis Davis

9.3 Notice of Intent and Cooperating Agency Letters

(4910-22)

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

ENVIRONMENTAL IMPACT STATEMENTS; MARICOPA COUNTY, ARIZONA

AGENCY: Federal Highway Administration (FHWA), DOT.

ACTION: Notice of intent.

SUMMARY: The FHWA is issuing this notice to advise the public that individual environmental impact statements will be prepared for three highway projects within the Maricopa Association of Governments Freeway System in Maricopa County, Arizona.

FOR FURTHER INFORMATION CONTACT: Kenneth H. Davis, District Engineer, Federal Highway Administration, 234 North Central Avenue, Suite 330, Phoenix, AZ 85004, telephone (602) 379-3646.

SUPPLEMENTARY INFORMATION: The FHWA, in connection with the Arizona Department of Transportation, will prepare environmental impact statements for the proposed: Pima Freeway (Interstate 17 to Scottsdale Road); Red Mountain Freeway (Red Mountain Interchange to State Route 87); and Price Expressway (State Route 360 Interchange to Pecos Road). All three projects would provide new multilane freeway/expressway facilities on new alignment in the metropolitan Phoenix area. The proposed facilities fall within the cities of Phoenix, Scottsdale, Tempe, Mesa, and Chandler, Arizona.

Several alternatives, including the "no action," Transportation System Management (TSM) and "build" alternatives will be considered.

Letters describing the proposed action and soliciting comments will be sent to appropriate Federal, State, and local agencies, and to interest groups. Public scoping meetings will be held early in the process for each project.

Comments are invited from all interested parties. Comments or questions about the proposed actions and EIS preparation should be directed to the Federal Highway Administration at the address provided above.

(Catalog of Federal Domestic Assistance Program Number 20.205, Highway Planning and Construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities apply to this program.)

Issued on August 20, 1992.

D.E. BENDER

David E. Bender
Assistant Division Administrator
Phoenix, Arizona

by the Protocol of 1978 (MARPOL 73/78).

2. Uniform Interpretation of MARPOL 73/78.

3. Comprehensive Manual on Reception Facilities. At MEPC 32 work began on a comprehensive manual on reception facilities. Work will continue at MEPC 33.

4. Prevention of Oil Pollution from Machinery Spaces. A working group will convene to determine guidelines for the use of detergents.

5. Prevention of Air Pollution from Ships. This will include further discussion of emission limits on nitrogen oxides, sulfur oxides,

chlorofluorocarbons, and volatile organic carbons from ships. This topic will also touch on fuel oil quality and the impact it has on air pollution.

6. Prevention of Pollution by Noxious Solid Substances in Bulk and Possible Development of a New Annex VI of MARPOL 73/78.

7. Enforcement of Pollution Conventions.

8. Implementation of Annexes III, IV, and V of MARPOL 73/78 and Amendments to the International Maritime Dangerous Goods Code (IMDG Code) to Cover Pollution Aspects.

9. Prevention of oil pollution. There will be continuing discussions of Regulations 13F and 13G to Annex I of MARPOL 73/78. IMO will consider guidelines for structural and operational requirements for existing ships, equivalencies for double-hulls for new ships, and guidelines for enhanced inspections.

Members of the public may attend these meetings up to the seating capacity of the room.

For further information or documentation pertaining to the SPMP meeting, contact either Lieutenant Commander M.L. McEwen or Ensign W.H. Crozier, U.S. Coast Guard Headquarters (G-MEP-3), 2100 Second Street, SW., Washington, DC 20593-001, telephone (202) 267-0419.

Dated: August 25, 1992.

Geoffrey Ogden,

Chairman, Shipping Coordinating Committee.

[FR Doc. 92-21171 Filed 9-2-92; 8:45 am].

BILLING CODE 4710-07-M

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

Environmental Impact Statements;
Maricopa County, AZ

AGENCY: Federal Highway
Administration (FHWA), DOT.

ACTION: Notice of intent.

