I-35 Capital Area Improvement Program (Mobility35)

Corridor Implementation Plan

SH 130 to Posey Road

Williamson, Travis & Hays Counties, Texas

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Texas
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of Transportation

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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 trucks, 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, 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. I-35 through Austin dropped from #1 most congested in 2013 to #2 most congested in 2014. It should be noted that this drop is attributable to congestion increasing more quickly on another roadway and does not reflect a lessening of congestion on I-35 in Austin. Congestion on I-35 through Austin continues to increase as the area continues to grow.

1.1 Mobility35

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 efforts from State Highway 130 (north of Georgetown in Williamson County) to Posey Road (south of San Marcos in Hays County), a 65-mile corridor.

2.0 Need for Improvements and Contributing Factors

In 1927, United States Highway 81 (US 81) was authorized from the Oklahoma/Texas border, south of Terral, through Fort Worth, Waco, Austin, San Marcos, and Laredo to the Texas/Mexico border. In the 1930s, US 81 was completed in Travis County. In the 1950s, I-35 was completed through Austin as a 4-lane highway. I-35 generally followed the alignment of US 81 in Travis County, but veered to the east in what is now the Austin urban core. I-35 was upgraded to a controlled-access, 6-lane Interstate Highway through downtown Austin by 1962.

In 1974, a two-mile I-35 upper deck was added from Airport Boulevard to MLK Boulevard in downtown Austin in an effort to relieve congestion. Subsequent improvements have involved addition of mainlane capacity north and south of the urban core, improvements to system-to-system interchanges at US 183, US 290E and SH 71, changes to ramps, intersection improvements, and the addition of some U-turn overpasses.

2.1 Population and Employment

Since the construction of the Interstate Highway system in the 1950s, the population in Williamson, Travis, and Hays counties has experienced a steady growth rate, ranging from 6.5% to 105.1% per decade. As shown in **Table 2.1**, the population of Travis County increased from 160,980 in 1950 to 1,024,266 in 2010. Williamson County experienced a similar rate of population growth, with 38,853 Williamson County residents in 1950 and 422,679 in 2010. Although growth is slightly less dramatic in Hays County, the population grew from 17,843 in 1950 to 157,107 in 2010.

Table 2.1: Historical Population Growth, 1950-2010

Year	Williamson County		Travis County		Hays County	
	Population	% Change	Population	% Change	Population	% Change
1950	38,853	--	160,980	--	17,840	--
1960	35,044	-9.8%	212,136	31.8%	19,934	11.7%
1970	37,305	6.5%	295,516	39.3%	27,642	38.7%
1980	76,521	105.1%	419,573	42.0%	40,594	46.9%
1990	139,551	82.4%	576,407	37.4%	65,614	61.6%
2000	250,466	79.5%	812,280	40.9%	97,918	49.2%
2010	422,679	68.8%	1,024,266	26.1%	157,107	60.4%

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

The robust population growth in Williamson, Travis, and Hays counties is forecasted to continue into the future, as current estimates project 2035 population in Travis County to reach over 1.5 million residents and Williamson County having the most growth. **Table 2.2** presents forecasted population levels and growth rates for Williamson, Travis, and Hays counties for 2015-2035.

Table 2.2: Future Projected Population Growth, 2015-2035

Year	Williamson County		Travis County		Hays County	
	Population	% Change	Population	% Change	Population	% Change
2015	473,300	--	1,105,000	--	189,200	--
2025	702,700	48.5%	1,318,000	19.3%	271,600	43.6%
2035	1,026,500	46.1%	1,555,300	18.0%	371,200	36.7%

Source: CAMPO 2035 Regional Transportation Plan (2010)

In addition to being a major population center and the State Capitol, the greater Austin metropolitan area plays host to many major employers and has become known nationally as a leader for technology sector employment. In addition to local, state and federal government functions, and the University of Texas, major private sector employers[1] in the Austin-area include:

- Dell
- IBM Corporation
- Seton Family of Hospitals
- St. David's Healthcare Partnership
- Advanced Micro Devices
- Apple Computer
- Applied Materials
- AT&T, Flextronics
- Freescale Semiconductor
- Gentiva
- National Instruments
- Samsung Austin Semiconductor
- Whole Foods Market

[1] Defined as employing over 2,000 employees. Source: Austin Chamber of Commerce, http://www.austinchamber.com/austin/work/employers.php

Estimated employment levels in Travis County are expected to nearly double over the 30-year period from 2005 to 2035, to over 1,000,000 jobs. Williamson and Hays counties are expected to almost quadruple their employment levels over the 30-year period. **Table 2.3** provides information regarding forecasted employment growth for Travis County to the year 2035.

Table 2.3: Future Projected Employment Growth, 2005-2035

Year	Williamson County		Travis County		Hays County	
	Employment	% Change	Employment	% Change	Employment	% Change
2005	101,500	--	536,900	--	41,000	--
2015	165,700	63.3%	707,200	31.7%	66,200	61.4%
2025	253,000	52.7%	843,500	19.3%	97,800	47.7%
2035	400,300	58.2%	1,026,500	21.7%	137,300	40.4%

Source: CAMPO 2035 Regional Transportation Plan (2010)

2.2 Corridor Traffic

As population and employment in Williamson, Travis, and Hays counties have 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**. Nationally, vehicle miles travelled have declined from 2007 – 2011 as a result of economic conditions. A marked reduction in AADT occurred for certain locations in the I-35 corridor between 2005 and 2010. This reduction also coincided with the opening of SH 130 and SH 45 as additional routes within the planning area in 2005. Since 2010, an upward trend in traffic growth has been re-established and most locations now exceed the volumes experienced prior to the opening of SH 130 and SH 45.

Table 2.4: I-35 Average Daily Traffic Volumes

Location	1980	1985	1990	1995	2000	2005	2010	2035*
North of SH 130	15,200	23,000	32,000	42,000	60,000	69,000	85,000	154,000
South of SH 29	22,000	37,000	50,000	64,000	83,000	101,000	101,000	183,000
South of RM 1431	26,000	44,000	56,000	76,000	101,000	105,000	128,000	232,000
South of US 79	33,000	65,000	77,000	117,000	141,000	133,000	157,000	284,000
North of SH 45N	36,000	70,000	84,000	120,000	168,000	168,000	170,000	308,000
North of US 183	56,000	106,000	131,000	173,000	180,000	229,970	193,000	221,000
South of US 183	79,000	131,000	148,000	180,000	220,000	249,960	205,000	309,000
At Lady Bird Lake	108,000	149,000	163,000	192,000	201,000	194,880	175,000	302,000
North of SH 71	76,000	114,000	131,000	150,000	167,000	158,380	183,000	270,000
South of SH 71	52,000	86,000	114,000	142,000	161,000	169,740	176,000	241,000
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. Crash rates were then developed for the implementation segments within the limits of this analysis. The 2010 statewide average crash rate for urban interstate facilities is 101.82 crashes per 100 million vehicle miles. Based on review of the I-35 crash data, the 2010 crash rates are higher than the statewide averages for some segments of the corridor. A summary of the total crashes by segment are 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	Williamson	3	84	85	1	173
	Travis	11	963	828	30	1,832
	Hays	5	247	367	6	625
2012	Williamson	2	115	155	4	276
	Travis	11	1,194	1,091	58	2,354
	Hays	9	250	403	8	670
2013	Williamson	5	177	410	5	597
	Travis	12	1,145	1,022	52	2,231
	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 Austin. Several studies have been conducted by TxDOT to try to find appropriate solutions.

3.1 1987 Feasibility Study

In 1987, TxDOT hired a consultant to perform a feasibility study to determine how best to upgrade I-35 from Martin Luther King Boulevard to Ben White Boulevard (SH 71/US 290). In 1988, the study was terminated because of concerns that the concepts under development would not effectively address the transportation needs and would not be accepted by the community due to the extensive use of elevated structures and the large amount of right-of-way that would be required to implement the concepts.

3.2 TxDOT Austin District I-35 Major Investment Study

In 1989, TxDOT began an in-house feasibility study to determine a way to upgrade I-35 that addressed public concerns more effectively than the 1987 study. The study limits were along I-35 from US 183 to Ben White Boulevard (SH 71/US 290). With the passage of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), TxDOT determined that the study should be expanded into a Major Investment Study (MIS) as required by ISTEA. The expanded study included all of the Austin Transportation Study (ATS)[2] area and added High Occupancy Vehicle (HOV) lanes as a possible design feature. The I-35 MIS was included in the ATS plan adopted in December 1994. Eleven possible strategies were studied. Of the eleven strategies studied, the MIS recommended three possible strategies be carried forward for detailed engineering and environmental analysis. These three strategies were:

- Strategy 1 – No Action Alternative
- Strategy 5-B1 – Major construction on I-35 to construct new HOV lanes within the existing I-35 corridor, assuming construction of light rail as proposed by Capital Metro, and providing travel demand measures in the ATS area.
- Strategy 6-E –Major reconstruction of I-35 between certain limits within the ATS area, integrating transportation system mobility improvements, assuming construction of light rail as proposed by Capital Metro, and providing travel demand measures in the ATS area.

[2] The ATS was the predecessor organization to CAMPO, and included all of Travis County.

The MIS process was completed in 2004. Due to funding limitations and other hurdles, including a dearth of political and public support, none of the major improvements identified in the MIS were advanced to construction.

3.3 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.
- Integrated, real-time traffic information systems that alert drivers to delays and provide alternate routes.

In the Capital Area, the plan recommended re-designating and re-naming parts of I-35 to divert interstate traffic away from metropolitan areas and onto SH 130.

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.

3.4 City of Austin I-35 Phase 1 Study

The I-35 Corridor Improvement Program was a COA-led conceptual planning (Phase 1) study initiated in August 2011. This was one of several initiatives funded by the 2010 City of Austin Mobility Bond Program. Phase 1 efforts include high-level concept planning and feasibility assessment. This study initially covered the area between US 290E on the north and William Cannon Drive on the south. Study efforts included extensive public outreach with dozens of stakeholder meetings, multiple open houses, and regular engagements with partnering agencies. The outreach generated a large number of corridor improvement ideas, which were considered for

further development and implementation. The study limits were expanded in July 2012 to include examination of express lanes and other potential short- and mid-term improvements between SH 45N and US 290E, and between William Cannon Drive and SH 45SE. Feasible ideas and concepts that have emerged from this effort were incorporated into the Implementation Plan efforts detailed in this report. Stakeholder, technical and public outreach efforts between the Phase 1 study and the Phase 2 Implementation Plan (Mobility35) were coordinated through a Project Management Team and Technical Steering Committee (TSC) common to both efforts.

3.5 Williamson and Hays County Improvement Efforts

Both Williamson and Hays counties have made significant improvements to the I-35 corridor within respective county limits. These improvements include all phases of project development through design and construction for ramping improvements, frontage road improvements, intersection improvements, new frontage roads, conversion of frontage roads from 2-way to 1-way, and the addition of U-turn structures. Both counties have utilized bond funding, 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 help counties facilitate improvements along the corridor.

4.0 Implementation Plan Development

Development of the Mobility35 Corridor Implementation Plan (Implementation Plan), which led to the Mobility35 Program, 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 65 miles along existing I-35 from north of SH 130 just within the northern city limits of Georgetown, Texas, to Posey Road located just south of San Marcos, Texas. For planning and evaluation purposes this corridor is broken into segments, within each county.

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.

4.3 Program Objective

The Mobility35 program includes engineering, public involvement, environmental services, and construction services for a program of improvements to I-35 from SH 130 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. The program of improvements for

Williamson and Hays County are still under development and will be included in future updates of this Implementation Plan.

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
- Enhance bicycle, pedestrian and transit options

4.3 Public and Agency Involvement

Public and stakeholder outreach has been and will continue to be a critical part of the Mobility35 program across all three counties; 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.

Technical Steering Committee

Since the program's inception, a Technical Steering Committee (TSC) provides coordination and guidance to the program. This committee was initially established to advise the COA during Phase 1, and was continued with the addition of Phase 2 planning efforts. It is anticipated that this committee will continue service throughout the duration of the Mobility35 program, and evolve as additional efforts commence in Hays and Williamson Counties. Partnering agencies as of the date of this report include:

- CAMPO
- Capital Metro
- Central Texas Regional Mobility Authority (CTRMA)
- City of Austin (COA)
- City of Pflugerville
- City of Round Rock (CORR)

- Federal Highway Administration (FHWA)
- Hays, Travis, and Williamson Counties
- Texas A&M Transportation Institute (TTI)
- TxDOT

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 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.

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 30 program-related open houses held in Williamson, Travis and Hays Counties along with 13 online open houses. Nineteen events were general, related to the program as a whole or a specific county within the corridor. Eleven events were regarding specific projects within the corridor. These open houses provide an opportunity for formal communications with the public via prepared materials and a formal comment period.

Stakeholder Meetings

The TxDOT planning team members have participated in more than 200 small group meetings with stakeholders. Generally these meetings are 45 to 90 minutes in length and allow the stakeholder group 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.

Downtown Stakeholder Working Group

The Downtown Stakeholder Working Group was formed in 2013 to help the Austin/Central Texas region chart the future of this essential transportation corridor. Members represented neighborhood groups, business organizations, local governmental entities, I-35 users, and other stakeholders with an interest in I-35 through downtown Austin. Members included: Capital Area Metropolitan Planning Organization (CAMPO), Capital Metropolitan Transportation Authority, Central

Texas Regional Mobility Authority (CTRMA), City of Austin, City of Austin Fire Department, City of Austin Police Department, City of Buda, City of Kyle, City of Pflugerville, City of Round Rock, Congress for New Urbanism, Downtown Austin Alliance, Downtown Austin Neighborhood Association (DANA), East Cesar Chavez Neighborhood Association, Greater Austin Black Chamber of Commerce, Greater Austin Chamber of Commerce, Greater Austin Hispanic Chamber of Commerce, Hays County, Huston-Tillotson University, Organization of Central East Austin Neighborhoods (OCEAN), People Organized in Defense of Earth and her Resources (PODER), Rainey Neighbors Association, Inc., Real Estate Council of Austin (RECA), Reconnect Austin, Sierra Club, Texas Facilities Commission, Texas Trucking Association, The University of Texas at Austin, Travis County, Waller Creek Conservancy, and Williamson County. The final Working Group meeting was held on October 8, 2014.

Downtown Stakeholder Working Group discussions focused on the federally-mandated transportation development process; current conditions and challenges along and across I-35 through downtown Austin; and options, along with planned improvements, for the downtown Austin area. It raised community awareness of needed I-35 improvements and improvement options identified in the Mobility35 Plan, and worked to facilitate an ongoing community outreach process that focused on the challenges associated with implementing the Mobility35 improvement options in the downtown Austin area. TxDOT's final report on the activities of the group during the yearlong effort is available at www.mobility35.org.

Online Information

Mobility35 is represented online via an integrated website for all Mobility35 efforts. This website is located at www.mobility35.org. Website 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 being updated as needed to incorporate new information for all program efforts in Williamson, Travis, and Hays counties. It is anticipated that the website will eventually reside under the "My 35" umbrella website, located at www.my35.org.

The Mobility35 website provides information about the 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" and links to a virtual open house (when open for public comment), news articles and the program's interactive forum and social media sites.

In December 2012, Mobility35 created Twitter and Facebook accounts to provide program information and announcements to social media users, as well as to direct additional online traffic to the Mobility35 website. In 2014, the Mobility35 Twitter and Facebook accounts were integrated into TxDOT – Austin District Facebook and Twitter outreach efforts. Mobility35 accounts are no longer supported as stand-alone, program-specific accounts.

Community Events

The Mobility35 team participated in eight community events in 2013 and four in 2014 to generate awareness and interest in the program. These events included a family Easter festival in Pflugerville, an activity-oriented event in downtown Austin, a family concert event in South Austin, a neighborhood event in Kyle, a Farmer's Market in Round Rock, HOPE Farmers Market at Plaza Saltillo Market in east Austin, and more. Mobility35 staff hosted booths at each these events, where they distributed Mobility35 open house announcements, brochures, and kids' activity sheets, talked one-on-one with event participants, and signed people up for the Mobility35 mailing list. The Mobility35 team will continue to target future community events to continue these successful outreach efforts.

4.5 Technical Concept Development

Limitations

Phase 2 and 3 efforts are subject to further evaluation and refinement. Concepts shown in the following chapters are in a preliminary stage and are subject to change as the Mobility35 program evolves and the concepts it presents are refined. 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).

Environmental Resources

As part of the Phase 2 Efforts, an inventory and preliminary evaluation of the social, economic, and natural environment (environmental resources) in and along the I-35 corridor in each of the three counties has been developed. 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" that might be present.

Bicycle and Pedestrian Considerations

A bicycle 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 bicycle and pedestrian planning documents as a basis for bicycle and pedestrian needs. The intent of the assessment is to analyse and propose I-35 bicycle and pedestrian longitudinal and cross-connectivity improvements based on existing roadway conditions, taking into consideration long term plans established by local agencies and organizations.

TxDOT, along with the city of Austin, has been working with FHWA to develop a comprehensive bicycle and pedestrian accommodation matrix for Travis County. The matrix was developed in a joint effort working with the bicycle and pedestrian communities to best accommodate both modes in the corridor within the program constraints. This matrix is under final review and refinement and will be sent to FHWA for final approval and adoption. TxDOT is currently working with other local entities to develop similar matrices that will cover the entire length of the Mobility35 corridor.

