

# 7 Transportation Improvement Strategies

Based on analyses conducted during the course of the US 190/I-10 Feasibility Study, it was determined that various alternatives for improving the entire corridor to a freeway and/or four-lane divided highway was not economically viable. However, these analyses also indicated that transportation improvements were needed to address identified mobility and safety issues. As a result, potential localized transportation improvements were identified to address these needs. This chapter describes the process of identifying and prioritizing potential localized transportation improvements along the US 190/I-10 corridor which would improve transportation conditions without the implementation of any of the statewide alternatives.

Applicable statewide planning programs were reviewed to identify whether any potential projects along the US 190/I-10 corridor overlap or complement projects and/or deficiencies identified in any of these plans. Plans reviewed included:

- Texas Statewide Long Range Transportation Plan 2035 (SLRTP)
- Texas Rural Transportation Plan 2035 (TRTP) [to be completed June 2012, and referred to in this report as “Draft TL RTP”]
- 2012 Unified Transportation Program (UTP)
- Statewide Transportation Improvement Program (STIP)

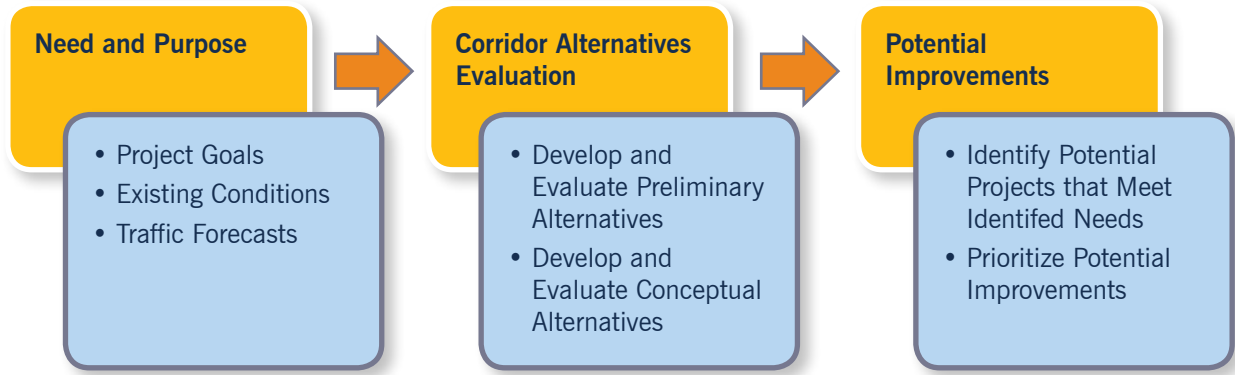
Projects and/or deficiencies identified as part of this review are presented in **Appendix A**.

## 7.1 Analysis of Transportation Improvement Strategies

The goal of the transportation improvement strategies analysis was to identify potential projects that would complement the alternatives identified in the corridor alternatives evaluation and address the identified needs. Should any of the statewide alternatives evaluated be pursued, identified projects would be considered interim projects. However, these same projects would also serve an independent utility and function as stand-alone projects should any of the corridor alternatives not be pursued. **Figure 7-1** highlights the general process by which these potential projects were identified.



**Figure 7-1 Project Identification**



Potential projects for the 900-mile corridor were based on a high-level review in an attempt to identify safety, capacity, and operational issues. All potential projects would need to undergo a more location-specific detailed evaluation to determine need and feasibility.

The evaluation of statewide alternatives was conducted using a two-step process. Step one involved the development and evaluation of Preliminary Alternatives, and step two involved the evaluation of Conceptual Alternatives which were derived from the step one process. The details and outcomes of these analyses were previously discussed in *Chapter 6 - Conceptual Alternatives*.

Potential transportation improvement strategies were considered based on their ability to address the identified needs on a localized basis, i.e., should any individual improvement be implemented in the absence of any other improvements in the corridor, there would still be some benefit to addressing the identified need. The potential improvements considered included:

- Providing for additional travel lanes where needed
- Providing for relief routes around cities/towns
- Adding passing lanes consistent with a “Super 2” roadway design standard
- Roadway design enhancements such as interchange improvements, adding shoulders where needed, and/or elimination of at-grade railroad crossings



## 7.2 Identification of Potential Improvements

The following sections discuss the identification of potential local improvements along the US 190/I-10 corridor.

