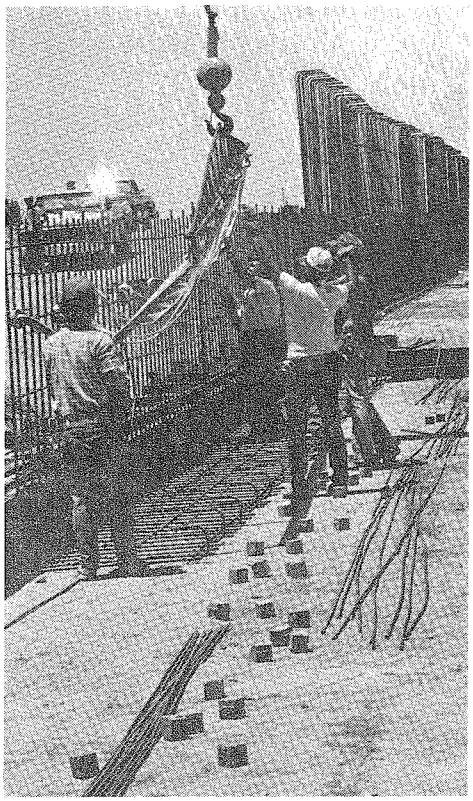
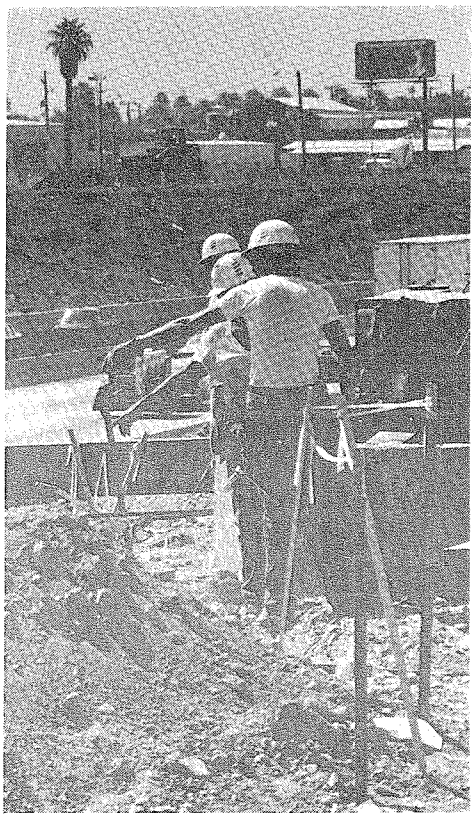
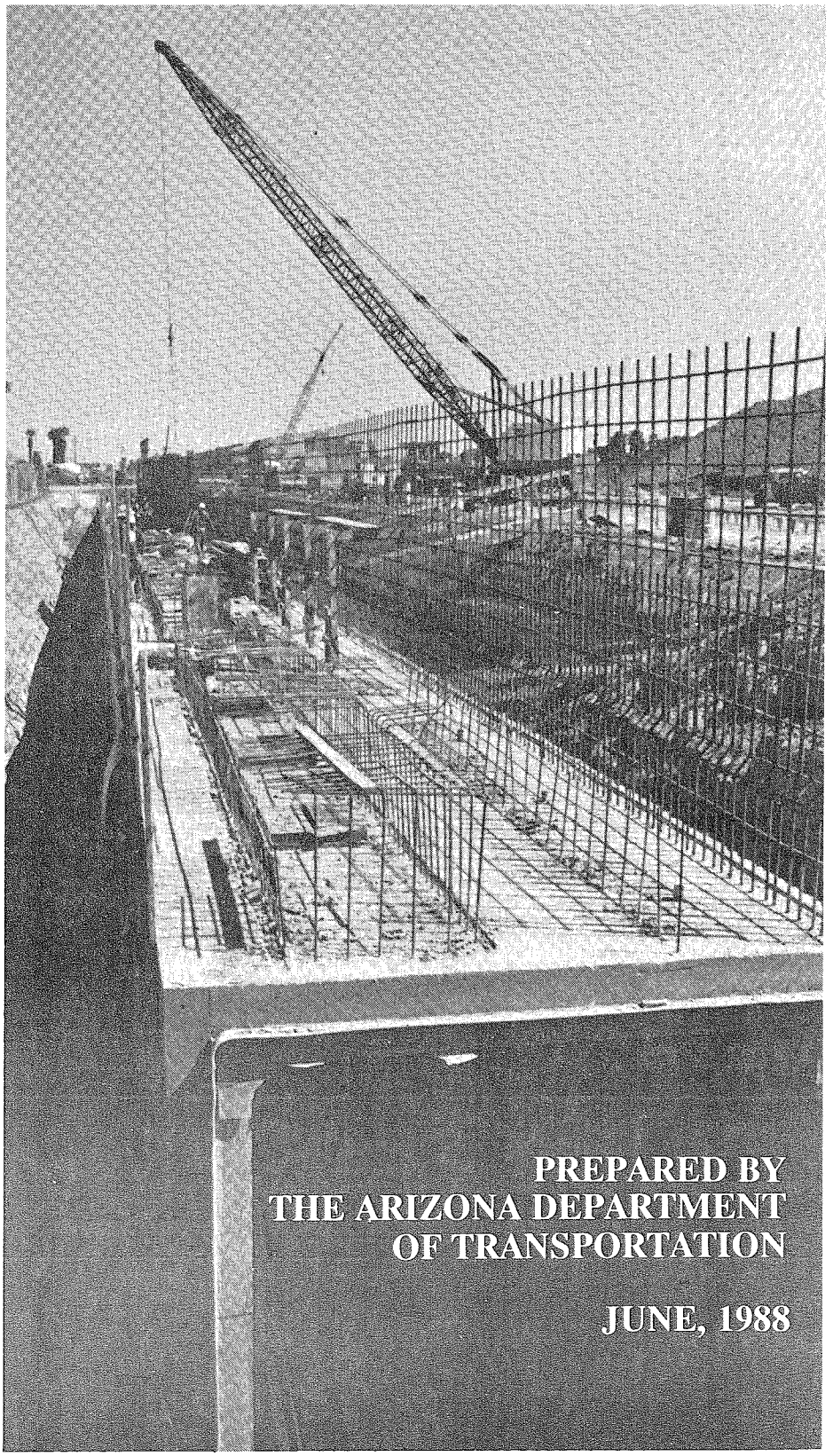
REPORT ON THE STATUS OF THE MAG FREEWAY/ EXPRESSWAY SYSTEM







