

# Executive Summary Report

## HEARTLAND EXPRESSWAY ECONOMIC AND ENGINEERING FEASIBILITY STUDY

### CONGRESSIONAL MANDATE

The "Intermodal Surface Transportation Efficiency Act of 1991" (ISTEA - Public Law 102-240) calls for the development of High Priority Corridors on a National Highway System. The Act of Congress states that the "development of the transportation corridors is the most efficient and effective way of integrating regions and improving efficiency and safety of commerce and travel and further promoting economic development." The Act also calls for the preparation of long-range plans and feasibility studies for these high priority corridors.

The Act identifies the Heartland Expressway from Denver through Scottsbluff to Rapid City as a high priority corridor. The Act also authorizes a feasibility study of an expressway or other highway improvements from Rapid City to Scottsbluff. The study, as called for in the Act, is to make recommendations concerning the feasibility and the best route for the Heartland Expressway. This brief document summarizes the feasibility study called for in the Act. For greater information concerning the feasibility study, please refer to the study's Final Report.

### STUDY ISSUES

Many residents of the panhandle of Nebraska and western South Dakota have long wanted a four-lane highway connecting their regions to Interstates 80 and 90. They believe that such a highway would stimulate economic development and tourism in the region. The expressway is perceived as a natural draw for tourists into the Black Hills of South Dakota and the national parks and recreational areas in western Nebraska. In addition, the region's communities need to diversify their economic base by attracting new industry to the area.

Western South Dakota's desire for a four-lane expressway is different from that of western Nebraska. Over the last several decades, Rapid City's economy has been outperforming the rest of South Dakota and much of the nation. A doubling of the manufacturing sector and a large increase in the tourism industry has strained the area's transportation system. This area has excellent east-west travel via Interstate 90. However, the region does not have four-lane access to the south, primarily to Denver, which is the nearest large metropolitan area. Construction of a four-lane Heartland Expressway would overcome this north-south access deficiency.

### STUDY PURPOSES

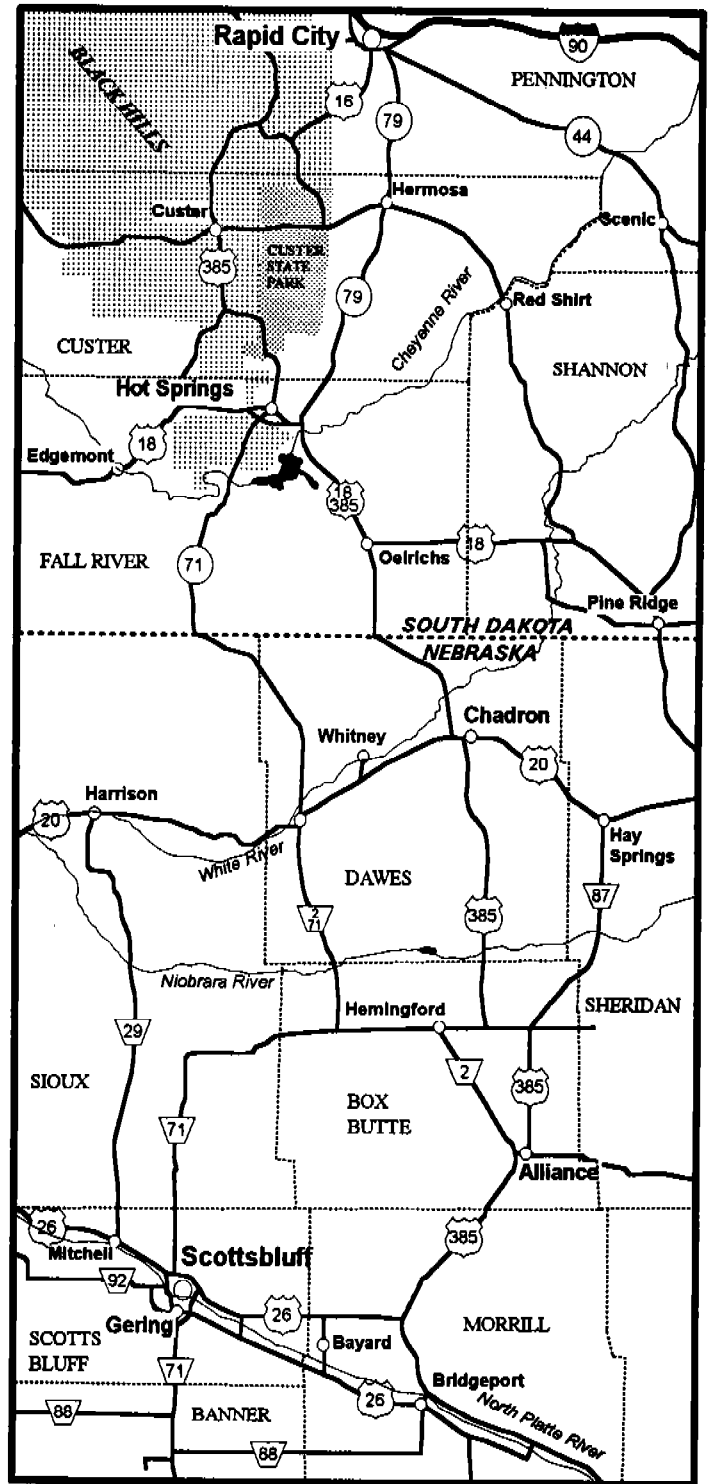
Currently, north-south highways in western Nebraska and western South Dakota are not operating at congested levels, are not over capacity, and most have quite low traffic volumes. Therefore, this study does not evaluate the feasibility of the Heartland Expressway simply based on existing levels of traffic or solely on travel efficiency improvements. Instead, the study examines alternative transportation roles for the Heartland Expressway, and determines whether such a highway might assist the region to develop economically. The study includes reviews of alignment options, road standards, traffic demands, conceptual design, costs, economic benefits, and environmental impacts and implications. The primary study focus, however, is economics, and what the Heartland Expressway might do for the area's economy, and the area's general well-being. The study concludes that a major investment is economically feasible, and identifies the route that is expected to provide the greatest economic development benefit.

