

MINUTES OF THE House COMMITTEE ON Transportation

The meeting was called to order by Rex Crowell at
Chairperson

1:30 ~~am~~/p.m. on January 15, 1987 in room 313-S of the Capitol.

All members were present ~~except~~:

Committee staff present:

Bruce Kinzie, Revisor of Statutes
Hank Avila, Legislative Research
Donna Mulligan, Committee Secretary

Conferees appearing before the committee:

Mr. Rod Fogo, Kansas Turnpike Authority
Mr. Ronald Hartje, Howard, Needles, Tammen & Bergendoff

The joint meeting of the House and Senate Transportation Committees was called to order by Chairman Rex Crowell.

Chairman Crowell announced that the purpose of the meeting was to receive from the Kansas Turnpike Authority the feasibility studies concerning construction of highways in western and southeast Kansas.

Mr. Rod Fogo, Chief Engineer and General Manager of the Kansas Turnpike Authority, said that the feasibility studies had been conducted by the consulting engineering firm of Howard, Needles, Tammen & Bergendoff in association with Vollmer Associates, traffic engineers, and B. C. Christopher Company, financial advisors, concerning major highway improvements in western and southeast Kansas.

Mr. Ronald Hartje of Howard, Needles, Tammen & Bergendoff, described studies which were conducted on four major routes, linking Joplin, Missouri, to Wichita; Liberal to Wichita; Hays to Wichita and Colorado to Wichita along U.S. 50, U.S. 154, and U.S. 54. (See Attachments 1 and 2)

Mr. Hartje recommended the proposed capital improvement program be built in five years and funded by either a "pay as you go" method using a sunset sales tax or by a 30-year revenue bond program backed by the gasoline tax. He added that a combination of the two methods could also be utilized.

Mr. Hartje further recommended that the funding sources for the proposed project should not interfere with current Kansas Department of Transportation revenues. Also, that the project selection process should not interfere with the current KDOT "prioritization and optimization" selection system and current five-year program.

It was recommended that existing highways and rights-of-way should be utilized wherever feasible in order to reduce construction costs, avoid residential, farm and business displacements and to avoid adding mileage to the State highway system.

CONTINUATION SHEET

MINUTES OF THE House COMMITTEE ON Transportation,
room 313-S, Statehouse, at 1:30 ~~xxx~~ p.m. on January 15, 1987.

Mr. Hartje stated it would be desirable to provide an upgraded four-lane, divided highway in all corridors, but due to funding constraints, it is recommended that the proposed improvements be accomplished in two phases. He said Stage I improvements would provide a super two type two-lane highway with paved shoulders, passing lanes and some city bypasses. Mr. Hartje added that in the future when additional funds become available, two additional lanes could be constructed as Stage II.

The meeting was adjourned at 2:20 p.m.


Rex Crowell, Chairman

SOUTHEAST KANSAS TURNPIKE/FREEWAY

Feasibility Study

SUMMARY REPORT



1986
DECEMBER

HOWARD NEEDLES TAMMEN & BERGENDOFF
with VOLLMER ASSOCIATES **HNTB**

Attach. 1

SOUTHEAST KANSAS TURNPIKE/FREEWAY



KANSAS TURNPIKE AUTHORITY

Nick Badwey *Chairman*
El Dorado

Representative Rex Crowell *Vice-Chairman*
Longton

John B. Kemp *Secretary-Treasurer*
Prairie Village

Richard R. Rock *Member*
Arkansas City

Senator Bill Morris *Member*
Wichita

R. D. Fogo *Chief Engineer-Manager*

Lawrence C. Gates *General Counsel*

Jon Glaser *Controller,
Assistant Secretary-Treasurer*

1986
DECEMBER

HNTB

HOWARD NEEDLES TAMMEN & BERGENDOFF

December 31, 1986

Kansas Turnpike Authority
9401 East Kellogg
Wichita, KS 67207

Gentlemen:

An engineering and financial feasibility study has been completed for major highway improvements in the Wichita to Joplin corridor in Southeast Kansas. The results are documented in a separate feasibility report and summarized herein.

This turnpike/freeway feasibility study was authorized by the Kansas Legislature in Senate Bill No. 492. A Phase I Technical Memorandum entitled "Corridor Location Study" was issued in September 1986. A Phase II report, dated December 1986, documents the results of a detailed engineering, traffic and financial study for the selected highway corridor. It is the overall intent of the study to provide the State Legislature with sufficient cost estimate data and alternative financing measures that a viable highway improvement program can be developed for Southeast Kansas.

Assisting in the development of the report was Vollmer Associates for the traffic and revenue data, and B.C. Christopher Securities Company for the project funding analysis.

Grateful acknowledgement is also made of the excellent cooperation and assistance provided by the Kansas Turnpike Authority, the Kansas Department of Transportation, and numerous other public and private agencies during the study.

Very truly yours,

HOWARD NEEDLES TAMMEN & BERGENDOFF



Daniel J. Watkins

DJW/mlw

Architects Engineers Planners

9200 Ward Parkway • P.O. Box 419299, Kansas City, Missouri 64141, 816 333-4800

Partners James F. Finn PE, Paul L. Heineman PE, Gerard F. Fox PE, Browning Crow PE, Charles T. Hennigan PE, Daniel J. Watkins PE, Daniel J. Spigai PE, John L. Cotton PE, Francis X. Hall PE, Robert S. Coma PE, Donald A. Dupies PE, William Love AIA, Robert D. Miller PE, James L. Tuttle, Jr. PE, Hugh E. Schall PE, Cary C. Goodman AIA, Gordon H. Slaney, Jr. PE, Harvey K. Hammond, Jr. PE

Associates Daniel J. Appel PE, Robert W. Richards PE, Don R. Ort PE, Frederick H. Sterbenz PE, Robert B. Kollmar PE, Kendall T. Lincoln CPA, Jack P. Shedd PE, Roberts W. Smithem PE, Richard D. Beckman PE, Harry D. Bertossa PE, Ralph E. Robison PE, Cecil P. Counts PE, Stephen G. Goddard PE, Stanley I. Mast PE, Robert W. Anzia PE, Walter Sharko PE, James O. Russell PE, Ross L. Jensen AIA, Frank T. Lamm PE, Alexander F. Silady PE, John W. Wight PE, Ronald W. Aarons AIA, H. Jerome Butler PE, Blaise M. Carriere PE, Michael P. Ingardia PE, Bernard L. Prince PE, Stephen B. Quinn PE, Saul A. Jacobs PE, James A. Smith, Ronald F. Turner AIA, Ewing H. Miller FAIA, Douglas C. Myhre PE, Carl J. Mellea PE, Daniel F. Becker PE, Richard L. Farnan AIA

Offices Alexandria, VA, Atlanta, GA, Austin, TX, Baton Rouge, LA, Boston, MA, Casper, WY, Charleston, WV, Chicago, IL, Cleveland, OH, Dallas, TX, Denver, CO, Fairfield, NJ, Houston, TX, Indianapolis, IN, Kansas City, MO, Lexington, KY, Lexington, MA, Los Angeles, CA, Miami, FL, Milwaukee, WI, Minneapolis, MN, Nashua, NH, Newark, DE, New York, NY, Orlando, FL, Overland Park, KS, Philadelphia, PA, Phoenix, AZ, Raleigh, NC, Seattle, WA, Tampa, FL, Tulsa, OK

SOUTHEAST KANSAS TURNPIKE/FREEWAY STUDY SUMMARY REPORT

The 1986 Kansas Legislature enacted Senate Bill No. 492 which authorized and directed the Kansas Turnpike Authority to prepare feasibility studies for alternative routes and types of highway improvements between Wichita and Joplin.

This study was performed in two parts: in Phase I, alternative corridors were identified and evaluated. In Phase II, the selected (north) corridor was studied in considerably more detail, and a number of alternative improvement concepts were developed. Other elements of the Phase II study included: route location refinements, construction cost estimates, alternative financing measures, and traffic and toll revenue forecasts. This report summarizes the results of the Phase II study.

The vital 182-mile long Southeast Kansas corridor between I-35 at Wichita and I-44 near Joplin is not well served by the present Southeast Kansas highway system, refer to Exhibit 1. Existing highway routes via U.S. 54, U.S. 160, U.S. 166, U.S. 69, U.S. 77, K-96, K-26 and K-15 are indirect, and in many instances the present roadways are narrow, winding and functionally obsolete by present-day standards. In addition, the existing highways carry relatively heavy volumes of traffic, generally ranging from 2,000 to 4,000 vehicles per day. Heavy trucks comprise 15 to 20 percent of the total traffic on most highway segments. The primary objectives of this study were to identify viable highway improvement options in Southeast Kansas, their estimated costs and potential methods for funding the recommended improvements.

During the course of the study, data were gathered from numerous sources, and assistance was received from various State agencies in preparing the report. The study followed standard guidelines and is summarized in the following discussions.

DESCRIPTION OF PROJECT

Design criteria for the project were established in order to provide a uniform design and to insure compliance with State and Federal requirements. The criteria vary between the different alternates but, in general, they include: a 70 mph desirable design speed, access control ranging from partial to full, maximum roadway grades from 3 to 4 percent, and other applicable criteria as warranted.

