



I-35 Capital Area Improvement Program (Mobility35)

Corridor Implementation Plan

SH 45SE to Posey Road

Hays County, Texas

Updated: July 2015



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1.0 Introduction and Background

The existing Interstate 35 (I-35) corridor spans approximately 550 miles across the state of Texas from the Oklahoma state line to the international border with Mexico. Constructed as part of the original Interstate Highway System in the 1950s, I-35 is the hub of transportation in Texas, serving a variety of daily users including commuters, freight truckers, and business travelers. As the only Interstate Highway connecting Mexico and Canada through the U.S. heartland, the majority of North American Free Trade Agreement trade passes through Texas along the I-35 corridor via commercial trucks and rail. In addition to serving many major population centers, the I-35 corridor is the backbone of the Texas economy and it plays a critical role in facilitating economic activity and business productivity in the state.

I-35 is one of the most important corridors in the state of Texas in terms of future growth and economic development. The diverse users of I-35 create substantial demand, with some sections of I-35 currently seeing over 200,000 vehicles per day. Eighteen segments of I-35 are on the Texas A&M Transportation Institute's (TTI's) 2014 Top 100 Most Congested Roadways list, indicating more congestion than any other roadway in the state. Four Texas cities along the I-35 corridor, Dallas, Fort Worth, Austin, and San Antonio, are in the top twenty largest cities in the United States. These cities are expected to see robust population growth in the future, which will place an even greater strain on the existing I-35 corridor.

In the capital area, which includes Williamson, Travis and Hays counties, improvements to the existing I-35 facility have not kept pace with increasing population and traffic demand. Previous improvement studies and recommendations for I-35 in this region have focused primarily on large-scale, long-term solutions, which have presented numerous financing, environmental, and political challenges to implementation. Delay in implementation of these long-term solutions has resulted in severe congestion for many sections of I-35 in the Capital Area. In fact, in 2013, the section of I-35 between US 183 and SH 71 was the most congested roadway in the state.

In light of these challenges, the Texas Department of Transportation (TxDOT) and local transportation partners developed the I-35 Capital Area Improvement Program, locally known as Mobility35, in 2011 with a focus on Travis County. Mobility35 focuses on feasible and effective short- and mid-term strategies that can be implemented to improve mobility and connectivity along and across the I-35 corridor (while considering long-term corridor needs). Using past I-35 studies as background, partner agencies and stakeholders are working together to develop mobility solutions that are implementable, that are cost-effective, and that generally do not require wholesale reconstruction of the corridor or substantial additional right-of-way. After the release of the original Mobility35 Plan in 2013, the Program was expanded to its current limits to examine mobility challenges along I-35 in Williamson, Travis, and Hays counties. This report focuses on Mobility35 Implementation Plan efforts in Hays County from SH 45 SE (north of Buda at the Travis and Hays County line) to Posey Road (south of San Marcos in Hays County), a 24-mile corridor.

2.0 Need for Improvements and Contributing Factors

2.1 Population and Employment

Since the construction of the Interstate Highway system in the 1950s, the population in Hays County has experienced substantial growth, ranging from 11.7% to 61.6% per decade. As shown in **Table 2.1**, the population of Hays County increased from 17,840 in 1950 to 157,107 in 2010.

Table 2.1: Historical Population Growth, 1950-2010

Year	Hays County	
	Population	% Change per decade
1950	17,840	--
1960	19,934	11.7%
1970	27,642	38.7%
1980	40,594	46.9%
1990	65,614	61.6%
2000	97,918	49.2%
2010	157,107	60.4%

Source: U.S. Census Bureau (1950, 1960, 1970, 1980, 1990, 2000, 2010)

The robust population growth in Hays County is forecasted to continue into the future, as current estimates project population in Hays County to nearly double by 2035. **Table 2.2** presents forecasted population levels and growth rates for Hays County for 2015-2035.

Table 2.2: Projected Population Growth, 2015-2035

Year	Hays County	
	Population	% Change per decade
2015	189,200	--
2025	271,600	43.6%
2035	371,200	36.7%

Source: CAMPO 2035 Regional Transportation Plan (2010)

Hays County is expected to more than triple employment levels over the 30-year study period. **Table 2.3** provides information regarding forecasted employment growth for Hays County to the year 2035.

Table 2.3: Projected Employment Growth, 2005-2035

Year	Hays County	
	Employment	% Change per decade
2005	41,000	--
2015	66,200	61.4%
2025	97,800	47.7%
2035	137,300	40.4%

Source: CAMPO 2035 Regional Transportation Plan (2010)

2.2 Corridor Traffic

As population and employment in Hays County has increased, so have demands on the regional highway system, including I-35. However, in many cases transportation improvements have not kept pace with population growth, resulting in heavy congestion at many locations along I-35, especially during peak travel periods. Average Annual Daily Traffic (AADT) is shown in **Table 2.4**.

Table 2.4: I-35 Average Annual Daily Traffic Volumes

Location	1980	1985	1990	1995	2000	2005	2010	2035*
South of SH 45SE	25,000	42,000	53,000	70,000	94,000	100,000	125,000	226,000
North of FM 1626	23,000	39,000	46,000	56,000	79,000	82,000	111,000	201,000
South of FM 150	23,000	37,000	46,000	56,000	71,000	73,000	100,000	181,000
South of Loop 82	23,000	37,000	49,000	55,000	75,000	89,000	126,000	228,000

Source: TxDOT Annual Count Data

* Projected

Three year historical crash data was collected and compiled for I-35 from throughout the limits of Mobility35. The preliminary crash analysis included a summary of crashes based on severity and location. The 2010 state-wide average crash rate for urban interstate facilities is approximately 102 crashes per 100 million vehicle miles traveled. A summary of the crash data from 2011 to 2013 for I-35 in Hays County is shown in Table 2.5.

Table 2.5: 3-year Crash Data

Crash Year	County	Fatal Crashes	Injury Crashes	Non-Injury Crashes	Unknown Severity Crashes	Total Crashes
2011	Hays	5	247	367	6	625
2012	Hays	9	250	403	8	670
2013	Hays	4	229	365	9	607

3.0 Previous Studies and Planning Efforts

By the mid-1980s, TxDOT identified the need to address congestion on I-35 through the greater Austin area. In the years since, several studies have been conducted by TxDOT to try to find appropriate solutions. While Travis County was the focus of those previous studies, a large number of projects were constructed on I-35 in Hays County from the mid-1980s to the present with considerable collaboration between TxDOT, Hays County, and the cities of Buda, Kyle, and San Marcos. Those projects served to enhance mobility with increased freeway capacity, frontage road improvements and ramp revisions, and the construction of several turnaround structures. The

Mobility35 Program builds upon and refines previous efforts and is separated by county. This refined effort began in earnest in 2008.

3.1 *I-35 Corridor Advisory Committee Plan (My 35)*

In 2008, the Texas Transportation Commission established the I-35 Corridor Advisory Committee (CAC) to engage the citizens of Texas and develop a plan to address transportation challenges along the I-35 corridor from the Oklahoma/Texas border to the Texas/Mexico border. Membership of the CAC included business professionals, environmental planners, rail advocates, professors, local officials, and residents that lived and did business in the I-35 corridor. In order to engage the public at the local level and to better understand the local needs associated with I-35, the Texas Transportation Commission enlisted assistance from four I-35 Corridor Segment Committees (CSCs) located geographically along the I-35 corridor to report to the CAC. The CAC considered the recommendations of the CSCs and developed the I-35 Corridor Advisory Committee Plan (My 35 Plan) to address mobility challenges along I-35. The plan made the following general recommendations for the I-35 Corridor in Texas:

- Freight and passenger rail projects to alleviate freight demands on roadways;
- Roadway design to separate cars and trucks to increase safety;
- Managed lanes to ease congestion and provide relief to transportation funding; and
- Integrated, real-time traffic information systems that alert drivers to delays and provide alternate routes.

The CAC planning effort was a needs-based planning effort and was financially unconstrained. Recommendations also did not include any dedicated funding sources for improvements. Thus recommendations made by the CAC could only be pursued by other agencies: TxDOT, Regional Mobility Authorities (RMAs), cities and counties. My 35 recommendations have been considered as part of this current effort.

3.2 *Hays County Improvement Efforts*

Hays County has made significant improvements to the I-35 corridor within the county limits. Additionally, many more improvements are in the planning and design phases. These completed and proposed projects include ramping improvements, frontage road improvements, intersection improvements, new frontage roads, conversion of frontage roads from 2-way to 1-way, and the addition of turnaround structures. The county utilized bond funds, city funds, and pass-through financing, a mechanism by which a public entity can expedite a project by fronting project costs to be partially reimbursed by TxDOT over time. These and other innovative funding practices are available to help counties facilitate improvements along the corridor.

4.0 Implementation Plan Development

Development of the Mobility35 Corridor Implementation Plan (Implementation Plan) included technical evaluations and public outreach. This section describes these efforts, as well as the improvement concepts developed and refined as part of this process.

4.1 Definition of Corridor Planning Area

The planning area for this Implementation Plan extends 24 miles along existing I-35 from south of SH 45SE just north of the city limits of Buda, Texas, to Posey Road located just south of San Marcos, Texas. This corridor is broken into segments for planning and evaluation purposes.