## HEARTLAND EXPRESSWAY CORRIDOR REGION

The Heartland Expressway Feasibility Study explores a variety of highway route options between Rapid City and Scottsbluff/Gering. The corridor extends from Rapid City, South Dakota on the north to Scottsbluff/Gering, Nebraska on the south, to the Wyoming border on the west, and to Nebraska Highway 27 and eastern Shannon and Pennington Counties in South Dakota on the east. The corridor area is approximately 200 miles long and 100 miles wide, and contains thirteen counties, seven in South Dakota and six in Nebraska. The thirteen-county corridor area is overwhelmingly rural, with a 1990 total population of approximately 227,000 persons. The corridor area community populations greater than 5,000 are: Rapid City (54,523), Scottsbluff/Gering (21,657), Alliance (9,765), Spearfish (6,966), Chadron (5,588), and Sturgis (5,330).

Regardless of the proximity of the two regions, western Nebraska and western South Dakota are two very diverse areas with different economic bases and different reasons for desiring the Heartland Expressway. The economy of western South Dakota has been flourishing over the last couple of decades. The area has grown significantly in population, which is primarily caused by the growth of the tourism industry as well as a doubling of the manufacturing sector. The desire for a Heartland Expressway from western South Dakota's perspective is to improve north-south travel, connecting the region to Interstate 80 and Denver, thereby expanding its tourist market and ability to attract additional industry. Western Nebraska, on the other hand, has experienced a declining population and slow growth in employment. The Heartland Expressway, from the panhandle region of Nebraska's perspective, is seen as an investment to stimulate the region's economy.

The Heartland Expressway region is currently served by numerous rather indirect two-lane north-south highways (see adjoining map). There is no north-south four-lane highway in the region.



**HEARTLAND CORRIDOR**

The existing system of highways was designed to serve local access needs of the area's communities, businesses and residents. It was not designed for longer distance, higher speed north-south travel. As a result the existing highway system serves a very different purpose than would the Heartland Expressway, and existing travel volumes are therefore less relevant. A review of the existing highway system suggests a number of things relative to the Heartland Expressway:

- There is currently no direct highway between Scottsbluff/Gering and Rapid City. Therefore any traffic between the two endpoints either uses a mix of existing 2-lane roads in the corridor, or uses north-south routes to the west in Wyoming or further east.
- The existing network is a myriad of two-lane highways designed for local access purposes. The existing network was never designed for longer-distance, higher speed travel. If a Heartland Expressway is to be built, it will comprise a totally new travel option to the region.

#### HEARTLAND EXPRESSWAY HIGHWAY ROLES

The Heartland Expressway could significantly improve transportation and mobility in the panhandle of Nebraska and western South Dakota. The existing north-south highways in the corridor play a predominantly local access function. If the Heartland Expressway is built, the local access function would be improved; in addition, longer distance traffic would be introduced to the corridor, with its accompanying economic benefits.

If the Heartland Expressway is constructed, it could accomplish a number of objectives:

- It would improve access to communities, recreational and tourist sites, and economic activities in proximity to the highway.

- It might influence longer distance multi-state travel, by diverting traffic to the highway, and inducing additional travelers and tourists to the region.
- It would help the region's communities to be better able to compete for new industries and new types of economic development.

This study finds that these changes will generate economic benefits not only to western Nebraska and western South Dakota, but also to both States statewide.

Most residents and businesses of the corridor area would benefit directly because they would have a significantly improved highway upon which to travel. Transportation benefits would include:

- Better access to the Interstate Highway System.
- Better access to communities for shopping, educational, work and social purposes.
- Improved accessibility for emergency medical care and overall better access to health facilities.
- Easier and more efficient goods transportation.
- A potentially safer highway.
- An improved all weather highway, especially for school buses, emergency vehicles, etc.
- Better access to the region's tourist and recreation sites.

In addition to these obvious direct benefits, the highway will assist in the region's attempts to diversify its economic base, by reducing the costs of doing business in the corridor, by making the area more accessible to tourists, and by generally making the area more competitive.

# HEARTLAND EXPRESSWAY ROUTE AND HIGHWAY ALTERNATIVES

The ISTEA of 1991 specified that the Heartland Expressway Feasibility Study explore the feasibility of a new highway between Scottsbluff/Gering, Nebraska and Rapid City, South Dakota. This study responds to that congressional directive by exploring all practical routes between the two designated cities. The logical corridor region includes routes within a 50 mile band either side of a direct line between Scottsbluff and Rapid City. Any route outside of this area would yield a severely circuitous highway and was not considered.