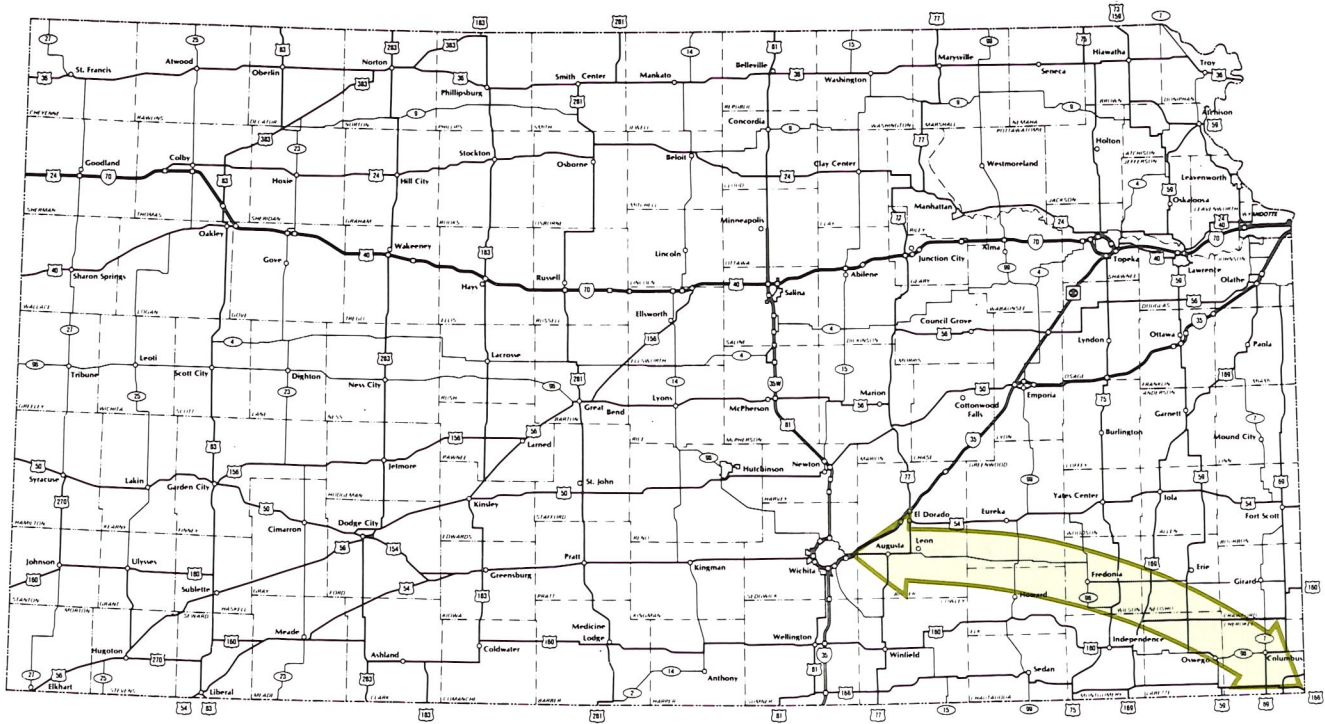
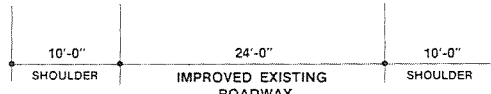
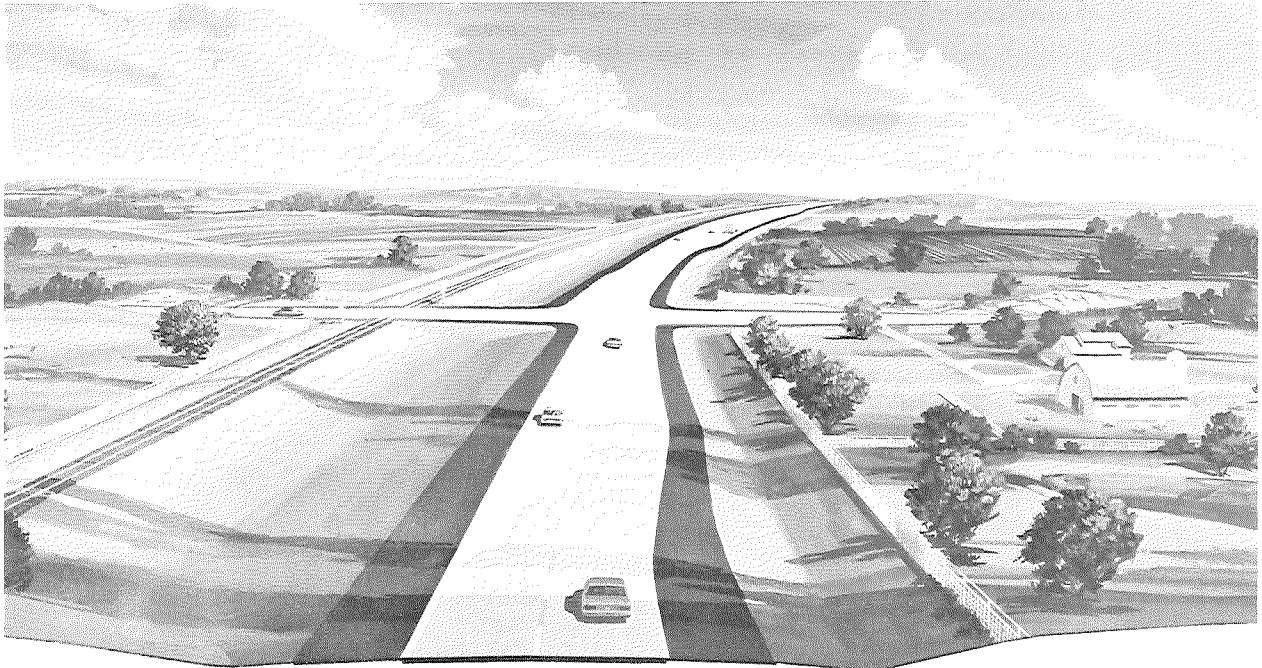


EXHIBIT 1 - CORRIDOR LOCATION MAP

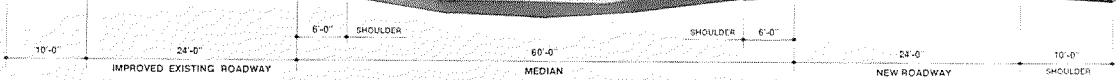
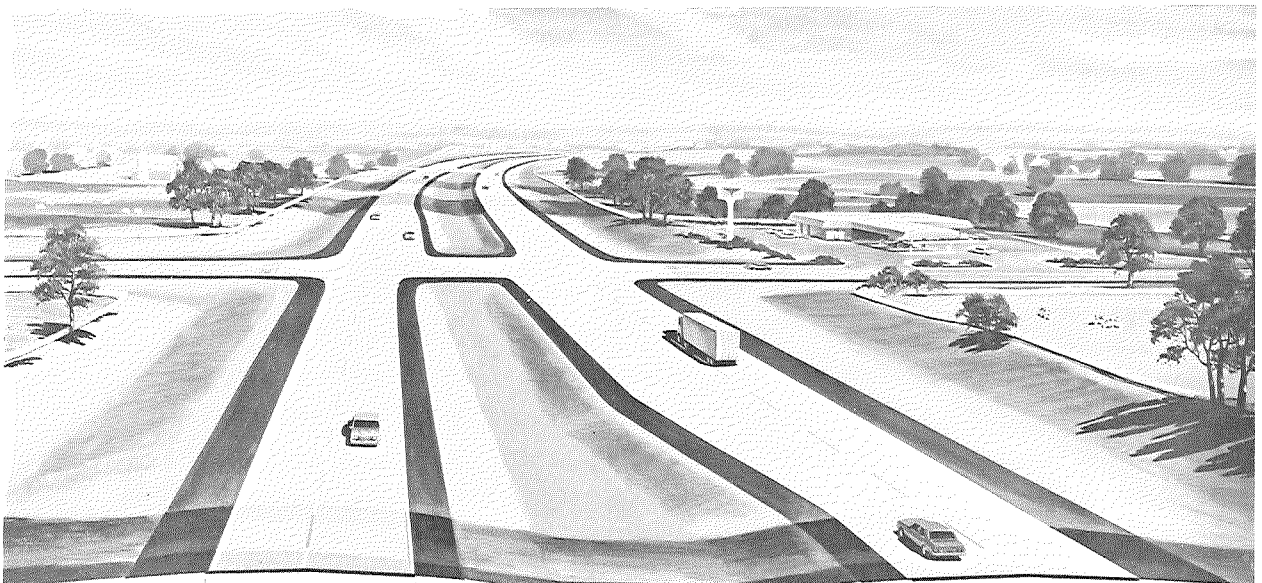
As directed by the Senate Bill, alternative design concepts were developed and evaluated. In summary, they include the following:

- Two-lane improvements utilizing the existing right-of-way and roadway, wherever possible. The improvements would provide full shoulders, improved geometrics, at-grade channelized intersections, some city bypasses, and passing lanes in both flat and hilly sections. A new two-lane highway on new location may be warranted in some areas, such as bypasses or truly substandard sections. The finished two-lane facility would be a high type roadway with greatly improved safety and driving characteristics capable of handling relatively high traffic volumes (commonly referred to as a "Super Two" highway), refer to Exhibit 2.
- Four-lane improvements again utilizing the existing two-lane roadway upgraded to current standards with the addition of two new lanes parallel to the existing two lanes. Also, in some areas such as bypasses or truly substandard sections, new four-lane roadways may be warranted to meet current design standards, refer to Exhibit 3.
- A new four-lane divided highway on new location constructed to full Interstate standards. It could function as either a freeway or, if feasible, as a turnpike.



STAGE I

EXHIBIT 2 - STAGE I - IMPROVEMENT OF EXISTING TWO-LANE HIGHWAY



STAGE I

STAGE II

EXHIBIT 3 - STAGE II - FOUR-LANE HIGHWAY IMPROVEMENT

It is important to study the various alternatives and possible combinations of improvements in order to effectively evaluate the feasibility of each. The basic assumptions inherent to cost effective construction, safety upgrading and traffic capabilities of the roadway are:

- Existing right-of-way, roadways, and structures should be utilized, wherever possible, to lower construction costs and to avoid adding mileage to the State highway system.
- With two-lane construction, passing lanes should be provided on both flat and hilly sections.
- The possibility of bypasses should be considered for all alternatives. They may or may not be warranted during initial construction but, where possible, provisions should be made for future traffic needs.
- When right-of-way is required during two-lane construction on new location, additional right-of-way should be purchased for a future four-lane improvement.
- Existing traffic patterns should be maintained during construction. This may require additional right-of-way and construction costs.

During the development of the detailed cost estimates for the various alternatives discussed, it became readily apparent that the cost differential between two-lane and four-lane alternates was substantial. It would be desirable to provide a four-lane facility initially; but due to possible funding limitations and high costs, it cannot be justified on the basis of current or near-term traffic volumes alone. Therefore, the feasibility of staged construction was evaluated with the following steps:

- STAGE I - Two-lane improvements utilizing existing right-of-way would be provided where possible, as previously outlined. Two-lane bypass construction would depend to a large extent upon the availability of funds and local support, refer to Exhibit 2.
- STAGE II - When warranted by future traffic growth, two additional lanes would be constructed parallel to the interim Stage I improvement. This would provide the ultimate four-lane divided highway, refer to Exhibit 3.

Detailed cost estimates have been developed for each of the preceding alternatives and include costs for: construction, inspection, right-of-way, utility relocation, and a contingency allowance. The cost estimates do not include the cost of the issuance of bonds or other funding mechanisms to be discussed later. A summary of total estimated costs in 1986 dollars is shown in Table 1. The project is divided into two improvement classifications: (1) the Wichita to Joplin highway; and (2) the recommended Supplemental Improvements, for informational purposes only. They are considered equally important with respect to future traffic service and economic development, refer to Exhibit 4.

Table 1

**TOTAL ESTIMATED COSTS
SOUTHEAST KANSAS CONSTRUCTION PROGRAMS**

Project	Length (miles)	Stage I 2-Lane No Bypasses	(Recommended) Stage I 2-Lane Some Bypasses ¹	(Desired) Stage I 2-Lane With Bypasses	Stage II 4-Lane With Bypasses	Stage I + Stage II 4-Lane With Bypasses	New 4-Lane Turnpike/Freeway
Wichita-Joplin Highway	160	\$108,000,000	\$129,000,000	\$138,000,000	\$273,000,000	\$381,000,000	\$ 500,000,000
Supplemental Improvements							
• U.S. 75	6	3,000,000	3,000,000	3,000,000	10,000,000	13,000,000	19,000,000
• U.S. 169	21	10,000,000	10,000,000	17,000,000	41,000,000	51,000,000	66,000,000
• U.S. 166	45	75,000,000	88,000,000	88,000,000	94,000,000	169,000,000	189,000,000
Subtotal	72	\$ 88,000,000	\$101,000,000	\$108,000,000	\$145,000,000	\$233,000,000	\$ 274,000,000
PROJECT TOTAL (1986 dollars)	232	\$196,000,000	\$230,000,000	\$246,000,000	\$418,000,000	\$614,000,000	\$ 774,000,000
PROJECT TOTAL (5 year schedule) ²		\$248,000,000	\$292,000,000	\$312,000,000	\$529,000,000	\$778,000,000	\$ 981,000,000
PROJECT TOTAL (10 year schedule) ³		\$290,000,000	\$341,000,000	\$364,000,000	\$703,000,000	\$909,000,000	\$1,146,000,000

¹New bypasses are provided at Parsons, Crestline, Arkansas City, Sedan, and Cedar Vale. They are not provided at Riverton/Galena and Cherryvale.