Traffic and Operational Analysis

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

In general, operational analysis has confirmed the following:

- Developing the FTC to enhance mainlane mobility through the corridor provides the single largest mobility gain for I-35 through the corridor.
- Reconfiguring ramps to optimize and consolidate mainlane access locations improves overall corridor mobility.
- Adding or extending mainlane auxiliary lanes and adding collector-distributor road segments 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.
- Improving existing interchange configurations, including use of innovative concepts such as Roundabouts and diverging diamond intersections improves frontage road and local mobility.

Engineering Analysis

Phase 2 engineering analysis efforts focus on developing concepts, refining concepts, and developing additional concepts as necessary to develop working concepts for the corridor. Concepts are developed in accordance with the TxDOT *Roadway Design Manual*, the TxDOT *Hydraulic Design Manual*, 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. The TSC provided guidance on acceptable and reasonable trade-offs required to implement corridor improvements without wholesale reconstruction of the existing facility. Concepts developed through the engineering process are coordinated with the traffic and operational analysis to ensure concepts perform from all aspects of design.

Types of improvements for the corridor include ramping modifications, addition of auxiliary lanes, addition of U-turns at intersections, and intersection turn lanes. The concepts also include bicycle and pedestrian and transit considerations. Several new or innovative concepts are also included in the corridor concepts, including the Future Transportation Corridor (FTC), Collector-Distributor Roads, Diverging Diamond Intersections, and Roundabouts. These concepts are described in Section 4.

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, addition of auxiliary lanes, addition of U-turns at intersections, and intersection turn lanes. The concepts also include bicycle-pedestrian and transit considerations. Several new or innovative concepts are also included in the corridor concepts. 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 for each county below.

5.1 Future Transportation Corridor

Adding mainlane capacity, identified specifically as the 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 interstate mainlanes, 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. Right now, we don't know what type of lane the FTC would be. A Planning and Environmental Linkages Study (PEL), which is currently being conducted, will help determine how this lane will be used. The study will also determine the purpose and need and logical segments for the FTC. The PEL study is anticipated to be complete in early 2015.

For the purposes of this Phase 2 effort, 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; therefore, any of the potential lane options would fit within the footprint developed for the FTC presented herein. The parameters used for the FTC are shown in Figure 5.1.

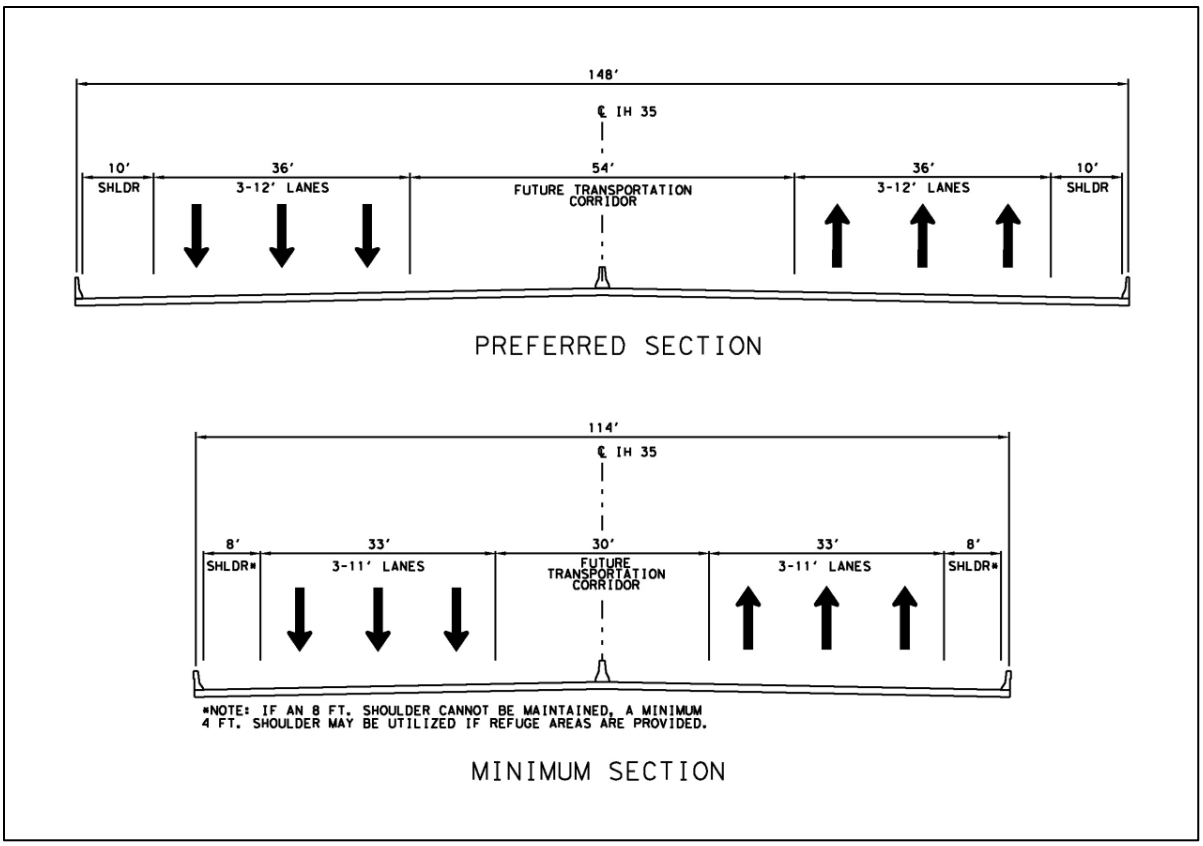

Figure 5.1: FTC Parameters

5.2 Corridor Access Improvements

Ramp Modifications

In some areas, like downtown Austin, 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.

Auxiliary Lanes

Mobility35 proposes the addition of auxiliary lanes (or speed-change lanes) in several locations along 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 mainlanes and frontage roads. These lanes are usually installed within the distance between an on-ramp and an off-ramp.

Collector-distributor (C-D) road

Collector-Distributor (C-D) roads help manage traffic flow along a corridor by allowing through traffic on a frontage road to bypass signalized intersections without having to stop. C-D roads can also improve safety by providing safer opportunities for merging and speed changes. C-D roads are typically located between the mainlanes of a freeway and frontage roads.

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 additional turn lanes or through lanes, and adding dedicated U-turn lanes to move more traffic through the intersection. Benefits of modifying conventional intersections include improved safety, mobility, connectivity, and frontage road traffic flow.

5.4 Diverging Diamond Intersection

A Diverging Diamond Intersection (DDI), shown in **Figure 5.2**, handles higher traffic volumes, reduces travel times, and improves safety for vehicles, bicycles, and pedestrians. The Diverging Diamond Intersection (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 and without conflicting with through traffic. Through traffic on the frontage road bypasses the intersection via a Collector-Distributor (C-D) road under a bridge.

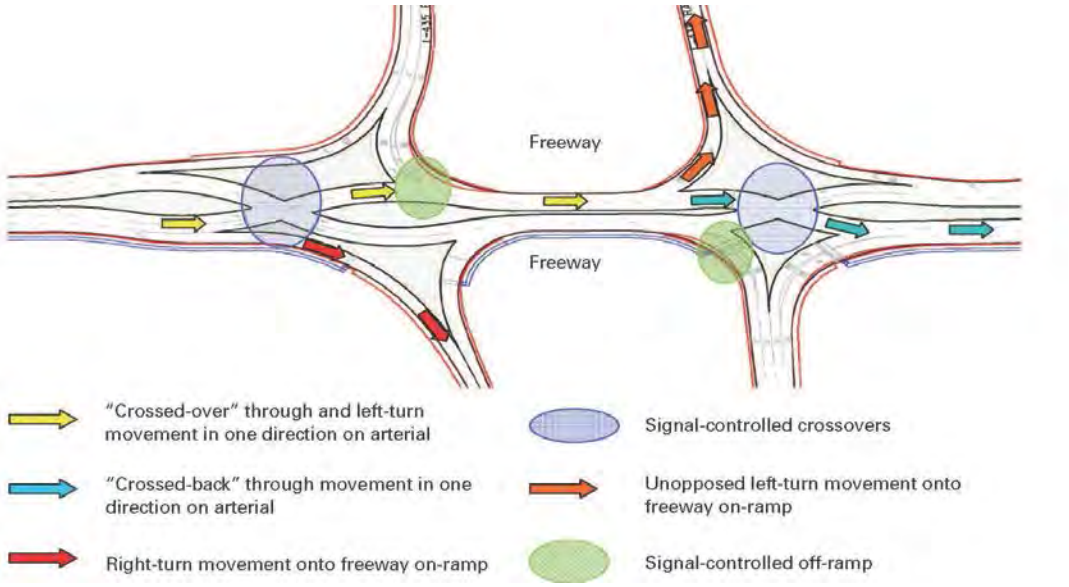

Figure 5.2 Diverging Diamond Intersection
Source: FHWA Publication Number FHWA-HRT-09-054

5.5 Roundabout

A Modern Roundabout is a one-way, circular intersection in which traffic flows around a center island. A roundabout eliminates some of the conflicting traffic, such as left turns. Because roundabout traffic enters or exits only through right turns, the occurrence of severe crashes is substantially reduced. **Figure 5.3** shows an example of a Roundabout.

Figure 5.3 Roundabout

5.6 Continuous Flow Intersection

A continuous flow intersection (CFI) also known as a displaced left turn intersection, shown in **Figure 5.4**, handles higher traffic volumes, reduces travel times, and improves safety for vehicles, bicycles and pedestrians. 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.

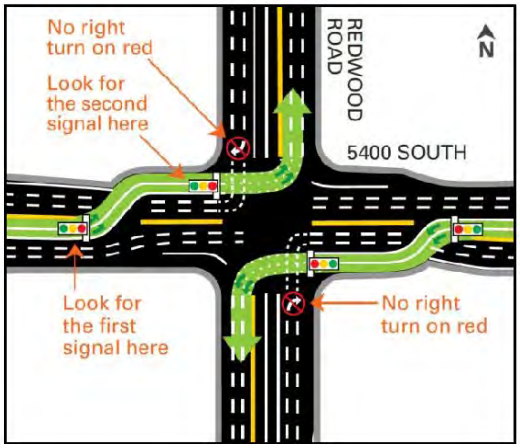

Figure 5.4 Continuous Flow Intersection

5.7 Median U-turn

The median U-turn (MUT) intersection shifts left turns out of the intersection (Figure 5.5). Traffic that desires to turn left makes a U-turn in the median beyond the main intersection, and then a right turn at the intersection. Eliminating the left turn at the main intersection simplifies signal timing and provides more green time and less congestion.

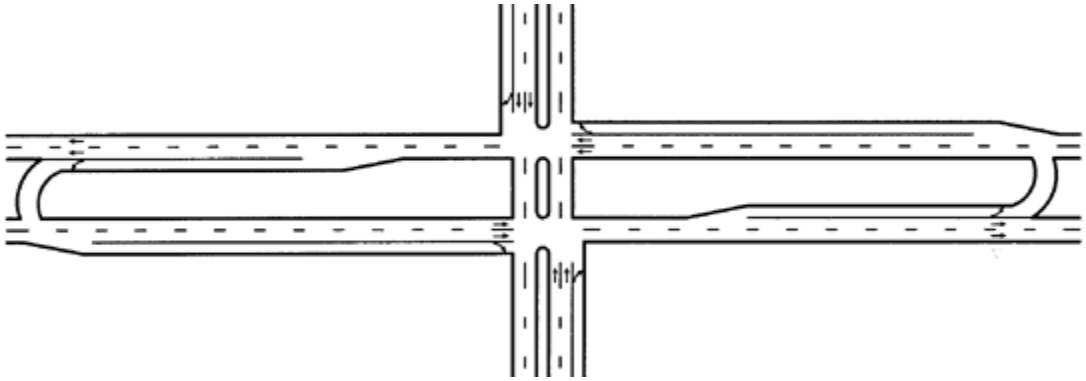

Figure 5.5 Median U-turn

5.8 Travel Demand Management

Travel Demand Management (TDM) concepts work to decrease peak-hour single-occupant auto commuting and travel volumes and increase trip reliability through strategies that include:

- Flexible work hours
- Teleworking
- Carsharing, ridesharing, carpooling and vanpooling incentives
- Transit, bicycling and walking incentives

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

5.9 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. Most ICM projects are relatively modest in cost and are often included as part of larger capital programs, similar to Mobility35. The ICM projects recommended for the Mobility35 fall into the following four categories and are shown in Table 5.1:

Table 5.1: ITS Capital Improvement Costs

ATMS - Advanced Traffic Management Systems
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
ATIS - Advanced Traveller Information Systems
Flood Warning Systems in areas inside FEMA flood plains
Road Weather Information Systems (RWIS)
Enhance TxDOT traveller information website
TIM - Traffic Incident Management
Connected Vehicle Roadside Integration
Use smart work zones
Upgrade HERO patrol fleet
Program DMS from HERO Vehicles
Video to/from HERO and other emergency vehicles
Coordination
Coordinate with the City of Austin to Implement Signal Control Strategies on Frontage Roads 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
Virtual integration of CTECC and City of Austin
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 (DMS) 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 the traffic management centers. Relevant information may include locations of incidents, weather and road conditions, optimal routes, recommended speeds, and lane restrictions.

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.

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 and provides guidance as to how corridor improvements can be implemented. The concepts and implementation plan for the Travis County portion of the corridor are described in the updated plan. Concepts for Williamson and Hays Counties are still in the development phase and will be further outlined in this section in future plan updates. Some projects described in this plan have progressed beyond the planning phase into design and, in a few cases, construction.

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.
- Cost of implementation at this time is based on preliminary, order of magnitude assessment of the probable cost to implement the improvement concepts.

6.2 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, will be developed with an intent to facilitate future efforts to meet ongoing corridor needs, to minimize throw-away construction. Bicycle and pedestrian facilities are included within the individual projects. ICM improvements are shown as a separate stand-alone basket of improvements, but could also be combined with the individual projects. Refined improvement concepts, described in Appendix A, have been developed for each stand-alone project (except ICM projects) in Travis County. A program of projects for Williamson and Hays counties is currently under development and will be included in future updates to this Implementation Plan including Project Development Summary Sheets.

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. In general projects will proceed in accordance with the following general timeline:

6.2.1 Williamson County

Williamson County Current Projects

I-35 Williamson County Feasibility Study (Phase 2)

The I-35 Williamson County Feasibility Study was launched in November 2013. Over the course of the study, a range of concepts will be developed and analyzed that will take into account the needs of drivers, transit riders, bicyclists and pedestrians as well as surrounding businesses, neighborhoods and the environment. TxDOT is the sponsor for the study, which is anticipated to be complete by early 2015.

I-35 Northbound Frontage Road Improvements from Westinghouse Road to SH 29 (Phase 5)

Williamson County developed plans, specifications, and estimates for improvements along I-35, from Westinghouse Road to SH 29 and the project is now under construction (Phase 5). The project involves the construction of northbound frontage road, auxiliary lanes, ramps reconfiguration, new frontage road bridges over the South San Gabriel River and the West Fork of Smith Branch, and a U-turn bridge north of RM 2243. The project would also add sidewalks between Southeast Inner Loop Drive and Westinghouse Road to enhance mobility and safety. Williamson County is the project sponsor. Construction of the project is anticipated to be completed in the early-2015.

I-35 Diverging Diamond Intersection at RM 1431 (University Boulevard) (Phase 4)

TxDOT has developed plans, specifications, and estimates for improvements at University Boulevard and I-35. The project involves implementing a Diverging Diamond Intersection by reconfiguring the existing intersection as well as adding sidewalks and shared use paths for pedestrians and bicyclists. The project has been let for construction and the contract has been awarded. TxDOT is the project sponsor. Construction of the project began in October of 2014.

I-35 Improvement Project from RM 1431 to SH 45N (Phase 3 and 4)

TxDOT is working to develop schematic plans and environmental documents for improvements to I-35 from RM 1431 to SH 45N. The project involves the construction of northbound and southbound auxiliary lanes to allow for better merging conditions when vehicles enter or exit I-35, reconstruction of the bridge at FM 3406 to incorporate additional turn lanes, addition of U-turn bridges at FM 3406, construction of additional turn lanes at the intersection with US 79, reconstruction of the bridge at Round Rock Avenue, and ramp reconfiguration to improve operations of the mainlanes, frontage roads and intersections. The project would also include construction of sidewalks, wider outside lanes to accommodate bicycles, intersection improvements and stormwater infrastructure improvements. Phase 3 is anticipated to be completed by late 2014.

Plans, Specifications, and Estimates for the first segment of the project including Northbound I-35 improvements from RM 620 to SH 45N are anticipated to begin in the fall of 2014 and last approximately one year. Phases 3 and 4 of the project are jointly sponsored by TxDOT and the city of Round Rock. No funding has been identified for Phase 5 of this project.

I-35 Ramp Reversals from FM 3406 to US 79 (Phase 4 and 5)

The City of Round Rock has developed plans, specifications, and estimates for improvement and reconstruction of existing entrance and exit ramps on I-35 between FM 3406 and US 79. The city of Round Rock sponsored the project development and design efforts for the project. Construction is being sponsored by TxDOT/CAMPO.

Williamson County Segment Improvement Concepts

Consists of four segments:

- **Segment W1** –SH 130 to Williams Drive
- **Segment W2** –Williams Drive to RM 2243 (Leander Road)
- **Segment W3** –RM 2243 (Leander Road) to RM 1431 (University Boulevard)
- **Segment W4** –RM 1431 (University Boulevard) to SH 45N

In all segments, multiple improvement concepts are being evaluated and vetted through operational and geometric analysis. In many segments of the corridor, the analysis may yield one concept to carry forward into future phases of the project. In other segments, multiple concepts may be viable to carry forward. In all cases, no final decisions have been made regarding what improvement concepts should be constructed. Further evaluation and analysis will continue through Phases 3 and 4 of project development. In addition concepts will be refined to coordinate with additional Mobility35 projects in Travis County as those efforts progress. Within each segment, concepts will be presented and these concepts will be included in **Appendix A: Refined Improvement Concepts** when they are fully developed as part of future Implementation Plan Updates.