## HIGHWAY OPTIONS STUDIED

This study examines the feasibility of three highway type alternatives:

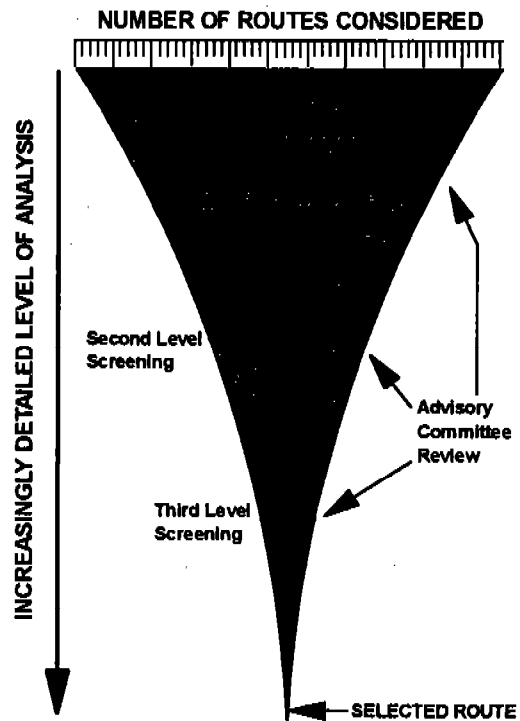
**4-lane freeway type highway (65 mph)** - This alternative is a four-lane divided highway with complete access control and grade separations at all intersections. This alternative would be comparable to Interstates 80 and 90.

**4-lane expressway type highway (55 mph)** - This alternative is four-lane divided highway with partial access control. The majority of intersections and crossings would be at-grade.

**2-lane highway with some 4-lane sections** - This alternative would provide a four-lane expressway type highway where traffic volumes are greatest, and the remaining portions of the highway would be an improved two-lane with uphill passing lanes, paved shoulders and turning lanes where necessary. All sections would have partial access control.

## ROUTE SCREENING PROCESS

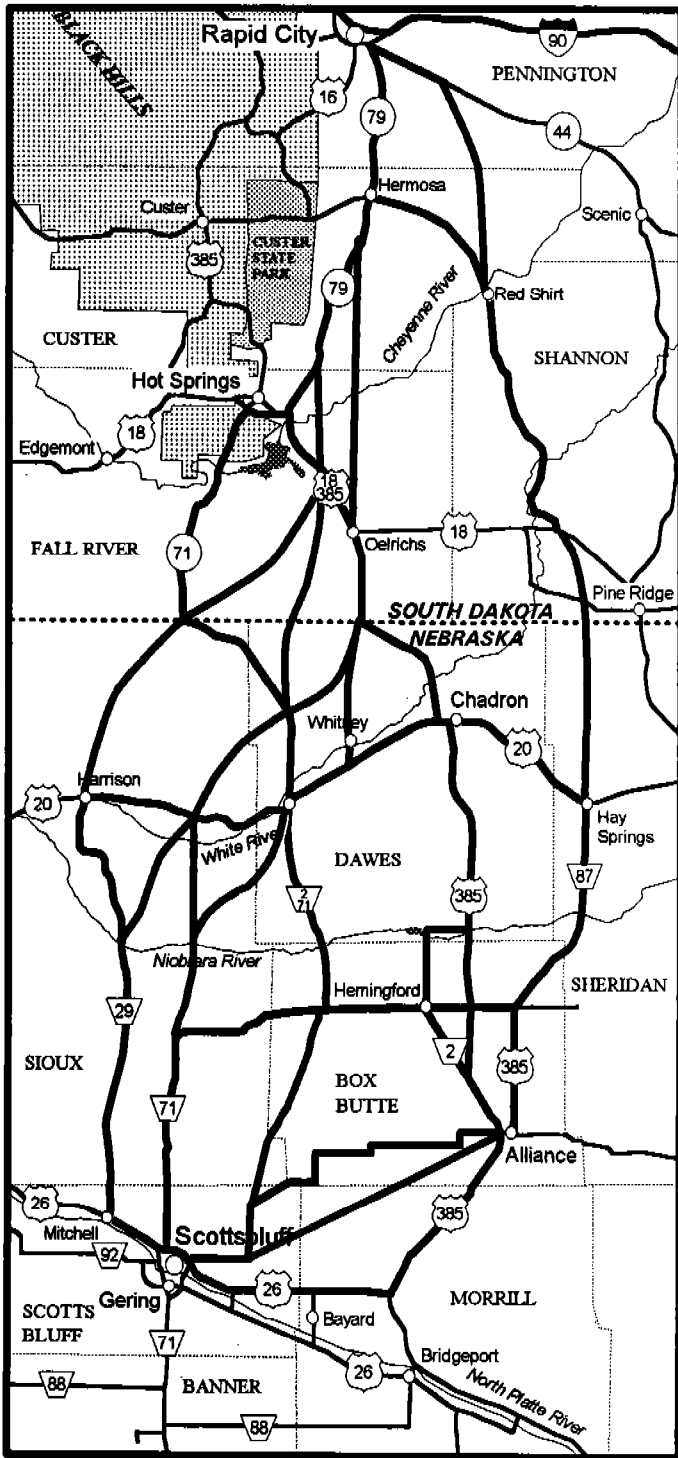
The routes considered for the Heartland Expressway add to over 50 route combinations, which is too many to evaluate in detail. To enable a reasonable evaluation, this study follows a formalized "screening process," whereby the route options were considered and, as evidence accumulated, the less desirable options were eliminated.