²Assumes 6 percent Annual Inflation Rate 1986-1992.

³Assumes 6 percent Annual Inflation Rate 1986-1997.

ENVIRONMENTAL ASSESSMENT

An environmental assessment of the study area documented a number of environmental, historical, and archaeological factors. Included are discussions on population, employment, natural environment, parks and recreation areas, rivers and creeks, prime farm land, endangered species, institutional and governmental controls, and archaeological and historical features. The recommended improvements do not appear to have a significant impact upon any of the identified controls.

TRAFFIC AND REVENUE

Historical traffic volumes and traffic characteristics for Southeast Kansas highways were obtained from available publications and from the Kansas Department of Transportation. Existing traffic volumes approach 18,000 vehicles per day on U.S. 54 and K-96 near I-35 east of Wichita (an existing four-lane section) and range between 1,300 and 4,000 vehicles per day on most other highways with the higher volumes in the vicinities of the larger cities.

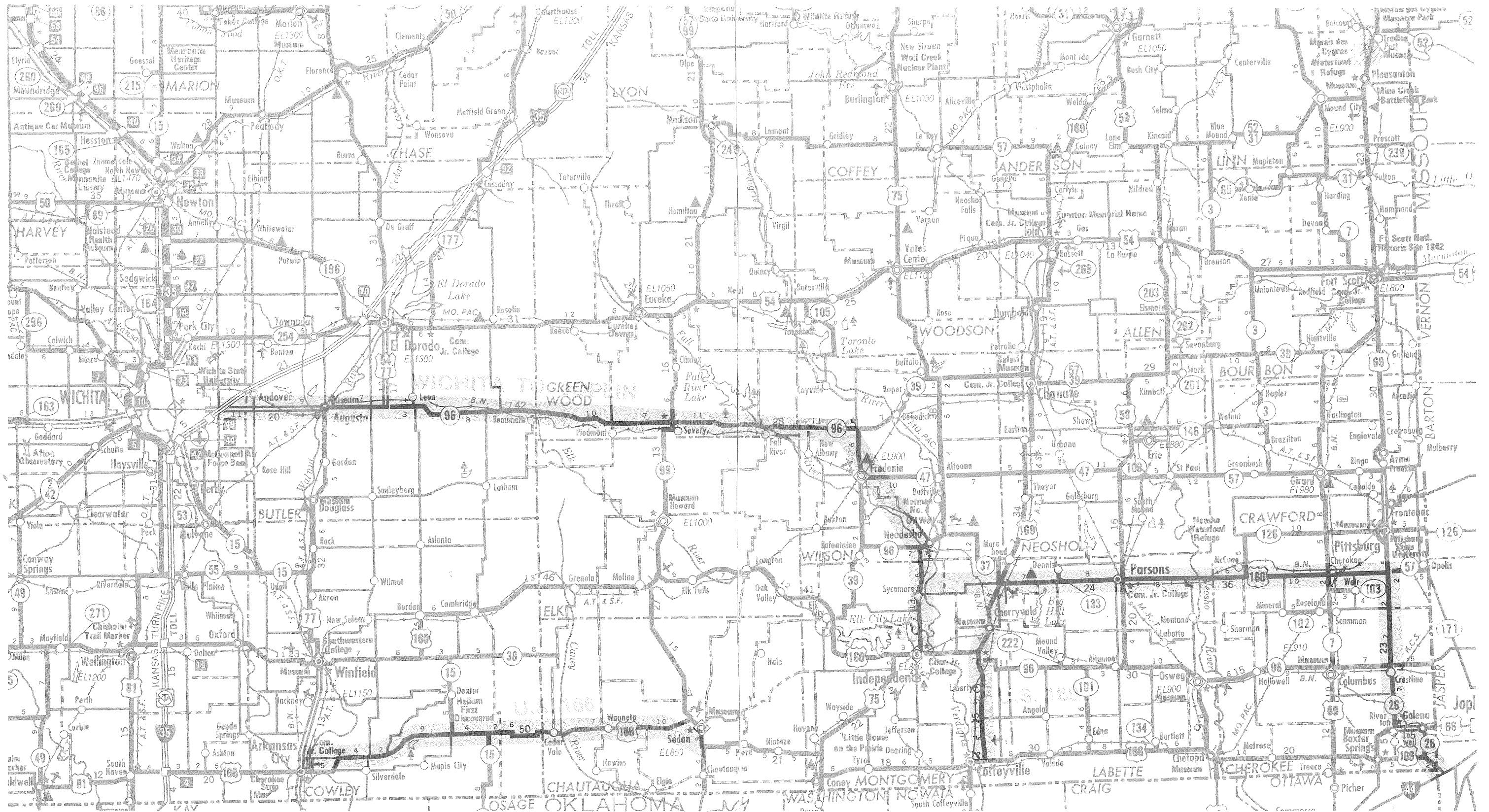


EXHIBIT 4 - ROUTE LOCATION MAP

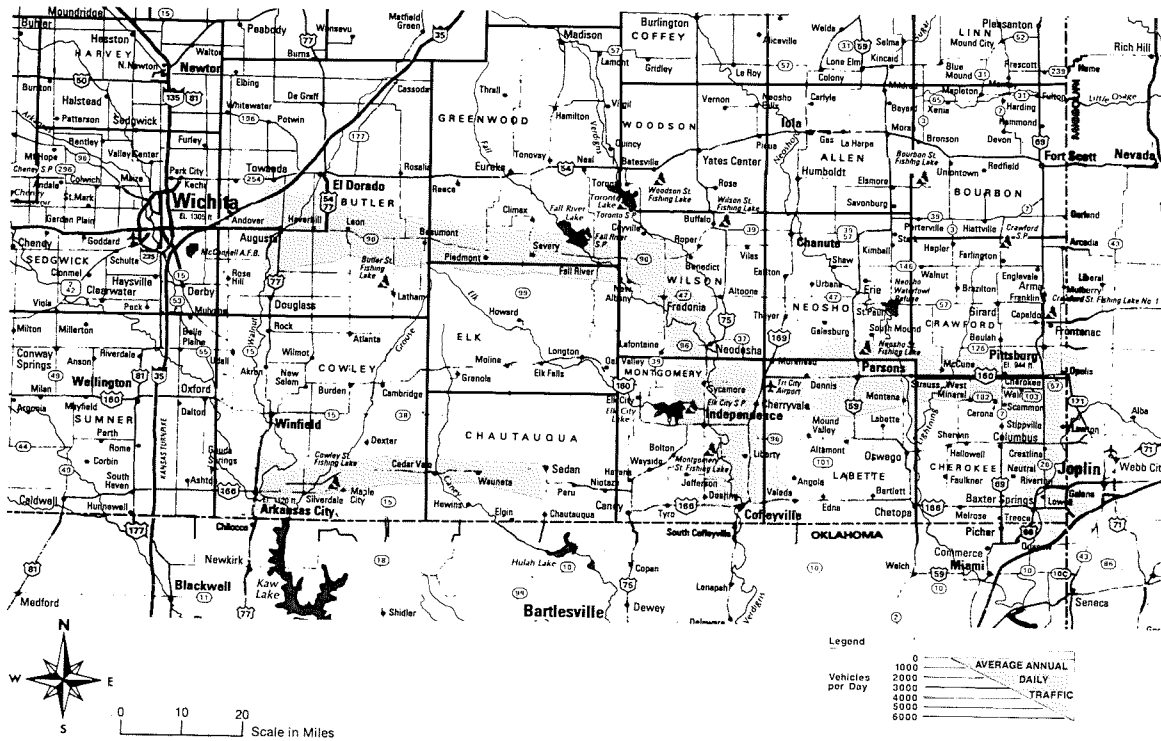


EXHIBIT 5 - YEAR 2010 TRAFFIC ASSIGNMENTS

Future traffic volumes were estimated for the design year 2010 and for the various design alternatives. The estimated future volumes range from 4,600 to 7,800 vehicles per day for an improved two-lane roadway, to 5,500 to 9,300 vehicles per day for a new four-lane divided highway, refer to Exhibit 5.

Under normal circumstances, an improved two-lane roadway could safely handle approximately 6,000 to 10,000 vehicles per day. Therefore, it is difficult to justify four-lane construction based solely on estimated future traffic volumes.

Estimates of costs and revenues were made for a new toll road located generally parallel to the recommended route (K-96, U.S. 160, U.S. 69, K-26, and U.S. 166). A financial analysis of the feasibility of tolls indicates that:

- First year maintenance and operation costs of \$5.3 million would exceed the projected annual gross revenues of \$4.8 million. Any revenue bond debt retirement costs would be in addition to the maintenance and operation costs.
- An even greater shortfall is projected for subsequent years since maintenance and operation costs are expected to increase at a faster rate than the gross toll revenues.

On this basis, neither a two-lane nor a four-lane turnpike appears financially feasible.

PROJECT FUNDING

The various sources of funding that may be available include: State motor fuel tax, tolls, general revenue, sales tax, Federal aid, demonstration projects, local funding, benefit fees, assessments and tax increment financing. The different methods of financing the projects include: current revenues, general obligation bonds, revenue bonds with fixed interest rates, zero coupon bonds and variable rate bonds.

The current interest rate on 30-year revenue bonds is approximately 7.5 percent. Based on this rate, a 1 cent per gallon increase in the State motor fuel tax would support a bond issue of \$173 million and a 5 cent per gallon increase would support a bond issue of \$865 million, refer to Table 2. Likewise, a one-half cent increase in the sales tax would support approximately \$979 million in revenue bonds, refer to Table 3. If the project construction was to be funded from current revenues, a 1 cent increase in the sales tax would yield approximately \$815 million over a five-year period, refer to Table 4. State statutes would need revisions to allow the use of sales tax revenue for statewide revenue bonds.

Table 2

BOND SIZE SUPPORTED BY MOTOR FUEL TAX AT VARIOUS INTEREST RATES

Motor Fuel Tax Per Gallon ¹	Maximum Bond Size ²			
	30 Years 6.0 Percent	30 Years 7.5 Percent ³	30 Years 9.0 Percent	30 Years 11.0 Percent
1¢	\$ 201,700,000	\$172,900,000	\$150,300,000	\$126,900,000
2¢	403,400,000	345,900,000	300,500,000	253,900,000
3¢	605,100,000	518,900,000	450,800,000	380,900,000
4¢	806,900,000	691,800,000	601,100,000	507,800,000
5¢	1,008,600,000	864,800,000	751,400,000	634,800,000

¹Computations assume \$0.01 in motor fuel tax generates \$14.5 million in revenue annually.

²Assumes 30-year maturity with equal annual debt service installments.

³7.5 percent is the average market rate available for December 1986.

