

TOLL ROAD STUDY COMMISSION

FINAL REPORT

December, 1984



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Arizona House of Representatives
Phoenix, Arizona 85007

November 16, 1984

The Honorable Bruce Babbitt
Governor

The Honorable Stan Turley
President, Arizona State Senate

The Honorable Frank Kelley
Speaker, Arizona House of Representatives

Dear Governor Babbitt:
President Turley:
Speaker Kelley:

We are pleased to transmit the enclosed report of the Toll Road Study Commission. Last year our Commission was under limited time constraints and did not have adequate opportunity to explore the toll road issues. During the past year that the Commission has been extended, an independent, in-depth study of the feasibility of toll roads in Arizona has been conducted.

The Commission concluded that toll roads are not a feasible financing alternative to Arizona's transportation problems at this time. However, the report did answer the questions raised by the Commission concerning the need for a Toll Road Authority, if private enterprise could operate toll roads, the role of local governments, and how federal laws and federal funds may impact toll roads.

With this report, we conclude our study of the feasibility of toll roads in Arizona.

Sincerely,


JOE LANE
Chairman
Toll Road Study Commission

Enc.

JL:ba

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STATUTORY AUTHORITY

The Toll Road Study Commission (Laws 1983, Chapter 107) is mandated to:

1. Conduct studies and inquiries, and hold hearings to determine the feasibility of establishing a toll road authority and a toll road system in Arizona.
2. Utilize legislative staff services and hire consultants necessary to determine feasibility.
3. Report to the Governor, the Speaker of the House and the President of the Senate on the Commission's findings and recommend any necessary steps to implement an effective toll road authority and system to meet the needs of the growing population of this state.

COMMISSION ACTIVITY

In December, 1983, the Commission recommended that it be extended so that a comprehensive study of toll roads could be conducted. The Commission recommended that certain items be investigated in this study. These items were:

1. Whether a separate Toll Road Authority is needed and what duties it will perform.
2. Determine which routes in Arizona may be conducive to toll roads and what type of studies are needed to determine their feasibility.
3. Determine if toll roads may be better controlled through private enterprise.
4. Examine the possibility that local governments and municipalities establish their own toll roads and toll road authorities.
5. Determine how federal laws and federal funds may impact any suggested toll routes.

In January, 1984, the Commission requested ADOT to prepare a Request for Proposal (RFP) to advertise for a consultant to conduct a Toll Road Feasibility Study for the State of Arizona. By April 1, a consultant firm was selected and work began immediately on the study. The Commission selected JHK & Associates. JHK is a nationally recognized transportation consulting firm with major offices in a number of cities including Phoenix and Tucson. JHK also utilized the firm of URS/Coverdale and Colpitts and the Phoenix law firm of Gallegher and Kennedy.

The Commission unanimously adopted the recommendations of the consultant team. The executive summary of the consultant is respectfully submitted as a major portion of the Commission's final report.

COMMISSION RECOMMENDATIONS

The recommendations of the Commission are as follows:

1. The Legislature should consider the drafting of appropriate enabling legislation authorizing the establishment of the Arizona Toll Road Authority. This would replace obsolete legislation which is no longer pertinent to current Arizona needs. The purpose of such legislation is not to proceed directly to financing any particular project, but to have in existence the appropriate legislation should toll roads become feasible in the future.

Legislation should address the following points:

- ° The ability of the Authority to plan, design, construct, operate and maintain toll roads in the state.
- ° The manner in which the Toll Road Authority is comprised.
- ° The relationship of the Toll Road Authority to the Arizona Transportation Board.

- The manner in which the Toll Road Authority would coordinate its program with that of the Arizona Department of Transportation.
 - The manner in which toll road generated funds can be mingled with funds from other federal, state and local agencies as well as private parties.
 - The role of the private sector in financing and/or operating portions of the toll road or concessions along its length.
 - The manner in which cities and counties will be permitted to construct and operate toll roads.
 - The treatment of toll roads once the bonds have been retired.
2. Mechanisms for co-mingling of funds should be explored separately by appropriate agencies within the Arizona Department of Transportation. Since a prime source of the non-toll portion of the co-mingled funds could be the Arizona Transportation Board Revenue Bonds, it is important that the constraints on these bonds be fully defined and the amount of additional bonds that could be sold determined both under current highway user revenue funds as well as any option for increasing such funds.
 3. Additional detailed studies of the proposed facilities which were recommended as toll roads should be made.
 4. Arizona officials should work with their counterparts in other states to effect changes in the federal policies dealing with toll roads to make it easier to use federal funds in their construction and maintenance and to define conditions under which existing federally funded roads could be tolled.

EXECUTIVE SUMMARY

1. HIGHWAY FINANCING IN ARIZONA

Financing an adequate highway system has become a severe problem for state agencies during the last decade. In the face of continuing increases in traffic, highway funds (in constant dollars) have decreased while the cost of building and maintaining highways has increased. Meanwhile the highway system continues to age, requiring greater attention to maintenance and revitalization.

Faced by this dilemma of increased needs and decreased funding, highway officials at the local, state and Federal level have utilized various means to keep up with the problem. One response was to push for increases in the gasoline fuel tax at the state level. Since 1978 most states have increased their gas tax. At the present time, Arizona's gas tax stands at 13 cents which is close to the national average. However, even with an increase in the gas tax, the effects of the high inflation rates of recent years has dampened any major funding improvement.