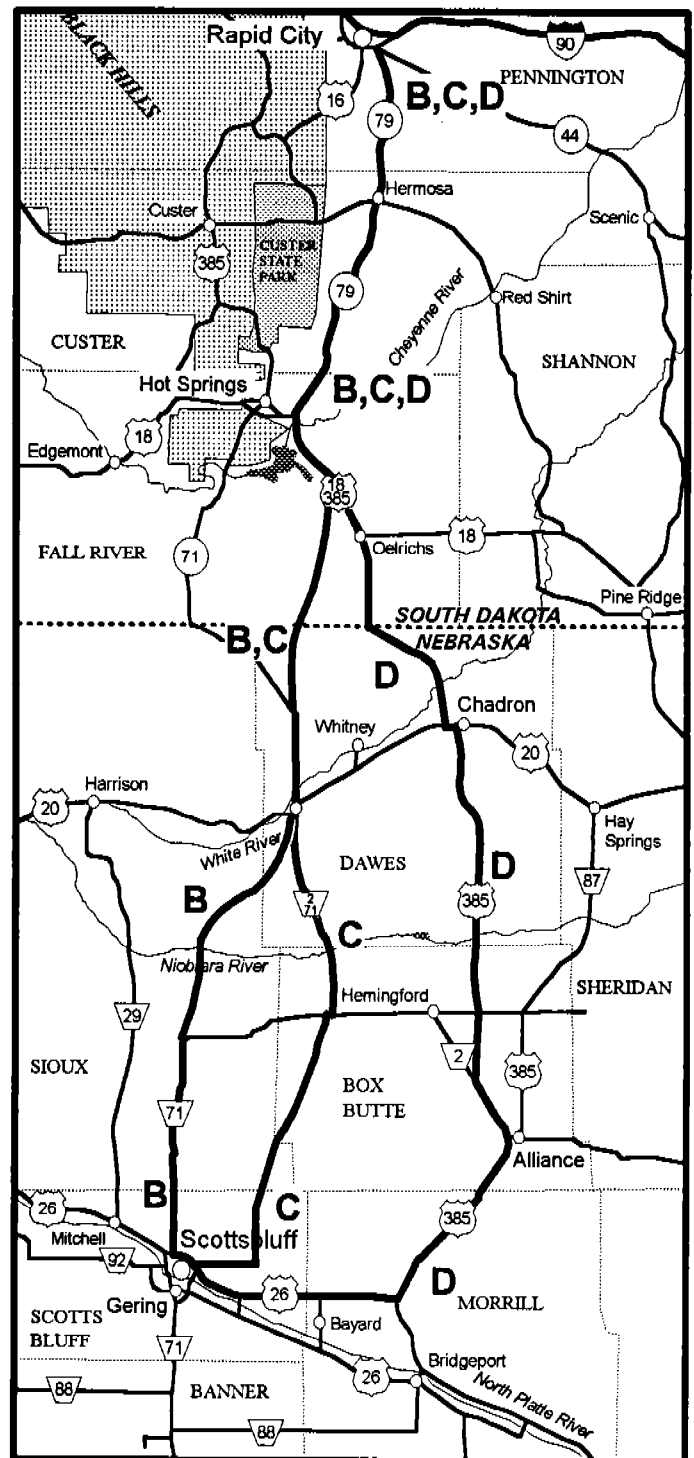
The screening process is divided into three sequential "analysis levels":

- In Analysis Level #1, all routes are considered and, based principally on logic and in concert with the study's Steering and Advisory Committees, many routes and route segments are eliminated.
- In Analysis Level #2, the options that survived Analysis Level #1 are examined in terms of cost, travel time, route length, accessibility, tourism, and economic development potential. This analysis selected three "finalist" route options to be studied in detail.
- In Analysis Level #3, the three "finalist" options are analyzed in terms of more detailed economic feasibility, environmental issues, and other criteria.

Based on these analyses, one "selected" route is defined.



**ROUTE OPTIONS CONSIDERED**



**THREE "FINALIST" ROUTE OPTIONS**



## CONVENTIONAL FEASIBILITY EVALUATION

The primary issue in the study is whether the Heartland Expressway is feasible. To measure the feasibility of the Heartland Expressway, five "tests of feasibility" are applied:

- **Need Based on Traffic** - Is the Heartland Expressway warranted based on current and forecast traffic volumes?
- **Engineering and Cost Feasibility** - Are there any unusual engineering difficulties, and what would the Heartland Expressway cost to build and operate?
- **Environmental Feasibility** - Can the Heartland Expressway be constructed without undue harm to the environment?
- **Travel Efficiency Feasibility** - Will the Heartland Expressway cause sufficient road user benefits to justify the investment?
- **Economic Development Feasibility** - Will the Heartland Expressway cause sufficient economic activity to justify the investment?