Table 3

BOND SIZE SUPPORTED BY SALES TAX¹ AT VARIOUS INTEREST RATES (\$ million)

Sales Tax Increase	30 Years 6.0%	30 Years 7.5%	30 Years 9.0%	30 Years 11.0%
1/4¢	570	489	425	359
1/2¢	1,142	979	851	718
3/4¢	1,696	1,454	1,264	1,067

¹Based on estimate of \$163 million per \$0.01 per dollar sales tax increase.

Table 4

ESTIMATED ACCUMULATIVE SALES TAX REVENUE¹
(\$ million)

Sales Tax Increase	1 Year	2 Years	3 Years	4 Years	5 Years
1/4¢	41	82	123	163	204
1/2¢	82	163	245	326	408
3/4¢	122	244	366	489	611
1¢	163	326	489	652	815
1-1/4¢	204	408	611	815	1,019
1-1/2¢	245	489	734	978	1,223

¹Based on estimate of \$163 million per \$0.01 per dollar sales tax increase.

One of the principal reasons for project construction is the economic benefits that will be realized. As capital improvement projects, they will improve and enhance the State's transportation system by providing immediate and long-term benefits. The State, as well as the local communities, will be able to promote greater economic development. The far reaching economic effects of a capital improvement program of this magnitude will have a very positive impact on employment, tax revenues, safety, and numerous other factors. The economic importance of the projects should not be underestimated.

PROJECT IMPLEMENTATION

As noted previously, it is strongly recommended that both the Wichita to Joplin highway and the three Supplemental Improvement projects be given equal priority.

Two alternative construction schedules were considered to examine different approaches in project funding and implementation. The first alternative is a five-year schedule which requires an accelerated design, right-of-way acquisition, and construction program implemented by a strong Independent Management Team. The principal responsibilities of the team would be to implement the construction program selected by the Legislature and to complete the projects on schedule and within the allotted budget.

The second alternative is a ten-year schedule which could probably be managed, at least in part, by existing State agencies operating under standard policies and regulations. If there is Federal participation in the project funding, somewhat more than ten years may be required to complete the projects.

The advantages of the five-year schedule are: reduced inflation costs, quicker implementation, more immediate economic benefits, and the efficiencies of an accelerated program.

Current 1986 costs were shown in preceding Table 1 along with inflated construction cost estimates for both the five-year (1988-1992) and ten-year (1988-1997) schedules. It is assumed that construction monies would become available in January, 1988. Total estimated construction costs for the recommended projects would be approximately \$49,000,000 greater for the ten-year schedule than for a five-year schedule because of estimated inflation costs.

Cost estimates for proposed improvements in the 232-mile long construction corridors do not include any improvements currently programmed in KDOT's five-year schedule. It is assumed that these projects will be built as scheduled and that they will complement the improvements proposed in this report. KDOT will realize immediate benefits from the proposed improvements and postpone for several years the costly maintenance and upgrading programs that would otherwise be required. This will allow KDOT to advance the schedule of other projects across the State because of improvements made in the study corridors.

Since the proposed projects are capital improvements and not maintenance projects, there is justification for independent funding. Existing KDOT funding sources as well as the KDOT "prioritization and optimization" selection system and five-year program should not be compromised or modified.

Table 5 briefly addresses the questions raised in Senate Bill No. 492 relating to the proposed project. More descriptive and detailed information for each topic is contained in the Southeast Kansas Turnpike/Freeway Feasibility Study report and in the report Appendix.

RECOMMENDATIONS

The major recommendations and conclusions contained in this report for the Southeast Kansas area highway improvements are briefly outlined as follows:

- *Existing highways and rights-of-way should be utilized wherever feasible in order to reduce construction costs, avoid residential, farm, and business displacements and to avoid adding mileage to the State highway system.*
- *It would be desirable to provide an upgraded four-lane, divided highway along the entire Wichita to Joplin corridor and the three Supplemental Improvement corridors. But, because of funding constraints, it is recommended that the proposed improvement be accomplished in two phases. Recommended Stage I improvements would provide a high type, two-lane highway with paved shoulders and some city bypasses at an estimated cost of approximately \$230,000,000 (in 1986 dollars).*

- *In future Stage II, when additional construction funds become available, two additional lanes and the remaining city bypasses would be provided (four lanes total) at an estimated additional cost of approximately \$384,000,000 (in 1986 dollars).*
- *The proposed capital improvement program could be funded by either a “pay as you go” method with a sunset sales tax or by a 30-year revenue bond program if a gasoline tax is used. A combination of the two methods could also be utilized.*
- *The recommendations should be considered as capital improvements, rather than maintenance projects, and funded accordingly.*
- *If funding is a concern, the projects could be sequenced and prioritized to allow alternative construction programs.*
- *A five-year implementation plan is recommended to maximize economic benefits and to minimize the effects of inflation.*
- *The project should be administered by an Independent Management Team whose sole responsibility would be to complete the project on schedule and within its budget.*
- *The funding sources for the proposed project should not interfere with current Kansas Department of Transportation revenues. Also, the project selection process should not interfere with the current KDOT “prioritization and optimization” selection system and current five-year program.*
- *Substantial near-term and long-term economic benefits will be generated by the project improvements.*
- *The construction and operation of a toll road in any portion of the Wichita to Joplin corridor is not feasible.*

It is recognized that the Legislature may consider alternative highway improvement programs along with alternative funding sources and methods of implementation. The report has been structured so as to be flexible to the needs of the Legislature. Extensive segmented cost estimates and roadway design data have been provided for this purpose.

Table 5

SUMMARY RESPONSE TO SENATE BILL NO. 492

Question	Answer
(a) An estimate of the total cost of each project, including those items defined as costs by KSA 68-2093 and amendments thereto;	Total estimated costs range from \$196.0 million to \$774.0 million depending on the alternative selected (refer to Table 1).
(b) A determination of the extent to which each project can be financed by the collection of tolls or by alternative methods of finance;	Toll financing is not feasible. Chapter VI outlines alternative financing options. Additional sales tax and/or gasoline tax revenues would be the most promising funding source.
(c) The interest rate at which any revenue bonds authorized could be issued;	State backed revenue bonds could yield 7.5 percent interest, as of December 1986.
(d) A projection of the potential traffic volume on each project;	For the design year 2010 the total estimated traffic is estimated to range from 5,500 to 9,300 vehicles per day along the corridor.
(e) An estimate of the amount of tolls and other revenues to be derived from each project which would be required to finance or guarantee the financing of each project solely from the tolls and revenues;	Toll financing is not feasible as the sole source of revenue or even as a supplemental source.
(f) An estimate of the cost differential between the construction of each turnpike project or freeway as a two-lane road or highway and its construction as a four-lane road or highway;	Total estimated costs range from \$196.0 million for 2-lane highways to \$774.0 million for 4-lane freeways, depending upon the alternative selected, refer to Table 1.
(g) An estimate of the revenue differential which would be derived from the operation of each turnpike project or freeway if constructed as a two-lane road or highway or if constructed as a four-lane road or highway;	Toll financing is not feasible for either a two-lane or four-lane facility.
(h) Such other data deemed necessary by the Authority for a determination of each project's feasibility.	Other engineering factors are documented in the report including implementation options and project schedules.

SENATE BILL No. 492

By Senators Johnston and Talkington

1-28

0018 AN ACT authorizing and directing the Kansas turnpike authority
0019 to study the feasibility of constructing a turnpike project or a
0020 freeway including the methods of financing thereof; prescrib-
0021 ing the location thereof; and ~~making~~ *concerning* appropria-
0022 tions for the fiscal year ~~ending July 1~~ *years ending June 30,*
0023 *1986, and June 30,* 1987, for such purposes.

0024 *Be it enacted by the Legislature of the State of Kansas:*

0025 Section 1. The Kansas turnpike authority is hereby autho-
0026 rized and directed to study the feasibility of constructing a
0027 turnpike project or freeway to commence and connect with the
0028 Kansas turnpike at the city of Wichita or a point between such
0029 city and the Kansas-Oklahoma border; thence proceeding in an
0030 easterly and southeasterly direction to a point on the Kansas-
0031 Oklahoma border providing the most feasible connection with
0032 Interstate ~~144~~ *44* in the vicinity of Joplin, Missouri.

0033 Such study shall include recommendations for alternative
0034 routes between such points and the feasibility of each.

0035 The study of the feasibility of such project shall be based upon
0036 the use of existing right-of-way where possible, and in addition
0037 shall include, but not be limited to:

0038 (a) An estimate of the total cost of such project, including
0039 those items defined as costs by K.S.A. 68-2093 and amendments
0040 thereto;

0041 (b) a determination of the extent to which the project can be
0042 financed by the collection of tolls or by alternative methods of
0043 finance;

0044 (c) the interest rate at which any revenue bonds authorized
0045 could be issued;

0046 (d) a projection of the potential traffic volume on such proj-

0047 ect;

0048 (e) an estimate of the amount of tolls and other revenues to be
0049 derived from the project which would be required to finance or
0050 guarantee the financing of such project solely from the tolls and
0051 revenues;

0052 (f) an estimate of the cost differential between the construc-
0053 tion of such turnpike project or freeway as a two-lane road or
0054 highway and its construction as a four-lane road or highway;

0055 (g) an estimate of the revenues differential which would be
0056 derived from the operation of such turnpike project or freeway if
0057 constructed as a two-lane road or highway or if constructed as a
0058 four-lane road or highway; and

0059 (h) such other data deemed necessary by the authority for a
0060 determination of the project's feasibility.

0061 For the purpose of conducting such study, the Kansas turnpike
0062 authority is hereby authorized to employ such consulting engi-
0063 neers, traffic engineers, legal and financial experts and such
0064 other employees and agents as deemed necessary. ~~For the fiscal~~
0065 ~~year ending July 1, 1987, there is hereby appropriated to the~~
0066 ~~Kansas Turnpike Authority, from the state highway fund~~
0067 ~~\$250,000, for the purpose of paying the cost of such feasibility~~
0068 ~~study.~~

0069 *In addition to the purposes for which expenditures are autho-*
0070 *orized for fiscal years ending June 30, 1986, and June 30, 1987,*
0071 *from the state highway fund by section 2(a) of chapter 22 of the*
0072 *1985 Session Laws of Kansas or any appropriations act of the*
0073 *1986 regular session of the legislature, expenditures are hereby*
0074 *authorized and directed to be made for the purpose of paying*
0075 *the cost of the feasibility study prescribed by this section, except*
0076 *that the total amount of expenditures for such purpose during*
0077 *fiscal years ending June 30, 1986, and June 30, 1987, shall not*
0078 *exceed \$250,000.*

0079 The feasibility study required herein shall be completed by
0080 December 31, 1986, and the authority shall submit a report of the
0081 findings and recommendations thereon to the governor and the
0082 1987 session of the legislature.

0083 If the Kansas turnpike authority shall find that the construction

0084 of such project is feasible and shall recommend that such project
0085 be constructed, the expenditures made by the authority in con-
0086 ducting the feasibility study required herein shall be regarded as
0087 a part of the cost of such project and shall be reimbursed to the
0088 state treasurer, for the credit of the state highway fund, out of the
0089 proceeds of revenue bonds or other sources of financing utilized
0090 to pay the cost of such project.