Segment W1 –Williamson County Feasibility Study - SH 195 to Williams Drive (Phase 2)

Segment W1 is shown in **Figure 6.4.1**. Overall improvement concepts for this segment would include adding the FTC, improving frontage road traffic flow, and improving bicycle and pedestrian mobility.

Figure 6.4.1: Segment W1

Key intersections under evaluation in this Segment include SH 195, SH 130, Lakeway Boulevard, and Northwest Boulevard. The team is evaluating ramp locations, intersection improvements, and operational improvements.

Proposed concepts were presented at pairs of open houses held on February 11 and 12, 2014, June 10 and 11, 2014, and November 18 and 20, 2014. Final analysis of the proposed concepts is now underway and the final plan will be completed Late 2014.

Segment W2 – Williamson County Feasibility Study - Williams Dr to RM 2243 (Phase 2)

Segment W2 is shown in **Figure 6.4.2**. Overall improvement concepts for this segment would include adding the FTC, improving frontage road traffic flow, and improving bicycle and pedestrian mobility.

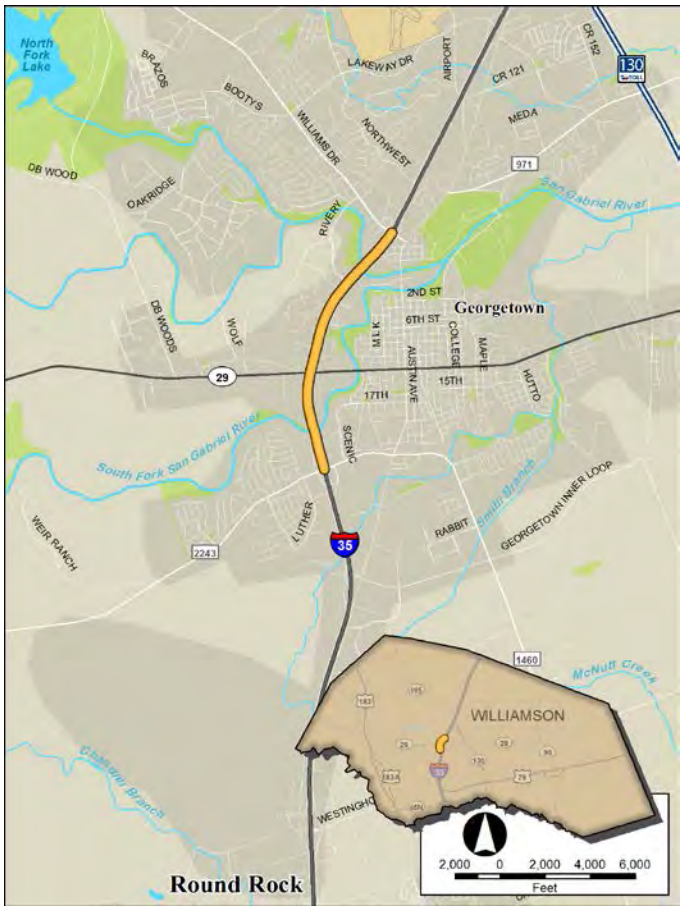

Figure 6.4.2: Segment W2

Key intersections in this segment include Williams Drive, SH 29 (University Boulevard), and RM 2243 (Leander Road). The team is evaluating ramp locations, intersection improvements, and operational improvements.

Proposed concepts were presented at pairs of open houses held on February 11 and 12, 2014, June 10 and 11, 2014, and November 18 and 20, 2014. Final analysis of the proposed concepts is now underway and the final plan will be completed Late 2014.

Segment W3 – Williamson County Feasibility Study - RM 2243 to RM 1431 (Phase 2)

Segment W3 is shown in **Figure 5.4.3**. Overall improvement concepts for this segment would include adding the FTC, improving frontage road traffic flow, and improving bicycle and pedestrian mobility.

Figure 5.4.3: Segment W3

Key intersections in this segment include Inner Loop and Westinghouse Road. The team is evaluating ramp locations, intersection improvements, and operational improvements.

Proposed concepts were presented at pairs of open houses held on February 11 and 12, 2014, June 10 and 11, 2014, and November 18 and 20, 2014. Final analysis of the proposed concepts is now underway and the final plan will be completed Late 2014.

Segment W4 – Feasibility Study (Phase 2), Environmental and Schematic Document Preparation (Phase 3) - RM 1431 to SH 45N

Segment W4 is shown in **Figure 6.4.4**. Segment W4 of Williamson County was identified as an early action project and Phases 1-3 were initiated concurrently due to consensus on needed improvements and the severity of current bottlenecks on the corridor in this area. Overall improvement concepts for this segment would include adding the FTC, improving frontage road traffic flow, ramp reversals and modifications, addition of auxiliary lanes, and improving bicycle and pedestrian mobility.

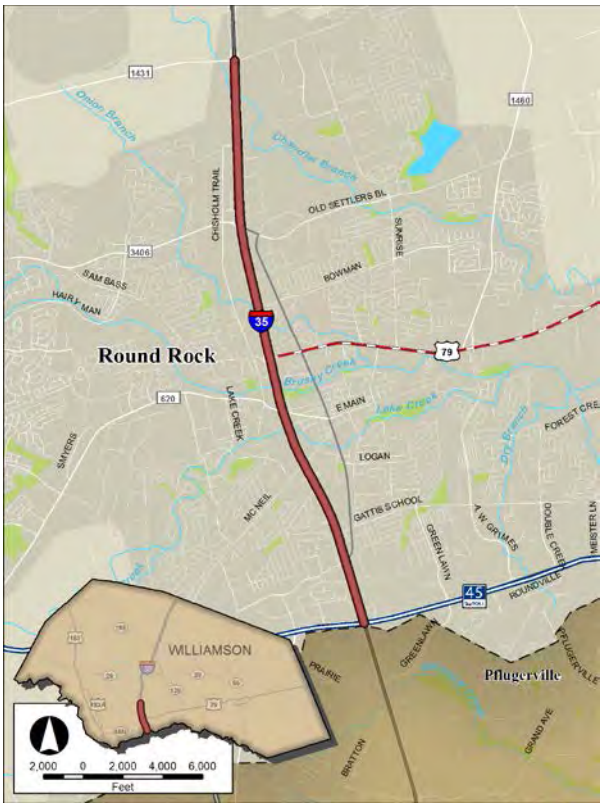

Figure 6.4.4: Segment W4

Proposed concepts were presented at an open house on January 15, 2014. Phase 3 efforts are anticipated to be completed in late 2014 and Phase 4 efforts are anticipated to begin immediately following the Phase 3 efforts.

Improvement concepts were developed at the following intersections as described below.

RM 1431 (University Boulevard) Improvements

At RM 1431, large turning movement volumes cause significant delays and long back-ups. At this location, a Diverging Diamond Intersection (DDI) would provide significant improvement on operations and reduce congestion. The existing I-35 and RM 1431 intersection would be reconfigured to a DDI without reconstructing the existing bridge. In order to reconfigure the intersection, a Collector-Distributor road would be added for southbound traffic and the frontage roads would be slightly realigned and widened. Construction of the intersection improvements began in Fall 2014.

FM 3406 (Old Settler's Boulevard) Improvements

The proposed concept at the intersection of I-35 and FM 3406 consists of replacing the existing bridge. The new bridge would be wider to accommodate additional turning lanes. New U-Turn bridges would be added for northbound and southbound traffic to allow U-turn movements without going through the traffic signal. Bicycle and pedestrian improvements are also part of the proposed concept.

US 79 (West Palm Valley Boulevard) Improvements

The improvements at the intersection of I-35 and US 79 include adding a third turning lane for westbound to southbound traffic, an additional turning lane for northbound to westbound traffic, as well as widening of the overpass to accommodate ramp modifications. The ramp modifications would also require some frontage road realignment to improve safety and traffic flow. In addition, improvements for pedestrians and bicyclists would provide better east/west and north/south connectivity by completing sidewalk connections and improving facilities.

RM 620 (Round Rock Avenue) Improvements

The proposed concept at the intersection of I-35 and RM 620 consists of adding a dedicated right turn lane for southbound to westbound traffic, as well as ramp modifications that would improve safety and traffic flow. The RM 620 bridge would be reconstructed to provide additional lanes and provide additional clearance over the I-35 mainlanes. Bicycle and pedestrian facilities would be completed added in order to improve east/west and north/south connectivity.

McNeil Road/UPRR Improvements

The improvements at the intersection of I-35 and McNeil Road/UPRR include the realignment of the northbound frontage road to accommodate ramp and auxiliary lane improvements. Ramping and auxiliary lane changes, included a braided ramp pair, are designed to alleviate the existing bottle neck that occurs due to the high merging and weaving volumes in the area from local access

ramps and the direct connector from SH 45N to I-35. The I-35 overpass would also be widened to incorporate ramp modifications. Bicycle and pedestrian facilities would be completed added in order to improve east/west and north/south connectivity.

Incorporation of the FTC

The FTC would be incorporated throughout the length of Segment 4. The FTC would generally fit within existing right-of-way without requiring major freeway reconstruction.

6.2.2 Travis County

Travis County Current Projects

I-35 Corridor Implementation Plan Refinement from SH 45N to SH 45SE (Phase 2)

TxDOT continues to refine the Corridor Implementation Plan for Travis County based upon further development and public input. Current efforts include development of 30% Schematics for the entire corridor to further progress the design process. The Corridor Implementation Plan will continue to evolve as a living document with annual updates. This study is sponsored by TxDOT.

I-35 FTC Planning and Environmental Linkages Study SH 45N to SH 45SE

TxDOT, along with the City of Austin, CAMPO, and FHWA, is working to complete a Planning and Environmental Linkages (PEL) study for the proposed FTC in Travis County. The purpose of the study is to determine the purpose and need, lane type, and segments of independent utility for the FTC. This study is sponsored by the state of Texas through Rider 42 funds and the city of Austin. The study began in March of 2014 and is anticipated to be completed in late 2014.

I-35 Northbound Collector-Distributor from Howard Lane to Parmer Lane (Phase 5)

TxDOT has begun construction of improvements in the northbound direction at Parmer Lane. This project involves the construction of a northbound frontage road Collector-Distributor roadway at Parmer Lane and associated ramps to improve safety/access along the frontage road. This project would also help to alleviate congestion at the Parmer Lane intersection, improve access to adjacent businesses, and enhance access to Capital Metro's Tech Ridge Park and Ride facility located south of Howard Lane. The design of the project was funded by private partners. Construction of this $3M project was facilitated by Proposition 12 funds and is anticipated to be complete in 2015.

I-35 Direct Connectors at US 183 (Phase 3)

TxDOT has initiated development of environmental documents and schematic engineering for the addition of direct connector ramps from I-35 to US 183. This project would include the addition of a direct connector from southbound I-35 to southbound US 183, a direct connector from northbound US 183 to northbound I-35, and associated frontage road and mainlane improvements. The project provides a reliable connection to US 183 (Bergstrom Expressway) which can serve as a bypass route for traffic during future construction of downtown improvements on I-35. Phase 3 is anticipated to be complete by early 2016. TxDOT is sponsoring Phase 3 efforts; funding is yet to be identified for Phases 4 and 5.

I-35 Operational Improvements at US 183 to US 290E (St. Johns Avenue) (Phase 3)

TxDOT has initiated development of environmental documents and schematic engineering for the operational improvements along I-35 from US 183 to US 290E in the area of St. Johns Avenue. This project would include the addition of Collector-Distributor lanes in both directions under St. Johns Avenue, reconstruction of the St. Johns bridge structure, ramp and auxiliary lane modifications, and improvements to the existing direct connector from northbound I-35 to northbound US 183. Phase 3 is anticipated to be complete by early 2016. TxDOT is sponsoring Phase 3 efforts; funding is yet to be identified for Phases 4 and 5.

I-35 Southbound Operational Improvements at 51st Street (Phase 3)

TxDOT, along with the City of Austin, has initiated development of the environmental documents and schematic engineering for the operational improvements along southbound I-35 in the vicinity of 51st Street. This project would include construction of a Collector-Distributor road under 51st Street, a new modern Roundabout at the intersection between the southbound frontage road and 51st Street, reversal of the two ramps south of 51st Street, and frontage road improvements. Phase 3 is anticipated to be complete in late 2015. TxDOT and the city of Austin are co-sponsoring Phase 3 efforts; funding is yet to be identified for Phases 4 and 5.

I-35 Northbound Frontage Road Improvements at 53rd Street (Phase 5)

Construction began in September 2014 for improvements on the northbound side of I-35 in the vicinity of 53rd Street. The project involves the construction of a slip-ramp from the frontage road to the intersection at 53rd Street and construction of operational enhancements along Cameron Road and 51st Street. The project provides improved access to commercial and residential areas without travel through the Mueller Development area. TxDOT sponsored the project development for these improvements and the city of Austin is sponsoring construction. This $3M project is anticipated to be complete in 2015.

I-35 Operational Improvements from south of Holly Street to Woodland Avenue (Riverside Drive) (Phase 3)

TxDOT has initiated development of environmental documents and schematic engineering for mobility improvements to I-35 from south of Holly Street Woodland Avenue. This project would include the addition of a northbound to southbound turnaround bridge at Riverside Drive, reconstruction of the existing Riverside Drive bridge over I-35, the addition of Collector-Distributor roads in both directions under Riverside Drive, mainlane reconstruction to fix existing geometric deficiencies, ramp improvements, and frontage road improvements for local mobility. Phase 3 is anticipated to be complete by Fall of 2016. TxDOT is sponsoring Phase 3 efforts; funding is yet to be identified for Phases 4 and 5.

I-35 from Woodland Avenue to Woodward Street (Phase 3 and 4)

TxDOT has initiated development of environmental documents and schematic engineering (Phase 3) for mobility improvements to I-35 from Woodland Avenue to Woodward Street. This project would include the addition of turnaround bridges at Oltorf Street, frontage road improvements for local mobility, and addition of I-35 mainlane auxiliary lanes between existing ramps. Phase 3 is anticipated to be complete by late 2014.

TxDOT has initiated the process to continue development of the project into Phase 4. Phase 4 efforts are anticipated to begin in late 2014 and continue for approximately one year. TxDOT is sponsoring Phase 3 and 4 efforts; funding is yet to be identified for Phase 5.

I-35 from north of Stassney Lane to south of William Cannon Drive (Phase 3 and 4)

TxDOT has initiated development of environmental documents and schematic engineering (Phase 3) for improvement to I-35 from Stassney Lane to William Cannon Drive. This project would include the addition of turnaround bridges at both Stassney Lane and William Cannon Drive, frontage road improvements for local mobility, widening existing frontage road bridges at Williamson Creek for bicycle access, addition of I-35 mainlane auxiliary lanes between ramps, and potential changes to existing ramping. Phase 3 is anticipated to be complete by late 2014.

TxDOT has initiated the process to continue development of the project into Phase 4. Phase 4 efforts are anticipated to begin in late 2014 and be complete by fall of 2015. TxDOT is sponsoring Phase 3 and 4 efforts; funding is yet to be identified for Phase 5.

Travis County Segment Improvement Concepts

In all segments, multiple improvement concepts have been evaluated and vetted through the operational and geometric analysis. In many segments of the corridor, the analysis has yielded one concept to carry forward into future phases of the project. In other segments there are multiple viable options that have been identified and developed to carry forward. In all cases, no final decisions have been made regarding what improvement concepts should be constructed. Further evaluation and analysis will continue through Phases 3 and 4 of project development. In addition, concepts will be refined for coordination with additional Mobility35 projects in Williamson and Hays Counties as those efforts progress. Within each segment, concepts are presented. Concepts discussed in this section are shown in **Appendix A: Refined Improvement Concepts.**

Consists of eight segments:

- **Segment T1** – SH 45N to FM 734 (Parmer Lane)
- **Segment T2** – FM 734 (Parmer Lane) to US 183
- **Segment T3** – US 183 to Airport Boulevard
- **Segment T4** – Airport Boulevard to Martin Luther King Boulevard (MLK)
- **Segment T5** – MLK to Lady Bird Lake
- **Segment T6** – Lady Bird Lake to Woodward Street
- **Segment T7** – Woodward Street to William Cannon Drive
- **Segment T8** – William Cannon Drive to SH 45SE

Segment T1 – SH 45N to Parmer Lane

Segment T1 is shown in **Figure 6.5.1**. Overall improvement concepts for this segment include adding the FTC, improving frontage road traffic flow, and improving bicycle and pedestrian mobility.

Ramp Reversals – SH 45N to Grand Avenue Parkway

The concept for improvements being considered in this area of the corridor includes reversing/reconstructing the existing ramps into a full X-pattern. The two entrance ramps located in the section would be flipped to exit ramps and the two exit ramps would be flipped to entrance ramps.