The three "finalist" route options and three highway standard options are subjected to the five feasibility tests.

### NEED BASED ON TRAFFIC

Both automobile and commercial truck traffic were extensively studied. Roadside surveys were conducted, a computerized traffic model was developed, and surveys were conducted of trucking firms, shipping firms, and other businesses in the region that rely on highway transportation. Traffic estimates were made for all Heartland Expressway alternatives. The traffic forecasts suggest the following concerning feasibility based solely on traffic:

- Most states start planning to widen rural two-lane highways to four-lanes when

existing daily traffic volumes reach 5,000 to 6,000 vehicles per day. Based on the current highway system in western Nebraska and South Dakota, none of the highways in the region (other than the interstate highways) presently meet that threshold and, only South Dakota Highway 79 between Rapid City and Hermosa is forecast to reach this threshold by the year 2015.

- However, during peak times of the year (summer tourist and fall harvest seasons), the segment between Scottsbluff/Gering and Alliance and the segment between Rapid City and Hermosa currently reach this traffic threshold.
- From the more tourist-oriented South Dakota northern end of the corridor perspective, the more direct western alignments (Route Options B and C) are more effective in attracting traffic than is the more circuitous eastern alignment (Route Option D). This is because the more direct alignments are better able to attract the Denver area tourist traffic to the Black Hills.
- From the perspective of the Nebraska communities, the eastern alignment (Route Option D) has greater traffic volumes at the southern end than do the western alignments (Route Option B and Route Option C). This is because of traffic routing patterns on the south plus the ability of Route Option D to serve the Alliance and Chadron population centers in addition to Scottsbluff/Gering.
- From the Wyoming perspective, the eastern alignment (Route Option D) is best because it diverts the least traffic from eastern Wyoming. This is important to Wyoming because its communities rely on that traffic for sizeable shares of their economic activity.

## ENVIRONMENTAL FEASIBILITY

Regardless of the alignment and highway option selected for the development of the Heartland Expressway, there will likely be impacts in almost every category of the natural, human, and cultural environments. The intensity of such impacts will depend, to a great extent, on the following:

- **Highway Type** - A freeway will require more right-of-way than either an expressway or an upgraded two-lane facility. As a result, related impacts are likely to be greater.
- **New Location** - Improvements made on existing highway alignments are likely to have less impact on the environment than highways on new locations.
- **Bridges** - Rivers and their associated floodplains and riparian environments constitute an area of potential impact when new bridges are introduced.

The study's environmental overview suggests that it is not likely that any environmental impacts will be so critical that they cannot be avoided or mitigated during construction.

The primary reason for the relatively low level of anticipated impacts is the fact that most alignments are being proposed along existing highway routes. Land use patterns, transportation patterns, and ecological functions have adapted to the presence of the existing highways. As a result, expansion, upgrade, or modest realignment of these highways is likely less harmful to the natural and manmade environments than would a new highway on new alignment. However, there are numerous environmentally sensitive areas in western Nebraska and western South Dakota where proper care needs to be taken to avoid these areas or minimize negative impacts.

Additional environmental work will be needed if the Heartland Expressway moves into its more detailed alignment and engineering phases.

## ENGINEERING AND COST FEASIBILITY

Each route was field inspected, key construction and engineering issues were identified, and costs of highway construction were estimated. While the terrain in western Nebraska and western South Dakota can be quite severe, it was determined that any of the options can be constructed from an engineering perspective. However, final determination of engineering feasibility will require detailed alignment investigations which are beyond the scope of this planning study.

The Heartland Expressway, regardless of the route alignment or highway standard, will be quite expensive to build and maintain. In order to evaluate each alternative, cost estimates were developed for each "finalist" route option and each highway standard. The total construction cost estimates for the different improvement options include right-of-way acquisition, planning, design, and construction. These cost estimates should be viewed as "order of magnitude" estimates, suitable for feasibility testing purposes, but certainly subject to refinement in any future study.

In addition to the costs of constructing the highway, there will be more road to upkeep and maintain. This includes additional snow removal, mowing, striping, crack sealing, and other work activities. The capital costs and annual maintenance costs are shown below.

	<b>Total Construction</b>	<b>Annual Maintenance</b>
<b>Route Option B</b>		
Freeway	\$310.6	\$1.35
Expressway	257.6	1.11
Two/Four Lane	145.2	0.55
<b>Route Option C</b>		
Freeway	\$327.7	\$1.28
Expressway	264.7	0.95
Two/Four Lane	147.3	0.33
<b>Route Option D</b>		
Freeway	\$326.9	\$1.53
Expressway	260.0	1.03
Two/Four Lane	147.7	0.50

## TRAVEL EFFICIENCY FEASIBILITY

According to the Act, high priority corridors are an efficient and effective way of integrating regions and improving efficiency and the safety of commerce. This is true, since four-lane highways create a more economically efficient method of vehicle transportation than do two-lane highways. By eliminating unnecessary vehicle stops and by making passing easy and safe, four-lane highways create a safer travel environment. The travel efficiency evaluation measures these direct improvements in terms of car and truck vehicle cost savings and compares those travel efficiencies with the cost of the improvement. The highway user benefits are measured in terms of vehicle operating cost savings (fuel, tires, vehicle maintenance, etc), value of travel time saved, and accident reduction.

