CORRIDOR CHARACTERISTICS

FOR WIDENING

ALMA SCHOOL ROAD SOUTH BRIDGE

AT SALT RIVER

MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION

WORK ORDER NO. 68931

CONTRACT NO. CY 1997-09

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TECHNICAL MEMORANDUM

ALMA SCHOOL ROAD
WORK ORDER NO. 68931

CORRIDOR CHARACTERISTICS
McLellan Road to McKellips Road

Introduction

The Alma School Road project resides primarily on an unincorporated "island" of land belonging to Maricopa County and to a lesser extent on the Salt River Pima Maricopa Indian reservation. The unincorporated island is surrounded by land owned by the City of Mesa to the south, east and west and land owned by the Salt River Pima Maricopa Indian Community (SRPMIC) on the north (See Location Map, Figure 1, and Vicinity Map, Figure 2). Alma School Road is a four lane arterial road with a paved median that runs in a north-south direction through the project area. The roadway includes two bridge crossings over the Salt River.

Several engineering and environmental studies have been conducted in the vicinity of the project. Some of these studies were specifically prepared for Alma School Road whereas others were conducted as part of the Red Mountain Freeway project from Price Road to SR87 (McKellips Road) which bisects the southern reaches of the Alma School Road project area. Project specific engineering studies include a Candidate Assessment Report that was completed in December 1995 by Inca Engineers, Inc. and an Operational Study that was completed in July 1996 by Kirkham-Michael Consulting Engineers. Studies conducted by/for the Arizona Department of Transportation (ADOT) as part of the Red Mountain Freeway project include an Environmental Impact Statement (EIS), a Drainage Study, and a Traffic Study. The information contained in these reports is, for all practical purposes, directly applicable to the present Alma School Road project. This is particularly true for the EIS, because the study area defined for the Red Mountain Freeway project completely encompasses that identified for the Alma School Road project.

The Maricopa County Department of Transportation (MCDOT) has budgeted $1,140,000 in fiscal year 2000-01 for improvements to Alma School Road. This project has also been selected as a candidate for possible early construction. Proposed improvements to Alma School Road would widen the roadway within the project limits to a principal urban arterial. Detailed information concerning the nature of these improvements is contained in the Alignment Technical Memorandum as well as in the Bridge Selection Report. A Drainage Technical Memorandum and a Traffic Technical Memorandum have also been completed for this project in order to fully assess the factors influencing the design of the roadway improvements.