The Federal government through the Surface Transportation Assistance Act (STAA) of 1982 also responded by passing a five cent Federal fuel tax increase. This was the first increase in the Federal fuel tax in over 20 years, but again the ravages of inflation meant the Federal dollars, in terms of their buying power, were substantially less than was the case 15 years ago.

The State of Arizona has long recognized its financial needs with regard to highways and had taken several steps to improve the situation. In 1980 the Arizona Transportation Board was authorized under the State Highway Bonding Authorization Act to issue bonds up to a total of \$500,000,000 outstanding at any time for the purpose of highway construction and improvements in Arizona. In 1980 the Board issued \$50,000,000 in bonds and in 1982 issued an additional \$168,125,000 in bonds. The bonds are backed by the Arizona Highway User Revenue Fund (HURF) which consists of fuel taxes and other vehicular generated revenues.

To ensure that the legally required coverage of these bonds would be available and to provide for the ongoing operation and maintenance costs, the Arizona fuel tax was also increased over a period of several years. A total increase of five cents per gallon was approved which consisted of a two cent increase on July 1, 1982, another 2 cents on July 1, 1983 and a final cent on July 1, 1984. At this time the issuance of

additional Transportation Board bonds would require another increase in HURF funds or a decrease in some other ADOT highway program which uses HURF money.

Although the fuel tax increase both in Arizona and at the Federal level have made the problem more bearable, years of insufficient funding of the highway system has resulted in numerous projects being indefinitely postponed and the others being built in phases over a long period of time. Amidst this environment, a number of agencies have considered a financing mechanism which, over the years, has been very popular in some states, namely toll financing. The use of tolls in transportation has a long history in the United States. Most early Colonial roadways were built as toll roads. The Nations first freeways were also constructed as toll roads beginning with such facilities as the Pennsylvania Turnpike in the early 1940's. Many of this countries major bridges and tunnels were also built as toll facilities.

However, toll roads began to lose their popularity once the Interstate System was under construction. The Interstate Highway Trust Fund replaced tolls as a means of financing and although some toll road construction continued into the late 1960's and the early 1970's, it was on a very limited basis compared to the heydays of toll roads during the 1950's.

2. THE LEGISLATIVE RESPONSE

Given the financial situation of Arizona's roads and the potential that toll road financing might provide some relief, a number of Arizona's senators and representatives introduced legislation to consider the concept of toll financing in the State. On April 12, 1983 Governor Babbitt signed into law House Bill 2427 which provided for a "Study Commission on the Feasibility of Establishing Toll Roads and a Toll Authority" for the state of Arizona. The legislation created a nine member body empowered to make studies and conduct inquiries concerning the feasibility of toll roads for Arizona.

The Toll Road Study Commission was interested in a number of specific questions, namely:

- Is a separate toll road authority needed and what are the duties it would perform?
- Could toll roads be better controlled through private enterprise?
- Should local governments and municipalities establish their own toll roads?
- How do Federal laws and funding programs impact proposed toll roads?

- . What routes in Arizona show the greatest potential as toll roads?
- . What financial arrangements would be necessary to permit potential routes to operate as toll roads?

To assist in responding to these questions, the Toll Road Commission was authorized to retain the services of a Consultant knowledgeable in the matters of toll road financing. The Consultant Team headed by JHK & Associates assisted by URS/Coverdale and Colpitts, and Gallagher & Kennedy, was selected to develop information for use by the Toll Road Study Commission.

Arizona's action in establishing a toll road study commission follows similar actions in other states as well as renewed interest at the Federal level. The Reagan administration had proposed to allow Federal funds to be used in the construction of new toll roads on the Federal Aid System, but this proposal did not get included in the approved legislation. In a recent paper^{1/} Richard B. Robertson, Associate Administrator for Planning and Policy Development, Federal Highway Administration, made the following comments concerning Federal funding for toll roads:

"It is absolutely necessary that we seriously consider all financing mechanisms with a potential for increasing the revenues which are necessary to finance the highway improvements, thus improving highway related productivity."

Thus both the Federal government and Arizona are considering the potential for toll roads and the timing of this project is opportune as the state assesses its highway financing options.

3. PURPOSE OF THIS REPORT

This report provides a summary of the studies, investigations, research, analyses and evaluations made concerning toll road feasibility in Arizona. The seven month long effort conducted by the Consultant Team, in close coordination with the Toll Road Study Commission and staff of the Arizona Department of Transportation, resulted in a series of working papers which addressed the major issues of the study. Each of the working papers was presented to the Commission in a forum open to the public and as a result received considerable attention from the media. A comprehensive report covering all aspects of the study is available as a separate

^{1/} Statement to the Senate Committee on Environment and Public Works, Subcommittee on Transportation, July 6, 1983.

volume in order to document the methodology and details of the study. This report which is identified as the Executive Summary provides a more concise presentation of the key elements of the study and the general conclusions and recommendations which the Consultant has come to. Readers of this document may wish to review the main report for additional information.

