Approved: January 22, 1998
Date

MINUTES OF THE SENATE COMMITTEE ON TRANSPORTATION AND TOURISM

The meeting was called to order by Chairman Ben Vidricksen at 9:05 a.m. on January 13, 1998 in Room 254-E of the Capitol.

All members were present except:

Committee staff present: Hank Avila, Legislative Research Department
Bruce Kinzie, Revisor of Statutes
Marian Holeman, Committee Secretary

Conferees appearing before the committee: John Federico, AAA

Others attending: See attached list

Introduction of bill(s)

John Federico requested introduction of a bill dealing with changes to present driver's licensing requirements, with the goal being to make teenagers better drivers. Briefly, they would be required to complete fifty hours of actual driving behind the wheel before receiving a full license. A parent or guardian could certify to the completion of the fifty hours. Also, teens would stay in a restricted status until age 17.

Members discussed requirements and intent of the proposed bill. Senator Mark Gilstrap moved to introduce the bill. Senator Greta Goodwin seconded the motion. Motion carried.

Carry-over bills.

Members discussed SB-138, an act regulating traffic, concerning covering loads. Senator Goodwin moved to report the bill adversely. Senator Harrington seconded the motion. Motion carried.

HB-2243, an act concerning motor vehicles license plates was amended into HB-2170. Senator Gilstrap moved to report HB-2243 adversely. Senator Jordan seconded the motion. Motion carried.

HB-2280, an act relating to school buses regarding exemptions from certain requirements was amended into HB-2374 . Senator Jordan moved to report HB-2280 adversely. Senator Salmans seconded the motion. Motion carried.

Possible committee subjects.

Chairman Vidricksen reported that many mid-western states have exhibited their commitment to passenger rail traffic through 4-3B funding which concerns high speed rail transportation. Kansas is not involved in this at all. He requested the matter be researched and consideration be given to developing a committee resolution on the issue.

A second topic of research for committee consideration is "aggressive driving."

Members received a report from the Transamerica Transportation Corridor "Feasibility Study" (Attachment 1). The Chair provided a brief overview of the Kansas highway program and possible future meetings regarding the program. The National Transportation Safety Board is requesting legislation dealing with safety measures. Will try to obtain a report on KDOT's recent study on mass transportation needs of the State as well as Kansas State University's study regarding economic impact of the comprehensive highway program.

There was an expressed need to examine the state's overall transit system. Specific concerns were discussed relative to airport safety. It was pointed out that statistically, Kansas has the worst rankings in the U.S. in terms of per capita expenditures for airports. There is also concern regarding overall rail transportation - short lines as well as the major lines. Meetings will be scheduled on these issues.

Discussed bills remaining in committee.

Meeting adjourned at 10:05 a.m.

The next meeting is scheduled for Wednesday, January 14, 1998.

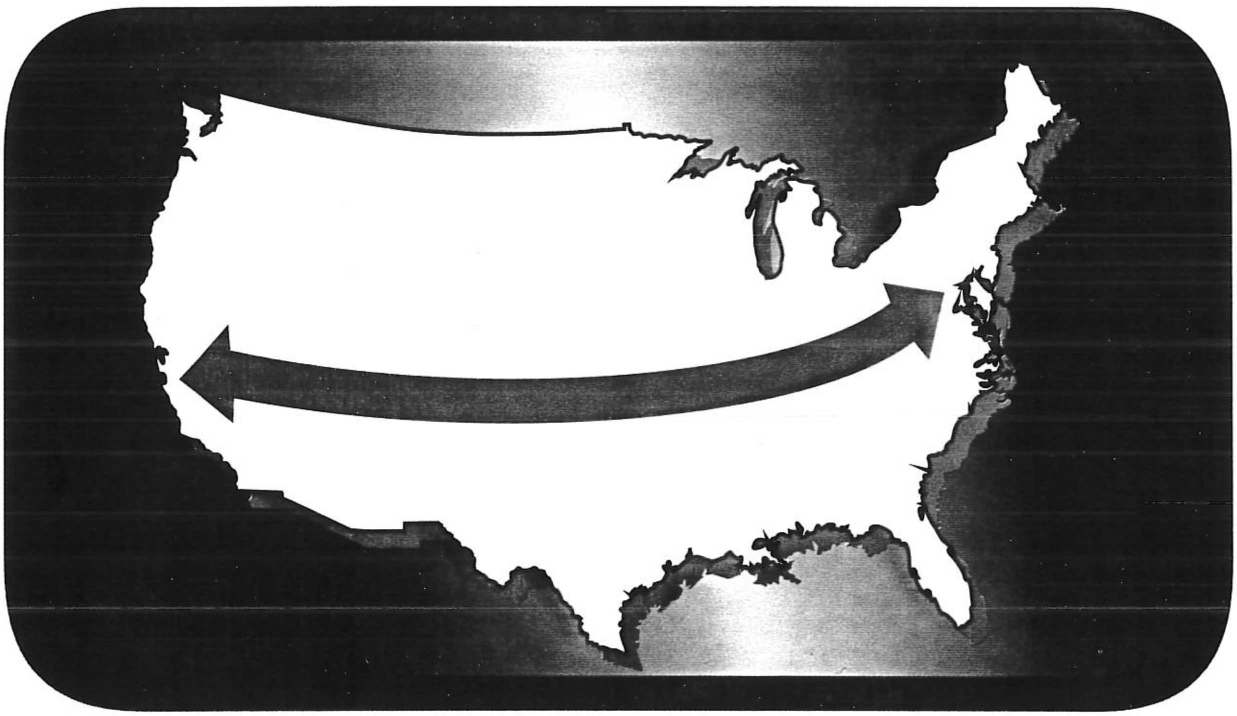
SENATE TRANSPORTATION AND TOURISM
COMMITTEE GUEST LIST
DATE: JANUARY 13, 1998

NAME	REPRESENTING
John Federico	Federico Consulting
CHAD LUCE	KDWP
Tom Whitaker	KS Motor Carriers Assn
Pat Hubbell	
x	
x	

Transamerica Transportation Corridor

Transportation Options for the 21st Century

Feasibility Study



Executive Summary

Wilbur Smith Associates
Howard Needles Tammen & Bergendorff

Sn Transportation & Tourism
1/13/98
Attachment #1
1-1

Transamerica Transportation Corridor Feasibility Study

STEERING COMMITTEE MEMBERS

Mr. Harvey Atchison - Colorado
Mr. Elmore Dean - New Mexico
Mr. Roger Driskill - Oklahoma
Mr. Tom Harrell - Arkansas
Mr. Dale Janik - Illinois
Mr. Kyle Kittrell - Missouri
Mr. Jay Klagge - Arizona
Mr. Dick Lockwood - Virginia
Ms. Debra Miller - Kansas
Mr. David Smith - Kentucky
Mr. Clint Topham - Utah
Mr. Paul Wilkinson - West Virginia
Mr. Thomas Weeks - Federal Highway Administration
Mr. Michael Jacobs - Volpe National Transportation Systems Center

