DRAFT ENVIRONMENTAL ASSESSMENT
SHEA BOULEVARD
EAST LINE OF SECTION 30 (T3N,R6E)
TO BEELINE HIGHWAY (S.R. 87)
PROJECT RS-362(6) - 406 PE

MEMO TO: Harry Keller, Assistant County Engineer

FROM: David R. Johnson, Chief Hydrologist

DATE: October 15, 1980

SUBJECT: Shea Blvd. - Lindsay Road to S.R. 87, RS-362(6)-406PE

We have completed review of the Draft Environmental Assessment for the above project. After discussing Section 2.8, Floodplain Management, with Tom Sonnemann of your office, we suggest the following rewording of the first paragraph:

> Drainage for certain areas adjacent to the project have been studied by the developer of Fountain Hills. Two sets of findings have been generated. One, done by Trico International, Inc. was prepared several years ago and incorporated into development plans both north and south of Shea Blvd. The other, done by WBC Consultants, Inc., was more recently completed as a supplement to the Trico study for development south of Shea Blvd. Maricopa County requires that new development not increase the property's existing runoff potential. The developer has no plans to install storm sewers or water retention facilities in areas contributing runoff to this project. An earthen flood retarding structure was planned south of Shea Blvd. by Fountain Hills developers but plans for construction have never been finalized. Construction of this flood retarding structure would not affect this project.

In addition, you might add to your statement regarding the hydraulic report to be done for this project that it will be based on the previously mentioned studies using methods generally acceptable to federal agencies.

David R. Johnson

DRJ/GSB/DET

INFO:

DET

MARICOPA COUNTY HIGHWAY DEPARTMENT

3325 West Durango Street
Phoenix, Arizona 85009

(602) 262-3611

DATE October 1, 1980

MEMO TO Flood Control District

SUBJECT SHEA BOULEVARD-LINDSAY ROAD TO S.R. 87, RS-362(6)-406PE

A copy of the Draft Environmental Assessment for the above-referenced project is enclosed.

This document is being furnished to various agencies in Maricopa County. It contains the latest information available on this project. The assessment also gives an overview of the many factors that have been considered in the development of the project. Some of these items may be of particular interest to your agency.

As noted in the Draft Environmental Assessment, an offer for a public hearing will be advertised in the near future for this project. Afterwards, the draft assessment will be finalized to include results of the public involvement process.

R. C. ESTERBROOKS
DIRECTOR OF PUBLIC WORKS
AND COUNTY ENGINEER

Harry R. Keller

Harry R. Keller
Assistant County Engineer

WGH/HRK:jmh

Enclosure

FLOOD CONTROL DISTRICT
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ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ENVIRONMENTAL PLANNING SERVICES
205 South 17TH AVENUE
PHOENIX, ARIZONA 85007

DRAFT
ENVIRONMENTAL ASSESSMENT

FOR

PROJECT RS-362(6) - 406PE

SHEA BOULEVARD

EAST LINE OF SECTION 30, T3N, R6E TO STATE ROUTE 87

MARICOPA COUNTY, ARIZONA

APPROVED BY: James E. Devine ON June 25, 1980
Manager, Environmental Planning Services
Highways Division
Arizona Department of Transportation

ACCEPTED BY: [signature] ON 9-10-80
Division Administrator
Federal Highway Administration
U.S. Department of Transportation

Prepared By

Maricopa County Highway Department and
Environmental Planning Services
Highways Division
Arizona Department of Transportation
in cooperation with the
Federal Highway Administration
U.S. Department of Transporation

TABLE OF CONTENTS

Mitigation and Other Features List

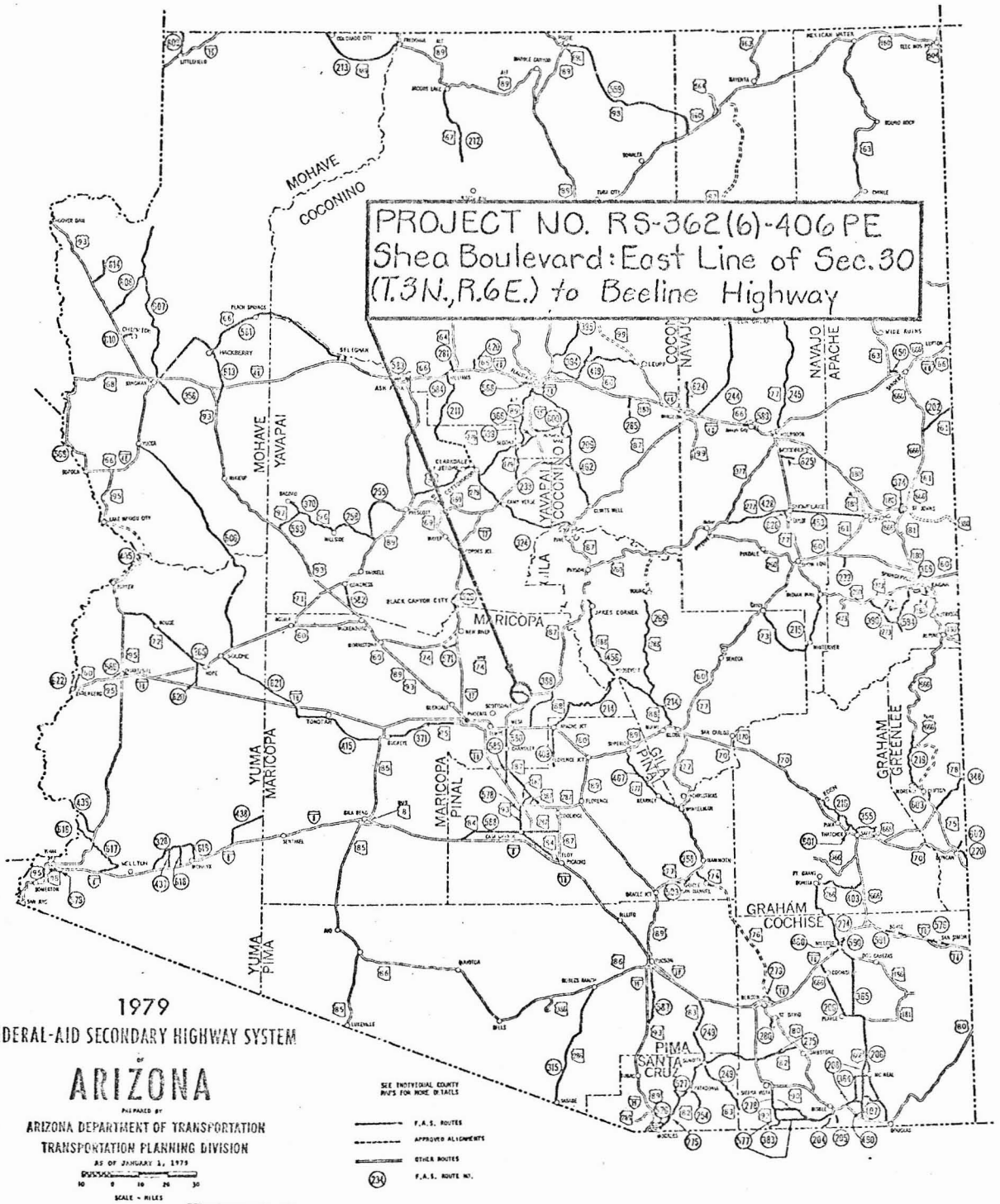
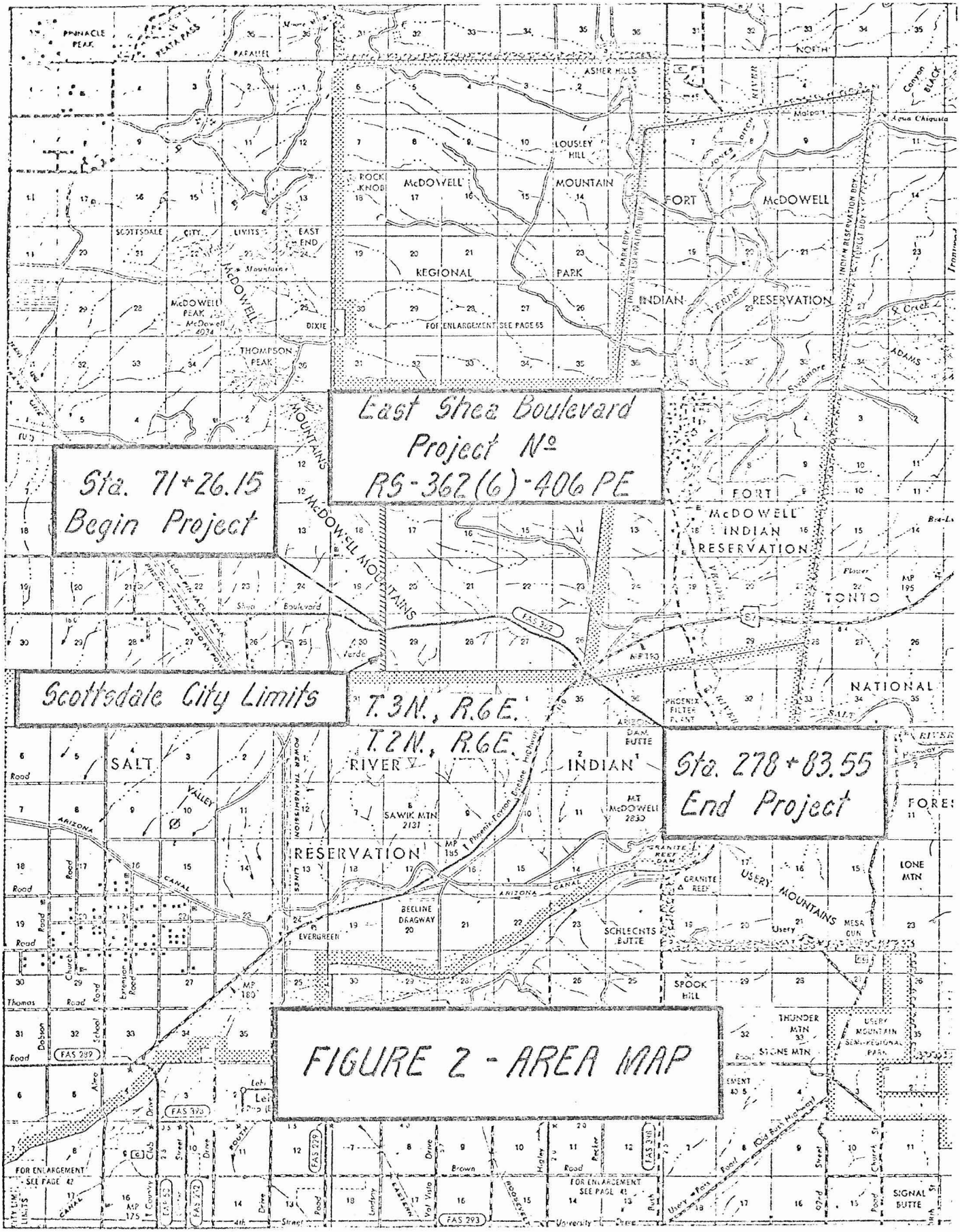
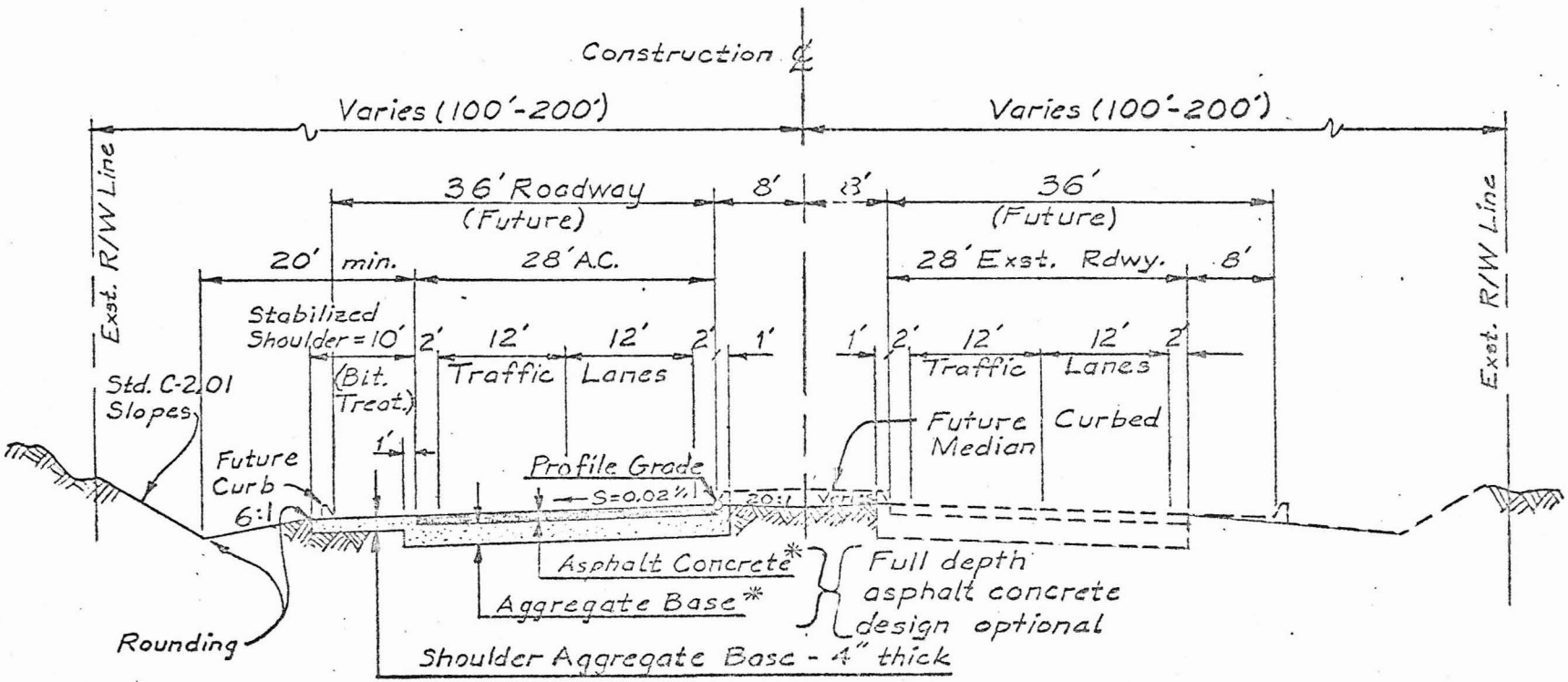


