SR 417 Extension
Planning Feasibility Study
June 2003

Introduction and History

The SR 417 Extension Study was a yearlong effort undertaken by Florida's Turnpike Enterprise to investigate the feasibility of a new toll road in Seminole and Volusia Counties. In early 2002, Volusia County, Seminole County, the Volusia County MPO, and METROPLAN Orlando all passed resolutions asking Florida's Turnpike Enterprise to study the feasibility of a new toll road.

Project Scope and Purpose

It was originally envisioned that a new toll road would begin at SR 417 (the Seminole Expressway), north of Lake Jessup in Sanford, and connect to either Interstate 4 or Interstate 95 in Volusia County. The road's purpose would be twofold: perform as a reliever to Interstate 4 through the 2030 planning horizon; and relieve SR 415 and other area roads currently strained by commuter traffic originating in Southwest Volusia County.

Study Objective

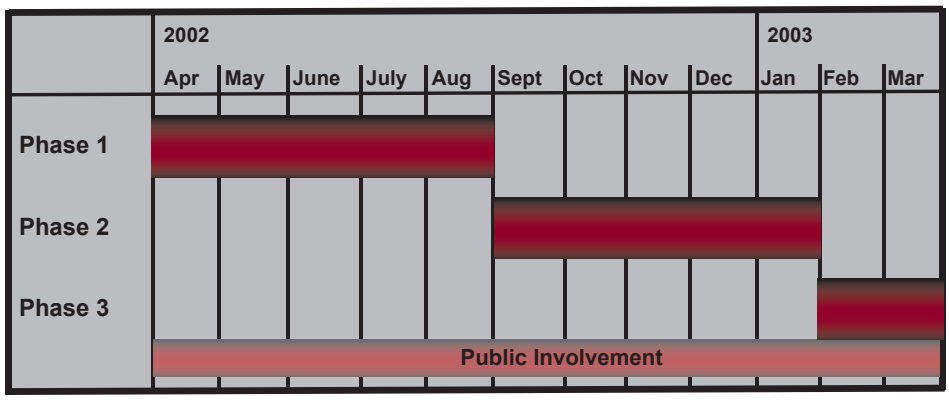
The Planning Office of Florida's Turnpike Enterprise always seeks to answer four standard planning analysis questions as part of any feasibility study. The SR 417 Extension Study looked to answer these four questions:

1. Is a toll road locally supported?
2. Does the road meet a transportation need?
3. Can the road be built in an environmentally sound way?
4. Is the road financially feasible as a toll facility?

Study Phases

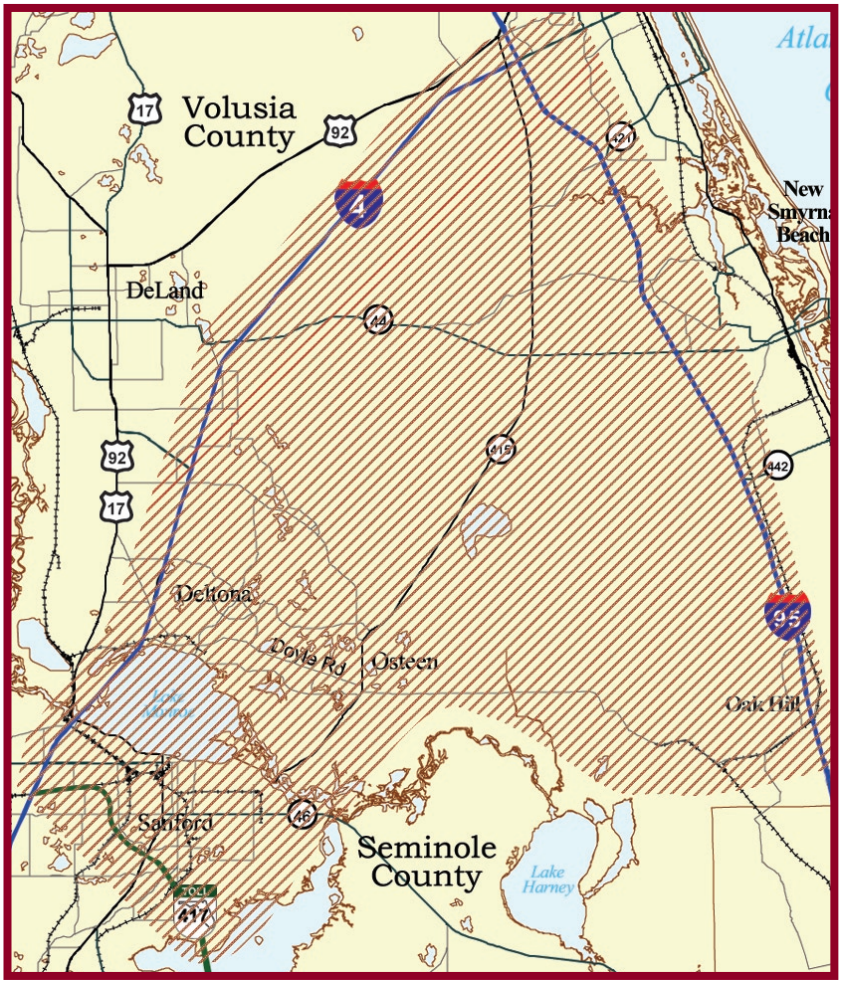
In order to answer the four standard planning questions a three phase planning analysis was conducted. Those three phases were:

- Phase 1: Intergovernmental Coordination and Public Involvement;
- Phase 2: Technical Evaluation of Analysis Corridors; and,
- Phase 3: Presentation of Findings.



Study Area

A study area was defined to encompass a range of potential project options. Generally, the study area began at SR 417 in the south and flared out to cover Interstate 95 and Interstate 4, respectively. The study area's northern boundary generally terminated at the intersection of Interstate 4 and Interstate 95. The adjacent map shows the original study area.



Phase 1: Intergovernmental Coordination and Public Involvement

Intergovernmental coordination and public involvement were essential to learn the local issues within the study area and determine if local support existed for the project. Over fifty working meetings were held with technical professionals, elected officials, landowners, and special interest groups. Additionally, three public involvement meetings were held with a total attendance of over 200 people.

During the phase 1 efforts, the Enterprise learned that conservation was an important issue for the local community. The Enterprise was asked that any road constructed be sensitive to the environmental conditions of the area. There was also a general recognition that transportation problems exist within the area and development pressures were on the rise.

The Enterprise learned that there was no local support for constructing a roadway west of SR 415. Additionally, it was discovered that a road corridor could not be constructed significantly north of SR 44 due to ongoing development and physical constraints in New Smyrna Beach and Port Orange. Likewise it was discovered that the significant environmental features and water recharge areas south of SR 442 would restrict the construction of a corridor. The findings of phase 1 had the effect of refining the study area and laying out general conditions for the design of any potential roadway.