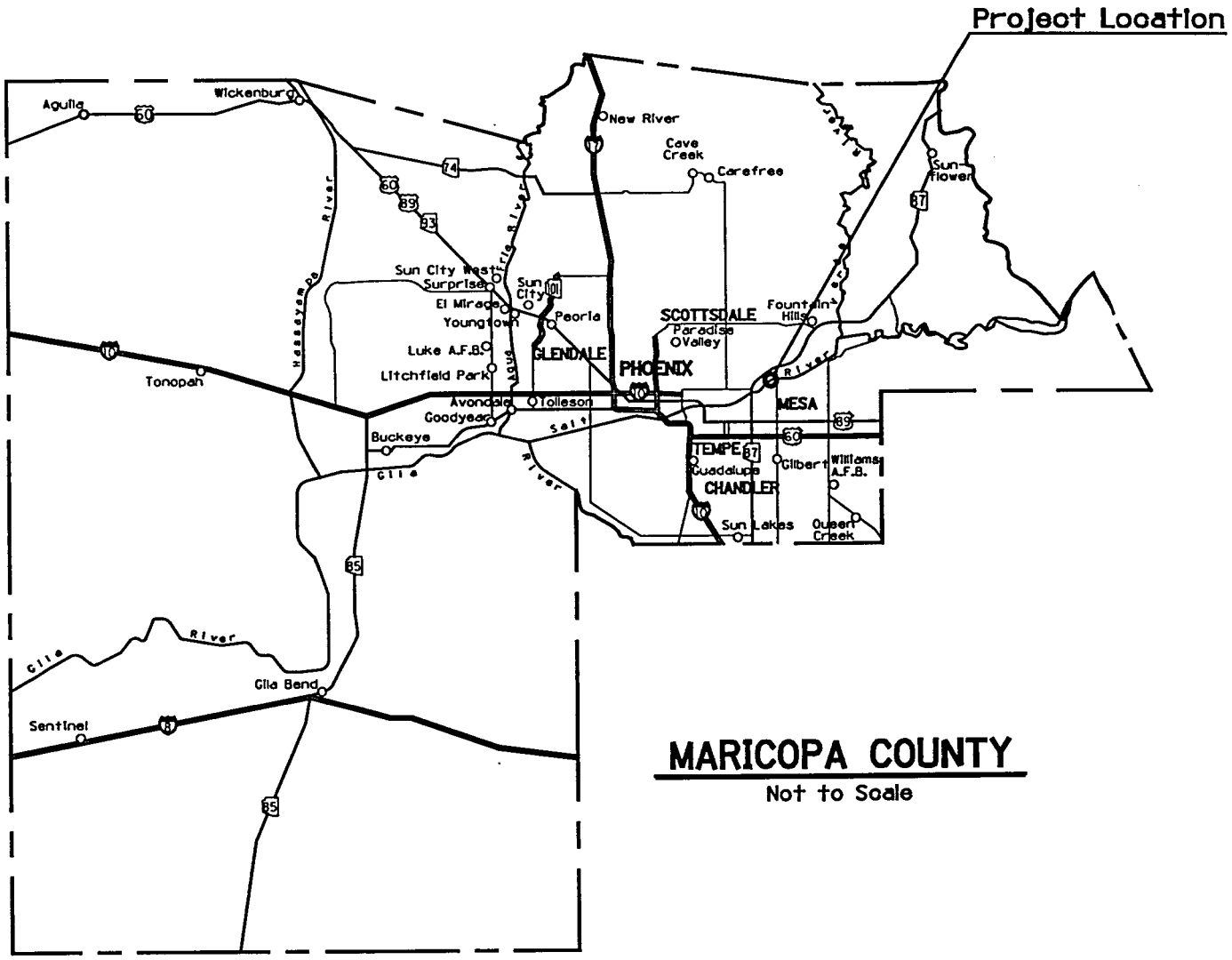

Figure 1
Location Map

Figure 2
Vicinity Map

Purpose

The purpose of this Technical Memorandum is to summarize relevant information contained in the Candidate Assessment Report, Operational Study, and other pertinent documents that describe the characteristics of the Alma School Road project corridor. This document, along with the other Technical Memoranda being prepared for this project, will generally provide the foundation for further development of a Design Concept Report and preparation of contract documents for construction of Alma School Road improvements.

Corridor characteristics described herein include existing roadway conditions, utilities, the Salt River as a key topographical feature, land use/zoning, property ownership, biological/ecological resources, cultural resources, agricultural resources, and hazardous materials/waste sites. Existing traffic and drainage conditions are not discussed in this Technical Memorandum because they are fully addressed in separate technical documents. Although roadway characteristics are described below, more complete information pertaining to roadway characteristics can be found in the Alignment Technical Memorandum.

Roadway Conditions

The section of Alma School Road that is the focus of this project runs from McLellan Road northward to McKellips Road, a distance of approximately 1415.8 m (4645 ft). Alma School Road provides three travel lanes in each direction and is the only major arterial in the immediate area that crosses the Salt River via a bridge. McKellips Road east of Alma School Road also crosses the Salt River but the crossing is a low water crossing that becomes impassable during major flood events. South of McLellan Road, in the City of Mesa, Alma School Road has been improved to an urban arterial road with 26.8 m (88 ft) clear width consisting of six 3.35 m (11 ft) wide lanes, a 3.35 m (11 ft) wide paved median and two 1.6 m (5.5 ft) paved shoulders. North of McLellan Road, ADOT is currently constructing a segment of the Red Mountain Freeway from the Price-Pima Interchange to SR87 (McKellips Road). The Alma School Road Interchange will be a fully operational diamond, and the area between McLellan Road and the Red Mountain Freeway will be improved in conjunction with the freeway improvements.

