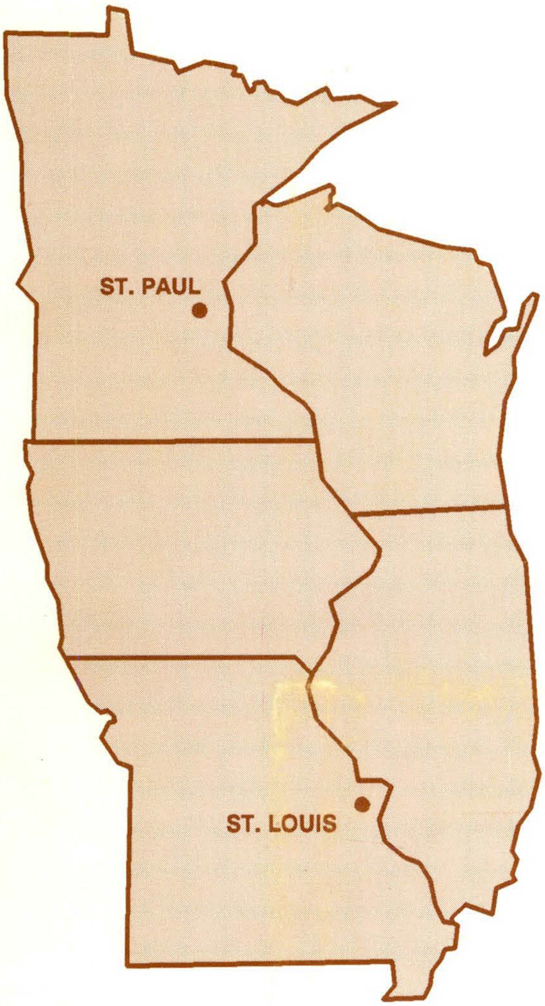
ST LOUIS TO ST PAUL CORRIDOR FEASIBILITY AND NECESSITY STUDY



CONSULTANT'S SUMMARY REPORT

by

WILBUR SMITH ASSOCIATES

March, 1990

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March 22, 1990

TO: Mr. Thomas Welch - Iowa DOT
Mr. Dan Dees - Illinois DOT
Mr. George Gundersen - Wisconsin DOT
Mr. Don Hiatte - Missouri H&TD
Mr. Merritt Linzie - Minnesota DOT
Mr. Ed Finn - FHWA Ames
Mr. Ron Rogers - FHWA Kansas City
Mr. Dane Ismart - FHWA Washington, D.C.

SUBJECT: **ST. LOUIS - ST. PAUL CORRIDOR FEASIBILITY AND NECESSITY STUDY SUMMARY REPORT**

Gentlemen:

Wilbur Smith Associates is pleased to submit this document which briefly summarizes our assessment of the highway corridor between St. Louis and St. Paul. The work is more thoroughly documented in the study's Final Report.

The study analyzes the need for a four-lane highway between St. Louis and St. Paul, and finds it to be needed; it analyzes the highway's feasibility, and finds it to be feasible; it analyzes alternative design standards and suggests that it be built to expressway standards; and, the study evaluates alternative routes and presents four "finalist" routes for your consideration.

We sincerely appreciate having been afforded the opportunity to assist the five states and the Federal Highway Administration, and trust that the corridor analyses will prove to be useful and of benefit to the corridor's residents.

Respectfully submitted,

WILBUR SMITH ASSOCIATES

Robert J. Zuelsdorf
Senior Vice President

RJZ:dsh

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ST. LOUIS TO ST. PAUL
CORRIDOR FEASIBILITY AND NECESSITY STUDY

Recognizing that the corridor area between St. Louis and St. Paul does not have the type of north-south highway that connects most of the nation's urban centers, the U.S. Congress included funds in the 1989 Appropriations Act for "a study to be conducted in cooperation with the States of Iowa, Missouri and Minnesota on the feasibility and necessity of constructing a four-lane highway from St. Louis, Missouri to St. Paul, Minnesota."

THREE STUDY REPORTS

To respond to this Congressional request, three interrelated reports have been, or will be, prepared.

1. **Consultant's Report to the States** - Includes an evaluation of the corridor, the alternative routes, and their feasibility. Does not contain conclusions or recommendations.

2. **States' Report to FHWA** - Based on the "Consultant's Report," a report to the federal government outlining the states' recommendations.

3. **FHWA Report to Congress** - The Federal Highway Administration's report to Congress, stating the study conclusions.

This brief material summarizes the Consultants' Report.

STUDY ISSUES

The Consultant's Study did its best to answer a series of questions which would be useful in the decision process. Three key issues were evaluated:

1. **Need and Feasibility** - Is a continuous four-lane highway between St. Louis and St. Paul needed? Is it feasible in terms of travel efficiency? economic development? engineering design? environmental implications? other implications?

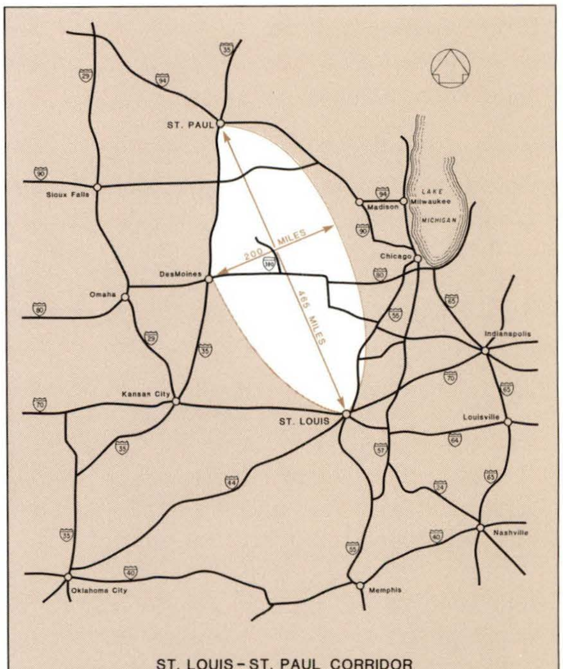
2. **Route Options** - What route options exist? Which are most feasible? Which routes cost the least? Which generate the greatest benefit? Which are needed the most?