SUMMARY: The FHWA is issuing this notice to advise the public that individual environmental impact statements will be prepared for three highway projects within the Maricopa Association of Governments Freeway System in Maricopa County, Arizona.

FOR FURTHER INFORMATION CONTACT: Kenneth H. Davis, District Engineer, Federal Highway Administration, 234 North Central Avenue, Suite 330, Phoenix, AZ 85004, telephone (602) 379-3646.

SUPPLEMENTARY INFORMATION: The FHWA, in connection with the Arizona Department of Transportation, will prepare environmental impact statements for the proposed: Pima Freeway (Interstate 17 to Scottsdale Road); Red Mountain Freeway (Red Mountain Intechange to State Route 87); and Price Expressway (State Route 360 Interchange to Pecos Road). All three projects would provide new multilane freeway/expressway facilities on new alignment in the metropolitan Phoenix area. The proposed facilities fall within the cities of Phoenix, Scottsdale, Tempe, Mesa, and Chandler, Arizona.

Several alternatives, including the "no action," Transportation System Management (TSM) and "build" alternatives will be considered.

Letters describing the proposed action and soliciting comments will be sent to appropriate Federal, State, and local agencies, and to interest groups. Public scoping meetings will be held early in the process for each project.

Comments are invited from all interested parties. Comments or questions about the proposed actions and EIS preparation should be directed to the Federal Highway Administration at the address provided above.

(Catalog of Federal Domestic Assistance Program Number 20.205, Highway Planning and Construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities apply to this program.)

Issued on August 28, 1992.

David E. Bender,

Assistant Division Administrator, Phoenix, Arizona.

[FR Doc. 92-21243 Filed 9-2-92; 8:45 am].

BILLING CODE 4910-22-M

DEPARTMENT OF THE TREASURY

Treasury Advisory Committee on
Commercial Operations of the U.S.
Customs Service

AGENCY: Department Offices, Treasury.

ACTION: Notice of meeting.

SUMMARY: This notice announces the date of the next meeting and the agenda for consideration by the Treasury Advisory Committee on Commercial Operations of the U.S. Customs Service.

DATES: The next meeting of the Treasury Advisory Committee on Commercial Operations of the U.S. Customs Service will be held on Friday, September 18, 1992 at 9:30 a.m. in room 4121, U.S. Treasury Department, 1500 Pennsylvania Avenue, NW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: Dennis M. O'Connell, Director, Office of Tariff and Trade Affairs, Office of the Assistant Secretary (Enforcement), room 4004, Department of the Treasury, 1500 Pennsylvania Avenue, NW., Washington, DC 20220. Tel.: (202) 622-0220.

SUPPLEMENTARY INFORMATION: Agenda items for the final meeting on September 18, 1992 of the current two-year term of the Treasury Advisory Committee on Commercial Operations of the U.S. Customs Service will include:

I. Old Business

1. Renewal of the Advisory Committee.
2. The Customs Modernization Act/ Informed Compliance Legislation.
3. Update on the North American Free Trade Agreement.
4. Harbor Maintenance Fee Issues.

II. New Business

1. Annual report of the Advisory Committee.
2. The Customs FY 1993 Budget.
3. Customs Office of Organizational Effectiveness.
4. Proposed Changes in the Regulation of Central Examination Stations.
5. Recent regulatory changes and proposals (including the President's deregulation initiative).
6. Other new business. (Other agenda items may be added by the meeting date).

The meeting is open to the public. Due to security procedures in place at the Main Treasury Building, persons wishing to attend the meeting should contact Ms. Helen Belt or Ms. Theresa Manning at (202) 622-0220 by Friday, September 11, 1992.

Dated: August 28, 1992.

Peter K. Nunez,

Assistant Secretary (Enforcement).

[FR Doc. 92-21272 Filed 9-2-92; 8:45 am].