Transamerica Transportation Corridor
Transportation Options for the 21st Century
EXECUTIVE SUMMARY

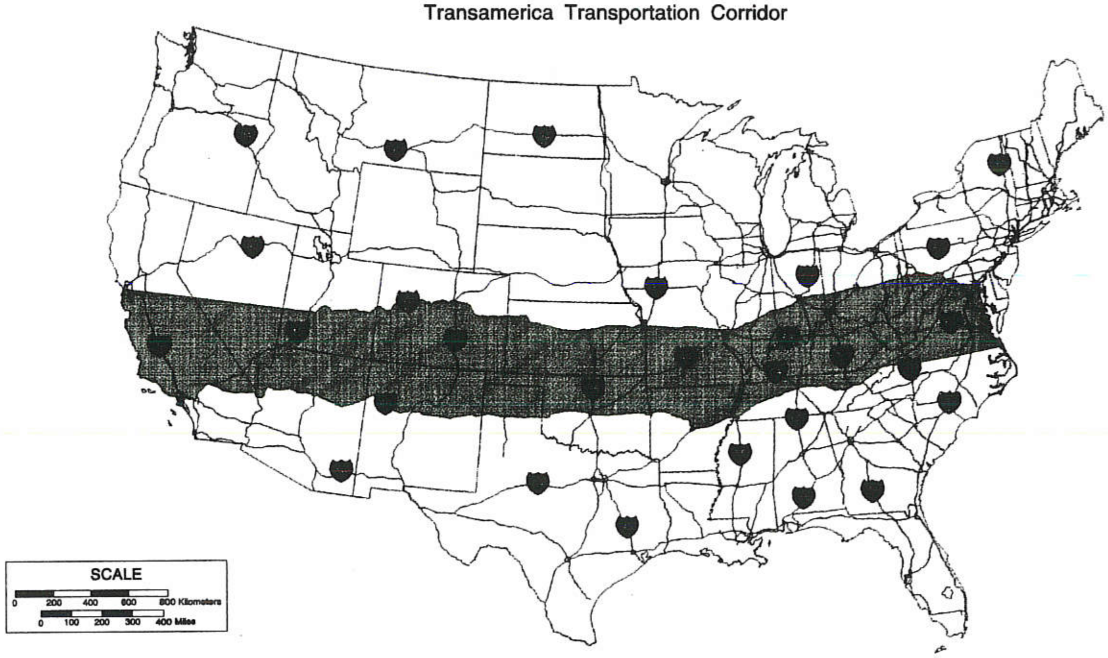
The fiscal year 1991 U.S. Department of Transportation Appropriations Act provided funding for an "Interstate 66 Feasibility Study." The study is also referred to as the Transamerica Transportation Corridor Feasibility Study. This report summarizes the results of the study.

THE CORRIDOR

For the purposes of this study, the Transamerica Transportation Corridor was defined as a transcontinental route extending from the East Coast to the West Coast. The study corridor is generally located between I-70 and I-40, as shown in Exhibit 1. It has an eastern terminus in the Commonwealth of Virginia and a western terminus in southern California. The corridor includes, but is not limited to, an area in Kentucky which is centered on the cities of Bowling Green, Columbia, Somerset, London, Hazard, Jenkins, and Pikesville as called for in the 1991 Appropriations Act.

Exhibit 1

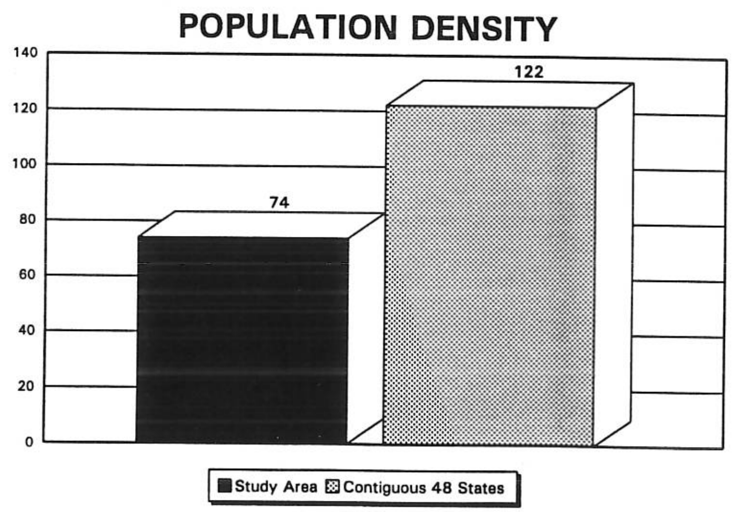
U.S. INTERSTATES & CORRIDOR LIMITS
Transamerica Transportation Corridor



1-3

The dimensions of the corridor are roughly 4,800 km (3,000 miles) long and between 400 and 560 km (250 and 350 miles) wide. Within this corridor area, there is a great diversity of conditions. While there are some major communities in the corridor, it has an average of 40 percent fewer persons per square mile than the U.S. as a whole and is situated generally between most of the major U.S. urban areas (see Exhibit 2).

Exhibit 2



Topography varies considerably through the corridor and the mountain ranges in the eastern and western portions will present formidable challenges for a transportation facility, especially because of their north-south orientation. Wetlands, such as those associated with the Mississippi River, also will require special consideration. Land ownership patterns vary also and the large parcels in the western states will have certain advantages. On the other hand, lands under the jurisdiction of Indian Tribal Governments and national parks and forests will constrain the choices for where a transportation facility might be sited.

FUTURISTIC AND STRATEGIC VISION

Because of the unique opportunities provided by this study, it contained elements of a traditional corridor study, but was not constrained by conventional methods. In the words of George Bernard Shaw, *"We are made wise, not by the recollections of our past, but by the responsibility for our future."* Within this perspective, the study explored the future and a full range of alternative futures. It explored new and emerging technologies, analyzed ''strategic'' transportation concepts that might complement our highway, rail, waterway and aviation systems, and considered whether such concepts might be warranted in the defined corridor.

Within this context, the study was "strategic" in nature, with visionary and research elements. It was not concerned with specific alignments.

In summary, this study determined whether or not another east-west, coast-to-coast Interstate-type highway is needed and appears feasible; it also analyzed more advanced transportation systems and concepts.