3. **Design Standard** - Should a continuous four-lane highway be built all the way from St. Louis to St. Paul, or should portions be built? Should it be at "expressway" standards, or "freeway" standards?

THE CORRIDOR

This corridor of 8.4 million people has reasonably good east-west four-lane highways but poor north-south arteries. The states have been trying to improve the roads, have programmed some improvements, but do not have sufficient funds to resolve all the corridor's transportation issues.

The study area is framed by a series of interstate routes. The southern boundary is defined by I-70, which runs between St. Louis and Kansas City. The western edge is bounded by I-35, which connects Kansas City with Des Moines and the Twin Cities. The eastern boundary is a combination of interstate routes connecting St. Louis and St. Paul via Springfield, Bloomington, Rockford, and Madison.



ST. LOUIS - ST. PAUL CORRIDOR

The St. Louis - St. Paul Corridor

EVALUATION OF 36 ROUTES

The most cost-effective way to develop a four-lane highway between the two end points is to widen existing two-lane highways to four-lane, where possible. Every existing State highway in the corridor that could possibly serve as a potential route was considered. Initial investigations by the states and the Consultant identified 36 possible combinations of existing highways that might be used. Those route combinations are identified as "Routes Considered" on the opposite page.

ROUTE EVALUATION CRITERIA

Each route option was subjected to a series of evaluations which allowed the route options to be compared, each with the others. The evaluations used the following evaluation criteria:

- Travel Efficiency
  - Existing and future traffic volumes
  - Vehicle time, cost, accident savings
- Engineering Factors
  - Ease of construction
  - Capital cost
- Economic Development
  - Economic development prospects
  - Job creation
- Impacts and Implications
  - Environmental impacts
  - Other mode implications
  - Agriculture impacts

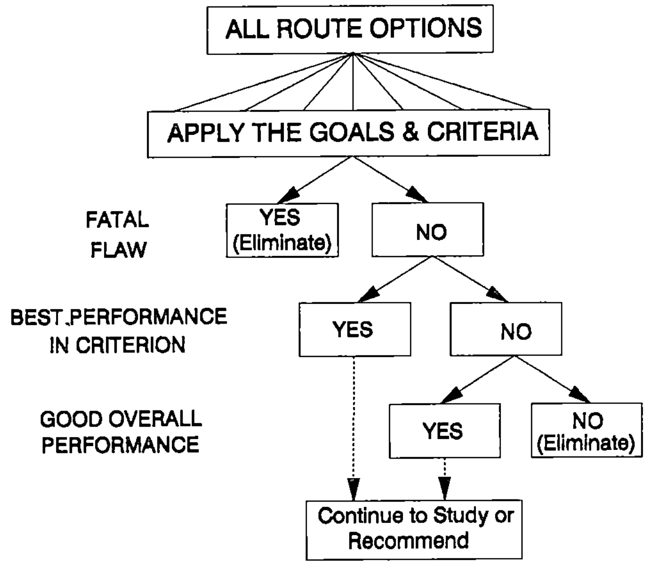
An important goal of the "Consultant's Report to the States" was to analyze possible routes between St. Louis and St. Paul, and to identify those routes that are most feasible. To accomplish this, a "Route Screening Process" was used which treated all route options as equals, and which evaluated each.

The route analyses considered all reasonable highway route options between St. Louis and St. Paul and, based on increasingly detailed evaluation, reduced the number of options to those few that were found to be most promising.

At each level of the analysis, route options that were eliminated, were eliminated for specific reasons, and with state and FHWA review and concurrence.

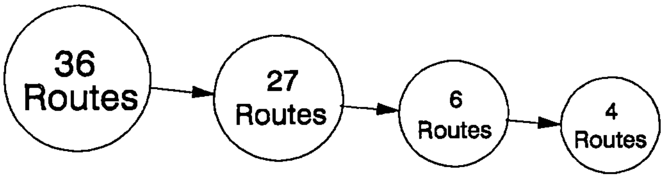
FORMAL EVALUATION PROCESS

To ensure equitable treatment of all routes, a set of "decision rules" was used. When a route was found to have a "fatal flaw," or when it was found to not meet the highway's objectives, or when it simply was not as good as another alternative, it was eliminated from further consideration. The following "decision tree" was used.