0091 Sec. 2. This act shall take effect and be in force from and
0092 after its publication in the Kansas register.

SESSION OF 1986

SUPPLEMENTAL NOTE ON SENATE BILL NO. 492

As Amended by Senate Committee on
Transportation and Utilities

Brief of Bill*

S.B. 492 authorizes and directs the Kansas Turnpike Authority to study the feasibility of constructing a turnpike project or a freeway in a corridor between Wichita, Kansas, and Joplin, Missouri, and appropriates \$250,000 from the State Highway Fund for financing the study. The study will include recommendations for alternative routes between Wichita and Joplin, Missouri and the feasibility of each. The study also provides that the project will be based on the existing use of right-of-way where possible and considers various cost and engineering factors. The study is to be completed by December 31, 1986, and a report shall be submitted to the Governor and the 1987 Session of the Legislature. If the construction of such project is feasible and if the project is undertaken, the expenditures made by the Authority in conducting the feasibility study will be regarded as a part of the cost of the project and will be reimbursed to the State Treasurer and credited to the State Highway Fund, out of the proceeds of the revenue bonds or other sources of financing used to pay the cost of the project.

Background

The Senate Transportation and Utilities Committee made technical changes to the bill. Proponents of the measure indicated that a highway or toll road in southeastern Kansas would enhance the economic conditions in this area.

* Bill briefs are prepared by the Legislative Research Department and do not express legislative intent.

WESTERN KANSAS TURNPIKE/FREEWAY

Feasibility Studies

SUMMARY REPORT

1986
DECEMBER

HOWARD NEEDLES TAMMEN & BERGENDOFF
with VOLLMER ASSOCIATES

HNTB

Attach. 2

WESTERN KANSAS TURNPIKE/FREEWAY



KANSAS TURNPIKE AUTHORITY

- Nick Badway** *Chairman*
El Dorado
- Representative Rex Crowell** *Vice-Chairman*
Longton
- John B. Kemp** *Secretary-Treasurer*
Prairie Village
- Richard R. Rock** *Member*
Arkansas City
- Senator Bill Morris** *Member*
Wichita
- R. D. Fogo** *Chief Engineer-Manager*
- Lawrence C. Gates** *General Counsel*
- Jon Glaser** *Controller,*
Assistant Secretary-Treasurer

1986
DECEMBER

WESTERN KANSAS TURNPIKE/FREEWAY STUDY SUMMARY REPORT

The 1986 Kansas Legislature enacted Senate Bill No. 693, which authorized and directed the Kansas Turnpike Authority to study the feasibility of constructing turnpike projects or freeways in three corridors as shown on Exhibit 1. Specifically they included the:

- U.S. 54 corridor from the Kansas-Oklahoma border to Wichita.
- U.S. 50, 154, and 54 corridor from the Kansas-Colorado border to Wichita.
- Hays to Wichita corridor.

This report summarizes the results of an engineering, traffic, revenue, and financial feasibility study of alternative highway improvements in the three preceding corridors which total approximately 500 miles in length.

The 181-mile long U.S. 54 corridor between the Oklahoma state line and Wichita is an important route that: (1) serves as a vital transportation link from points east of Wichita to the southwest and the west coast; (2) carries relatively heavy volumes of traffic ranging from 3,000 to 5,000 vehicles per day over much of the corridor length and; (3) functions as a major truck route with over 30 percent heavy trucks on some sections.

The 254-mile long U.S. 50, 154, and 54 corridor between the Colorado state line and Wichita is an important route that: (1) serves as a vital transportation link from points east of Wichita to the Rocky Mountain area and the southwest; (2) carries relatively heavy volumes of traffic ranging from 3,000 to 5,000 vehicles per day over much of the corridor length and; (3) functions as a major truck route with 20 percent heavy trucks on some sections.

The 149-mile long corridor between Hays and Wichita is an important corridor that serves as a key transportation link from the Rocky Mountain area and Western Kansas southeastward to Wichita and Oklahoma. Existing highways in this general corridor (I-70, I-135, U.S. 281, U.S. 183 and K-96) presently carry relatively heavy volumes of traffic ranging from 1,200 to 7,000 vehicles per day. The Interstate highways, in or adjacent to this corridor, are major truck routes with nearly 30 percent heavy trucks in some sections.

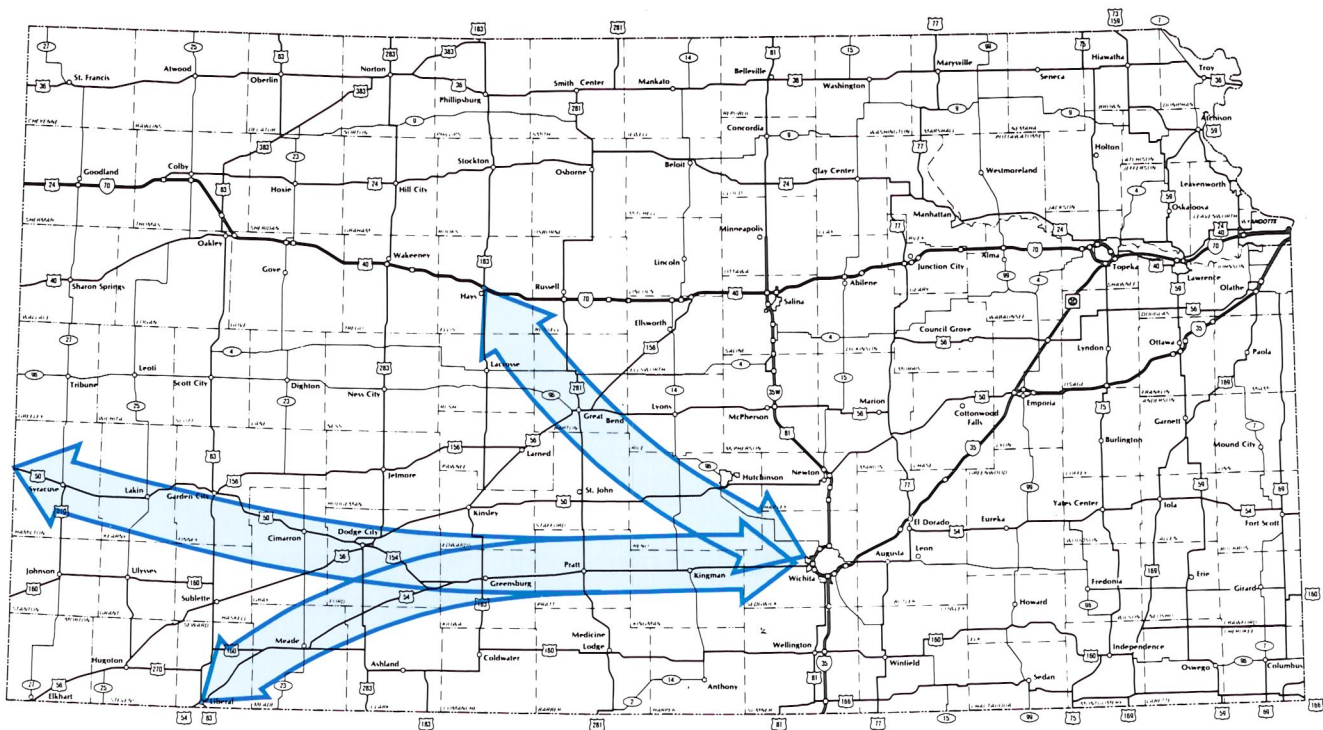


EXHIBIT 1 - CORRIDOR LOCATION MAP

During the course of the study, data were gathered from numerous sources, and assistance was received from various State agencies in preparing the report. The study followed standard guidelines and is summarized in the following discussions.

DESCRIPTION OF PROJECTS

Design criteria for the project were established in order to provide uniform design and to insure compliance with State and Federal requirements. The criteria vary between the different alternates but, in general, they include: a 70 mph desirable design speed, access control ranging from partial to full, maximum roadway grades from 3 to 4 per cent, and other applicable criteria, as warranted.

As directed by the Senate Bill No. 693, alternative design concepts were developed and evaluated. In summary, they include the following:

- Two-lane improvements utilizing the existing right-of-way and roadway, wherever possible. The improvements would provide full shoulders, improved geometrics, at-grade channelized intersections, some city bypasses, and passing lanes in both flat and hilly sections. A new two-lane highway on new location may be warranted in some areas, such as bypasses or truly substandard sections. The finished two-lane facility would be a high type roadway with greatly improved safety and driving characteristics capable of handling relatively high traffic volumes (commonly referred to as a "Super Two" highway), refer to Exhibit 2.

HNTB

HOWARD NEEDLES TAMMEN & BERGENDOFF

December 31, 1986

Kansas Turnpike Authority
9401 East Kellogg
Wichita, KS 67207

Gentlemen:

Engineering and financial feasibility studies have been completed for three major highway improvement projects in Western Kansas. The results are documented in this summary report.

The three feasibility studies authorized by the Kansas Legislature in Senate Bill No. 693 included the following corridors:

- U.S. 54 - Oklahoma state line to Wichita
- U.S. 50, 154, 54 - Colorado state line to Wichita
- K-96 - Hays to Wichita

The results of these studies are presented in separate reports for each corridor and summarized herein. It is the overall intent of these studies to provide the State Legislature with sufficient cost estimate data and alternative financing measures that a viable package of Western Kansas highway improvements can be developed.

Assisting in the development of the study reports were Vollmer Associates for the traffic and revenue data, and B. C. Christopher Securities Company for the project funding analysis.

Grateful acknowledgement is also made of the excellent cooperation and assistance provided by the Kansas Turnpike Authority, the Kansas Department of Transportation, and numerous other public and private agencies during the study.

Very truly yours,

HOWARD NEEDLES TAMMEN & BERGENDOFF



Daniel J. Watkins

DJW/mlw

Architects Engineers Planners

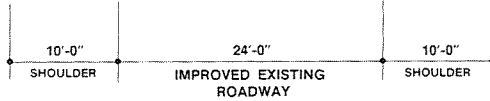
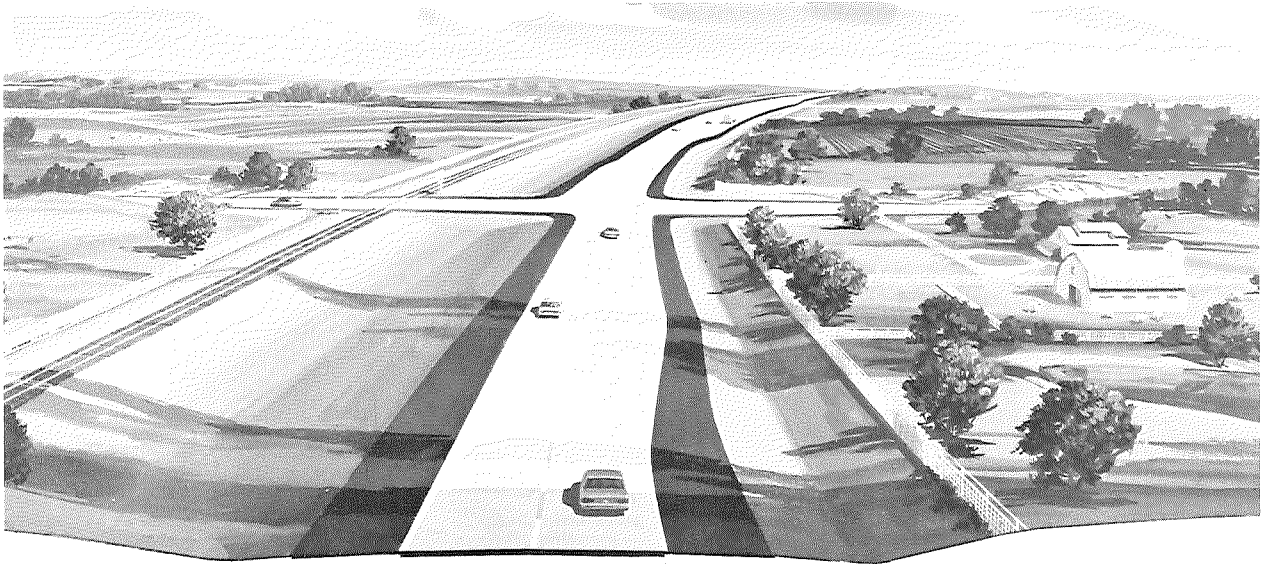
9200 Ward Parkway • P.O. Box 419299, Kansas City, Missouri 64141, 816 333-4800