BILLING CODE 4910-25-M

August 20, 1992

HA-AZ
Environmental Impact Statement
Red Mountain Freeway
Mesa, Arizona

Mr. John A. Gill
Chief, Regulatory Branch
Los Angeles District
U.S. Army Corps of Engineers
P.O. Box 2711
Los Angeles, California 90053-2325

Dear Mr. Gill:

The Federal Highway Administration (FHWA) and the Arizona Department of Transportation (ADOT), as joint lead agencies, are initiating an Environmental Impact Statement (EIS) for a section of the planned Red Mountain Freeway. This planned freeway, part of the Maricopa Association of Governments Regional Highway System, is identified as Red Mountain Freeway (Loop 202), Red Mountain Interchange to State Route 87 in Mesa, Arizona (map enclosed).

Proposed alternatives for this 2 1/2-mile section encroaches upon the Salt River 100-year floodplain. As your agency has jurisdiction with respect to Section 404 of the Clean Water Act, we are requesting you to be a cooperating agency.

Your agency's involvement would include the area of water quality under your jurisdiction. No direct writing or analysis will be necessary for the documents' preparation. To assist our inter-agency cooperation, we will (1) invite you to coordination meetings; (2) consult with you on any relevant technical studies; and (3) provide you with project information.

We expect the EIS process will satisfy your NEPA requirements, including those related to alternatives, environmental consequences, and mitigation. Further, we intend to utilize the EIS and

subsequent Record of Decision as the basis for necessary permit applications.

Thank you for your consideration. If you have any questions, please contact Mr. Kenneth H. Davis, District Engineer, or Mr. Stephen D. Thomas, Environmental Coordinator, at (602) 379-3646.

Sincerely yours,

D. E. BENDER

E. A. Wueste
Division Administrator

Enclosure



DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
P.O. BOX 2711
LOS ANGELES, CALIFORNIA 90053-2325

SEP 22 1992

REPLY TO
ATTENTION OF:

Office of the Chief
Regulatory Branch

Mr. E.A. Wueste
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
234 North Central Avenue Suite 330
Phoenix, Arizona 85004

Dear Mr. Wueste:

I am responding to your letter dated August 20, 1992. You informed us that the Federal Highway Administration and the Arizona Department of Transportation, as joint lead agencies, are initiating an Environmental Impact Statement for a section of the planned Red Mountain Freeway in Maricopa County, Arizona.

We are pleased to be included in the early coordination of this project because it will most likely require Department of the Army authorizations pursuant to Section 404 of the Clean Water Act for discharges of dredged or fill material into waters of the United States. This involvement is the type called for in the recent Intermodal Surface Transportation Efficiency Act (ISTEA) agreement between the Federal Highway Administration, Department of the Army, and the Environmental Protection Agency.

Your point of contact at the Corps of Engineers will be Cindy Lester of my Regulatory Branch office in Phoenix. She can be reached at (602) 640-5385. We look forward to working with you.

Sincerely,

John A. Gill
Chief, Regulatory Branch



February 11, 1993

U.S. Army Corps of Engineers
Regulatory Branch
3636 North Central Ave. - Suite 760
Phoenix, Arizona 85012
ATTN: Ms. Cindy Lester

**RE: DELINEATION OF WATERS OF THE UNITED STATES FOR THE SALT RIVER
FROM DOBSON ROAD TO COUNTRY CLUB DRIVE**

Dear Cindy:

Simons, Li & Associates, Inc., (SLA) is assisting Parsons Brinckerhoff Quade & Douglas, Inc. (PBQD) in the preparation of an Environmental Impact Statement (EIS) for the Red Mountain Freeway. SLA is preparing information regrading floodplain impacts associated with the Red Mountain Freeway for that segment from the Red Mountain/Outer Loop Interchange on the west to State Route 87 (Country Club Drive) on the east.

Exhibits 1 through 3 present the proposed alignment of the Red Mountain Freeway from Dobson Road to Country Club Drive. The proposed Red Mountain Freeway alignment generally parallels the south bank of the Salt River along the 100-year floodplain limits as defined by the U.S. Army Corps of Engineers (COE) 1983-84 Salt River Flood Insurance Study.