PREPARED BY
THE ARIZONA DEPARTMENT
OF TRANSPORTATION

JUNE, 1988

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ON THE STATUS OF THE
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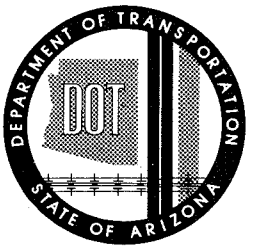

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INTRODUCTION

The Arizona State Legislature, during the 1985 session, passed into law a far-reaching transportation finance bill - House Bill 2306. In addition to a 3-cent per gallon gas tax increase, this bill authorized each of the State's fifteen counties to pass a special excise tax to be used for transportation purposes.

In response to the transportation sales tax provision of House Bill 2306, Maricopa County prepared "Proposition 300" to establish a half-cent sales tax to fund the 230+ miles of the Maricopa Association of Governments (MAG) Freeway/Expressway System. On October 8, 1985 the county-wide proposition was passed by a 3 to 1 margin.

The passage of Proposition 300 made possible the "dream" of designing, constructing and driving on the long-awaited MAG Freeway/ Expressway System.

STATUTORY REVIEW REQUIREMENT

The statutory requirements associated with the MAG System (ARS 28-108.A.21-23) call for major reviews of the past progress and future plans on the MAG System in the 5th, 10th and 15th years of the program. Since the sales tax began in Maricopa County on January 1, 1986, those reports are due on December 1st in 1990, 1995 and 2000 respectively.

The five-year reports provide the opportunity for corrections, additions or modifications to the MAG System Plan as necessitated by changing conditions. The Arizona Department of Transportation (ADOT), in its "managerial" role, and MAG, in its planning role, have been given the dual responsibilities for reporting progress and making revisions on the MAG System Plan.