Partners James F. Finn PE, Paul L. Heineman PE, Gerard F. Fox PE, Browning Crow PE, Charles T. Hennigan PE, Daniel J. Watkins PE, Daniel J. Spigai PE, John L. Cotton PE, Francis X. Hall PE, Robert S. Coma PE, Donald A. Dupies PE, William Love AIA, Robert D. Miller PE, James L. Tuttle, Jr. PE, Hugh E. Schall PE, Cary C. Goodman AIA, Gordon H. Slaney, Jr. PE, Harvey K. Hammond, Jr. PE

Associates Daniel J. Appel PE, Robert W. Richards PE, Don R. Ort PE, Frederick H. Sterbenz PE, Robert B. Kollmar PE, Kendall T. Lincoln CPA, Jack P. Shedd PE, Roberts W. Smithem PE, Richard D. Beckman PE, Harry D. Bertossa PE, Ralph E. Robison PE, Cecil P. Counts PE, Stephen G. Goddard PE, Stanley I. Mast PE, Robert W. Anzia PE, Walter Sharko PE, James O. Russell PE, Ross L. Jensen AIA, Frank T. Lamm PE, Alexander F. Silady PE, John W. Wight PE, Ronald W. Aarons AIA, H. Jerome Butler PE, Blaise M. Carriere PE, Michael P. Ingardia PE, Bernard L. Prince PE, Stephen B. Quinn PE, Saul A. Jacobs PE, James A. Smith, Ronald F. Turner AIA, Ewing H. Miller FAIA, Douglas C. Myhre PE, Carl J. Mellea PE, Daniel F. Becker PE, Richard L. Farnan AIA

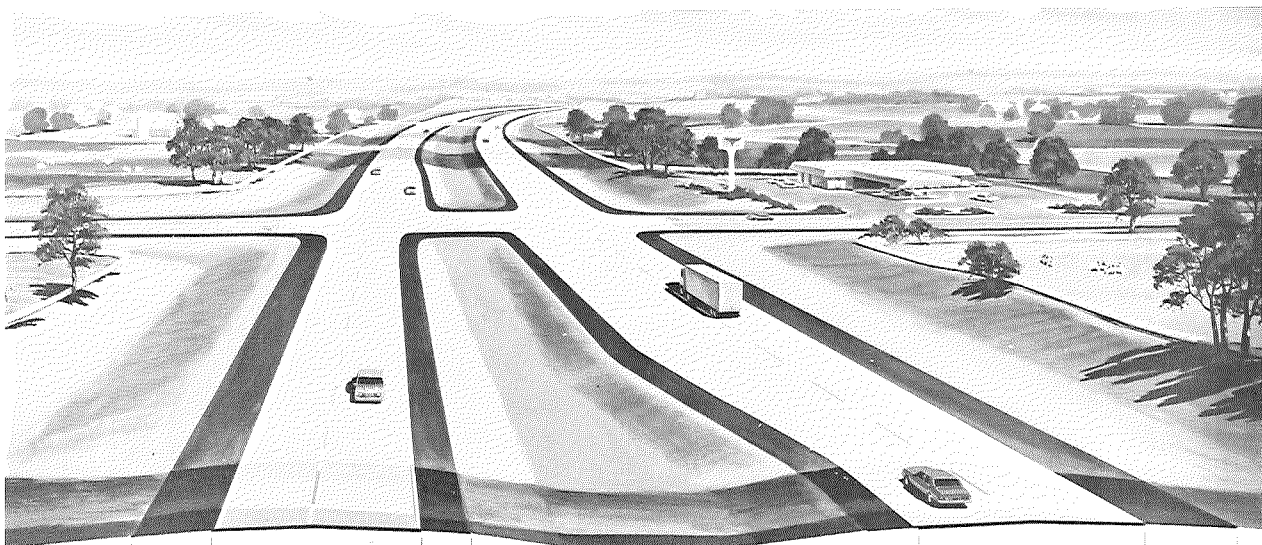
Offices Alexandria, VA, Atlanta, GA, Austin, TX, Baton Rouge, LA, Boston, MA, Casper, WY, Charleston, WV, Chicago, IL, Cleveland, OH, Dallas, TX, Denver, CO, Fairfield, NJ, Houston, TX, Indianapolis, IN, Kansas City, MO, Lexington, KY, Lexington, MA, Los Angeles, CA, Miami, FL, Milwaukee, WI, Minneapolis, MN, Nashua, NH, Newark, DE, New York, NY, Orlando, FL, Overland Park, KS, Philadelphia, PA, Phoenix, AZ, Raleigh, NC, Seattle, WA, Tampa, FL, Tulsa, OK

- Four-lane improvements again utilizing the existing two-lane roadway upgraded to current standards with the addition of two new lanes parallel to the existing two lanes. Also, in some areas such as bypasses or truly substandard sections, new four-lane roadways may be warranted to meet current design standards, refer to Exhibit 3.
- A new four-lane divided highway on new location constructed to full Interstate standards. It could function as either a freeway or, if feasible, as a turnpike.



STAGE I

EXHIBIT 2 - STAGE I - IMPROVEMENT OF EXISTING TWO-LANE HIGHWAY



STAGE I

STAGE II

EXHIBIT 3 - STAGE II - FOUR-LANE HIGHWAY IMPROVEMENT

It is important to study the various alternatives and possible combinations of improvements in order to effectively evaluate the feasibility of each. The basic assumptions inherent to cost effective construction, safety upgrading and traffic capabilities of the roadway are:

- Existing right-of-way, roadways, and structures should be utilized, wherever possible, to lower construction costs and to avoid adding mileage to the State highway system.
- With two-lane construction, passing lanes should be provided on both flat and hilly sections.
- The possibility of bypasses should be considered for all alternatives. They may or may not be warranted during initial construction but, where possible, provisions should be made for future traffic needs.
- When right-of-way is required during two-lane construction on new location, additional right-of-way should be purchased for a future four-lane improvement.
- Existing traffic patterns should be maintained during construction. This may require additional right-of-way and construction costs.

During the development of the detailed cost estimates for the various alternatives discussed, it became readily apparent that the cost differential between two-lane and four-lane alternates was substantial. It would be desirable to provide a four-lane facility initially; but due to possible funding limitations and high costs, it cannot be justified on the basis of current or near-term traffic volumes alone. Therefore, the feasibility of staged construction was evaluated with the following steps:

- STAGE I - Two-lane improvements utilizing existing right-of-way would be provided where possible, as previously outlined. Two-lane bypass construction would depend to a large extent upon the availability of funds and local support, refer to Exhibit 2.
- STAGE II - When warranted by future traffic growth, two additional lanes would be constructed parallel to the interim Stage I improvement. This would provide the ultimate four-lane divided highway, refer to Exhibit 3.

Detailed cost estimates for each of the preceding alternatives have been developed and include costs for: construction, inspection, right-of-way, utility relocation, and a contingency allowance. The cost estimates do not include the cost of the issuance of bonds or other funding mechanisms to be discussed later. A summary of total estimated costs in 1986 dollars is shown in Table 1. The project is divided into two sequences to illustrate possible construction sequencing and prioritization, refer to Exhibit 4.

Table 1

**TOTAL ESTIMATED COSTS
WESTERN KANSAS ALTERNATIVE CONSTRUCTION PROGRAMS**

Section Limits	Priority Number	Length (miles)	Stage I	(Recommended)	(Desired)	Stage I + II	New
			2-Lane No Bypasses	Stage I 2-Lane Some Bypasses ¹	Stage I 2-Lane With Bypasses	4-Lane With Bypasses	Four-Lane Turnpike/Freeway
Hutchinson-Wichita	1	31	\$ 6,700,000	\$ 49,800,000 ²	\$ 49,800,000 ²	\$ 49,800,000	\$ 105,800,000
Bucklin-Wichita	1	87	41,700,000	53,800,000	86,500,000	218,500,000	286,400,000
Garden City-Bucklin	2	98	27,200,000	51,200,000	68,700,000	193,300,000	321,500,000
Great Bend-Hutchinson	2	54	85,900,000	85,900,000	85,900,000	146,800,000	168,000,000
Oklahoma Line-Bucklin	2	94	30,400,000	43,200,000	65,000,000	193,000,000	306,200,000
Hays-Great Bend Via I-70 and U.S. 281	3	64	16,700,000	21,700,000	29,000,000	84,200,000	144,000,000
Hays-Great Bend (Via Diagonal Route) ³	-	(48)	(93,400,000)	(93,400,000)	(93,400,000)	(155,700,000)	(171,000,000)
Colorado Line-Garden City	3	69	18,400,000	21,400,000	32,100,000	141,400,000	227,100,000
TOTAL (1986 Dollars)		497	\$227,000,000	\$327,000,000	\$417,000,000	\$1,027,000,000	\$1,559,000,000
TOTAL (5-YEAR SCHEDULE) ⁴			289,000,000	414,000,000	528,000,000	1,303,000,000	1,975,000,000
TOTAL (10-YEAR SCHEDULE) ⁵			336,000,000	484,000,000	618,000,000	1,521,000,000	2,309,000,000

¹New bypasses are provided at: Meade, Minneola, Greensburg, Cunningham, Syracuse, Lakin, Cimarron, Ford, Hoisington, Sterling, Nickerson, and Hutchinson. They are not provided at: Kingman, Pratt, Garden City, Dodge City, Liberal, Bucklin, and Great Bend.

²Four-Lane Highway.

³This route (in parenthesis) follows a northwest-southeast diagonal alignment from Hays to Great Bend, It is shown for comparison purposes only and is not included in the totals.

⁴Assumes 6 percent Annual Inflation Rate 1986-1992.

⁵Assumes 6 percent Annual Inflation Rate 1986-1997.

ENVIRONMENTAL ASSESSMENT

An environmental assessment of the study area documented a number of environmental, historical, and archaeological factors. Included are discussions on population, employment, natural environment, parks and recreation areas, rivers and creeks, prime farm land, endangered species, institutional and governmental controls, and archaeological and historical features. The recommended improvements do not appear to have a significant impact upon any of the identified controls.

TRAFFIC AND REVENUE

Historical traffic volumes and traffic characteristics were obtained from available publications and from the Kansas Department of Transportation. The existing traffic volumes approach 13,000 vehicles per day on an existing four-lane section of U.S. 54 near Wichita and range between 1,300 and 7,000 vehicles per day on the other sections with the higher volumes in the vicinities of the larger cities, such as Garden City, Liberal and Hutchinson.

