HCR

10

COMMITTEE REPORT

HOUSE

FURTHER: FINANCE

(9)

3/16/83

Date: 5/6/83

Mr. Speaker:

The Committee on TRANSPORTATION has had SHR 10

Relating to access to Whittier, Alaska.

under consideration and reports it back as follows:

[ ] do pass [ ] do not pass

[ ] do pass with attached amendments(s)

[X] replace with CS for HCR 10 (transportation) [ ] same title [ ] new title

and recommends

[ ] AND attaches a "Letter of Intent" [ ] New Fiscal Note [ ] Zero Fiscal Note Attached

[ ] reports it back without recommendation

[ ] referred to the Committee

MEMBERS SIGNING DO PASS

Adelheid Herrmann Do Pass

M.W. Miller

Mike Szymanski Do Pass

[illegible]

[illegible] Do Pass

[illegible] Do Pass

[illegible]

MEMBERS HAVING OTHER RECOMMENDATIONS:

[illegible] Abood No Rec

[signature]

CHAIRMAN

H 60

Gene Kulawik
Mgr. P.R. in AK

562-2177

willing to be
called to
expand on
letter. Dick Armstrong
says this paragraph
could be expanded
to 60 page report

Call Dick

MEMORANDUM

"Write It—Then We'll All Know"

To GENE KULAWIK
Anchorage, Alaska

Town Omaha

Date 4/19/83

Subject WHITTIER TUNNEL REPORT

Job No.

RECEIVED
APR 25 '83
ANCHORAGE
KIEWIT PACIFIC CO.

DC	EK
DD	LS
MK	ML

Dear Gene:

Having spent some time in Whittier when we drove the Pipe Line Tunnel, I know how hard it is to get to Whittier. The study made for the Alaska Department of Transportation lists six alternatives. I personally can't believe the Railroad will share their tunnel. Alternative No. 6 over Portage Pass would be a summer road only. It would appear to me that Alternative No. 5, a new two-way highway tunnel, would be the best in the long run. I would have to accept estimate of cost as I don't know how much support, concrete lining, and ventilation would be required. Another alternative might be two smaller one-way tunnels driven with a mining machine. They should require less tunnel support and concrete lining.

From [signature]
W. W. ROBERTS

WWR:jhr

RECEIVED
APR 27 '83

Design & Const. Central Region	Copy	Action
Director		
Deputy Director		
Chief Aviation D&C		
Ch Bldgs & Harb D&C		
Chief Highways D&C		
Chief Right of Ways		
Chief Tech Services		
Review Engr.		
Admin Officer		
FILE		

CS FOR HOUSE CONCURRENT RESOLUTION NO. 10 (TRANSPORTATION)

IN THE LEGISLATURE OF THE STATE OF ALASKA

THIRTEENTH LEGISLATURE - FIRST SESSION

Relating to access to Whittier, Alaska.

BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF ALASKA:

WHEREAS there are a number of places along the railbed of the Alaska Railroad that are paved for temporary use by automobiles when snowslides cover the Seward Highway, making it impassable; and

WHEREAS a significant number of people seek access to and from Whittier, Alaska, and access is limited to service on the Alaska Railroad; and

WHEREAS the railroad service to and from Whittier is inadequate or inconvenient and a significant number of people would prefer to drive to and from Whittier;

WHEREAS highway development to Whittier would create greater recreational opportunities for Southcentral Alaska and provide access to beautiful Prince William Sound thereby adding another important tourism attraction base, along with future harbor facilities;

BE IT RESOLVED by the Alaska State Legislature that the Governor is respectfully requested to direct the Department of Transportation and Public Facilities to complete before the convening of the second session of the Thirteenth Legislature a preliminary design for one way traffic facilities through Whittier tunnels and, if needed, ventilation, lighting and other amenities such as traffic control systems; and provide the legislature with construction cost estimates and projected cost per passenger based on anticipated traffic volume.