While ADOT recognizes that no statutory requirements are fulfilled by this brief "interim report," the Department does recognize and appreciate the legitimate need to report progress on the MAG System and thus, initiates the analysis pursuant to preparation of the first Five-Year Status Report.

This Interim Report is directed to the many residents of the region who share our intense interest in and excitement about the development of this much-needed system.

PURPOSE OF THIS DOCUMENT

Approximately two and one-half years have elapsed since the initiation of work on the MAG Freeway/Expressway System. To date, much has been accomplished in the areas of preliminary engineering, right-of-way acquisition, engineering design and construction. This experience has resulted in clearer insight into the requirements that must be met on the MAG System.

ADOT intends, by this document, to provide an overview of the accomplishments and requirements on the MAG System. Through this presentation, ADOT hopes to share its enthusiasm and optimism about past progress and future plans regarding the development of the MAG Freeway/Expressway System.

PROGRESS ON THE MAG SYSTEM

During the two and one-half years since the inititation of transportation sales tax, ADOT has taken the lead in establishing an effective public participation program in order to expedite the development and construction of the MAG System. The interactions, as of June, 1988, are as follows:

- Met with citizen and neighborhood groups on MAG System facilities on over 450 occasions;
- Met with various city and county officials on specific location and design decisions nearly 1200 times;

- Held approximately 16 formal public hearings on MAG System facilities; and

- Conducted literally thousands of meetings with individual property owners in the acquisition of nearly 2800 acres of right- of-way for the MAG System.

On June 17, 1988 - actually 899 days after the inititation of the transportation sales tax - the first segment of the MAG Freeway/Expressway System was opened to traffic. The opening of that two-mile segment, located on the Agua Fria between Northern and Peoria on the 99th Avenue alignment, is reflective of the commitment of ADOT, and of the cities and towns which comprise the MAG Region, to cooperate in the orderly and expeditious development of a truly "first class" system.

Although there will never be another "first" quite like the historic opening of the first two miles, ADOT will continue to design, construct and open to traffic, freeway and expressway facilities throughout the Valley that will meet the region's highway needs well into the 21st Century.

PROGRESS BY 1993

By June of 1993, at the end of ADOT's current Five-Year Program, the following construction, design and right-of-way progress will have been achieved:

- Approximately 56 miles of the System will be open to traffic, and an additional 22 miles will be designed and ready to go to construction;

- About 40 traffic interchanges on the System will be open to traffic, with an additional 15 having been designed;

- Approximately $770 million of right-of-way will have been acquired on the System; and

- Final facility locations and centerlines should have been selected for every route segment.

Figure 1 provides a look at the progress on all of the freeways and expressways in the Valley. The MAG Freeway/ Expressway System, as it will be at the end of the current Five-Year Program, is highlighted.

In each instance, the identified "MAG System" is composed of those routes and route segments which are being funded with Regional Area Road Funds (RARF), including the half-cent sales tax revenues, the "fifteen" percent and special "fifteen" percent funds from the State Highway Fund. This comprises about 200 of the 230+ miles of the total Valley system. Omitted from the MAG System in the remainder of this document is the City of Phoenix portion of the Squaw Peak, the Superstition Freeway and Grand Avenue. These facilities are not included due to their substantial or total use of other funding sources.

As one views the map in Figure 1, it quickly becomes evident that the MAG System only one part of ADOT's total construction activity in the Valley. This diversity of construction progress is exemplified by noting that the entire Papago Freeway (I-10) will be completed from the West Valley by 1990.