FIGURE 1
GENERAL LOCATION MAP


East Shea Boulevard
Project No
RS-362(6)-406 PE
Sta. 71+26.15
Begin Project
Scottsdale City Limits
T.3N., R.6E.
T.2N., R.6E.
Sta. 278+83.55
End Project
FIGURE 2 - AREA MAP
PINNACLE PEAK
TEXTA PASS
ASHER HILLS
LOUSLEY HILL
ROCK KNOB
McDOWELL MOUNTAIN REGIONAL PARK
FORT McDOWELL INDIAN RESERVATION
SCOTTSDALE CITY LIMITS EAST END
McDOWELL PEAK
McDowell 2074
DIXIE
THOMPSON PEAK
McDOWELL MOUNTAINS
FOR ENLARGEMENT SEE PAGE 55
Shea Boulevard
FAS 302
TONTO
NATIONAL
SALT RIVER INDIAN RESERVATION
SAWIK MTN 2131
MT McDOWELL 2830
SALT RIVER VALLEY
ARIZONA CANAL
BEELINE DRAGWAY
EVERGREEN
SCHLECNTS BUTTE
GRANITE REEF DAM
GRANITE REEF
USERY MOUNTAINS
MESA GUN
LONE MTN
SPOOK HILL
THUNDER MTN
STONE MTN
USERY MOUNTAIN SEMI-REGIONAL PARK
SIGNAL BUTTE
FAS 299
FAS 293
FOR ENLARGEMENT SEE PAGE 42
FOR ENLARGEMENT SEE PAGE 41
Old Butte Highway
University Drive

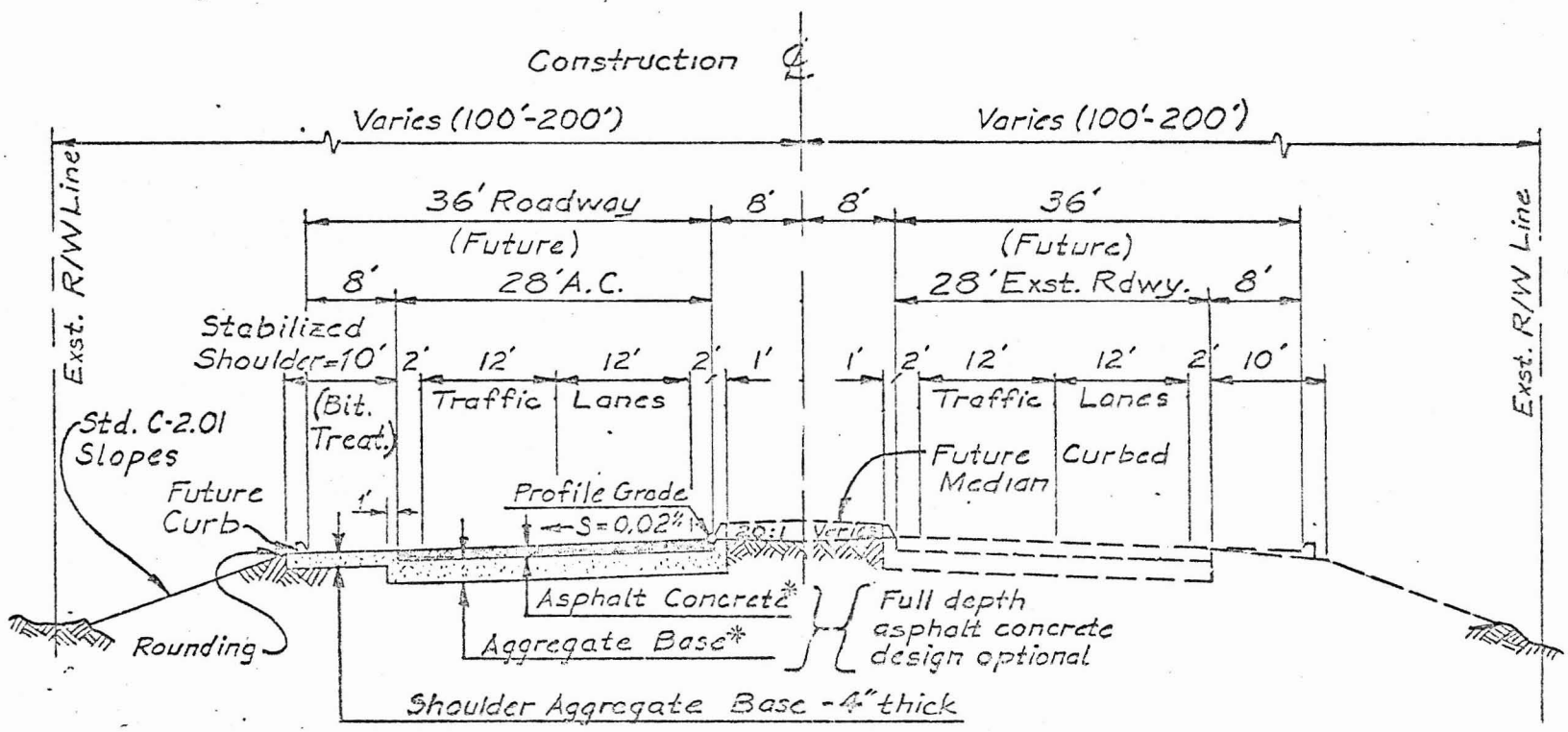
SHEA BOULEVARD - East Line Section 30, T.3N., R.6E.
to State Route 87 (Beeline Highway)
Project No. RS-362(6)-406 PE



*Thickness as per soil lab memo.

FIG. 3 - CUT SLOPE - TYPICAL SECTION

SHEA BOULEVARD - East Line Section 30, T.3N., R.6E.
to State Route 87 (Beeline Highway)
Project No. RS-362(6)-406PE



* Thickness as per soil lab memo.

FIG. 4 - FILL SLOPE - TYPICAL SECTION

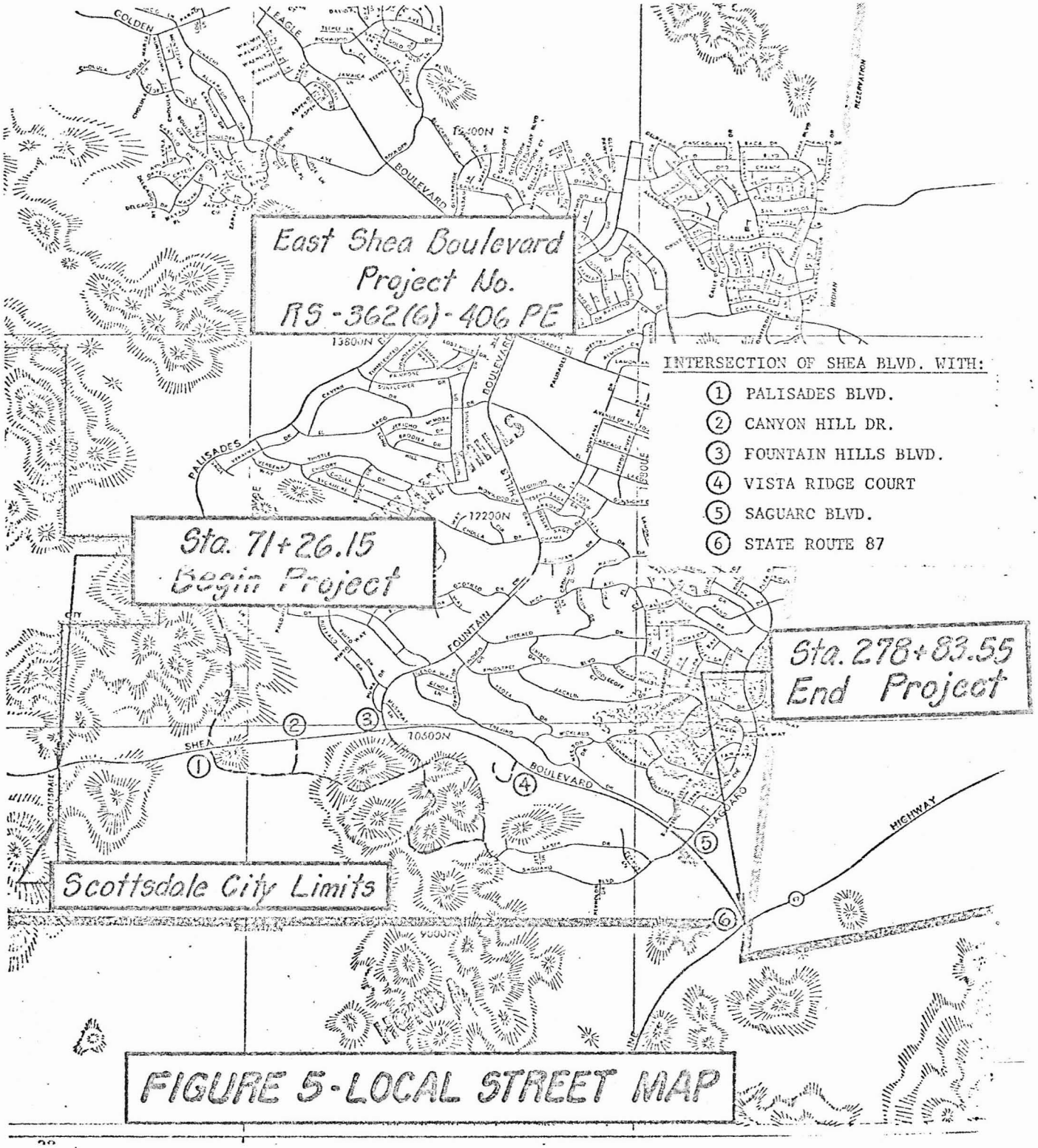


FIGURE 5-LOCAL STREET MAP

1. NEED FOR PROPOSED IMPROVEMENT

1.1 Existing Roadway Characteristics

Shea Boulevard is located in Maricopa County, Arizona. It runs generally east-west along the second section line north of the southern boundary of T3N of the Gila and Salt River Baseline, from 24th Street in Phoenix to State Route 87 (the Phoenix-Payson Beeline Highway). The eastern portion of the road deviates to the south from the section line east of the Gilbert Road intersection. This is due to the hilly terrain of the McDowell Mountains in the area. The roadway passes through the cities of Phoenix and Scottsdale, Maricopa County land, and terminates adjacent to the conjunction of the Fort McDowell and Salt River Indian Reservations. The route is designated as FAS 362. The roadway serves increasing traffic traveling between the Phoenix/Scottsdale area and Saguaro Lake, Roosevelt Lake, and recreation areas to the northeast.

The proposed improvement is on that portion of Shea Boulevard extending from the east line of Section 30, T3N, R6E of the Gila and Salt River Base and Meridian, eastward to Arizona State Route 87 (Beeline Highway), a distance of 3.9 miles (see figure 2, page ii). The existing roadway has a paved width of 28 feet with 10-foot wide (minimum) graded earth shoulders on each side. Its posted speed is 50 miles per hour, having been designed for a speed of 65 miles per hour. It traverses moderately hilly desert terrain with the community of Fountain Hills (estimated current population of 3,000) lying on both sides. The longitudinal grades of the roadway generally vary from one-half (½) to six (6) percent through this terrain, with an average grade of 2.6 percent.

The present right-of-way is 400 feet wide for the first two (2) miles of the 3.9 mile length and 200 feet wide for the remainder. An existing major intersecting road, Saguaro Boulevard, connects to Shea Boulevard via a completed intersection, which includes divided roadways, raised medians and islands, and turning lanes (see figure 5, p. v). In addition, Fountain Hills Boulevard intersects Shea Boulevard from the north. This intersection has a left turn lane for eastbound traffic on Shea Boulevard, painted medians running east and west of the intersection and two (2) extra turning lanes on Fountain Hills Boulevard, currently a two-lane road terminating on the north side of Shea Boulevard.