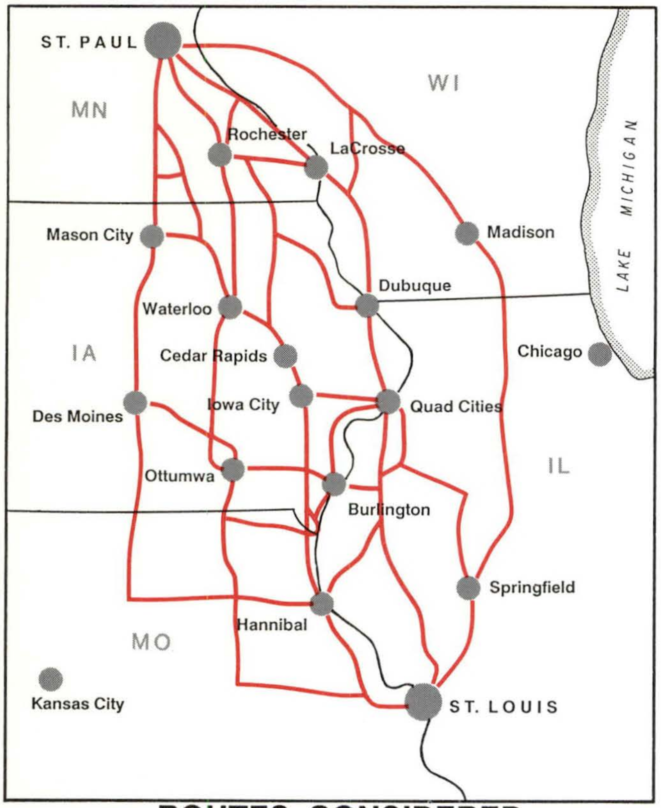


ROUTE SCREENING PROCESS

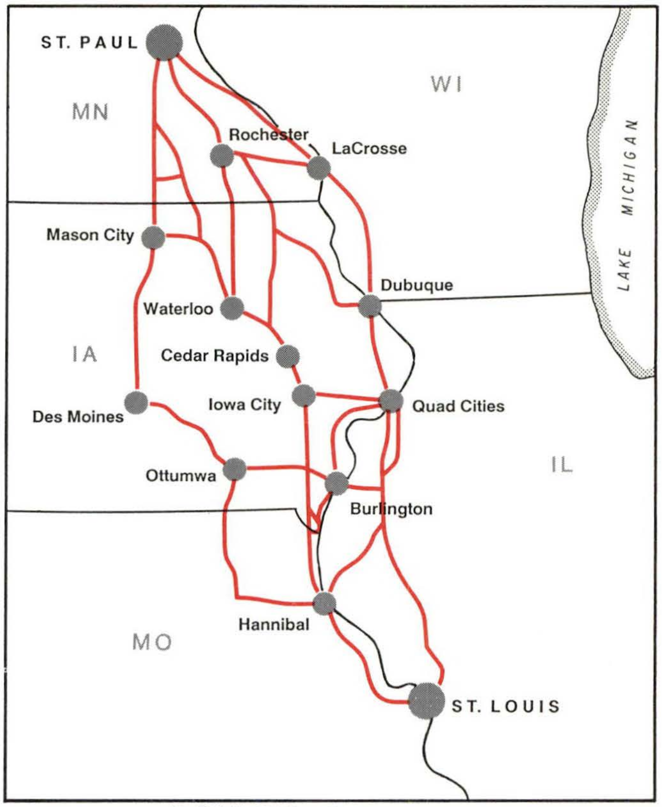
The route evaluation criteria were initially applied in a general sense. Based on that, nine routes were eliminated. Then the evaluations were done based on more detailed analysis, and 21 routes were eliminated. The final route screening was done using "incremental benefit/cost analysis," which reduced the number of route options to four.



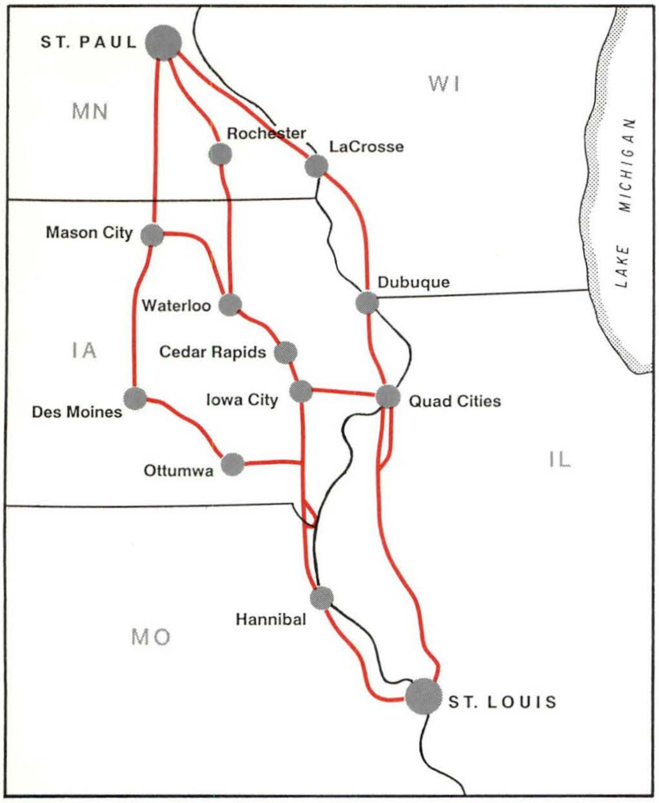
Number of Routes Analyzed



ROUTES CONSIDERED



ROUTES REMAINING
AFTER PRELIMINARY SCREENING



ROUTES REMAINING
AFTER SECONDARY SCREENING

FINALIST ROUTES

ROUTE SCREENING RESULTS

THE FOUR FINALIST ROUTES

FOUR "FINALIST" ROUTES

Of the 36 routes initially considered, four were ultimately identified as offering characteristics suitable for final consideration for improvement to four lane all the way from St. Louis to St. Paul. These four finalist routes are designated as Routes B, C, D and E and each offers certain strategic advantages:

Route B: Makes maximum use of existing and programmed four-lane highways by following US 61 north from St. Luois to Hannibal; US 218 north to Iowa City; I-380 north to Cedar Falls; US 218 north to Charles City; US 18 west to Mason City and I-35 north to St. Paul.