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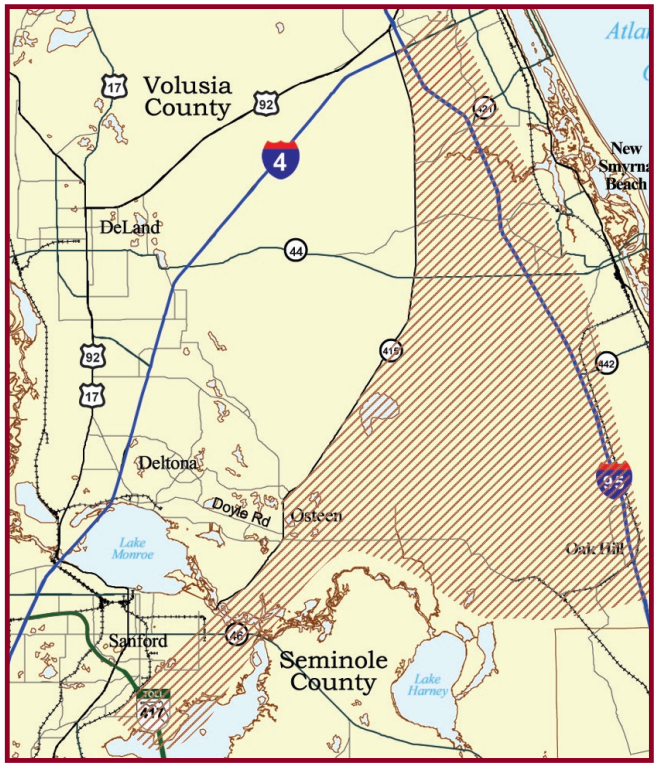
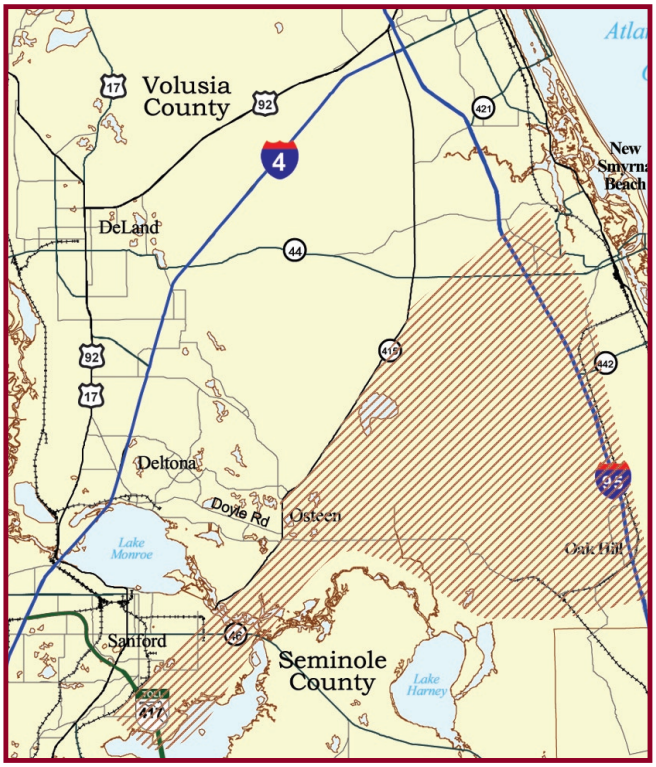
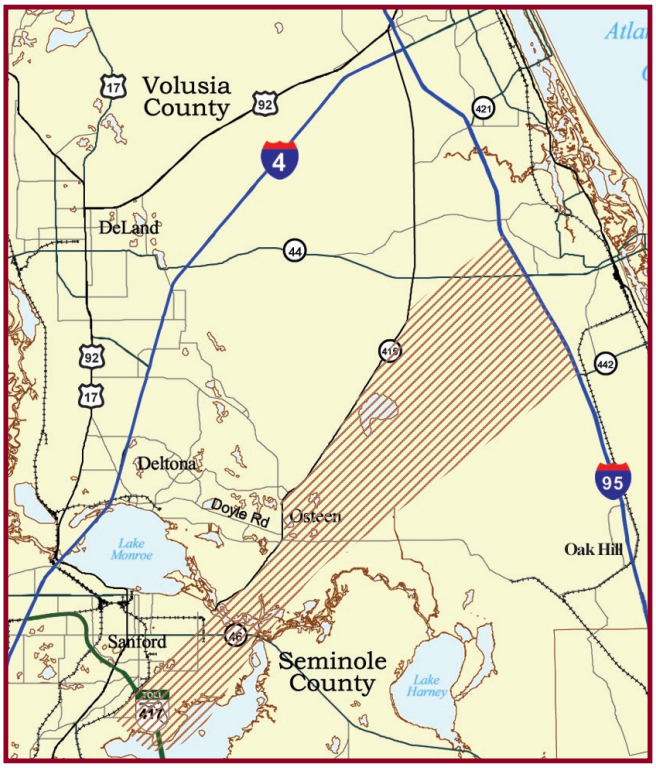
The study area maps below visually document how the original study area was revised based on feedback from local officials and the local community. The lower most study area map represents the final study area used during phase 2, the technical analysis phase.



No local support to go west of SR 415



Physical constraints existed north of SR 44



Severe environmental concerns south of SR 442

Phase 2: Technical Evaluation of Analysis Corridors

Phase 2 focused on the technical evaluation of potential project corridors. Five areas of technical analysis were investigated:

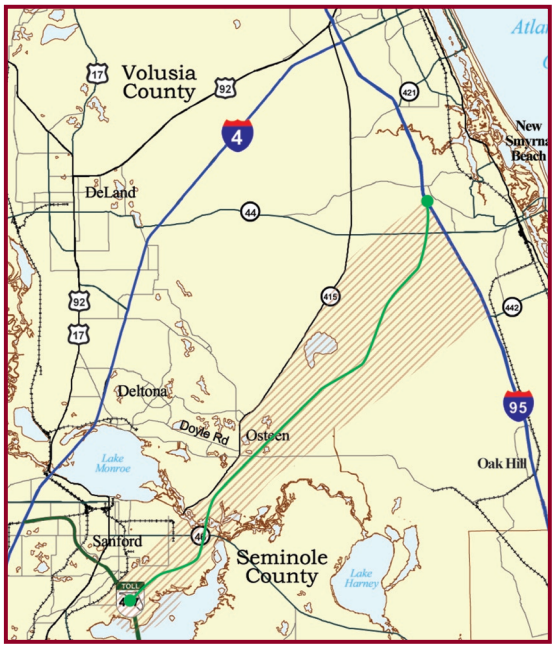
- Environmental impacts;
- Transportation demand;
- Right-of-Way impacts;
- Project costs; and,
- Toll revenue projections.

Environmental Impacts

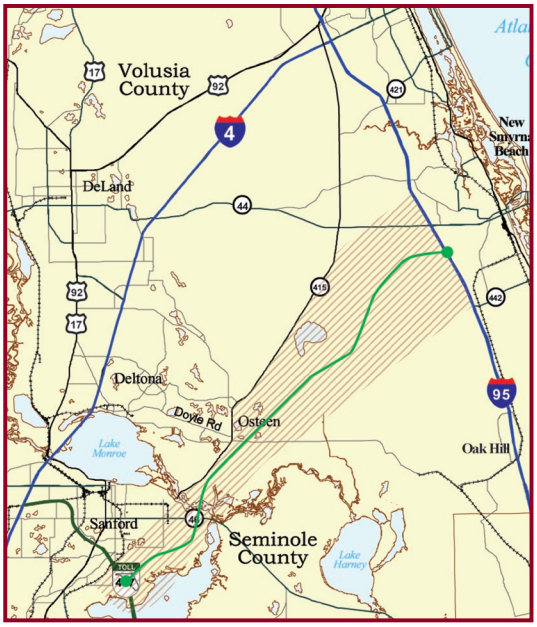
The results of Phase 1 clearly indicated that the environmental considerations and impacts of a potential roadway were most important to elected officials and the general public. With that in mind, the Enterprise sought to find analysis corridors that minimized environmental impacts to the greatest extent possible.

A Geographic Information System (GIS) was used to evaluate the environmental features within the study area. Environmental data layers such as wetlands, endangered and threatened species habitat, archaeological features, contamination, et cetera were used for the evaluation. The data were then weighted based on environmental sensitivity and three potential roadway corridors were drawn by the GIS to minimize environmental impacts.

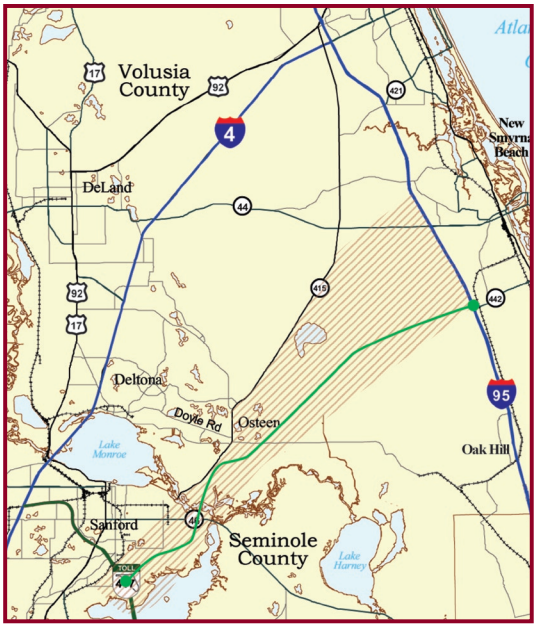
The three analysis corridors represented were produced using the GIS. A fixed point on SR 417, representing the area where it was physically feasible to tie into the existing SR 417, was designated as the project start point.



Analysis Corridor 1



Analysis Corridor 2



Analysis Corridor 3

Three points were then picked on Interstate 95, representing the northern, southern, and mid-point of the study area. These three points were designated as the project end points. The GIS then drew the environmentally least damaging corridors between the project start point and three project end points.

The adjacent table indicates the level of environmental impact for each of the three analysis corridors. Now, with three corridors for analysis, the other questions regarding transportation need, right-of-way impacts and financial feasibility could be answered.