Preliminary analyses indicate that the proposed Red Mountain Freeway alignment encroaches upon the 100-year floodplain. Therefore, SLA requests that the COE delineate the "Waters of the U.S." for the Salt River from Dobson Road to Country Club Drive. Once the "Waters of the U.S." are defined, it will be possible to identify whether Section 404 Permit and State water quality certification issues will need to be addressed.

Attached are two bluelines of an aerial photograph of the Salt River for the reach requiring delineation of "Waters of the U.S." The December 1990 base aerial photograph was provided by the Arizona Department of Transportation. Included on the aerial is the delineation of the "Waters of the U.S." as defined by the COE for the East Papago Freeway and Red Mountain Traffic Interchange (90-495-CL).

Your assistance in this matter is greatly appreciated. If you should require additional information, please do not hesitate to call myself or Jeff Minch at (602) 491-1393.

Sincerely,

SIMONS, LI & ASSOCIATES, INC.

Dennis L. Richards, P.E.
Vice President

DLR:cia

Attachments (5)
cc: Dennis Davis (PBQD)



DEPARTMENT OF THE ARMY

LOS ANGELES DISTRICT, CORPS OF ENGINEERS
ARIZONA-NEVADA AREA OFFICE
3636 NORTH CENTRAL AVENUE
PHOENIX, ARIZONA 85012-1936

RECEIVED MAR 24 1993

REPLY TO
ATTENTION OF:

MAR 22 1993

Office of the Chief
Regulatory Branch

Simons, Li & Associates, Inc.
ATTN: Dennis Richards
4600 South Mill Avenue, Suite 200
Tempe, Arizona 85282

File Number: 93-336-CL

Dear Mr. Richards,

Reference is made to your letter of February 11, 1993 in which you inquired as to the jurisdictional limits of the Clean Water Act, ordinary high water mark and/or wetland boundary, of the south bank of the Salt River between Dobson Road and Country Club Drive for the Red Mountain Freeway at Sections 8 and 9, Township 1 North, Range 5 East, Maricopa County, Arizona.

The Corps of Engineers has no permit authority under Section 404 of the Clean Water Act in the area(s) outside of the ordinary high water mark or outside wetlands designated on the enclosed aerial photograph or map. However, any activity that discharges dredged or fill material into the designated jurisdictional area(s) requires a Section 404 permit. This jurisdictional determination will remain in effect for three years from the date of this letter unless an unusual flood event occurs. After this three year period or after an unusual flood event alters stream conditions, the Corps of Engineers reserves the authority to retain the original jurisdictional limits or to establish new jurisdictional limits as conditions warrant.

Please include a copy of this letter and the corresponding jurisdictional delineation with any application to the Corps of Engineers for a Section 404 permit.

The receipt of your letter is appreciated. If you have any questions please contact me at (602) 640-5385.

Sincerely,

Cindy J Lester

Cindy J. Lester
Acting Chief, Arizona Field Office
Regulatory Branch

Enclosure(s)

August 20, 1992

HB-AZ
Environmental Impact Statements
Pima Freeway,, Price Expressway
Red Mountain Freeway
Maricopa County, Arizona

Ms. Jacqueline Wyland, Chief
Office of Federal Activities
Environmental Protection Agency-R9
75 Hawthorne Street
San Francisco, California 94105

Dear Ms. Wyland:

The Federal Highway Administration (FHWA) and the Arizona Department of Transportation (ADOT), as joint lead agencies, are initiating Environmental Impact Statements (EIS) for sections of three Metropolitan Phoenix planned highways. The planned highways, part of the Maricopa Association of Governments Regional Highway System, are identified as (location map enclosed):

- o Pima Freeway, I-17 Interchange to Scottsdale Road (Phoenix and Scottsdale, Arizona)
- o Price Expressway, State Route 360 to Pecos Road (Tempe, Mesa, and Chandler, Arizona)
- o Red Mountain Freeway, Red Mountain Interchange to State Route 87 (Mesa, Arizona)

We have issued a Notice of Intent to the Federal Register on September 20, 1992 covering all three EIS's.