Future traffic volumes were estimated for the design year 2010 and for the various design alternatives. The estimated future volumes range from 2,300 to 8,000 vehicles per day for an improved two-lane roadway, to 3,100 to 9,600 vehicles per day for a new four-lane divided highway (Exhibit 5).

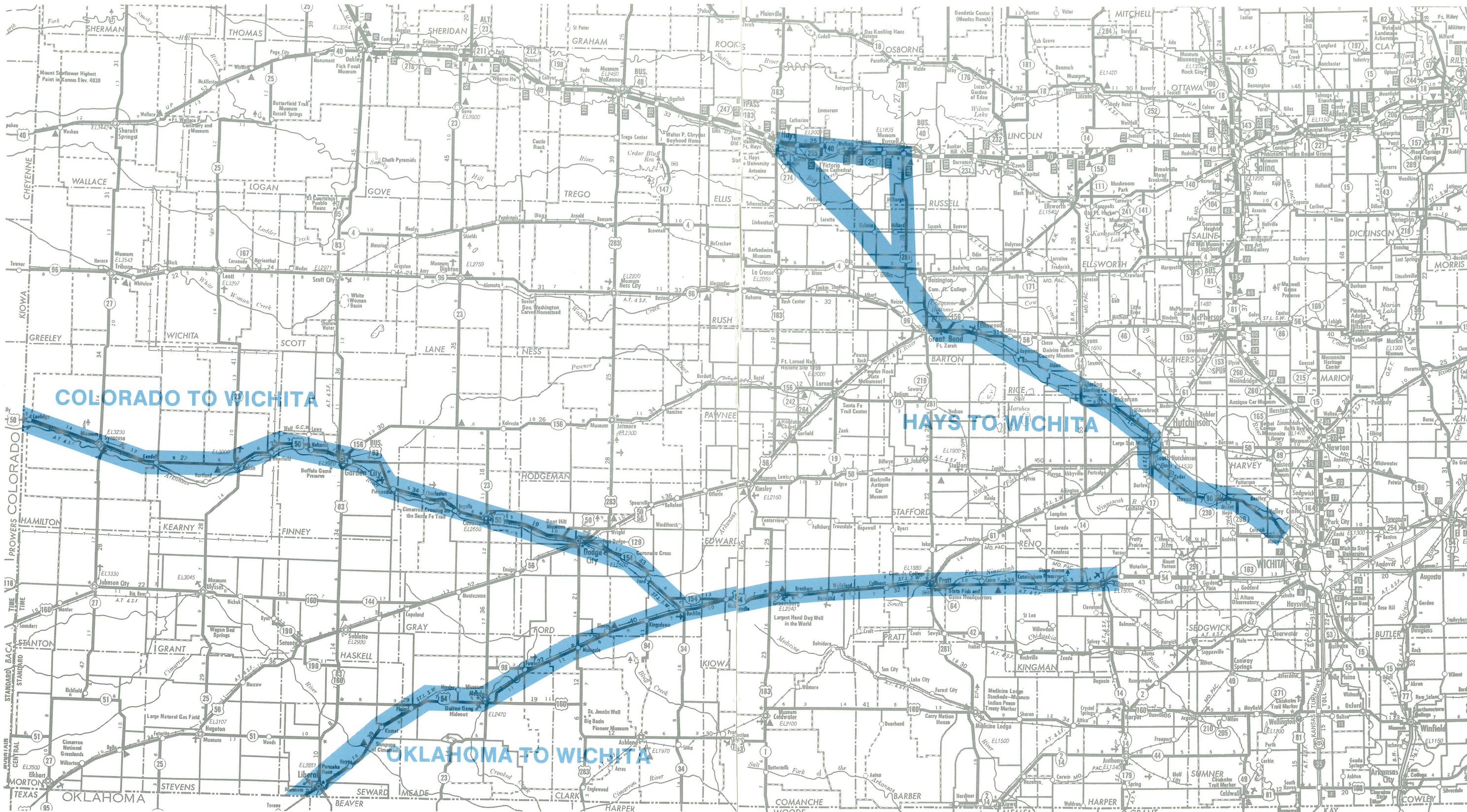


EXHIBIT 4 - ROUTE LOCATION MAP

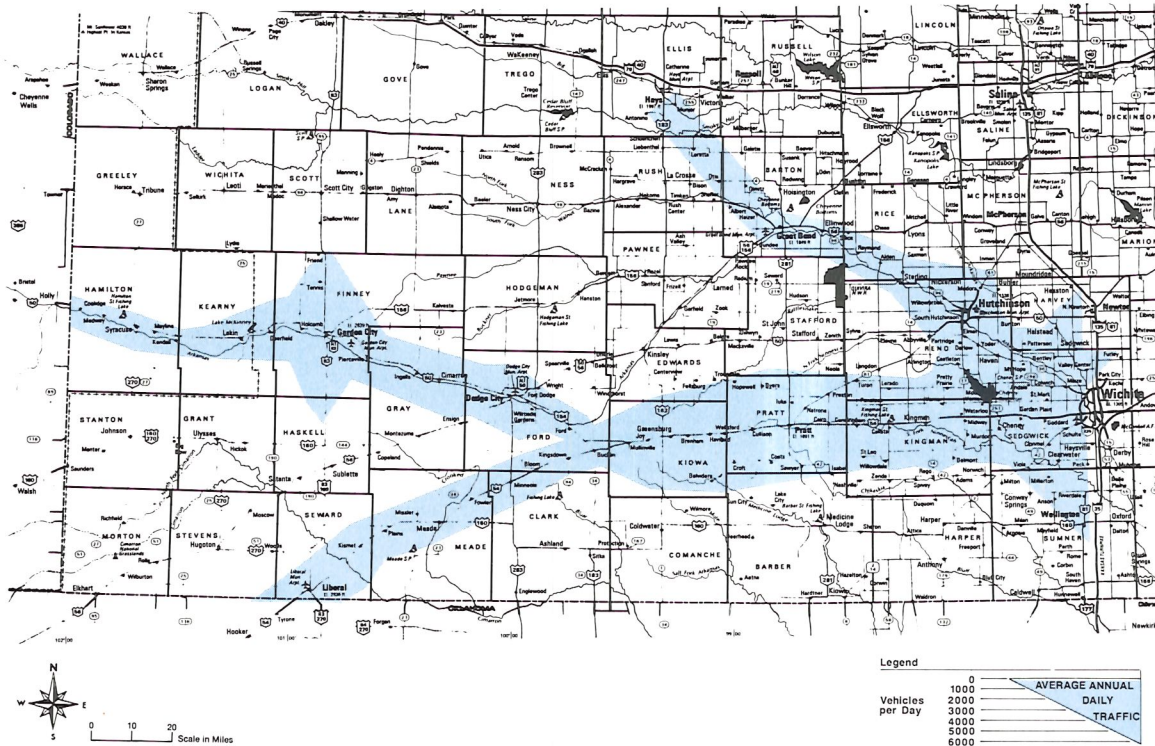


EXHIBIT 5 - YEAR 2010 TRAFFIC ASSIGNMENTS

Under normal circumstances, an improved two-lane roadway could safely handle approximately 6,000 to 10,000 vehicles per day. Therefore, it is difficult to justify four-lane construction based solely on estimated future traffic volumes.

Estimates of costs and revenues were made for new toll roads located generally parallel to the existing highways, except between Hays and Hutchinson where a new diagonal route would provide an appreciable savings in travel distance. A financial analysis of the feasibility of tolls indicates that:

- Total first year maintenance and operation costs of \$20.0 million for new toll roads in the three study corridors would far exceed the projected total annual gross revenues of \$9.8 million. A similar relationship exists for each of the three individual toll roads. Any revenue bond debt retirement costs would be in addition to the maintenance and operation costs.
- An even greater shortfall is projected for subsequent years since maintenance and operation costs are expected to increase at a faster rate than the gross toll revenues.

On this basis, neither two-lane nor four-lane turnpikes appear financially feasible.

Table 2

**BOND SIZE SUPPORTED BY MOTOR FUEL TAX
AT VARIOUS INTEREST RATES**

Motor Fuel Tax Per Gallon ¹	Maximum Bond Size ²			
	30 Years 6.0 Percent	30 Years 7.5 Percent ³	30 Years 9.0 Percent	30 Years 11.0 Percent
1¢	\$ 201,700,000	\$172,900,000	\$150,300,000	\$126,900,000
2¢	403,400,000	345,900,000	300,500,000	253,900,000
3¢	605,100,000	518,900,000	450,800,000	380,900,000
4¢	806,900,000	691,800,000	601,100,000	507,800,000
5¢	1,008,600,000	864,800,000	751,400,000	634,800,000

¹Computations assume \$0.01 in motor fuel tax generates \$14.5 million in revenue annually.

²Assumes 30-year maturity with equal annual debt service installments.

³7.5 percent is the average market rate available for December 1986.

PROJECT FUNDING

The various sources of funding that may be available include: State motor fuel tax, tolls, general revenue, sales tax, Federal aid, demonstration projects, local funding, benefit fees, assessments, and tax increment financing. The different methods of financing the projects include: current revenues, general obligation bonds, revenue bonds with fixed interest rates, zero coupon bonds and variable rate bonds.

The current interest rate on 30-year revenue bonds is approximately 7.5 percent. Based on this rate, a 1 cent per gallon increase in the State motor fuel tax would support a bond issue of \$173 million and a 5 cent per gallon increase would support a bond issue of \$865 million, refer to Table 2. Likewise, a one-half cent increase in the sales tax would support approximately \$979 million in revenue bonds, refer to Table 3. If the project construction was to be funded from current revenues, a 1 cent increase in the sales tax would yield approximately \$815 million over a five-year period, refer to Table 4. State statutes would need revisions to allow the use of sales tax revenue for statewide revenue bonds.

One of the principal reasons for project construction is the economic benefits that will be realized. As capital improvement projects, they will improve and enhance the State's transportation system by providing immediate and long-term benefits. The State, as well as the local communities, will be able to promote greater economic development. The far reaching economic effects of a capital improvement program of this magnitude will impact on employment, tax revenues, safety, and numerous other factors. The economic importance of the projects should not be underestimated.

Table 3
BOND SIZE SUPPORTED BY SALES TAX¹
AT VARIOUS INTEREST RATES
(\$ million)

Sales Tax Increase	30 Years 6.0%	30 Years 7.5%	30 Years 9.0%	30 Years 11.0%
1/4¢	570	489	425	359
1/2¢	1,142	979	851	718
3/4¢	1,696	1,454	1,264	1,067

¹Based on estimate of \$163 million per \$0.01 per dollar sales tax increase.

Table 4
ESTIMATED ACCUMULATIVE SALES TAX REVENUE¹
(\$ million)

Sales Tax Increase	1 Year	2 Years	3 Years	4 Years	5 Years
1/4¢	41	82	123	163	204
1/2¢	82	163	245	326	408
3/4¢	122	244	366	489	611
1¢	163	326	489	652	815
1-1/4¢	204	408	611	815	1,019
1-1/2¢	245	489	734	978	1,223

¹Based on estimate of \$163 million per \$0.01 per dollar sales tax increase.

