



State Highway 35 Major Corridor Feasibility Study Executive Summary



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May 31, 2007

EXECUTIVE SUMMARY

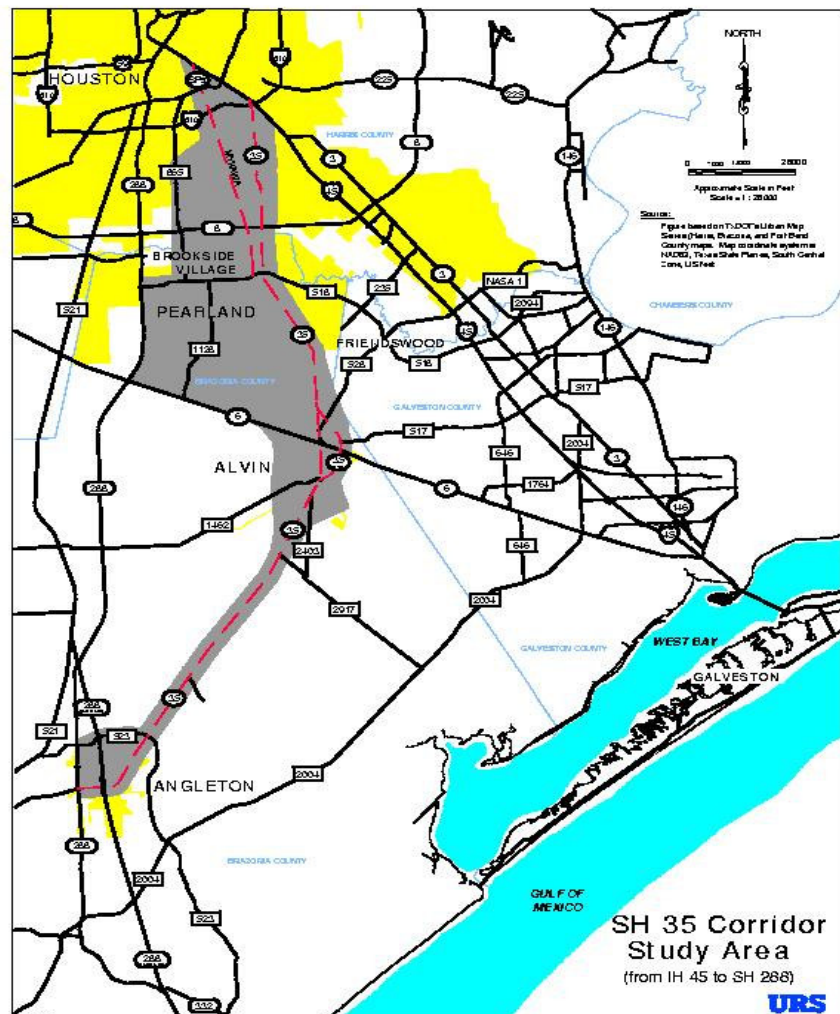
Study Background

The SH 35 Major Corridor Feasibility Study (MCFS) was conducted to define the scope and characteristics of the transportation infrastructure investment to be made in the corridor over the next 20 years. It is a multi-modal study characterized by consideration and analysis of new lanes, tolling strategies, transit support, non-motorized transportation, and upgrades to the existing facility. Essential to the success of the study is an accurate portrayal of the transportation needs for the corridor and development of an investment strategy that most closely addresses those needs. Study goals and objectives will guide and target this analysis. Technical Memorandum I, dated March 22, 2004, identifies factors which demonstrate the effectiveness of planned improvements to SH 35.

Study Area Description

The SH 35 corridor study area starts at IH 45 in downtown Houston, and includes both the Spur 5/Mykawa Road and the SH 35/Telephone Road sections. Extending southeast to BW 8 and then westward to SH 288 in its central section, the remainder of the study area is more closely aligned with the existing SH 35 corridor. From IH 45, the study area runs southward approximately 47 miles and terminates at the intersection of SH 35 and SH 288 in Angleton.

Figure ES.1 – Study Area



The study area is intersected by two major east/west highways: IH 610 and BW 8. No north/south controlled access roads serve this corridor; however, Mykawa Road is identified for widening by the Cities of Houston and Pearland and SH 35 in Brazoria County is identified for future widening by TxDOT.