Route C: Makes good use of existing and programmed four-lane highways and is the most direct route. The route would follow US 61 north from St. Louis to Hannibal; US 218 north to Iowa City; I-380 north to Waterloo; US 63 north to Rochester and and US 52 north to St. Paul.

Route D: Would serve the greatest number of communities currently unserved by any four-lane north-south highways. To do so, the route would go north on US 67 through Jacksonville to the Quad Cities, and then north on US 61 through Dubuque and LaCrosse to St. Paul.

Route E: Makes good use of existing and programmed four-lane highways and serves most major population centers, by following US 67 north through Jacksonville to the Quad Cities; I-80 west to Iowa City; I-380 north to Waterloo; US 63 north to Rochester and US 52 north to St. Paul.

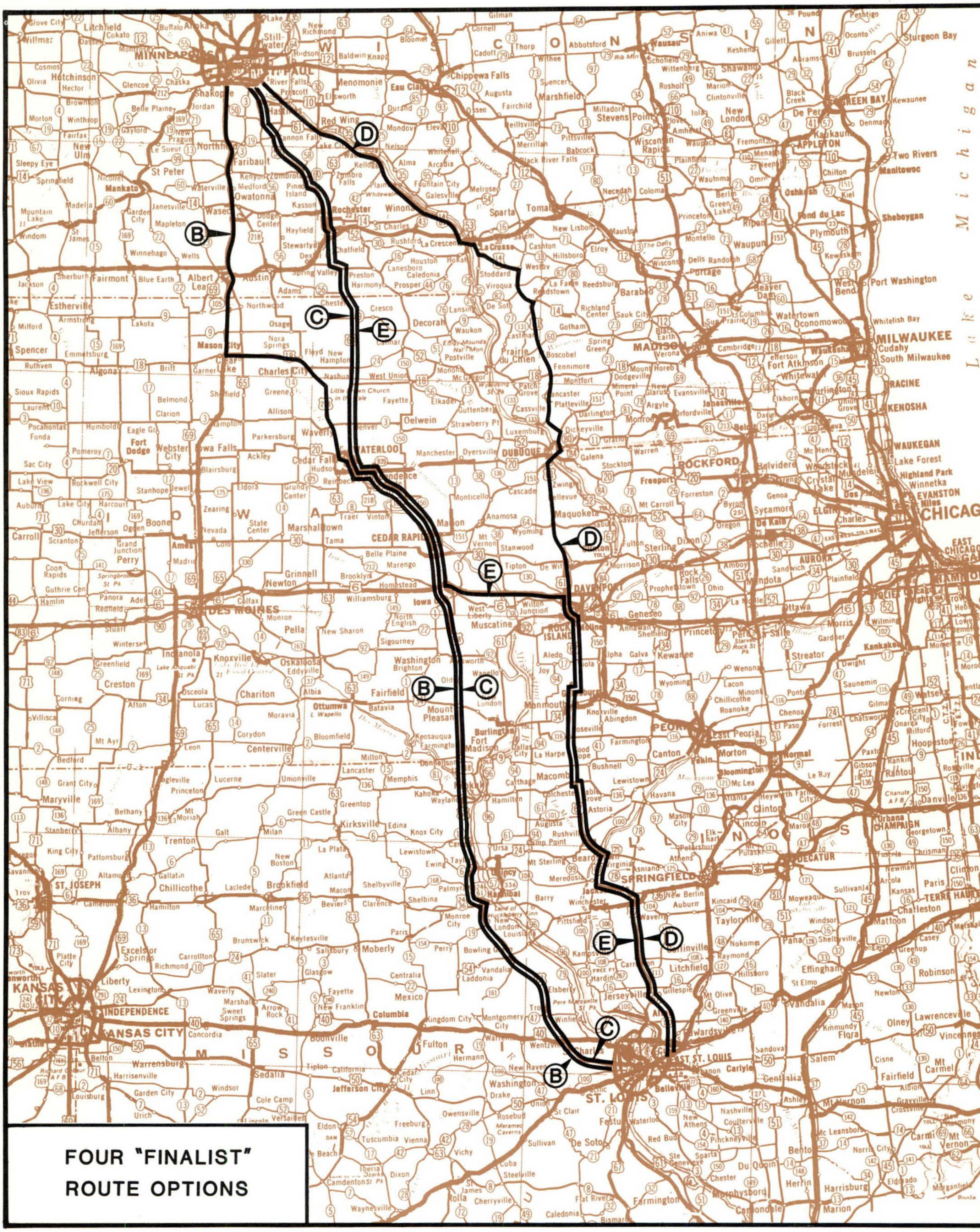
These four routes therefore represent the best of the "strategic" route options.

While the initial 36 routes were studied to see which are superior to the others, the four finalist routes were subjected to a detailed feasibility test.

The "Route Characteristics" table below depicts relevant data for each route. The route length is the distance between the circumferential freeways circling St. Louis and St. Paul. The trip time is the estimated time if the route were improved to four lanes. The two-lane unprogrammed miles represent the number of miles of existing two-lane highways all the way from St. Paul to St. Louis. The population in the impact area includes St. Paul and St. Louis plus intermediate county populations. The population served totals are people residing within 25 miles of the route, excluding the St. Paul and St. Louis "Metropolitan Statistical Areas."