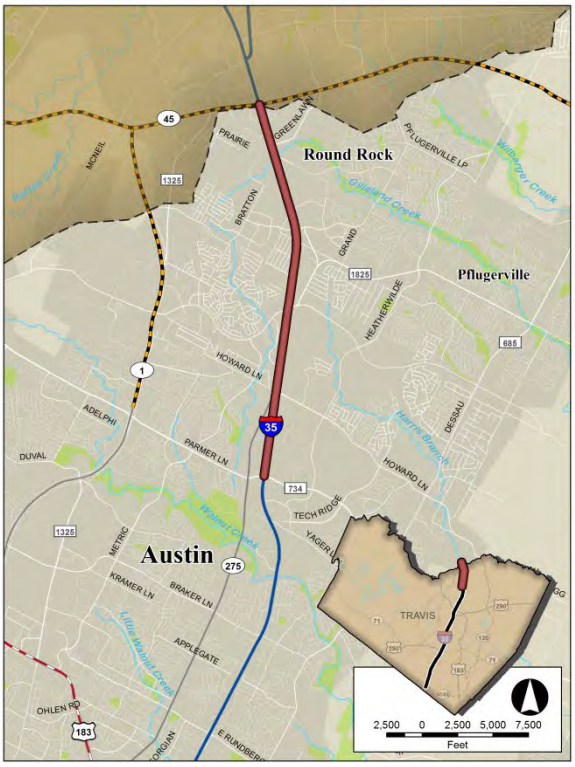

Figure 6.5.1: Segment T1

Grand Avenue Parkway Improvements

The concept for improvements being considered at the intersection of I-35 and Grand Avenue Parkway is a modified conventional intersection. The modified conventional intersection consists of widening the frontage road and cross street approaches to accommodate additional turn lanes and improved signal timing. The concept would also include reconstruction of the existing overpass to improve substandard vertical clearance, and the construction of additional/reconfigured bike and pedestrian improvements through the project to increase north/south and east/west mobility.

Wells Branch Parkway Improvements

Several concepts have been vetted at the Wells Branch Parkway intersection with I-35 and the intersection with FM 1825 just to the east of I-35. Due to the three closely spaced intersections, the high traffic volumes, and the high turning movements in this intersection, most of the concepts failed during the operational analysis. The concept for Wells Branch Parkway includes the installation of multiple Roundabouts at the intersections of the frontage roads of I-35 as well as at the intersection with FM 1825. This option removes the traffic signals from these three intersections, which currently account for the majority of the delays in the area. Bicycle and pedestrian facilities would be upgraded through the project to improve north/south and east/west mobility. The proposed concept for Wells Branch is shown in **Figure 6.5.2.**

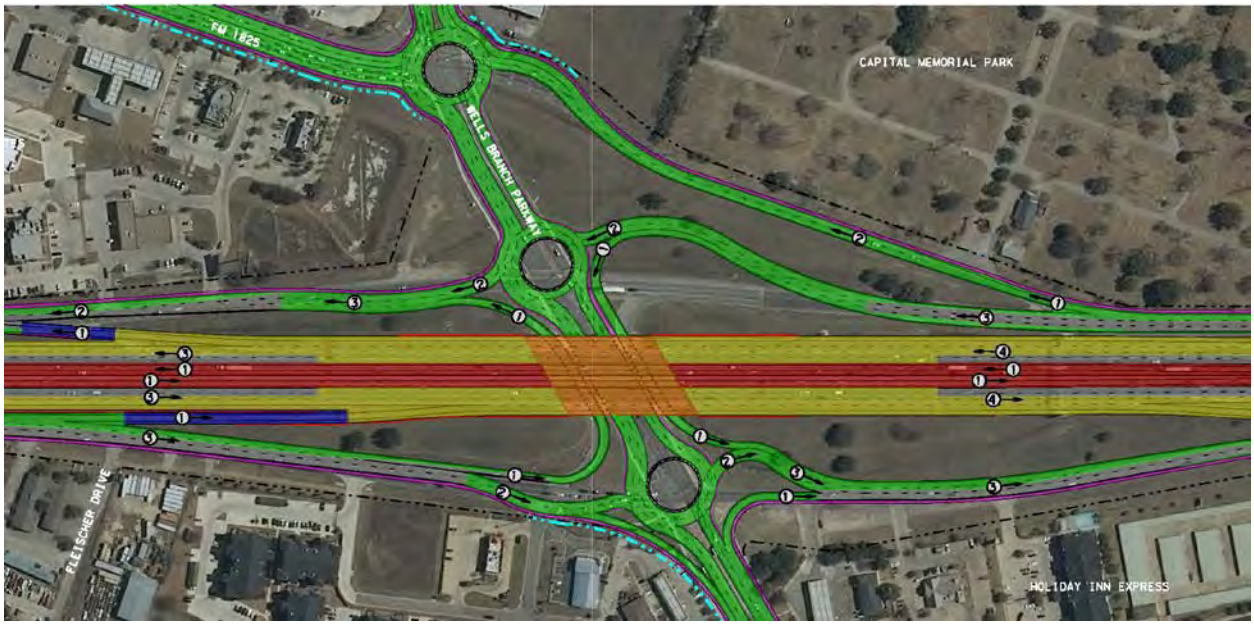

Figure 6.5.2 Wells Branch Parkway

Howard Lane Improvements

Several options were evaluated to address the issues at the Howard lane intersection with I-35 and the possible reconnection of Lamar Boulevard on the east side of the corridor. Through analysis, these options have been pared down to two recommended options which build upon one another. The primary concept consists of constructing a double Roundabout at the intersection of I-35 and Howard Lane. This concept would connect Lamar Boulevard to Howard Lane much as it does now in a one way northbound configuration. As a stand-alone future action, Lamar Boulevard could also be realigned west to tie directly into Howard Lane as a two-way roadway further west of I-35. This realignment, by restoring two-way traffic on Lamar, would improve overall mobility in the area. Since this second concept requires a significant amount of right-of-way acquisition to accommodate the realignment, and is not required for the I-35 mobility, it is considered a future action. Bicycle and pedestrian improvements would be included to facilitate both north/south and east/west mobility.

Incorporation of the FTC

The FTC would be incorporated throughout the length of Segment T2. The FTC would generally fit within the existing right-of-way without requiring major freeway reconstruction. The FTC can be fit within the corridor throughout this segment; however, further operational analysis would be required to determine the north starting point for the FTC to achieve the most benefit for the corridor.

Segment T2 – Parmer Lane to US 183

Segment T2 is shown in **Figure 6.5.3**. Overall improvement concepts for this segment include adding the FTC, improving frontage road traffic flow, and improving bicycle and pedestrian mobility.

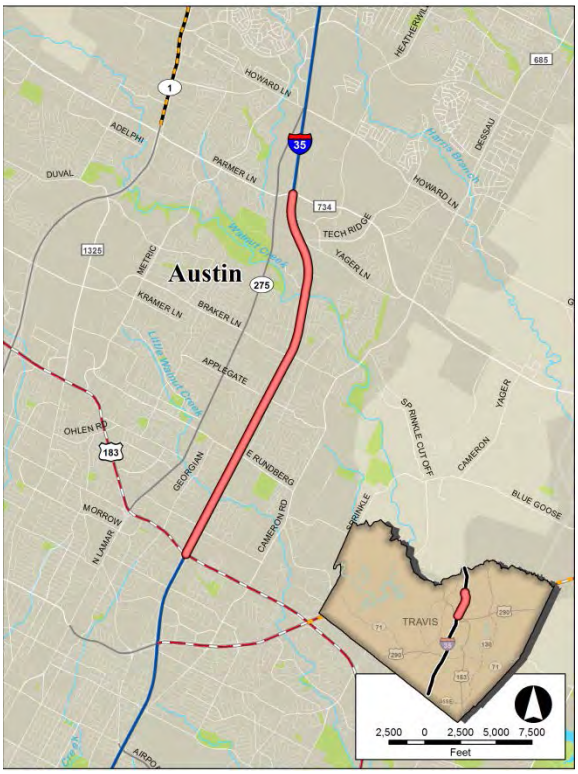

Figure 6.5.3: Segment T2

Parmer Lane Improvements

At Parmer Lane, large turning movement volumes cause significant queuing and travel delays. At this location, a DDI provides significant improvements in operations. A conceptual example of DDI operations at this location is shown in **Figure 6.5.4**. The DDI includes adding Collector-Distributor roads under the intersection to process through traffic, and improving the intersection of Parmer Lane and Lamar Boulevard to include Median U-turns. This improvement would allow the project to address all of the traffic needs of the intersection without the need to reconstruct the Parmer Lane bridge or the need to add turnaround structures to handle the U-turns in the intersection. The DDI also allows for better accommodations for bicycle and pedestrian users than currently exists, which would increase east/west mobility for these users.

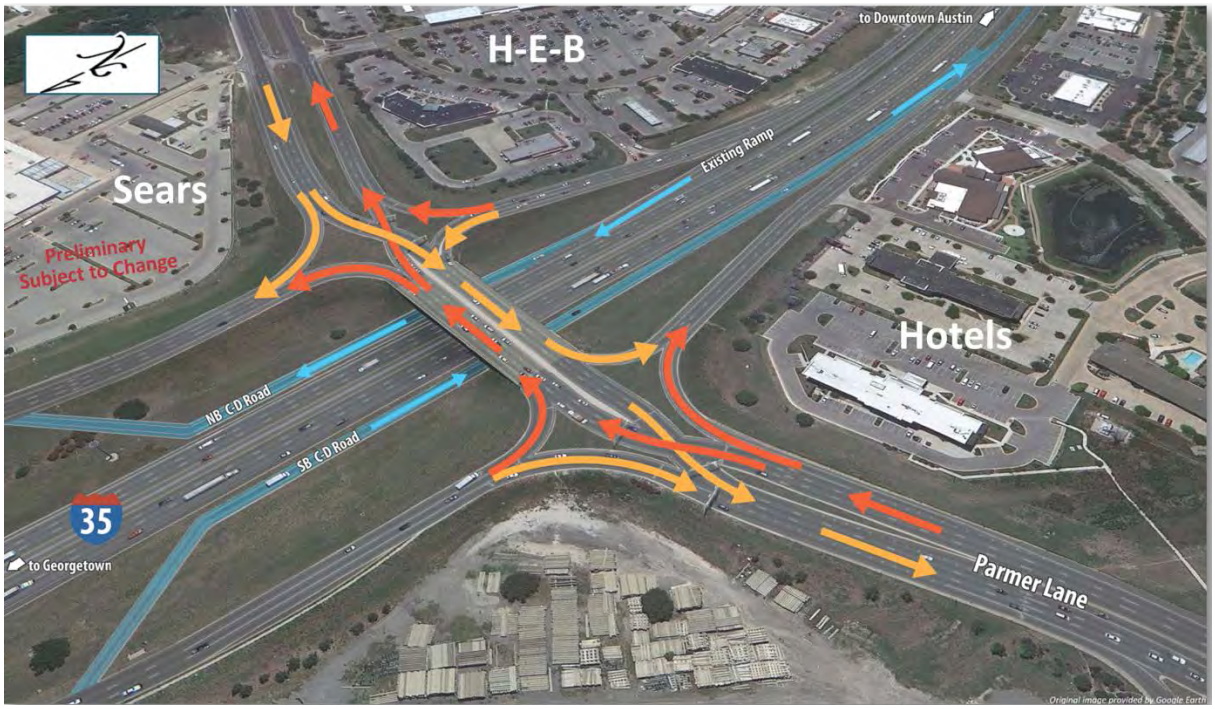

Figure 6.5.4: Diverging Diamond Interchange at Parmer Lane

Braker Lane Improvements

The proposed concept at the intersection of I-35 and Braker Lane consists of modifying the existing conventional intersection. The proposed improvements would include minor frontage road improvements for turn lanes, the addition of U-turn bridges in both directions, reconstruction of the Braker Lane bridge to increase vertical clearance on the mainlanes, and the improvement of the existing bicycle and pedestrian facilities across the interchange. Bicycle and pedestrian improvements would be included to facilitate both north/south and east/west mobility.

Incorporation of the FTC

The FTC would be incorporated throughout the length of Segment T2. The FTC would generally fit within the existing right-of-way without requiring major freeway reconstruction.

Segment T3 – US 183 to Airport Boulevard

Overall improvement of Segment T3, shown in **Figure 6.5.5,** includes adding the FTC, improving I-3 5 northbound to US 183 northbound mobility, improving US 290 westbound to I-35 northbound mobility, improving frontage road traffic flow, and improving bicycle and pedestrian mobility.

Since the original publishing of the Implementation Plan in August 2013, several modifications have been made to the included concepts based upon further refinement and additional public outreach. These refinements include:

- Removal of the superstreet concept between US 183 and US 290E.
- The addition of Collector-Distributor roads under St. Johns.
- Adjustments to the northbound ramps between US 290E and Airport Boulevard.

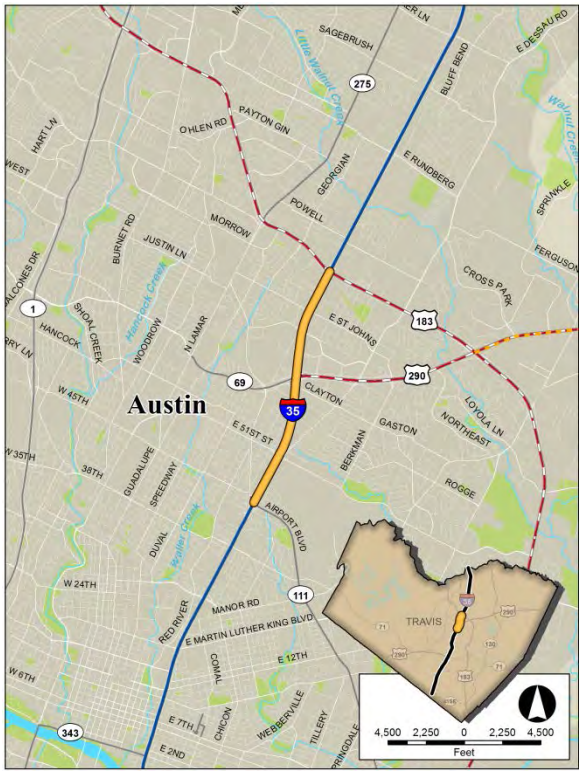

Figure 6.5.5: Segment T3

US 183 Direct Connectors

The US 183/I-35 interchange has two direct connectors. Recommended concepts include construction of additional direct connectors. The concept proposes to connect the southbound I-35 to southbound US 183 and the northbound US 183 to northbound I-35 direct connectors. The conceptual layout of the two direct connectors can be seen in **Figure 6.5.6.** Discussion of project phasing and constructability has indicated these connectors are critical for enabling an alternate traffic route for I-35 mainlane traffic during construction of Segments 4 and 5 through the Austin urban core.

In addition to the direct connectors and the frontage road improvements, a pedestrian crossing was identified in the area between Rundberg Lane and US 183 as a potential improvement. There is a history of pedestrian/car accidents as people have attempted to cross the mainlanes in this area. While there is some demand for a crossing in this area, as evidenced by the pedestrian/car accidents, it is necessary to further explore the need and feasibility for a crossing at this location. A concept sheet for this project is included in **Appendix A** as a placeholder for the project. Further project development and public outreach is required prior to moving the project forward.

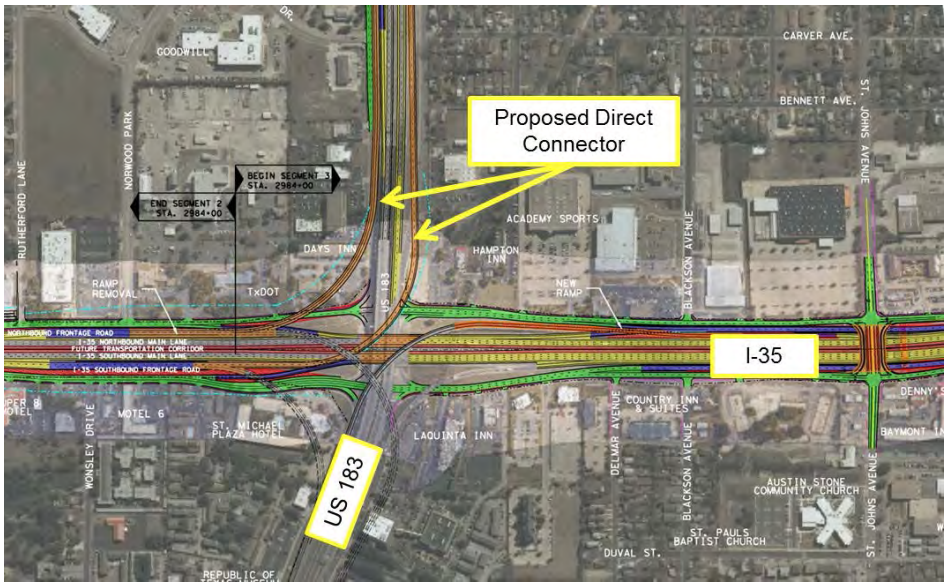

Figure 6.5.6: I-35 to US 183 Direct Connectors

Ramp Modifications – US 183 to US 290E (St. Johns Avenue)

⇨ Concept revised since 2013 Plan.

Several concepts have been evaluated to improve traffic through this section of I-35. Initially, the concept would have developed a Collector-Distributor road to accommodate the movement of westbound US 290 traffic onto northbound I-35, and northbound I-35 traffic onto northbound US 183. Through operational analysis of the concepts, the Collector-Distributor concept failed and new concepts were developed. The recommended concept consists of relocating the existing northbound entrance ramp just north of US 290 to just south of US 183. This ramp relocation would remove a majority of the merging and weaving that currently occurs on the mainlanes by pushing the entrance ramp past the exit for the direct-connector to US 183 northbound. To accommodate the new entrance ramp, the first portion of the existing direct-connector would be reconstructed to allow the new ramp to pass underneath the direct-connector with proper vertical clearances. With the required reconstruction on the direct-connector, the existing grade on the direct-connector would also be reduced, which would further improve traffic flow on the mainlanes of I-35.