4.2 Phases of Project Development

Multiple efforts are underway as part of Mobility35; these efforts fall into various phases of the project development process. In order to ensure consistent use of terminology, for purposes of Mobility35, these phases are defined as:

- **Phase 1: Conceptual Planning** – Perform high-level concept planning; identify project need and scope; and public outreach.
- **Phase 2: Implementation Plan** – Identify issues and constraints; assess project scope, critical components and geometrics; operational assessment; fatal flaw analysis; develop preliminary cost estimates; identify funding opportunities; and public outreach.
- **Phase 3: Schematic and Environmental Coordination** – Prepare design schematic; determine right-of-way needs; develop and process environmental documentation; public involvement; and agency coordination.
- **Phase 4: Construction Plans, Right-of-Way, and Utility Coordination** – Prepare detailed construction plans; acquire necessary right-of-way; adjust utilities; and prepare detailed cost estimates.
- **Phase 5: Letting and Construction** – Final approval of Plan Specifications and Estimates (PS&E); secure funding; release final proposal; advertise request for bids; review bids and award contract; and initiate project construction.

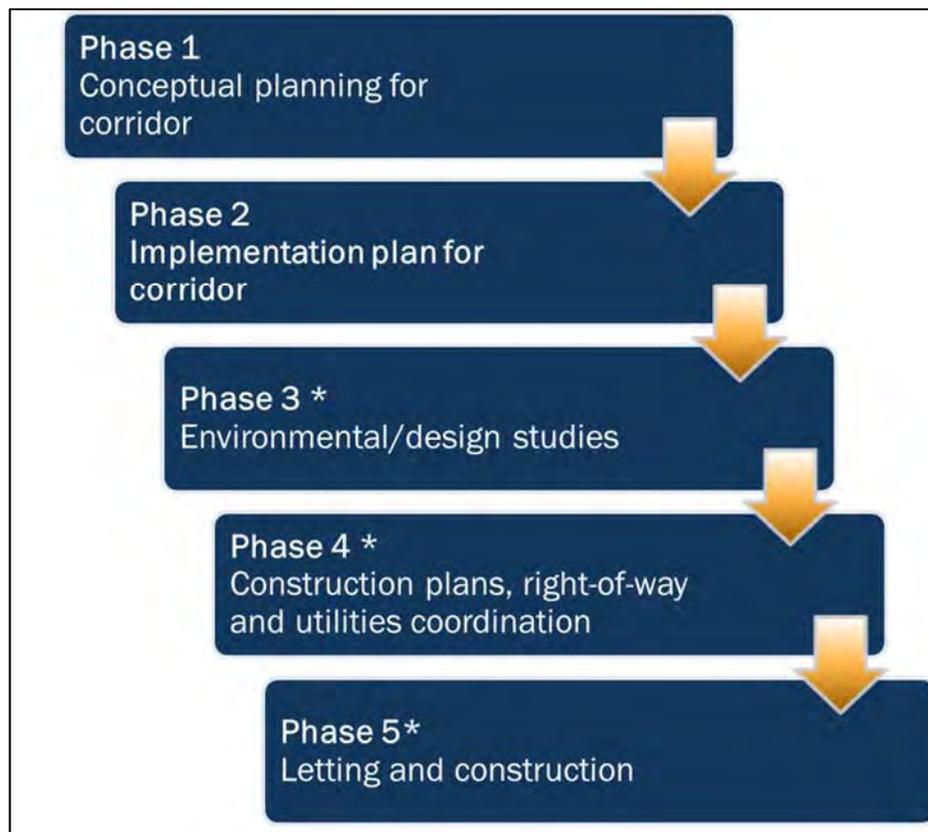


Figure 4.1: Phases of Project Development

4.3 Program Objective

The Mobility35 Program in Hays County includes engineering, public involvement, environmental services, and construction services for a program of improvements to I-35 in Hays County from SH 45SE to Posey Road. The improvements include an additional lane on I-35 in each direction and associated ramping, interchange, frontage road, and multi-modal modifications and operational improvements to enhance overall mobility along and across the corridor.

General guiding considerations for the Mobility35 Program include:

- Increase capacity;
- Better manage traffic;
- Enhance safety;
- Optimize exiting facility;
- Minimize need for additional right-of-way;
- Improve east/west connectivity;
- Improve compatibility with neighborhoods; and
- Enhance bicycle, pedestrian and transit-user options.

4.4 Public and Agency Involvement

Public and stakeholder outreach has been and will continue to be a critical part of the Mobility35 Program; the project team will continue this outreach throughout subsequent project development

phases. The intent of these efforts is to provide stakeholders, resource agencies, partner agencies and the public with unified and coordinated information and opportunities for feedback. Outreach is multi-jurisdictional and includes one-on-one meetings, small group meetings, large group meetings, open houses and online efforts.

4.4.1 Stakeholder Outreach

Stakeholder outreach for Phase 1 and 2 efforts included five primary outreach methods: public open houses (including online virtual open houses), small group presentations, website updates, social media postings, and community events. Additional project-specific outreach conducted during Phase 3 is in accordance with rules and regulations governing the National Environmental Policy Act (NEPA) process. During Phase 3, the outreach methods initiated during Phases 1 and 2 continue and more formal outreach methods, including public meetings and hearings, are undertaken as appropriate.

4.4.2 Public Open Houses

Numerous public open houses have been conducted to provide opportunities for input and comment on proposed mobility improvements. To date, there have been 6 program-related open houses held in Hays County along with 3 online open houses. These open houses provide an opportunity for formal communications with the public via prepared materials and a formal comment period.

4.4.3 Stakeholder Meetings

The TxDOT planning team members have participated in 19 small group meetings with stakeholders. These meetings allow stakeholders to both learn about Mobility35 and provide thoughts and comments regarding corridor development. Stakeholders have included neighborhood associations, civic organizations, businesses, local government officials, adjacent property owners, and other interested parties. Stakeholder meetings will continue throughout the planning process as part of the future phases of Mobility35 development.

4.4.4 Online Information

Mobility35 is represented online via an integrated website for all Mobility35 efforts. This website is located at www.my35.org under the Capital section. Website Capital content as of the date of this report is focused on the entire Mobility35 Program across the three counties and all five phases of project development. The site is continually updated as needed to incorporate new information for all program efforts in Hays, Travis, and Williamson counties.

The My35 website provides information about Mobility35's history, purpose, goals and objectives, limits, process, participants, and ways to contact the Mobility35 team and submit comments. It also offers downloadable handouts and presentations from public meetings, a list of "Frequently Asked Questions," links to a virtual open house (when open for public comment), news articles, and the program's social media sites.

4.4.5 Community Events

The Mobility35 team participated in community events in 2014 and 2015 in Hays County to generate awareness and interest in the program. These events included a neighborhood event in Kyle and various other events throughout the three county study area. Mobility35 staff hosted booths at each of these events, where they distributed Mobility35 open house announcements, brochures, and kids' activity sheets, talked one-on-one with event participants, and registered people for the Mobility35 mailing list. The Mobility35 team will target future community events to continue these successful outreach efforts.

4.5 Technical Concept Development

4.5.1 Limitations

Concepts will undergo further evaluation and refinement as they move through the development process. Concepts shown in the following chapters are in a preliminary stage and are subject to change as the Mobility35 Program evolves. No final decisions have been made regarding implementation of any specific concepts included in the following chapters. All concepts recommended in this Implementation Plan must undergo Phase 3 (NEPA) and Phase 4 (PS&E) development prior to possible implementation of Phase 5 (Construction).

4.5.2 Environmental Resources

As part of the Phase 2 efforts, the planning team has developed an inventory and preliminary evaluation of the social, economic, and natural environment (environmental resources) in and along the I-35 corridor in Hays County. This effort provides information on the existing environmental resources in the corridor, and a planning-level assessment of potential impacts from concepts developed in this study with a focus on "fatal flaws."

4.5.3 Bicycle and Pedestrian Considerations

A bicyclist and pedestrian needs assessment was completed as part of the Phase 2 and 3 planning efforts. In addition, the planning team reviewed local jurisdictions' proposed improvements and any existing bicyclist and pedestrian planning documents as a basis for bicyclist and pedestrian needs. The assessment proposes I-35 bicyclist and pedestrian longitudinal and cross-connectivity improvements based on existing roadway conditions, taking into consideration long-term plans established by local agencies and organizations.

4.5.4 Traffic and Operational Analysis

Traffic and operational analysis is a critical component of understanding the impact of potential improvements on the overall mobility of the I-35 corridor. Phase 2 efforts included measurements of effectiveness, current traffic counts as well as projections of future traffic, crash data analysis, traffic data collection, operational modeling of proposed improvement concepts, incident

management, and intelligent transportation systems (ITS) as part of development of the refined concepts.

In general, operational analysis has confirmed the following:

- Developing a future transportation corridor (FTC, described in Section 5.1) to enhance freeway mobility through the corridor provides the single largest mobility gain for I-35 through the corridor;
- Reconfiguring ramps to optimize and consolidate freeway access locations improves overall corridor mobility;
- Adding or extending freeway auxiliary lanes to improve merging/weaving also improves corridor mobility;
- Improving frontage road intersections as well as east/west vehicular cross-streets improves frontage road and cross street operations; and
- Improving existing interchange configurations, including use of innovative concepts such as Diverging Diamond Interchanges (DDIs), improves frontage road and local mobility.

4.5.5 Engineering Analysis

Phase 2 engineering analysis efforts focus on developing concepts, refining concepts, and developing additional concepts as necessary to identify working concepts for the corridor. Concepts are developed in accordance with the TxDOT *Roadway Design Manual*, the TxDOT *Hydraulic Design Manual*, Federal Highway Administration (FHWA) design requirements, and other applicable federal, state, and local regulations. Development of corridor concepts requires design exceptions from FHWA to implement improvements in some sections due to existing constraints. Concepts developed through the engineering process are coordinated with the traffic and operational analysis to ensure their feasibility. These concepts are described in **Section 5**.