4. STUDY PROCEDURES

The study was conducted by obtaining a broad range of perspectives and information pertaining to highway needs and financing in the State. At the outset of the project, the Consultant Team interviewed a number of key decision makers in the State to get their ideas on highway needs and the advisability of toll financing. They were also asked to suggest certain roadways, both existing and proposed, which they might consider as potential toll roads.

While the interviews were underway, information was also being gathered on existing state and federal laws pertaining to toll roads. The institutional framework in Arizona and the unique characteristics of the state were believed important to tailor a program for Arizona.

Information was obtained from the Arizona Department of Transportation on current and future needs and plans, proposed highway improvements, available long range studies and forecasts of highway usage. Similar data was obtained from the major urban areas, primarily Phoenix and Tucson.

Finally, an assessment was made of the current status of toll roads in other states in this country and the manner in which toll financing was taking place under current economic conditions.

The next step in the study involved the development of a screening and evaluation process by which existing and proposed roads on Arizona's highway system could be evaluated for potential as toll roads. Screening and evaluation criteria were developed which considered financial impacts, social and environmental impacts and the potential for improved traffic services. Through this process a number of routes both existing and proposed were eventually selected for more detailed analysis. The screening and evaluation process is schematically depicted on Figure 1.

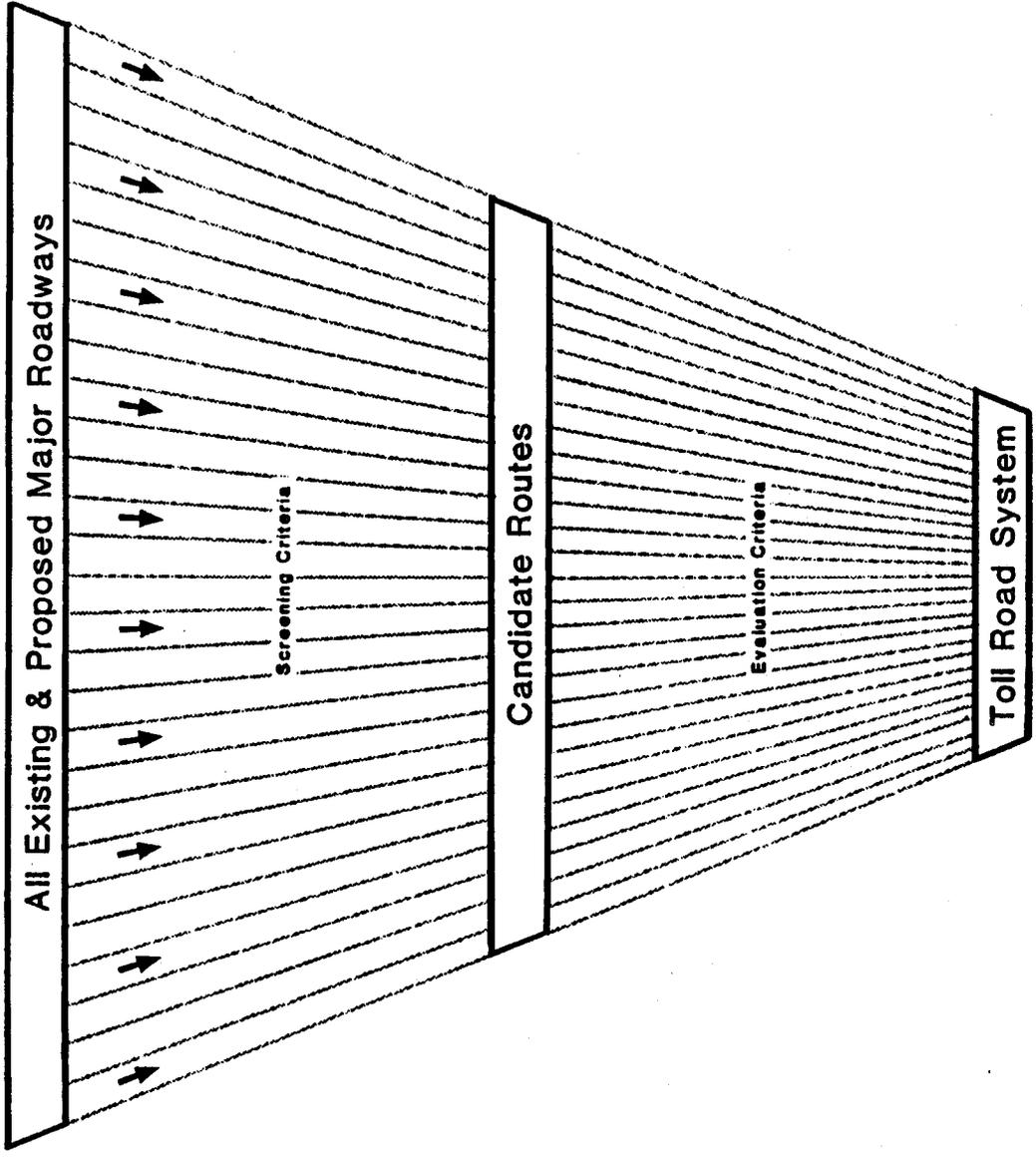


FIGURE 1. THE NARROWING PROCESS FOR SELECTING THE TOLL ROAD SYSTEM

These detailed analyses looked closely at the financial feasibility of the candidate routes although not to the extent that would be required for a formal feasibility study. Traffic forecasts were prepared for each route and a toll collection plan was developed. Construction, maintenance and operating costs were estimated and inflated to represent conditions when the project could be built and over its lifetime.