Transportation efficiency is a legitimate local, state, and national goal. If a new highway creates road user benefits that, over time, exceed the cost of the highway, then the road should be built.

Travel efficiency assessment is the traditional method of determining whether or not a highway improvement is economically feasible. According to this test of feasibility, a highway improvement must be quite successful in reducing per vehicle operating costs, travel time, and accident risk; and, it needs to have sufficient traffic volumes on the highway to attain the necessary level of highway user economic benefits.

To determine whether or not a specific highway investment is economically feasible from the travel efficiency perspective, the user cost savings (cost, time, accidents) are compared with the highway's life cycle costs.

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

The table at the bottom of this page identifies the relative economic feasibility of each Heartland Expressway route and design standard in terms of travel efficiency. The travel efficiency feasibility calculations suggest the following conclusions:

- None of the Heartland Expressway route options are feasible from the travel efficiency perspective. This is because none of the alternatives have sufficient traffic volumes to produce user benefits greater than the highway improvement costs.
- The combination two/four lane options are more feasible than the freeway and expressway alternatives from the travel efficiency perspective. This is primarily caused by the lower construction costs required by the two/four lane options. In addition, the four-lane section portions of the two/four lane options are placed only in areas where the most traffic is found, thereby creating increased net highway user benefits.

It should be noted that travel efficiency is only one indicator of economic feasibility; the other test is economic development feasibility.

	Net Present Value (\$ Million)	Internal Rate of Return	Discounted Benefit/Cost
<b>Route Option B</b>			
Freeway	-141.3	2.8%	0.59
Expressway	-141.9	1.7%	0.48
Two/Four Lane	-53.6	3.7%	0.65
<b>Route Option C</b>			
Freeway	-199.8	1.2%	0.45
Expressway	-151.9	1.6%	0.44
Two/Four Lane	-69.9	2.6%	0.53
<b>Route Option D</b>			
Freeway	-168.8	2.3%	0.56
Expressway	-101.2	3.5%	0.63
Two/Four Lane	-24.2	5.6%	0.84



## **ECONOMIC DEVELOPMENT FEASIBILITY**

A key issue in this study is whether or not the Heartland Expressway will generate sufficient economic development activity in the two States to warrant the investment.

### **ECONOMIC OBJECTIVE**

One objective of this study is to determine what level of highway investment, if any, is warranted between Scottsbluff/Gering and Rapid City. There are economic consequences of either underinvesting or overinvesting in the highway corridor. If the two States underinvest in the corridor, economic development will be inhibited because real and perceived travel costs will be greater, competitive position will be hindered, etc. There is therefore an economic cost associated with underinvestment in the Heartland Corridor. If the two States overinvest in the corridor, overall efficiency will suffer because those funds could have been put to better and more efficient use elsewhere. There is therefore an economic cost associated with overinvestment in the Heartland Corridor.

Recognizing these facts, this study seeks to define those highway investments, and those levels of investment, that are efficient (neither underinvested nor overinvested). This implies efficient and feasible use of tax dollars. The proper level of investment is calculated in terms of travel efficiency and economic development benefits, compared with the highway's costs.

### **ECONOMIC BASIS FOR A FEASIBLE HIGHWAY PROJECT**

Investment in the Heartland Expressway contributes to economic development in that it will lower transportation costs which makes the corridor region increasingly attractive to other forms of investment. Such changes may be realized in numerous ways, including improved traffic safety, decreases in fuel and other vehicle operating costs, increased tourism, attraction of new industry, revised logistics, and changes in noise and air pollution. But in

the final analysis, all of the direct benefits from the Heartland Expressway, and therefore the justification for investing in it, flow from using it for transportation.

Benefits from the Heartland Expressway may not only accrue to persons and businesses whose vehicles use the highway. Lower transportation costs may be passed on to consumers as lower prices for consumer goods, to workers as higher wages, or to owners of businesses as higher net income. Persons may thus benefit from the Heartland Expressway without traveling on it.

It is important to keep in mind that for any of these benefits to occur, the highway investment must either enable significant reductions in transportation costs or cause revised perceptions of the area. If the amount of these savings is small for each trip, if the number of vehicles using the highway is not sufficiently large, or if perceptions do not change dramatically, the investment will not produce benefits that exceed its cost. Highway investment must be based on reasonable estimates of traffic volumes they will service, the cost savings travelers will experience, and a realistic assessment of revised business practices.

Investing in a highway improvement that produces benefits which are less than the associated costs of the improvements inhibit economic development. The costs will be paid by users and other taxpayers in the form of higher taxes, or would be paid in a lost opportunity (an alternative highway would not get improved). These higher taxes work against economic growth within the taxing jurisdiction because they reduce post-tax return to businesses and households by lowering disposable income, and investment in the "wrong" highway project similarly inhibits overall economic growth. Therefore it is imperative that the highway investment be economically feasible; if it is not, it is economically counterproductive.

## FEASIBILITY PERSPECTIVES

Which Heartland Expressway alternative is best depends on one's perspective.