The SH 35 study area includes dense urban neighborhoods, large institutions, a major airport, significant industrial areas, downtown areas, housing developments, farmland, rural landscapes, oil and gas fields, and historic and natural resources. The SH 35 entire MCFS study area is shown in Figure ES.1.

Study Process

The critical first step in the corridor planning process, determining the Need and Purpose for the project, was essential in establishing a basis for identification of the project goals and objectives. This step required a rigorous data gathering effort and analytical tasks, followed by a technical discussion of the characteristics, i.e., constraints and opportunities that affect the purpose and need. In turn, the SH 35 MCFS project goals and objectives helped to set the course for selection of the transportation improvements along the corridor. The evaluation criteria, which represent the goals and objectives, and the qualitative/quantitative measures upon which each will be measured, were then established. A test was then performed to evaluate each proposed improvement alternative and to compare the effectiveness of each. Input from the SH 35 MCFS Steering and Advisory Committees was solicited during this developmental phase of the project. Public outreach was introduced into the process through a series of public meetings which concluded in March of 2007.

Corridor capacity, system linkages, transportation demand, roadway deficiencies, modal interrelationships, demographic profiles, and community and environmental factors are fundamental to the SH 35 corridor study effort. Major travel markets and patterns emerged from an initial review of the existing and projected travel patterns for a 2025-



Public Meeting Held in the City of Alvin

planning horizon. Identification of community, social, and natural environment elements set the stage for understanding constraints on future transportation improvements. A preliminary review of several modes of transportation was undertaken to identify travel patterns, traffic operations, transit services, motorized and non-motorized transportation, truck freight, and

freight rail operations in the SH 35 study area. This data was refined during the study to evaluate congestion, air quality, traffic operations, safety, and environmental issues for the many of the proposed alternatives, including the No-Build alternative.

A review of operating characteristics and facility infrastructure, combined with study area travel and demographic growth projections for the year 2025, demonstrated the need for improvements to the current system. Input from the SH 35 MCFS Steering and Advisory Committees provided insight into local issues and priorities for transportation system expansion within the SH 35 corridor which were taken into consideration during the final evaluation. Additionally, public input contributed to the identification of the MCFS goals and objectives.

Need and Purpose

The stated purpose for the SH 35 MCFS, as developed and approved by the TxDOT Houston District is: **“To consider and evaluate all reasonable alternative modes of transportation and all routes along the SH 35 corridor from IH 45 in downtown Houston to SH 288 in Angleton”**.

The need for enhanced north/south movement will become more evident as development in Pearland, Alvin, and Angleton increases over the next 25 years. Congestion will build during this time frame, which in turn will increase local and regional air quality problems.

East/west connectivity will also be of more concern to residents and travelers seeking viable routes through the study area, for example traveling from SH 288 to IH 45. Recognition that emergency management services (EMS) need to be able to respond quickly to calls also underlies the need for transportation improvements.

The Need and Purpose of this study is classified in the following six categories:

1. North/South Mobility
2. Multi-Modal Transportation Options
3. Facility Infrastructure
4. Community/Social Environment and Economic Viability
5. Natural Environment
6. Safety

Goals

The Goals and Objectives for the SH 35 MCFS were derived from evaluation of the Need and Purpose criteria, and through input from the Steering and Advisory Committees, organizations, and the general public. These Goals and Objectives defined the direction for the study and helped target the analysis. The Goals and Objectives shown below were used to establish criteria for the evaluation of alternatives and the development of recommendations for transportation improvements within the corridor.

1. Improve North/South Mobility Along the Corridor
2. Provide a Multi-Modal Transportation System
3. Improve Transportation Infrastructure
4. Preserve and Enhance Social/Community and Economic Viability
5. Protect the Natural Environment
6. Improve Safety for the Traveling Public