5. THE TOLL ROAD EXPERIENCE

The pressures of building roads in this day and age have provided renewed interests in using tolls as a funding source. Using toll financing, the money needed to plan, design and construct a facility can be assembled quickly and in an adequate amount to build the highway expeditiously. In addition, if Federal money is not involved in the process, Federal regulations, particularly those related to the environmental process, can be avoided or at least mitigated. Needless to say, these reasons are very important from both a local and state perspective.

Modern toll roads have developed principally as vital parts of the intercity highway network for which public funding was not available. The pressures built up by the national traffic explosion after World War II required a rapid expansion of our major highway network. In the interval before the Interstate Highway System was authorized in 1956, at least 14 major toll road systems were fully or partially implemented in as many states, following in the footsteps of Pennsylvania, which had opened the modern toll road era with sections of its Turnpike in 1940.

These early toll roads were all built under the jurisdiction of separate authorities or commission authorized as "public benefit corporations" or similar entities by their respective state governments. They all issued revenue bonds; they all had broad independent powers to carry out their mandates; and they all met urgent needs for better highway transportation by proceeding with their projects with dispatch and a minimum of interference. They established certain patterns of procedure: the marketing of revenue bonds required a team consisting of consulting and traffic engineers to determine the feasibility and cost of the projects; bond counsel to draw up trust indentures and assist in drafting needed contracts and legislation; and a financial advisory and/or bond syndicate manager to prepare the many details required for issuing and marketing revenue bonds.

Today there are over 20 states in the Nation which have created toll road authorities or commissions. Currently there are approximately 4,300 miles of toll roads in operation in this country.

Both benefits and disadvantages can be associated with toll roads. Some of the more significant of these factors are cited below.

TOLL ROAD BENEFITS

1. Toll roads permit revenue bond financing based on toll payback, alleviating the need for tax revenues.
2. Toll financing speeds up completion of facilities, since all needed funds become available either prior to or during the construction period, and are not dependent on tax revenues or public budgets. This not only permits earlier use of the road, but reduces costs by minimizing the inflationary effect.
3. Toll financing relieves the highway capital budget and makes more funds available for other projects.
4. Toll financing may avoid or reduce the magnitude of tax increases or public budget allocations for maintenance and operation by placing the burden directly on facility users who voluntarily pay for the service; many from out-of-state.
5. Toll roads generally provide higher quality facilities for motorists because of better maintenance, greater safety, less traffic interference due to spacing and design of access points, better policing and breakdown service, roadside restaurants and service areas.
6. Toll roads produce jobs both during design and construction and also for long-term operation and maintenance.

There are disadvantages, however, which are cited below.

TOLL ROAD DISADVANTAGES

1. Some people object to tolls and toll increases, which can be used as political issues. They may feel they are being taxed twice for the same service. Truckers and others who depend upon highways for their business may feel that they are being unduly burdened.

2. Pressure often builds for additional interchanges, which, for reasons of operating efficiency, cannot be spaced as closely as those on similar non-toll freeways.
3. Costs of toll collection and interest are incurred (but are covered by toll revenues).
4. Cost increases during planning or construction phases may result in inadequate funds under a revenue bond issue, sometimes requiring supplemental funding to be provided by state or other means.

The economic conditions faced by highway construction agencies has caused many states and local jurisdictions to look once again at the advantages of toll roads. The result of this interest has been a resurgence of activity with regard to toll roads. Several states have continued to be active in planning, designing and building toll roads while several other state and localities have conducted feasibility studies to determine what benefits might accrue from a toll road system. Both Pennsylvania and Wisconsin have recently conducted state wide toll feasibility studies. Other states like Texas, Virginia and Florida have continued to use toll financing to build roadways and local jurisdictions like Harris County (Houston, Texas area) have recently approved referendums allowing them to sell bonds to finance toll roads.

6. THE FEDERAL POSITION PERTAINING TO TOLL ROADS

The Federal government's regulations on toll roads are contained in the Code of Federal Regulations, Title 23, Sections 301 and Section 129. Section 301 reads as follows:

Freedom from tolls

- . Except as provided in section 129 of this title with respect to certain toll bridges and toll tunnels, all highways constructed under the provisions of this title shall be free from tolls of all kinds.

Section 129 limits Federal participation to toll bridges and tunnels and their approaches and goes on to specifically prohibit participation in toll roads. This prohibition has been reinforced on a number of occasions although several states have attempted to get the current regulations changed.

The basic Federal policy is that any road built partially or totally with Federal funds will be a free road. Once the road has been opened to traffic there is no existing means that would permit it to be converted to a toll road. At this time there are no highways in this country built with Federal money that have become toll roads. Thus,

to consider tolling any highway in Arizona that was planned and constructed with any Federal money will require a change in Federal legislation.

A number of states, most recently Wisconsin and Pennsylvania, have conducted studies suggesting that all or portions of their Interstate systems be tolled. They cite the problem of existing Federal laws but appear to assume that getting Federal legislation changed is a good possibility.