All three projects are in the Maricopa County nonattainment air quality area and the Red Mountain Freeway will require a Section 404 permit. As your agency has jurisdiction in these areas, we are requesting you to be a cooperating agency. We also have extended an invitation to the Corps of Engineers for the Red Mountain Freeway EIS.

Your agency's involvement would include the areas of air quality and water quality under your jurisdiction. No direct writing or analysis will be necessary for the documents' preparation. To

assist our interagency cooperation, we will (1) invite you to coordination meetings; (2) consult with you on any relevant technical studies; and (3) provide you with project information.

We expect the EIS processes will satisfy your NEPA requirements, including those related to alternatives, environmental consequences, and mitigation. Further, we intend to utilize the EIS and subsequent Records of Decision as the basis for necessary permit applications.

Thank you for your consideration. If you have any questions, please contact Mr. Kenneth H. Davis, District Engineer, or Mr. Stephen D. Thomas, Environmental Coordinator, at (602) 379-3646.

Sincerely yours,

D. E. BENDER

E. A. Wueste
Division Administrator

Enclosure

October 29, 1992

HB-AZ
Environmental Impact Statements
Pima Freeway, STP-600-0(2)
Price Expressway, STP-600-1(1)
Red Mountain Freeway, STP-600-5(1)
Maricopa County, Arizona

CERTIFIED MAIL

Ms. Jacqueline Wyland, Chief
Office of Federal Activities
Environmental Protection Agency-R9
75 Hawthorne Street
San Francisco, California 94105

Dear Ms. Wyland:

Our letter of August 20, 1992 requested that your agency be a cooperating agency on three Maricopa County Freeway projects that are part of a Regional Highway System:

- o Pima Freeway, I-17 Interchange to Scottsdale Road (Phoenix and Scottsdale, Arizona)
- o Price Expressway, State Route 360 to Pecos Road (Tempe, Mesa, and Chandler, Arizona)
- o Red Mountain Freeway, Red Mountain Interchange to State Route 87 (Mesa, Arizona)

EPA was requested to be a cooperating agency because all three projects are in the Maricopa County non-attainment air quality area, an issue which is under your legal jurisdiction. The letter described the projects and our agencies' respective roles and responsibilities in developing the Environmental Impact Statements (EIS).

This request was not responded to by your agency. Because of your jurisdictional responsibility, we would like you to consider your position and be a cooperating agency, since we believe that your

agency's involvement is critical to the expeditious approval and implementation of these projects.

If you wish not to be a cooperating agency on this project, we request that you inform us in writing.

Sincerely yours,

D E. BENDER

E. A. Wueste
Division Administrator



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, Ca. 94105-3901

January 28, 1993

E.A. Wueste
Division Administrator
Federal Highway Administration
234 N. Central Avenue, Ste. 330
Phoenix, AZ 85004

Re: Request to Act as a Cooperating Agency
Red Mountain Freeway, Red Mountain Interchange to SR 87
Price Expressway, State Route 360 to Pecos Road
Pima Freeway, I-17 to Scottsdale Road
Phoenix Metro Area, Arizona

Dear Mr. Wueste:

We have received your August 20, 1992 letter regarding the projects named above in which you request the Environmental Protection Agency (EPA) to act as a cooperating agency in the areas of air and water quality. We appreciate your extending EPA this invitation.

EPA's policy is to sign a written agreement between EPA and other project sponsors which defines EPA's exact function as a cooperating agency in the EIS process. Your letter requested EPA's assistance in (1) attending coordination meetings, and (2) consulting on relevant technical studies as you provide project information. We do not generally act as a cooperating agency when our function is to review an environmental document or provide advisory suggestions. Providing suggestions, even if detailed and lengthy, does not in our view automatically elevate EPA to a cooperating agency level.