Route Characteristics

	Route B	Route C	Route D	Route E
Route Length (miles)	532	504	549	556
End to End Trip Time (hrs:min)	9:09	8:59	9:57	9:53
Existing Highways Status (miles):				
Now Four-Lane	330	258	124	183
Programmed Four-Lane	65.6	60	66.7	48
Two-Lane Unprogrammed	136.4	186	358.3	325
Population (millions):				
In Impact Area	5.9	6.1	6.2	6.4
Served by Route	1.2	1.2	1.3	1.5


FOUR "FINALIST" ROUTE OPTIONS
B
C
D
E
MINNEAPOLIS
ST. PAUL
CHICAGO
MILWAUKEE
ST. LOUIS
KANSAS CITY
DES MOINES
MADISON
ROCKFORD
SPRINGFIELD
DAVENPORT
WATERLOO
DUBUQUE
Lake Michigan

FOUR LANE HIGHWAY FEASIBILITY EVALUATION

The initial concept evaluated in the study was the feasibility of widening one existing route to a four-lane highway, designed to "expressway standards." This standard implies a legal speed of 55 mph (except where already posted at 65 mph), and without traffic controls. Later in the analysis the concept of a "freeway standard", with a legal speed of 65 mph, was evaluated.

FIVE TESTS OF FEASIBILITY

To determine whether the four-lane highway was warranted and feasible, each route was subjected to five "tests of feasibility":

Engineering Feasibility - Can the route be built from the engineering perspective?

Environmental Feasibility - Can it be built without significant negative impact?

Need - Are the improvements needed based on existing and future travel demand?

Travel Efficiency Feasibility - Are the improvements economically feasible based on highway user benefits?

Economic Development Feasibility - Are the improvements feasible in terms of their economic impact on local economies?

ENGINEERING FEASIBILITY

Each route was field inspected, key construction and engineering issues were identified, and costs of highway construction were estimated. This led to the conclusion that each route could be physically improved to a four-lane cross section at reasonable cost. Final determination of engineering feasibility will require detailed alignment investigations which are beyond the scope of this planning study.

Key statistics concerning the engineering feasibility of each route are presented below. The key engineering points are that Routes B and C are estimated to be the least expensive to construct, due in part to the fact that so much of them are already multilane highways or programmed to be improved to four-lanes and because they pass through terrain that permits easy expansion of the existing highway.

All of the routes would involve the construction of a sizeable number of bypasses around towns and urban areas which would not only benefit the long-distance St. Louis to St. Paul traffic but would also be of benefit to shorter distance travel around the towns and urban areas.

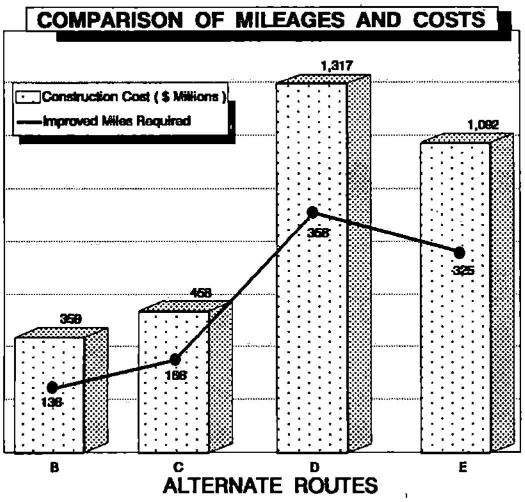
Engineering Feasibility

	Route B	Route C	Route D	Route E
Road Construction Needed (miles)	136.4	186	358.3	325.0
Construction Cost ($ million)	$358.5	$457.6	$1,317.2	$1,092.3
Number of Bypasses Needed:				
Urban Areas	3	3	4	3
Towns	13	14	36	20
Ease of Construction (1 is easiest)	1	1	3	2

The preliminary engineering analyses and field investigations indicated, from an engineering feasibility perspective, that:

- Each of the routes could be improved to a four-lane cross-section, although each would have engineering challenges to avoid undue cost or undue environmental impact.
- Route B and C would be the easiest to improve to four lanes, since some right-of-way has already been reserved, and other right-and-way can be obtained. Both routes also make good use of existing and/or programmed four-lane highways.
- The portion of Route D and E which passed through Illinois on US 67 will present a number of engineering challenges, which may require some construction on new alignment.
- The portion of Route D which passes through Wisconsin and Minnesota negotiates some of the study area's most difficult terrain and, as a result, would be the most difficult to improve to four lanes.
- Several river crossings occur in sensitive areas, which will require detailed study in order to find acceptable crossing solutions.

COMPARISON OF MILEAGES AND COSTS



- Preliminary cost estimates which were developed indicate that Route B is the least expensive of the expressway alternatives, because it would require the least centerline miles of highway improvements (136) and because it follows terrain which does which does not create real difficulties for expansion of existing two lane roads to a four-lane status.
- Route C is also relatively inexpensive to improve to a four-lane expressway. Again, its low cost is related to limited centerline miles of highway improvements (186) required, as well as the general ease of construction along the existing alignment.
- Route D, and to a lesser degree Route E, would be significantly more expensive to improve to a four-lane expressway because of the extensiveness of improvements required (358 and 325 centerline miles respectively) as well as the challenging terrain that the alignments must negotiate.

ENVIRONMENTAL FEASIBILITY

Highway improvement projects always have a potential to create environmental impacts. Preliminary reviews suggest that:

- There are a number of environmentally sensitive areas within the study area, and each route contains at least one such area which may pose engineering challenges to construction of a four-lane expressway in an acceptable manner. These include:

  - Mississippi River Basin adjacent to US 61 in Minnesota.
  - La Crosse Urban Area.
  - Wisconsin River Basin (US 61).
  - Shell Rock River near Nora Springs, IA (US 18).
  - Des Moines River Basin and Wetlands along Iowa Route 394.
  - Illinois River Basin near Beardstown, Illinois (US 67).