Our own assessment of the situation is that it will be an uphill battle to change current Federal law at least as it relates to converting free roads to toll roads. The Administration has gone on record opposing such a change and previous administrations also have not been supportive of the concept. What is more likely in the way of revised Federal legislation is the ability to use Federal funds to help finance proposed highways as toll roads.

In the past a number of states have received federal funds for toll roads which had been initiated prior to the Interstate System. These roads, largely in the East, essentially were "grandfathered" into the Interstate System. The agreement which permitted this to occur required that all revenues less operation and maintenance costs be used to retire the bonds and that once retired the roadway be free. Since those agreements were made, a number of these roads have reached the point where the original bonds have been paid off. However, because of the need to rebuild the roadway or increase its capacity, new agreements were made with the Federal government which permitted a continuation of tolls.

During the last decade there has been a gradual lessening of the anti-toll road attitude in the Congress and by the Administration. In the 1978 Surface Transportation Assistance Act, Congress for the first time allowed Interstate rehabilitation funds to be used to provide improvements for toll roads. The use of such funds does require a Federal/State/Toll Authority agreement with the usual stipulations that at some point in the future the road be converted to free use.

The current Administration wanted to go even further in its own version of a highway bill which was introduced in 1982. It recommended that states be able to use Federal funds at the start of the highway process to investigate, plan and design a project, which later would depend upon bond financing for the major construction cost, without any penalty to the state or even the need to pay back such money. The

Administration further wanted to deregulate toll bridges and tunnels where Federal funds were involved. This would have gotten the Federal government out of the rate setting loop for such facilities. Neither of the above provisions got included in the 1982 bill that was passed but it indicated the Administration's attitude.

7. STUDY FINDINGS

Twelve candidate routes shown on Figure 2 were evaluated as potential toll roads in the state of Arizona. These consisted of several projects that have been proposed for construction over the next two decades, as well as a number of existing roadways where improvements are needed or where maintenance costs are high and tolling is being considered as one means to finance the identified needs. The evaluation process included a determination of the volume of traffic that would use the highway if tolls were imposed, the location and type of toll collection system, the amount of toll that would be charged, the various costs associated with the project and the size of the surplus or shortfall in debt service that would result. The evaluation also considered the difference in social and environmental impacts that result if the project were constructed as a toll road rather than toll free. Table 1 summarizes the results of the financial evaluations that were conducted. The evaluations indicated the following:

- The revenues generated from each of the projects are sufficient to provide their annual expenses for operations, maintenance, pavement preservation and a portion of their debt service.
- Excluding those projects which were primarily for providing maintenance expense, none of the projects which require major construction would be able to pay back the capital costs solely from toll revenues.
- A substantial improvement in the results of the financial analyses would result from the following occurring:
 - A decline in interest rates, at the time the toll revenue bonds were sold, from the 10 percent rate assumed for this analysis.
 - A decline in the inflation factors for highway construction, over the next several years, from the inflation factors assumed in this analysis.
- Traffic volumes on highways in Arizona are generally not as high as those found in the high density eastern states where most toll roads are located.