In addition, drainage considerations are a key component to the development of improvement concepts. Drainage considerations will be evaluated to determine major impacts to proposed concepts, as well as how these concepts affect the major watersheds along the corridor. This is critical in order to determine any potential design flaws.

5.0 Overarching Improvement Concepts

Types of improvements considered for the corridor include ramping modifications and the addition of auxiliary lanes, turnarounds at intersections, and intersection turn lanes. The concepts also include bicyclist, pedestrian, and transit-user considerations, and several new or innovative improvements. These are described below. Specific discussion of where these types of improvements would be utilized is found in the segment-specific descriptions of the summaries in **Section 6**.

5.1 Future Transportation Corridor

Adding freeway capacity, identified specifically as the Future Transportation Corridor (FTC), is a primary goal of Mobility35. The FTC is a proposed additional freeway lane in each direction of I-35. Although this lane would require widening the footprint of the freeway, it would not require any additional right-of-way. The FTC would provide the single largest mobility gain for I-35. Potential lane types include general purpose lanes, express lanes, transit-only lanes, high occupancy vehicle (HOV) lanes or a combination of lane types. The final configuration of the FTC is undetermined at this time.

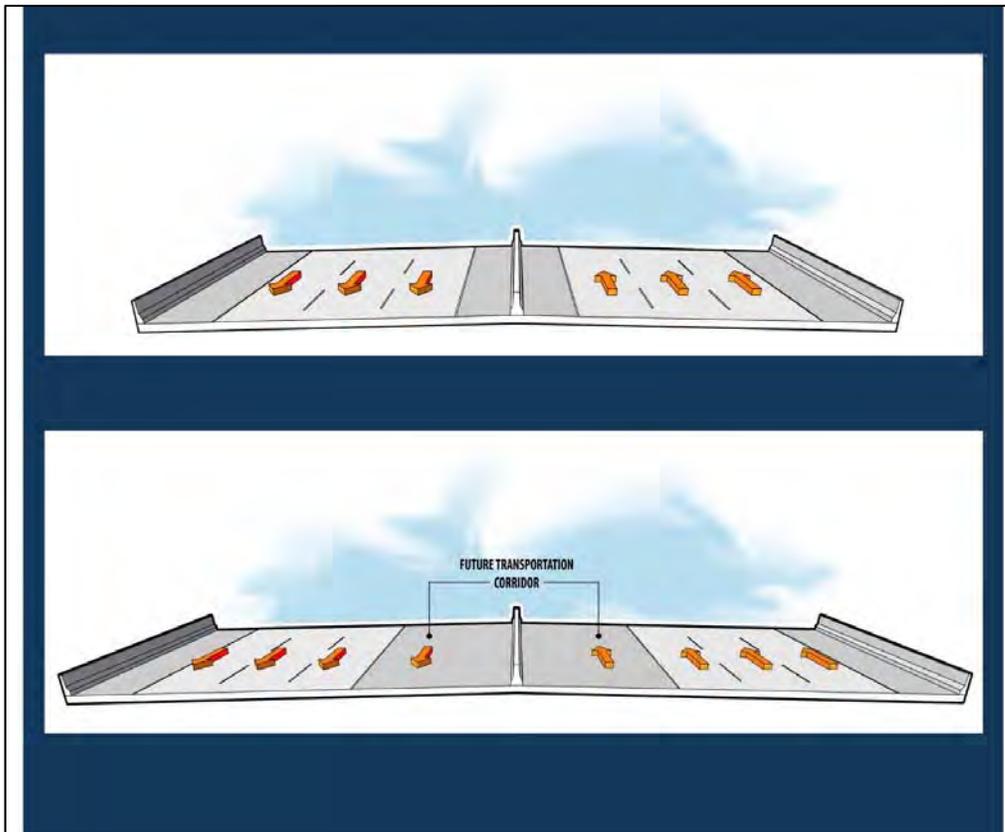


Figure 5.1: FTC Parameters

For the purposes of this Phase 2 effort and to represent the widest potential cross section, the footprint of a managed lane was utilized to plan for the FTC. A managed lane is considered the widest footprint because it would include required buffers, additional shoulders and physical separation from the general purpose lane. The parameters used for the FTC are shown in **Figure 5.1**.

5.2 *Corridor Access Improvements*

5.2.1 *Ramp Modifications*

In some areas, such as downtown San Marcos, the entrance and exit ramps do not meet current design standards because they are too short, too steep, too curved, or too close together for optimal performance. Some exit ramps end too close to heavily congested intersections, forcing drivers to make sudden movements between frontage road lanes after exiting or causing ramp traffic to back up due to frontage road congestion. Mobility35 proposes to modify these ramps to better manage traffic flow, increase safety, and maximize operational performance.

One of the main goals of Mobility35 is to improve mobility by ensuring all ramps in Hays County are in an “X” pattern; the “X” pattern locates entrance ramps before cross-street intersections and exit ramps past intersections, forming the shape of its namesake “X” as opposed to the diamond pattern. The diamond pattern, while appropriate in specific circumstances, especially in low-volume areas, has several disadvantages in high-volume areas such as Hays County: vehicles must travel through the cross-street intersection to gain access to many frontage road (FR) properties, increasing traffic volumes and placing extra strain on the intersections; and limited distance between exit ramps and intersections can yield unsafe merging conditions, and result in queues which back up onto the ramp and freeway. The “X” pattern helps alleviate all of these conditions by allowing vehicles to bypass cross-street intersections to access FR properties and by providing ample weaving and queuing distance between exit ramps and intersections.

5.2.2 *Auxiliary Lanes*

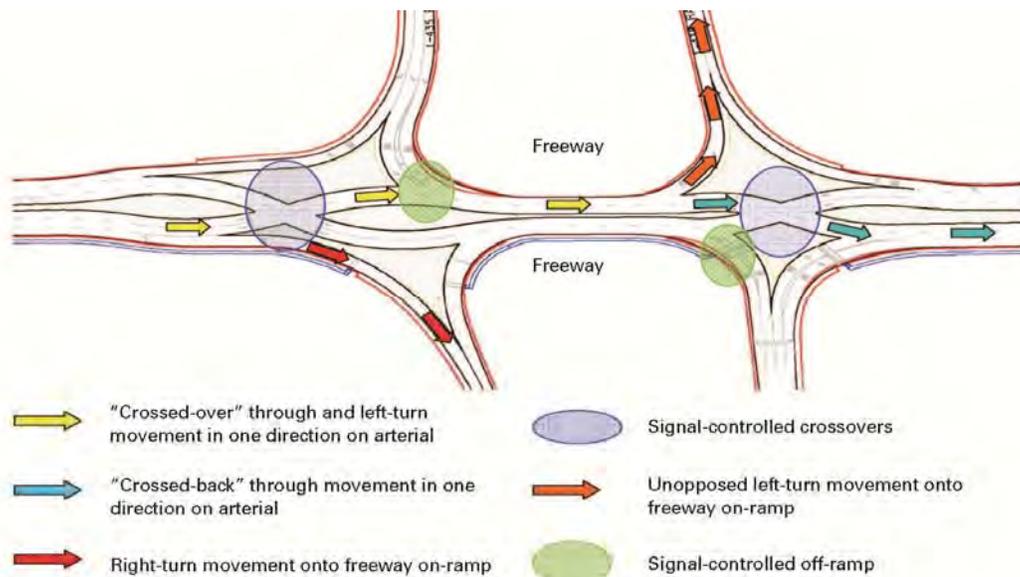
Mobility35 proposes the addition of auxiliary lanes (or speed-change lanes) throughout the corridor. Auxiliary lanes function like an extension of the already available entrance and exit ramps, allowing a lane for drivers to accelerate and decelerate (merge) to match traveling speeds between the freeway and frontage roads. These lanes are usually installed within the distance between an entrance ramp and an exit ramp.

5.3 *Conventional Intersection*

A conventional intersection helps move large volumes of traffic through limited amounts of space safely and efficiently. Potential modifications could include improving signal timing, adding signals, and adding additional turn lanes or through lanes. Benefits of modifying conventional intersections include improved safety, mobility, connectivity, and frontage road traffic flow.

5.4 Diverging Diamond Interchange

A Diverging Diamond Interchange (DDI), shown in **Figure 5.2**, handles higher traffic volumes, reduces travel times, and improves safety for drivers, bicyclists, and pedestrians. The DDI allows free left turns for motorists. This is accomplished by shifting traffic to the left side of the roadway prior to it entering the intersection. Two-phase traffic signals are installed at the crossovers. Once on the left side of the arterial roadway, vehicles can turn left onto the frontage roads without stopping or conflicting with through traffic, while significantly reducing delay compared to four-phase signals. Through traffic on the frontage road bypasses the intersection via freeway auxiliary lanes. Because frontage road access through the intersections is eliminated, access to adjacent properties needs to be carefully evaluated when selecting this interchange type.



Source: FHWA Publication Number FHWA-HRT-09-054

Figure 5.2: Diverging Diamond Interchange

5.5 Continuous Flow Intersection

A continuous flow intersection (CFI), also known as a displaced left turn intersection, shown in **Figure 5.3**, handles higher traffic volumes, reduces travel times, and improves safety for drivers, bicyclists and pedestrians by allowing left-turning traffic and through traffic to move simultaneously through the intersection. In a CFI, vehicles that intend to turn left cross to the left side of the roadway before they enter the intersection at a separate traffic signal. This eliminates the need for separate left turn signals at the intersection.