- The greatest potential for adverse environmental impacts appears to be along Route D through Wisconsin and Minnesota.

NEED

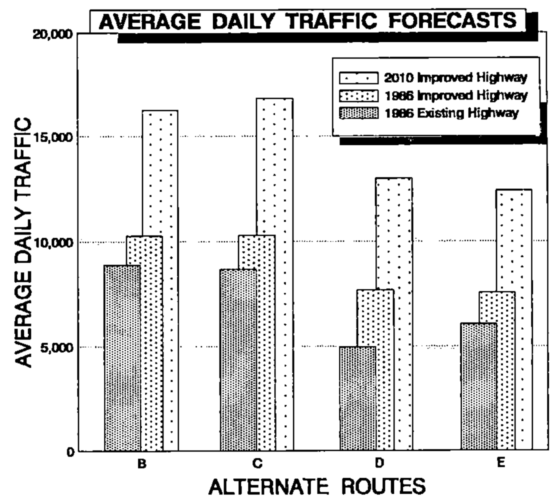
To determine potential benefits to users of each route alternative, it was necessary to develop a means of estimating the number of users of each route, with and without the improvements. Since some users would be diverted from unimproved routes to improved highways, the traffic forecasting procedures had to recognize the origin-destination pattern of travel in the region, instead of just forecasting simple growth rates on road links.

Therefore, a network based transportation model was used with the study region subdivided into 433 zones. A roadway network was developed that included the major roadways in the region. Travel demand procedures were then developed to estimate the number of trips between study zones.

The procedures included development of a base year trip table using corridor travel patterns identified through roadside surveys, observed traffic volumes, the most probable routings between zone pairs and the relative population residing in each zone. The base year trip table was then expanded to reflect year 2010 population forecasts and observed trends in corridor travel characteristics.

Based on traffic forecasts and capacity analyses, several conclusions can be drawn:

- All of the finalist routes have the potential to reduce regionwide vehicle hours of travel if improved to a continuous four-lane expressway, because higher average travel speeds would be provided.
- Routes B and D have the potential to significantly reduce vehicle miles of travel for regionwide travel, because some existing trips currently travel longer distances on alternative routes. With the improvements, the shorter routes are likely to become more attractive.
- Regional average daily traffic forecasts of betwen 12,400 and 16,900 as depicted below suggest that a four-lane route will be needed and appropriate.



Annual Travel Data

	Route B	Route C	Route D	Route E
Annual Vehicle Hours of Travel (VHT) Change from Base Condition				
1986 (millions)	-1.56	-1.37	-3.7	-1.77
2010 (millions)	-2.47	-2.18	-6.27	-2.79
Annual Vehicle Hours of Travel (VHT) Change from Base Condition				
1986 (millions)	-22.3	0	-59.5	+6.2
2010 (millions)	-35.4	+0.4	-110.2	+9.1

TRAVEL EFFICIENCY FEASIBILITY

A public investment such as a new highway is "economically feasible" if the economy is better off with the highway than without it. One way a highway improvement can help the economy is by reducing the cost of transportation (greater efficiency due to reduced vehicle operating costs, reduced travel times, reduced risk of accidents). If those travel efficiencies, over time, discounted and summed are greater than the cost of improving and operating the highway, then the highway is a prudent public investment and should be built.

Improvements in travel efficiency are valid economic benefits at the local level, the state level and the national level. Therefore, the travel efficiency feasibility test should be viewed as a key criterion, and perhaps the only economic criterion, at the national level.

According to this travel efficiency economic feasibility measure, any highway improvement with a "benefit/cost ratio" of 1.0 or more, or a positive "net present value," or a "rate of return" over ten percent or more, is economically feasible and should be built.

In making this calculation, the benefits are the travel efficiency gains by year over a 30-year time period. The costs are the construction cost of the "unprogrammed" road miles, plus any increases in highway maintenance cost. Both costs and benefits are discounted at the FHWA-specified ten percent rate.

The table at the bottom of the page identifies the relative economic feasibility of each route in terms of this travel efficiency criterion. That table indicates:

- Route D will create the greatest travel efficiency savings (94 percent more than Route B). However, Route D is also the most expensive (267 percent more than Route B).
- When the discounted benefits are compared with the costs, only Route B is found to be economically feasible (B/C of 1.3).
- The other routes become economically feasible only when "economic development" benefits are added to the travel efficiency benefits (see the next page).
- The study does find, however, that major portions of Routes C, D and E are also feasible.
- Therefore, at least some investments in all of the finalist routes are warranted and will be needed.

On this basis, if the most cost-effective route is to be chosen based solely on efficiency (economic benefits to the national economy), Route B would be selected. However, efficiency is only one of the criteria that might be considered, especially at the local level.

Travel Efficiency Feasibility

	Route B	Route C	Route D	Route E
Year 2010 Travel Benefits ($ million)	$59.6	$47.9	$115.8	$39.1
Construction Cost ($ million)	$358.5	$457.6	$1,317.2	$1,092.3
FEASIBILITY INDICATORS				
Benefit/Cost Ratio[a]	1.3	.8	.7	.3
Net Present Value ($ million)[a]	$74	$-72	$-361	$-634
Internal Rate of Return (%)	12.6%	7.8%	6.2%	.1%

[a]Discounted at 10%

ECONOMIC DEVELOPMENT FEASIBILITY

Government is often asked to make highway investments for "economic development" purposes. The rationale, and it is correct from the corridor perspective, is that the area will be better off due to greater transport efficiency, the possible attraction of new businesses, and the overall improved ability of the region to compete for economic activity. Without question, a well planned north-south highway will be a significant asset to the region, and will be of help to the economic future of communities and land uses located in proximity to the highway. Ample evidence exists to support the contention that the corridor's economy will benefit from the highway.