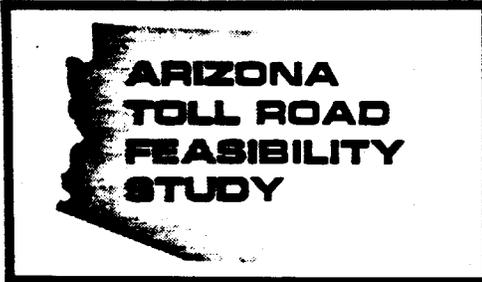
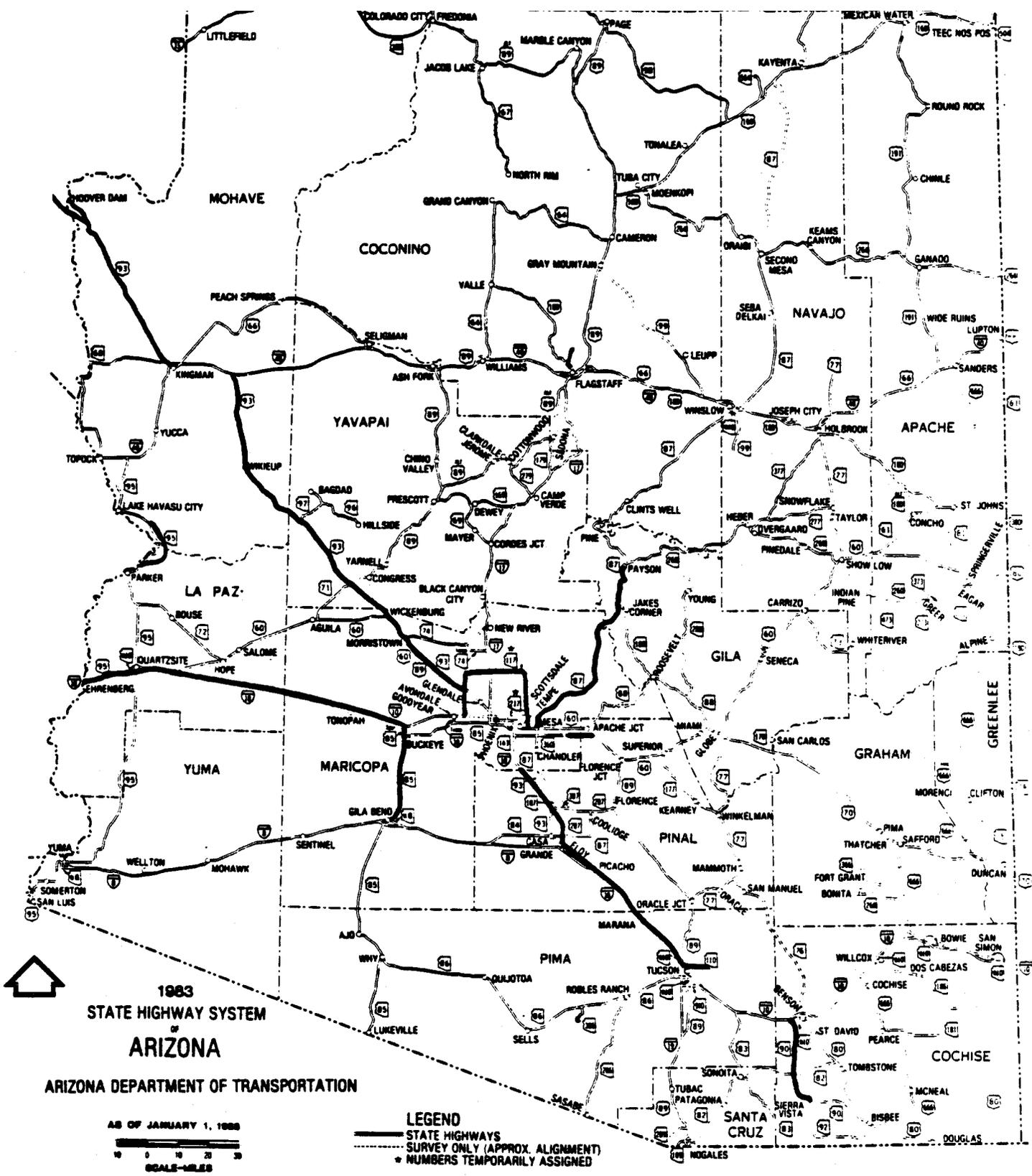


Figure 2.
RECOMMENDED PRELIMINARY TOLL ROAD SYSTEM
 jhk & associates ■ URS/Coverdale & Colpitts ■ Gallagher & Kennedy

Note: The routes shown on this map were the candidates which were evaluated. Only certain of these routes were recommended for further consideration as discussed later in this report.

Table I. Summary Evaluation of Candidate Routes

Route	Length (miles)	Current Construction Cost	Operating, Maintenance and Pavement Pres. Cost	Req. to Meet Debt Service	Toll		Opening Year and Year 2007 ADT	Opening Year and Year 2007 Revenue ⁽²⁾		Annual Level Debt Service ⁽³⁾	Ratio-Net Revenue to Debt Service ⁽⁴⁾	
					Recommended			Total \$	Net \$		Opening Year	Year 2007
Rillito Parkway	13	\$213,000,000	\$1,488,000	\$4.00	\$1.25 ⁽¹⁾	23,200/42,700 ⁽¹⁾	13,807,000 23,847,000	12,319,000 20,375,000	\$44,195,000	.28	.46	
Superstition Freeway	11	100,000,000	888,000	4.00	1.00 ⁽¹⁾	5,460/11,900 ⁽¹⁾	4,733,000 8,332,000	3,845,000 6,422,000	18,341,000	.21	.35	
Outer Loop	55	409,000,000	2,896,000	15.00	4.00 ⁽¹⁾	53,800/130,000 ⁽¹⁾	15,660,000 46,525,000	12,764,000 35,979,000	79,090,000	.16	.45	
I-10 Ehrenberg/Phoenix	115	3,000,000 ⁽⁵⁾	3,377,000	1.00	1.00	9,120/16,530	3,433,000 6,155,000	51,000 3,001,000	-	-	-	
I-10 Phoenix/Tucson	86	3,000,000 ⁽⁵⁾	2,550,000	.50	.50	15,390/20,330	2,808,000 3,710,000	258,000 1,160,000	-	-	-	
Hoover Dam Bypass	4	67,000,000	160,000	6.50	2.00	4,400/6,200	3,212,000 4,526,000	3,592,000 4,959,000	12,055,000	.30	.41	
SR 95 Parker Bypass	8	14,000,000	190,000	4.00	.80	2,025/3,600	633,000 1,125,000	443,000 801,000	2,928,000	.15	.27	
SR 85 I-10 to I-8	33	20,000,000	1,708,000	2.50	1.50	6,545/8,925	4,472,000 6,099,000	2,764,000 4,514,000	5,796,000	.48	.78	
SR 87 Phoenix-Payson	73	113,000,000	3,292,000	27.00	4.00	3,990/5,795	3,761,000 5,466,000	469,000 2,611,000	21,815,000	.02	.12	
SR 90 I-10 Sierra Vista	24	1,000,000 ⁽⁵⁾	602,000	.50	.50	3,610/5,320	602,000 893,000	-	-	-	-	
Snow Bowl Access	8	3,000,000	78,000	2.75	2.75	600/900	595,000 892,000	517,000 814,000	517,000	1.00	1.57	
US 93 Wickenburg-I-40	102	51,000,000	2,906,000	10.00	5.00	3,135/4,465	6,212,000 8,840,000	3,306,000 6,346,000	9,300,000	.36	.68	
US 93 I-40-Hoover Dam Bypass	71	76,000,000	3,167,000	8.00	3.50	4,845/7,030	7,244,000 10,508,000	4,077,000 7,500,000	13,605,000	.30	.55	

(1) At barrier.