The concept at St. Johns Avenue includes reconstructing the existing St. Johns Avenue and northbound to southbound turnaround bridge, the addition of a southbound to northbound turnaround bridge, the addition of northbound and southbound Collector-Distributor roads under St. Johns for through traffic, and improving the existing intersection to improve east/west connectivity for pedestrians, bicycles and vehicles.

51st Street Improvements

The concept to address the existing challenges at 51st Street and I-35 includes the installation of a Roundabout at the intersection between the southbound frontage road and I-35 as shown in **Figure 6.5.7.** The concept would include realignment of the exiting southbound frontage road to remove severe curves, the addition of a southbound Collector-Distributor road under 51st Street, improvement of the frontage road connection to the existing U-turn structure, and reversal of the existing southbound ramps between 51st Street and Airport Boulevard. The concept would work with the project currently under development by TxDOT and the COA to address connectivity from the northbound frontage road to Cameron Road. The concept would include improved bicycle and pedestrian connectivity through the intersection.

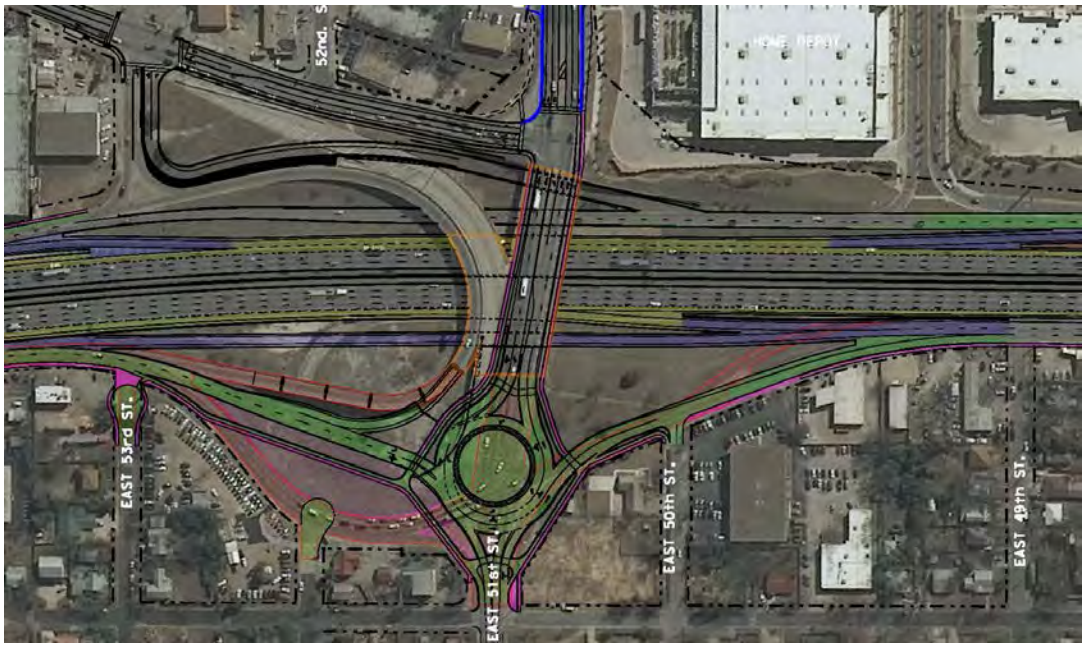

Figure 6.5.7: Roundabout Concept I-35 at 51st Street

Incorporation of the FTC

The FTC would be incorporated throughout the length of Segment T3. The FTC would generally fit within the existing right-of-way without requiring major freeway reconstruction.

Segment T4 –Airport Boulevard to MLK Boulevard

Segment T4 is shown in **Figure 6.5.8**. Concepts under evaluation in Segment 4 include implementation of the FTC, improvements to the intersection at Airport Boulevard, local mobility improvements associated with the reduction/relocation of ramps, elimination of duplicate ramps, and frontage road improvements. Major challenges considered as part of the development of this segment include modifications to the existing upper and lower decks, fully developed right-of-way, historic properties, the Capitol View Corridor from the southbound Upper Deck, and access to St. David's Hospital and the University of Texas.

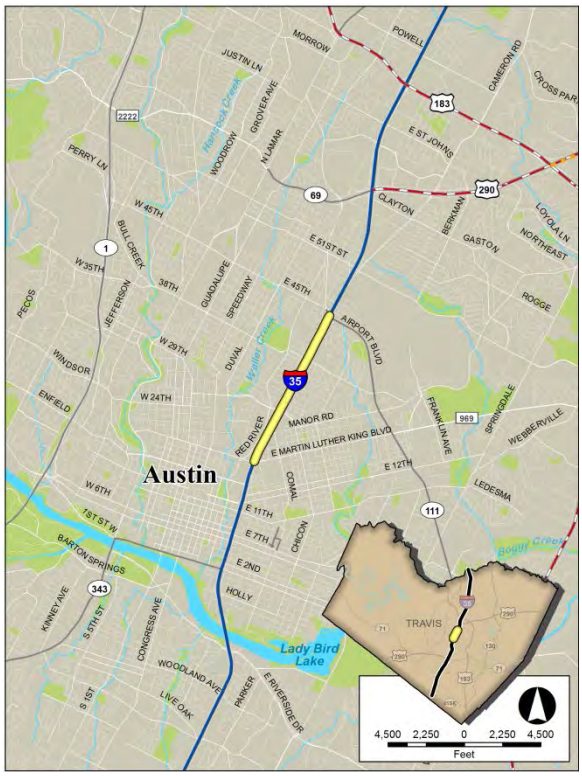

Figure 6.5.8: Segment T4

Since the original publishing of the Implementation Plan in August 2013, several modifications have been made to the included concepts based upon further refinement and additional public outreach. These refinements include:

- Removal of the superstreet concept for the frontage roads throughout the segment.
- The plan includes a commitment to maintain all existing east-west connections.
- Additional ramping configurations are under evaluation.

Airport Boulevard Improvements

⇨ Concept revised since 2013 Plan.

At Airport Boulevard, the recommended concept would replace the existing intersection with a DDI. The DDI would allow for a reduction in existing footprint for the intersection by removing redundant movements, allow for future accommodation of potential Urban Rail along Airport, improve ramping to/from the Upper Deck, and widen the existing intersection bypass lanes to two lanes in each direction to act as Collector-Distributor roads for through traffic. See **Figure 6.5.9** for the current Airport Boulevard concept. Much of the configuration of the intersection at Airport is dependent on the proposed ramping discussed below. The concept for Airport Boulevard is currently being evaluated to incorporate potential ramping changes in the area.

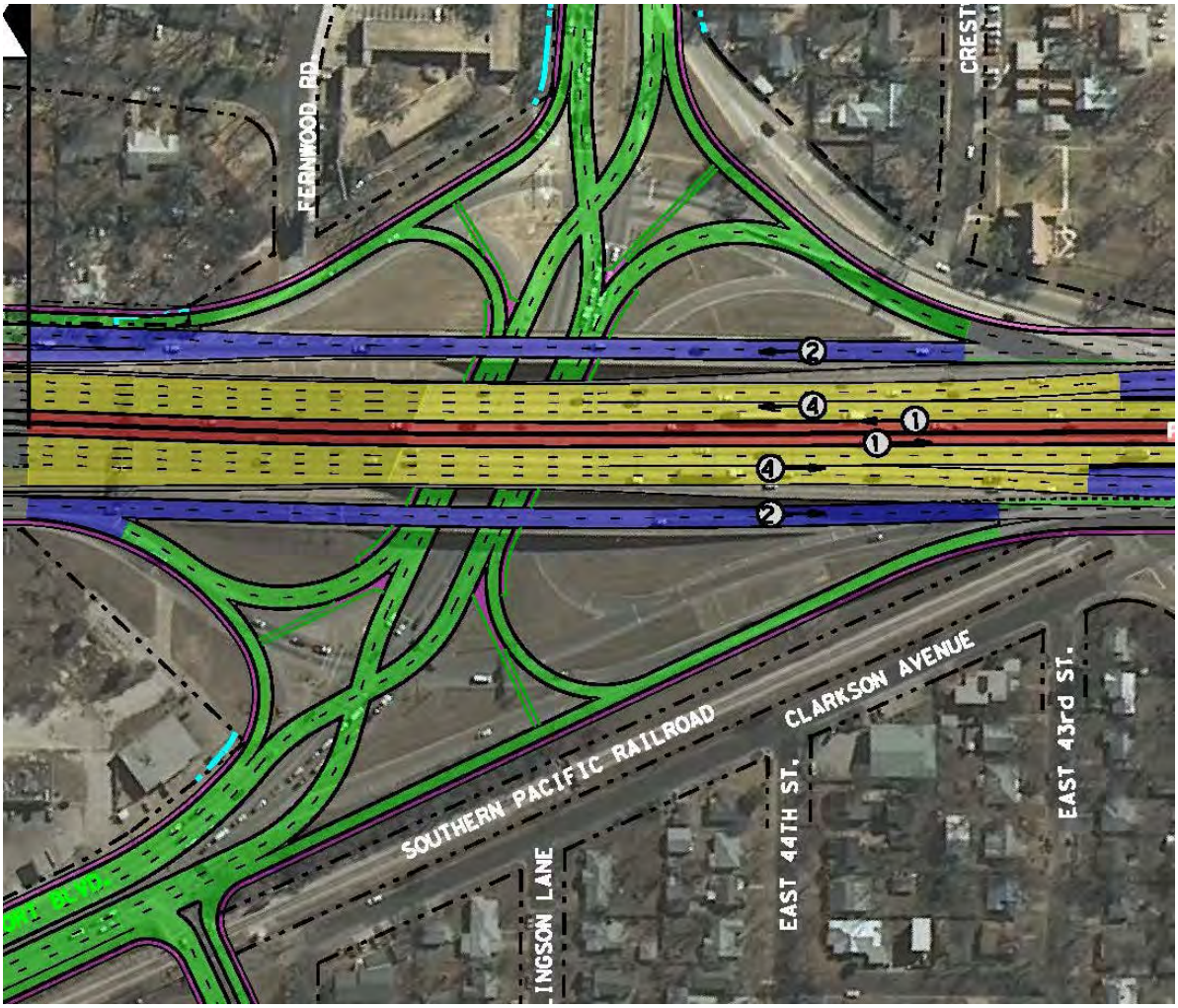

Figure 6.5.9: DDI Concept I-35 at Airport Boulevard

Ramp Modifications – 51st Street to MLK

⇨ Concept revised since 2013 Plan.

Part of the concept to improve operations in the area of Airport Boulevard includes the reversal of the exit ramp north of Airport to an entrance ramp and the elimination of the existing upper deck exit to Airport. The existing ramps throughout this section no longer meet current design standards and have safety concerns associated with leaving them in their current locations. As detailed below, the elimination of the ramps throughout much of this section is further necessitated by the inclusion of the FTC. While this concept works operationally and improves traffic flow on the upper deck, the community has voiced concerns regarding northbound access to the Mueller development and Dell Children's Hospital.

In response to the concern, a series of preliminary concepts were developed to restore some ramp access near Airport Boulevard. These preliminary concepts include repurposing the existing upper

deck exit to Airport Boulevard into an exit that would allow traffic to exit the upper deck and access the bypass over Airport Boulevard and eastbound Airport Boulevard, an exit from the lower deck to the area just south of 38 ½ Street, and the restoration of the existing southbound upper deck entrance ramp from Airport Boulevard. These preliminary concepts and the access to the area north of Airport Boulevard will need to be further analysed prior to moving these concepts into Phase 3 of project development.

MLK Boulevard Improvements

⇨ Concept revised since 2013 Plan.

Several local mobility improvements would be included as part of all concepts for this segment. The existing southbound upper deck ramp to Martian Luther King Jr. (MLK) Boulevard modified so that the ramp would tie directly to the Collector-Distributor road under MLK to access 15th Street. The northbound entrance ramp from south of MLK to I-35 would be modified to operate as a Collector-Distributor road to provide a bypass of the MLK intersection while maintaining the entrance ramp. Currently, additional ramping options in the area of MLK are being evaluated to potentially increase access to I-35. These options require further refinement and public coordination.

Direct access to the FTC at MLK Boulevard has been evaluated for transit vehicles. There are both geometric and operational issues that would have to be further evaluated in Phase 3 to fully vet the ability to provide transit; however, preliminary evaluations show that there is the potential to provide a bidirectional transit ramp both north of and south of MLK Boulevard.

Incorporation of the FTC

⇨ Concept revised since 2013 Plan.

This concept widens the existing lower deck to accommodate the FTC. This concept results in the section for the lower deck being modified to include two general purpose lanes and the FTC in each direction (6 total lanes). No changes to the existing upper deck would be required. **Figure 6.5.10** shows a typical section for the widened lower deck. This concept requires closure of many of existing freeway ramps within the limits of the decks.

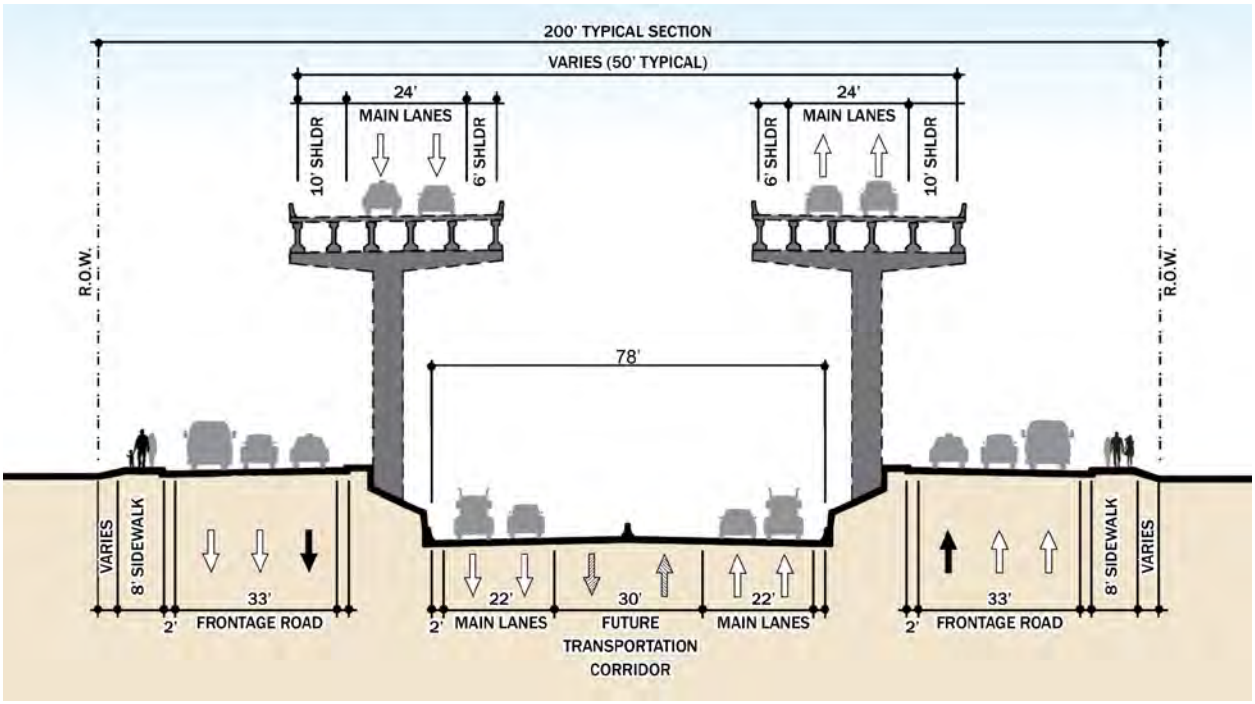

Figure 6.5.10: Widened Lower Deck Typical Section

To accommodate this widening, most of the ramps for local access would be removed; local traffic would remain on the frontage roads. Cross street bridges would be replaced to achieve minimum clearances on the lower deck. As part of the cross street bridge replacement, bicycle and pedestrian access would be enhanced. In most locations, U-turn structures would also be added.

There are significant constructability and maintenance of traffic concerns associated with the required modifications for the incorporation of the FTC. Through utilization of extensive night/weekend closures, possible temporary restriping of the existing upper deck to accommodate additional construction phase traffic, and innovative construction methods, this section should be able to be constructed while maintaining traffic flows similar to the existing condition.

Segment T5 –MLK Boulevard to Lady Bird Lake

Overall concepts for Segment T5, shown in **Figure 6.5.11**, include implementation of the FTC, local mobility improvements associated with the reduction of ramps and frontage road improvements, implementation of Collector-Distributor roads, and direct connections to the FTC for increased mobility. Major constraints assessed include high volumes of local traffic, numerous entrance and exit ramps, fully built-out right-of-way, historic buildings and districts, the Capitol View Corridor from the northbound mainlanes, and bike and pedestrian mobility.

General Segment Improvements

For this segment a single set of mobility improvements have been developed with respect to laneage, ramp locations, use of Collector-Distributor roads and overall horizontal improvements. The FTC would be implemented throughout the segment. The implementation of Collector-Distributor roads from south of Riverside Drive into Segment 5, combined with ramp relocations, would reduce weaving movements on the mainlanes and reduce the number of entrance and exit points, both reducing the traffic conflicts throughout the Downtown.