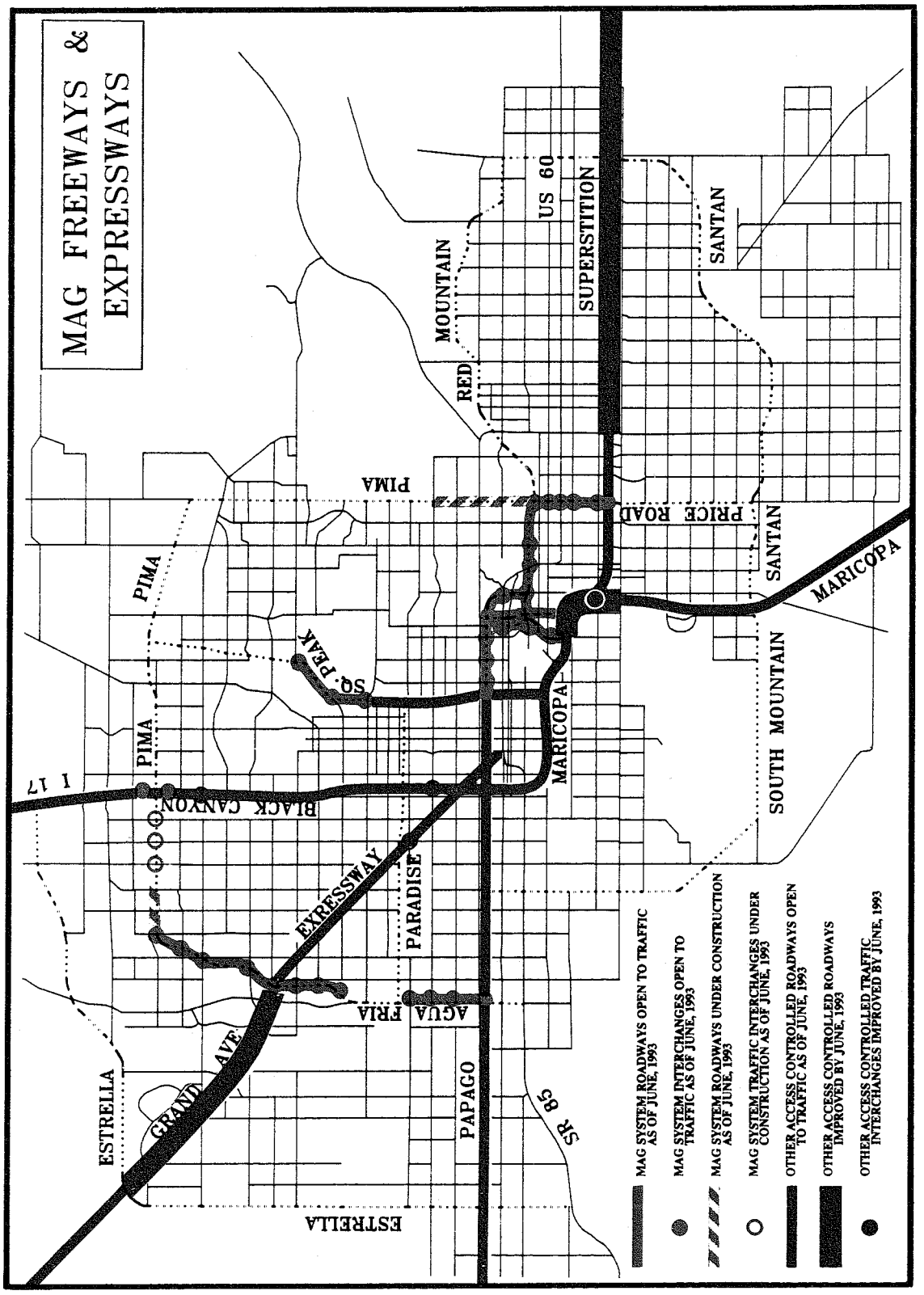
In the East Valley, nine miles of new lanes will be opened on the Superstition Freeway from Country Club Road (S.R. 87) to Power Road. Additionally, nearly 11 miles of the Superstition Freeway will be constructed to complete this facility from Power Road to U.S. 60 east of Apache Junction in Pinal County.

The complete reconstruction of the Maricopa Freeway from 40th Street to Baseline, which includes a major new interchange with the Superstition Freeway, will also be undertaken to improve service to the significant travel demand to and from the East Valley.

FIGURE 1

PLANNED PROGRESS ON THE MAG FREEWAY/EXPRESSWAY SYSTEM

ROUTES OPENED TO TRAFFIC BY JUNE, 1993



FACILITY-BY FACILITY PROGRESS

To complete the segments of the MAG System shown in Figure 1 by June of 1993, ADOT will continue the aggressive construction and design program which it has initiated.