STATE OF ALASKA
Bill Sheffield, Governor

DEPARTMENT OF TRANSPORTATION
and PUBLIC FACILITIES

4111 AVIATION AVENUE, POUCH 6900
ANCHORAGE 99502 (TELEX 25-186)

March 21, 1983

The Honorable Mitch Abood
Representative
Alaska State Legislature
Pouch V
Juneau, AK 99811

Dear Representative Abood:

The following is in response to your recent request regarding Whittier Access.

Attached are xerox copies of the section of the Executive Summary of the Whittier Transportation Options Study (WTOS) which outlines the Alternatives which were considered and the conclusions reached.

The WTOS included an effort to estimate demand for facilities which would increase access to Whittier as well as to assess the technical feasibility of such facilities. In that effort it was assumed that demand resulted from full development of Whittier according to the City comprehensive plan in existence at that time as well as an existing Shotgun Cove Road and Small Boat Harbor. Based on these assumptions and comments received from the public and other interested agencies, the demand to be expected was forecast. In consideration of the extensive technical analysis of the various options coupled with the demand forecast, Alternative 1A was recommended as a short-term solution and Alternative 1 was recommended as a medium to long-term solution. Now that time has provided perspective on the factors underlying the demand forecast, it is appropriate to update and further refine those underlying assumptions. Similarly, it is also an appropriate time to refine the engineering assumptions in light of any new technology which has become available in the interim.

Alternative 1A was developed as a short-term improvement to provide an increase in capacity and convenience until traffic increased significantly in response to full development of the Whittier area. Four trips between Portage and Whittier would be scheduled instead of the existing three. Minor track modifications would facilitate more efficient operations and reduce loading time. An additional two trips daily could be scheduled by basing the shuttle train in Whittier instead of Anchorage, for a total of six trips daily, and bus service would be provided between Portage and Anchorage. Selection of this alternative would not preclude selection of a different alternative at a future date.

Alternative 1A includes the following:

1) Ramp and track modifications and improvements and passenger stations at Whittier and Portage. These improvements would facilitate more efficient operations, at a cost of $854,000 (1983 dollars).

2) Additional rolling stock and equipment, at a total cost of $1,464,000 (1983 dollars).

3) If the Alternative 1A improvements are used for a longer period (10-20 years), significant tunnel repair work will be needed, at a total cost of about $10.0 million (1983 dollars). This work would also be required for any other rail-based alternative, including joint rail auto use of the tunnel and to facilitate continued use of the tunnel by the Alaska Railroad. Therefore, expenditures for tunnel improvements would not be "wasted" if an additional "long-term solution" alternative using the existing tunnel is implemented at a future date.

The Department will be looking at the feasibility of converting the existing railroad tunnel into a vehicular tunnel. This would allow an increase in access to Whittier and Prince William Sound. A study to determine the feasibility will begin this spring and there should be sufficient information available on such a proposal of paving the tunnel for vehicular travel by the next legislative session. Once this information is available, a copy will be sent to you.

If our office can be of further assistance please call.

Sincerely,

William R. Snell
Acting Deputy Commissioner
Central Region

Attachments

FINAL REPORT
System Alternatives & Recommendations

WHITTIER TRANSPORTATION OPTIONS STUDY

PREPARED FOR

STATE OF ALASKA
DEPARTMENT
OF TRANSPORTATION
AND PUBLIC FACILITIES

ANCHORAGE, ALASKA 99502

MARCH 1981

DMJM Parsson

420 L STREET/SUITE 406/ANCHORAGE,ALASKA 99501 907/274-1554
3250 WILSHIRE BOULEVARD/LOS ANGELES,CALIFORNIA 90010 213/381-3663

IV. TRANSPORTATION ALTERNATIVES, COMPARISONS AND EVALUATION

This chapter describes options applicable to Whittier access and discusses them from several standpoints including feasibility, construction costs, operating costs, convenience of users, safety, short and long term benefits to users, land owners, developers, etc. The options are based on current railroad technology and highway vehicles in various combinations. It is presumed that any selected alternative will require soils investigations, title searches, Environmental Impact Statements and Federal, State and Municipal reviews and approvals prior to engineering, design and construction. These items therefore are not developed further in this section. This discussion is concluded by a summary matrix which compares the features of each alternative.