Development of the Universe of Alternatives

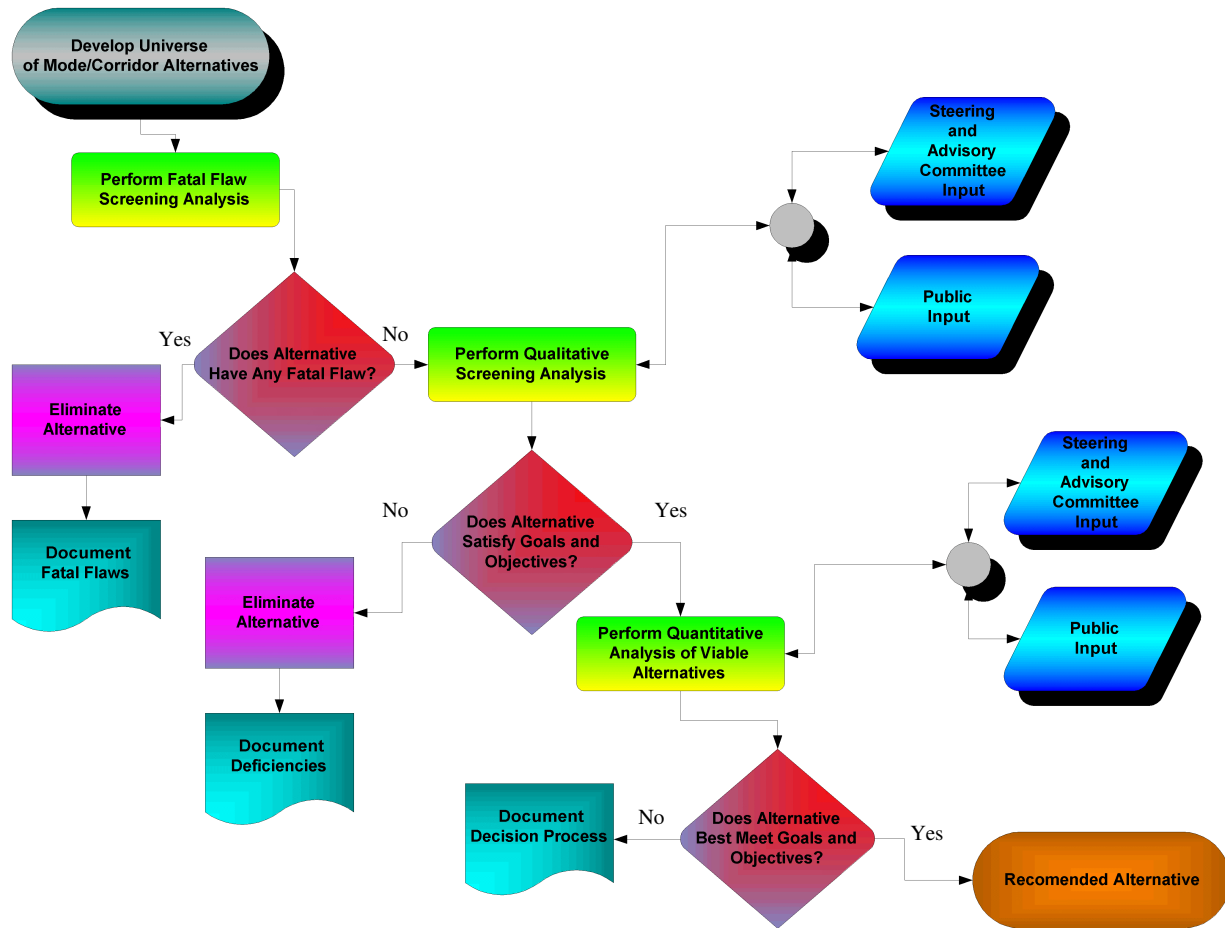
A primary component of the SH 35 MCFS was to develop the corridor-wide “Universe of Alternatives”, herein referred as the Universe. Identification of these conceptual alternatives represented the first step toward developing the preferred transportation alternative for investment within the SH 35 corridor. Guidance from the Steering and Advisory Committees and input from the general public, affected agencies, and communities along the corridor assisted the Study Team in identifying improvements applicable to the study goals.

Initially, the Universe represented a wide-range of conceptual mode/corridor improvements with the potential for meeting the SH 35 MCFS goals and objectives. More than 60 conceptual alternatives were developed representing a multi-modal perspective within numerous potential corridors. A technical evaluations methodology, consistent with the guidelines established for major investment studies, was employed to screen the Universe. Subsequent to this initial evaluation, the study goals and objectives were then used to develop additional screening and evaluation criteria against which to compare the various alternatives.