In cooperation with the MAG Regional Council, the local jurisdictions and the individual neighborhoods along the corridors, ADOT will perform the location, right-of-way acquisition, design and construction work presented in Figure 2.

FIGURE 2
SYSTEM STATUS
A SUMMARY OF THE STATUS ON THE MAG FREEWAY/EXPRESSWAY SYSTEM AS OF JUNE, 1993

	RIGHT-OF-WAY	ENGINEERING			OPEN TO TRAFFIC	
THE MAG FREEWAY & EXPRESSWAY SYSTEM CORRIDOR	RIGHT-OF-WAY ACQUIRED * ($ MILLIONS)	PRELIMINARY LOCATION COMPLETE (MILES)	ROADWAY FACILITY DESIGNED (MILES)	INTER-CHANGES DESIGNED (NUMBER)	ROADWAY FACILITY OPEN TO TRAFFIC (MILES)	INTER-CHANGES OPEN TO TRAFFIC (NUMBER)
EAST PAPAGO SKY HARBOR HOHOKAM	$ 253.9	14.0	14.0	12	13.5	12
SO. MOUNTAIN	$ 34.2	22.0	-.-	-.-	-.-	-.-
SQUAW PEAK	$ 61.4	10.0	4.5	5	3.5	2
PARADISE	$ 26.9	13.0	-.-	-.-	-.-	-.-
PRICE	$ 28.6	6.5	2.0	-.-	-.-	-.-
SANTAN	$ 34.2	23.0	-.-	-.-	-.-	-.-
AGUA FRIA-PIMA	$ 305.4	55.0	42.0	38	23.5	26
ESTRELLA	$ 2.0	36.0	15.5 ***	-.-	15.5 ***	-.-
RED MOUNTAIN	$ 23.3	22.0	-.-	-.-	-.-	-.-
SYSTEM TOT:**	$ 769.9	201.5	78.0	55	56.0	40

* R.O.W. estimates represent the planned acquisition schedule based on projections of funding availability.

** Does not include the City of Phoenix portion of Squaw Peak, Grand Avenue, or Superstition.

*** Only the 2-lane interim roadway is in view, with no traffic interchanges.

COMMENTS ABOUT THE PROGRESS

As is obvious from driving around the Valley, as well as from the preceding graphics, progress is being made on the development of the MAG Freeway/Expressway System.

Along with this progress has come insight. Insight in regard to the true needs and nature of the freeways and expressways of the MAG System. Insight into the real challenges and costs of acquiring rights-of-way in the urbanized areas of this region. Insight on the underlying values and visions of the cities and neighborhoods throughout the Valley.

And also, insight on what it means to "manage" the implementation of the MAG Freeway/ Expressway System Plan in the dynamic environment of this rapidly growing metropolitan area.

DYNAMICS THAT IMPACT THE MAG SYSTEM

The by-word for the following pages could well be "CHANGE." It should be remembered, therefore, that "change," in and of itself, is neither positive or negative, threat or opportunity, blessing or curse. "Change," in and of itself, is inevitable!

CHANGES IN GROWTH FORECASTS

Population and employment are major factors impacting travel. It is therefore logical and necessary that when forecasts for population and employment change, so do travel forecasts.

In the duration between the Planning Phase and the Engineering Phase for the current MAG Freeway/ Expressway System, statewide population and employment forecasts changed dramatically. As can be noted in Figure 3, both population and employment forecasts for the Year 2005 increased over 20 percent.

During the same time frame, changes were also made in travel forecasting models around the nation as well as in Arizona. These changes were made to adjust for changing social factors which impact travel behaviors (i.e.: more dual-income families).

The net result of the changes in Arizona's demographic forecasts and in travel forecasting models is depicted in Figure 4. As can be noted, the general travel forecasts in the MAG Region increased nearly 50 percent, while travel forecasts on the MAG Freeway/Expressway System increased by 70 percent.