Null Alternative

This is the existing system and is included only for use as a basis for comparison with alternatives that would improve access to and from Whittier. Under this alternative, Whittier residents will continue to be relatively isolated and will continue to compete with visitor and ferry traffic in and out of Whittier. With the expansion of the Whittier small boat harbor doubling its capacity, increased congestion will occur. Access will continue to become more and more inconvenient under this alternative and the existing system and service level cannot meet the maximum demand. Furthermore, the limited access capacity will act as a constraint to future growth and development in Whittier.

Alternative No. 1 - Improved Auto/Passenger Shuttle Between Bear Valley and Whittier

This alternative is a significant upgrading of the existing shuttle access to Whittier. It would reduce both travel and turn around time by relocating the western terminal from Portage to new facilities in Bear Valley with a new road connecting to the Portage Glacier Visitor's Center access road. The shuttle train would be

based in Whittier rather than Anchorage. It also reduces the waiting time by providing additional regularly scheduled shuttles and extends the daily period of shuttle service. Initially, seven (7) shuttle trips each way over a 12-hour span would be provided with provisions to increase service to thirteen (13) trips each way over 16 hours when travel demand warrants.

The initial service level would have a total capacity of about 350 vehicles per day each direction and approximately 2,100 passengers. In the expanded service, this capacity would increase to approximately 590 vehicles and 3,900 passengers each way. This service would meet about 45% of peak day person trip demand. However, additional passenger coaches could be added to the shuttle train and total person trip demand could thus be met. Auto capacity cannot meet the potential summer maximum demand, however, winter capacity would be adequate.

Total capital cost including the Bear Valley access road, improved terminal facilities, tunnel improvements, new passenger cars, etc. would be approximately $20 million for the initial system and about $24 million for the expanded level of service. Annual operating and maintenance costs were estimated at $559,000 for initial service and just over $1 million for the expanded system.

Alternative 1 could be implemented relatively quickly and its selection would not preclude the future choice of another alternative. Convenience for Whittier residents is greatly improved without opening Whittier up to unlimited access and the potential congestion which would result. A gradual development of Whittier would be encouraged by this alternative. It would also open Bear Valley to recreational use and to more spectacular views of Portage Glacier. Alternative 1 would result in increased revenues and potential funding subsidies might exist for this alternative.

Alternative No. 1-A - Improved Auto/Passenger Shuttle Between Portage and Whittier

This alternative also consists of upgrading the existing shuttle access to Whittier but retains the existing Portage terminal point. It too reduces waiting time by providing additional regularly scheduled shuttles to provide four (4) trips initially with potential for expansion to six (6) and extends the daily period of shuttle service. The initial service level retains the rail connection to Anchorage but the expanded system calls for bus service on the Anchorage link. Because the distance is identical to the existing route, travel time is the same but by improving the auto loading procedure and adding one set of rail passenger and flat cars, turn around time can be reduced. This alternative has somewhat limited capacity and could not accommodate the full maximum demand levels. However, the initial service improvements would allow about a 33% increase in existing demand and, if expanded, could provide capacity for more than double the average demand experienced during 1979.

This alternative is also a logical first step in a phased development approach. Under any of the other alternatives, some period of time will be required for necessary design and construction before they can be placed in operation. That period could range from two to five years depending on which alternative was selected. Thus, this alternative could serve either as an interim improvement or as a longer term solution. In any event, it does not preclude a later decision to select one of the other options when the demand levels warrant such action.

This alternative is both the least costly and could be implemented in the shortest period of time. Total estimated capital cost for improved terminals, parking, equipment and tunnel improvements is $8.8 million with annual operating costs ranging from $504,000 to $546,000. This alternative would also have the least overall environmental impacts.