Summary of the Alternatives Evaluation Methodology

The framework for the SH 35 MCFS decision-making process results in the selection of modal and corridor project alternative(s). It is an incremental step-by-step evaluation that measures the effectiveness of each possible proposed alternative to achieve the study goals and objectives. The Alternatives Evaluation Methodology Flow Chart in Figure ES.1 shows this process. Evaluations were conducted with input from the Steering and Advisory Committees, the public, regional agencies, and affected jurisdictions.

Figure ES.2 – SH 35 MCFS Alternatives Evaluation Flow Chart



Fatal Flaw Screening

The first evaluative step performed by the Study Team was to screen the Universe for any fatal flaws that would prohibit an alternative from realization. Each concept was reviewed in terms of environmental constraints which were identified in the MCFS environmental investigation and mapping. For example, a public park, toxic waste site, or major commercial and/or residential development could represent a land use constraint that would preclude realization of a new transportation corridor or expansion of an existing roadway. Numerous conceptual alternatives within the Universe were identified as having a fatal flaw of such magnitude as to be exempted from further consideration.

Qualitative Screening Analysis

The purpose of the qualitative screening analysis was to determine the effectiveness of the remaining conceptual alternatives from the Universe to achieve the study’s goals and objectives. Utilizing the environmental constraints maps and transportation planning and engineering judgment, the Study Team identified the effects of the development of each alternative that remained following the fatal flaw screening. Prime consideration was

given to whether an alternative enhanced mobility along the entire length of the corridor, or a major portion of it, rather than within a single geographic section.

Description of Short List of Viable Alternatives

The Short List of Viable Alternatives was derived from the qualitative screening analysis and through discussions with local stakeholders regarding bundling the Viable Preliminary Alternatives. Different from the viable alternatives, which were each modeled separately, the Short List of Viable Alternatives are a “bundle” of improvements combining highways, arterial improvements, and a commuter passenger rail scenario. TxDOT determined that the controlled access highway alternatives would be studied only as tollways since the potential for inadequate funding for design and construction of new freeways would not keep pace with increasing traffic volumes in the SH 35 corridor over the next 20 years. Members of the Steering/Advisory Committees reviewed the proposed Short List and confirmed that these alternatives had the most promise to achieve the goals and objectives of the SH 35 MCFS. The Hybrid Corridor, Mykawa, and MLK Alternatives became the Recommended Viable Alternatives.

Evaluation of Short List of Viable Alternatives

The next step in the SH 35 MCFS was to again evaluate each of the Short List of Viable Alternatives. This process was accomplished by subjecting each alternative to a more detailed traffic and alignment analysis and investigation of social, community, and natural environment affects. The evaluation methodology used to screen the Short List of Viable Alternatives, known as “build” alternatives, is distinguished by a more detailed level of quantitative analysis utilizing an expanded data set. For planning year 2025, travel characteristics and traffic volumes were modeled and analyzed. For each build alternative identified, preliminary traffic and revenue studies were performed and exploratory hydraulic, natural environment, social, and community data were specified. Alternatives were screened for mobility effectiveness and potential social and environmental impacts and then ranked accordingly. In addition, a financial analysis was conducted to estimate the life cycle cost (including capital and operations and maintenance (O&M) costs) of each build alternative.

The results of the screening process is presented in detail in the SH 35 MCFS Final Report and summarized in Table ES-1. This evaluation lead to the conclusion that Alternative III – the Hybrid Corridor most achieved the Goals and Objectives of the Study and it was selected as the Recommended Most Feasible Alternative.

Table ES.1 – Summary of Preferred Viable Alternatives Analysis

Goal	Alt. 1: Mykawa	Alt. 2: MLK	Alt. 3: Hybrid
Improve North South Mobility	●	⊘	⊖
Provide a Multi-Modal Transportation System	●	●	●
Improve Transportation Infrastructure	●	●	●
Preserve and Enhance Social / Community and Economic Viability	⊘	⊖	●
Protect the Natural Environment	⊖	⊖	⊖
Improve Safety for the Traveling Public	●	●	●
Total	⊖	⊘	●
	●	Most Achieves Goal	
	⊖	Moderately Achieves Goal	
	⊘	Least Achieves Goal	

Recommended Alternative

After receiving public comments on the Recommended Most Feasible Alternative, the Hybrid Corridor, during the public meetings held in 2005, TxDOT concluded that further discussions with stakeholders throughout the study area were needed to refine the alignment and reach the goals while minimizing environmental impacts. Elected officials and neighborhoods were contacted and several smaller stakeholder meetings followed in order to arrive at the best alternative to serve the needs of residents of the study area.