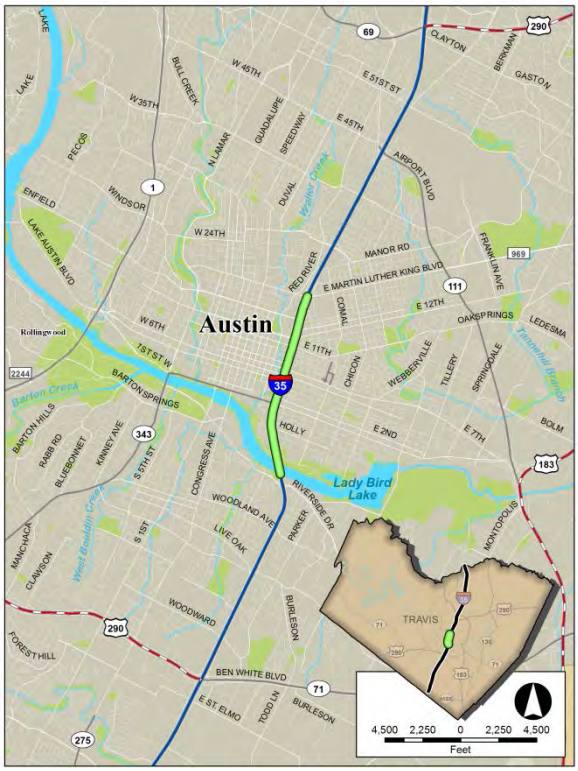

Figure 6.5.11: Segment T5

Since the original publishing of the Implementation Plan in August 2013, several modifications have been made to the included concepts based upon further refinement and additional public outreach. These refinements include:

- Reconnection of 6th Street in the Fully Depressed concept. Evaluation of 6th Street in the Modified Existing concept is still under evaluation.
- Removed the superstreet concept from consideration throughout the segment
- The plan includes a commitment to maintain all existing east-west connections.
- Addition of 2nd and 3rd Street as possible east-west connections.
- Additional ramping configurations are under evaluation.

Downtown Concepts

To implement the mobility improvements above, two roadway configurations have been developed for the area between Cesar Chavez and 12th Street. The two concepts include a Modified Existing Configuration and a Fully Depressed Configuration.

Modified Existing Configuration

The Modified Existing configuration consists of normalizing the freeway at Cesar Chavez so that all of the main lanes go over Cesar Chavez rather than the split configuration (southbound under, northbound over) that currently exists. The Modified Existing configuration would consist of widening the roadway to accommodate the FTC and Collector-Distributor roads, reconstruction of the existing structures (4th Street and 6th - 8th Streets) to widen the structures, increase span lengths to increase east/west mobility and bicycle and pedestrian facilities, and improve aesthetics with context sensitive design. In addition the existing Capital Metro crossing would be rebuilt to accommodate future transit plans and to better accommodate the existing bike/pedestrian trail. North of 8th Street, the existing roadway would be widened to accommodate mobility improvements and pass under both 11th and 12th Streets as it does in the current configuration. A rendering of the potential Modified Existing concept at Cesar Chavez is shown in **Figure 6.5.12.**

Figure 6.5.12 Modified Existing Concept at Cesar Chavez

Fully Depressed Configuration

⇨ Concept revised since 2013 Plan.

The Fully Depressed configuration includes normalizing the freeway at Cesar Chavez so that all of the main lanes go under Cesar Chavez. Moving north the roadway would remain depressed under 4th Street and 6th – 8th Streets. North of 8th Street the roadway would begin merging back with its current alignment and pass under 11th and 12th Streets as it does in the current configuration. It is anticipated that the depressed section would be constructed with wider bridges at the crossing streets to improve east/west connectivity and bicycle and pedestrian facilities. Further, it is anticipated that the section would be constructed in a manner to allow for future caps in limited locations without major rework of the depressed section. These caps could be constructed in the future as funding becomes available. Renderings of the Fully Depressed Concept in the area near Cesar Chavez with and without caps are shown in **Figures 6.5.13 and 6.5.14** respectively.

Figure 6.5.13 Fully Depressed Concept at Cesar Chavez

Figure 6.5.14: Fully Depressed Concept at Cesar Chavez with Possible Future Cap

There are significant differences in construction time requirements and constructability between the two configurations. The Modified Existing configuration would take less time to construct and, because most of the roadway alignment would remain unchanged, require minimal disruption to east/west traffic apart from Cesar Chavez Avenue. The Fully Depressed configuration would require significantly longer time to construct. All cross streets would require closure for some portion of the construction duration in order to build the depressed section. Under either configuration it is anticipated that three lanes of mainlane traffic would be required to remain open throughout the construction duration.

Drainage requirements also differ between configurations. The Modified Existing configuration would maintain existing drainage patterns. The Fully Depressed configuration would require two major modifications. First, existing drainage from east of I-35 to Waller Creek would require diversion to Lady Bird Lake. Second, the depressed freeway would require a new drainage system, including a pump station, to drain the lowered roadway.

Operationally, both proposed configurations provide similar benefit and operate substantively the same way. There are several issues that will need to be further vetted during Phase 3 development regarding potential trade-offs and operational improvements.

Segment 6 –Lady Bird Lake to Woodward Drive

Segment 6 is shown in **Figure 6.5.15**. Overall improvements for Segment 6 included implementation of the FTC, frontage road improvements, implementation of Collector-Distributor roads, horizontal and vertical alignment improvements, and access points to the FTC for increased mobility. Major constraints assessed as part of the recommendation include horizontal and vertical alignment deficiencies, parkland, historical properties, environmental constraints, and bicycle and pedestrian cross-access concerns.

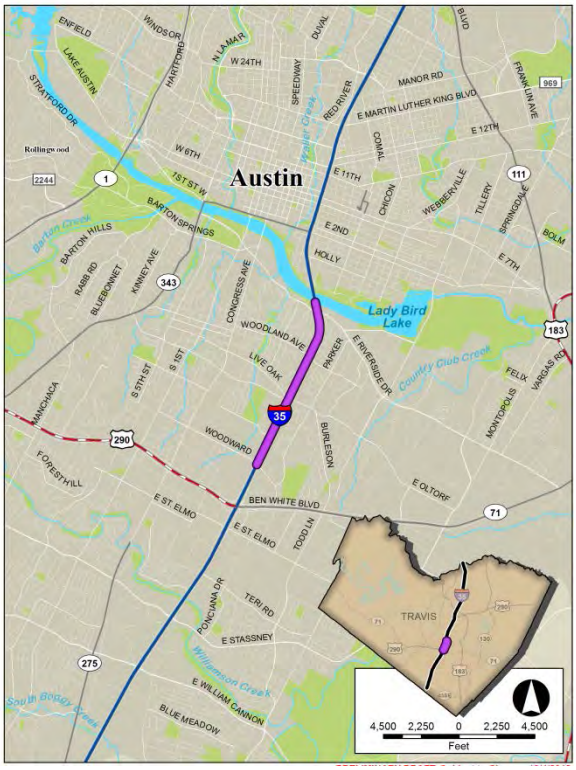

Figure 6.5.15: Segment 6

Since the original publishing of the Implementation Plan in August 2013, several modifications have been made to the included concepts based upon further refinement and additional public outreach. These refinements include:

- Reconnection of Woodland Avenue
- Adjustments to the I-35 mainlane improvements.
- Removal of the superstreet concept for the frontage roads throughout the segment.
- Evaluation of transit access at Riverside Drive.
- The plan includes a commitment to maintain all existing east-west connections has been made.

I-35 Mainlanes and FTC

In an effort to increase capacity along the I-35 main lanes and minimize potential conflict points at the existing/conceptual ramp locations, the following items were incorporated into this concept: add a 4th lane in each direction between Riverside and Ben White, reconfigure ramps, realign I-35 between Riverside and Woodland, and adjust the vertical profile between Riverside and Woodland. In association with the adjustment of the vertical profile, the concept would maintain full east/west connectivity for all modes of travel along Woodland Avenue while addressing the vertical alignment issues. Horizontally, improved geometry south of Riverside would be accommodated to the extent allowable without incurring right-of-way acquisition.

Riverside Drive Improvements

⇨ Concept revised since 2013 Plan.

The concept to improve traffic flow at I-35 and Riverside Drive includes adding northbound Collector-Distributor lanes between Lady Bird Lake and Woodland; southbound Collector-Distributor lanes between Lady Bird Lake and Woodland; a U-turn structure at Riverside Drive (northbound to southbound); and reconstructing the Riverside bridge to accommodate additional width of auxiliary lanes and Collector-Distributor road and to accommodate future Urban Rail. The improvements at Riverside would also include improvements to bicycle and pedestrian facilities through the intersection. **Figure 6.5.16** shows the proposed configuration for I-35 at Riverside Drive.

The key to this concept is the development of collector-distributor roads under Riverside Drive for downtown access, allowing ramp consolidation and use of existing bridge capacity over Lady Bird Lake. In addition, existing horizontal and vertical mainlane alignment deficiencies south of Riverside Drive would be improved.

Direct access to the FTC at Riverside has been evaluated for transit vehicles. There are both geometric and operational issues that would have to be further evaluated in Phase 3 to fully vet the ability to provide direct transit access; however, preliminary evaluations show that there is the potential to provide a bidirectional transit ramp both north of and south of Riverside Drive.

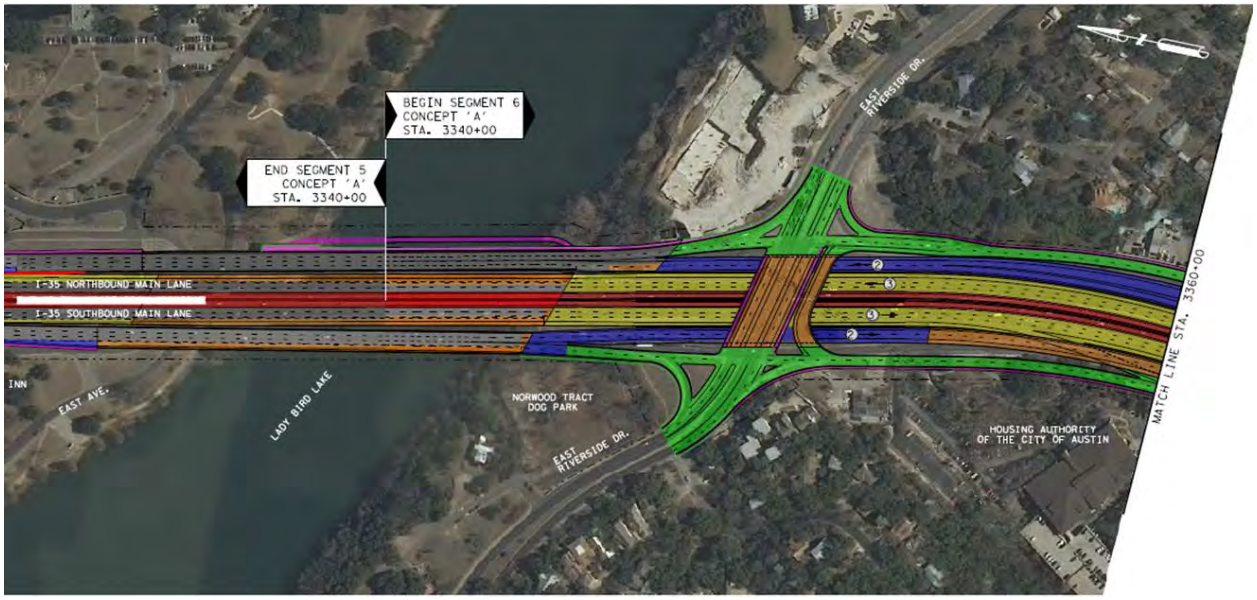

Figure 6.5.16: I-35 at Riverside Drive Layout

Oltorf Street Improvements

The concept to improve traffic flow at I-35 and Oltorf Street includes modifying the ramping between Woodland and Woodward in both directions to improve substandard ramp configurations, installation of turn around bridges in both directions, reconstruction of the Oltorf Street bridge to accommodate additional width of auxiliary lanes and shoulders. Improvements also include improvements to laneage, signal timing, and bicycle and pedestrian facilities to improve east/west connectivity across the corridor. **Figures 6.5.17** shows conceptual typical sections for I-35 in the vicinity of Oltorf Street.

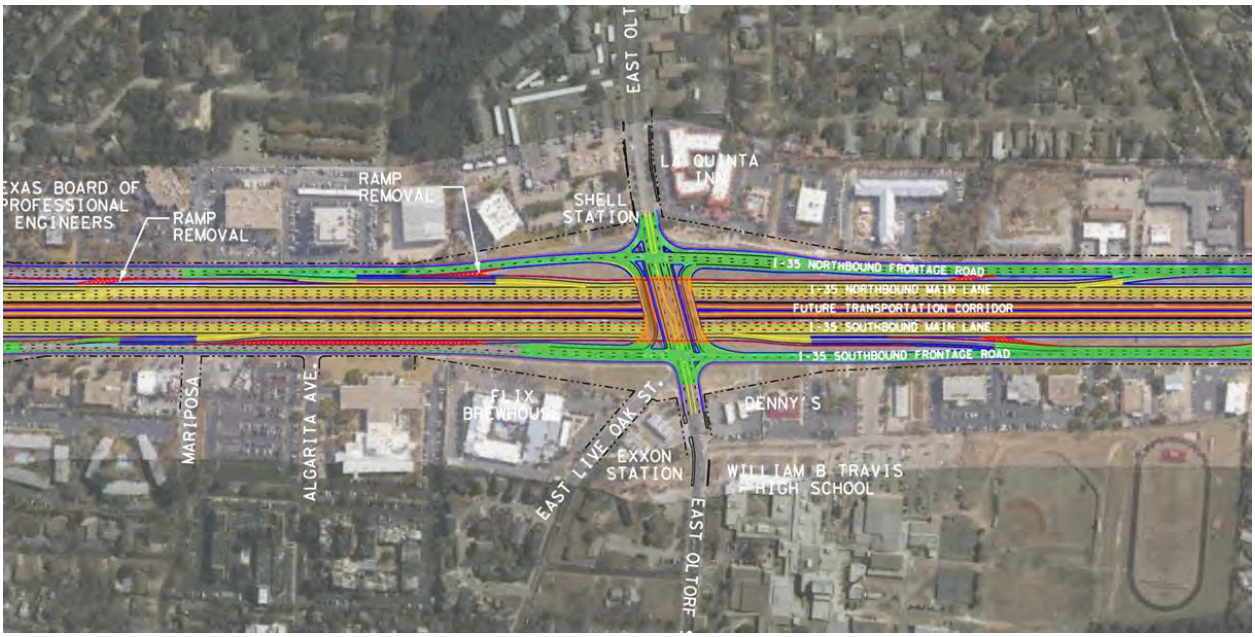

Figure 6.5.17: Segment 6 Conceptual Typical Section, I-35 in the Vicinity of Oltorf

Segment T7– Woodward Street to William Cannon Drive

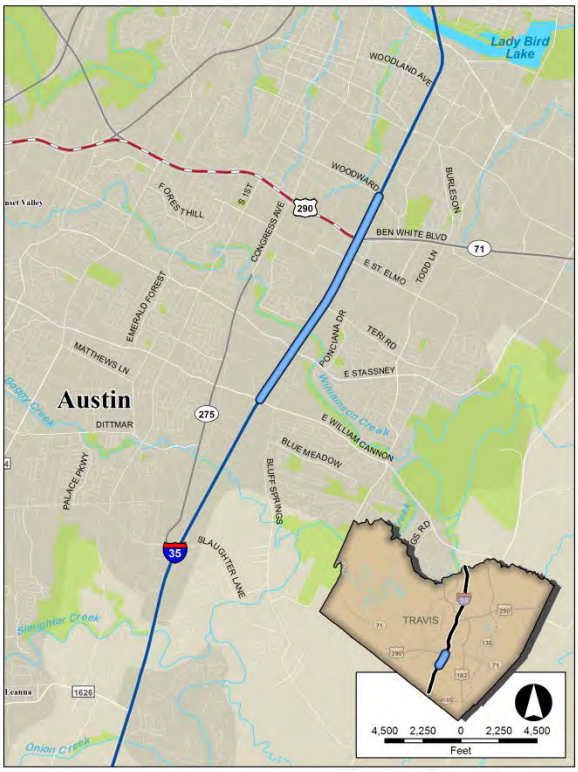

Figure 6.5.18: Segment T7

Overall improvements to Segment T7, as shown in **Figure 6.5.18**, include improved weaving sections near the direct connectors for SH 71 (Ben White Boulevard) to I-35, addition of the FTC, and providing access to the FTC. A major issue for this segment of the corridor is the existing backup onto the direct connectors from SH 71 caused by the limited merge/weaving lengths onto the I-35 mainlanes.

Improvements to SH 71 Direct Connector to Southbound I-35

An auxiliary lane currently exists between southbound entrance ramp north of Stassney Lane and the southbound exit ramp to William Cannon Drive. This concept would utilize this existing auxiliary lane and extend it upstream (north) to SH 71, eliminating the current merge condition, and south of William Cannon. With the addition of this auxiliary lane, I-35 southbound would be four lanes between SH 71 and south of William Cannon Drive. A typical section for the auxiliary lane is shown in **Figure 6.5.19**. In addition to the auxiliary lane from the direct connectors to south of William Cannon, another auxiliary lane would be constructed between the entrance ramp just north of Stassney and the exit ramp to William Cannon.