This study examined the economic development issue, and found that the communities along the selected route will benefit economically from the route. The communities will benefit in three ways.

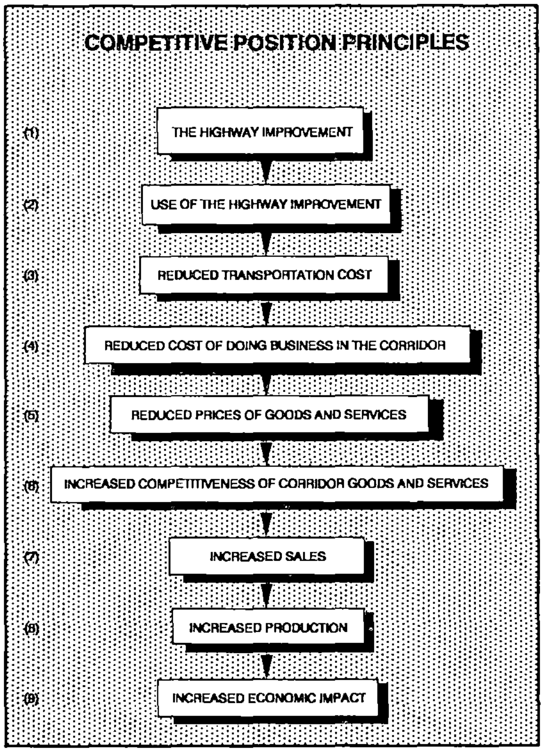
1. Travel Efficiency

The people that will make the most extensive use of the improved highway are those who reside in the area. They will benefit from the travel efficiencies via reduced vehicle operating costs, reduced travel times, and reduced accident rates.

2. Improved Competitive Position

The communities in the St. Louis - St. Paul corridor region are working to diversify their economic bases by attracting new employers. A major new highway through the region will provide improved and lower cost transportation which in turn could help to improve the communities' competitive position.

Any businesses that are therefore attracted or retained will yield economic development benefits. The following chart depicts this process.



3. Traveler Expenditures

The study also finds that traffic will be diverted to the improved highway. Such traffic increases will increase revenues to those businesses located along or near the routes, including visitor and tourism attractions, such as roadside businesses and gas stations, restaurants, motels, and others. These economic benefits were calculated for each route.

Total Year 2010 Annual Local Economic Benefits

Benefit Types	Route B	Route C	Route D	Route E
1. Travel Efficiency ($ millions)	$59.6	$47.9	$115.8	$39.1
2. Competitive Position ($ millions)	8.1	5.8	11.9	7.6
3. Travel Expenditures ($ millions)	64.0	77.5	143.4	71.1
4. Total Economic Development ($ millions)	$131.7	$131.2	$271.1	$117.8

This study finds that the local economic development implications associated with the highway improvement are potentially significant. However, these economic development statistics should be used with caution.

From the point of view of businesses, communities and counties located along a candidate route, highway improvements of the magnitude envisaged in this study are, almost by definition, economically feasible. It is feasible from the local corridor perspective because the highway will not only create travel efficiency, but will also cause economic development along the route (improved competitive position and increased traveler expenditures).

However, from the National point of view, most of those economic development impacts are transfers from one location to another. Consequently, the National funding decision should be based more on the travel efficiencies impact and less on the more localized economic development impact. The type of economic impact to be used, by national versus local decision makers, is depicted in the following table.

Economic Impacts by Impact Area

Impact Type	Impact Area National	Impact Area Corridor
Transport Efficiency	X	X
Competition Position		X
Travel Expenditures		X

Local Economic Development Feasibility

	Route B	Route C	Route D	Route E
Net Present Value ($ Million)[a]				
Travel Efficiency (by itself)	$ 74.4	$-72.1	$-361.1	$-633.6
Competition Position (by itself)	$-235.0	-329.3	-970.6	-819.6
Travel Expenditures (by itself)	$ 104.2	99.1	-184.5	-433.8
Travel Eff. + Comp. Position	$ 124.3	$-37.6	$-287.1	$-586.1
Travel Eff. + Comp. Pos. + Travel Exp.	$513.6	425.3	572.9	-153.2
Benefit/Cost Ratio[a]				
Travel Efficiency (by itself)	1.3	.8	.7	.3
Competitive Positive (by itself)	.2	.1	.1	.1
Travel Expenditures (by itself)	1.4	1.3	.8	.5
Traval Eff. + Comp. Position	1.4	.9	.7	.3
Travel Eff. + Comp. Pos. + Travel Exp.	2.8	2.2	1.6	.8
Internal Rate of Return (%)				
Travel Efficiency (by itself)	12.6%	7.8%	6.2%	.04%
Competitive Positive (by itself)	-2.6%	-5.5%	-6.9%	-8.1%
Travel Expenditures (by itself)	13.6%	12.7%	8.1%	4.0%
Travel Eff. + Comp. Position	14.2%	8.9%	7.0%	1.1%
Travel Eff. + Comp. Pos. + Travel Exp.	25.5%	20.4%	15.2%	8.1%