**Corridor Area Perspective** - The corridor's residents and businesses are interested in efficiency, but they are also interested in the economic development and economic diversification of their region. The study examines the Heartland Expressway's economic feasibility from the perspective of the communities located in proximity to the highway corridor.

**Nebraska and South Dakota Statewide Perspectives** - The two States perspective is that efficiency is important, and so is statewide economic development. The two States are concerned with their ability to be competitive with other states. The study also examines the Heartland Expressway's economic feasibility from this perspective.

Included in the economic feasibility calculations are all quantifiable public sector costs needed to build and operate the highway and all quantifiable economic benefits including road user travel efficiency benefits (vehicle operating cost savings, value of time savings, accident cost savings) and also including economic development benefits (competitive advantage benefits, increased visitor/tourism benefits, etc). Excluded from the cost/benefit calculations are the road improvement implications that cannot reasonably be tabulated in monetary terms.

## CORRIDOR ECONOMIC DEVELOPMENT FEASIBILITY

From the perspective of the people in the corridor, all Heartland Expressway alternatives are economically feasible. The benefit/cost ratios are all greater than 1.0 (1.15 to 1.52), the internal rates of return are in the range of 9.3 to 13.5 percent, and the net present values

ECONOMIC DEVELOPMENT FEASIBILITY RESULTS						
	Two States Perspective			Corridor Area Perspective		
	B/C	IRR	NPV (\$ Million)	B/C	IRR	NPV (\$ Million)
<b>Route Option B</b>						
Freeway	0.83	5.5%	-57.4	1.30	11.4%	103.1
Expressway	0.71	4.4%	-79.6	1.21	10.0%	57.8
Two/Four Lane	0.99	6.9%	-1.4	1.48	13.1%	72.7
<b>Route Option C</b>						
Freeway	0.88	3.7%	-121.8	1.15	9.3%	53.0
Expressway	0.66	3.9%	-93.8	1.18	9.5%	48.3
Two/Four Lane	0.86	5.8%	-20.6	1.40	12.1%	59.3
<b>Route Option D</b>						
Freeway	0.76	4.6%	-91.1	1.20	10.2%	75.6
Expressway	0.79	5.2%	-57.8	1.27	10.6%	73.2
Two/Four Lane	1.07	7.6%	11.0	1.52	13.5%	80.3

are all positive, indicating that the region would benefit by between \$48 and \$103 million if the Heartland Expressway is constructed. Clearly, from the perspective of those in the corridor, the Heartland Expressway is an economically beneficial and feasible undertaking.

**STATES OF NEBRASKA AND SOUTH DAKOTA ECONOMIC DEVELOPMENT FEASIBILITY**

From the two States' perspective, only one Heartland Expressway alternative is economically feasible. Route Option D, which connects Scottsbluff/Gering and Rapid City via Alliance, Chadron and Hot Springs, constructed partially as a four-lane expressway (between Scottsbluff/Gering and Alliance, and between Rapid City and Hot Springs) and partially as an improved two-lane (between Alliance and Hot Springs), is economically feasible from the states' perspective. This alternative has a benefit/cost ratio of 1.07, an internal rate of return of 7.6 percent, and a positive net present value of \$11.0 million. According to this calculation, the economies of the two-state region will be better off by \$11.0 million if the highway is built than if the highway is not built.

Route Option B (Two/Four Lanes) is nearly feasible with a benefit/cost ratio of 0.99. However, compared to Route Option D, Route B is not nearly as attractive. While Route B is a more direct alignment between Scottsbluff/Gering and Rapid City, it would carry less traffic and serve fewer people than Route D. Also, since Route D connects the larger cities in the Region, it has a greater ability to foster economic development.

**PRIORITY SEGMENTS**

In South Dakota the highest priority segment is Rapid City to Hermosa. The second highest priority in South Dakota is Hermosa to Hot Springs. In Nebraska the highest priority segment is the connection of existing four-lanes between Scottsbluff and Alliance. Alliance to Hot Springs would be the next priority.

**ECONOMIC FEASIBILITY AS A NATIONAL HIGH PRIORITY CORRIDOR**

The feasibility study indicates that Route Option D (Two/Four Lane) is economically feasible from the perspective of the two States. However, the benefit/cost ratio of 1.07 indicates that, if the two States were to fund the entire project, the project would have to compete with other feasible state projects for limited funds and, based on the 1.07 benefit/cost ratio, the Heartland Expressway might be a low priority project among feasible projects. However, the Heartland Expressway Corridor is a National High Priority Corridor and qualifies for federal demonstration funds. If the project were to receive 80 percent federal funding, and including the economic impact of these federal demonstration funds, the project is more feasible and should therefore receive a higher state priority. Using demonstration funds, this alternative has a statewide benefit/cost ratio of 1.6, an internal rate of return of 13.7 percent, and a net present value of \$92.6 million.