Alternative No. 2 - Improved Rail Passenger Service

This alternative includes the rail shuttle between Bear Valley and Whittier as in Alternative No. 1 but also provides direct passenger-rail service from Anchorage to and from Whittier. No loading, unloading, or rehandling of baggage or recreational gear, etc. is necessary along the line. Some persons would find this more attractive, as it provides fast, efficient and convenient service into Whittier. The existing rail/auto shuttle would still be necessary and would be improved by reducing the length of the rail running time by extending the road into Bear Valley.

Initial service on this alternative would provide four (4) shuttle trips each way plus three (3) round trips between Whittier and Anchorage. Expansion potential could increase service to eight (8) shuttle trips and four (4) round trips to Anchorage on the passenger rail.

System capacity would be similar to Alternative No. 1 in that maximum person trip demand could readily be met but auto ferry capacity would not meet the maximum potential demand at full Whittier development. Capital costs would be similar to those of Alternative No. 1 and were estimated at about $22 million initial and $26 million for the expanded service. Annual operating costs, however, would be about 50% greater than Alternative No. 1 being estimated at $793,000 initial and $1,500,000 for the expanded service.

Overall development and environmental impacts of this alternative are approximately the same as Alternative No. 1.

Alternative No. 3 - One-way Joint Use of Existing Tunnel

This alternative would provide direct auto access by utilizing the existing railroad tunnel through Maynard Mountain between Whittier and Bear Valley. Major tunnel improvements would be required to allow use by both rail and vehicular traffic. Improvements would include lighting, ventilation, widening in selected locations to permit turnouts for disabled cars, paving the tunnel floor for rubber tired vehicles, installation of traffic signals and barriers at

each portal, grouting and lining to eliminate water leakage and ice buildup in winter months, and track reconstruction.

This alternative would have adequate theoretical capacity to accommodate the maximum potential demand. However, delays during peak demand periods could be excessive due to long queues waiting for opposing traffic to clear the tunnel. In addition, disabled vehicles in the tunnel could cause further delays since the tunnel width is inadequate to allow for automobiles to pass. The possibility of a vehicle fire presents safety problems, again due to the inability to clear the tunnel. There are also unresolved institutional issues in this option, particularly acceptance of risk or liability by the State or railroad.

Capital cost for this alternative, estimated at $36.7 million, is higher than the various rail options but lower than other direct access options. The ventilation requirement is a major item in cost for this alternative. Since the existing tunnel does not have adequate height to allow installation of the required ventilation plenum, the tunnel would have to be enlarged, resulting in extensive rock excavation. Maintenance and operating costs have been estimated at $390,000 per year. Direct access would eliminate the rail shuttle fares but the possibility of tunnel use tolls could offset these user savings.

Alternative No. 4 - Two-way Joint Use of Widened Existing Tunnel

This alternative would provide direct access to Whittier by widening the existing railroad tunnel to permit adequate highway width for two auto traffic lanes with the rail line confined to one lane. Other improvements to the tunnel would include the same features as in Alternative No. 3.

Operationally, this alternative is much simpler than the single lane tunnel but signals would still be required at each end to control traffic when a train is approaching or in the tunnel. Safety issues are also reduced but potential conflicts still exist as do the liability issues. This alternative has adequate capacity to meet the maximum demand but some potential for delays exist when train movement would close the tunnel to auto use.

Maintenance of rail facilities during the extensive tunnel expansion work would also be difficult. Capital costs for this alternative have been estimated at $64.3 million with annual operating and maintenance costs of $440,000.

Alternative No. 5 - New Two-way Highway Tunnel

In this alternative, a new two-lane highway tunnel would be constructed just south of the existing rail tunnel. The new tunnel would be approximately two and one-half miles long, provide lighting, ventilation and emergency phones. As with all highway options, the roadway into Bear Valley would be required but the rail terminal facilities would not be constructed.