Upon completion of ADOT's construction of the Red Mountain Freeway/Alma School Road diamond interchange, improvements to Alma School Road north of the interchange will consist of newly installed portland cement concrete pavement (PCCP) to station 0+714.76 (ADOT construction station 23+45). This new PCCP will end approximately 142.6 m (468 ft) south of the south bridge crossing of the Salt River. Asphaltic concrete pavement will also be installed by ADOT from the end of the new PCCP to the south end of the southern bridge approach slab. The asphaltic concrete pavement will taper from 28.6 m (94 ft) at the interchange to 19.5 m (64 ft) which is the existing roadway width at the southern bridge. ADOT has proposed the installation of a variable width raised median from the interchange to within 30.5 m (100 ft) of the south end of the southern bridge.

The north bridge over the main Salt River channel and the south bridge over the secondary channel were both constructed by Maricopa County in 1980-81 (W.O. Nos. 60400 and 60401). The bridges are both 25.6 m (84 ft) wide with clear roadway width of 20.7 m (68 ft), 1.2 m (3 ft 10 in) sidewalk on the west side and 2.1 m (6 ft 10 in) sidewalk on the east side, separated from the roadway by concrete traffic barriers.

The south bridge is a seven-span, prestressed box beam bridge that is 124.8 m (409.6 ft) long. The north bridge is a 14-span, prestressed box beam bridge that is 285.3 m (936.2 ft) long. Both bridges have grade control structures and gabion scour protection that were constructed in 1995 with FEMA funding to repair scour damage that occurred in 1993.

Between the south bridge and the north bridge is approximately 384 m (1262 ft) of asphaltic concrete roadway pavement. The pavement north of the north bridge was replaced by MCDOT in 1994 and is in good condition. The asphalt wearing surface on the north bridge was milled and overlaid with approximately 37.5 mm (1.5 in) of rubberized asphalt at this time. North of McKellips Road, Alma School Road continues through the Salt River Pima-Maricopa Indian Community as a four lane roadway with paved median.

Utilities

Several utilities exist along Alma School Road within the project limits. These include a waterline, overhead phone lines, and overhead 12kv powerlines. The 12kv powerline on the east side is constructed similar to a 69kv powerline and may pose relocation problems.

The Salt River - A Key Topographical Feature

The Salt River runs primarily in an east-west direction through the greater Phoenix metropolitan area and is normally a dry channel. As previously mentioned, within the project area, the main Salt River channel is crossed by the northern 14-span bridge and a secondary channel is crossed by the southern seven-span bridge. Surface water flow in the Salt River is limited to periodic releases from upstream reservoirs, wastewater treatment plants, agricultural return flows, and runoff from storms on the watershed below the reservoirs. 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. Historic data indicate there were no releases from 1940 to 1965. Between 1965 and 1996, several flows have occurred, ranging from a rare major flood in the early 1980's to relatively small releases. In the event of major storms, flows in the Salt River cause the closure of the McKellips Road low water crossing of the Salt River, upstream of the Alma School Road crossing. A large portion of the traffic that normally travels on McKellips Road utilizes Alma School Road to cross the river during these occurrences.

Available Flood Insurance Study (FIS) mapping indicates that the 100-year floodplain associated with the Salt River actually extends south of the southern bridge and essentially encompasses the entire project study area. However, the Salt River topography used as a basis for the FIS mapping is substantially different from the present topography. These topographic changes have primarily been the result of mining activities. 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 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. Mining activities are furthered discussed in the Land Use section below. The Drainage Technical Memorandum contains more detailed information pertaining to floodplain and drainage issues.