**ECONOMIC IMPACT AND FEASIBILITY INCLUDING FEDERAL DEMONSTRATION FUNDS**

**Route Option D (Two/Four-Lane)**

**ECONOMIC IMPACT OF FEDERAL CONSTRUCTION MONEY**

<u>Impact Terms</u>	<u>5-Year Construction Period</u>
Value Added	\$75.4 Million
Wages	\$58.5 Million

**ECONOMIC FEASIBILITY**

<u>Feasibility Indicators</u>	
Benefit/Cost	1.60
Net Present Value	\$92.6 Million
Internal Rate of Return	13.7%

## STUDY FINDINGS

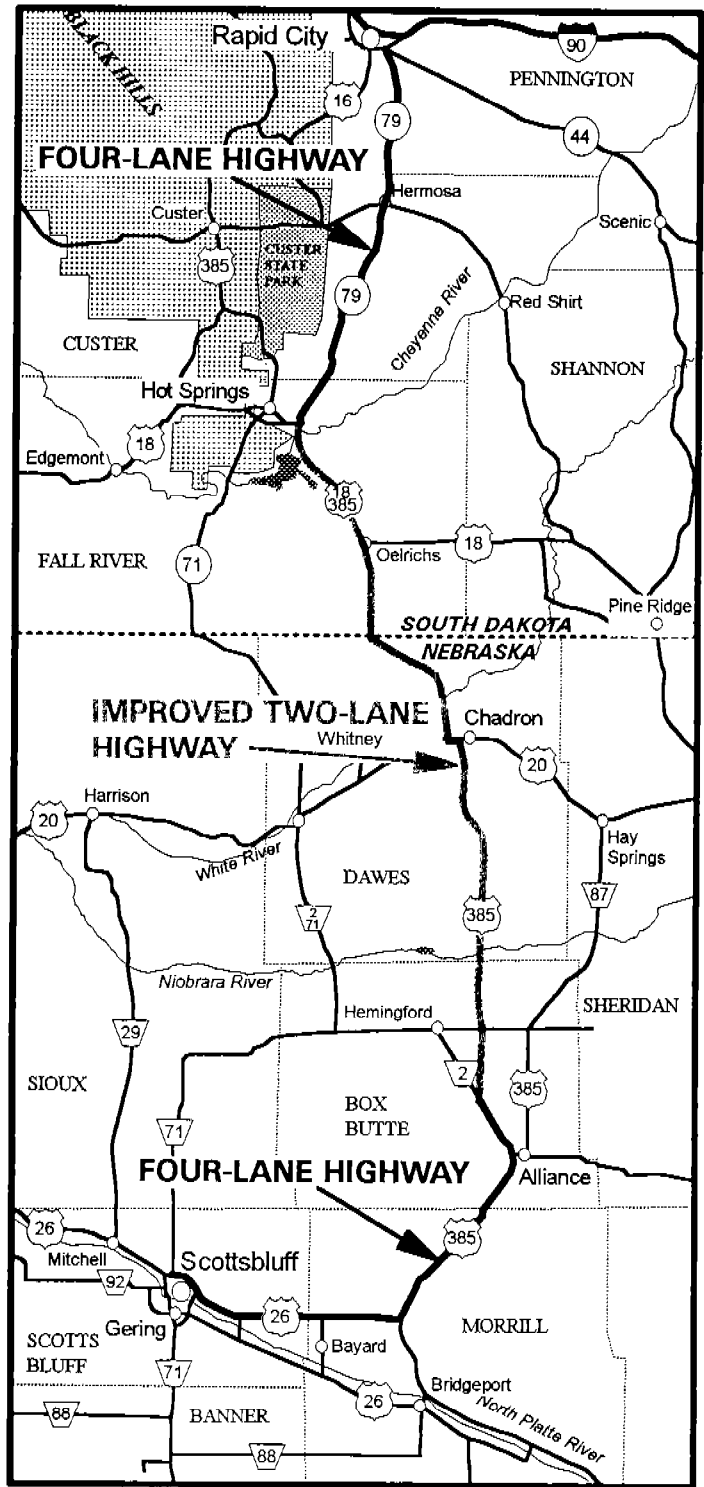
This Heartland Expressway Feasibility Study explored all possible routes and different highway standard alternatives between Rapid City and Scottsbluff/Gering. The feasibility results indicate that a combination four-lane/two-lane highway is feasible from the standpoint of Nebraska, South Dakota, and Wyoming. The Heartland Expressway's most feasible route would connect Rapid City to Scottsbluff/Gering via Hot Springs, Chadron, and Alliance. The segments from Rapid City to Hot Springs and from Scottsbluff/Gering to Alliance are feasible as four-lane highways. The segment between Hot Springs and Alliance via Chadron would be an improved two-lane highway with appropriate turning and passing lanes. The project would cost an estimated \$147.7 million (at 1992 price levels), and is believed to be feasible from the engineering, environmental, and economic development perspectives.

### STUDY RESULTS: ANALYSES AND COMPARISONS ONLY

This study identified alternative route options and highway alternatives between Scottsbluff/Gering and Rapid City. It developed traffic, economic and other statistics for each option.

Based on these statistics and comparisons, the Nebraska Department of Roads and the South Dakota Department of Transportation will make their determination as to what improvements, if any, should be built between Scottsbluff/Gering and Rapid City. This study does not make that decision. The study only presents information which might be useful to the two States in making their decision.

While this study analyzed the Heartland Expressway as to cost and benefits, it must be recognized that any decision must be made within the context of available funds and competing uses for those limited funds.



SELECTED ROUTE