Our limited resources prevent us from accepting your invitation to consult formally as a cooperating agency on the projects you named in your letter. We will, however, be available in an advisory role to discuss your concerns regarding air and water quality and wetlands should that need arise. Your staff may contact Kathryn Mazaika of my staff at (415) 744-1575 to coordinate on these concerns. Thanks, once again, for your invitation.

Sincerely,

Jacqueline Wyland Acting for

Jacqueline Wyland, Chief
Office of Federal Activities

Printed on Recycled Paper



DEPARTMENT OF THE ARMY

LOS ANGELES DISTRICT, CORPS OF ENGINEERS
ARIZONA-NEVADA AREA OFFICE
3838 NORTH CENTRAL AVENUE
PHOENIX, ARIZONA 85012-1838

REPLY TO
ATTENTION OF:

JUL 20 1994

Office of the Chief
Regulatory Branch

Federal Highway Administration
ATTN: Mr. Steve Thomas
234 North Central Avenue #330
Phoenix, Arizona 85004

Dear Mr. Thomas:

I am writing to you about the Arizona Department of Transportation's (ADOT) proposed Red Mountain Freeway project from the Price Freeway to State Route 87. At this time, it appears that an individual Section 404 permit will not be required for the proposed project. However, as the design is developed, we will have more information by which to base the regulatory requirements. My office has been in contact with Steve Jimenez at ADOT and will continue to do so through the design stages. If you have any questions, please feel free to call me at (602) 640-5385.

Sincerely,

Cindy Lester
Chief, Arizona Field Office
Regulatory Branch

9.4 Major Metropolitan Investment Analysis Letters
USFWS Consultation Letter



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION NINE

ARIZONA DIVISION
234 N. Central Ave., Suite 330
Phoenix, Arizona 85004

July 19, 1994

ARIZONA
CALIFORNIA
NEVADA
HAWAII
GUAM
AMERICAN SAMOA
N. MARIANA IS.

IN REPLY REFER TO
HA-AZ

STP-600-8(1)
Red Mountain EIS
Consultant Number
2-21-93-I-130(133)

Mr. Sam Spiller
State Supervisor
U.S. Fish and Wildlife Service
Ecological Services-Phoenix Field Office
3616 W. Thomas Road, Suite 6
Phoenix, Arizona 85019

Dear Mr. Spiller:

The Federal Highway Administration (FHWA) is currently working on an Environmental Impact Statement (EIS) for a proposed Arizona Department of Transportation (ADOT) highway project.

The proposed project is a portion of the planned Red Mountain Freeway (Loop 202), which is an element of the Maricopa Association of Government regional freeway system. A new transportation facility would be constructed on an alignment that generally follows the south bank of the Salt River between the Price Freeway (Loop 101) on the west and State Route 87 on the east, a distance of approximately three miles. The EIS analyzes the following three alternatives: (1) no-action; (2) a freeway; and (3) a major urban arterial street. Other alternatives were considered and eliminated from further study. The freeway alternative consists of six at-grade traffic lanes and elevated interchanges at the major arterial cross streets. The major urban arterial alternative consists of eight at-grade traffic lanes and at-grade intersections at the arterial cross streets. Impacts are discussed for land for land use, social considerations, relocation of residences and businesses, economic issues, park lands, air quality, noise, water resources, floodplains, earth resources, biological resources, cultural resources, hazardous wastes, visual resources, energy, and construction.

In response to ADOT's initial scoping letter of January 8, 1993, your office responded with a letter dated February 10, 1993 (copy enclosed). In this letter, it was stated that the Yuma clapper rail (*Rallus longirostris yumanensis*) may occur in the project area.

A biological assessment was prepared by the firm SWCA, Inc., Environmental Consultants. This study concluded that the habitat required for the Yuma clapper rail does not exist within the project area. A field survey found no evidence of the species within the project area. Enclosed are pages 8 and 9 from that study to support these conclusions.

We are requesting your concurrence that the proposed project will have no effect to the Yuma clapper rail. If you do concur, please sign in the space provided below and return to this office. If you have any questions, please contact me at 602-349-3646. Thank you for your cooperation.