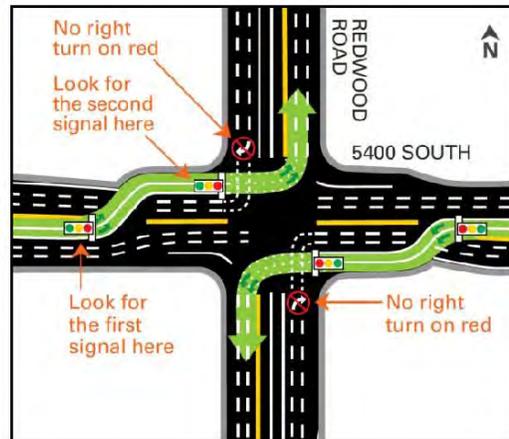


Figure 5.3: Continuous Flow Interchange

5.6 Travel Demand Management

Travel Demand Management (TDM) concepts work to decrease peak-hour, single-occupant auto trips, thus reducing travel volumes and increasing trip reliability through strategies that include:

- Flexible work hours;
- Teleworking;
- Ridesharing, carpooling and vanpooling; and
- Transit-riding, bicycling and walking.

Effective implementation of TDM strategies often includes strong partnerships across government and business.

5.7 Integrated Corridor Management

Integrated Corridor Management (ICM) projects use technology and communications to improve management and operations of a transportation system. ICM typically involves moderate scale operational improvements that can have compounding benefits on transportation system efficiency. Many ICM projects are relatively modest in cost and are often included as part of larger capital programs, similar to Mobility35. The ICM projects recommended Mobility35 fall into the following four categories, which are shown in **Table 5.1**:

Table 5.1: ITS Capital Improvement Costs

Advanced Traffic Management Systems (ATMS)

Expansion and replacement of Dynamic Messaging Signs (DMS)

Deployment and upgrade of Closed Circuit Television Cameras (CCTV)

Deploy vehicle detection systems (Bluetooth, video, and inductive loops)

Apply vehicle detection systems at ramps, system to system ramps, frontage roads, and mainlanes

Advanced Traveler Information Systems (ATIS)

Flood warning systems in areas inside Federal Emergency Management Agency (FEMA) flood plains

Road Weather Information Systems (RWIS)

Enhance TxDOT traveler information website

Traffic Incident Management (TIM)

Connected vehicle roadside integration

Use smart work zones

Upgrade highway emergency response operator (HERO) patrol fleet

Program DMS from HERO Vehicles

Video to/from HERO and other emergency vehicles

Coordination

Coordinate with the cities in Hays County to implement signal control strategies on frontage road intersections

Support regional weigh enforcement

Combined Transportation, Emergency & Communications Center (CTECC) software consolidation

Support regional communication program

Implement adequate ITS bandwidth and redundancy on I-35

Develop an ITS maintenance and project planning plan

Implement a new ITS maintenance program

Develop an ITS asset management system

Develop special event traffic management plans

Additional incident management training for first responders

Advanced Traffic Management System (ATMS) provides a top-down system for using technology to improve the flow of vehicle traffic and improve safety. Real-time traffic data from cameras, speed sensors, etc. flows into a Transportation Management Center (TMC) where it is integrated and processed (e.g. for incident detection), and may result in actions taken (e.g. traffic routing, placing informational messages on dynamic message signs, and so forth). The overall goal of ATMS is to improve traffic flow.

An **Advanced Traveler Information System (ATIS)** is any system that acquires, analyzes, and presents information to assist surface transportation travelers in moving from a starting location (origin) to their desired destination. An ATIS may operate through information supplied entirely within the vehicle (autonomous system) or it can also use data supplied by TMCs. Relevant information may include locations of incidents, weather and road conditions, optimal routes, recommended speeds, lane restrictions, and alternate mode choices.

Traffic Incident Management (TIM) is the process of coordinating the resources of a number of different partner agencies and private sector companies to detect, respond to, and clear traffic incidents as quickly as possible to reduce the impacts of incidents on safety and congestion, while protecting the safety of on-scene responders and the traveling public.

Intelligent Transportation Systems (ITS) Coordination projects or policies include those items that will require the support of agencies and jurisdictions outside of TxDOT in order to accomplish corridor-wide ITS improvements.

6.0 Recommended Program of Projects

By identifying a recommended program of projects, this implementation plan serves as a blueprint for I-35 corridor improvements in Hays County and provides guidance as to how corridor improvements can be implemented. Several concepts, known as Project E, Project H, Project I, and Project K, described in this plan (and **Appendix B**) have progressed beyond the planning phase into project design.

6.1 Assumptions and Limitations

For the purposes of this plan, the following assumptions were made:

- The improvement concepts delineated in this section form the basis for a program of projects to improve I-35. These concepts could change as further development occurs in Phases 3 and 4; and
- Cost of implementation is based on preliminary, order of magnitude assessments.

6.2 Hays County Program of Projects

For project development purposes, identified improvements have been formulated as individual projects. Each project is intended to have independent utility, but the effect of improvements is intended to be cumulative between projects. In addition, each project, to the extent possible, would be developed with the intent to facilitate future efforts to meet on-going corridor needs, and to minimize “throw-away” construction. Bicyclist and pedestrian facilities are included within the

individual projects. Refined improvement concepts, depicted in **Appendix A**, have been developed for each stand-alone project (except ICM projects) in Hays County. **Appendix B**, **Appendix C**, and **Appendix D** contain, respectively, Project Development Summary Sheets, Preliminary Construction Cost Estimates, and Typical Sections.

Generally, the program of improvements consists of stand-alone projects that could be advanced independently of one another as funding becomes available. From a corridor standpoint, the projects can be grouped into priorities, and considered for phased implementation.

6.2.1 Hays County Ongoing Projects

6.2.1.1 I-35 from FM 2001 (Cabela's Drive) to Center Street (RM 150) (Phase 5)

TxDOT and Hays County have partnered to provide improvements along I-35 from FM 2001 (Cabela's Drive) to Center Street (RM 150). The project is currently under construction and includes ramp reversals, ramp improvements, the addition of turnaround bridges at multiple intersections, intersection improvements, and frontage road improvements. TxDOT and Hays County are jointly sponsoring the project with funding being provided through the Hays County Bond Program. Construction is anticipated to be complete in mid-2015.

6.2.1.2 I-35 Ramp Improvements from Center Street (RM 150) to Blanco River (Phase 3)

TxDOT has initiated development of environmental documents and schematic engineering for ramp improvements along I-35 from Center Street (RM 150) to the Blanco River. The project includes ramp reversals, construction of new ramps, and associated frontage road and freeway improvements. Phase 3 is anticipated to be complete by late 2015. TxDOT is sponsoring Phase 3 efforts; funding is yet to be identified for Phases 4 and 5.

6.2.1.3 I-35 at Yarrington Road (Phase 5)

TxDOT and Hays County have partnered to provide I-35 improvements at Yarrington Road. The project is currently in construction and includes reconstruction of the Yarrington Road bridge, the addition of turnaround bridges, and frontage road improvements. TxDOT and Hays County are jointly sponsoring the project with funding being provided through the Hays County Bond Program. Construction is anticipated to be completed in mid-2015.

6.2.1.4 I-35 at Aquarena Springs Drive (Loop 82) and Hopkins Street (SH 80) (Phase 5)

TxDOT developed plans, specifications and estimates for the construction of Continuous Flow Intersections (CFI) at I-35 at Aquarena Springs Drive (Loop 82) and at I-35 at Hopkins Street (SH 80). The project involves reconstructing traditional intersections to reduce congestion and constructing raised medians and sidewalks to improve safety and provide pedestrian access. TxDOT sponsored construction of the project, which was completed in Fall 2014.

6.2.1.5 I-35 at Posey Road (Phase 3 and 4)

Hays County has initiated development of environmental documents and schematic engineering and development of plans, specifications, and estimates for the replacement of the bridge at Posey Road and I-35. The project includes reconfiguration of the intersection to an overpass configuration

with I-35 going over Posey Road, ramping improvements, and frontage road improvements. TxDOT and Hays County are jointly sponsoring the Phases 3 and 4 of the project with funding being provided through the Hays County Bond Program. The project is estimated to begin construction in 2016.

6.2.2 Hays County Improvement Concepts

This section will present improvement concepts. In all segments, multiple improvement concepts were evaluated and vetted through the operational and geometric analysis. The analysis yielded one or more concepts to carry forward into future phases of the project. At this time, concepts are in the preliminary stages of development. Project Development Summary Sheets for each project can be found in **Appendix B**.

The improvement concepts consist of FTC installation and four segments:

- **FTC Installation** – SH 45SE to Posey Road
- **Segment H1** – SH 45SE to FM 1626 (Kyle Parkway)
- **Segment H2** – FM 1626 (Kyle Parkway) to Yarrington Road
- **Segment H3** – Yarrington Road to Guadalupe Street (SH 123)
- **Segment H4** – Guadalupe Street (SH 123) to Posey Road

6.2.2.1 FTC Installation

The FTC provides an additional lane of capacity in the center of the I-35 freeway in each direction, which may be implemented as general purpose (GP) lanes, high occupancy vehicle (HOV) lanes, or any other form of managed lanes. Potential access points for the managed lane concept are between Robert S. Light Boulevard and Kyle Crossing, between a potential future crossing at Opal Lane and Yarrington Road, and between McCarty Lane and Centerpoint Road. However, further operational analysis would be required to determine the final access points for the FTC to achieve the most benefit for the corridor.