Operationally, this alternative presents no rail/auto conflicts and would function simply as a highway. This alternative would provide the highest level of service and reliability of all options considered, would meet maximum demand, and also eliminate the institutional problems associated with joint tunnel use. It would also be the most expensive with capital cost estimated at $68.3 million and $440,000 annual operating and maintenance cost.

Alternative No. 6 - Portage Pass Highway

This alternative would provide a two-lane highway from the existing Portage Glacier Visitor's Center into Bear Valley and along the face of Maynard Mountain passing the end of Portage Glacier and over Portage Pass. Several locations in the section on Maynard Mountain may require either snow sheds or a short tunnel to reduce probable avalanche problems in areas of major snow chutes.

From an operational standpoint, this option would function much as other mountain highways and would have adequate capacity to meet maximum demand volumes. However, heavy winter snows, icing conditions and avalanche dangers would present severe road hazards in the winter months and high winds through Portage Pass would be a year round problem, particularly for campers and trailers. There are also steep grades (up to 9%) required between Portage Pass and Whittier which make the roadway more hazardous, particularly in winter months.

There is also a high probability of the highway being closed for periods in the winter, particularly during adverse weather conditions. Since the rail shuttle operations would probably be terminated under this option, this could result in periods of almost total isolation for the residents in Whittier.

Total capital costs for this alternative have been estimated at $47.8 million with annual maintenance and operating cost of $270,000.

Summary of Environmental Issues

While no environmental impact studies were made to quantify the various impacts, an overall assessment was conducted. In general some impact would be associated with all options. However, Alternative No. 1-A would produce by far the least impact with only minor upgrading of the Portage terminal area and Whittier terminal involved. Whittier impacts associated with development pressure would also be less than with other options.

Alternatives No. 1 and No. 2 would have similar impact since essentially the same facilities would be developed in both options. The environmental impacts would relate primarily to the Bear Valley Access Road and new terminal facilities in Bear Valley. Development pressures in Whittier would be somewhat greater than with Alternative 1-A, however, they would be more gradual and easier to control than with any of the direct access options.

In the highway options, Alternatives No. 3, 4 and 5 would have approximately equal impacts as they all require development of the Bear Valley road and extensive tunnel construction activities. Development pressures in Whittier would be about equal also given the perception of direct auto access. However, the traffic problems would be greatest with Alternative No. 3 if maximum demand was reached due to the long lines of traffic waiting to use the tunnel. Direct access could also produce severe traffic problems in Whittier given the relatively small land area and limited opportunity to develop adequate circulation and parking systems.

The Portage Pass Highway, Alternative No. 6, has all of the impacts associated with the other direct access options plus a much greater environmental consequence because of the cut along Maynard Mountain and the road through the Pass. While this route would offer excellent vistas of the glacier, it would also be visible from the visitor's center and would detract from that visually aesthetic experience.

Table S-4 presents a comparison matrix summarizing the various features of each alternative.

Cost Effectiveness

In addition to the evaluation factors summarized in Table S-4, an assessment of the relative cost effectiveness of each alternative was accomplished. This analysis was based on the assumption that the maximum demand levels would be reached at some point in time. Capital costs were annualized at various discount rates and then added to annual operating cost. Total annual costs were then divided by annual person trips to determine a cost per trip. Annual person trips were determined on the basis of maximum demand for the direct access alternatives and at system capacity for the rail systems. Tabel S-5 shows the result of this analysis.

It should be noted that this analysis tends to favor the direct access alternatives since they reflect accommodation of the number of trips under the maximum demand projections while the rail options reflect only the system capacity described in the report. However, as noted in the report, it would be possible to meet person trip demand by adding more passenger cars to the rail options even though auto access would still be limited and therefore user convenience would be lower. If maximum demand were met by the rail systems, direct cost per trip would be substantially lower than for the auto access options. Similarly, the rail options are lower in direct cost at any comparable demand level. This is particularly important since volumes lower than the maximum would undoubtedly prevail for at least a number of years.