The drainage of the existing roadway is handled by intercepting the pavement runoff flows with roadside shoulder ditches which carry the flows to well defined natural drainage channels. Where these channels intercept the roadway, they are carried under the roadway by means of pipe or concrete box culverts.

Land use along the roadway is governed by the community of Fountain Hills, which is still in a developmental stage. Most of the initial development has not been located directly adjacent to the roadway, but well back to the north, usually a distance of 500 feet or more. The MAG Composite Use Plan for this area anticipates a continued utilization of present low density, single-family housing (0 to 5 units per acre) predominating the

areas adjacent to the proposed project. The plan also anticipates some medium density housing (5 to 15 units per acre), high density housing (15 or more units per acre) and commercial development adjacent to the eastern sections of the project.

1.2 Traffic Characteristics

The MAG Transportation Planning Office's average daily traffic (ADT) volumes, current and projected, between Scottsdale city limits and State Route 87, are as follows:

YEAR	ADT
1978	3,400
1985	12,000
2000	17,000

The above figures indicate a sharp increase in traffic volumes in the coming years (e.g., a 253% increase from 1978 to 1985).

The following breakdown of ADT numbers by vehicle types is based on an actual traffic count on Shea Boulevard, during a 16 hour period in the Fall of 1979:

Vehicle Type	Actual No. of Vehicles During 16 Hr. Period	Projected No. of Vehicles During 24 Hr. Period
Passenger	1531	2021
Bus	10	13
Trucks, Total	1186	1566
Light	(979)	(1292)
Medium	(150)	(198)
Tractor/Semi-Trailer	(48)	(64)
Truck/Trailer	(8)	(11)
Semi/Trailer-Trailer	(1)	(1)
	2727	3600

Peak traffic volumes occur during summer weekends due to large numbers of people going to and returning from recreational localities northeast of the Phoenix metropolitan area. The continued growth of this area will result in greater peak hour volumes at these times. In addition, Shea Boulevard is the only direct major access route between the community of Fountain Hills and the employment/shopping/entertainment centers of the Phoenix/Scottsdale area. As the Fountain Hills development grows, this traffic volume will also increase.

1.3 Purpose of the Proposed Project

As indicated by the above information, the existing roadway cannot retain adequate levels of safety, traveling convenience, and utility in the future due to the expected increase in traffic volume. Therefore, it is proposed

that Shea Boulevard be expanded to a four-lane, divided highway in order that the need for a roadway with an increased capacity may be met.

2. DESCRIPTION OF PROPOSED ACTION

2.1 Location and Right-of-Way

The proposed project is 3.9 miles in length and is located parallel to the existing roadway. It will extend from the Scottsdale city limits (the east line of Section 30, T3N, R6E of the Gila and Salt River Base and Meridian) to the roadway's terminus at State Route 87 (Beeline Highway). The project is also situated entirely within the right-of-way of the existing roadway, so that no additional right-of-way acquisition will be necessary (see section 1.1, p. 1, for description).

2.2 Roadway

The proposed project will provide a 28-foot wide roadway for two (2) westbound traffic lanes, which will be separated from the existing roadway by a 16-foot wide dirt median. The existing two (2) lanes will become the east bound traffic lanes (see Figure 3, proposed typical cross section, p. iii). Additional turning lanes will be added at intersections as required to facilitate proper traffic movement. A 10-foot wide shoulder will be located on the north edge (right side) of the new pavement. The shoulder will be dirt, but stabilized with a bituminous treatment. No facilities for on-road parking will be provided. The only parking allowed on the shoulders will be for emergency purposes. A possible ultimate design of the roadway would include 36-foot wide roadways, curbs and a raised median (see Figure 4, ultimate design typical cross section, p. iv).

2.3 Alignment

The alignment of the proposed roadway is parallel to the existing one. The southern portion of the McDowell Mountains traversed by this alignment is characterized by hilly terrain which dictated the horizontal and vertical curves in the original design. The maximum degree of curvature for horizontal curves is two (2) degrees. The profile grade of this project will be similar to the existing roadway, which grades vary between 0.4 and 6.0 percent.

At the beginning of the project (Scottsdale city limits) a transition section is provided between the two-lane existing roadway and the four-lane design discussed herein. The transition taper will lie wholly within the Scottsdale city limits. Scottsdale anticipates that in the near future, the two-lane portion of roadway within their city limits will also be developed to a matching four-lane design, making the entire length of uniform cross section.

2.4 Access Control

The project will have controlled accessibility in the sense that the land on both sides of Shea Boulevard is owned and is being developed by a single developer. The master plan for Fountain Hills anticipates access to Shea Boulevard at five (5) intersections. The additional connection at State Route 87 brings the total number of intersections along the project to six (6).

2.5 Intersections

The proposed project will include four (4) major and two (2) minor intersections. The major intersections are Palisades Boulevard, Fountain Hills Boulevard, Saguaro Boulevard and State Route 87. The minor intersections are Canyon Hill Drive and Vista Ridge Road (see figure 5, p. v). The Saguaro Boulevard connection is already constructed with divided 28-foot roadways, widened for left turn storage bays, right turn acceleration and deceleration lanes, with raised medians and channelization islands. The Fountain Hills Boulevard intersection (a Tee configuration) currently has two (2) paved, 12-foot wide lanes in the Fountain Hills Boulevard direction, which widen at the intersection for acceleration, deceleration and turning lanes. There is also a left turn lane for eastbound traffic on Shea Boulevard, together with painted medians. This intersection will be developed to a full four-way intersection in the near future due to both the extension of Fountain Hills south of Shea Boulevard by the developer and the addition of two (2) lanes that this project will contribute. The resulting intersection will then become similar to the existing Saguaro Boulevard intersection. The future Palisades intersection will be located approximately 4,000 feet from the western end of the project and will serve the most recent Fountain Hills developmental area. It will be similar to the intersections at Saguaro Boulevard and Fountain Hills Boulevard. Together, these three (3) intersections will handle most of the future traffic to and from the Fountain Hills development.

The intersection of Shea Boulevard with State Route 87 currently is a Tee configuration, with Shea Boulevard widening to accommodate two (2) eastbound lanes (one (1) left turn and one (1) right turn). The one (1) westbound lane is also currently widened to accommodate turning vehicles. Along State Route 87 (the Beeline Highway) the normally two-lane roadway is presently widened to accommodate a left turn storage bay for northbound traffic, acceleration and deceleration lanes for southbound traffic, and painted medians. The future intersection will be of a similar nature, but will add one (1) lane each for eastbound and westbound traffic, together with a raised median in between these opposing lanes. The State Route 87 medians will be shifted to accommodate this revised geometry and may also be raised.

The two (2) minor intersections at Canyon Hill Drive and Vista Ridge Road are both still in the planning stages. Both will be Tee configurations connecting to Shea Boulevard from the south side. Each will consist of a two-lane road widened to accommodate turning, acceleration and deceleration lanes in the north-south direction, together with acceleration and deceleration lanes on the south edge of Shea Boulevard, a left turn storage bay for westbound traffic on Shea Boulevard, and raised medians.

All intersection planning and design shall be coordinated with the developer, with the exception of the State Route 87 intersection, which will be coordinated with the Arizona Department of Transportation. All intersections will conform to AASHTO specifications.

Only conventional stop signs are posted at Fountain Hills Boulevard and Saguaro Boulevard intersection, with Shea Boulevard having the right-of-way.

A stop sign is also posted at the intersection of Shea Boulevard and State Route 87 with the latter having the right-of-way. Electrical conduit, signal boxes and signal bases have been installed underground at the intersection of Shea and Saguaro Boulevards for future installation of traffic signals. Plans for installation of underground electrical conduit are being made for the Palisades Boulevard and Fountain Hills Boulevard intersections as a first step toward a similar future installation of traffic signals. Stop signs are planned for the two (2) minor intersections, with Shea Boulevard having the right-of-way. The intersection of Shea Boulevard and State Route 87 will be studied regarding possible future signalization.

2.6 Special Features

The present roadway has a scenic lookout, known as Fish Point, near the western terminus of the proposed project. It consists of an off-the-road parking area at an elevated location overlooking the valley to the south, as well as portions of Scottsdale, Mesa and the Salt River Indian Reservation. The parking lot is approximately 300 feet long and 100 feet wide. It has a gravel surface, and a guardrail along its south side. Access to and egress from the roadway is easily made as the entire north side of the lot borders the roadway.

Since the overlook facility lies entirely to the south of the existing roadway, the new roadway to the north will cause no direct impact other than the requirement for traffic crossing and turning movements. These movements will be accommodated by incorporation of an acceleration lane and a left turn storage bay. Appropriate striping and signing will be installed. The vertical curve on which the turning movements will be made has been checked for stopping sight distance. Based on criteria set forth in AASHTO's "A Policy on Design of Urban Highways and Arterial Streets," 1973, a vertical curve having an algebraic difference in grades of 10.85% (as this one does) requires a total curve length of 2320 feet for a minimum stopping sight distance at 65 miles per hour (the project design speed), 1570 feet for a desirable stopping sight distance at 50 miles per hour (the planned posted speed limit), and 920 feet for a minimum stopping sight distance at 50 miles per hour. These criteria apply to the entire vertical curve or any portion of it. The actual curve length is 2300 feet. While this is approximate minimum allowable curve length for 65 miles per hour, it must be noted that this is based on a safe stopping sight distance for an object one-half a foot in height in the road, not a vehicle. The latter would come into sight long before a hypothetical 6-inch high object on the hill and give the driver of the approaching vehicle more time and distance in which to stop. Therefore, the sight distances are adequate. It must be noted that it is not feasible to construct an additional overlook on the north side of the road due to incompatible terrain.

The proposed Palisades Boulevard intersection is at the crest of the hill approximately seven hundred feet east of the overlook location.

2.7 Drainage

All drainage of the project will be handled by intercepting the pavement runoff flows with roadside shoulder ditches which carry the flows to well defined natural drainage channels, in the same manner as the existing roadway does. Where these natural channels intersect the roadway, existing pipe or

box culverts will be extended as required in order to carry the flow under the entire roadway (both existing and future portions). The median will initially have an inverted crown so that periodic drainage of the median under the roadway through use of catch basins and pipes to the natural drainage channels will be necessary. However, the ultimate design calls for a raised median, in which case the median will drain to one or both roadways and is combined with the roadway runoff. Raised medians which will be initially installed at the intersections for purposes of traffic channelization will drain in the same manner.

2.8 Floodplain Management

The area adjacent to project has been studied for flooding and drainage by the developer. Two (2) sets of findings have been generated. One, done by Trico International, Inc., was prepared several years ago for the development north of Shea Boulevard. The other, done by WBC Consultants, Inc., was just recently completed for the development south of Shea Boulevard. These findings have both been reviewed and found acceptable by the Flood Control District of Maricopa County. The Flood Control District criteria requires the final peak flow leaving the property under study to be the same or less than the existing peak flows (prior to the development in question). The developer has no plans to install storm sewers or water retention facilities in the drainage area of the project. One small earth dam is planned south of Shea Boulevard along the main drainage channel in order to form a small pond, but this will not seriously alter storm flows and will not affect this project.

The Flood Control District of Maricopa County has reviewed the project area and has found no conflict "with any existing or proposed Flood Control District projects." Further, none of the washes in the project area have been "delineated either by Maricopa County or through National Flood Insurance Program." (See their letter in Appendix III.)

A hydraulic report for this project will be prepared in compliance with federal-aid requirements for the project.

It should be noted that construction of Orme Dam has again become a possibility due to repeated flooding in the Phoenix area in the last few years. If this dam becomes a reality, the resulting reservoir will flood part of the Fort McDowell Indian Reservation along the lower part of the Verde River. While this would not directly affect the project it does, however, affect State Route 87 in that it would have to be rerouted in order to cross the reservoir at a narrower point. This is because the proposed reservoir would be approximately two (2) miles wide at the point where State Route 87 presently crosses the Verde River (see Appendix I). Future realignment of Shea Boulevard would depend on the realignment of State Route 87. Finally, the majority of the drainage from this project (i.e., Shea Boulevard) which currently drains east to the Verde, would flow into the Orme Dam Reservoir.

2.9 Section 4(f) Land

There are no Section 4(f) lands within or contiguous to the project right-of-way.

2.10 Detour During Construction

No detours of any consequence are required on this project, with the possible

exceptions of:

(1) small realignments and narrowing of existing 28-foot wide roadway through areas of side hill cuts due to blasting and/or excavation that may be required; and

(2) local detours at intersections where the existing intersection is being upgraded to a fully developed (ultimate design) intersection. Traffic barriers, channeling and other means of control would be utilized by the Contractor as required and will conform to procedures as specified in Traffic Manuals of the Maricopa County Highway Department and the Arizona Department of Transportation. Two-way traffic will be maintained on the existing Shea Boulevard roadway during construction, except as noted above.

2.11 Materials

Earthwork on the proposed project will consist of roadway excavation, borrow and embankment. It will also include some structural and drainage excavation. The excavation material will be used to provide embankment material. Additional material, if required, will be obtained from existing commercial borrow pits. Any excess material will be disposed off-site at one or more designated locations.