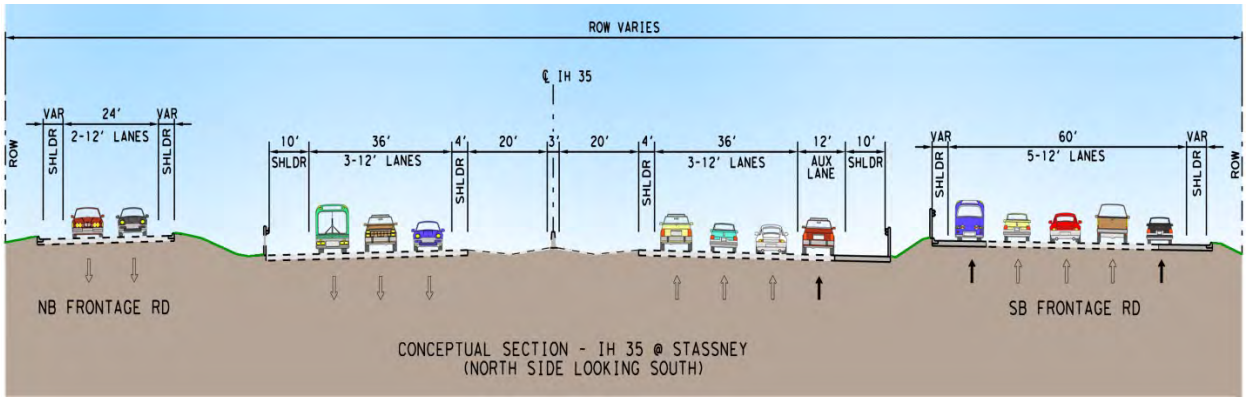

Figure 6.5.19 Auxiliary Lane for Southbound I-35

Improvements to Northbound I-35 Direct Connector to SH 71

This concept extends the existing auxiliary lane on northbound I-35 between the William Cannon Drive entrance and the SH 71 exit. With the extension of this auxiliary lane, I-35 northbound would

be four lanes between William Cannon entrance ramp and SH 71 exit. This concept is contained within existing right-of-way. A typical section with the auxiliary lane is shown in **Figure 6.5.20**.

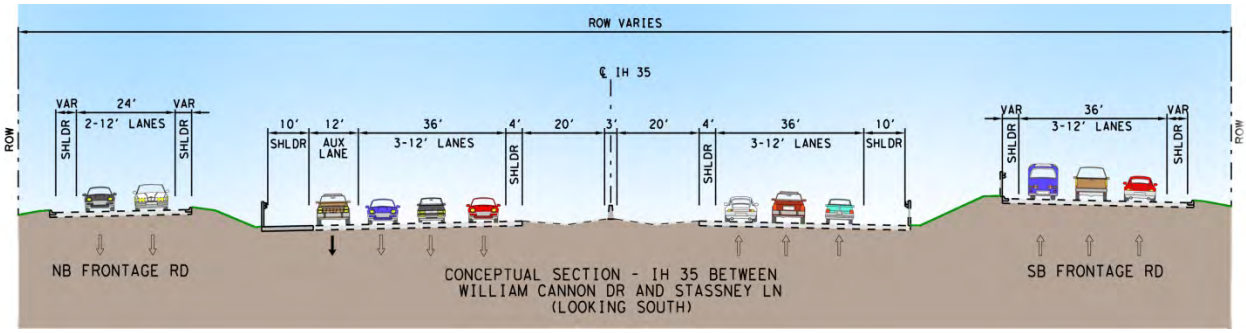

Figure 6.5.20: Auxiliary Lane for Northbound I-35

There are limited constructability and maintenance of traffic concerns associated with the implementation of the FTC as the majority of the work could be completed through widening of the existing roadway.

Stassney Lane

The concept at Stassney Lane consists of a modified conventional intersection to address current issues with delays at the intersection. The modifications include frontage road and approach widening to accommodate additional turn lanes, construction of turnaround bridges in both directions, and reconstruction of the Stassney Lane bridge to accommodate additional laneage and bicycle and pedestrian improvements.

William Cannon Drive

The concept at William Cannon is very similar to Stassney with a modified conventional intersection. The modifications would consist of frontage road and approach widening to accommodate additional turn lanes, construction of turnaround bridges in both directions, and reconstruction of the William Cannon bridge to accommodate additional mainlane width, additional laneage, and bicycle and pedestrian improvements.

Ramp Reversals – William Cannon to Slaughter

The concept includes the reversal/reconstruction of the southbound ramps between William Cannon and Slaughter. The reconstructed ramps would complete the X-pattern ramping by replacing the existing entrance ramp with an exit ramp and the existing exit ramp with an entrance ramp.

Incorporation of the FTC

The FTC would be incorporated throughout the length of Segment T7. The FTC would generally fit within the existing right-of-way without requiring major freeway reconstruction.

Segment T8 – William Cannon Drive to SH 45SE

Overall improvements to Segment T8, as shown in **Figure 6.5.21**, include improved implementation of the FTC, ramp modifications, and intersection modifications, and bicycle and pedestrian improvements.

Since the original publishing of the Implementation Plan in August 2013, several modifications have been made to the included concepts based upon further refinement and additional public outreach. These refinements include:

- Modification of the frontage road north of Slaughter Lane to include two continuous frontage road lanes is under evaluation.
- Modification to the operational improvements at Slaughter Lane are under evaluation

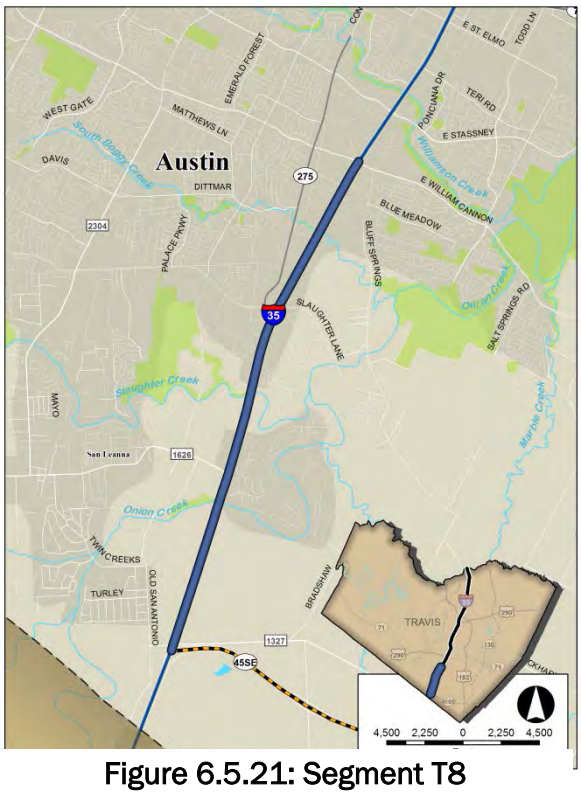

Figure 6.5.21: Segment T8

Slaughter Lane

⇨ Concept revised since 2013 Plan.

The Slaughter Lane intersection with the I-35 frontage roads will require improvements in order to provide an acceptable level of service in future years as traffic continues to increase. The August 2013 implementation plan contemplated a series of improvements including median U-turns as a potential solution. Due to new development in the area and further evaluation of the concept, it was determined that the median U-turn concept would not adequately address traffic concerns in this area. Additional improvements are under evaluation to address the traffic growth in this area to provide a higher level of service at this intersection. While the type of improvements will be modified in this area, the scale of these improvements should be similar to the previously proposed improvements.

Slaughter Creek Overpass

The existing Slaughter Creek overpass is in poor condition, has substandard vertical clearance, and has inadequate width to handle traffic. The concept includes reconstructing the overpass structure to widen the 2-lane section and add a dedicated southbound to northbound turn around, modification of the frontage roads to better process turn around traffic, and incorporation of bicycle and pedestrian elements across the bridge.

Incorporation of the FTC

The FTC would be incorporated throughout the length of Segment T7. The FTC would generally fit within the existing right-of-way without requiring major freeway reconstruction.

6.2.3 Hays County

Hays County Current Projects

I-35 Hays County Feasibility Study (Phase 2)

The I-35 Hays County Feasibility Study was launched in February of 2014. Over the course of the study, a range of concepts will be developed and analyzed that will take into account the needs of drivers, transit riders, bicyclists and pedestrians as well as surrounding businesses, neighborhoods and the environment. TxDOT is sponsoring the study. The study is anticipated to be complete by mid-2015.

I-35 from FM 2001 to FM 150 (Phase 5)

TxDOT and Hays County have partnered to provide improvements along I-35 from FM 1626 to FM 150. The project is currently under construction and includes 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 provide through the Hays County Bond Program. Construction is anticipated to be complete in Spring 2015.

I-35 Ramp Improvements from FM 150 to Blanco River (Phase 3)

TxDOT has initiated development of environmental documents and schematic engineering for ramp improvements along I-35 from FM 150 to the Blanco River. The project includes ramp reversals, ramp improvements, construction of new ramps, and associated frontage road and mainlane 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.

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 provide through the Hays County Bond Program. Construction is anticipated to be completed in Spring 2015.

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

TxDOT developed plans, specifications and estimates for the construction of Continuous Flow Intersections (CFI) at I-35 at SL 82 Aquarena Springs Drive and I-35 at SH 80 (Hopkins Street). The project involves reconstructing traditional intersections to reduce congestion, constructing raised medians and sidewalks to improve safety and provide pedestrian access. TxDOT is sponsoring the ongoing construction of the project. Construction is anticipated to be complete by Fall 2014.

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 provide through the Hays County Bond Program. The project is estimated to begin construction in 2016.

Hays County Segment Improvement Concepts

This section will present improvement concepts. In all segments, multiple improvement concepts will be evaluated and vetted through the operational and geometric analysis. The analysis will yield one or more concept to carry forward into future phases of the project. At this time concepts are in the preliminary stages of development.

Consists of four segments:

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

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

Segment H1 is shown in **Figure 6.6.1**. Overall improvement concepts for this segment would include adding the FTC, improving frontage road traffic flow, and improving bicycle and pedestrian mobility.

Figure 6.6.1: Segment H1

Key intersections under evaluation in this segment include Main Street, Cabelas Drive/FM 2001, 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 and September 30 and October 1, 2014. An operational analysis of the proposed concepts is now underway and the concepts are being refined. Refined concepts will be presented for public review and comment at open houses tentatively planned for January 2015.

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

Segment H2 is shown in **Figure 6.6.2**. Overall improvement concepts for this segment would include adding the FTC, improving frontage road traffic flow, and improving bicycle and pedestrian mobility.

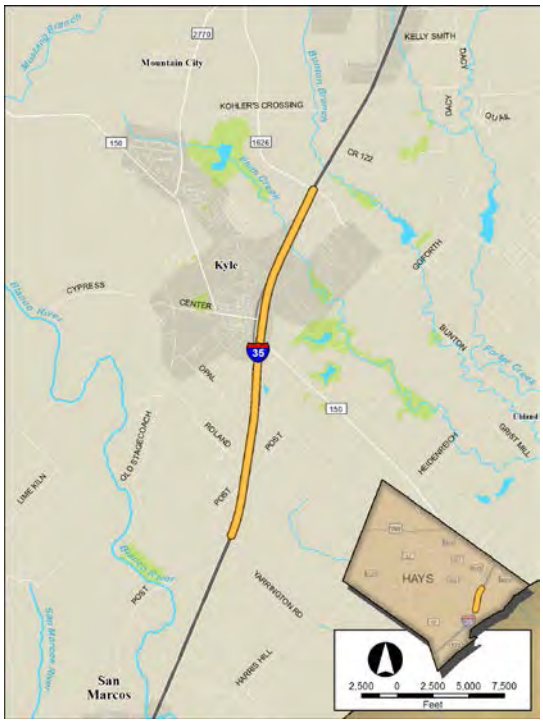

Figure 6.6.2: Segment H2

Key intersections under evaluation in this segment include FM 1626/Kyle Parkway, Center Street/FM 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 and September 30 and October 1, 2014. An operational analysis of the proposed concepts is now underway and the concepts are being refined. Refined concepts will be presented for public review and comment at open houses tentatively planned for January 2015.

Segment H3 –Yarrington Road to Guadalupe Street

Segment H3 is shown in **Figure 6.6.3**. Overall improvement concepts for this segment would include adding the FTC, improving frontage road traffic flow, and improving bicycle and pedestrian mobility.

Figure 6.6.3: Segment H3

Key intersections under evaluation in this Segment include Yarrington Road, River Ridge Parkway, Aquarena Springs Drive/Loop 82, Hopkins Drive/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 and September 30 and October 1, 2014. An operational analysis of the proposed concepts is now underway and the concepts are being refined. Refined concepts will be presented for public review and comment at open houses tentatively planned for January 2-015.

Segment 4 –Guadalupe Street to Posey Road

Segment 4 is shown in **Figure 6.6.4**. Overall improvement concepts for this segment would include adding the FTC, improving frontage road traffic flow, and improving bicycle and pedestrian mobility.

Figure 6.6.4: Segment H4

Key intersections under evaluation in this Segment include Guadalupe Street/SH 123, Wonder World Drive/RM 12, McCarty Lane, Centerpoint Road, and Posey 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 and September 30 and October 1, 2014. An operational analysis of the proposed concepts is now underway and the concepts are being refined. Refined concepts will be presented for public review and comment at open houses tentatively planned for January 2015.

7.0 Other Mobility35 Initiatives

7.1 Regional Projects

Mobility35 improvements are part of a regional effort to enhance the primary corridor system within the greater Austin area. Other regional mobility initiatives currently underway are shown in **Figure 7.1**. Collectively, these improvements are intended to improve regional mobility beyond the impact to any single corridor.

Consideration of all regional mobility projects is crucial in the evaluation of improvement phasing along I-35. For example, the downtown portion of the project is likely to be staged in order to avoid conflict with reconstruction on one or more of the potential alternate routes. Potential I-35 project phasing discussed later in this document is based upon anticipated completion of regional projects to evaluate the potential for conflicts. Regardless of when actual construction of I-35 occurs, construction phasing between corridors would be coordinated to ensure overall impacts to regional travel remain at an acceptable level. Further, development of parallel facilities would mitigate the impacts of major construction activities on a particular corridor during its construction. For example, a project to add a direct ramp connection from southbound I-35 to southbound US 183 would (in part) facilitate the use of US 183 (Bergstrom Expressway) as a potential alternate route during I-35 construction.

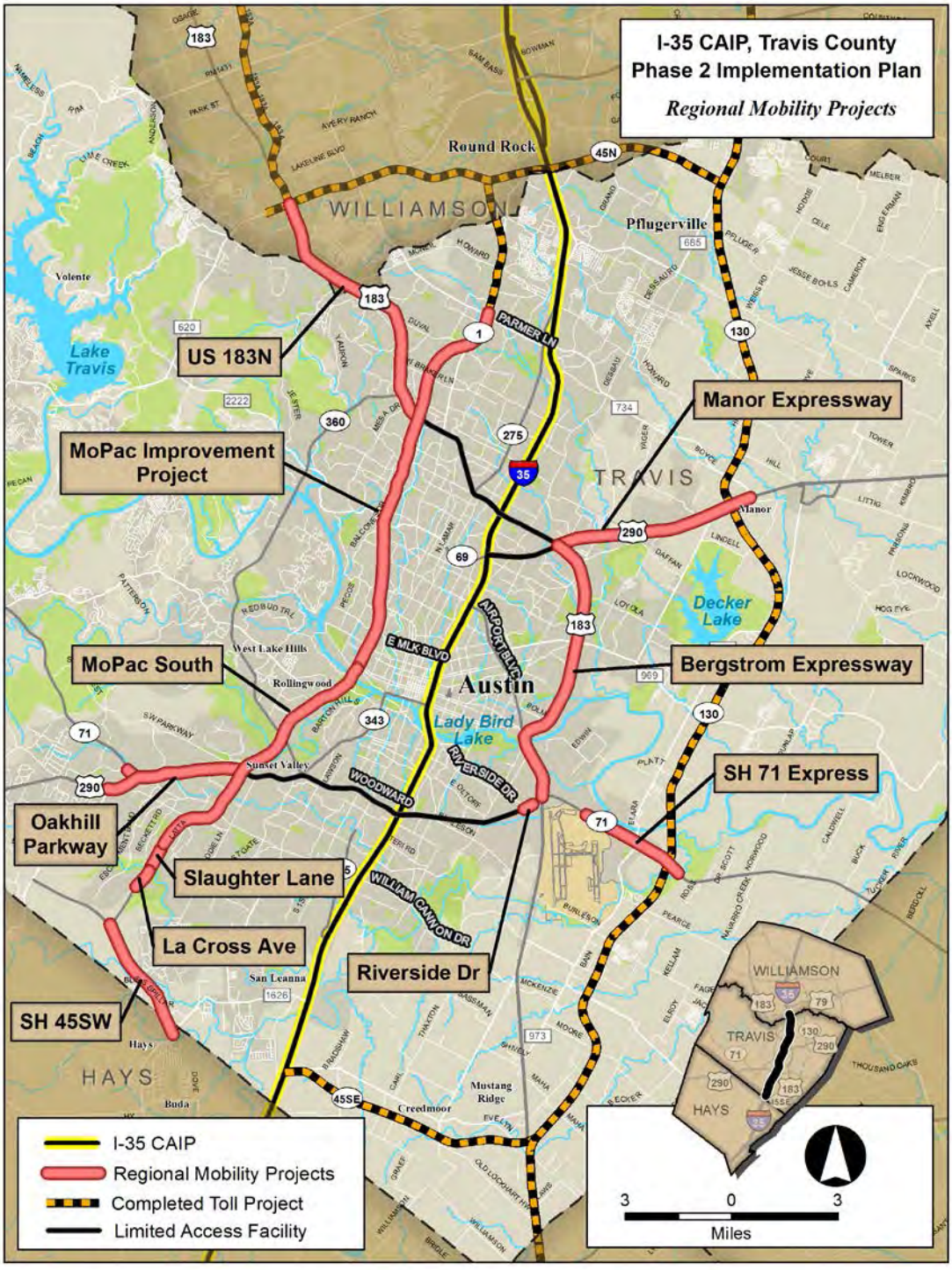

Figure 7.1 Regional Mobility Projects

7.2 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 Williamson, Travis, and Hays counties. 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 Capital Area. TxDOT is sponsoring the study, which is anticipated to be complete in approximately one year.