POTENTIAL FUNCTIONS OF THE CORRIDOR

The prospective functions of a new transportation facility in the Transamerica Transportation Corridor should be consistent with national policy. As defined by the Intermodal Surface Transportation Efficiency Act (ISTEA), this policy is currently:

> *''to develop a National Intermodal Transportation System that is economically efficient and environmentally sound, provides the foundation for the nation to compete in the global economy, and will move people and goods in an energy efficient manner.''*

Further, ISTEA declares that the National Highway System shall promote economic development; support international commerce; provide improved access to ports and airports; contribute to increased productivity; be adaptable to "intelligent vehicles," magnetic levitation systems and other new technologies wherever feasible and economical; and help implement national goals relating to mobility. If implemented, the Transamerica Transportation Corridor would logically be a key element of this national transportation system of the future. Indeed, the Transamerica Transportation Corridor was identified in ISTEA as one of 21 high priority corridors to be included in the National Highway System. The submission of proposed NHS routes to Congress in December 1993 did not identify a specific location for the corridor pending completion of this feasibility study.

21st CENTURY OPPORTUNITIES

This study of the Transamerica Transportation Corridor had a time horizon of 30 to 50 years in the future, i.e., the period of 2020 to 2040. Given this perspective, the Steering Committee decided that the study should consider not only a conventional interstate highway concept but also other concepts involving emerging transportation technologies.

In order to facilitate the definition and assessment of the full range of possibilities, potential transportation concepts were sorted into three basic categories:

1. Mode and technology options;
2. Joint use options; and
3. Corridor options.

As shown in Exhibit 3, the mode/technology options were further grouped in three categories.

NETWORK INTEGRATION OPPORTUNITIES

The ability of passenger and freight traffic to access the Transamerica Transportation Corridor is dependent on the feeder system provided. A system of feeders will provide local, regional and even international access to the corridor. The corridor's low density dictates that trips must be attracted from large metropolitan areas that border the corridor. They include, for example, metropolitan areas such as Cincinnati, Memphis, St. Louis, Kansas City, Denver and Albuquerque along the northern and southern edges of the study area.

A "transportation spine" concept was adopted as a fundamental aspect in this study. Under this concept, the Transamerica Transportation Corridor would be located between the major activity centers, providing connections through a feeder system extending north and south. Exhibit 4 illustrates this concept. These regional connections can include existing facilities as well as proposed facilities.

A transportation spine concept in reality will be connected to a larger network. As the state highway network is integrated with the interstate system, a nationwide high speed rail network, for example, could be integrated with the Transamerica Transportation Corridor facility. Exhibit 5 illustrates high speed rail systems proposed by the American

Exhibit 3
TRANSPORTATION CONCEPTS

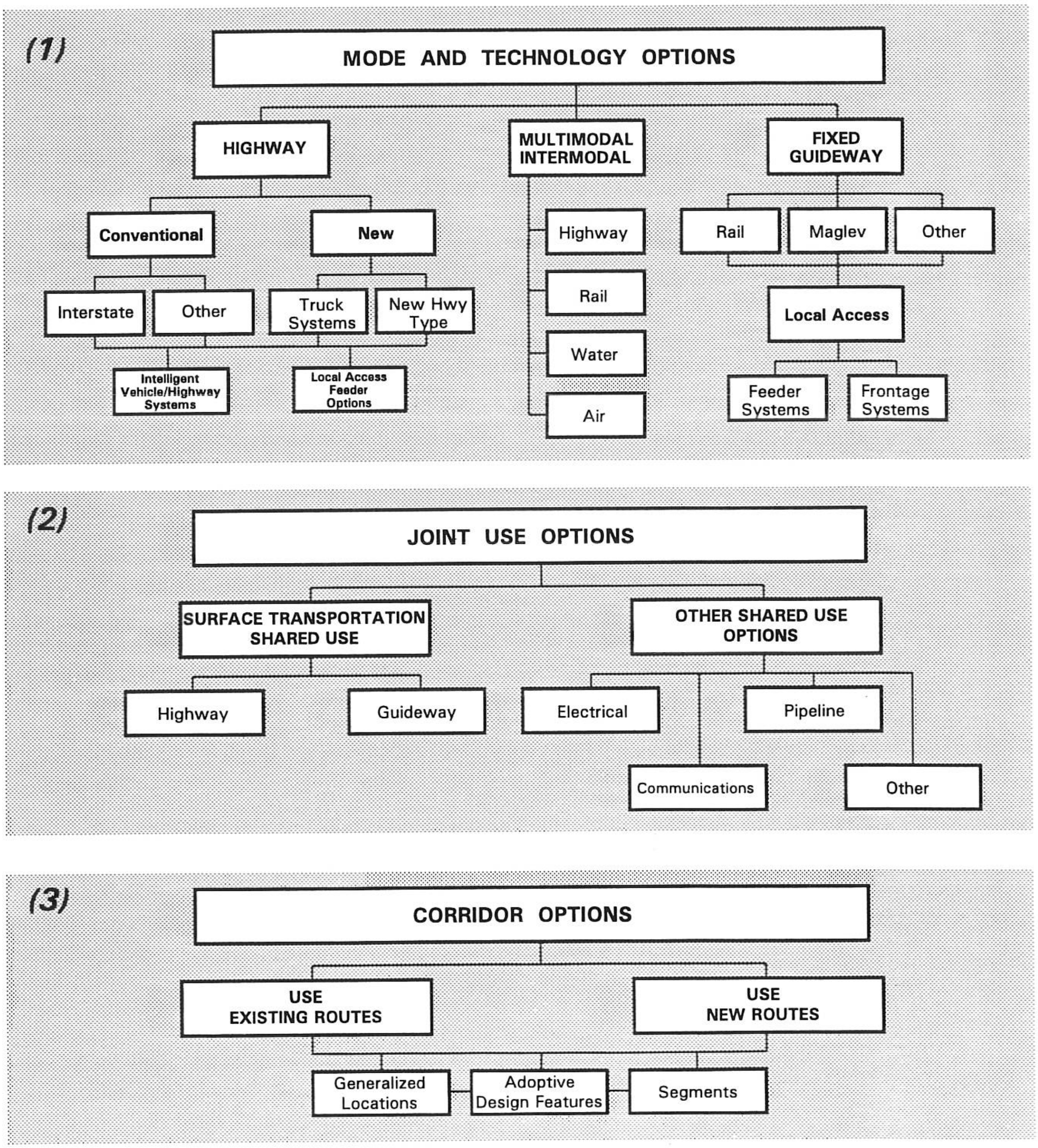
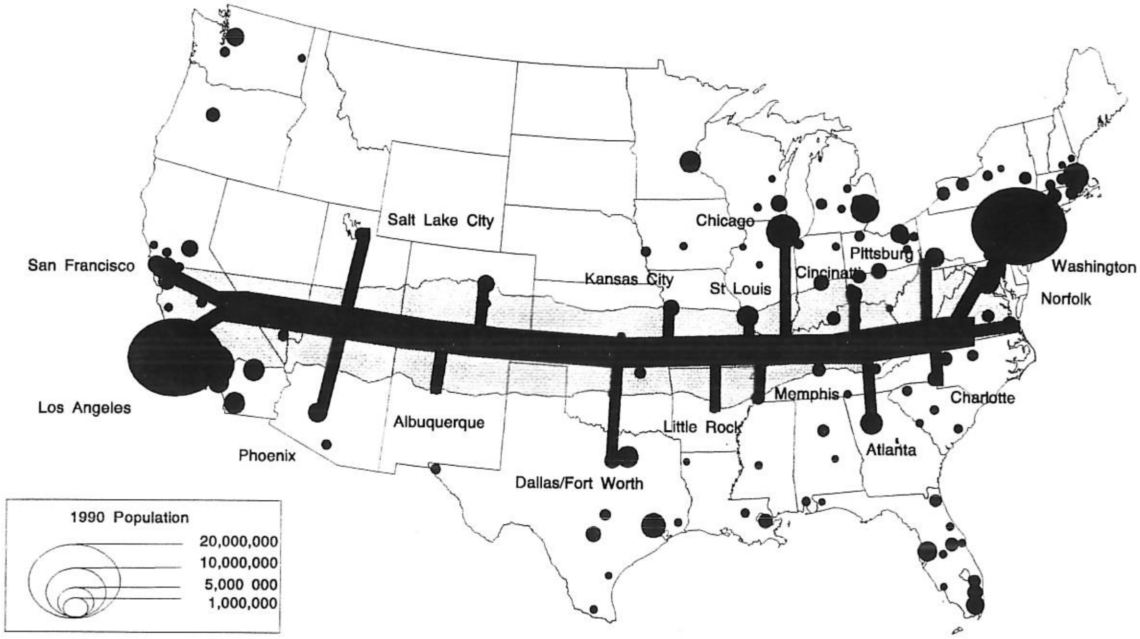


