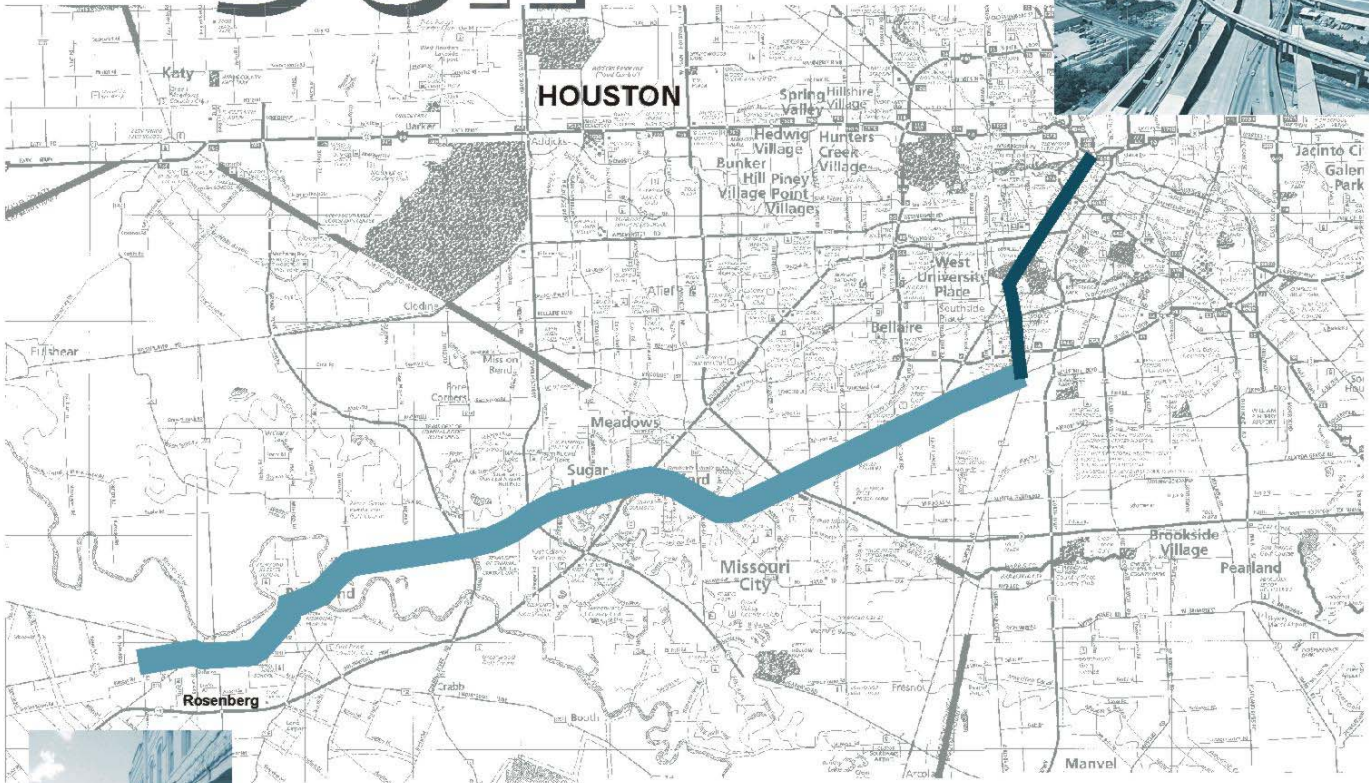


US 90A Corridor



Rail Feasibility Study



**Edwards
AND Kelcey**



SUMMARY OF STUDY FINDINGS, APRIL 2004

The US90A Rail Study examined the feasibility of a variety of different types of passenger rail services in an existing rail corridor currently used exclusively for freight rail transportation. This corridor is being examined for possible passenger rail service in response to growing interest for options to automobile travel on the increasingly congested roadways between Houston and Fort Bend County, particularly on major thoroughfares such as US90A and US59/Southwest Freeway.