2.12 Cost

The proposed project is scheduled for construction in the 1981 fiscal year. The estimated cost is $2,100,000, exclusive of any utility adjustment costs.

3. ALTERNATIVES

There are two (2) possible alternatives to the proposed project. One is to leave the existing roadway as it is (the "do-nothing" alternative). The other is to build a complete new roadway (2- or 4-lane) in an alternate location.

3.1 Do-Nothing Alternative

Abandonment of the proposed project is unrealistic and undesirable. Shea Boulevard is a major east-west artery that is experiencing increasing traffic usage. In 1985, the daily vehicle count is forecast to be 3.5 times the current traffic volume and is expected to increase beyond that date. Safety, traveling convenience, and utility of the existing roadway would decline if the project for a new roadway were discontinued. In addition, there is no apparent advantage to this alternative, as the proposed project will not create any significant negative social, economic or environmental impact within the area.

3.2 Relocation Alternative

Relocation of the project is not feasible nor desirable. The alignment of the existing roadway was selected to yield reasonable grades and curves, and has resulted in a satisfactory design. The proposed project would have similar grades and curves and would also result in a satisfactory design. Right-of-way already exists in anticipation of the proposed project. Acquisition of additional right-of-way would be expensive and

would not be compatible with the planned and developing residential community of Fountain Hills lying on both sides. A large deviation from the existing roadway would result in an inefficient routing due to the extra length involved, new right-of-way, new topography to survey and design to, and a serious impact upon development plans for Fountain Hills. In addition, any intersection relocation of Shea Boulevard with State Route 87 would result in further penetration onto either the Fort McDowell or Salt River Indian Reservation, which could seriously delay or terminate the project.

No relocated alignment of the two (2) additional lanes for the proposed project would serve the purpose so well as paralleling the existing alignment. The proposed alignment would result in a four-lane, divided highway that will give traffic greater flexibility in passing and turning movements than two (2) separate two-lane facilities. The four-lane concept will also enable traffic to move more freely during peak periods of roadway use while at the same time providing a greater measure of safety. This would all be accomplished without the necessity of taking existing buildings or removing any properties from the Maricopa County tax base.

4. SOCIO-ECONOMIC CONSIDERATIONS

4.1 Zoning

In the eight (8) sections adjacent to the project (Sections 20, 21, 22, 23, 26, 27, 28 and 29 of T3N, R6E), the zoning breakdown,* in percentages of total area, is as follows:

Single Family Residential (R1-8, R1-10, R1-18, R1-35)	40%
Two-Family Residential (R-2)	1%
Multiple-Family Residential (R-3, R-4, R-5)	5%
Neighborhood Commercial (C1)	2%
Intermediate Commercial (C2)	negl.
General Commercial (C3)	1%
Planned Industrial (IND-1)	2%
Rural (RURAL-43)	40%
Federal Land (Reservation)	9%

* These figures based on Maricopa County Zoning Map A52 as of January 25, 1980. For definitions of zoning classifications, see the latest edition of "The 1969 Amended Zoning Ordinance for the Unincorporated Area of Maricopa County" published by the Department of Planning and Zoning of Maricopa County.

The above figures show that of those areas zoned either residential or commercial/industrial, approximately 80 percent are for single family residential dwellings on minimum lots sizes varying from 8,000 to 35,000 square feet. The remaining 20 percent is about equally divided between two/multiple-family residential housing and commerical/industrial development.

4.2 Residential Development

As concluded in the preceding paragraph, the Fountain Hills development is primarily a residential community. The Fountain Hills Committee of Architecture Building Report for January, 1980 indicated that 997 single family residential units and 570 multiple family residential units had been built or were under construction as of that time (see Appendix II). This will result in most of the origin/destination type traffic of this area (as opposed to through type traffic) being of a domestic nature. Shea Boulevard is currently and probably will continue to be the only major link between the Fountain Hills area and the employment, shopping and entertainment centers of Scottsdale, Phoenix and Mesa. The Fountain Hills community will continue to grow and contribute to higher traffic densities. The residents of the area will benefit greatly by the easing of constrictions to travel which will result from the roadway improvements.

4.3 Commercial Development

As was shown in section 4.1 above, some commercial development is anticipated in the Fountain Hills area. The Fountain Hills Committee of Architecture Building Report for January, 1980, indicated that 181 commercial units and three industrial buildings had been or were under construction as of that time (see Appendix II). A recent brochure published by the Fountain Hills Chamber of Commerce lists 113 members. While this is not an exhaustive list of all businesses in the area, it does give an indication of the size and scope of the business community.

Most of the land that is currently zoned for commercial/industrial use is located along Saguaro Boulevard, near the eastern terminus of the project. This means that Saguaro Boulevard will be the major connection for truck traffic between the various businesses and Shea Boulevard. The proposed roadway along Shea Boulevard will facilitate this truck traffic movement, a necessary adjunct to any commercial development, and make it more compatible with the residential and recreational traffic that is expected to predominate the Shea Boulevard corridor.

4.4 Recreation

Shea Boulevard is a major route for those people traveling between the Scottsdale/Phoenix area and the recreation areas of Saguaro Lake, Roosevelt Lake, Payson and Showlow. In addition, most people living in the Fountain Hills area will use Shea Boulevard when traveling to recreational areas regardless of the destination as it is the only major east-west roadway in the area. The proposed project will greatly reduce congestion due to the expected increase in future traffic volume, a large percentage of which will be recreational in nature. This is especially true of weekend traffic when traffic volumes reach their peak. A smooth flowing roadway will enhance the living quality of the area by minimizing the impact of the recreational through traffic on the surrounding residential community.

It should be noted that if the Orme Dam becomes a reality, and serves as an additional recreational facility, the impact on the Fountain Hills area willprobably be greater than any other recreational area to the northeast due to its close proximity to that community. Not only will the recreational through traffic along Shea Boulevard increase, but there will be created a transient or local destination type of traffic in the area, which will further load the main thoroughfares of the community. This project would do much to help alleviate this additional traffic load while providing visitors to the area better access to sources of food, fuel and other basic necessities.

4.5 Employment

As has been shown in section 4.3 above, there is a growing commercial development within the community of Fountain Hills. As of 1978, the Arizona Office of Economic Planning and Development listed the Fountain Hills developer as employing approximately 200 persons and that a local manufacturer of draperies and bedspreads employed up to 95 persons. That governmental agency further noted on its "Fountain Hills, Arizona Community Profile" (see Appendix II) that "Retail trade and services are important employment sectors in Fountain Hills with a wide variety of small specialty shops, professional and other services. Thirty percent of the service sector is made up of residents involved in creative arts such as writing, painting and related activities. With Fountain Hills being within a 30 minute drive from Mesa, Tempe, Scottsdale and Phoenix, many residents commute for employment." The publication also lists labor force data for 1978 as follows:

Civilian Labor Force	5,307
Employed	5,094
Unemployed	213
Unemployment Rate	4.0%

These figures, however, do not indicate how many are employed within the community of Fountain Hills.

As the community grows in size, an increasing work force will be needed to maintain local businesses and support services. Although a certain percentage of this work force will also reside in Fountain Hills, many of the employees will not or cannot do so. This will mean an influx of workers from the nearby cities of Scottsdale and Mesa, as well as from the nearby Indian communities. The majority of them will use some portion of Shea Boulevard to get to their place of employment as this roadway offers the only major access to the Fountain Hill Community. As has been noted, many people have been and will continue to be employed by the Fountain Hills developer. In addition, employment is created via the contractors who are constructing the development. There is a good growth outlook for the area which is to be interpreted as an increase in business and employment for the Phoenix/Scottsdale/Mesa area. The proposed roadway will act as an impetus to this growth.

4.6 Minority Groups

The only minority group of any significance in the area adjacent to the project is the American Indian. This is due to the fact that there are two (2) Indian reservations in the area: the Salt River Indian Reservation to the south of the proposed project, and the Fort McDowell Indian Reservation to the east.

The 49,294 acre Salt River Indian Reservation is bounded by Scottsdale on the west; Mesa and Tempe on the south; Scottsdale, Fountain Hills and the Fort McDowell Indian Reservation on the north; and the Tonto National Forest on the east. Most of the population of 2,800 Pima and Maricopa Indians live on the western 15,000 acres of irrigated land. The remainder of the reservation consists of either land that can be potentially cultivated or land that can be developed for housing or recreation. The reservation labor force is only about one-quarter of the population but most of these are employed. There are numerous small commercial and industrial enterprises located on the reservation, while the land provides development of sand and gravel deposits, agriculture, water and recreational facilities. There is all-weather access to all parts of the community, with the possible exception of the small portion of the reservation located south of the Salt River. A bridge crossing at Country Club Drive is being designed to overcome this barrier during periods of river flow. The entire community is served by public utilities, an elementary education facility and a health center, with further assistance available in the surrounding communities.

The 24,680 acre Fort McDowell Indian Reservation is bounded by McDowell Mountain Park on the west, the Salt River Indian Reservation on the south and the Tonto National Forest on the north and east. The population of approximately 350 Yavapai-Apache Indians lives on land which ranges from rolling desert to heavily wooded river bottom terrain. The reservation is bisected by the Verde River and much of the land will be flooded if Orme Dam becomes a reality. The reservation labor force is only about one-quarter of the population with only about half of these employed. At present 600 of the 1,300 acres of agricultural land are under cultivation. Most of remaining, nonagricultural land is potentially available for either residential, commercial, industrial, public utilities, range or recreational development. At present, there is no industry on the reservation, but income is derived from a tribe-operated recreation enterprise, from sale of cattle, sand and gravel and from employment at the City of Phoenix Water Plant. The tribe is keeping in close contact with the comunity of Fountain Hills, as well as the smaller community of Rio Verde north of the reservation, which is also under development. A pre-school facility and general clinic are located on the reservation, with further assistance available from Scottsdale and Phoenix.

Only a few hundred square feet of the project lie on reservation land and right-of-way has already been acquired. The Fort McDowell Reservation probably stands to gain the more benefit from the proposed project as the latter is directly between it and the Phoenix/Scottsdale area. All the major roads leading from the reservation except the northbound one lead

either into the Fountain Hills area or onto State Route 87 above its intersection with Shea Boulevard. This places the reservation in an excellent location to utilize the proposed roadway. On the other hand, most of the Salt River Reservation population is located to the south and east of the project and so would not likely have much occasion to use the roadway when traveling to various parts of the Phoenix metropolitan area.

Due to the nature of this project, which involves no business or residential relocations, it is anticipated that this proposed project would have no adverse social or economic impact on any minority group in the adjacent area.

4.7 Local Tax Base

The implementation of this project is not expected to have any significant effect on the local tax base of the community. This is because no additional right-of-way need be acquired along the existing highway alignment, and no business or residential relocations will be necessary.

In conclusion, the proposed construction project is not expected to have any adverse social or economic impact upon area residents other than the minor inconveniences which will occur during the construction phase.

5. ENVIRONMENTAL CONSIDERATIONS

5.1 Air Quality Report

Two predominant areas of air pollution exist on highway projects. They are construction and operation.

Air pollutants generated during construction consist of burning of construction debris, dust from construction activities including asphalt or concrete plants and crushing operations, and construction vehicular emissions. The road or highway contractor is required by the ARIZONA HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION to observe and comply with all air pollution ordinances, regulations, orders, etc., from those agencies having expertise and/or jurisdiction. These Standard Specifications have been reviewed by the Arizona Department of Environmental Health Services for compatibility with air quality and pollution control measures contained in the State Implementation Plans. In summary, these ordinances and regulations require burning permits and certification of burning methods for construction debris, dust palliatives and licensing of pavement and crushing plants to insure compliance with particulate emission regulations.

During the operating stage certain amounts of vehicular emitted air pollutants are generated. Of these pollutants, carbon monoxide (CO), as a potential health hazard at excessive concentrations, is the one considered in this analysis. The one-hour state and federal ambient air quality standard for carbon monoxide is 35 parts per million (ppm). The one-hour CO concentration contributed by the operation of motor vehicles for the planned construction start-up date of 1980 and 20 years thereafter (2000) are determined on the following pages. The right-of-way is approximately 100' from the center line of the roadway. The 1980 concentration at the right-of-

way of approximately 1 ppm and the 2000 concentration of 0.7 ppm were determined by using the worst conditions of traffic volumes and climate. Given the concentrations determined from this analysis, construction of this project will not prevent attainment of air quality standards contained in the State Implementation Plan for air pollution control.

Technical analysis of this report plus pertinent graphs, work sheets, and references are contained on the following pages.

To simulate the air quality near the roadway on this project the AVQUAL computer model was used.

AVQUAL is a microscale diffusion model, developed from Taylor's turbulent diffusion theory (Taylor 1921), which explicitly incorporates ground roughness and heat flux. In the application of this model, the freeway was assumed to be an infinite line source and conditions were assumed to be steady-state. It was also assumed that meteorological conditions were uniform between the source and the receptor.