Revenue estimates were also made for the rail systems to provide a comparison of potential net public costs since that could bear

TABLE S-4
COMPARISON MATRIX

	ALTERNATIVE							
	NULL	1	1-A	2	3	4	5	6
	No Change	Improved Auto/ Passenger Shuttle	Improved Portage Whittier Shuttle	Improved Rail Passenger Service	One-way Joint Use of Existing Tunnel	Widened Existing Tunnel, Two-way Joint Use	New Vehicle Tunnel	Portage Pass Highway
Use Existing Tunnel	X	X	X	X	X			
Enlarge Existing Tunnel						X		
New Highway Tunnel							X	
New Surface Highway								X
Bear Valley Road		X		X	X	X	X	X
Bear Valley Parking & Facilities		X		X	X			
Tourism/Recreation	None	Low	Low	Low to Medium	Medium	Medium to High	High	High
Employment opportunities	None	Low	Low	Medium	Low	Medium	High	High
Whittier Area Development	None	Low	Low	Medium	Low	Medium	High	High
Environmental Impact	None	Low	Very Low	Low	Low	Medium	Medium	High
Service Level/Capacity	Low	Medium	Medium	Medium	Medium	High	Very High	Very High
Summer Reliability	High	High	High	High	Medium	High	Very High	Very High
Winter Reliability	Medium	High	High	High	Low	High	High	Very Low
Summer Availability	Medium	High	High	High	Medium	High	High	High
Winter Availability	Very Low	Medium	Medium	Medium	Medium	High	High	Very Low
Convenience/Comfort	Very Low	Medium	Medium	Medium	Medium	High	Very High	Very High
Safety	High	High	High	High	Medium	Medium	High	Medium
Probability of Funding	N/A	Medium	Medium	Medium	Medium	Low	Low	Low
Construction/Implementation Time	N/A	Short	Very Short	Short	Medium	Long	Long	Long
Annual Maintenance & Operating Costs (thousands)	N/A	$559 Initial $1041 Exp.	$504 Initial $546 Exp.	$793 Init. $1500 Exp.	$390	$440	$440	$270
Construction/Capital Cost (millions)	N/A	$20.0 Init. $24.2 Exp.	$8.8	$21.9 Init $26.0 Exp.	$36.7	$64.3	$68.3	$47.8

TABLE S-5

ESTIMATED COST EFFECTIVENESS

Assumed Discount Rates		Alt. 1		Alt. 1-A		Alt. 2		Alt. 3		Alt. 4		Alt. 5		Alt. 6	
		10%	15%	10%	15%	10%	15%	10%	15%	10%	15%	10%	15%	10%	15%
Annual Cap. Cost	($1000)	2,055	3,030	909	1,203	2,273	3,326	3,706	5,509	6,496	9,862	6,894	10,254	4,875	7,197
Annual O/M Cost	($1000)	559	559	504	504	793	793	390	390	440	440	440	440	270	270
TOTAL	($1000)	2,614	3,589	1,413	1,707	3,066	4,119	4,096	5,899	6,936	10,302	7,334	10,794	5,145	7,467
Cap or Demand	(1000)	756	756	432	432	576	576	2,727	2,727	2,727	2,727	2,727	2,727	2,727	2,727
Cost Per Trip		$3.46	$4.75	$3.27	$3.95	$5.32	$7.15	$1.50	$2.16	$.54	$3.78	$2.69	$3.96	$1.89	$2.74
Revenue/Trip[1]		$3.96	$3.96	$3.96	$3.96	$3.96	$3.96								
Net Cost/Trip		$+0.50	$0.79	$+.69	$+.01	$1.36	$3.19	$1.50	$2.16	$2.54	$3.78	$2.69	$3.96	$1.89	$2.74

[1] Revenue per trip based on passenger only revenue as generated in 1979.

on financing feasibility. Revenue per person trip was estimated based on average per passenger (excluding vehicle revenue) during 1979. As shown in the table, when potential revenue is applied, the public cost would be completely covered for both Alternatives 1 and 1-A while being reduced significantly for Alternative No. 2. It would be possible to impose tolls in the direct access options as well and thereby reduce the public costs. However, that would eliminate one of the most significant benefits of those systems.