Using technical analyses prepared, a variety of alternatives were evaluated against one another and the trade-offs between them identified. The strengths and weaknesses of the various alternatives were identified in terms of the technical factors evaluated, which included:



- Travel time
- Ridership
- Costs
- Community Issues
- Institutional Issues

SUMMARY OF ALTERNATIVE FEATURES

The following features are common to all rail alternatives under study in the US90A Rail study:

- The right-of-way used is the existing Union Pacific (UP) Glidden Line, from Milepost 9.5 to Milepost 36.5.
- Existing UP mainline through track would remain as currently configured.
- All alternatives would involve construction of an additional track within the existing UP right-of-way from approximately Fannin Road in Houston, to just before the State Highway 36 Bypass in Rosenberg.
- A passenger rail tail track would be provided at the terminus at the METRO Station at Fannin Street.
- New bridge would be constructed to carry passenger rail tracks over the West Junction freight tracks.
- Transit Centers were assumed at the following locations:
 - Rosenberg Transit Center (MP 35.85.)
 - Richmond Transit center Transit Center (MP 32.6.)
 - Sugar Land Airport Transit Center (MP 25.9.)
 - Sugar Land/Stafford Transit Center (MP 22.1.)
 - Stafford Transit Center (MP 20.0.)
 - Missouri City Transit Center (17.4.)
 - Westbury (Houston) Transit Center (14.90.)
 - METRORail (Houston) Transit Center (MP 9.5.) (transfer to the METRORail light rail)
- A yard for vehicle maintenance and storage assumed in Rosenberg, past Tower 17 before the Route 36 Bypass (MP 36.5.)



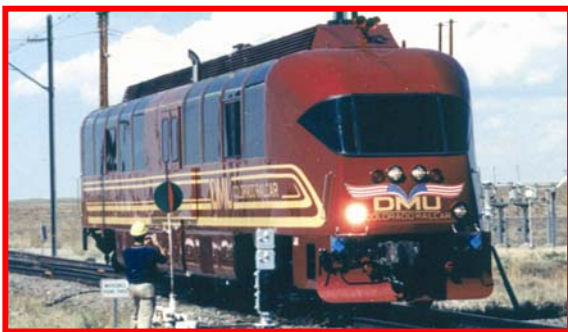
In addition to these common features, each of the alternatives has a variety of unique features creating differing strengths and weaknesses between them, presented below.

Alternative 1: Commuter Rail – Exclusive Operation

- Assumes commuter rail technology is used (diesel-locomotive hauled coaches, push-pull train sets)
- The newly constructed single track with passing sidings would be for the exclusive use of the new passenger rail service. The commuter rail tracks would be located on the north side of the right-of-way. Three passing sidings for passenger rail service operations would be necessary.
- The existing UP tracks would be used exclusively by UP as per current operations. These freight tracks would be located on the south side of the right-of-way.
- A new single-track bridge over the Brazos River required for passenger track.
- Train consist would include a diesel locomotive and five coaches.
- Service requires four operating train sets plus one spare set.
- Headways are 30 minutes in the peak period, 60 minutes off peak.
- Sample trip times from Rosenberg to METRORail Fannin range from 38 to 43 minutes.



Alternative 2: Diesel Multiple Unit – Exclusive Operation



- Assumes diesel multiple units (DMUs) are used (Colorado Rail Car bi-level powered cab cars.)
- The newly constructed single track with passing sidings would be for the exclusive use of the new passenger rail service. The commuter rail tracks would be located on the north side of the right-of-way. Three passing sidings for passenger rail service operations would be necessary.
- The existing UP tracks would be used exclusively by UP as per current operations. These freight tracks would be located on the south side of the right-of-way.
- A new single-track bridge over the Brazos River required for passenger track.
- Train consist is 3 bi-level powered DMU cab cars.
- Service requires four operating train sets plus one spare set.
- Headways are 30 minutes in the peak period, 60 minutes off peak.
- Sample trip times from Rosenberg to METRORail Fannin range from 36 to 39 minutes.



Alternative 3: Light Rail Transit – Exclusive Operation

- Assumes light rail transit vehicles (LRTs) are used (METRORail vehicle, manufactured by Siemens Transportation.)
- The newly constructed single track with passing sidings would be for the exclusive use of the new passenger rail service. The commuter rail tracks would be located on the north side of the right-of-way. Six passing sidings for passenger rail service operations would be necessary.
- The existing UP tracks would be used exclusively by UP as per current operations. These freight tracks would be located on the south side of the right-of-way.
- A new single-track bridge over the Brazos River required for passenger track.
- Light rail train consist is 3 cars.
- Service requires seven operating train sets plus one spare set.
- Headways are 15 minutes in the peak period, 30 minutes off peak.
- Sample trip times from Rosenberg to METRORail Fannin range from 38 to 43 minutes.



Alternative 4: Commuter Rail - Shared Operation

- Assumes commuter rail technology is used (diesel-locomotive hauled coaches, push-pull train sets)
- There would be three tracks along the entire length of the study corridor. The existing UP track would remain, in the center of the right-of-way. This track would continue to be used under this alternative primarily for freight operations. Two new tracks would be constructed for the length of the right-of-way, one on the north side and one on the south side of the right-of-way. These tracks would be for both passenger and freight use.
- A new two-track bridge over the Brazos River required for shared passenger and freight operation.
- Train consist would include a diesel locomotive and five coaches.
- Service requires four operating train sets plus one spare set.
- Headways are 30 minutes in the peak period, 60 minutes off peak.
- Sample trip time from Rosenberg to METRORail Fannin is 39 minutes.