(2) Total revenue refers to the gross total of all toll revenues collected at the barrier or ramps over the course of the year. Net revenue is the difference of the total revenue minus the annual cost of operations, maintenance and pavement preservation.

(3) Annual Level Debt Service is the amount required each year over the life of the bond to pay the interest and principal costs and to provide for all financing, legal and other fees associated with the sale of the bonds.

(4) Ratio of Net Revenues to Debt Service is an indication of what percentage of the average annual debt service would be covered by revenues from the tolls. It provides an indication of the magnitude of outside funds that would be required in a cost sharing arrangement. The ratio improves in the later years of a project as traffic volume and toll revenue increase.

(5) Estimated cost of toll plaza.

- Co-mingling or cost sharing to fund several of projects is a feasible option with toll revenues combined with Federal, state, local government, and private contributions, all potential sources. The first few years of a toll project are the most critical financially because traffic volumes and toll revenues are low. It is in the first few years that the necessary cost sharing arrangements are essential to meet debt service requirements.
- The twelve candidate projects may be logically grouped into two categories. Category I consists of proposed routes which could be implemented by Arizona passing the appropriate enabling legislation. Category II consist of those existing highways currently on a Federal aid system which would require congressional legislation to permit tolling along with the appropriate Arizona enabling legislation. Category II projects, because of the major hurdle requiring changes in Federal legislation, can be considered problematical with regards to their potential as toll roads. It is recommended that no actions be taken that would preclude their becoming toll facilities should this be the legislature's desire at some future date.
- The Category I projects which are recommended for further consideration in a statewide toll road program are:
 - The Outer Loop in the Phoenix area
 - The Superstition Freeway in the Phoenix area
 - US 93, the Hoover Dam Bypass
- The Category II projects which would warrant further consideration should the appropriate Federal and State legislation be enacted are:
 - I-10 (Phoenix to Ehrenberg; Phoenix to Tucson)
 - SR 85 (I-10 to I-8)
 - US 93 (Wickenburg to Hoover Dam)
- There were several major issues which emerged during the evaluation process for which assumptions were made in order to complete the analyses. If toll roads are implemented, these issues would have to be dealt with in greater detail. These issues are:
 - An equitable rate for trucks considering current truck taxing requirements.
 - The Federal requirements if Federal law does change with regard to tolling existing Federal aid highways.
 - The appropriate mechanism for co-mingling of funds including Transportation Board Highway Revenue Bonds.
- Should toll road funding be implemented in Arizona, the toll road program should be fully integrated and coordinated with the total Statewide Highway Development program.

8. CONCLUSIONS AND RECOMMENDATIONS

The State of Arizona is faced with the problem of raising additional funds to accelerate a badly needed highway program. It must choose between some form of increased tax at the state or local level such as higher motor vehicle registration fees, an increase in the sales tax or an additional increase in the fuel tax. The use of motor vehicle receipts and fuel taxes, the so called highway user revenue funds (HURF), have been the traditional means of raising revenue. Toll road financing would represent a departure from past practices.

The subject of toll roads is a controversial one in Arizona. Comments at the public meetings of the Toll Road Study Commission as well as from newspaper, radio and television coverage indicates that there are strong feelings on both sides of this issue. The successful implementation of a toll road program will require a thorough explanation to the motoring public of its benefits as compared to other funding alternatives.

Toll roads in Arizona would generate substantial additional revenue for highway construction purposes. Revenues generated in the first year of operation range from three million to 15 million for the projects recommended for further consideration. By the 20th year of operation this range has grown to 4.5 to 45 million dollars. Approximately 15 million dollars in revenues represents the equivalent of a one cent rise in the fuel tax on a statewide basis.

Toll road financing is feasible if the appropriate cost sharing arrangements can be agreed upon. This study did clearly demonstrate that under current economic conditions there are no projects in the state that could be totally supported through the tolls they generate. However, this finding is consistent with the findings from other toll feasibility studies undertaken in other parts of the country. Today's economic conditions which includes a combination of high municipal bond interest rates with high construction costs rules out, with but few exceptions, the financial feasibility of a toll project which must rely fully on toll revenues. Thus the findings of this study were not unexpected. Construction of toll roads will require additional funding from other sources.

The study did indicate that each of the recommended routes would be able to fully cover all its operating and maintenance expenses from toll revenues and would further make significant contributions to debt service. Thus by using toll financing the road could be built at a net savings to the public agency.