Summary of Funding Opportunities

The last step in evaluating the various options was to look at potential funding sources. While funding sources and mechanisms are obviously a policy issue, it was considered appropriate to look at possible existing sources, both Federal and State.

At the Federal level, the most likely sources were considered to be the Urban Mass Transit Administration (UMTA), Federal Highways (FHWA) and Federal Railway Administration (FRA). Of these, the UMTA funds were considered highly unlikely since most are applicable to communities over 50,000 population. That would mean funding would have to come through the Municipality of Anchorage where other transit programs are also under consideration. The UMTA Section 18 funds for rural area transit are relatively small and would be inadequate to cover this program.

FHWA funds are allocated to the State in a formula basis. Funds for the direct access options, particularly the new tunnel and Portage Pass Highway would undoubtedly come from the Federal-Aid Primary (FAP) monies. While the allocation of those funds is a policy issue, it did not appear proper to count on such funds for a project of this magnitude given the other highway programs with possible higher immediate demand levels.

At the state level, a current support program is operational on the Whittier shuttle as part of the Marine Highway System. In addition, HR 11737 permits the State to divert up to 5% of its annual FAP funding for capital improvement and operating

assistance on the rail service between Whittier and Portage. These funds could produce between $750,000 and $2.5 million annually depending on the allocation methods used. Again, whether these funds would be applicable to joint use options has not been determined.

FRA funds, Section 511, provide up to 100% financing for railroad rehabilitation and improvements primarily oriented to freight related programs. Given the condition of the existing tunnel and trackage, it would appear that participation in the rail alternatives (1, 1-A, or 2) could be a possibility since the improvements would also benefit freight operations. Whether such participation in the joint use options could be obtained is an institutional issue beyond the scope of this study.

In addition, there is the possibility that funding for this project could be obtained through the State Legislative process. This option is obviously a policy issue which would be addressed by the Legislature based on the merits of the specific project proposal and evaluated relative to other priorities statewide.

Based on the evaluation in this study, the most likely sources of funding have been concluded to be:

1. FHWA funding (FAP) through the 5% diversion.
2. FRA participation through loans or grants.
3. Special legislation.

VI. SUMMARY AND CONCLUSIONS

A. Summary

As in virtually every analysis of transportation alternatives, the findings and conclusions of this study represent some compromise and trade-offs between analysis factors. Such trade-offs and compromises are necessary since rarely is one alternative identified as being superior according to all criteria used in the comparison. Furthermore, the relative importance of the evaluation factors depends in some measure on the subjective judgment of the evaluator. This study has maintained an objective position while recognizing the current and potential future growth, development and resulting travel demand in the Whittier area.

Improved Whittier access has been an issue for several years and the subject of several prior studies. Basic findings from this study are not markedly different from those of the prior efforts, although conclusions may vary. Principal findings include the obvious fact that current access is inconvenient and often inadequate. In addition, vehicle access is relatively expensive compared to conventional highway travel.

The cost factor is particularly important to Whittier residents who require an automobile. The need for an auto by non-residents who enter Whittier is reduced because of the small size of the area and the convenient location of the rail terminal. Yet, for those persons wishing to use trailered boats on Prince William Sound, the cost becomes a significant factor and diminishes the desirability of the area. However, with increasing cost for gasoline, the rail shuttle may offer a least costly alternative when compared to other more distant locations which require additional fuel costs offsetting the shuttle fare.