Alternative 5: Diesel Multiple Unit - Shared Operation

- Assumes diesel multiple units (DMUs) are used (Colorado Rail Car bi-level powered cab cars.)
- There would be three tracks along the entire length of the study corridor. The existing UP track would remain, in the center of the right-of-way. This track would continue to be used under this alternative primarily for freight operations. Two new tracks would be constructed for the length of the right-of-way, one on the north side and one on the south side of the right-of-way. These tracks would be for both passenger and freight use.
- A new two-track bridge over the Brazos River required for shared passenger and freight operation.
- Train consist is 3 bi-level powered DMU cab cars.
- Service requires four operating train sets plus one spare set.
- Headways are 30 minutes in the peak period, 60 minutes off peak.
- Sample trip time from Rosenberg to METRORail Fannin is 37 minutes.



COMPARISON OF ALTERNATIVES

The following table permits comparison of the operations, ridership and financial data between the various study alternatives.

Comparison of Alternative Characteristics

	Alternative 1: Commuter Rail – Exclusive Operation	Alternative 2: Diesel Multiple Unit – Exclusive Operation	Alternative 3: Light Rail Transit – Exclusive Operation	Alternative 4: Commuter Rail – Shared Operation	Alternative 5: Diesel Multiple Unit - Shared Operation
Operations					
Headways (peak/off peak)	30/60	30/60	15/30	30/60	30/60
Travel Time *	38 – 43	36 – 39	38 – 43	39	37
Equipment Needs	5 Locomotives 5 Cab Cars 20 Coaches	15 DMUs (double deck with cab)	21 LRTs	5 Locomotives 5 Cab Cars 20 Coaches	15 DMUs (double deck with cab)
Maximum Passengers in Peak Hour (seated)	1,200	1,110	864	1,200	1,110
Ridership					
Daily Riders	6,066 riders (or 12,132 daily trips)	6,066 riders (or 12,132 daily trips)	10,899 (or 21,798 daily trips)	6,066 riders (or 12,132 daily trips)	6,066 riders (or 12,132 daily trips)
Financial					
Capital Costs	\$383 million	\$353 million	\$756 million	\$492 million	\$462 million
O&M Costs (annual)	\$12.2 million	\$8.4 million	\$14.0 million	\$13.5 million	\$9.8 million

* Rosenberg to METRORail/ Fannin

EVALUATION

Using the technical work tasks performed for the US90A Commuter Rail Feasibility Study and the Comparison of Alternatives in the pervious section, the table below presents a qualitative analysis of the alternatives against the study objectives.

Comparison Of Alternatives Against Study Objectives

	Alternative 1: Commuter Rail – Exclusive Operation	Alternative 2: Diesel Multiple Unit – Exclusive Operation	Alternative 3: Light Rail Transit – Exclusive Operation	Alternative 4: Commuter Rail - Shared Operation	Alternative 5: Diesel Multiple Unit - Shared Operation
Maximizes Ridership	■	■	■	■	■
Minimizes Capital Costs	■	■	□	■	■
Minimizes O&M Costs	■	■	■	■	■
Improves infrastructure for freight, increasing flexibility and safety.	■	■	■	■	■
Efficiently moves volumes of riders	■	■	■	■	■
Minimizes institutional barriers to implementation	■	■	□	■	■
Integrates with METRO services (bus and rail)	■	■	■	■	■
Provides mobility, economic and environmental benefits to communities	■	■	■	■	■

■ = Meets/Exceeds Criteria; ■ = Neutral for Criteria; □ = Does Not Meet Criteria



SUMMARY OF FINDINGS

The US90A Corridor Rail Feasibility Study has demonstrated that a potential rail service in this corridor is feasible. Among the alternatives analyzed, each has strengths and weaknesses, described below.

Alternative 1: Commuter Rail – Exclusive Operation

Strengths

- Capital costs minimized due to fewer infrastructure needs.
- Will provide mobility, economic and environmental benefits to communities.
- This mode can be operated with freight service.
- Efficiently moves high volumes of passengers.



Weaknesses

- New mode for region, will require all new facilities (storage, maintenance).
- Operating entity for mode not established.



Alternative 2: Diesel Multiple Unit – Exclusive Operation

Strengths

- Capital costs minimized due to fewer infrastructure needs.
- Will provide mobility, economic and environmental benefits to communities.
- This mode can be operated with freight service.
- Efficiently moves high volumes of passengers.