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 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 Austin-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 Austin-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 the Fall of 2015.

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
- Improved facilities management

7.3 Trip Reduction

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- Improved air quality
- Increased productivity
- Reduced commute hours
- Improved facilities management

7.4 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, particularly where the I-35 corridor bisects the urban core of Austin. 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 bicycle/pedestrian routes.
- Increase corridor east/west permeability.
- Provide continuous routes.
- Support multi-modalism.
- 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 COA 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."

Capital Metro has worked with the COA to create Transit Oriented Development (TOD) Districts. TODs are intended to create transit-friendly walkable communities with a mix of people, jobs, and services. Typically these districts are focused on one or more modes of transit, and are connected via sidewalks and bicycle facilities to nearby areas. Three of these districts - North I-35 Park and Ride (Segment 1), Convention Center and Plaza Saltillo (Segment 5) - connect to the I-35 corridor. Two future districts - Highland Mall (Segment 4) and South I-35 Park and Ride (Segment 8) - will likely connect as well. The COA has plans and studies specific to bicycle and pedestrian networks, including the *Austin 2020 Bicycle Plan* Update.

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

8.0 Preliminary Project Costs and Funding

8.1 Williamson County

The recommended program of projects is still under development for the projects in Williamson County. Implementation recommendations for the Mobility35 in Williamson County are currently unfunded. Based upon preliminary project development, the total anticipated cost for the Williamson county improvements is $815M in 2020 dollars.

Included in this total is the Phase 3 project from RM 1431 to SH 45N. The current project estimate for that project is $128M in 2014 dollars.

8.2 Travis County

The recommended program of projects incorporates on-going development efforts already authorized and funded by TxDOT and others. However, most implementation recommendations for the Mobility35 in Travis County are currently unfunded. For areas with more than one refined concept, the cost shown would cover all proposed concepts, with one significant exception. In Segment 5 the two refined concepts, Modified Existing and Fully Depressed have significantly different costs. Current preliminary estimates of probable cost are shown by project in **Table 8.1** and **8.2**. More detailed preliminary estimates of probable construction cost may be found in **Appendix C: Preliminary Cost Estimates**. **Table 8.1** shows costs with the downtown Modified Existing concept; **Table 8.2** includes two direct connectors at US 183 in Segment 3, the Fully Depressed Concept with caps in Segment 5 and the FTC direct connector in Segment 6. These two cost tables provide a low and high bookend of concepts under development. Both tables assume 6% of construction cost for Phase 3 development and 10% of construction cost for Phase 4 development.

Table 8.1: Travis County Cost Breakdown Modified Existing Concept (2014 Dollars)

Project	Phase 3	Phase 4	Phase 5	Total
Ramp Reversal: SH 45 to Grand Avenue Parkway	$1,701,660	$2,836,100	$28,361,000	$32,898,760
Grand Avenue Parkway	$970,740	$1,617,900	$16,179,000	$18,767,640
Wells Branch Parkway	$1,291,080	$2,151,800	$21,518,000	$24,960,880
Howard Lane	$1,779,300	$2,965,500	$29,655,000	$34,399,800
Parmer Lane	$1,241,100	$2,068,500	$20,685,000	$23,994,600
Braker Lane	$985,620	$1,642,700	$16,427,000	$19,055,320
Pedestrian Bridge: Rundberg Lane to US 183	$150,240	$250,400	$2,504,000	$2,904,640
US 183 Direct Connectors	$5,904,780*	$9,841,300	$98,413,000	$114,159,080
Ramp Modifications: US 183 to US 290	$982,380 *	$1,637,300	$16,373,000	$18,992,680
St. Johns Street	$733,500 *	$1,222,500	$12,225,000	$14,181,000
51st Street	$774,000 *	$1,290,000	$12,900,000	$14,964,000
Ramp Modifications: 51st to Airport Boulevard	$590,100	$983,500	$9,835,000	$11,408,600
Airport Boulevard	$985,680	$1,642,800	$16,428,000	$19,056,480
Decks: Airport Boulevard to MLK Boulevard	$3,228,660	$5,381,100	$53,811,000	$62,420,760
Downtown: Modified Existing	$8,520,600	$14,201,000	$142,010,000	$164,731,600
MLK Boulevard	$95,280	$158,800	$1,588,000	$1,842,080
Riverside Drive	$4,067,340 *	$6,778,900	$67,789,000	$78,635,240
Oltorf Street: Woodland Avenue to Woodward Street	$3,299,040 *	$5,498,400 *	$54,984,000	$63,781,440
William Cannon Drive and Stassney Lane	$3,400,380 *	$5,667,300 *	$56,673,000	$65,740,680
Slaughter Lane	$383,520	$639,200	$6,392,000	$7,414,720
Slaughter Creek Overpass	$343,860	$573,100	$5,731,000	$6,647,960
North FTC	$14,885,820	$24,809,700	$248,097,000	$287,792,520
Central FTC	$1,245,360	$2,075,600	$20,756,000	$24,076,960
South FTC	$5,928,960	$9,881,600	$98,816,000	$114,626,560
ICM	$2,946,000	$4,910,000	$49,100,000	$56,956,000
Total	**$66,435,000**	**$110,725,000**	**$1,107,250,000**	**$1,284,410,000**

*-Project Phase currently in process

Table 8.2: Travis County Cost Breakdown Fully Depressed Concept (2014 Dollars)

Project	Phase 3	Phase 4	Phase 5	Total
Ramp Reversal: SH 45 to Grand Avenue Parkway	$1,701,660	$2,836,100	$28,361,000	$32,898,760
Grand Avenue Parkway	$970,740	$1,617,900	$16,179,000	$18,767,640
Wells Branch Parkway	$1,291,080	$2,151,800	$21,518,000	$24,960,880
Howard Lane	$1,779,300	$2,965,500	$29,655,000	$34,399,800
Lamar Realignment	$851,640	$1,419,400	$14,194,000	$16,465,040
Parmer Lane	$1,241,100	$2,068,500	$20,685,000	$23,994,600
Braker Lane	$985,620	$1,642,700	$16,427,000	$19,055,320
Pedestrian Bridge: Rundberg Lane to US 183	$150,240	$250,400	$2,504,000	$2,904,640
US 183 Direct Connectors	$5,904,780 *	$9,841,300	$98,413,000	$114,159,080
Ramp Modifications: US 183 to US 290	$982,380 *	$1,637,300	$16,373,000	$18,992,680
St. Johns Street	$733,500 *	$1,222,500	$12,225,000	$14,181,000
51st Street	$774,000 *	$1,290,000	$12,900,000	$14,964,000
Ramp Modifications: US 290 to Airport Boulevard	$590,100	$983,500	$9,835,000	$11,408,600
Airport Boulevard	$985,680	$1,642,800	$16,428,000	$19,056,480
Decks: Airport Boulevard to MLK Boulevard	$3,228,660	$5,381,100	$53,811,000	$62,420,760
Downtown: Fully Depressed Section w/Caps	$8,520,600	$61,331,000	$613,310,000	$683,161,600
MLK Boulevard	$95,280	$158,800	$1,588,000	$1,842,080
Riverside Drive	$4,067,340 *	$6,778,900	$67,789,000	$78,635,240
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Slaughter Creek Overpass	$343,860	$573,100	$5,731,000	$6,647,960
North FTC	$14,885,820	$24,809,700	$248,097,000	$287,792,520
Central FTC	$1,245,360	$2,075,600	$20,756,000	$24,076,960
South FTC	$6,858,960	$11,431,600	$114,316,000	$132,606,560
ICM	$2,946,000	$4,910,000	$49,100,000	$56,956,000
Total	**$68,216,640**	**$160,824,400**	**$1,608,244,000**	**$1,837,285,040**

*-Project Phase currently in process

The total anticipated cost for Travis County is between $1.3 billion and $1.9 billion in 2014 dollars. When inflated to 2020 dollars the numbers become $1.5 to $2.2 billion for Travis County.

8.3 Hays County

The recommended program of projects is still under development for the projects in Hays County. Implementation recommendations for the Mobility35 in Hays County are currently unfunded. Based upon preliminary project development, the total anticipated cost for the Williamson county improvements is $1.5B in 2020 dollars.

8.4 Program Totals

The summary cost for the three counties ranges from $3.8B to $4.5B.

8.5 Project Funding

Identified project funding to date includes:

- $11 million annual spending by TxDOT on projects in the I-35 corridor.
- $15 million approved by City of Austin voters as part of the City of Austin 2012 Bond election.
- Funds that could be available as part of the interlocal agreement between CAMPO and 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.

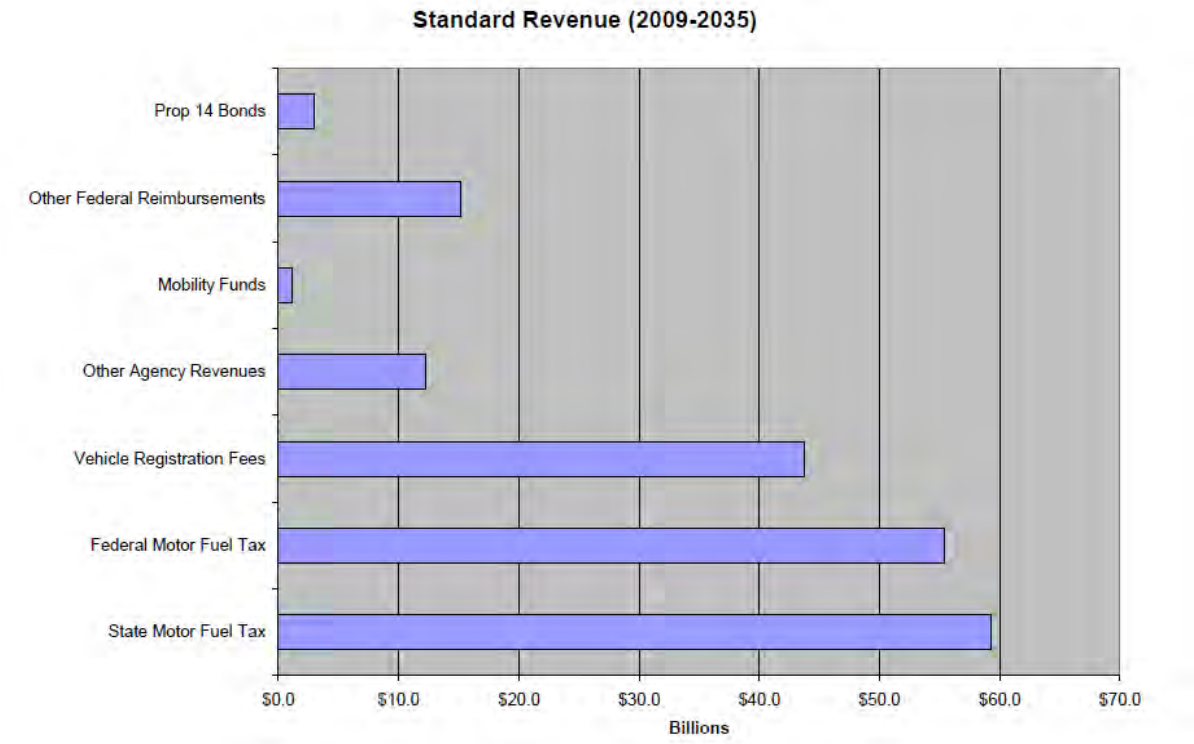
The recommended program of projects incorporates ongoing development efforts already authorized and funded by TxDOT and others. However, most implementation recommendations for the Mobility35 in Williamson County are currently unfunded.

8.6 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.

A variety of funding mechanisms exist that could be applied to I-35 projects in Travis 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 district overlays, associations, and agreements.



Source: TxDOT
Figure 8.1: Standard Revenue (2009-2035).

Government Entities

Government funding may come from federal, state, county, or municipal sources. Federal and state funding 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 Travis County 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.

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. TIFIA funding is limited to 33 percent 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.

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. SIB 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.

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.

In February 2012, TTI published, *Mobility Investment Priorities Project Early Recommendation Report*. The Texas Transportation Commission accepted the report on February 23, 2012. The recommendations for the Austin metropolitan area included $1.2 million to “Expand study limits

and scope to address potential express lane operations and to access travel option strategies for I-35 commuters." This funding enabled the COA Phase 1 Study limits to expand to SH 45SE on the south and to SH 45N on the north. In August 2012, $10.75 million in additional Rider 42 funds were dedicated to partially fund the Implementation Plan.

Mobility Bond Elections

A county or city government may issue bond funding, upon voter approval for corridor improvements. For example, the 2010 City of Austin Mobility Bond dedicated $1 million to the Phase 1 Corridor Feasibility Study. In November 2012 the voters in the city of Austin passed additional infrastructure bonds, including a dedicated $15 million for improvements along the I-35 corridor. At this time the use of this money within the corridor has not been determined, but is anticipated to fund some portion of the Phase 5 improvements. No other current bond initiatives for the I-35 corridor have been placed on a ballot for voter approval.

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 or development of same. 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 assess to, or value of, a private development. An example of the latter is the current project under development at I-35 from Howard Lane to Parmer Lane, described in Section 2. 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.

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 association goals may include taxation or the taking of a property. Examples of types of associations are: Transportation Reinvestment Zones (TRIZ), Tax Increment Finance (TIF) Zone, 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.

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 the Mobility35.

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. Tolling may be collected electronically such as through a TxTag, or with a cash toll both 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. A sketch-level traffic and revenue study is presently underway for Travis County as part of COA Phase 1 efforts to ascertain if toll financing could be considered as a funding option for the FTC portion of corridor improvements.

Congestion Pricing

Congestion pricing may be used by the transportation facility owner or operator to regulate traffic. For example, a tolled lane may charge a relatively low toll when the traffic is light and a much higher toll 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 travellers to use transit and carpool rather than driving a single-occupant vehicle. Congestion pricing will be evaluated as part of the sketch-level traffic and revenue study.

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.

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 current projects. In turn, the influx of money from TxDOT makes 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 the projected cost of issuing and repaying toll revenue bonds.

CTRMA has agreed to establish a Regional Infrastructure Fund (RIF) to be used to fund other transportation projects in the region. CTRMA has agreed to deposit and hold 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. For the purposes of the plan, it is 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, 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 of development.

Public outreach will continue to be a key ongoing 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.

It should be noted that with the initiation of Phase 2 efforts in Williamson and Hays Counties, the Mobility35 planning initiative has been effectively extended through the greater-Austin metropolitan area (spanning from SH 130 north of Georgetown to Posey Road south of San Marcos). Results of the expanded Phase 2 efforts, including recommended projects within the expanded limits, will be captured in future (annual) updates to this Implementation Plan.

10.0 References

- Austin 2020 Bicycle Plan Update, City of Austin, 2009.
- CAMPO 2035 Regional Transportation Plan.
- City of Austin. (2010). Capital Planning Office, 2010 Mobility Bond. Retrieved November 13, 2012, from http://austintexas.gov/department/2010-mobility-bond.
- Environmental Manual, TxDOT, 2004.
- Federal Highway Administration Publication No. FHWA-HRT-09-054, Double Crossover Diamond Interchange, FHWA, 2009.
- Federal Highway Administration. (2011). the Highway Trust Fund. Retrieved November 6, 2012, from http://www.fhwa.dot.gov/reports/financingfederalaid/fund.htm.
- Federal Highway Administration. (2012). MAP-21, Moving Ahead.
- For Progress in the 21st Century. Retrieved November 13, 2012, from http://www.fhwa.dot.gov/map21/.
- Hydraulic Design Manual, TxDOT, 2011.
- Highway Capacity Manual, FHWA, 2010.
- I-35 Advisory Committee Plan, TxDOT, 2011.
- I-35 Concept Refinement Charette Summary, Travis County, HNTB 2012.
- I-35 Existing Bicycle and Pedestrian Conditions Summary, HNTB May 2013
- I-35 CAIP Travis County Operational Analysis From SH 45N to SH 45SE (Draft), Alliance Transportation Group, 2013.
- I-35 CAIP Travis County Environmental Technical Report (Draft), HNTB, 2012.
- I-35 CAIP Travis County Phase 2 Implementation Plan concept Refinement Charette Report, HNTB, 2012.
- I-35 CAIP Travis County Preliminary Engineering Report (Draft), HNTB, 2013.
- I-35 Integrated Operations and Intelligent Transportation Systems (ITS) Deployment Plan (Draft), CDM Smith, 2013.
- I-35 Major Investment Study, Phase 1 Report, November 1998, TxDOT.
- MacCrossan, G. (2010). Fiscal Notes, Bumpy Road Ahead. Retrieved November 12, 2012, from http://www.window.state.tx.us/comptrol/fnotes/fn1005/road.html.
- Roadway Design Manual, TxDOT, 2010.

- Samuel, Peter. (2012, September 24). US Traffic Continues to Slip - full year estimates for 2011 down 1.2%, retrieved December 13, 2012, from Tollroadnews.com: http://www.tollroadnews.com/node/6200.
- TTI (2012, February). Mobility Investment Priorities Project Early Recommendation Report.
- TxDOT. (2011). Transportation Funding: Understanding the State Road and Highway Funding in Texas. Austin: TxDOT Government and Public Affairs Division.
- TxDOT. (n.d.). Retrieved November 12, 2012, from Funding Sources: https://www.txdot.gov/about_us/funding_sources.htm.
- Weingroff, R. F. (2005, May 7). The Genie in the Bottle: The Interstate System and Urban Problems, 1939-1957. Retrieved March 25, 2008, from U.S. Department of Transportation Federal Highway Administration: http://www.fhwa.dot.gov/infrastructure/rw00c.htm.