For Whittier residents, one of the major inconveniences, relative to time and costs, is the fact that a person cannot leave and return the same day even during summer months. This situation is aggravated in the winter months because of the three-day per week service schedule. However, all of the alternatives eliminate or reduce this problem.

3. Conclusions

These considerations combined with the analysis conducted in this study lead to the following conclusions:

1. There is a definite need for improved access to Whittier.
2. Improved access can enhance the social and economic climate in Whittier by generating development which in turn will foster improvements to existing services and increase employment opportunities.
3. Expansion of the existing small boat harbor coupled with the relatively short distance to the major population center in Alaska will produce an immediate increase in travel demand. Other factors, such as increased recreation demand as the Anchorage population grows and expanding statewide tourism, will contribute to increased demand for access to Whittier and Prince William Sound in the future. The possibility also exists for increased demand associated with natural resource development and expanded port activity.
4. The existing Whittier - Valdez segment of the State Marine Highway System provides an attractive tourist resource, which possibly could be expanded in the future, and Whittier access is a vital link in that system.
5. Existing population levels in Whittier and the lack of visitor facilities combine to produce a relatively low demand at present.
6. The major highway access alternatives are very expensive and current demand levels do not warrant such costly investments.
7. The single lane joint-use tunnel Alternative No. 3 has many operational and inherent safety problems. In order to produce a reasonable degree of safety, ventilation,

and reliability, this alternative becomes nearly as expensive as the Portage Pass Highway.

8. Unresolved institutional issues, such as the ultimate acceptance of risk and liability by the State or the Alaska Railroad in a joint use operation, further contributes to the questionable feasibility of the joint use options, particularly in single-lane operations.

9. Any of the alternatives examined have adequate reserve capacity to accommodate significant growth in person trip demand. Furthermore, the rail based alternatives have exceptional flexibility to accept future increases by adding additional passenger coaches. The rail based alternatives are, however, somewhat limited in their ability to accommodate major growth in the number of automobiles transported.

10. Traffic congestion and parking problems in Whittier could become severe with the unlimited auto access alternatives and would produce significant increases in local costs for streets, parking facilities, police and security.

11. At maximum demand or capacity levels, the highway based alternatives show better cost effectiveness in terms of total annual capital and operating cost per trip. However, the revenues generated by fares in the rail based systems more than off-set the public sector costs for Alternatives 1 and 1-A. Furthermore, maximum demand levels identified will not occur immediately, and at demand levels under about 1.2 million person trips per year, the total cost per trip for Alternatives 1 and 1-A is less than any highway option even without considering revenue off-sets.

12. Only Alternative No. 1-A offers almost immediate access improvement. All others will require from three to five years to implement since engineering design, environmental studies, permit and review processes as well as construction are required. In addition, most costs associated with Alternative 1-A are applicable to Alternatives 1 and 2. Suggested improvements in the rail system under this alternative will benefit future rail operations even if one of the highway alternatives (except Number 3 and 4 which introduce auto/rail conflicts) is ultimately implemented.

13. Implementation of Alternative 1 or 1-A does not preclude access improvements in the future since all higher level alternatives require access to or through Bear Valley and the improvements to the existing rail tunnel will benefit all future rail operations.

C. Recommendation

Based on the analysis and evaluation conducted in this study, the potential funding options and the conclusions reached, this study recommends that Alternative 1-A be implemented as a first stage toward developing Alternative 1 when design and funding become available.

That action would provide some early improvement to relieve existing problems and would, with implementation of Alternative 1, provide adequate capacity for significant increase in demand in the future. A further significant advantage to this approach is that virtually all investment for capital improvement is fully applicable to a decision to implement one of the more expensive direct access alternatives in the event that future demand or other factors warrant such as major harbor expansion with attendant rail demand warrant a higher level facility or preclude use of the existing railroad tunnel.

Consideration should be given to utilizing some funds through the 5% diversion of the State allocation of FAP funds for capital cost and operating assistance. The level of operating subsidy to reduce user cost is a policy issue to be decided at the Legislative level.