Weaknesses

- FRA-compliant DMU technology is not currently in operation or production, therefore there could be a degree of risk associated with it.
- New mode for region, will require all new facilities (storage, maintenance).
- Operating entity for mode not established.

Alternative 3: Light Rail Transit – Exclusive Operation

Strengths

- High potential ridership due to frequency.
- Will provide mobility, economic and environmental benefits to communities.
- Potential for integration with METRORail service.

Weaknesses

- Institutional barriers to implementation because of the required separation from freight operations.
- High capital costs due to unique infrastructure needs.
- Lower volumes of passengers moved per train, relative to other modes.
- High operating cost due to frequency.



US 90A Corridor Rail Feasibility Study

During the later stages of the study analysis, interest increased in the opportunity to modify Alternative 3: Light Rail – Exclusive Operation. The proposed modification would create a new suboption – Alternative 3a: Light Rail – Exclusive Operation, Through-Service. This option would permit US90A light rail trains to operate directly through onto the METRORail system, via a new rail connection between the US90A corridor and the light rail line. The need for a transfer would be removed under this option. More detailed analysis is required to examine the benefits, impacts and costs of such an option. Integration with METRO’s light rail service is a significant consideration under this option. Their operating plans would need to be examined in detail in relation to US90A trains to understand the feasibility of such an extension. The scheduling of trains over their system and the recycling of equipment is a complicated matter that must not be compromised by proposed new service extensions. Should light rail in the US90A corridor be further advanced, more work on operating plans, operating cost and capital costs will be necessary to understand the feasibility of this suboption.



Alternative 4: Commuter Rail - Shared Operation

Strengths

- Improves infrastructure for freight by providing an additional track, as well as an improved signals and communication system, increasing benefits to freight operators in terms of flexibility and safety.
- Will provide mobility, economic and environmental benefits to communities.
- This mode can be operated with freight service.
- Efficiently moves high volumes of passengers.

Weaknesses

- New mode for region, will require all new facilities (storage, maintenance).
- Operating entity for mode not established.

Alternative 5: Diesel Multiple Unit - Shared Operation

Strengths

- Improves infrastructure for freight by providing an additional track, as well as an improved signals and communication system, increasing benefits to freight operators in terms of flexibility and safety.
- Will provide mobility, economic and environmental benefits to communities.
- This mode can be operated with freight service.
- Efficiently moves high volumes of passengers.

Weaknesses

- FRA-compliant DMU technology is not currently in operation or production, therefore there could be a degree of risk associated with it.
- New mode for region, will require all new facilities (storage, maintenance).
- Operating entity for mode not established.



RECOMMENDATIONS

Based upon this conceptual analysis, preliminary discussions have been conducted with the Union Pacific Railroad, the owner and operator of freight rail service in the corridor, The UP has indicated that the most favorable service options in the US90A Corridor are the exclusive operating scenarios. The UP has indicated they feel that these scenarios have less potential for impact on their current and future freight operations in the corridor.



The Steering Committee for the US90A Corridor Commuter Rail Feasibility has also made the following statement:

The Steering Committee for the US90A Corridor Commuter Rail Feasibility Study accept the findings of the draft report and request that the planning consultant finalize the report by completing the adjustments and revisions submitted by committee members.



The Steering Committee concurs in providing an opportunity for public review and comment on the completed Feasibility Study.

The Steering Committee requests Transportation Policy Committee support for a full investigation defining the need, purpose and scope for a locally preferred investment, including the possibility of taking no action. This study of transit alternatives in the US90A Corridor should be conducted in cooperation with the Texas Department of

Transportation, the Metropolitan Transit Authority, the Houston-Galveston Area Council, Harris and Fort Bend Counties, the City of Houston, Meadows Place, Missouri City, Richmond, Rosenberg, Stafford and Sugar Land. For each of the alternatives identified, the study will detail operating and capital investment, transportation and mobility benefits as well as the compatibility with regional and local plans. The factors examined include alternative transit technologies, alignments, station or park and ride locations, supporting local and express transit service and yard or maintenance facility locations. This study effort, commonly referred to as an Alternatives Analysis, would build upon the feasibility study and examine at a more detailed level the community wide impacts related to mobility, safety, noise, and expanded freight capacity.

Assuming the "no action" alternative is not the locally preferred investment strategy, the study will identify financial and institutional strategies for implementing the preferred alternative.

The Steering Committee encourages each of the participating local governments and state and local transportation agencies to consider continued financial support for this "Alternatives Analysis".