Detailed descriptions of this model have been well documented in a paper by Lissaman (1973) and are, therefore, not repeated here. AVQUAL has been validated during three separate highway studies for its capability to simulate microscale air quality along the corridor of an at-grade freeway (AeroVironment 1972; Chan, et al, 1976a, Chan et al, 1976b). Subsequently the model has been modified to consider elevated and depressed roadway configurations. After modification the model was validated during a fourth highway study using the above mentioned geometrics. (Chan, et al, 1976c)

The emission factors in this analysis were computed using the United States Environmental Protection Agency's Report No. AP-42 with Mobile Source Emission Factors (3-78).

The composite emission factor, which is used in the Emission Source Strength (Q) Equation, was determined using the following vehicle type breakdowns and parameters.

Light Duty Vehicle Auto	73.9 %	Average Vehicle Speed (MPH)	50
Light Duty Truck 0-6000 LBS	13.6 %	Ambient Temperature	** 30 F°
Light Duty Truck 6001-8500 LBS	6.7 %	Light Duty Vehicle Air Conditioning in Use	0 %
Heavy Duty Vehicle (Gas)	2.0 %	Cold Starts, Non-Catalyst	20.6 %
Heavy Duty Vehicle (Diesel)	0.7 %	Hot Starts, Catalyst	27.3 %
Light Duty Vehicle Motorcycle	3.1 %	Cold Starts, Catalyst	20.6 %
		Altitude	Low

Inspection/Maintenance Data:

Program Implemented	1977	Earliest model year in program	1967
Stringency Level	30%	Latest model year in program	2000
Mechanic Training	Yes		

**Ambient temperature of 30°F was used as a conservative estimate.

	Project Start-up Date	Design Year
Composite Emission Factor	25.50 gm/mi	6.07 gm/mi
Distance from center line of Roadway to Right of Way	100 ft.	100 ft.
Average Daily Traffic:	8500	23800
Peak-Hour Traffic: 8.5%	723	2023

Emission Source Strength (Q) Equation.

$$Q = [5.26 \times 10^{-2}] \times [\text{Vehicles/hour}] \times [\text{Composite Emission Factor}]$$

Project Start-up Date	Design Year
Q = 970 µg/ft sec	Q = 646 µg/ft sec

To get an indication of concentrations during extreme conditions the following worst case meteorological parameters were used as input to the AVQUAL model.

Angle of Intersection Between Wind Direction and Highway Alignment . . . . . 90°

Wind Speed. . . . . 1 meter/sec.

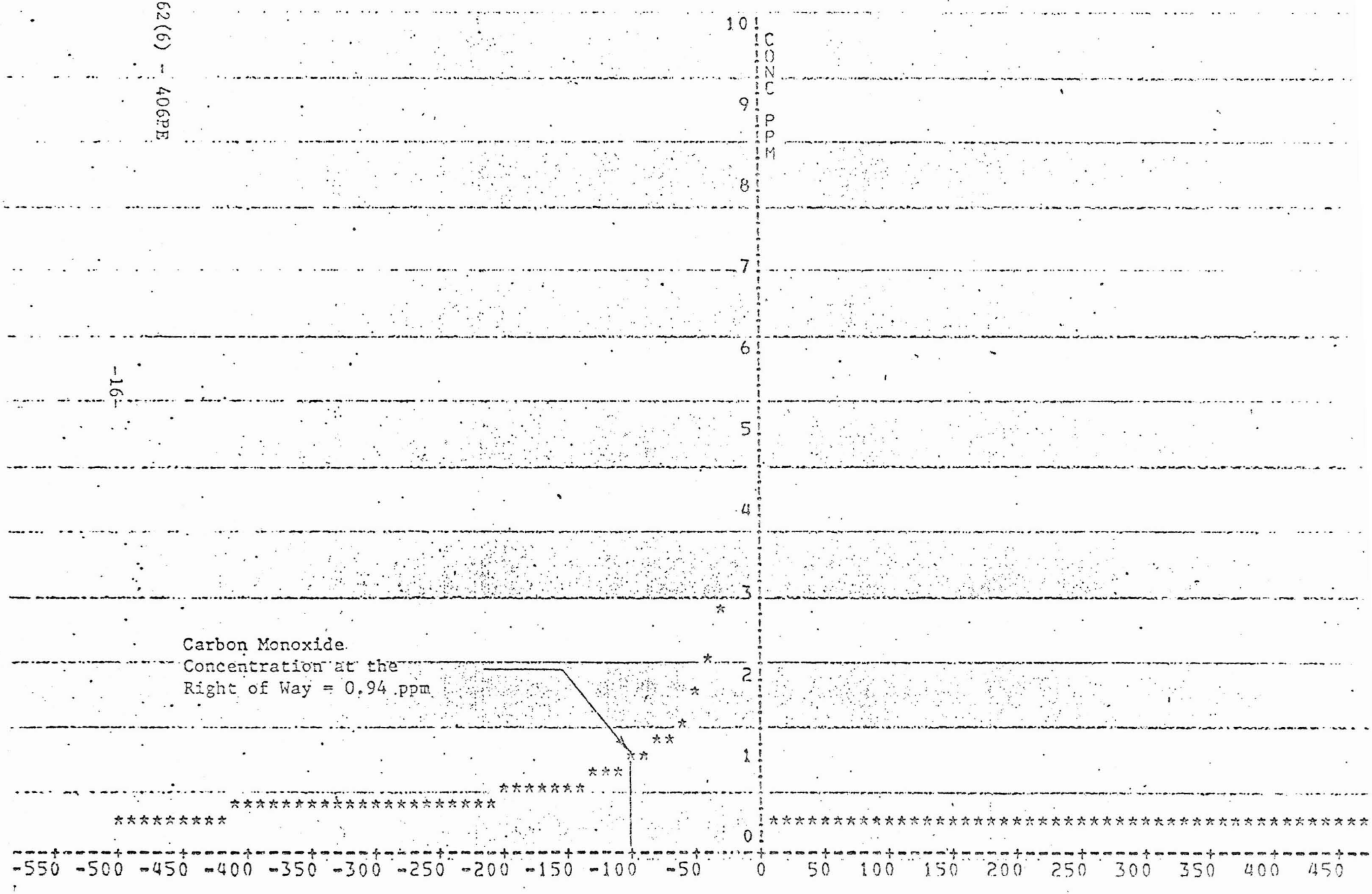
Atmospheric Stability . . . . . Class F

AVQUAL OUTPUT

The CO concentration for the construction start-up date and the design year are shown as CO concentration vs distance from center line of roadway on the following pages.

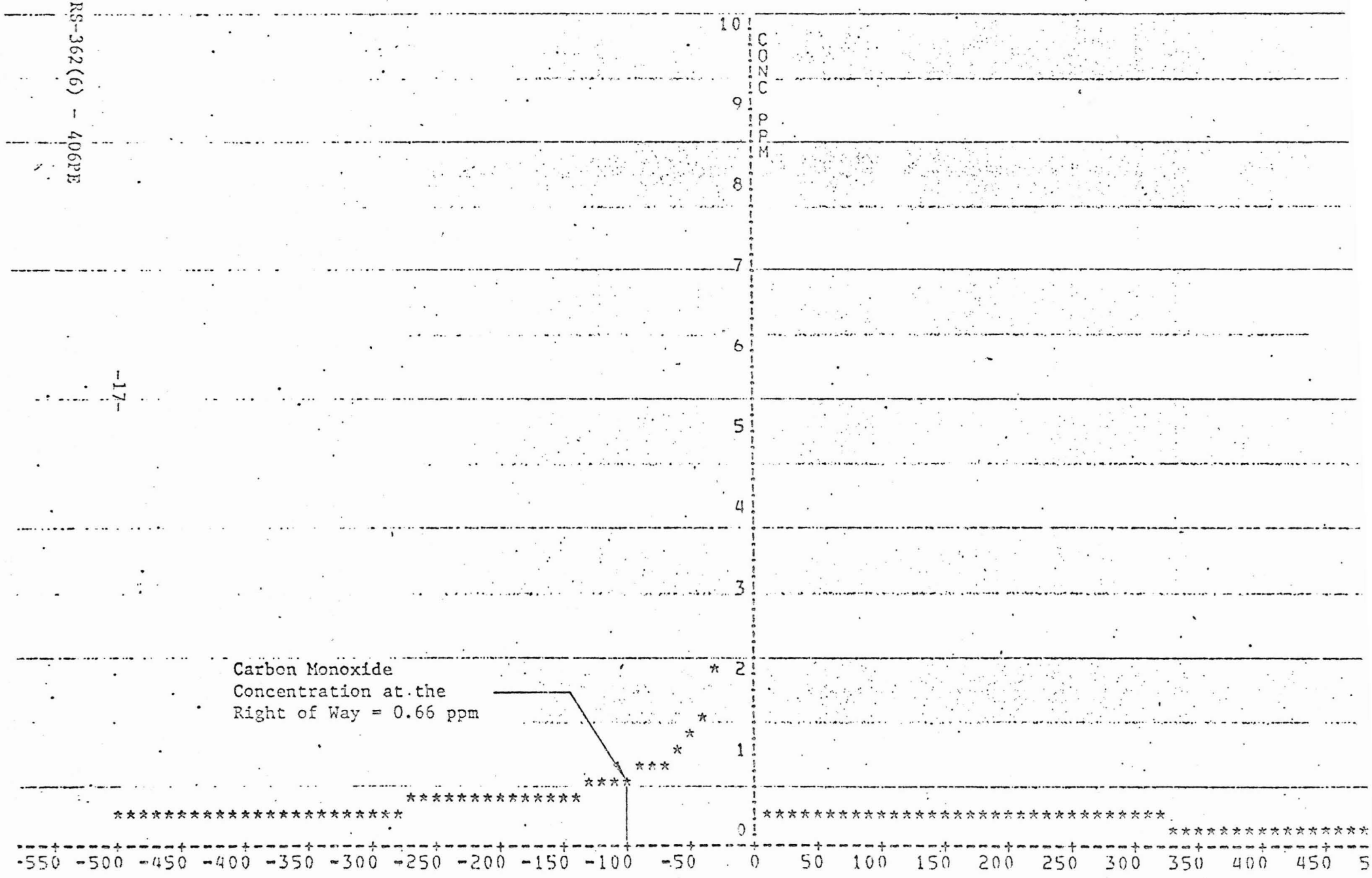
1980

PLOT OF CONCENTRATION (PPM) VS DISTANCE (FEET)



2000

PLOT OF CONCENTRATION (PPM) VS DISTANCE (FEET)



5.2 Water Quality

This proposed project will not adversely affect water quality due to location, scope of work, and the application of Arizona Department of Transportation Standard Specifications applicable to Safety, Health and Sanitation. All physical construction will be performed so as to minimize damage to natural resources. Any temporary turbidity of the intermittent streams in the area caused by construction of the roadway will not create a significant impact. Adequate erosion control measures will be used on all new embankments so as to prevent erosion during periods of water runoff. These measures should also aid in the reduction of soil deposits in and around hydraulic structures.

5.3 Visual Quality

The geometry of the proposed project will generally parallel the existing roadway. Curves and slopes shall be gentle, conforming to AASHTO and ADOT geometry specifications. Adequate erosion control measures will be used so that unsightly scarification of roadside embankments is prevented. Vegetation displaced from the right-of-way during construction will be used adjacent to the completed roadway where possible. Roadway regulatory signs will be in accordance with AASHTO and ADOT sign standards. It is felt that these requirements will result in an aesthetic highway structure.

5.4 Archaeological and Historical Involvement

There are no known archaeological sites on or adjacent to the right-of-way. The project area has been surveyed and was given an archaeological clearance by the Arizona State Museum on November 24, 1976 (see Appendix III).

No historic properties listed on either the state or national register of historic sites are known to be located within or adjacent to the right-of-way required for this project. The nearest such historic resource to the project is Frank Lloyd Wright's school, Taliesin West, located approximately 4½ miles west northwest of the western terminus of the project.

The Jim Hart Memorial Monument, located near the intersection of Shea Boulevard and State Route 87 (the Beeline Highway) will not be adversely impacted by this project. This is because its location is on the east side of State Route 87 and approximately 30 feet south of the centerline of the present intersection, which locates the monument away from the addition to the intersection caused by this project. The only change to the present intersection will take place north and west of its present location.

5.5 Noise Study Report

A study of the noise environment adjacent to this project was made pursuant to the Federal Highway Administration's requirements (FHPM 7-7-3).

Because of summer-weekend traffic volume increases, overall traffic noise levels generated in the vicinity of this project will increase by four decibels in the design year.

No Category A (maximum 57 dBA Leq) were found near the project roadway.

Several Category B (maximum 67 dBA Leq) activities located at distances of 400 or more feet from the right-of-way were found in the vicinity of this project. Noise levels at these locations are and will remain acceptable through the design year.

A number of parcels of undeveloped residential property are adjacent to the right-of-way, or front on a residential road adjacent to the right-of-way.

Proper planning in residence location and construction would mitigate the noise impact on related activities. Therefore, letters such as the one appended to this report have been sent to Maricopa County (see Appendix III).

Several Category C (maximum 72 dBA Leq) land uses were found near the intersection of Shea Boulevard with Saguaro Boulevard. Of these, two restaurants are situated within 150 feet of the centerline. The noise levels at these restaurants along with the four decibels increase in the design year (2000) are and will remain below the given standard.