Sincerely yours,

Stepha D. Thomas

SA: E. A. Wueste
Division Administrator

Enclosure

The United States Fish and Wildlife Services (USFWS) concurs that the proposed Red Mountain Freeway project will have no effect on the listed species: Yuma clapper rail

for *Kerke A. Kone*
State Supervisor, USFWS

7/12/94
Date

April 29, 1994

Mr. William P. Belt, Manager
Environmental Planning Section
ADOT
206 South 17th Avenue
Phoenix, AZ 85007

RE: RED MOUNTAIN FREEWAY
MAJOR METROPOLITAN TRANSPORTATION INVESTMENT

Dear Mr. Belt:

In response to your written request of April 21, 1994, RPTA staff have reviewed the Major Metropolitan Transportation Investment (MMTI) analysis undertaken for the Red Mountain Freeway.

Based on the analysis accompanying your letter, we concur with your findings regarding the completion of the Red Mountain Freeway between the Price Freeway and SR 87. We also concur with your determination that further analysis of this corridor is not warranted.

We appreciate the opportunity to consult with ADOT and MAG on this MMTI effort.

Should you have any questions or require additional information, please contact Mark McLaren at 262-7242.

Sincerely,



G. Kenneth Driggs
Executive Director

c: Dale Hardy, RPTA
Mike McGaughey, MAGTPO
Mark McLaren, RPTA

public/mark/mmti2nd.lt/ton



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION NINE
ARIZONA DIVISION
234 N. Central Ave., Suite 330
Phoenix, Arizona 85004
June 2, 1994

ARIZONA
CALIFORNIA
NEVADA
HAWAII
GUAM
AMERICAN SAMOA
N. MARIANA IS.

IN REPLY REFER TO

HPR-AZ
(727)
Loop 202L
Red Mountain Freeway

Mr. Harry A. Reed
Division Director
Transportation Planning Division
Arizona Dept. of Transportation
Phoenix, Arizona 85007

Dear Mr. Reed:

The May 19, 1994 letter from Mr. William P. Belt, of the Environmental Planning Section, requested our concurrence with the Major Metropolitan Transportation Investment (MIS) analysis completed for State Route 202L-Red Mountain Freeway in Mesa, Arizona. The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) have jointly reviewed the information in the May 19, 1994 letter and the enclosed letters from the Maricopa Association of Governments and the Regional Public Transportation Authority. We concur that the information and coordination provided satisfies the requirement for MIS in accordance with the January 26, 1994 Interim Guidance from Region 9.

fr E. A. Wueste
Division Administrator

Louis F. Mraz, Jr.
FTA Regional Administrator

cc: William Belt-619E



MARICOPA ASSOCIATION OF GOVERNMENTS
Transportation & Planning Office

2901 West Durango Street
Phoenix, Arizona 85009
(602) 506-4117
FAX (602) 506-8008

May 13, 1994

Mr. William P. Belt
Manager, Environmental Planning Services
Arizona Department of Transportation
205 S. 17th Ave. Rm 240E
Phoenix, Arizona 85007

Dear Mr. Belt:

On April 27, 1994 the documentation for a Major Metropolitan Transportation Investment (MMTI) analysis on a portion Red Mountain Freeway was provided to the regular monthly meeting of the MAG Regional Council for information and consultation. The MMTI had summarized the findings of the analysis regarding the extension of the Red Mountain transportation facility between Price Freeway and State Route 87. The MMTI had also determined that further analysis of alternatives in this corridor is not warranted. Following the consultation on the MMTI by the Regional Council, no objections were presented to the determination or the findings of the analysis.

This MMTI had been developed with the cooperation of your office and other transportation agencies, including the Federal Highway Administration, the Regional Public Transportation Authority and MAG. We appreciate your responsiveness in preparing the MMTI and for working with the other agencies in a cooperative effort to process the review of the documents in a timely manner.

If you have any further requests or questions please do not hesitate to call.

Sincerely,

Mike McGaughey, P.E.
System Planning Manager