Installation of the FTC has been split into four stand-alone projects (based partially on the potential access points) which can be independently implemented based on funding and traffic demand priorities. The limits of the projects are as follows:

- Project A – FTC Buda
 - SH 45SE to south of Robert S. Light Boulevard
- Project B – FTC Kyle
 - South of Robert S. Light Boulevard to north of Yarrington Road
- Project C – FTC North San Marcos
 - North of Yarrington Road to south of Hopkins Street (SH 82)
- Project D – FTC South San Marcos
 - South of Hopkins Street (SH 82) to north of Posey Road

North of the Blanco River, the FTC would generally fit within the existing right-of-way (ROW) without requiring major freeway reconstruction; low existing vertical clearance heights over cross-streets south of the River would likely require more extensive freeway reconstruction through San Marcos.

Opening the FTC lanes to traffic should be the final improvement proposed in Mobility35 to be applied to ensure there is adequate capacity to receive the additional traffic introduced into the network by the FTC and because it is also not anticipated that the additional capacity provided by the FTC would be required in Hays County in the short-term. Until the FTC projects are implemented, any freeway pavement widening installed as part of other projects meant to accommodate the FTC would be striped as median or closed with barricades. Bicyclist and pedestrian facilities would be upgraded through the projects to improve north/south and east/west mobility. Improvements to bridge structures in these projects include:

- Project A – FTC Buda
 - Widen Main Street overpass bridges on the interior
- Project B – FTC Kyle
 - Replace and raise freeway bridge over Bunton Branch;
 - Replace and Raise southbound frontage road (SBFR) bridge over Plum Creek; and
 - Widen freeway bridge over Plum Creek.
- Project C – FTC North San Marcos
 - Replace and raise freeway bridge over Blanco River;
 - Widen FR bridges over Blanco River;
 - Replace and raise Aquarena Springs Drive (Loop 82) overpass bridge;
 - Replace and raise Union Pacific Railroad overpass bridge;
 - Construct new Union Pacific Railroad overpass bridge on NB exit ramp; and
 - Replace and raise Hopkins Street (SH 80) overpass bridge.
- Project D – FTC South San Marcos
 - None.

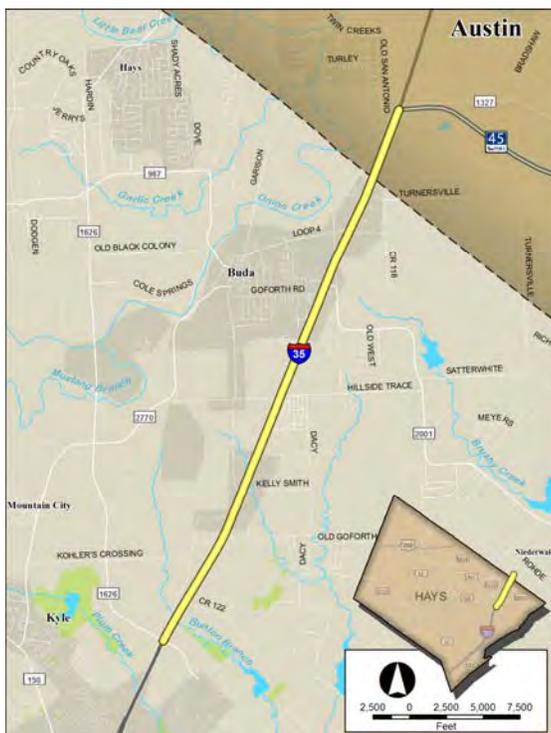


Figure 6.1: Segment H1

6.2.2.2 Segment H1 – SH 45SE to FM 1626 (Kyle Parkway)

Segment H1 is shown in **Figure 6.1**. Overall improvement concepts for this segment would include adding the FTC, improving frontage road traffic flow, and improving bicyclist and pedestrian mobility.

Key intersections under evaluation in this segment include Main Street, FM 2001 (Cabela’s Drive), Robert S. Light Boulevard, and Kyle Crossing. The team is evaluating ramp locations, intersection improvements, and operational improvements.

Proposed concepts were presented at pairs of open houses held on March 25 and 27, 2014, September 30 and October 1, 2014, and April 2 and 3, 2015.

6.2.2.2.1 Project E – FM 1626 (Kyle Parkway) Ramp Reversals

Project E would improve operational efficiency on I-35 by reversing the configuration of the four northbound (NB) ramps between Kyle Crossing and Center Street (RM 150) from the existing diamond pattern to an “X” pattern, in anticipation of converting the FM 1626 (Kyle Parkway) interchange to a DDI in Project F. Though the ultimate freeway width would be constructed in Project B – FTC Kyle, not in this project, all four ramps would be constructed in their ultimate location as designed for Mobility35, with gore points extended to match the existing freeway, to minimize the reconstruction required in Project B – FTC Kyle. The I-35 NBFR bridge over Bunton Branch would be replaced and raised, and a new NBFR bridge over Plum Creek would be added to mitigate existing flooding concerns. Bicycle and pedestrian facilities would be upgraded through the project to improve north/south mobility.

6.2.2.3 Segment H2 – FM 1626 (Kyle Parkway) to Yarrington Road

Segment H2 is shown in **Figure 6.2**. Overall improvement concepts for this segment would include adding the FTC, improving frontage road traffic flow, and improving bicyclist and pedestrian mobility.

Key intersections under evaluation in this segment include FM 1626 (Kyle Parkway), Center Street (RM 150), and a potential future interchange at Opal Lane. The team is evaluating ramp locations, intersection improvements, and operational improvements.

Proposed concepts were presented at pairs of open houses held on March 25 and 27, 2014, September 30 and October 1, 2014, and April 2 and 3, 2015.

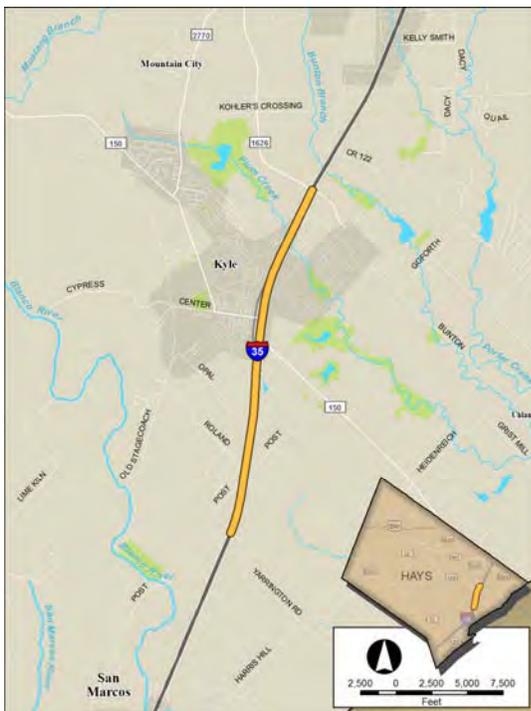


Figure 6.2: Segment H2

6.2.2.3.1 Project F – FM 1626 (Kyle Parkway) DDI

A DDI would be installed in Project F at FM 1626 (Kyle Parkway) to increase mobility along and across the I-35 corridor, without reconstructing the existing bridge. In order to construct Project F, Project E – FM 1626 (Kyle Parkway) Ramp Reversals must be completed, to provide NB access through the interchange via the freeway auxiliary lane. ROW acquisition would be required at all four corners of the interchange. Bicycle and pedestrian facilities would be upgraded in the project to improve north/south and east/west mobility. However, Project F is not anticipated for construction in the near term, since traffic operates efficiently at this interchange in the near-term, based on the best currently-available data. Additionally, due to the innovative configuration concept for the region, further public outreach and stakeholder discussions are required.

6.2.2.3.2 Project G – Center Street (RM 150)

Project G was developed to improve operational efficiency on Center Street (RM 150) by adding turn-lanes in three of four directions, not including southbound; the Center Street (RM 150) underpass bridge would also be widened so bicycle and pedestrian facilities meet minimum design criteria. Right-of-way acquisition would be required at all four corners of the interchange. Bicycle and pedestrian facilities would be upgraded in the project to improve north/south mobility. However, this project is not anticipated for construction in the near-term, since traffic operates efficiently at this interchange in the near-term based on the best currently-available data. Additionally, due to the significant ROW acquisition requirements west of the SBFR, further public outreach and stakeholder discussions are required.

6.2.2.3.3 Project H – Center Street (RM 150) to Blanco River Ramps

Project H would reverse the configuration of the four existing ramps between Center Street (RM 150) and Yarrington Road, as well as the existing NB exit ramp south of Yarrington Road, from the existing diamond pattern to an “X” pattern. Additionally, a new NB exit ramp would be constructed south of both Yarrington Road and the proposed NB entrance ramp. Though the ultimate freeway width would be constructed in Project B – FTC Kyle and Project C – FTC North San Marcos, not in this project, all six ramps would be constructed in their ultimate location as designed for Mobility35, with gore points extended to match the existing freeway, to minimize the reconstruction required in Project B – FTC Kyle and Project C – FTC North San Marcos. Phase 3 design is underway at this time, with letting planned for December 2015. Construction would be funded by Proposition 1, passed by state-wide voters in November 2014.

6.2.2.4 *Segment H3 – Yarrington Road to Guadalupe Street (SH 123)*



Figure 6.3: Segment H3

Segment H3 is shown in **Figure 6.3**. Overall improvement concepts for this segment would include adding the FTC, improving frontage road traffic flow, and improving bicyclist and pedestrian mobility.