Land Use/Zoning

Industrial uses are clustered along Alma School Road south of the Salt River and north of McLellan Road. Sand and gravel operations predominate, with mining operations occurring primarily west of Alma School Road and along the riverbed. The ready-mixed concrete production plant associated with the sand and gravel mining operation is located east of the road and north of the Red Mountain Freeway interchange that is presently under construction. Land that is not associated with the sand and gravel mining activities is either vacant, has been committed to highway use, or is occupied by commercial business. A tire shop located along the south bank of the Salt River is the lone commercial use in the study area. Until recently, several commercial and industrial businesses were also located along Alma School Road just north of McLellan Road. These businesses had to be acquired by ADOT as part of the right-of-way requirements associated with the construction of the Red Mountain Freeway and interchange in this area. Presently, there are no residential or recreational land uses along the corridor, however, the City of Mesa's future land use plan and zoning ordinance designate the project area as Park/Open Space once the sand and gravel activities cease and the land is reclaimed.

Immediately north of the project area, the Salt River Pima Maricopa Indian Community has plans to construct a Casino/Gaming Center on their reservation. Improvements to Alma School Road will enhance access to this planned facility.

Emergency services including fire protection are provided to the project area by Rural Metro, a private company located in Mesa. These services are required because the area is a small unincorporated island of Maricopa County.

Property Ownership

Most of the land in the study area is owned by private companies involved in the sand and gravel business. These companies and the land they own are described below.

- **CALMAT** - This company owns 28.3 ha (70 ac) associated with a gravel pit located south of the Salt River that is currently inactive. Although these areas are inactive, they could be brought to active use at any time. Presently, the property is used for equipment storage. 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. Access to the site is provided from Alma School Road across the Johnson Stewart Johnson Company property.

- **Johnson Stewart Johnson Company** - This company owns 25.5 ha (63 ac) 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. An access road runs beneath the south bridge of Alma School Road along the riverbed and provides a direct link between the eastern and western parcels. The employee access to Sunward Materials is located along Alma School Road on the east side of the Road, between the north and south bridges. There is also an access road on the east side, south of the south bridge, that is currently not in use.

  A portion of the property located west of Alma School Road has been acquired as right-of-way associated with ADOT's Red Mountain Freeway project. However, the southern-most parcel west of Alma School Road and the majority of the processing plant to the east remain intact. ADOT has provided an underpass as part of the Red Mountain Freeway's design in this area in order to maintain Sunward's access to the southwestern materials source.

Biological/Ecological Resources

Biological/Ecological resources within the project area have been heavily disturbed by sand and gravel mining and urban development. Virtually no undisturbed open space areas remain. Thus, the habitat within the project area is designated as Ruderal/Disturbed. This designation is characterized by annual weeds and occasional desert broom (*Baccharis sarothroides*) and blue palo verde (*Cercidium floridium*).

According to the Red Mountain Freeway Environmental Impact Statement, there are no Federal or State-listed threatened or endangered plant or animal species in the area. This includes the entire study area associated with the present Alma School Road project. This determination was based on consultations with the U.S. Fish and Wildlife Service, the Arizona Game and Fish Department and the Arizona Department of Agriculture during development of the Red Mountain EIS.

Cultural Resources

There are no historic sites within the limits of the project. Additionally, studies of the area conducted for the preparation of the Red Mountain Freeway Environmental Impact Statement indicate that the sand and gravel mining operations together with the historic meandering movements of the Salt River have rendered the area generally void of any archeological materials. Ground disturbance during construction of the existing Alma School Road, its bridges and associated scour protection has also contributed to the removal of archaeological materials that may have once existed in the area. This is also true for the ongoing construction associated with the Red Mountain Freeway through the area.

Agricultural Resources

Other than a small inactive agricultural parcel located immediately west of Alma School Road that is surrounded by sand and gravel activities, there are no agricultural resources in the study area.

Hazardous Materials/Wastes

A Phase 1 Environmental Assessment was conducted for the Red Mountain Freeway project and included the area associated with this project. The assessment involved a visual inspection of the area as well as a review of all relevant environmental databases. The assessment identified a solid waste landfill (Alma School Landfill) located at the northwest corner of Alma School and McLellan Roads. This site is outside the area of this project. The assessment also identified three registered underground storage tanks along Alma School Road. Two are located east of the road and south of the Red Mountain Freeway interchange whereas the third is located east of the road in the vicinity of Sunward Materials production plant. This underground storage tank will need to be considered during development of the design of this project.