Exhibit 4
TRANSPORTATION SPINE CONCEPT



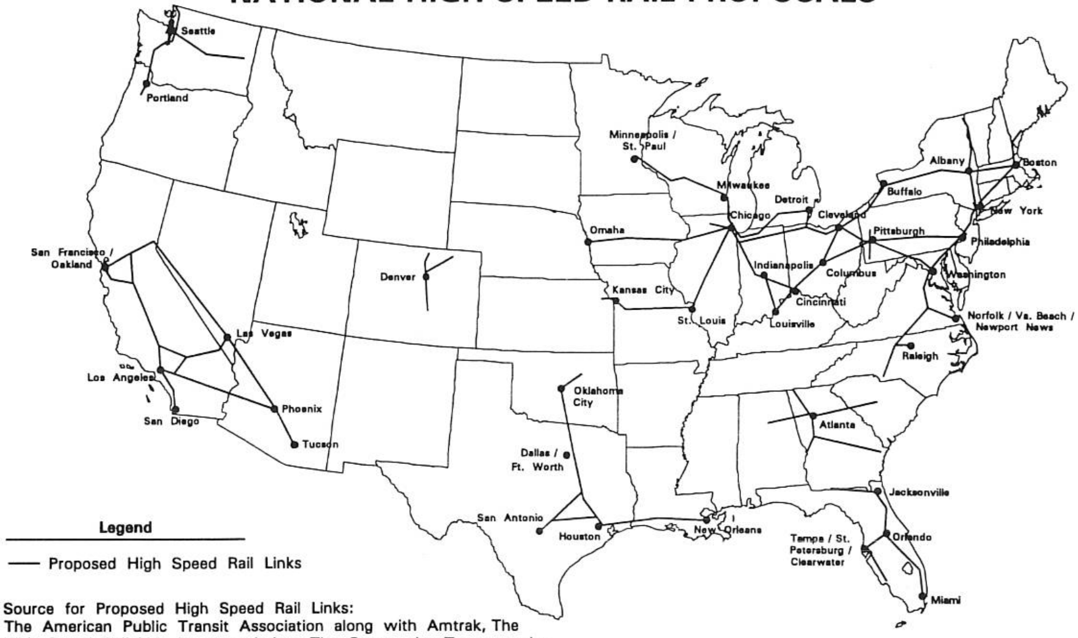
Public Transit Association along with Amtrak, the High Speed Rail/Maglev Association, the Community Transportation Association of America, and others. The Transamerica Transportation Corridor could be connected to this proposed system in two ways. The Transamerica Transportation Corridor could be developed as a highway option with intermodal connections to a high speed rail network. Alternatively, it could be developed as a high speed rail facility and work as an east/west spine to the various rail segments illustrated.

SCREENING OF TRANSPORTATION ALTERNATIVES

The most efficient approach to handle the wide range of transportation concepts addressed by the study was to apply a "sequential screening and evaluation process," where all options were initially considered, and the least viable were rejected. Initially, the various concepts were organized into some 19 specific transportation alternatives. As the study analyses proceeded, the number of alternatives were gradually reduced and the alternatives were refined. This structured process resulted in the identification of four principal alternatives which were subjected to detailed study.

Exhibit 5

NATIONAL HIGH SPEED RAIL PROPOSALS



Legend

— Proposed High Speed Rail Links

Source for Proposed High Speed Rail Links:
The American Public Transit Association along with Amtrak, The High Speed Rail / Maglev Association, The Community Transportation Association of America and others, 1993.

Alternative A: Conventional Interstate-type Highway

The main features of this alternative are:

- Built to Interstate standards
- Somewhat higher speeds than other interstate highways because urban areas are not penetrated
- Includes basic level of Intelligent Vehicle/Highway Systems (IVHS) technologies
- Longer combination trucks (LCVs) accommodated

Alternative B: Upgraded Rail

This alternative features:

- Tilt train technology
- Speeds ranging from 200 to 220 km/h (125 to 135 mph)

Alternative C: Super-Highway and Truckway

Features of this alternative include:

- Vehicle speeds up to 240 km/h (150 mph)

- Substantial deployment of IVHS technologies, including Advanced Vehicle Control Systems (AVCS)
- Separated truck roadway
- Two versions of this alternative were studied, viz.:
  - C1: The TTC would be the only coast-to-coast Super Highway
  - C3: The TTC would be one of three coast-to-coast Super Highways. The other Super Highways were assumed to be north of I-70 and south of I-40.