Arizona Department of Transportation standard specifications require contractor compliance with local sound control ordinances and also require that all internal combustion engines used in construction be properly muffled.

5.6 Effects on Endangered Species and Arizona Native Protected Plants

The vegetative cover of the surrounding terrain is typical of the Lower Sonoran Life Zone. The rather sparse vegetation consists of saguaro, barrel, hedgehog, pincushion, prickly pear and cholla cacti; mesquite; saltbush; brittlebush; ocotillo and palo verde. There is expected to be no impact on Arizona protected native plants, other than those that need to be relocated off of the right-of-way during construction. The Arizona Commission of Agriculture and Horticulture has conducted a survey or the project area and has noted the types and quantities of protected native plants (see Appendix III). The disposition of these plants when found will be made within the provisions of Section 3-902 of the Arizona Revised Statutes and the Arizona Native Plant Law. This will be coordinated with the Arizona Commission of Agriculture and Horticulture.

Due to the harsh habitat and normally dry streambeds, wildlife is scarce. However, various types of reptiles, birds and small mammals can be found in the proposed project area. The Arizona Game and Fish Department has determined that no significant adverse impact on this wildlife will occur as a result of this project (see Appendix III).

However, they did note that two (2) endangered species, the desert tortoise and the Gila monster, could be encountered during construction. If this occurs measures should be taken to physically remove the specimen from the construction area unharmed and release it at a point well removed from the human activity.

The U.S. Fish and Wildlife Service, through informal consultation on June 6, 1980, has determined this highway widening project on Shea Boulevard between Scottsdale City Limits and Junction with State Route 87 is not expected to impact endangered or threatened species of wildlife or plants.

6. COORDINATION

In preparing this environmental assessment, coordination has been established with the following agencies and offices:

Arizona Department of Transportation
Arizona Department of Health Services
Arizona Game and Fish Department
Arizona Commission of Agriculture and Horticulture
Arizona State Parks
City of Scottsdale
Federal Highway Administration
U.S. Fish and Wildlife Service
Fountain Hills Chamber of Commerce
Maricopa County Planning and Zoning Department
Maricopa County Flood Control District
Maricopa Association of Governments

Letters received through the project environmental coordination process are shown in the Appendix III.

It is felt that the response from the City of Scottsdale deserves some discussion. Their response is essentially composed of the following three parts: (1) a suggestion to alter the proposed cross-section in order to minimize the amount of additional earthwork to be done; (2) a suggestion to terrace and/or round the cut and fill slopes "to reduce the visual abruptness and erosion"; and (3) a request to have the opportunity to review construction traffic routing within the city's corporate limits.

In addressing the first suggestion, it must be noted that since the project traverses hilly terrain throughout most of its length, a succession of cuts and fills cannot be avoided if the proposed roadway is to have a profile conforming to AASHTO minimum curve standards. In fact, the existing roadway required a significant alteration of the landscape in order to achieve the present alignment.

The proposal by the City of Scottsdale to minimize the extent of additional earthwork by adding a lane on each side of the existing road (in lieu of the proposed cross-section) would result in a four-lane, undivided highway. While this arrangement might reduce the amount of earthwork north of the present roadway, a significant amount of earthwork would then have to be done on the south side of the road in order to maintain minimum ADOT

standards for slopes. In addition, the lack of a median reduces the quality of safety and may, directly or indirectly, reduce the carrying capacity of the roadway. It is questionable whether the proposed change in the cross-section would materially improve "future development quality," while it is fairly certain that the safety and the utility of the roadway would be adversely affected by it.

It should be noted that the four-lane, divided highway has been part of the design concept for the road since its original inception. The existing roadway is not centered in the right-of-way but is 22 feet offset. This is because the original right-of-way acquired for Shea Boulevard was based on a four-lane, divided highway concept. The centerline of the existing right-of-way coincides with the center of the median proposed in the Maricopa County Highway Department design, indicating the compatible nature of this design with the existing roadway.

The rounding and/or terracing the slopes, although it may improve the visual quality and erosion protection of the project, may not be able to be implemented in places most needed. This is because the most extensive cases of cut and fill often project to the right-of-way at maximum slopes, leaving no room for terracing or rounding of the slopes. It should be noted that the existing roadway did not have rounding or terracing on its slopes and there seems to be no serious erosion in evidence along the present roadway. Many of the cuts of the existing (and the proposed) roadway are through weathered rock, which is less susceptible to erosion than soil. This may be one reason why terracing and/or rounding of the slopes was not attempted on the present roadway. However, for the proposed roadway, terracing or rounding of slopes will be used where erosion can be reduced and space is available to accomplish it.

In compliance with Scottsdale's desire to review construction traffic routing, the county and ADOT will work with that city's personnel at the appropriate time to ensure minimal impact on community traffic during construction.

In conclusion, it is felt that a divided highway will more than compensate for any alteration of the landscape resulting from it. Some alteration is going to occur no matter which cross-section is used. It is a matter of judgment where the detrimental effects of landscape alteration begin to outweigh the beneficial effects of safety and utility in the divided highway concept. It is felt that this point has not yet been reached. As to the other requests, sloping or terracing will be studied on a case-by-case basis in areas of long slopes. Construction traffic will be coordinated to ensure minimal impact on the surrounding area.

7. DETERMINATION OF NO SIGNIFICANT EFFECT

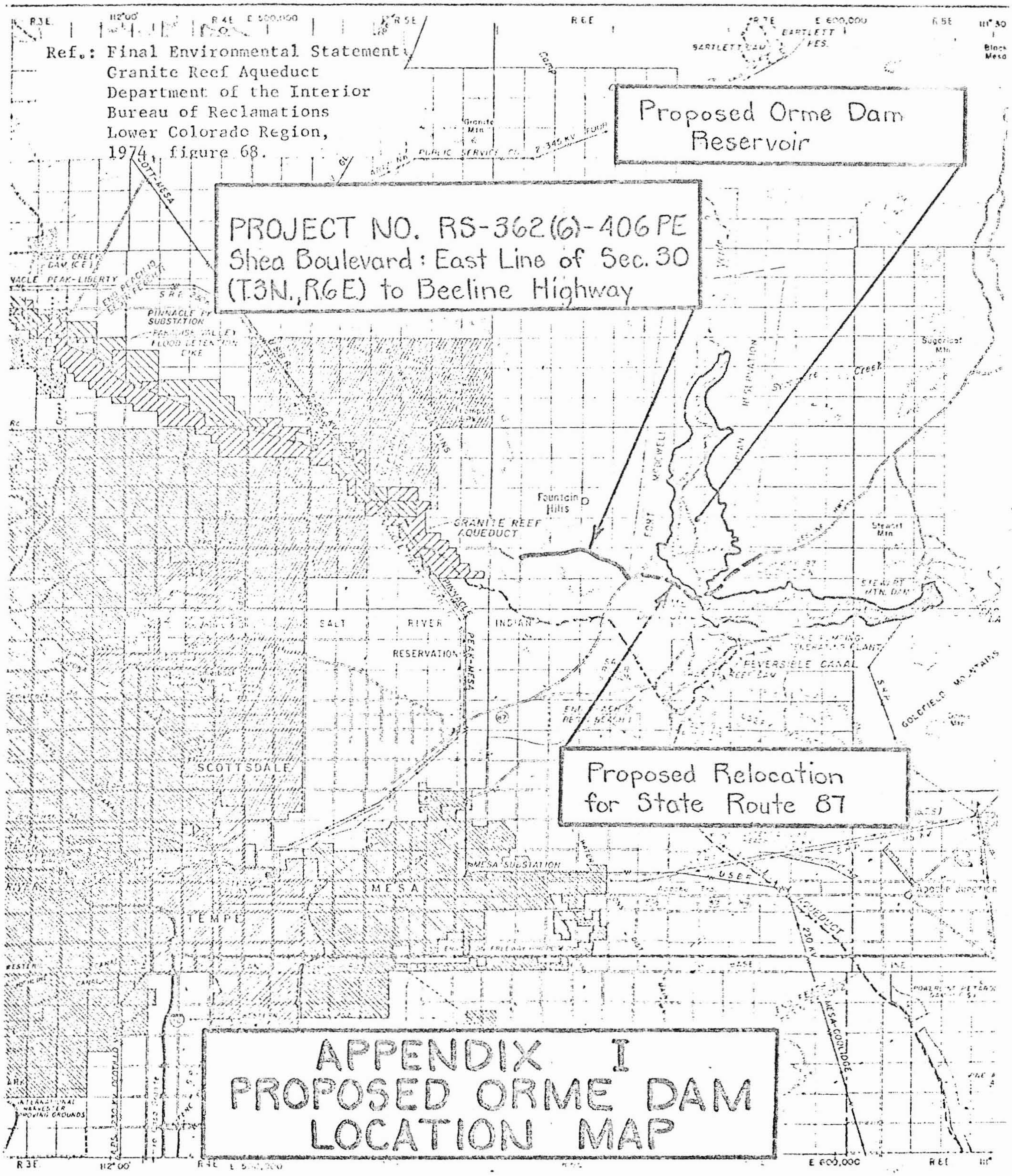
Based upon the information contained in this environmental document it is determined that construction of this proposed roadway improvement project for the purpose of increasing the traffic volume capacity of Shea Boulevard will not have a significant social, economic or environmental effect upon the area it is situated within.

8. DETERMINATION OF PUBLIC HEARING

In accordance with Part 1.6.2.C.2 of the ADOT Action Plan the Maricopa County Highway Department will at an appropriate future date advertise an offer for a public hearing for the project.

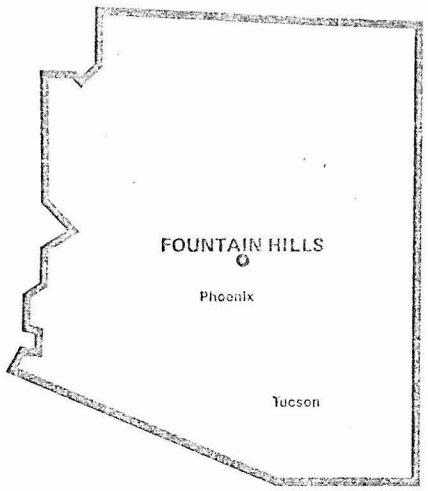
APPENDIX I

Map of Proposed Orme Dam


Ref.: Final Environmental Statement
Granite Reef Aqueduct
Department of the Interior
Bureau of Reclamations
Lower Colorado Region,
1974, figure 68.
Proposed Orme Dam
Reservoir
PROJECT NO. RS-362(6)-406 PE
Shea Boulevard: East Line of Sec. 30
(T.3N., R6E.) to Beeline Highway
Proposed Relocation
for State Route 87
Fountain Hills
GRANITE REEF AQUEDUCT
SALT RIVER INDIAN RESERVATION
SCOTTSDALE
MESA
TEMPE
MESA SUBSTATION
PINNACLE PEAK SUBSTATION
GOLDFIELD MOUNTAINS
Stewart Mtn
Apache Junction
APPENDIX I
PROPOSED ORME DAM
LOCATION MAP

APPENDIX II

Socio-Economic Data



Fountain Hills, Arizona Community Profile

INTRODUCTION

Fountain Hills is a community established in 1970 by McCullough Properties and is unincorporated. It is located approximately 30 miles northeast of Phoenix on 12,000 acres of land and is bordered by the 2,800 foot McDowell Mountains to the west and open desert land to the east. The community is known for its 560 foot "world's highest fountain."

WEATHER

Month	Average Temperature(°F) Daily Max.	Daily Min.	Average Heating Degree Days	Total Precipitation (Inches)
January	66.7	36.4	398	0.82
February	71.4	39.0	274	0.71
March	76.1	43.0	178	0.83
April	84.9	43.0	51	0.38
May	93.7	56.7	8	0.15
June	102.2	64.2	0	0.12
July	105.1	74.2	0	0.88
August	102.9	73.2	0	1.27
September	99.7	66.7	0	0.79
October	89.2	55.2	14	0.57
November	76.2	43.5	158	0.58
December	68.2	37.3	330	0.96
Year	86.4	53.2	1,461	8.06

Average Total Snow, Sleet and Hail Annually: Trace

PRINCIPAL FOUNTAIN HILLS ECONOMIC ACTIVITIES

Pratt Properties, Inc. (PPI) is the developer of Fountain Hills. PPI has its regional headquarters in Fountain Hills, employing approximately 200 persons. Robertson's Factory, Inc., manufacturer of draperies and bedspreads, employs up to 95 people.

Retail trade and services are important employment sectors in Fountain Hills with a wide variety of small specialty shops, professional and other services. Thirty percent of the service sector is made up of residents involved in creative arts such as writing, painting and related activities. With Fountain Hills being within a 30 minute drive from Mesa, Tempe, Scottsdale and Phoenix, many residents commute for employment.

Tourism and retirement have a definite role in the present and future economy of Fountain Hills. Scenic desert land surrounding the community as well as the nearby metropolitan localities all contribute to the 50% increase in population since 1976.

POPULATION

	1970	1978	1970-1978 Annual Compounded Percentage Change
Fountain Hills	--------	2,500	--%
Maricopa County	971,228	1,415,000	+4.8
Arizona	1,775,399	2,547,000	+4.6

Local sources estimate the July, 1979, population to be 3,000.