After revising the Most Feasible Alternative based upon the public input received in the process described above, the fourth series of public meetings was held in two different locations along the corridor to provide ample opportunity for interested citizens to attend.

The purpose of these meetings was to present and discuss the project’s “Revised Most Feasible Alternative”, a variation upon the original Mykawa Corridor, and to present information and gather input for the Environmental Impact Statement currently under development for the segment of SH 35 from Bellfort Road in Harris County to FM 1462 in Brazoria County. The meetings were conducted in open house format and consisted of exhibits, large-scale maps, and a presentation.

Revisions to the Mykawa Alternative

The following section illustrates the changes that were made to the previously proposed Mykawa Corridor based upon public input.

The Revised Mykawa Alternative is proposed to connect at Spur 5 adjacent to the University of Houston and to continue southward as a high-speed corridor terminating at the Alvin Bypass. Between Spur 5 and IH 610, the alignment is mostly within existing TxDOT Right-of-Way (ROW). It is anticipated that additional ROW would be required to upgrade the IH 610 interchange. A bridge, beginning north of Kuhlman Gully, would be needed to carry the tollway over the Griggs Road, Long Drive, and IH 610 intersections.



Mykawa Rd. near Police Station at Law Park

South of IH 610, the roadway would run along the east side of the existing Mykawa Road and Burlington Northern and Santa Fe (BNSF) Railroad tracks, utilizing existing TxDOT ROW. Existing TxDOT ROW ends directly south of Dixie Dr. The original Mykawa alignment continued along the east side of the BNSF Railroad tracks to Sims Bayou, where it will cross back over to the west side of the tracks. The issue addressed by the public in 2005 centered around the abundance of potentially impacted homes in the Overbrook Subdivision on the east side of the tracks. The proposed Tollway was approximately 220' in ROW (3 lanes in each direction), which would impact many homes in the area. After the public meetings in 2005, it was clear that the area between Dixie Dr. and Sims Bayou had to be reevaluated. After discussions with city officials, the public, and TxDOT, three alignment options were developed between Dixie Dr. and Airport Dr. (directly south of Sims Bayou). The selection of an alignment for the tollway in this section of the corridor will be addressed during the Preliminary Engineering and Environmental Impact Statement phase of the project development process.

Continuing south, the revised Mykawa Corridor alignment runs along the west side of the BNSF tracks to the proposed elevated direct connectors at BW 8. South of BW 8, the revised alignment continues on the west side of the tracks to Rice Dryer Rd., where the corridor alignment crosses back to the east side of the tracks. The proposed tollway continues along the east side of the BNSF tracks until reaching Industrial Dr. where it then crosses over to existing SH 35 to become a "typical" freeway section with frontage roads. The proposed tollway remains on existing SH 35 until it merges with the Alvin Bypass.

Arterial Improvements

- SH 35 – FM 518 to North Terminus of Alvin Bypass widen to six lanes.
- Alvin Bypass – complete as a four-lane tollway with frontage road system and grade separations at SH 6 and the Old Galveston RR.
- SH 35 – Alvin Bypass to FM 523 widen to four lanes.
- FM 523 – SH 35 to SH 288 widen to four lanes.

Commuter Rail Corridor

This alternative proposes a commuter passenger rail running between Union Station in downtown Houston and the Alvin Depot. Additional train stations would be located at Pearland, BW 8, and IH 610 (interface with METRO LRT). The commuter rail would remain on the west side of the BNSF tracks running parallel to the current train operations.

Conclusion

The Revised Most Feasible Mykawa Corridor is the result of this process and is presented for consideration and these recommendations are for the modes of transportation resources to be developed within the corridor and the general location of these modes. Specific design of the individual elements will be further investigated in the Preliminary Engineering and Environmental Impact Statement phase of the project development process.



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