Key intersections under evaluation in this Segment include Yarrington Road, River Ridge Parkway, Aquarena Springs Drive (Loop 82), Hopkins Street (SH 80), and CM Allen Parkway. The team is evaluating ramp locations, intersection improvements, and operational improvements.

Proposed concepts were presented at pairs of open houses held on March 25 and 27, 2014, September 30 and October 1, 2014, and April 2 and 3, 2015.

6.2.2.4.1 Project I – River Ridge Parkway to Aquarena Springs Drive (Loop 82) Ramps

The primary improvement of Project I is the addition of the NB exit ramp to River Ridge Parkway, which would improve operational efficiency on the corridor by providing a bypass around the Aquarena Springs Drive (Loop 82) intersection with the NBFR. The NBFR would also be realigned to its ultimate location in this project, as would the NB entrance ramp south of River Ridge Parkway. Bicycle and pedestrian facilities would be upgraded through the project to improve north/south mobility.

6.2.2.4.2 Project J – River Ridge Parkway

The focus of Project J is to improve operational efficiency on the corridor by adding one lane in both the eastbound (EB) and westbound (WB) directions through the River Ridge Parkway interchange. The River Ridge Parkway overpass bridge would be replaced and raised to meet vertical clearance requirements, and the freeway would be widened in the area of the interchange provide the ultimate width for the FTC, though the FTC would not be opened to traffic until the completion of Project C – FTC North San Marcos. The SB exit ramp north of River Ridge Parkway would be reversed to an entrance ramp, and the existing entrance ramp north of the Blanco River would be removed, to complete the “X” pattern. A new signalized traffic control system would replace the existing stop condition at River Ridge Parkway, further enhancing mobility through the interchange. Bicycle and pedestrian facilities would be upgraded through the project to improve north/south and east/west mobility. Due to a lack of ROW information along River Ridge Parkway at this time, it is unknown if any acquisition would be required for this project.

6.2.2.4.3 Project K – Guadalupe Street (SH 123)

In Project K, the Guadalupe Street (SH 123) interchange would be reconfigured as one of two possible Options: Option A, significantly expanding the footprint of the existing conventional layout to include five total lanes at both the EB and WB approaches; or Option B, converting the interchange to a DDI. Further, the intersection could be constructed in the improved conventional intersection layout and reconfigured into the DDI configuration as traffic growth warrants the modification. Other than the interchange configuration, all proposed Project K improvements are identical in both Options. The freeway would be widened, from south of Hopkins Street (SH 80) to north of Wonderworld Drive (RM 12) to provide the ultimate width for the FTC, though the FTC would not be opened to traffic until the completion of Project C – FTC North San Marcos and Project D – FTC South San Marcos. The Guadalupe Street (SH 123) overpass bridge would be replaced and raised to meet vertical clearance requirements, and both FR bridges over Willow Spring Creek would be replaced and raised to facilitate desirable geometry for the ramps north of Guadalupe Street (SH 123). To mitigate negative impacts to endangered species in the area, the bridges over the San Marcos River would be left in their existing condition, which can be accomplished by employing reduced FTC and freeway widths. CM Allen Parkway would be realigned to tie to the SBFR at a right angle, to create a “gateway” to downtown San Marcos for southbound traffic, thereby reducing some of the demand on Hopkins Street (SH 80) and Guadalupe Street (SH 123). All four NB ramps between Hopkins Street (SH 80) and Wonderworld Drive (RM 12), and the proposed SB entrance ramp north of Guadalupe Street (SH 123), would be reversed; the SB exit

ramp south of Hopkins Street (SH 80), and both SB ramps between Guadalupe Street (SH 123) and Wonderworld Drive (RM 12), would be reconstructed to match the widened freeway and FRs; and the existing SB entrance ramp north of the San Marcos River would be demolished, all to match the “X” configuration. Bicycle and pedestrian facilities would be upgraded through the project to improve north/south and east/west mobility. ROW acquisition would be required along the EB and WB sides of Guadalupe Street (SH 123), on both the east and west sides of I-35, in both options.

6.2.2.5 Segment 4 – Guadalupe Street (SH 123) to Posey Road



Figure 6.4: Segment H4

Segment 4 is shown in **Figure 6.4**. Overall improvement concepts for this segment would include adding the FTC, improving frontage road traffic flow, and improving bicyclist and pedestrian mobility.

Key intersections under evaluation in this Segment include Guadalupe Street (SH 123), Wonderworld Drive (RM 12), McCarty Lane, and Centerpoint Road. The team is evaluating ramp locations, intersection improvements, and operational improvements.

Proposed concepts were presented at pairs of open houses held on March 25 and 27, 2014, September 30 and October 1, 2014, and April 2 and 3, 2015.

6.2.2.5.1 Project L – Wonderworld Drive (RM 12) to McCarty Lane Ramp Reversals

The purpose of Project L is to improve operational efficiency on I-35 by reversing the NB ramps between Wonderworld Drive (RM 12) and McCarty Lane to create an “X” pattern. Though the ultimate freeway widening would be constructed in Project D – FTC South San Marcos not in Project L, the ramps would be installed in their ultimate location as prescribed in Mobility35, with gore points extended to match the existing freeway, to minimize the reconstruction necessary in Project D – FTC South San Marcos. Bicycle and pedestrian facilities would be upgraded through the project to improve north/south mobility.

6.2.2.5.2 Project M – Wonderworld Drive (RM 12)

The focus of Project M is to improve operational efficiency on the corridor by adding a second left-turn lane in the EB direction and a right-turn-only lane in the WB direction through the Wonderworld Drive (RM 12) interchange. The Wonderworld Drive (RM 12) overpass bridge would be replaced and raised to meet minimum vertical clearance requirements, and the freeway would be widened

around the interchange to provide the ultimate width for the FTC, though the FTC would not be opened to traffic until the completion of Project D – FTC South San Marcos. Bicycle and pedestrian facilities would be upgraded in the project to improve north/south and east/west mobility. ROW acquisition would be required in the northeast corner of the interchange, and along the SBFR north of Wonderworld Drive (RM 12) to provide space for the proposed right-turn-only lane.

6.2.2.5.3 Project N – McCarty Lane

The width of McCarty Lane would be increased to six total lanes through the interchange in Project N to improve operational efficiency on the corridor; the McCarty Lane overpass bridge would be replaced and raised to meet minimum vertical clearance requirements. The freeway would be widened around the interchange to provide the ultimate width for the FTC, though the FTC would not be opened to traffic until the completion of Project D – FTC South San Marcos. Additionally, turn bays would be added in all four directions approaching the interchange, and a new traffic signal system would be installed. Bicycle and pedestrian facilities would be upgraded in the project to improve north/south and east/west mobility.

6.2.2.5.4 Project O – Centerpoint Road

The purpose of Project O is to improve operational efficiency on the corridor by increasing the width of Centerpoint Road to six total lanes through the interchange. The Centerpoint Road overpass bridge would be replaced and raised to meet minimum vertical clearance requirements, and the freeway would be widened, from south of McCarty Lane to south of Centerpoint Road, to provide the ultimate width for the FTC, though the FTC would not be opened to traffic until the completion of Project D – FTC South San Marcos. The NBFR and SBFR would be realigned to their ultimate locations in this project, and their profiles at Cottonwood Creek CC-2 would be raised to mitigate flooding from Cottonwood Creek backwater. Bicycle and pedestrian facilities would be upgraded in the project to improve north/south and east/west mobility. Right-of-way acquisition would be required in this project to re-grade the drainage ditch adjacent to the SBFR at Cottonwood Creek CC-2, and in the northeast and northwest corners of the interchange.

7.0 **Other Mobility35 Initiatives**

7.1 *Integrated Corridor Management Study and Development Strategy*

TxDOT, along with local transportation partners, has begun an Integrated Corridor Management (ICM) Study for the I-35 corridor through Hays County. This study will evaluate a series of corridor improvements including ITS, incident management, travel demand management, and other improvements to develop a strategy to better move traffic through the county.

7.2 *Trip Reduction*

As part of its mission to provide safe and reliable transportation solutions for Texas, TxDOT is actively seeking multi-dimensional solutions to reduce roadway congestion. As the transportation agency for Texas and a major employer in greater Austin, TxDOT wants to be a leader in trip-

reduction best practices. That includes examining its internal workforce policies for ways to reduce unnecessary work trips.

In March 2014, TxDOT kicked off a Peak-time, Work-trip Reduction Initiative. Currently, TxDOT has policies allowing flexible work schedules, compressed work weeks and teleworking. In addition, a number of TxDOT employees share rides and participate in a Clean Air Program, which includes voluntarily reducing drive-alone trips. The goal of the trip-reduction initiative is to identify strategies to further reduce peak-time work trips and improve a flexible set of employee options intended to reduce the number of vehicles on Austin roads at peak commuting times.

As part of this initiative, TxDOT began a telework-specific pilot for a portion of its capital-area employees in November 2014. By having eligible employees limit their work commutes to no more than three days per week, the pilot will set an important baseline for TxDOT's ultimate trip-reduction initiative. The broader trip-reduction initiative could potentially involve all capital-area employees and would include expanding teleworking as well as other trip-reduction options, such as ride sharing, discounted transit passes, etc. If approved to move forward, the expanded pilot initiative could launch in the first quarter of 2016.

Some of the ultimate benefits of a successful TxDOT peak-time, work-trip reduction program would include:

- Improved congestion management;
- Improved air quality;
- Increased productivity;
- Reduced commute hours; and
- Improved facilities management.