Alternative D: Very High Speed Fixed Guideway

This alternative is distinguished by the following features:

- Considers both high speed rail (D1) and maglev (D2)
- Design speeds from 200 km/h (125 mph) in mountainous terrain to over 480 km/h (300 mph) in flat terrain
- Electrically-powered trains on primarily new alignments

CORRIDOR APPLICATIONS

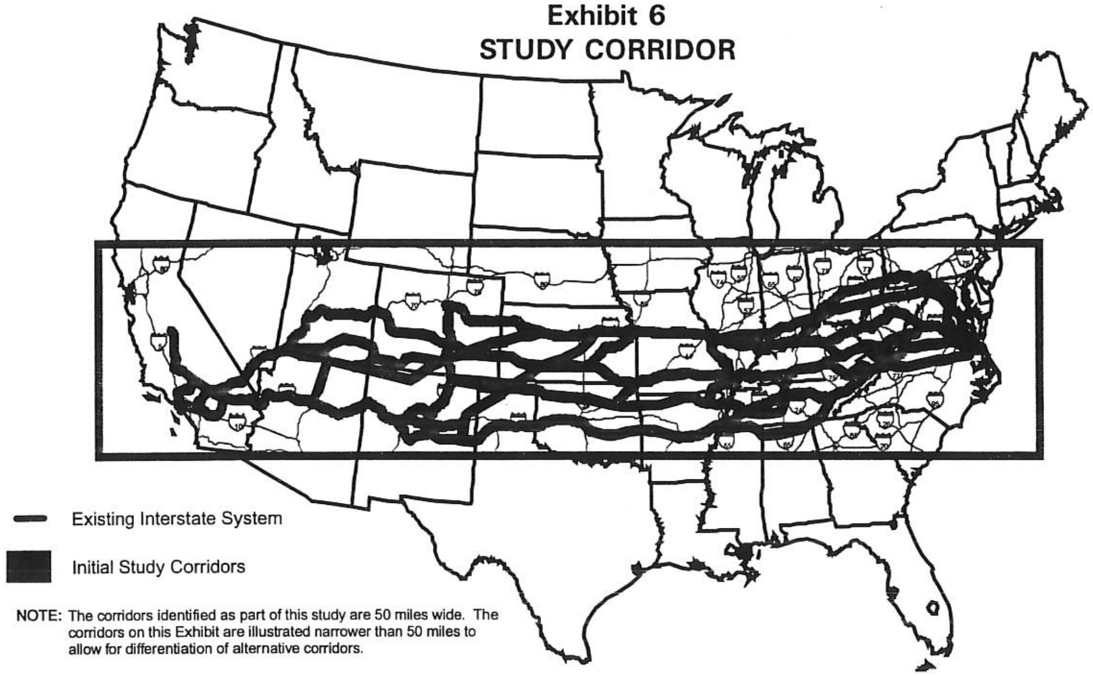
Representative locations were identified in which the various transportation alternatives could be applied within the Transamerica Transportation Corridor. This included a review of the various opportunities and constraints associated with conditions and features in the TTC study area. The locations thus identified were designated ''Analysis Corridors'' because they are intended to represent reasonable applications of the transportation technologies without trying to determine, at this stage, the ''best'' locations. While subsequent detailed location studies may reveal more suitable alignments, the Analysis Corridors are sufficient for purposes of this study's assessment of expected costs, benefits and impacts of implementing candidate technologies within the designated TTC study area.

Corridor segments were the building blocks for defining Analysis Corridors. These segments are depicted in Exhibit 6. Based on these segments, locations were identified which suited the particular technologies associated with the four principal Transportation Alternatives.

Three Analysis Corridors were chosen as follows:

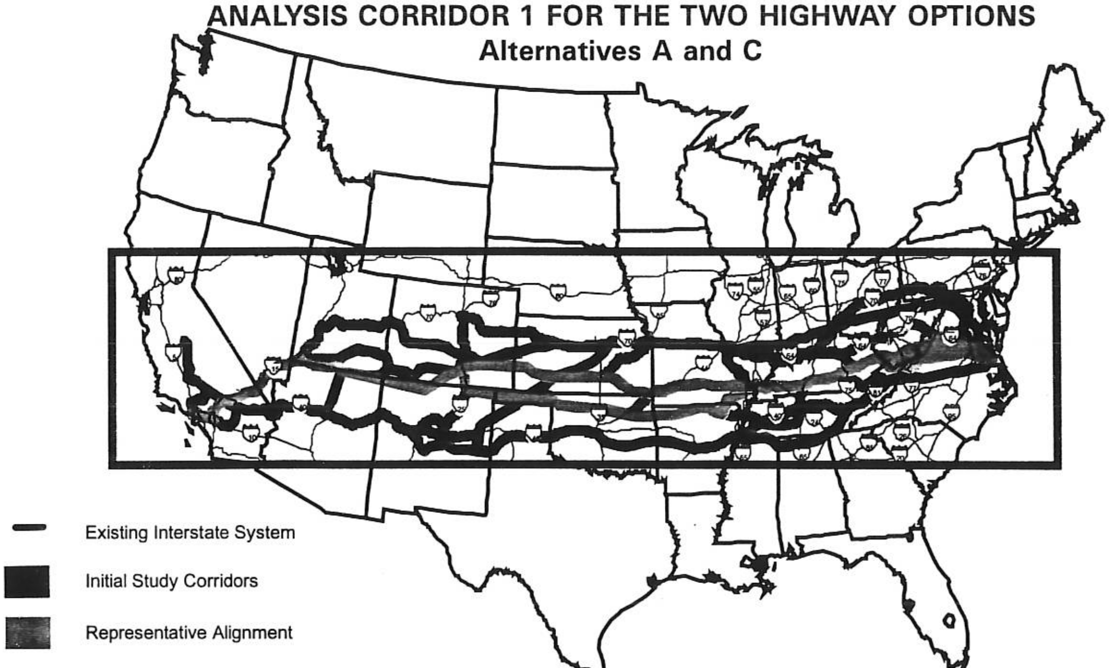
- Analysis Corridor 1 is located generally in the center of the TTC study area. See Exhibit 7.

Exhibit 6
STUDY CORRIDOR



NOTE: The corridors identified as part of this study are 50 miles wide. The corridors on this Exhibit are illustrated narrower than 50 miles to allow for differentiation of alternative corridors.