PROJECT IMPLEMENTATION

In addition to the staged construction between two and four lanes, it may be necessary, due to funding constraints, to construct the recommended western Kansas highway improvements in smaller sections rather than as a single project.

In view of this, a priority listing was developed for all of the highway studies authorized in Senate Bill No. 693. The three corridor projects were subdivided into seven potential construction segments, each ranging from about 30 to 100 miles in length. As shown in previous Table 1, the Hutchinson to Wichita portion of K-96 and the Bucklin to Wichita segment of U.S. 54 are ranked as first priority construction segments; second priority ratings are proposed for highway improvements between Garden City and Bucklin (U.S. 50, 154); Great Bend and Hutchinson (K-96); and the Oklahoma line and Bucklin (U.S. 54). Third priority rankings are proposed for highway improvements between Hays and Great Bend (I-70, U.S. 281) and the Colorado line and Garden City (U.S. 50).

The priority rankings and segment lengths are primarily based upon projected traffic volumes, roadway conditions and major U.S. Highway junctions. Optimum segment or subsegment lengths may ultimately be determined by the availability of construction funds and can be adjusted accordingly.

Two alternative construction schedules were considered to examine different approaches in project funding and implementation. The first alternative is a five-year schedule which requires an accelerated design, right-of-way acquisition, and construction program implemented by a strong Independent Management Team. The principal responsibilities of the team would be to implement the construction program selected by the Legislature and to complete the projects on schedule and within the allotted budget.

As shown in previous Table 1, the recommended Stage I two-lane construction program with some bypasses requires approximately \$327,000,000 in 1986 dollars. This includes all construction, utility, right-of-way, and contingency costs. If construction costs continue to escalate at 6 percent per year during the five-year design and construction period (1988 to 1992), the total cost would increase to approximately \$414,000,000. Current and inflated costs for the other construction alternatives are also shown in Table 1. It is assumed that construction monies would become available in January, 1988.

The five-year plan is preferred from a construction cost, traffic service, traffic safety and economic benefit standpoint. However, funding constraints may require a longer construction period, such as a ten-year schedule.

The second alternative is a ten-year schedule which could probably be managed, at least in part, by existing State agencies operating under standard policies and regulations. If there is Federal participation in the project funding, somewhat more than ten years may be required to complete the projects.

Also shown in preceding Table 1 are the estimated construction costs, inflated at 6 percent per year, for a ten-year schedule (1988-1997). The total inflated costs for the recommended Stage I improvements under this schedule would increase to approximately \$484,000,000, a cost growth of \$70,000,000 over the preferred five-year schedule.

Cost estimates for proposed improvements in the three Western Kansas study corridors do not include any improvements currently programmed in KDOT's five-year schedule. It is assumed that these projects will be built as scheduled and that they will complement the improvements proposed in this report. KDOT will realize immediate benefits from the proposed improvements and postpone for several years the costly maintenance and upgrading programs that would otherwise be required. This will allow KDOT to advance the schedule of other projects across the State because of improvements made in the study corridors.

Since the proposed projects are capital improvements and are not maintenance projects, there is justification for independent funding. Existing KDOT funding sources as well as the KDOT "prioritization and optimization" selection system and five-year program should not be compromised or modified.

Table 5 briefly addresses the questions raised in Senate Bill No. 693 relating to the proposed projects. More descriptive and detailed information for each topic is contained in the three corridor reports.

RECOMMENDATIONS

The major recommendations and conclusions contained in this report on the Oklahoma to Wichita, Colorado to Wichita and Hays to Wichita highway study corridors are briefly outlined as follows:

- *Existing highways and rights-of-way should be utilized wherever feasible in order to reduce construction costs, avoid residential, farm and business displacements and to avoid adding mileage to the State highway system.*
- *It would be desirable to provide an upgraded four-lane, divided highway in all three corridors. But, because of funding constraints, it is recommended that the proposed improvements be accomplished in two phases. Recommended Stage I improvements would, except for the proposed four-lane improvement between Hutchinson and Wichita, provide a high type, two-lane highway with paved shoulders and some city bypasses at a total estimated cost of approximately \$327,000,000 (in 1986 dollars).*
- *In future Stage II, when additional construction funds become available, two additional lanes would be provided (four lanes total) at an estimated additional cost of approximately \$700,000,000 (in 1986 dollars).*
- *The proposed capital improvement program could be funded by either a "pay as you go" method with a sunset sales tax or by a 30-year revenue bond program if a gasoline tax is used. A combination of the two methods could also be utilized.*

- *The recommendations should be considered as capital improvements, rather than maintenance projects, and funded accordingly.*
- *If funding is a concern, the projects could be sequenced and prioritized to allow alternative construction programs.*
- *A five-year implementation plan is recommended to maximize economic benefits and to minimize the effects of inflation.*
- *The project should be administered by an Independent Management Team whose sole responsibility would be to complete the project on schedule and within its budget.*
- *The funding sources for the proposed project should not interfere with current Kansas Department of Transportation revenues. Also, the project selection process should not interfere with the current KDOT "prioritization and optimization" selection system and current five-year program.*
- *Substantial near and long-term economic benefits will be generated by the project improvements.*
- *The construction and operation of a toll road in any of the three study corridors is not feasible.*

It is recognized that the Legislature may consider alternative highway improvement programs along with alternative funding sources and methods of implementation. The report has been structured so as to be flexible to the needs of the Legislature. Extensive segmented cost estimates and roadway design data have been provided for this purpose.

Table 5

SUMMARY RESPONSE TO SENATE BILL NO. 693

Question	Answer
(a) An estimate of the total cost of each project, including those items defined as costs by KSA 68-2093 and amendments thereto;	Total estimated costs range from \$227.0 million to \$1,559.0 million depending on the alternative selected (refer to Table 1).
(b) A determination of the extent to which each project can be financed by the collection of tolls or by alternative methods of finance;	Toll financing is not feasible. Chapter VI of the corridor reports outlines alternative financing options. Additional sales tax and/or gasoline tax revenues would be the most promising funding source.
(c) The interest rate at which any revenue bonds authorized could be issued;	State backed revenue bonds could yield 7.5 percent interest, as of December 1986.
(d) A projection of the potential traffic volume on each project;	For the design year 2010 the total estimated traffic is estimated to range from 4,000 to 10,000 vehicles per day along the three corridors.
(e) An estimate of the amount of tolls and other revenues to be derived from each project which would be required to finance or guarantee the financing of each project solely from the tolls and revenues;	Toll financing is not feasible for either a two-lane or four-lane facility.
(f) An estimate of the cost differential between the construction of each turnpike project or freeway as a two-lane road or highway and its construction as a four-lane road or highway;	Total estimated costs range from \$227.0 million for 2-lane highways to \$1,559.0 million for 4-lane freeways, depending upon the alternative selected, refer to Table 1.
(g) An estimate of the revenue differential which would be derived from the operation of each turnpike project or freeway if constructed as a two-lane road or highway or if constructed as a four-lane road or highway;	Toll financing is not feasible as the sole source of revenue or even as a supplemental source.
(h) Such other data deemed necessary by the Authority for a determination of each project's feasibility.	Other engineering factors are documented in the report including construction priorities, implementation options and project schedules.

SENATE BILL No. 693

By Committee on Transportation and Utilities

2-25

0017 AN ACT authorizing and directing the Kansas turnpike authority
0018 to study the feasibility of constructing certain turnpike proj-
0019 ects or freeways including the methods of financing thereof;
0020 prescribing the location thereof; and concerning appropria-
0021 tions for fiscal years ending June 30, 1986, and June 30, 1987,
0022 for such purposes.

0023 *Be it enacted by the Legislature of the State of Kansas:*

0024 Section 1. The Kansas turnpike authority is hereby autho-
0025 rized and directed to study the feasibility of constructing turn-
0026 pike projects or freeways: (a) To commence and connect with the
0027 Kansas turnpike at the city of Wichita and proceeding in a
0028 westerly direction to the point where U.S. Highway 50 crosses
0029 the Kansas-Colorado border; (b) to commence and connect with
0030 the Kansas turnpike at the city of Wichita and proceeding in a
0031 westerly and southwesterly direction to the point where U.S.
0032 Highway 54 crosses the Kansas-Oklahoma border; and (c) to
0033 commence and connect with the Kansas turnpike at the city of
0034 Wichita and proceeding in a northwesterly direction to the cities
0035 of Hutchinson, Great Bend and Hays.

0036 Such study shall include recommendations for alternative
0037 routes between such points and the feasibility of each.

0038 The study of the feasibility of such projects shall be based
0039 upon the use of existing right-of-way where possible, and in
0040 addition shall include, but not be limited to:

0041 (a) An estimate of the total cost of each project, including
0042 those items defined as costs by K.S.A. 68-2093 and amendments
0043 thereto;

0044 (b) a determination of the extent to which each project can be
0045 financed by the collection of tolls or by alternative methods of
0046 finance;

0047 (c) the interest rate at which any revenue bonds authorized
0048 could be issued;

0049 (d) a projection of the potential traffic volume on each proj-
0050 ect;

0051 (e) an estimate of the amount of tolls and other revenues to be
0052 derived from each project which would be required to finance or
0053 guarantee the financing of each project solely from the tolls and
0054 revenues;

0055 (f) an estimate of the cost differential between the construc-
0056 tion of each turnpike project or freeway as a two-lane road or
0057 highway and its construction as a four-lane road or highway;

0058 (g) an estimate of the revenues differential which would be
0059 derived from the operation of each turnpike project or freeway if
0060 constructed as a two-lane road or highway or if constructed as a
0061 four-lane road or highway; and

0062 (h) such other data deemed necessary by the authority for a
0063 determination of each project's feasibility.

0064 For the purpose of conducting such study, the Kansas turnpike
0065 authority is hereby authorized to employ such consulting engi-
0066 neers, traffic engineers, legal and financial experts and such
0067 other employees and agents as deemed necessary. In addition to
0068 the purposes for which expenditures are authorized for fiscal
0069 years ending June 30, 1986, and June 30, 1987, from the state
0070 highway fund by section 2(a) of chapter 22 of the 1985 Session
0071 Laws of Kansas or any appropriations act of the 1986 regular
0072 session of the legislature, expenditures are hereby authorized
0073 and directed to be made for the purpose of paying the cost of the
0074 feasibility study prescribed by this section, except that the total
0075 amount of expenditures for such purpose during fiscal years
0076 ending June 30, 1986, and June 30, 1987, shall not exceed
0077 \$550,000.

0078 The feasibility study required herein shall be completed by
0079 December 31, 1986, and the authority shall submit a report of the
0080 findings and recommendations thereon to the governor and the
0081 1987 session of the legislature.

0082 If the Kansas turnpike authority shall find that the construction
0083 of any of such projects are feasible and shall recommend that any

0084 of such projects be constructed, the expenditures made by the
0085 authority in conducting the feasibility study required herein
0086 shall be regarded as a part of the cost of such project and shall be
0087 reimbursed to the state treasurer, for the credit of the state
0088 highway fund, out of the proceeds of revenue bonds or other
0089 sources of financing utilized to pay the cost of any such project.
0090 Sec. 2. This act shall take effect and be in force from and
0091 after its publication in the Kansas register.