Environmental Impacts

	Analysis Corridor		
Acres of Impact*	1	2	3
Conservation Lands	252	252	252
Wetlands	683	615	620
Acres of Likely Habitat*			
American Alligator	641	567	606
Florida Black Bear	668	559	592
Florida Sandhill Crane	87	76	87
Gopher Frog	25	7	25
Light Blue Heron	101	53	61
Limpkin	13	13	13
Snowy Egret	101	53	61
Southern Bald Eagle	120	175	120
Tri-Colored Heron	101	53	61
Number of Sites**			
Contamination Sites	0	0	0
Archaeological/Historical Sites	0	0	0
Bald Eagle Nesting Sites**	4	5	4

*Areas calculated using GIS data, actual acreage may vary.

** Within 750 feet of analysis corridor

Transportation Demand

Transportation demand analysis was performed using the Central Florida Regional Planning Model 2. This model is a product of the Florida Department of Transportation – District 5. Various model scenarios were run in order to determine the transportation need that may be met by the potential toll road. The model scenarios reflected the three unique analysis corridors with various tolling conditions and local road network conditions.

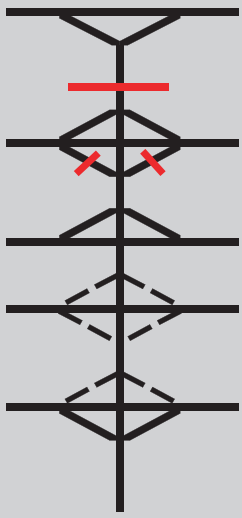
In total, 12 various modeling scenarios were run. Four model scenarios were run for each corridor varying the tolling conditions and condition of SR 415. Model scenarios were also run for each corridor with SR 415 as two lanes and four lanes and with the tolling condition of all customers versus SunPass only customers.

Modeled system traffic varied between 9,000 and 13,000 vehicles per day, in an open to traffic year of 2010. Surprisingly, model traffic did not vary greatly by analysis corridor. Model traffic varied by the local road network conditions and by the tolling method employed on the potential toll road. In 2030, the vehicles per day range between 16,000 and 23,000. The graphic below represents the range of system traffic for the years 2010 and 2030.

Transportation Demand Model Forecast

(Annual Average Daily Traffic)

Interchanges		2010		2030	
		Low	High	Low	High
Interstate 95					
	$1.50	8,900	11,600	16,000	22,800
Maytown Road		100	400	400	800
	$0.75	300	3,900	1,500	3,800
SR 46		1,000	4,000	2,600	7,000
*Lake Mary Blvd**					
*SR 417 - North**					
SR 417 - South		8,100	10,700	14,500	18,800



*Possible interchange locations in *italics*.

Right-of-Way Impacts

The severity of right-of-way impacts and condemnation differ based on the type of property that is to be acquired for a roadway. Three distinct categories of right-of-way exist; business, residential, and unimproved parcels of property.

Transportation agencies typically favor impacting unimproved parcels and attempt to limit the number of homes and businesses to be acquired as part of a project. The initial analysis corridors were determined based on their environmental sensitivity and were slightly adjusted to minimize severe right-of-way impacts. However, because environmental sensitivity was paramount and the direction given to the Enterprise by local officials, the impact to businesses and residences did not drive the formation of the analysis corridors.

In total, between 226 and 266 parcels would have to be acquired for the potential project. Those figures include one business and between 74 and 84 residential parcels. The remaining parcels are currently unimproved. The table below illustrates right-of-way impacts and costs by analysis corridor.

Right-of-Way Impacts

Analysis Corridor	Number of Parcels				ROW Cost (millions)
	Business	Residential	Unimproved	TOTAL	
1	1	83	146	230	$94
2	1	84	141	226	$94
3	1	74	191	266	$85

Project Costs

Project costs are calculated for each phase and type of work required for the construction of a toll road. Those costs are calculated for present day values and then inflated to future year values for each phase of work. Project costs are presented in three sub-categories; right-of-way costs, environmental mitigation costs, and construction costs. Within the category of construction costs are all of the "soft-costs" associated with a roadway project. These soft costs include the project development and environment study, roadway design, and construction engineering and inspection.

Right-of-Way costs vary between $85 and $94 million depending on the analysis corridor. Environmental mitigation is estimated to cost approximately $91million, and construction costs range between $648 million and $702 million. The table below shows the total project costs for each analysis corridor.