Exhibit 7
ANALYSIS CORRIDOR 1 FOR THE TWO HIGHWAY OPTIONS
Alternatives A and C

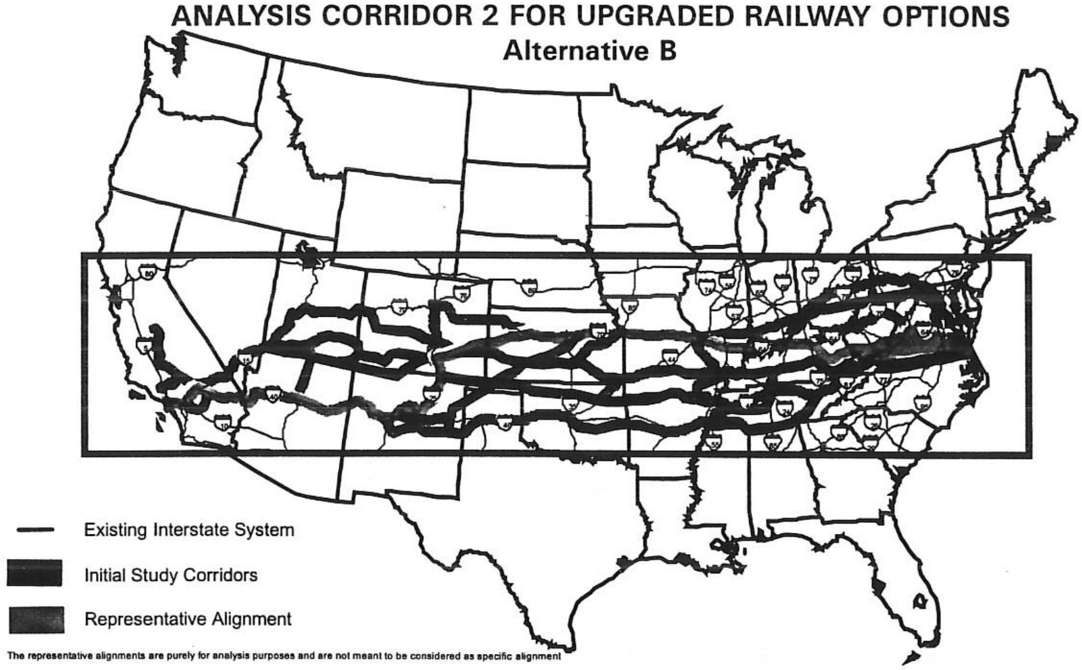


The representative alignments are purely for analysis purposes and are not meant to be considered as specific alignments.

- It was considered to be representative of a potential location for:
  - Alternative A: Conventional Interstate-Type Highway, and
  - Alternative C: Super Highway.

- Analysis Corridor 2 was selected to take advantage of existing rail rights-of-way. See Exhibit 8.
  - It was considered to be representative of a potential location for Alternative B: Upgraded Rail.

Exhibit 8
ANALYSIS CORRIDOR 2 FOR UPGRADED RAILWAY OPTIONS
Alternative B

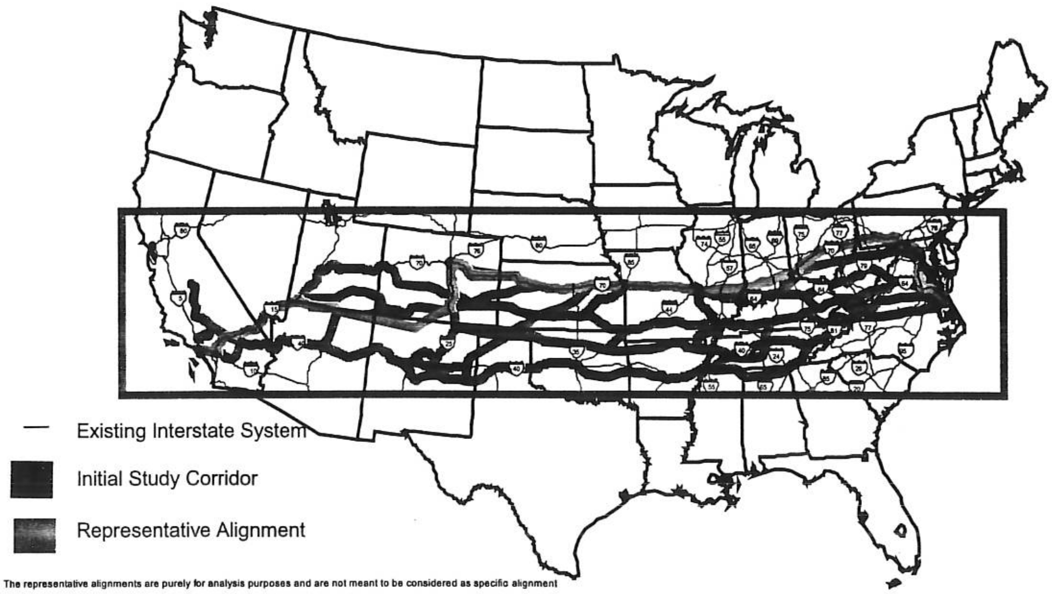


- Analysis Corridor 3 was located to serve major population centers on the boundary of the TTC study area. See Exhibit 9.
  - It was considered to be representative of a potential location for Alternative D: Very High Speed Fixed Guideway.

CAPITAL COSTS

Because of the significant difference in the type of transportation concepts studied, there is a corresponding wide range in the costs associated with them. As noted in Exhibit 10, Alternative A: Conventional Interstate-Type

Exhibit 9
ANALYSIS CORRIDOR 3 FOR VERY HIGH SPEED FIXED GUIDEWAY
Alternative D



Highway, has the lowest capital cost for the full coast-to-coast facility. The Alternative C: Super Highway concept involves a high initial capital cost because it embodies an 8-lane cross-section to accommodate both instrumented cars and trucks, as well as vehicles which are not equipped to use the AVCS technology.

Capital costs for Alternative D: Very High Speed Fixed Guideway, also are quite high. The capital cost for a steel wheel technology is roughly comparable to the Alternative C: Super Highway cost. If a maglev technology is employed, capital costs would be about 50 percent higher than for a steel wheel technology.

TRAVEL DEMANDS

Forecasts were developed to estimate the number of people and amount of freight which would use the four principal transportation alternatives as follows.

Highway Alternatives

The demand for travel of the Super Highway would be much greater than a conventional Interstate highway due to both travel time savings and the increased convenience afforded by instrumented vehicles with automated vehicle control. The Advanced Vehicle Control System (AVCS)

Exhibit 10
CAPITAL COSTS FOR TTC ALTERNATIVES

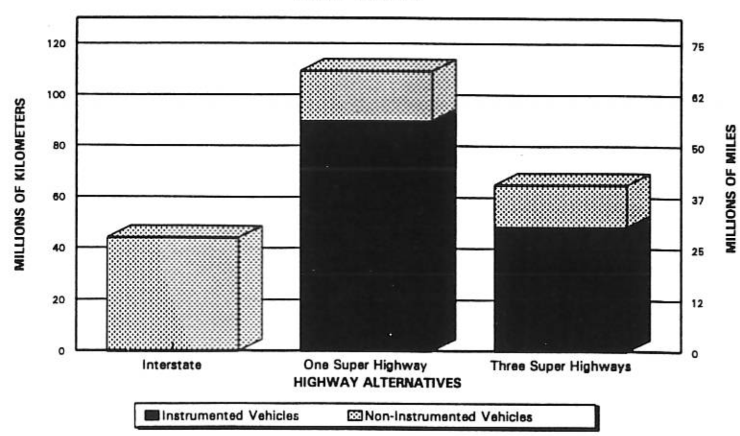
TRANSPORTATION ALTERNATIVE	CAPITAL[1] COST ($ billions)
A: Interstate-Type Highway	$18
B: Upgraded Railroad	33
C: Super Highway	53
D1: High Speed Rail	51
D2: Maglev	78

(1) 1993 dollars.

technology would permit people to sleep, read or work during their journey.,

Two Super Highway alternative options were evaluated: one that would be the first and only East/West facility of its kind and another that is one of three similar coast-to-coast facilities. The Study's forecasts show that the competition of two other Super Highways would have a significant impact on demands. See Exhibit 11.