Sources: Arizona Department of Economic Security
U.S. Bureau of the Census

FOUNTAIN HILLS ECONOMIC ACTIVITY 1978

	Percent of Firms
Agriculture and Mining	0.8%
Construction	7.8
Manufacturing	3.1
Transportation, Communication & Public Utilities	0.8
Wholesale Trade	---
Retail Trade	20.3
Finance, Insurance & Real Estate	15.6
Services	47.7
Public Administration	3.9

LABOR FORCE DATA*

	1970	1978
Civilian Labor Force	3,366	5,307
Employed	3,262	5,094
Unemployed	104	213
Unemployment Rate	3.1%	4.0%

*Deer Valley Division

GROWTH INDICATORS

	1977	1978	1979
School Enrollment *	252	295	319
Net Assessed Valuation ($000's)**	--------	21,645.9	21,069.2

*Elementary Enrollment
**Fountain Hills Fire District

PROPERTY TAX RATE PER $100 ASSESSED VALUATION

	1977	1978	1979
Elementary	$2.40	$2.95	$3.10
High School	---	---	---
Community College	.76	.84	.94
Maricopa County	2.67	2.30	2.30
State of Arizona	1.60	1.10	.48
Sanitary District	2.74	3.20	3.06
Road District	2.58	2.84	3.04
Total Outside City	12.75	13.23	12.90
Fire District	-----	.41	.64
Total	12.75	13.64	13.56

OFFICE OF THE GOVERNOR
ARIZONA OFFICE OF ECONOMIC PLANNING AND DEVELOPMENT
1700 WEST WASHINGTON • ROOM 505 • PHOENIX, ARIZONA 85007 • (602) 255-5705

FINANCE

Valley National Bank:	1 office
Interstate Security Corp.:	1 office

TRANSPORTATION

Highways:	Arizona 87
Truck:	United Parcel Service (Interstate)
Airports:	Mesa Falcon Field and Scottsdale Airport (13 miles). Phoenix Sky Harbor International (30 miles southwest)

COMMUNICATIONS

Newspapers:	Weekly:	Times of Fountain Hills
	Daily:	Arizona Republic (Phoenix) Phoenix Gazette
Radio:	Numerous valley stations received	
Television:	7 channels, 5 from Phoenix, 2 from Tucson (via cable)	

UTILITIES

Electric:	Salt River Project
Gas:	Liquid Propane Gas Company
Telephone:	Mountain Bell
Water:	Chaparral City Water Company
Sewer:	Fountain Hills Sanitary District

MEDICAL FACILITIES

Physicians:	2
Dentists:	2
Orthodontist:	1
Optometrist:	1
Family Care Medical Center:	1

Fountain Hills has a Family Health Center (a Satellite of Scottsdale Memorial Hospital) fully staffed, complete with a helicopter landing pad.

Mesa Lutheran Hospital and Scottsdale Memorial Hospital are both within a half-hour drive.

GOVERNMENT SERVICES

Local Government:	Maricopa County Board of Supervisors
Fire Department:	Rural-Metro - 4 staff firemen, 40 volunteers
Security Patrol:	3 (24 hour patrol)

CHURCHES

Baptist:	1
Catholic:	1
Lutheran:	1
Presbyterian:	1
United Brethren:	1
Assembly of God:	1

EDUCATIONAL FACILITIES

	No.	Faculty	Enrollment
Public Elementary (Kindergarten through 8th grade)	1	25	300

153 high school students are bussed to Mesa, 16 miles east.

COMMUNITY FACILITIES

Library:	1
Botanical Garden:	1
Park:	1, 60 acres, lake and picnic area
Pool:	1, private
Golf Course:	1 (18 holes, professional)
Tennis Courts:	7 (5 private and lighted)
Recreation Center:	1
Athletic Facilities:	3 baseball fields
Motocross Track:	1
Equestrian Center:	1, boarding, riding lessons

CLUBS AND ORGANIZATIONS

Alcoholics Anonymous	La Casa Cafetal Homeowners
Boy Scouts	Library Board
Casa Homeowners Assoc.	Lions Club
Chamber of Commerce	Men's Golf Association
Christian Men's Bus. Club	Parent-Teacher Org.
Civic Association	Real Estate Association
Desert Singers	Republican Club
Equestrian Association	Square Club
Fontana II Homeowners	Swim and Tennis Club
Girl Scouts	Village Bazaar Association
Kiwanis - Noon	Villa Homeowners Assoc.
Kiwanis Sunset	Vivinendas Homeowners Assoc.
	Women's Club

SCENIC ATTRACTIONS

Fountain Hills is surrounded by open spaces: the McDowell Mountains to the west, the McDowell Mountain Regional Park to the north, Fort McDowell Indian Reservation to the east and the Salt River Indian Reservation to the south. Also, to the east and north are the Salt River, Saguaro Lake (12 miles), Canyon Lake (47 miles), Apache Lake (62 miles) and Roosevelt Lake (80 miles). Bartlett Lake and Horseshoe Lake on the Verde River, are both within 50 miles. All of these provide picnic facilities and water recreation including swimming, water skiing and boating.

All of the attractions of the metropolitan areas are available to residents of Fountain Hills including cultural programs, college and professional sports, and horse and dog racing.

The "world's highest fountain," located in Fountain Hills, rises up from the center of a man-made lake. At full force, it sends a jet stream soaring 560 feet into the air.

LODGING AND MEETING FACILITIES

Motels:	1 with 39 units
Meeting Facilities:	4 with seating for up to 200 persons

INDUSTRIAL PROPERTIES AVAILABLE

Science and Industry Park: 50 acres
Light, clean industry. Contact: Fountain Hills Chamber of Commerce.

For further information, contact:

Fountain Hills Chamber of Commerce
P.O. Box 17598
Fountain Hills, AZ 85268
(602) 837-1654

W.O. 5610

STANDARD FORMS CO. — PHOENIX

TO:

Tom Sonneman
County Highway Dept.
3325 W. Durango
Phoenix, AZ 85009

Peg Tibbetts
Fountain Hills Committee of Arch
P. O. Box 17781
Fountain Hills, AZ 85268

SUBJECT: Building Reports

DATE: 2-29-80

MESSAGE

Enclosed is a copy of our revised format for building reports. Your inquiry about the figures on the old-style report triggered a complete up-to-date research of the number and types of buildings in Fountain Hills...and this revised information was used to start out 1980.

Hope this will be helpful to you and if you have any questions, please call.

SIGNED Peg

Inquiry To Sylvia

Signed

THIS COPY RETURNED TO SENDER

FOUNTAIN HILLS COMMITTEE OF ARCHITECTURE, INC.

P.O. Box 17781, 16838 E. Palisades Boulevard
Fountain Hills, Arizona 85268
(602) 837-9660

TO: Distribution

Date: February 15, 1980

FROM: Trico of Arizona

SUBJECT: Fountain Hills Building Report for January, 1980

BUILT OR UNDER CONSTRUCTION:

	Prior to Jan.	Jan.	Cumulative
Single Family Residential Units	988	9	997
Multiple Family Residential Bldgs.	144	0	144
Multiple Family Residential Units.	570	0	570
Commercial Buildings	62	0	62
Total Commercial Units	181	0	181
Industrial Buildings	3	0	3
Church Buildings	3	0	3
School Buildings	1	0	1
Total Residential Units			1567
Total Residential Buildings			1141
Total Buildings-All Classes			1210

cc:
Fred Allgower
Alan Cruikshank
Metro Fire
William B. Fisher
Fred Barnes
George Anderson
Joann Kobli
Arthur Hewitt
Carol Beyer
Chamber of Commerce

Y

W.O.# 56100

APPENDIX III

Coordination Response

W.O.# 56100

ARIZONA STATE MUSEUM
HIGHWAY SALVAGE PROJECT RECORD

Right of Way Survey

Project: Scottsdale E.C.L.-Jct SR 87 RS 362(6)~~*~~

11/24/76	1976-55	L.C.Hammack
Dates Surveyed	Job Number	Archaeologist

Sites Located: None

Disposition:

ARCHAEOLOGICAL CLEARANCE GRANTED BY
ARIZONA STATE MUSEUM

Additional Reports:

NFS Clearance: _____ NARR _____

BLM Clearance: _____ Case Report _____

BIA Clearance: _____ Other:

Material Sources:	Memo #	Date Surveyed	Job #	By	Sites Located	Disposition
		None Received--12/27/76				

RECEIVED
DEC 30 1976
ARIZONA DEPT. OF TRANSPORTATION
HIGHWAYS DIVISION
ENVIRONMENTAL PLANNING SERVICES

Remarks: ~~** Shea Blvd & 32nd Street~~

To ADOT 12/27/76

Delete this per
Dave Gregory 1-31-80
gl

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W.O.# 56100

C 9/76:1000

FLOOD CONTROL DISTRICT
of
Maricopa County

3335 West Durango Street • Phoenix, Arizona 85009
Telephone (602) 262-1501

W. D. Mathews
Chief Engineer and General Manager

56100

MEMO TO: R. C. Esterbrooks, County Engineer

ATTN: Bill Horne, Engineering Supervisor

FROM: David R. Johnson, Chief Hydrologist

DATE: January 15, 1980

SUBJECT: Improvement of Shea Boulevard from the East Line of Section 30, T3N, R6E to State Route 87

We have reviewed the proposed improvement of Shea Boulevard as you requested. This project does not conflict with any existing or proposed Flood Control District projects. The project area is crossed by several very well defined washes; none of which has been delineated either by Maricopa County or through the National Flood Insurance Program. We agree that a hydrology study should be made to evaluate the adequacy of both the existing culverts and their extension to accommodate the new roadway width.

David R. Johnson

David R. Johnson

DJ/GSB/DET

3-17-1

W.O.# 56100
C

MARICOPA COUNTY HIGHWAY DEPARTMENT

3325 West Durango Street
Phoenix, Arizona 85009

(602) 262-3611

November 30, 1979

Traffic Feasibility Study
Project RS-362(6)-406 PE, Shea Boulevard,
East Line of Section 30, T3N, R6E
To Beeline Highway (S.R. 87)

This road is on an important recreational route. It is the only route to State Route 87 that is available to serve the North Phoenix/Scottsdale area. On summer weekends the average daily traffic (ADT) volume is presently 8,500 vehicles per day (1979). Thus the peak hour recreational volume is approaching the capacity of one lane of traffic. In addition, much of the traffic involves pulling boat or camping trailers. The slowness of these vehicles on the hill sections makes passing difficult i.e., a slow vehicle lane is desirable. Also, this route is located through scenic desert countryside, creating another disparity in vehicle speeds, i.e., between slower sightseeing traffic and high speed through traffic.

All of the above leads to the conclusion that two lanes of traffic in each direction are necessary for the safe and efficient handling of existing and future traffic.

R. C. ESTERBROOKS, P.E.
DIRECTOR OF PUBLIC WORKS
AND COUNTY ENGINEER

Joe Dorbin

Joe Dorbin, P.E.
Assistant County Engineer
Traffic

TH:jmh

-17- 7

W.O# 56100

R. C. ESTERBROOKS, P.E.
COUNTY ENGINEER

F. H. LATHROP, P.E.
DEPUTY COUNTY ENGINEER

MARICOPA ASSOCIATION OF GOVERNMENTS
Transportation & Planning Office
1739 WEST JACKSON STREET
PHOENIX, ARIZONA 85007
(602) 261-7867

October 17, 1979

Mr. Bill Horn
Maricopa County Highway Department
3325 W. Durango
Phoenix, AZ 85009

Dear Mr. Horn:

The following information is submitted in response to your telephone request for traffic volume information on Shea Boulevard from Pima Road to the Beeline Highway.

Location	1978	1985	2000
Pima Road to 108th Street	6,000	13,000	18,700
108th Street to Beeline Highway	3,400	12,000	17,000

In addition, the percent of heavy truck traffic on Shea Boulevard will be approximately 6 percent.

If we can be of any further assistance to you, feel free to call our office.

Sincerely,

M. J. Neblett

M. J. NEBLETT
Transportation Planner

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W.O. # 56100

MARICOPA ASSOCIATION OF GOVERNMENTS
Transportation & Planning Office
1739 WEST JACKSON STREET
PHOENIX, ARIZONA 85007
(602) 261-7867

56100

February 13, 1980

TO: R.C. ESTERBROOKS, P.E.
Director of Public Works
ATTN:
Harry R. Keller, P.E.
Assistant County Engineer
Maricopa County Highway Department
3325 West Durango Street
Phoenix, AZ 85009

FROM: BRYAN D. PATTERSON
Senior Transportation Planner

SUBJECT: Project RS-362(6)-406-Shea Boulevard from East Line of Section 30 to S.R. 87

* *

In response to your February 6, 1980 request for comments on the Shea Boulevard project, I have reviewed the project description and have found the project to be consistent with the Maricopa Association of Government's FY 1980-1984 Transportation Improvement Program. The four lane divided highway will provide a level of service substantially better than "c" through the year 2000 based on the projected 17,000 A.D.T. in 2000.