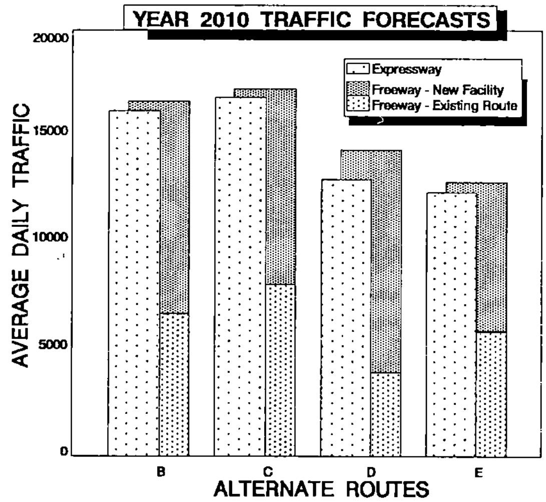
[a]Discounted at 10%

FREEWAY FEASIBILITY

Preceding analyses focused on the feasibility of a four-lane expressway (sufficient for vehicular travel at 55 mph). Another option, which was explored during later stages of the study involved construction of a St. Louis to St. Paul highway at "Freeway" standards. This "Freeway" option implies a 65 mph rural speed limit, and a 55 mph urban speed limit.

Because of design standards, the freeway option does not generally involve widening of existing highways from two to four lanes; rather, it generally involves the construction of four new lanes of highway, built on a combination of existing and new right-of-way. Thus, the "freeway" option would sometimes involve two highways in a given corridor -- the existing route, plus the new freeway. This transportation option was then evaluated in the same manner as the expressway options were. A summary of key freeway findings includes:

- **Extensiveness of Improvements** - all of the routes would require significantly more miles of improvements than under expressway standards.
- **Capital Costs** - All routes would be significantly more expensive, although the relationship between the four finalist routes cost would be similar in that Routes B and C would be significantly less expensive than D and E.
- **Traffic Forecasts** - Total traffic forecasts for freeway alternatives are only slightly higher than expressways, in large part due to the significant travel improvements occasioned by expressways.



- **Travel Efficiency** - Because there are only slight increases in traffic, but major increases in cost, none of the freeways would be feasible based on travel efficiencies alone.
- **Economic Development Benefits** - The freeway option would increase economic development by 18 to 44 percent more than comparable expressway routes. The largest benefit would be associated with Route D.
- When all three types of economic benefit are included, Routes B, C, and D are economically feasible.

From an overall comparison, freeway options along Routes B and D are equally attractive, Route C is not quite so good, and Route E is a distant fourth.

KEY FREEWAY FINDINGS

	Route B	Route C	Route D	Route E
Total Improvement Mileages	340	447	514	412
1989 Construction Cost ($ millions)	674.9	874.0	2,060.4	1,411.2
Year 2010 Corridor ADT	16,680	17,260	14,370	12,870
Travel Efficiency (B/C Ratio)[a]	0.81	0.61	0.84	0.44
Travel Efficiency (NPV $ millions)[a]	-108.1	-284.8	-278.0	-649.7
Year 2010 Eco. Dev. Benefits ($ millions)	87.9	98.3	223.1	99.2
Total Economic Benefit/Cost Ratio[a]	1.77	1.44	1.65	0.77
Total Economic Impact (NPV $ millions)[a]	433.5	319.3	1,079.6	-264.1

[a]Discounted at 10%

STUDY FINDINGS

While the Consultant's Study was never intended to select or recommend a definitive course of action or to select a specific route, the Consultant's work did yield a number of findings that will help to define a specific approach to the corridor's problems.

FOUR-LANE FEASIBILITY

The analyses suggest that the concept of completing a four-lane highway between St. Louis and St. Paul is, overall, feasible. More specifically:

1. Traffic forecasts suggest that such a route will be needed.

2. It appears that an environmentally acceptable route can be found, although more detailed environmental study will be needed.

3. The routes are feasible in the engineering sense, although several engineering challenges exist in order to avoid undue cost or environmental impacts.

4. From the local economic development impact perspective, all of the route options are economically feasible.

5. However, the national funding decision should be based on those impacts that improve the nation's economy (travel efficiency feasibility) rather than the more regionalized economic development benefits which are localized in nature (transfers from one region to another).

6. The "expressway" design standard (55 mph) is more feasible than is the "freeway" design standard (65 mph).

7. Construction of urban area and town bypasses are feasible and a top priority.

ROUTE B, C AND D ADVANTAGES

No single route is superior to the other routes in all respects. Rather, each route has certain advantages. For example:

ROUTE B has the advantages that it would be the least expensive to build ($359 million), it would make maximum use of existing and programmed four-lane highways (only 136 miles of new construction needed), it is currently the most heavily traveled (ADT), it is the most feasible route in terms of travel efficiency (1.3 benefit/cost) and economic development (2.8 benefit/cost), it would be easy to construct with few if any environmental implications, and it is a very cost effective approach to linking the two metropolitan areas.

ROUTE C has the advantages that it is the shortest, most direct route between St. Louis and St. Paul (504 miles), entails the fastest inter-city travel time (8 hours 59 minutes), is forecast to be the heaviest traveled route if built to four lanes (16,890 ADT), it would be easy to construct with few if any environmental implications, it is also a very cost-effective approach to linking the two metropolitan areas, and it is a close second in terms of construction cost ($458 million), new route miles to be constructed (186 miles) and economic feasibility (benefit/cost).

ROUTE D has the advantages that it would provide four-lane services to the greatest number of people, would provide four-lane services to the greatest population size currently without four-lane north-south highways, would improve the route which is in greatest need of upgrading based on volume/capacity calculations, would provide better access to the Mississippi River environs, would create the greatest savings in travel efficiency ($115.8 million annually), would create the greatest localized economic development benefit ($155.3 million annually), and would be the most effective in diverting traffic to the improved four-lane highway.

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St. Louis to St. Paul Corridor Feasibility and Necessity Study

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