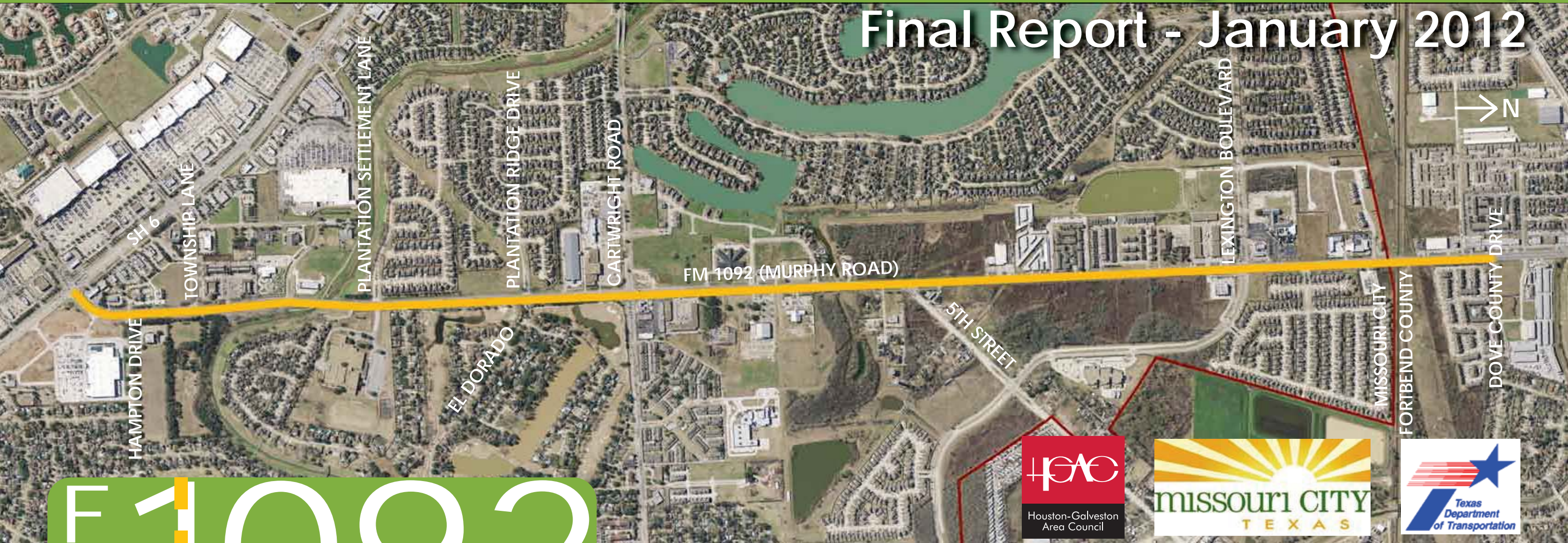


FM 1092/Murphy Road Access Management Study

Final Report - January 2012



FM 1092

ACCESS MANAGEMENT STUDY



Access Management Tool Box

BICYCLE & PEDESTRIAN

- Bicycle Lanes
- Bicycle Trails
- Sidewalk Connectivity
- Pedestrian Crossings

SIGNAL TIMING

- Execute Patterns
- Evaluate Coordination

TRANSIT OPPORTUNITIES

- Park & Ride Lots
- Funding Opportunities
- Car Pools & Van Pools

RAISED MEDIANS

- Planned Openings
- Left-Turn Lanes

DRIVEWAY CONSOLIDATION

- Shared Access
- Cross Access



Introduction

The Houston-Galveston Area Council (H-GAC) is the Metropolitan Planning Organization (MPO) for the Houston-Galveston 8-County Transportation Management Area (TMA), including Fort Bend County. Over the past decade, the H-GAC region has grown by 1.2 million residents to equal a population near 5.9 million. It is anticipated that population growth will continue and an additional three million people will reside in the region within the next 25 years. This growth has and will impact day-to-day activities including general mobility, access to jobs and homes, availability of amenities, impacts on the environment, and overall quality of life. Transportation infrastructure has to be either expanded or measures should be taken to increase efficiency of existing infrastructure to accommodate this growth. Access management studies are conducted to study existing and future conditions and recommend feasible improvements to accommodate the growth.