Project Costs (Millions)

Analysis Corridor	Right-of-Way	Environmental Mitigation	Construction Cost	Total Cost
1	$94	$91	$702	$887
2	$94	$91	$666	$851
3	$85	$91	$648	$824

Toll Revenue Projections

The calculation of gross toll revenue is based on the traffic forecasts and the toll rates for the proposed SR 417 extension. The calculation includes a vehicle mix adjustment to recognize the influence of trucks on toll revenue and a discount adjustment for the current SunPass discount program. This discount program offers a 10 percent discount to all customers, regardless of vehicle type, who pay tolls forty or more times per month with SunPass.

The calculation of net toll revenue is based on gross toll revenue less operating and maintenance costs. Net toll revenue can then be converted into a thirty-year net present value (NPV). The thirty-year NPV of a project represents a project's bonding capacity. For financial planning purposes, it is assumed that a SR 417 extension would open to traffic in FY 2010. As with the traffic forecasts, revenue forecasts varied based on the condition of SR 415 and the tolling option employed on the SR 417 extension. Therefore, four revenue forecasts exist for the potential SR 417 extension. The bonding capacity of those forecasts range between $110 and $198 million. The table below displays the revenue forecasts and bonding capacity range for a potential SR 417 extension.

Toll Revenue Projections
(Thousands)

		Annual Average Revenue*				30 -Year NPV
Toll Option	SR 415	Gross Toll Revenue	Operating Costs	Maintenance Costs	Net Toll Revenue	TOTAL Bonding Capacity
All Customers	4 Lanes	$14,846	$2,150	$2,137	$10,559	$110,434
SunPass Only	4 Lanes	$14,457	$924	$2,137	$11,396	$116,680
SunPass Only	2 Lanes	$22,207	$1,314	$2,137	$18,756	$196,380
All Customers	2 Lanes	$22,834	$2,378	$2,137	$18,319	$197,509

* Annual average revenues calculated from 30 year revenue projection.
Source: Florida's Turnpike Enterprise Finance Department.

Phase 3: Presentation of Findings

Phase 3 involved presenting the answers to the four planning questions to the project sponsors, Volusia and Seminole Counties.

Is a toll road locally supported?

With the absence of statistical polling it is not possible to exactly quantify the amount of local support a project has. The elected officials of Seminole and Volusia Counties that were briefed on the project were generally in support with some exceptions. During the three public meetings that were held, citizens displayed both support and opposition for the project. At this point, local support can be defined as mixed, but the issue of local support was not seen as a fatal flaw to the project. Clearly, if a potential project were to move forward into a Project Development & Environment Study, significant public involvement would continue.

Can the road be built in an environmentally sound way?

Yes, the roadway can be built in an environmentally sound manner. Environmental sensitivity is largely a function of roadway design and cost. As previously mentioned, from the start of the project the Enterprise sought to minimize environmental impacts and the three analysis corridors were shaped by the environmental characteristics of the land they impacted. Furthermore, the roadway was engineered to go around and over environmentally sensitive areas, including four to six miles of bridge in order to minimize wetland impacts and allow for wildlife crossings.

Does the road meet a transportation need?

Yes, traffic modeling indicates that a new toll facility within the study area would serve a transportation need. Between 9,000 to 12,000 vehicles would use the facility daily in 2010, with those figures almost doubling by 2030. The majority of traffic is diverting from Interstate 4 with some benefit to the local road network, specifically SR 415. However, traffic modeling indicates a section of SR 415 will need to be widened with or without the construction of a toll facility.

Is the road financially feasible as a toll facility?

No, the bonding capacity of the toll road ranges from $110 to $198 million with total costs ranging from $820 to $890 million. A revenue shortfall of $620 to $780 million exists on the project. For the project to advance, funding partners would be necessary to cover the project revenue shortfall.

Conclusion

Over the last year, Florida's Turnpike Enterprise has engaged in a planning feasibility study investigating the possibility of constructing an extension of SR 417. The planning analysis reviewed transportation demand, environmental impacts, local support, and financial feasibility.

More than fifty working meetings were held with technical professionals and the public was actively engaged at three separate workshops. The result was the Enterprise found an environmentally sound route with good local support that would ease traffic congestion on Interstate 4 and SR 415.

However, estimated revenues fall significantly short of project costs and due to State Statute, the Enterprise cannot advance the project concept without funding partners.