FIGURE 3

POPULATION AND EMPLOYMENT FORECASTS FOR THE YEAR 2005

BASED ON 1983 AND 1988 PROJECTIONS

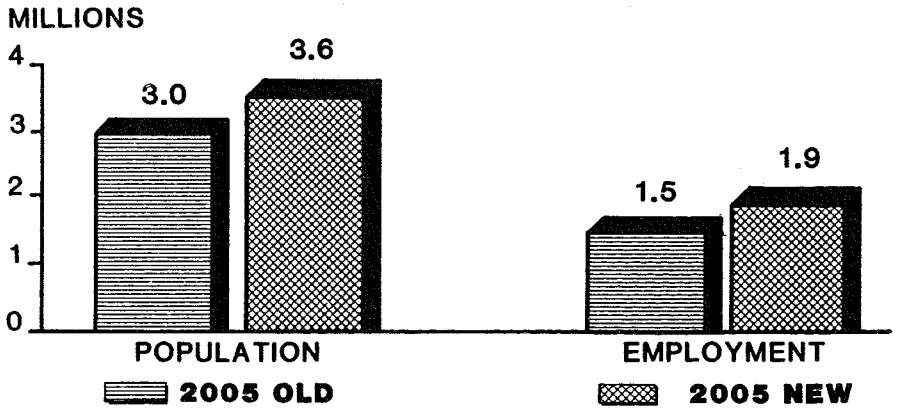
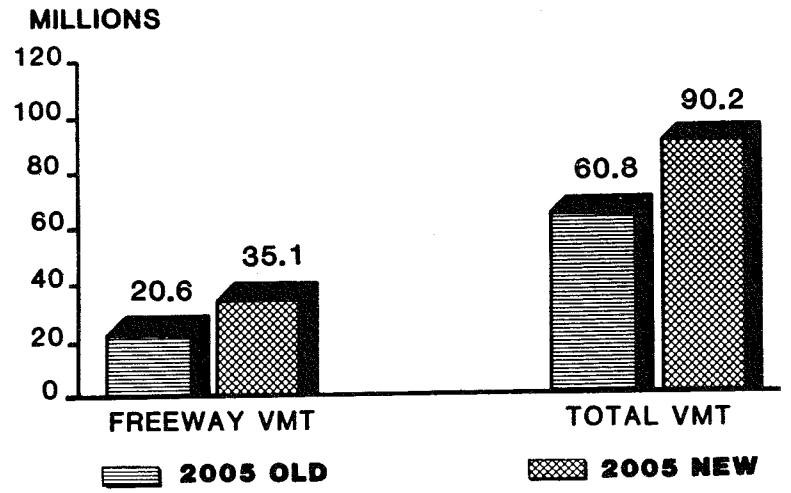


FIGURE 4

VEHICLE MILES OF TRAVEL FORECASTS FOR THE YEAR 2005

BASED ON 1984-85 AND 1988 MODEL RUNS



The changes in population, employment and travel forecasts indicated in Figures 3 and 4 have had direct impacts on the major design features of the MAG System in the Engineering Design Phase.

CHANGES IN SYSTEM DESIGN

Impacts on the design of MAG System facilities can be seen in the following specific examples.

THE SQUAW PEAK:

The 1985 planning estimate, based on a daily traffic forecast of 89,000 vehicles, called for a 6 and 8-lane above- ground freeway.

With the new traffic forecast averaging 114,600 vehicles per day, the 1988 engineered system calls for generally 6, 8 and 10-lane depressed and above-ground freeway with a full free-flow interchange with the Pima.

THE PRICE:

The 1985 planning estimate called for a 6-lane at-grade expressway to serve the anticipated 44,300 vehicles.

The 1988 engineered system calls for a 6-lane depressed and above-ground freeway, incorporating a dual frontage road system to accommodate the 122,700 vehicles expected to use this facility on a daily basis. Major drainage and utility features have also been added in order to better serve the public.

THE AGUA FRIA-PIMA (OUTERLOOP):

The 1985 planning estimate for this entire facility was based on an average traffic projection of 40,300 vehicles per day. This traffic was to be handled by a 4-lane at-grade expressway and a 6-lane above-ground freeway (except in Tempe).

In light of the new traffic forecast of 135,700 vehicles per day, the 1988 engineered system calls for a 6, 8 and 10-lane depressed and above-ground freeway with extensive frontage roads, four full free-flow interchanges (1 depressed . . . see below), and a major drainage system including a tunnel.