FM 1092/Murphy Road Access Management Study was undertaken by H-GAC, in association with Texas Department of Transportation (TxDOT) and the City of Missouri City. FM 1092 is a major north-south roadway in Missouri City. Crash rates have increased along FM 1092 from 2008 to 2010, and traffic volumes continue to increase. H-GAC has initiated this access management study to reduce crashes and improve traffic flow.

Access Management

Access management is defined by TxDOT as a means to:

- Reduce traffic delay and congestion
- Promote properly designed access and circulation systems for development
- Provide property owners and customers with safe access to roadways
- Make pedestrian and bicycle travel safer

Research has been conducted to identify and document the benefits of access management study. Based on National Highway Institute Course No. 133078, April 2000, following are some of the benefits of access management:

- Improves Safety - reduces the number of crashes by up to 50%
- Reduces Congestion - increases roadway capacity by 23% to 43%
- Improves Mobility - reduces travel time and delay as much as 40% to 60%
- Preserves Public and Private Investments - maintains current land use

Purpose of the Study

The purpose of this access management study is to identify transportation improvements that reduce crashes, improve traffic flow, reduce motorist delay, and to address multi-modal/land use context.

Study Goals

Following are the study goals:

- a. Safety for all modes of transportation that reduce crashes and conflicts
- b. Improve traffic flow

- c. Explore bicycle accommodation opportunities
- d. Reduce motorist delay
- e. Improve quality of life

Study Area

The corridor study area is approximately three miles in length and is defined as the southern section of FM 1092 from SH 6 South to Dove Country Road just north of the Missouri City city limit.

FM 1092 is a major north-south arterial, which provides connections between US Highway 90A and US 59 to the north and SH 6 to the south. In the study area, FM 1092 is a four-lane divided roadway with two-way turn lane in the center, except at the Cartwright intersection. At the Cartwright intersection, FM 1092 is a six-lane roadway. The right of way (ROW) along the study corridor varies from 125 to 140 feet. TxDOT is owner of FM 1092 and is maintained by TxDOT and by Missouri City in the City limits.

Study Process

The study process included collection and analysis of existing data, identification and analysis of future corridor specific needs, and recommending improvements. To accomplish these tasks, three Steering Committee meetings were conducted to gather technical guidance. Stakeholders and Public Meetings were also conducted to identify specific needs along the corridor and to fine-tune the recommendations in a way that best serves the residents and business owners along the corridor. Figure ES -1 illustrates the study process.

Existing Conditions

Transportation agencies typically use crash rates to compare crash severity along a roadway with similar type of roadways in the State. FM 1092 crash data was analyzed to estimate crash rates. Crash rate is defined as the number of crashes per 100 million vehicle miles travelled. Figure ES -2 illustrates that crash rates along FM 1092 have increased from 2008 to 2010. TxDOT estimates average crash rates on State roads each year. In the year 2009, the average crash rate for all urban FM roads is 224.75 and all divided urban roadways with four or more lanes is 114.65. Crash rates along FM 1092 corridor not only increased from 2008 to 2010, but are also higher than State average crash rates. This shows that safety measures to reduce crashes are necessary along FM 1092.