The recently completed Nonattainment Area Plan for Total Suspended Particulates (dust) for the Maricopa County Urban Planning Area identifies the paving of unpaved roads and road shoulders as one of the most effective strategies for controlling dust pollution. Therefore, the stabilized shoulders to be provided on the new roadway contribute to the implementation of the air quality plan.

The Maricopa Association of Governments does not require any permit for this project, however, we do appreciate the opportunity to review and comment on all major road construction projects. If we can be of further assistance, do not hesitate to call.

Bryan D. Patterson
BRYAN D. PATTERSON

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th

W.O. # 56100

3-17-5

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ARIZONA DEPARTMENT OF HEALTH SERVICES

Division of Environmental Health Services

BRUCE BABBITT, Governor
SUZANNE DANDOY, M.D., M.P.H., Director

1980 FEB 25 PM 4:10

February 22, 1980

56100

Harry R. Keller, P.E.
Assistant County Engineer
Maricopa County Highway Dept.
3325 W. Durango Street
Phoenix, Arizona 85009

Dear Mr. Keller,

The Bureau of Water Quality Control staff have received project AS-362(6)-406 concerning the widening of Shea Boulevard. The ADT projection (1985: 12,000, 2000: 17,000) appearing in your February 6 letter appear inordinately high. According to Mr. Thomas E. Sonneman, these were projections made by MAG in their October 17, 1979 letter based on a computer model. Mr. Sonneman admitted that the existing data for the outskirts of Scottsdale is very sketchy. The variability of the estimates is therefore very high. Rising energy costs could significantly alter these estimates.

Consequently, the Bureau's position is that more conservative ADT projections must be used for assessing the need of the Shea Boulevard project. Please call us for any clarification of our position.

Sincerely,

Marc Bennett

MARC BENNETT

MB/sb

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W.O.# 56100

-17-5

ate Health Building 1740 West Adams Street Phoenix, Arizona 85007

February 28, 1980

Mr. Harry R. Keller, P.E.
Assistant County Engineer
Maricopa County Highway Department
3325 W. Durango Street
Phoenix, Arizona 85009

Dear Mr. Keller:

Re: PROJECT RS-362(6)--406 PE SHEA BOULEVARD; EAST LINE OF SECTION 30 (T3N, R6E) TO BEELINE HIGHWAY (S.R. 87) MARICOPA COUNTY, ARIZONA

Thank you for your letter of February 6, 1980, affording the City of Scottsdale an opportunity to comment on the above referenced road improvement project. Basically, from an environmental impact point of view there are two areas that concern us.

As you know, this project is near the Scottsdale hillside district which has strict controls on the level of environmental impact made by development. In order to be compatible with the future development quality in this area, we would suggest that in places of existing cuts the new two lanes be located on each side of existing two lanes from the cut so that in general the alignment will be designed to reduce the height and length of cut and fill slopes, and that slope rounding and terracing be used to reduce the visual abruptness and erosion of the cut and fill slopes.

Also with the only access to the construction site going through Scottsdale, we would like an opportunity to review the construction traffic routing within the corporate limits. This is important in that we have traffic congestion on certain roads and could recommend a routing to minimize the impact. If you wish to discuss these items further, please don't hesitate to call me.

Sincerely,

William C. Mead

William C. Mead
Private Development Engineering
Manager

WCM:ee

cc: L. Dueker
R. Williamson
L. Bussard

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W.O.# 56100 C

3939 CIVIC CENTER PLAZA ■ SCOTTSDALE, ARIZONA 85251 ■ PHONE (602) 994-2521

Arizona Commission of
Agriculture and Horticulture
1688 WEST ADAMS • PHOENIX, ARIZONA 85007 • (602) 255-4373

56100

February 28, 1980

Harry R. Keller P.E.
Assistant County Engineer
Maricopa County Highway Department
3325 West Durango Street
Phoenix, Az. 85009

RE: Project RS-362 (6) 406 PE

Shea Boulevard; East Line of Section 30,
(T3N, R6E) to Beeline Highway (S.R. 87)
Maricopa County, Arizona

Dear Mr. Keller:

The following protected Native Plants were inventoried on the above project:

53 1-3 foot

54 3-6 foot

127 6-10 foot
40 additional plants-unmarketable

1243 Barrels

147 Hedgehogs

66 Ocotillos

113 Pincushion

Please make arrangement with this Commission or the Parks Department to salvage these plants.

Because of the washes and ridges 720 of these plants are inaccessible, but as construction progresses there is a possibility that most of these can be salvaged.

Thank you for your assistance in this matter.

Cordially yours,

R. A. Countryman
Division Director

RAC:bj

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W.O.# 56100

ARIZONA GAME & FISH DEPARTMENT
2222 West Greenway Road Phoenix, Arizona 85023 942-3000

February 29, 1980

Mr. Harry R. Keller
Assistant County Engineer
Maricopa County Highway Department
3325 West Durango Street
Phoenix, Arizona 85009

Re: Project RS-362(6)-406 PE
Shea Blvd.; East line of
Section 30 (T.3N., R.6E.)
to Beeline Highway (S.R.87)
Maricopa County, Arizona

Dear Mr. Keller:

The Arizona Game and Fish Department has reviewed the above-referenced project and, in the long term, we do not anticipate that significant adverse impacts on the wildlife resource will occur.

The Department realizes, however, that significant detrimental impacts will result, in the short term, from project construction and associated activities. The majority of these impacts will involve the direct loss of wildlife habitat (including the native vegetation) along the proposed right-of-way, and the extirpation or dislocation of numerous small mammals, birds and herptiles (both game and nongame species) resident to the area. However, as previously stated, these impacts are not considered to be significantly adverse when compared to the total available population of these species in the surrounding area.

Regarding State-listed threatened or unique wildlife species that may occur in the project area, two reptiles could be encountered -- the Desert Tortoise (Gopherus agassizi) and the Gila Monster (Heloderma suspectum). Both of these species are classified as Group III -- species or subspecies whose status in Arizona may be in jeopardy in the foreseeable future. If

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encountered, the Department requests that all reasonable measures be taken to avoid killing or injuring a specimen. This may involve coaxing or the physical removal of the individual from the activity area to a nearby location secure from possible injury. Your full cooperation in this endeavor would be appreciated.

Thank you for the opportunity to review and offer comments on this proposed project.

Sincerely,

Robert A. Jantzen, Director

Robert K. Weaver
Habitat Evaluation Coordinator
Planning and Evaluation Branch

RKW:dd

cc: Levi Packard, Supervisor, Flagstaff Regional Office

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MARICOPA COUNTY HIGHWAY DEPARTMENT

3325 West Durango Street
Phoenix, Arizona 85009

(602) 262-3611

February 29, 1980

Bureau of Water Quality Control
Planning Section
State Health Building
1740 West Adams Street
Phoenix, Arizona 85007

Attention Mr. Marc Bennett

Gentlemen:

Re: Project RS-362(6)-406 PE Shea Boulevard; East Line of Section 30 (T3N, R6E) to Beeline Highway (S.R. 87) Maricopa County, Arizona

Thank you for your letter of February 22, 1980. We had asked for and expected your comments concerning the impact of the project on water quality and we would like to repeat that request.

Your disagreement with the ADT figures from MAG does not assist us in any substantive way. If you would like to use different ADT's than those supplied and will discuss the water quality on that basis, we would appreciate your input.

Very truly yours,

F. H. LATHROP, P.E.
ACTING COUNTY ENGINEER

Harry R. Keller

Harry R. Keller, P.E.
Assistant County Engineer

TMH:mr

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W.O 56100

R. C. ESTENBROOKS, P.E.
COUNTY ENGINEER

F. H. LATHROP, P.E.
DEPUTY COUNTY ENGINEER

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CF

MARICOPA COUNTY HIGHWAY DEPARTMENT

3325 West Durango Street
Phoenix, Arizona 85009

(602) 262-3611

March 7, 1980

City of Scottsdale
3939 Civic Center Plaza
Scottsdale, Arizona 85251

Attention Mr. William C. Mead

Gentlemen:

Re: PROJECT RS-362(6)-406 PE SHEA BOULEVARD; EAST LINE OF SECTION 30 (T3N, R6E) TO BEELINE HIGHWAY (S.R. 87) MARICOPA COUNTY, ARIZONA

Thank you for your letter of February 28, 1980 with your comments on the referenced project.

We will not be able to incorporate your suggestion to minimize cuts and fills by providing four lanes of traffic with no median divider, for the reason we are too far committed to the original design we have been pursuing for Shea Boulevard, i.e., four lanes with a 16-foot earth median. However, we will be glad to work with you at the appropriate time, concerning construction traffic routing within the corporate limits.

Contact Mr. Bill Horne at 262-3611 if you have any questions.

Very truly yours,

R. C. ESTERBROOKS, P.E.
DIRECTOR OF PUBLIC WORKS
AND COUNTY ENGINEER

Harry R. Keller

Harry R. Keller, P.E.
Assistant County Engineer

WHH:mr

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W.O.# 56100

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R. C. ESTERBROOKS, P.E.
COUNTY ENGINEER

F. H. LATHROP, P.E.
DEPUTY COUNTY ENGINEER

3-17-5

Arizona Commission of
Agriculture and Horticulture
1688 WEST ADAMS • PHOENIX, ARIZONA 85007 • (602) 255-4373

56100

Harry R. Keller, P.E.
Assistant County Engineer
Maricopa County Highway Department
3325 W. Durango Street
Phoenix, Arizona 85009

RE: Project RS-362(6)-406 PE Shea Boulevard; East Line of Section 30 (T3N, R6E) to Beeline Highway (S.R. 87) Maricopa County, Arizona

Dear Mr. Keller:

In response to your letter regarding the above referenced project, the Arizona Native Plant Law requires this Commission be given a sixty-day notice prior to the removal or destruction of protected native plants on State land. The law also requires a thirty-day notice of intent to remove or destroy these plants on Federal or private land.

Upon receiving notification of your intent to clear land, Commission employees will inventory the native plants on the project site. They will then arrange for salvage of any marketable plants.

Any additional advance notice beyond the time limits set by law, will be greatly appreciated.

1990 MAR 22 AM 10:13
MARICOPA COUNTY
HIGHWAY DEPT.

Sincerely

R.A. Countryman,
Division Director

RAC/jj

3-17-5

W.O.# 56100 C

ARIZONA DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

206 South Seventeenth Avenue Phoenix, Arizona 85007

BRUCE BABBITT
Governor

WILLIAM A. ORDWAY
Director

OSCAR T. LYON, JR., P.E.
Assistant Director
and State Engineer

May 30, 1980

Mr. Don E. McDaniel, Jr.
Maricopa County Planning Department
111 S. Third Avenue, Room 300
Maricopa County
Phoenix, Arizona 85003

Re: Traffic Noise from Shea Boulevard relating to Project RS-362-406

Dear Mr. McDaniel:

In compliance with the Federal Highway Administration's Federal-Aid Highway Program Manual Volume 7, Chapter 7, Section 3, this office has put together and is forwarding to you, as the local official, the following information concerning project RS-362(6) - 406PE on Shea Boulevard near Fountain Hills:

a) Approximate generalized future noise levels at various distances from the highway improvement.

b) Information that may be useful to you to protect future land development from becoming incompatible with anticipated highway noise levels.

c) The FHWA policy regarding land use development or changes.

a) By projected future traffic increases on Shea Boulevard we have been able to predict "approximate generalized future noise levels....." for the year 2000.

Tables I and II give predicted noise levels due to Shea Boulevard traffic for the year 2000. Table I shows the predicted levels using a 45 mph speed limit and Table II indicates the levels that can be expected with a 55 mph speed limit.

TABLE I

Distance from Centerline of roadway (feet)	Decibel levels (dBA Leq)
100'	70
150'	69
200'	67
300'	66
400'	64

TABLE II

Distance from Centerline of roadway (feet)	Decibel levels (dBA Leq)
100'	72
150'	71
200'	69
300'	68
400'	66

All of the decibel levels given in Tables I and II are maximum levels that can be expected at the distances shown. They were calculated using the following assumptions.

1) The roadway is at the same elevation as the receptor.

2) There are no barriers between the roadway and the receptor.

3) All of the traffic is moving at the indicated speed limit.

4) Traffic distributions and volumes were: 23,800 ADT, 8-1/2% peak hour volumes, with a distribution of 90% autos, 9% medium trucks, and 1% heavy duty diesel trucks.

b) The Federal Highway Administration has developed design noise levels relating to types of land use (see attachment page 12). For instance, a commercial area is allowed a higher noise level than a residential area. Therefore, the use of a commercial area between the roadway and a residential area seems to be desirable. Also any natural or man-made barriers between the roadway and any receptor are good noise attenuation devices. The most effective barriers are solid walls that totally obscure the sight of the noise emitting traffic from the receptor. Finally, distance is always a good attenuator of traffic noise as can be seen in section (a).

c) The FHWA policy concerning land use development or changes is best described on page 19, paragraph (2) of the attachment.

If you have any questions on any of the above information, please call Romy Robeniol of this office at (602) 261-7767.

Very truly yours,

OSCAR T. LYON, JR., P.E.
State Engineer

James E. Dorre

JAMES E. DORRE, Manager
Environmental Planning Services

JED:RDR:gm

Enclosure