7.3 *Non-motorized Travel Considerations*

As the population density along the I-35 corridor continues to grow in the area, the need for a comprehensive, sustainable, multi-modal transportation network increases. Within the planning area, I-35 can present a physical barrier to many bicyclists and pedestrians. Existing parallel bicycle and pedestrian routes are discontinuous, and cross-connectivity is uneven. Improved safe, continuous routes along and within the I-35 corridor would increase the opportunities for cycling or walking trips within the corridor, as well as for short trip and end-of-trip travel. These bicycle and pedestrian trips, in turn, could reduce vehicular traffic within the corridor.

Short trips are generally defined as 1.5 miles one-way for bicyclists and 0.5 miles one-way for pedestrians. End-of-trip travel relates to transportation needs once someone arrives at or departs from a transit mode such as a bus or light rail. Short trip distances, end-of-trip needs, existing demographics and land uses help drive the development of bicycle and pedestrian improvements throughout the corridor with these key goals steering the design:

- Provide safer bicyclist/pedestrian routes;
- Increase corridor east/west permeability;
- Provide continuous routes;
- Support multi-modalism; and
- Improve corridor safety.

These goals are based on the repeated themes of non-motorized planning efforts by the Capital Area Metropolitan Planning Organization (CAMPO), the Capital Metropolitan Transportation Authority (Capital Metro), the City of Austin and several other local organizations. CAMPO's 2035 *Regional Transportation Plan* recognizes bicycle and pedestrian accommodations as a part of "Building a Multimodal Transportation System."

Roadway Networks in Hays County are generally rural sections with limited bicycle and pedestrian networks. Mobility35 proposes to include bicycle and pedestrian facilities along and across I-35 to facilitate future urbanization and multimodal travel.

8.0 **Preliminary Project Costs and Funding**

8.1 *Hays County Project Costs*

The recommended program of projects incorporates four on-going development efforts already authorized and at least partially funded by TxDOT and others. However, most implementation recommendations for Mobility35 in Hays County are currently unfunded. For Project K, with more than one refined concept, the cost shown reflects Option A, which is currently in Phase 3 design. Current preliminary estimates of probable cost are shown by project in **Table 8.1**. More detailed preliminary estimates of probable construction cost may be found in **Appendix C**.

Table 8.1: Hays County Cost Breakdown (2015 Dollars)

Project	Phase 3**	Phase 4***	Phase 5	Total
Project A – FTC Buda	\$ 9,560,000	\$ 15,934,000	\$ 159,340,000	\$ 184,834,000
Project B – FTC Kyle	\$ 10,456,000	\$ 17,426,000	\$ 174,262,000	\$ 202,144,000
Project C – FTC North San Marcos	\$ 13,751,000	\$ 22,918,000	\$ 229,175,000	\$ 265,844,000
Project D – FTC South San Marcos	\$ 2,454,000	\$ 4,091,000	\$ 40,905,000	\$ 47,450,000
Project E* – Ramp Reversals	\$ 1,032,000	\$ 1,719,000	\$ 17,192,000	\$ 19,943,000
Project F – FM 1626 (Kyle Parkway) DDI	\$ 520,000	\$ 867,000	\$ 8,673,000	\$ 10,060,000
Project G – Center Street (RM 150)	\$ 595,000	\$ 992,000	\$ 9,922,000	\$ 11,509,000
Project H* - Ramp Reversals	\$ 517,000	\$ 862,000	\$ 8,621,000	\$ 10,000,000****
Project I* – New Ramp Construction	\$ 205,000	\$ 342,000	\$ 3,423,000	\$ 3,970,000
Project J – River Ridge Parkway	\$ 2,677,000	\$ 4,461,000	\$ 44,609,000	\$ 51,747,000
Project K* – Guadalupe Street (SH 123) Option A	\$ 4,742,000	\$ 7,904,000	\$ 79,041,000	\$ 91,687,000
Project L – Ramp Reversals	\$ 416,000	\$ 694,000	\$ 6,940,000	\$ 8,050,000
Project M – Wonderworld Drive (RM 12)	\$ 2,486,000	\$ 4,143,000	\$ 41,426,000	\$ 48,055,000
Project N – McCarty Lane	\$ 1,791,000	\$ 2,986,000	\$ 29,855,000	\$ 34,632,000
Project O – Centerpoint Road	\$ 3,658,000	\$ 6,097,000	\$ 60,973,000	\$ 70,728,000
Total	\$ 54,860,000	\$ 91,436,000	\$ 914,357,000	\$ 1,060,653,000

*Project Phase 3 currently in process

**Phase 3 costs estimated at 6% of Phase 5 preliminary estimates

*** Phase 4 costs estimated at 10% of Phase 5 preliminary estimates

****\$10,000,000 has been approved for the total project cost, though this amount differs from the Preliminary Cost Estimate

The total anticipated cost for Hays County is \$1.060 billion in 2015 dollars. When inflated to 2020 dollars the number becomes \$1.290 billion for Hays County.

8.2 *Project Funding*

Identified project funding to date includes:

- \$11 million annual spending by TxDOT on projects in the I-35 corridor;
- Funds that could be available as part of the interlocal agreement between CAMPO and Central Texas Regional Mobility Authority (CTRMA).

While some projects currently under development are funded in their current phase, future phases of the program do not have identified funding at this time. Other than the funding noted at the beginning of this section, no additional funding has been identified for these projects. A majority of the project funding still has to be identified before moving projects into further phases of development.

The recommended program of projects incorporates ongoing development efforts already authorized and funded by TxDOT and others. However, most implementation recommendations for Mobility35 in Hays County are currently unfunded.

8.3 *Potential Funding Sources*

Texas transportation revenues are generated by motor fuel taxes, vehicle registration fees, federal funds, bonds, and public-private partnerships as shown in **Figure 8.1**. Until 2002, TxDOT's projects were funded entirely with state and federal revenues. Since 2002, revenues have been inadequate to keep up with demand and have been supplemented by allocations from private partners and borrowed funds generated by bond issues. As seen in **Figure 8.1**, currently the primary source of transportation funding is the federal and state motor fuel tax. The state tax on gasoline is \$0.20 per gallon and the federal tax is \$0.184 per gallon. Both are flat taxes and do not vary according to the price of gasoline. Many people are purchasing fewer gallons of fuel because they purchase increasingly fuel-efficient vehicles. Also, the purchasing power of the motor fuel tax is declining due to inflation.

However, in 2013, the 83rd Texas Legislature passed Senate Joint Resolution (SJR) 1, a constitutional amendment authorizing annual disbursements from the state's oil and gas production tax collections to the State Highway Fund. In November 2014, voters approved the constitutional amendment. On February 26, 2015, the Texas Transportation Commission adopted proposed amendments to the Texas Administrative Code relating to Transportation Funding in light of the passage of Proposition 1 (the constitutional amendment voter referendum authorized in SJR 1), and the recommendations from the House Select Committee on Transportation Funding, Expenditures and Finance, and the Department's Proposition 1 Stakeholder Committee. The amendments provide greater flexibility in the methods used for distributing funds through the Department's Unified Transportation Program (UTP). Included in the amendments are expanding Category 2, Metropolitan and Urban Corridor Projects, to include safety, maintenance or rehabilitation projects; clarifying the term "strategic corridors" to include any strategic corridors

located on the state highway network which provide statewide connectivity; supplementing funds allocated to individual TxDOT districts under Category 11, District Discretionary on a case-by-case basis to cover project cost overruns; and, supplementing funds allocated to individual districts under Category 1, Preventative Maintenance and Rehabilitation, and Category 11, District Discretionary, in response to special initiatives, safety issues, or unforeseen environmental factors. Such supplemental funding is not required to be allocated proportionately among the districts and is not required to be allocated according to the prescribed formulas for Category 1, Preventative Maintenance and Rehabilitation, and Category 11, District Discretionary.

Revenue collection, which will fluctuate from year to year based on oil prices, will affect the allocation for future years. The Transportation Policy Board of the Capital Area Metropolitan Planning Organization (CAMPO) has pledged its share of Proposition 1 funds to improvements on I-35 within the MPO's planning area, which includes Hays County.

A variety of funding mechanisms exist that could be applied to I-35 projects in Hays County. For this interim report, a list of potential funding sources has been identified. As part of continued implementation assessment, these funding options will be evaluated and recommendations for project financing developed. Currently, funding for transportation comes from governmental entities, private entities, and via special district overlays, associations, and agreements.