Private financing of toll roads is not a viable option for Arizona at this time for a number of reasons. From an economic standpoint none of the candidate routes could be fully supported from toll revenues. Thus public support would be needed in any case. Privately issued bonds would not be exempt from Federal and State taxes thereby diminishing their appeal to investors. Finally the lack of private sector involvement in toll roads during the last half century makes it doubtful if there is any interest by the private sector to seriously consider this type of investment.

The private sector would still play an important role in toll road financing through their typical involvement in the feasibility determination, design and construction of the highway as well as that of bond counsel, underwriters and concessionaires. The enabling legislation should not preclude private sector involvement should conditions change in the future.

There does not appear to be any overriding reason to preclude counties and municipalities from establishing toll roads. Existing Arizona law provides for the operation and funding of roads and highways by counties and municipalities and the provision of toll road financing would be a logical extension of this power. Statewide legislation should, however, establish the means for interjurisdictional cooperation and the coordination of any such facilities within an overall highway improvement program.

A key ingredient to the financial analyses of a project is its construction costs and the interest rates at the time the bonds are sold. This study assumed current interest rates and utilized preliminary costs estimates based upon a design for a free road. Means of reducing construction costs by phasing the project, eliminating low demand interchanges, and other cost reduction measures would be helpful. Likewise the timing of when bonds are sold is critical to the overall financing. Although there is little that can be done with regard to the general market trends, there are substantial fluctuations which take place even on the short term and taking advantage of such opportunities would be valuable.

Recognizing the constraints of the municipal bond market along with the need for expanding the highway construction program in the state and considering the options available to do so, the following recommendations are offered:

1. The Arizona legislature should consider the drafting of appropriate enabling legislation authorizing the establishment of the Arizona Toll Road Authority. The legislation would replace archaic Territorial legislation which is no longer

relevant. There is no immediate urgency to this legislation since there is no specific facility whose construction is contingent on toll financing. However, early consideration of this legislation, independent of a specific project, could avoid potential controversy that might be related to that project.

Membership on this Authority would be at the discretion of the Governor and the legislature, although it is recommended that both the Chairman of the Transportation Board and the Director of ADOT be included on the Authority in some capacity. One option which is worthy of consideration would be to define an Authority built around the existing Transportation Board. Additional members could be included and the Authority would be a legally separate body but the dual membership of Transportation Board members would ensure coordination of Arizona's highway program.

The legislation should address the following points:

- The ability of the Authority to plan, design, construct, operate and maintain toll roads in the state.
- The manner in which the Toll Road Authority is comprised.
- The relationship of the Toll Road Authority to the Arizona Transportation Board.
- The manner in which the Toll Road Authority would coordinate its program with that of the Arizona Department of Transportation.
- The manner in which toll road generated funds can be mingled with funds from other Federal, State and Local agencies as well as private parties.
- The role of the private sector in financing and/or operating portions of the toll road or concessions along its length.
- The manner in which cities and counties will be permitted to construct and operate toll roads.
- The treatment of toll roads once the bonds have been retired.

The purpose of such enabling legislation is not to proceed directly to financing any particular road as a toll facility, but to have in existence the appropriate legislation should this course of action be in the interest of the State in the future. Such legislation would also clarify the terms and conditions under which toll financing could be considered and therefore permit a more careful analysis of the feasibility of a specific project.

2. Mechanisms for co-mingling of funds should be explored separately by appropriate agencies within the Arizona Department of Transportation. Since a prime source of the non-toll portion of the co-mingled funds could be the Arizona Transportation Board Highway Revenue Bonds, it is important that the constraints on these bonds be fully defined and the amount of additional bonds that could be sold determined both under current highway user revenue funds as well as under any option for increasing such funds.

These bonds are backed by the taxes and fees which go into the highway user revenue fund and as such they command low interest rates in the municipal markets. Toll road revenue bonds could not be expected to receive as good a rating and would probably have interest rates $\frac{1}{2}$ to 1 percent higher than the Transportation Board bonds. However the Transportation Board bonds that may be issued are limited legislatively in their aggregate and have stringent coverage requirements placed upon them.

Thus using purely transportation board highway revenue bonds to fund new projects may not be adequate to fund a major construction program unless there is a significant increase in the highway user revenue fund, namely a major increase in the fuel tax. The Transportation Board Highway Revenue Bonds meet their debt service requirements solely from HURF revenues. There are no toll generated revenues to assist in the debt service.

The combining of Highway Revenue bonds with toll revenue bonds as a financing mechanism would mean stretching the available funding that would be available solely from the Transportation Board Highway Revenue Bonds.

3. Additional detailed studies of those several proposed facilities which were recommended as toll roads should be made. These studies would focus specifically on the design and operation of these roads with the idea of determining the most cost effective means of constructing the project as a toll road by phasing the construction, eliminating financially unwarranted interchanges, obtaining donations of right-of-way and assessing cost sharing contributions from non-state agencies. This more comprehensive analysis, including traffic surveys, would provide a clearer picture on which to determine a course of action for implementing these major projects.

4. Arizona officials should work with their counterparts in other states to effect changes in the Federal policies dealing with toll roads to make it easier to use Federal funds in their construction and maintenance and to define conditions under which existing federally funded roads could be tolled. There have been initiatives by other states in this regard and Arizona should stay involved to ensure that its own interests are considered.