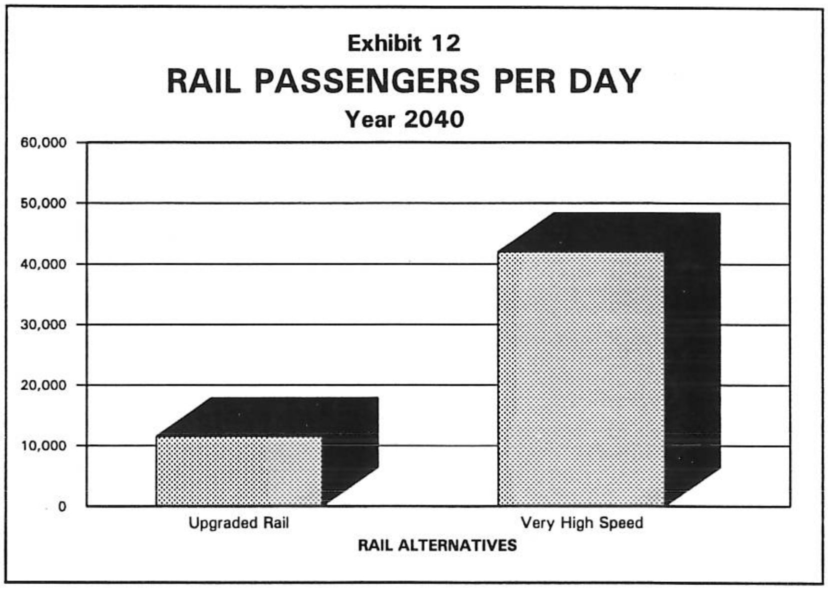
Exhibit 11
PASSENGER VEHICLE USAGE PER DAY
Year 2040



1-14

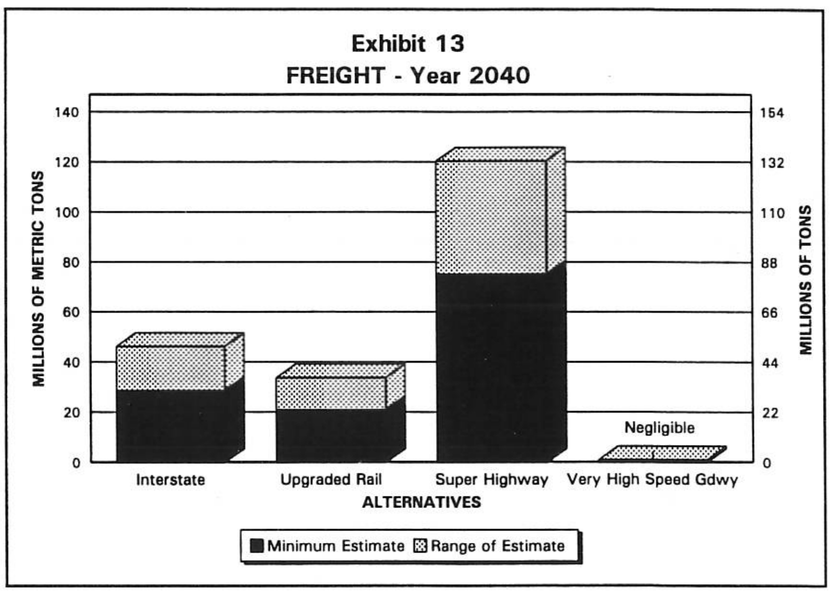
Rail Alternatives

The demand for travel for the Very High Speed Rail alternative would be much higher than conventional rail due to its faster travel speeds. See Exhibit 12.



Freight

As shown in Exhibit 13, the Super Highway would serve the greatest amount of freight transport of all the four alternatives considered.



ECONOMIC FEASIBILITY

A major public investment such as one of the new TTC alternatives could be "economically feasible" if the economy is better off with the TTC than without it. Economic benefit is defined as "an increase in the prosperity and incomes of people and institutions." Such increases occur in either of two ways:

Travel Efficiency — Transportation cost savings that result from improvements to a corridor are true benefits to the Nation. When travellers experience time savings, greater safety, or reduced vehicle operating costs, their gain is not offset by losses to other people. Cost reductions make resources available for other purposes. If the effective increase in income brought about by the project exceeds its cost, the project is said to be "efficient." It makes the Nation economically better off.

Attraction of Resources/Corridor Economic Development — Reduced transportation costs in the corridor, relative to costs at other locations, can encourage economic activity to shift to the corridor. If output increases in the area, the increased output will require more resources (land, labor, materials, capital) which can mean that more people are employed and net income within the area increases. If the TTC investment enables the attraction of additional business in the corridor (new firms, or expansion of existing firms), then the transportation investment can aid the economic development process, to the benefit of the corridor area — but at a loss to the rest of the U.S.

Travel efficiency improvements benefit users of the transportation facility and others with no corresponding losses to others. They are, therefore, net gains to the nation. Resources attracted to the improved corridor are, in essence, transferred from other locations in the U.S. because they will be more productive in the improved corridor. These transfers are not net gains to the Nation; increases in income and property values along the corridor occur at the expense of other people elsewhere.

Economic Efficiency Assessment

All of the five major alternative concepts create very large travel benefits. However, when the high costs associated with this project are considered, none of the alternative concepts are found to be feasible. As shown in Exhibit 14, the C1: Super Highway alternative comes the closest to being

Exhibit 14
NATIONAL PERSPECTIVE
TRAVEL EFFICIENCY FEASIBILITY FINDINGS[a]

TTC OPTION	NET PRESENT VALUE[b] ($ billion)	INTERNAL RATE OF RETURN	DISCOUNTED BENEFIT/COST RATIO[a]
A: Interstate-Type Highway	($5.9)	4.8%	.68
B: Upgraded Railroad	($34.9)	-4.5%	.49
C1: One Super Highway	($3.3)	6.7%	.94
C3: Three Super Highways	($23.4)	4.1%	.57
D: High Speed Guideway[c]	($47.1)	-1.2%	.18

NOTES: (a) An economically feasible TTC would have positive NPV, an IRR of 7.0% or greater, and a B.C ratio of 1.0 or greater.
(b) Discounted at 7%.
(c) Based on the steel wheel technology.

SOURCE: Wilbur Smith Associates

economically justified on the basis of travel efficiency benefits.