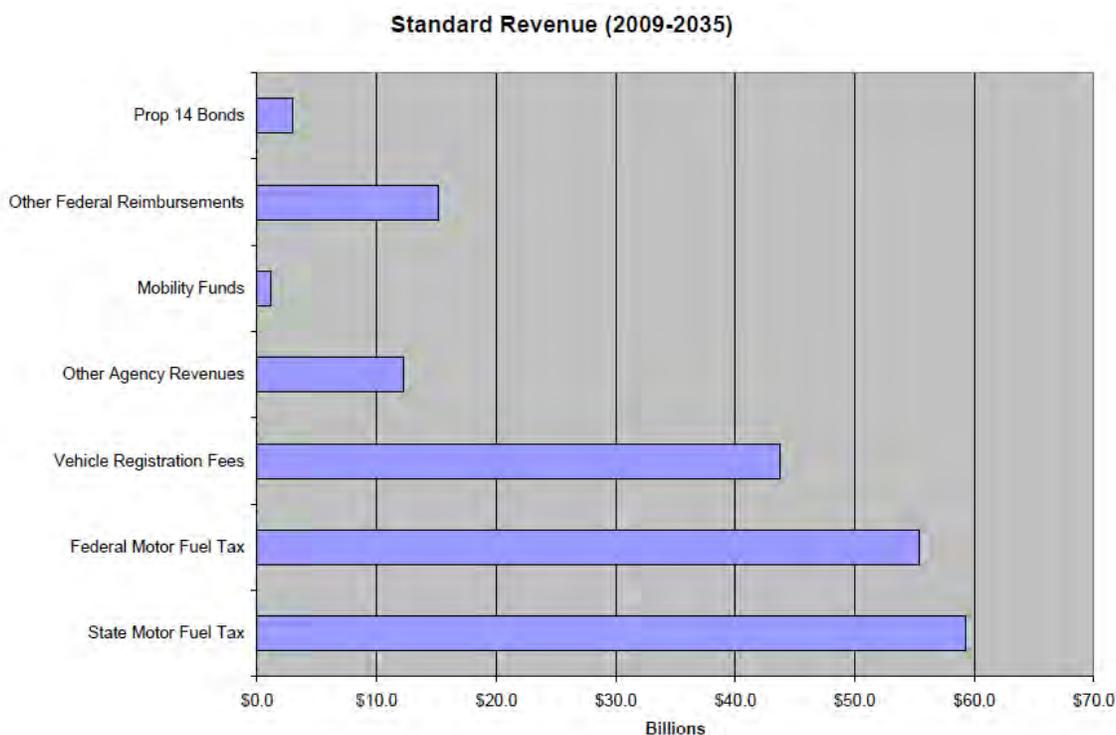


Figure 8.1: Standard Revenue (2009-2035) (source: TxDOT)

8.3.1 Government Entities

Government funding may come from federal, state, county, or municipal sources. Federal and state funds are primarily motor fuel taxes, and are disbursed and administered by TxDOT. The \$11

million in annual historical spending on the I-35 corridor through the Austin District is funded through TxDOT. Barring significant changes to the TxDOT budget, this funding should be expected to remain relatively constant.

Local governmental entities typically fund transportation projects through a Capital Improvement Plan (CIP) process. If the local entity requests state or federal assistance, the project must be placed on the State Transportation Improvement Plan (STIP). Funding for such projects can include regular CIP programming, inclusion in bond elections and/or use of pass-through or State Infrastructure Bank financing. Examples of funding through government entities are described below.

8.3.1.1 Federal Credit Assistance

The federal government provides assistance to states to lower interest rates and expand access to capital through the Transportation Infrastructure Finance and Innovation Act (TIFIA) loan program. Through TIFIA, the federal government provides federal credit assistance to projects that meet certain criteria (such as the use of public-private partnerships and/or advanced technology) for nationally or regionally significant projects. A project must be on the National Highway system, part of the Statewide Transportation Improvement Plan, and have a capital cost of at least \$50 million to be considered for TIFIA funding, which is limited to 33 per cent of total eligible project cost. A project must also be supported in whole or in part by user charges or other non-federal dedicated funding sources. At present, no potential TIFIA applications are under development for this corridor.

8.3.1.2 State Infrastructure Banks

State Infrastructure Banks (SIB) may be used by states as a revolving fund mechanism to finance highway and transit projects. SIBs provide direct loans with attractive interest rates, with revenues from repayment and interest to fund additional loans. State Infrastructure Bank projects require a local sponsor to act as a guarantor for the funding agreement. At present, no potential SIB applications are under development for this corridor.

8.3.1.3 Rider 42 of the General Appropriations Act

Rider 42 of the General Appropriations Act authorized TxDOT to use \$300 million of Proposition 12 bond proceeds to acquire right-of-way, conduct feasibility studies and project planning, and outsource engineering work for the most congested roadway segments in each of the four most congested regions in the state (Dallas-Fort Worth, Houston, Austin, and San Antonio metropolitan areas). Furthermore, Rider 42 required that TTI serve as a facilitator and project coordinator of studies conducted by the four most congested regions to: (1) determine which projects would have the greatest impacts considering such factors as congestion, economic benefits, user costs, safety and pavement quality; (2) identify funding options to support completion of the projects and suggest the best use of future revenues for the projects; (3) include implementation of best traffic and demand management practices; (4) ensure open and transparent public participation; and (5) make recommendations to TxDOT at each major decision point for the projects.

8.3.1.4 *Mobility Bond Elections*

A county or city government may issue bond funding, upon voter approval for corridor improvements. No other current bond initiatives for the I-35 corridor have been placed on a ballot for voter approval.

8.3.2 *Private Funding*

In some cases the public entity can partner with a private landowner to share project development costs on a segment of roadway if the private landowner desires such improvements to enhance their property. The governmental entity may also require the private landowner to pay for some or all of a mobility enhancement as part of the land development process to mitigate a development's impact on the roadway network. In other cases a private entity may agree to pay for limited mobility improvements on a public facility to enhance access to, or value of, a private development. An example of the latter is the recently completed development at I-35 from Howard Lane to Parmer Lane. The Phase 1-4 development of this project was funded by a private entity. There are no similar projects under development within this corridor as of the date of this report.

8.3.3 *District Overlays, Associations, and Agreements*

There are several mechanisms that allow public agencies and associations of property owners to provide improvements in a corridor. These mechanisms require legislative authorization for implementation. Desired outcomes may include improved safety, increased consumer flow, and beautification.

Participation in a property owners association may be voluntary or required due to the location of the property in a special overlay district. Involuntary participation in an association may include taxation or the taking of a property. Examples of types of associations are: Transportation Reinvestment Zones (TRZ), Tax Increment Finance (TIF) Zones, Transportation Corporations, and driveway sharing agreements. There are currently no known district overlays, associations or other entities active that seek to fund improvements in the corridor.

8.3.4 *Public-Private Partnerships*

Public-Private Partnerships (P3s) are contractual agreements formed between a public agency and a private sector entity that allow for greater private sector participation in the delivery and financing of transportation projects. There are many different P3 structures, and the degree to which the private sector assumes responsibility - including financial risk - differs from one application to another. Additionally, different types of P3s lend themselves to the development of new facilities and others to the operation or expansion of existing assets. Project-specific legislation would be required for the use of P3 development for any portion of Mobility35.

8.3.5 *Tolling*

Tolling may be used by a government entity, a P3, or a private developer to raise revenue to repay loans incurred in order to construct a transportation facility. Tolls may be collected electronically

such as through a TxTag, or through the mail by photographing license plate numbers. Once construction costs are paid through tolls, the tolls could be used to maintain the facility.

8.3.6 Congestion Pricing

Congestion pricing may be used by the transportation facility owner or operator to regulate traffic. For example, a tolled lane may cost less when traffic is light and more during rush hour in order to reduce congestion on the toll-facility and maintain an advertised speed for toll-facility users. Congestion pricing may also apply to bridge tolls, parking fees, or any other transportation activity where driver behavior may be influenced by price. Congestion pricing may be used to encourage travelers to use transit and carpool rather than driving a single-occupant vehicle.

8.3.7 Interlocal Agreements

Within statutory limitations, organizations charged with improving mobility may enter into interlocal agreements to fund transportation projects. An example is the interlocal agreement between the CAMPO and the CTRMA.

8.3.7.1 Interlocal Agreement between CAMPO and CTRMA

On June 28, 2012, CAMPO and CTRMA executed an interlocal agreement regarding anticipated Surplus Revenue identified from the MOPAC Improvement Project. According to the agreement, TxDOT was able to provide \$136,583,000 for the MOPAC Improvement Project due to the receipt of unanticipated federal funding and lower than anticipated borrowing and construction costs for projects. In turn, the influx of money from TxDOT made it possible for CTRMA to fund the MOPAC Improvement Project without issuing toll revenue bonds, thus reducing the total cost of constructing and operating the project by reducing the projected cost of issuing and repaying toll revenue bonds.

CTRMA agreed to establish a Regional Infrastructure Fund (RIF) to be used to fund other transportation projects in the region. CTRMA deposits and holds the RIF in a dedicated interest-bearing account for the benefit of CAMPO. If all of the expected Surplus Revenue is realized, a total of \$230,000,000 will be deposited into the RIF by 2041 via annual deposits beginning in 2017 and ending in 2041 in accordance with an approved payment schedule. This is a potential source of revenue for Mobility35. However, it should be noted that allocation of these funds to I-35 would require action by the CAMPO Policy Board. It is further assumed that all scheduled RIF deposits occurring through FY 2021 will be used to fund improvements to I-35.

9.0 Next Steps

As part of the overarching Mobility35 Program, project development will continue to move forward for those projects currently under development. As funding is identified, more projects identified in this plan will progress into Phases 3-5.

Public outreach will continue to be a key on-going process as project development progresses. Several of the concepts under development would result in major changes to the existing traffic operations within the corridor; public input on these concepts is very important to their continued

refinement. The planning team intends to continue small group outreach efforts with additional stakeholders, as well as revisit many of those that have already been contacted to provide project updates. Continued update of social media and web resources will also provide updated information to the public.

10.0 References

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I-35 Capital Area Improvement Program

Hays County Implementation Plan Appendix A Refined Improvement Concepts

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I-35 Capital Area Improvement Program

Hays County Implementation Plan Appendix B Project Development Summary Sheets

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I-35 Capital Area Improvement Program

Hays County Implementation Plan Appendix C Preliminary Cost Estimates

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I-35 Capital Area Improvement Program

Hays County Implementation Plan Appendix D Typical Sections

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