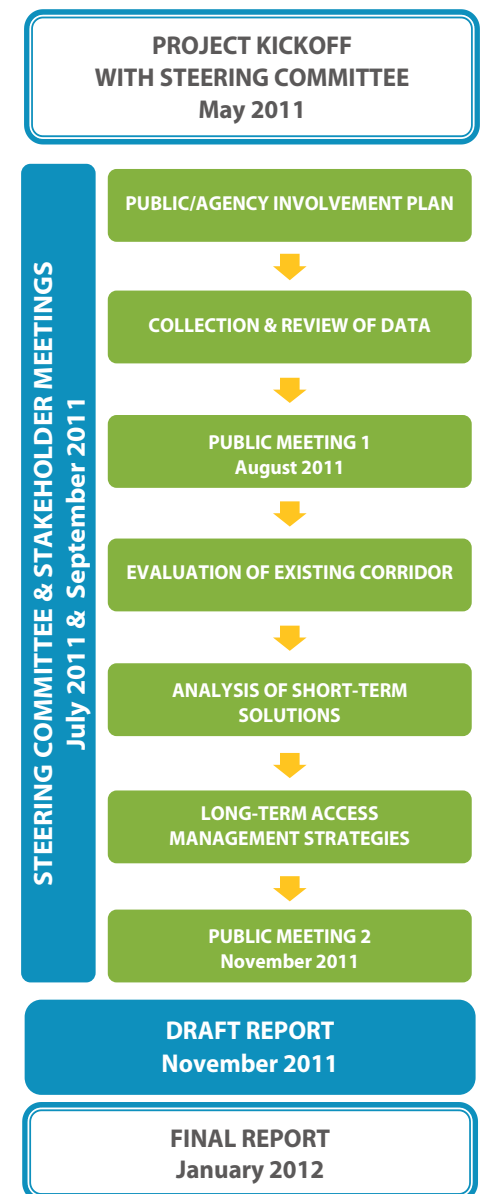
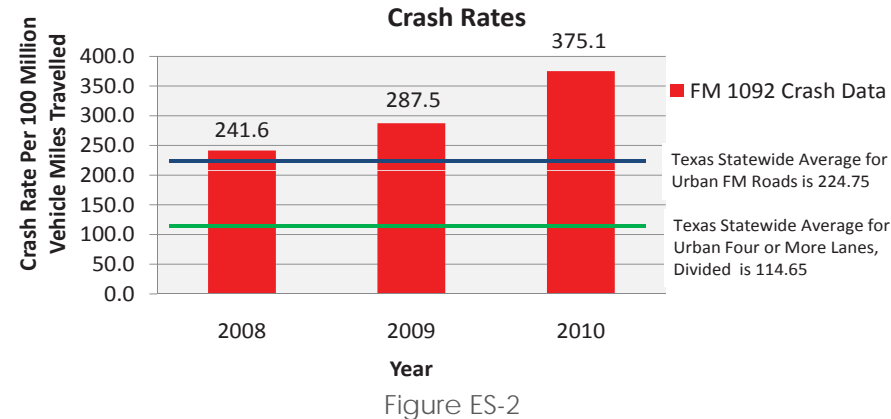


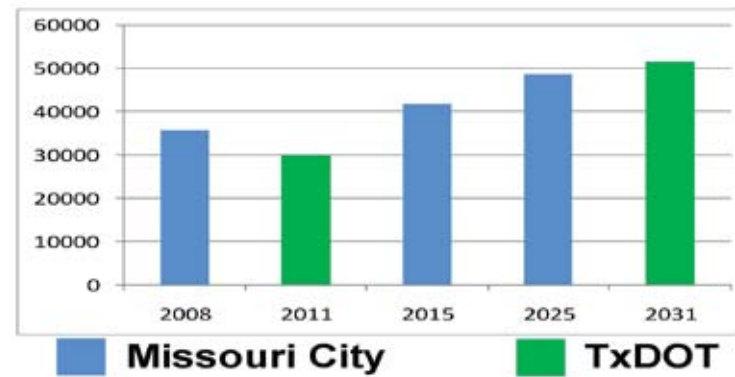
Figure ES-1

TxDOT and Missouri City provided traffic data. Figure ES-3 illustrates existing and future daily traffic volumes. Average daily two-way traffic volumes along FM 1092 range from 35,550 in year 2008 to 51,500 in year 2031. This increase in traffic volumes suggest that capacity improvements are necessary along FM 1092 to accommodate the future growth. There is a slight decrease in traffic volumes between years 2008 and 2011 in line with national trends.