The new design includes two unique traffic interchange features. The first, at Superstition and Pima, is a depressed, full free- flow interchange. This design was chosen to better serve traffic and commercial development in the East Valley, while mitigating environmental impacts from adjacent land uses. The second, at I- 17 and the OuterLoop, is the multiple interchange system designed to handle traffic circulation to serve the intense development planned for this future Northwest Valley "village core."

In addition to the impacts of increased traffic forecasts on the number of lanes, the preceding examples also demonstrate an increased sensitivity toward environmental mitigation (i.e. - depressed or above-ground alignments), increased attention to drainage requirements, and increased provision of traffic interchange facilities on the MAG System.

A summary of the upgrades of the major design features on these three high-traffic-area segments of the MAG System are tabulated in Figure 5.

FIGURE 5

A SUMMARY OF UPGRADES IN FACILITY DESIGN ON THE SQUAW PEAK, PRICE AND AGUA FRIA-PIMA

SERVICE FEATURES:	1985 SYSTEM:	1988 SYSTEM:
NUMBER OF FULL-FREE-FLOW T.I.s	NONE PLANNED	5
NUMBER OF TRAFFIC INTERCHANGES	43	57
NUMBER OF LANE-MILES (EXPRESSWAY)	87	12
NUMBER OF LANE-MILES (FREEWAY)	334	424
MILES OF ROADWAY DEPRESSED	7	29
MILES OF 50-YEAR DRAINAGE	NOT DEFINED	69

Summarized in Figure 5 are upgrades which include: a 33 percent increase in the number of traffic interchanges, as well as the addition of five major, full free-flow interchanges; a major shift from expressway to freeway design features; and a quadrupling of the number of miles of depressed roadway.

CONSEQUENCES OF DESIGN CHANGES

Increased capacity requirements which dictate expanded facilities obviously increase the amount of right-of-way required and, in the case of the example cited above, affect overall construction costs. Accordingly, questions arise which require direct answers.

- Does this have a significant negative effect on other segments of the system? No!
- Can segments be constructed to planned levels? Yes!
- Can we produce the Five-Year Plan? Yes!
- Can we still build the entire System? We believe that the System can be built and it is this premise which must be our guide. That premise is founded upon the following:

It must be recalled that the original planning estimates for the entire system were generated in a generic sense, using the traditional formula of unit cost per mile for a uniform lane capacity times the total length of the system. As the Arizona Department of Transportation goes about the development of

detailed engineering plans and proceeds to construction, it must manage that activity in a manner that will deliver specific segments of the freeway system which meet capacity and traffic volume needs.

Using formal value engineering techniques and designing and building only what is precisely required, ADOT can design and construct individual corridors to the level required by future traffic projections. In order to effectively manage the design and construction process, ADOT must work within a broad range of total system cost estimates and projected revenues for a 20-year time span.

Long-term estimates of costs are currently in the $5 billion range. And while current projected revenue estimates range to a high of $5 billion, it should be noted that other potential sources of revenue enhancement and/or cost reduction are possible. For instance, it is possible that the new federal program, currently under consideration, will provide additional funding for "interstate-type" facilities. It is also possible that increased cooperation from local governments and private developers around the Valley will decrease the current estimated cost associated with the acquisition of right-of-way for the MAG Freeway/Expressway System.

In any event, it is of the utmost importance to recognize that there are no precise estimates for either costs or revenues. Rather, such analyses are made by ADOT in order to be used to manage and control the development of the system. No business entity, either public or private, can make precise estimates of similar costs or revenue streams for a 20-year time span, given the variables involved.

The exact needs for surface transportation facilities cannot be precisely framed for a 20-year demand without recognizing the need for modification. Framers of House Bill 2306 provided for the obvious need to examine and prepare for modifications and/or additions to the system by requiring status reports from MAG and ADOT at five-year intervals throughout the 20-year life of the program.

As the 1990 review approaches, representatives of ADOT, the MAG Regional Council, cities within the Valley, interested members of the business community, and individual citizens must convene to discuss and reassess the MAG System. Findings from such discussions and assessments will become a significant part of ADOT's report to the Legislature in 1990.