Sensitivity Analyses

The National perspective feasibility test is based on a number of calculations and estimates, many of which are approximations. Ten sensitivity tests were conducted, to determine the extent to which study findings are dependent on these approximations. The results of these tests are presented in Exhibit 15 and show that under certain assumptions, the two highway alternatives may be economically feasible.

Economic Development Effects

A new transcontinental transportation facility in the TTC should help the communities in the corridor to develop economically by attracting firms and economic activity to them and by helping them compete with other communities in the U.S. By creating a new transportation facility, and by reducing transportation costs in the region, the TTC would become more economically attractive and competitive, thereby attracting new industries and tourists to the corridor (at the expense of other regions of the U.S.) and encouraging existing corridor industries to expand.

The Study estimated the economic development gains that would occur as a result of the TTC transportation facility.

Exhibit 15
TRAVEL EFFICIENCY SENSITIVITY RESULTS
(Benefit/Cost Ratios)

	A: UPGRADED HIGHWAY	B: UPGRADED RAILWAY	C: SUPER HIGHWAY		D: HIGH SPEED GUIDEWAY
			C-3	C-1	
Study's Benefit/Cost	0.68	0.49	0.57	0.94	0.18
1. 25% Less Capital Cost	0.89	0.56	0.75	1.24	0.23
2. 25% More Capital Cost	0.55	0.44	0.46	0.76	0.15
3. Capital Cost for a B/C of 1.0 ($ billion)	$11.9	$0.00	$30.0	$50.1	$4.3
4. 4% Discount Rate	1.16	0.62	1.03	1.68	0.32
5. 10% Discount Rate	0.45	0.40	0.35	0.59	0.11
6. No Additional Consumers Surplus	0.68	0.48	0.32	0.53	0.15
7. Constant Time Value	0.56	0.49	0.50	0.83	0.17
8. 1 year Benefit Lag	0.71	0.52	0.70	1.16	0.26
9. 25% More Benefits	0.85	0.62	0.71	1.17	0.22
10. 25% More Benefits and 25% Less Capital Cost	1.12	0.70	0.94	1.55	0.28

SOURCE: Wilbur Smith Associates.

Three measures of economic development impacts were developed and the results are summarized in Exhibit 16.

The Super Highway is expected to have the greatest economic impact on the TTC region. The Alternative C1 Super Highway is estimated to attract over 220,000 jobs to the region (excluding TTC construction jobs). All of the options would create value added in the corridor amounting to many billions of dollars.

While these impacts are sizable, they represent an increase of only one percent or less of total jobs and value added to the total already in the corridor area. In addition, the value added and jobs impacts primarily represent a redistribution of jobs, and money, from elsewhere in the U.S. Investment in transportation is a very expensive way of creating permanent jobs.

Exhibit 16
ECONOMIC DEVELOPMENT IMPACTS

TRANSPORTATION ALTERNATIVE	VALUE ADDED 1993-2040[a] ($Million)	WAGES 1993-2040[a] ($Million)	NUMBER OF JOBS[b]	
			2001	2040
A: Interstate-Type Highway	50,086	31,369	80,811	70,627
B: Upgraded Railroad	63,145	44,052	130,227	52,630
C1: One Super Highway	171,453	90,624	243,994	220,700
C3: Three Super Highways	133,177	76,459	218,386	131,791
D: Very High Speed Guideway	90,842	63,449	200,813	60,500

(a) Discounted at 7 percent. Constant 1993 price levels.
(b) Includes TTC construction jobs in 2001; excludes construction jobs in 2040.

FINANCIAL VIABILITY

Analyses were undertaken to assess project costs relative to potential project revenues, to identify funding options, and to determine funding requirements for each of the principal transportation alternatives. These analyses determined that toll (if assessed) and fare revenues would offset a significant portion of the TTC costs (between two-thirds and three-fourths of the cost of the C1: Super Highway alternative). However, revenue requirements for the various alternatives still would present enormous costs to be covered by Federal, State, or other sources. Increasing the transportation budgets of the corridor states to fully cover the TTC costs is not realistic given current expenditure trends and existing needs. The study concluded that these funding needs could not be met by the states alone and that a national commitment to the TTC would be needed.

CONCLUSIONS

Based upon the Study's analyses, a number of conclusions emerged, as follows:

- While the study's travel demand analyses show a significant variation in volumes at different locations in the corridor, they do not, on the whole, indicate a pressing need for a coast-to-coast TTC at this point in time.
  - Nevertheless, there may be traffic congestion on parallel facilities in certain segments of the TTC which could be relieved by provision of a new

facility in the corridor. This topic was not examined as part of the current study.

- Additionally, it is possible that costs to improve parallel existing routes could be reduced if the TTC were implemented.

- The low population densities and challenging physiographic and land ownership patterns in the corridor detract from the feasibility of the TTC.

- There are various ways to enhance the feasibility of the TTC. A very important opportunity would be to develop a TTC facility that enjoys higher speeds and improved safety for all vehicles and also has the ability to serve larger and heavier trucks than is possible with existing interstate highways.

  - Future technologies, particularly those associated with Intelligent Vehicle-Highway Systems (IVHS) have considerable promise, particularly since the TTC could be designed from the beginning to incorporate them. It will be more challenging and costly to retrofit existing facilities to accommodate these emerging technologies.

- The TTC does not meet economic feasibility criteria, generally because of its high costs and low travel demands in some segments.

  - The most feasible technologies (the Super Highway concept) are in the development stage, making costs and benefits difficult to estimate.

  - If future IVHS research reveals ways to reduce the cost assumptions of this study, it is quite possible that a coast-to-coast Super Highway in the TTC would achieve economic viability.

- Even if the TTC is economically feasible, it would be an extremely expensive project. It could not be funded under current funding programs, even if tolls are imposed.

- The Study shows that the corridor would benefit from the economic development that would accompany construction and use of a new coast-to-coast facility.
  - Nevertheless, these benefits would be at the expense of economic development elsewhere. That is, they would be transfers to the TTC because of the advantages the new facility would offer.
- Study findings regarding a coast-to-coast facility do not mean that individual segments of the corridor would not be desirable from a state or regional perspective.
  - Additional analysis of individual segments could find that some of them are feasible.
  - These segments may provide linkage to the National Highway System and/or key elements of a state's transportation system.
  - Ultimately, if segments are built and as technologies advance, review of the overall corridor may be warranted.
- The Study's economic analyses are based upon a number of estimates (e.g., costs, usage) and assumptions (e.g., discount rates, value of time, etc.). A series of sensitivity tests show that there are circumstances under which the TTC would be economically feasible.
  - Within the range of variation examined, there are more favorable circumstances under which the highway alternatives (conventional Interstate-type highway and Super Highway) would achieve economic feasibility.
  - Even under considerably improved circumstances, the rail alternatives would not achieve economic feasibility.