Analysis

Traffic simulation analysis was conducted to study the existing conditions and future conditions along the corridor. Based on the analysis, the following conceptual short term, medium term, and long term improvements are recommended. Short term improvements can be implemented within four years and do not require purchase of additional right of way, such as traffic signal timing. Medium term improvements can be implemented in five to seven years and may require purchase of additional right of way, such as driveway consolidation and center raised median. Long term improvements can be implemented in greater than 10 years time and can require policy changes and additional right of way, such as roadway widening.



Short Term Improvements

1. Signalized Intersections
 - a. Supplemental signal head and sign at Hampton Drive intersection
 - b. Pedestrian signals at Hampton Drive and Dove Country Drive intersections
 - c. Traffic signal timing optimization along FM 1092 corridor

Medium Term Improvements

1. Pedestrian and Bicycle
 - a. Sidewalks and Oyster Creek connection at Plantation Settlement Lane
 - b. Bicycle Paths along the corridor
2. Shared driveway and adjacent property cross-access along the corridor at feasible locations
3. Raised median with planned openings and turn lanes along the corridor

One of the challenging aspects of constructing raised median along FM 1092 corridor was to balance spacing of median openings and providing access to properties that do not have

alternative access. There are five such locations along FM 1092 corridor at Wells Fargo driveway, Palm Grove Drive, Shell Gas Station driveway at Cartwright Road intersection, Heritage Baptist Church driveway, and Church of Christ driveway. These locations are too close to a public street with median opening and difficult to provide a median opening that meet design standards. However, a design variance can be requested from TxDOT and if approved an alternative median opening can be constructed at these five locations. Conceptual alternative median opening options at these five locations are also presented in the report.

Long Term Improvements

Long term recommendation for FM 1092 corridor is to construct a multi-modal facility to include:

1. Six-lane roadway with curb and gutter
2. Bike lanes
3. Sidewalks
4. Raised median with planned openings and turn lanes
5. Palm Grove Drive re-alignment
6. Cartwright Road intersection improvements
7. 5th Street re-alignment
8. Lexington Road intersection improvements

Implementation and Cost Summary

Implementation cost is estimated based on average cost summaries, prepared by TxDOT for previous similar projects, and adjusted for quantity. Please note that this cost do not include the cost of additional right of way, if needed.

Short Term Improvements

- Supplemental traffic signal head and sign at Hampton Drive intersection, and Pedestrian Facilities at Hampton Drive and Dove Country Drive intersections = \$40,000 (TxDOT)
- Traffic Signal Timing improvements along the corridor and right-turn overlap traffic signal heads at Cartwright Road and Lexington Boulevard intersections = \$55,000 (TxDOT)

Medium Term Improvements

- Median and Pedestrian Improvements (includes planned median openings with turn lanes and bike paths along the FM 1092 corridor) = \$900,000 (TxDOT = \$750,000 and City of Missouri City = \$150,000)
- Palm Grove Drive Access - Option A = \$250,000 (City of Missouri City)
- Palm Grove Drive Access - Option B = \$450,000 (City of Missouri City)

Long Term Improvements

- Palm Grove Drive Access - Option C = \$1,100,000 (City of Missouri City)
- 5th Street Re-alignment = \$700,000 (City of Missouri City)
- Six-lane Multimodal Facility (includes bike lanes, sidewalks, and drainage improvements along the FM 1092 corridor; and turn lane improvements at Cartwright Road and Lexington Boulevard intersections) = \$21,000,000 (TxDOT = \$20,300,00 and City of Missouri City = \$700,000)