### 7.2.1 Additional Capacity on Existing Facilities

Locations were identified along the US 190/I-10 corridor where additional capacity would be needed on the existing plus committed (E+C) highway network to effectively serve the forecasted 2040 travel demand. Additional capacity was assumed to be needed at locations where the LOS degraded below LOS D; these needs were compared to the existing roadway sections shown previously on Figure 4-6. Generally, additional capacity is needed between the Killeen area and US 59 in Livingston.

Future traffic volumes were estimated based on historical data. The TxDOT Statewide Analysis Model (SAM) was used to model the estimated traffic volumes on the E+C network during the interim years 2020 and 2030 assuming No-Build conditions and to determine the need for potential capacity improvements prior to the study horizon year 2040. The results of this analysis are shown in **Table 7-1**. The most immediate needs are in the Killeen area, which is currently experiencing LOS E-F and would benefit from additional capacity today. The remaining identified locations are not forecasted to degrade below LOS D until after year 2030.



*US 190 at SH 87*



*US 190 near Buckholdts*



**Table 7-1 Corridor E+C Added Capacity Needs to 2040**

Roadway	Limits		Existing Facility	2020 Facility	2030 Facility	2040 Facility
	From	To				
<b>US 190</b>	Constitution Dr.	I-35	4 to 6-lane freeway	<b>6-lane freeway \$240,000,000</b>	6-lane freeway	<b>8-lane freeway \$280,000,000</b>
<b>I-35</b>	US 190/I-35 Interchange (S)	US 190/I-35 Interchange (N)	6-lane freeway	6-lane freeway	6-lane freeway	<b>8-lane freeway \$51,000,000</b>
<b>US 190</b>	Heidenheimer	Hearne	2-lane highway	2-lane highway	2-lane highway	<b>4-lane highway \$266,000,000</b>
<b>US 190</b>	Kurten	I-45 (Madisonville)	2-lane highway	2-lane highway	2-lane highway	<b>4-lane highway \$188,000,000</b>
<b>I-45</b>	Madisonville	Huntsville	4-lane freeway	4-lane freeway	4-lane freeway	<b>6-lane freeway \$215,000,000</b>
<b>US 190</b>	I-45 (Huntsville)	Livingston	2-lane highway	2-lane highway	2-lane highway	<b>4-lane highway \$168,000,000</b>

Note: Additional lanes indicated in bold text; conceptual construction cost estimate (in today's dollars) for the upgrade from the existing facility is included.

Previous studies identified additional locations along the study corridor that are currently experiencing, or forecasted to experience, unacceptable LOS E-F that are not addressed in this capacity needs analysis. Those locations are primarily within corridor cities/towns and could benefit from other improvements that may improve traffic operations and safety but not result in significant impacts from constructing additional travel lanes. These optional localized improvements are discussed below.

## 7.2.2 Relief Routes

The purpose of a relief route is to provide for a high speed transportation option that avoids a town's/city's urban core and minimizes potential impacts to the human environment. By avoiding the urban core, relief routes often serve to provide congestion relief and improved mobility within a travel corridor. Relief routes were assessed and ranked as a near to mid- or long-term improvement based on the following criteria:

1. **Existing and Forecast ADT** – Ranked based on total average traffic accumulated from 2007 to 2040.
2. **Existing and Forecast LOS** – Ranked based on accumulation of percent of existing urban roadway at LOS E-F from 2007 to 2040.
3. **Year that 20% or more of Urban Roadway Length reaches LOS E-F** – Ranked chronologically with early years having priority.
4. **Travel Delay** – Ranked based on accumulation of average travel delay from 2007 to 2040.



5. **Accidents** – Ranked based on potential accidents on urban roadway in 2007.
6. **Impedances** – Ranked based on density of impedances on existing roadway including signals, at-grade railroad crossings/school zones, and route continuity.

The results for each criterion were summarized and ranked by location from 1 being greatest to 14 being least. These results were summed to provide a final ranking of the relative priority of each relief route location. The results of this analysis and estimated construction costs for each location are presented in **Table 7-2**.

This prioritization only indicates that a relief route may be considered in these locations. Local decision makers should conduct a detailed feasibility study to include applicable access management tools on the existing roadways to determine the need for a relief route.



Table 7-2 Prioritization of Potential Relief Route Locations

	City	Year LOS E-F ≥20% of Length	Traffic Rank	LOS Rank	Travel Delay Rank	Accident Rate Rank	Impedance Rank	Total Score	Final Rank	Conceptual Construction Cost (# of lanes)
NEAR TO MID-TERM	Huntsville	2012	2	4	1	4	2	13	1	\$63,500,000 (4)
	Lampasas*	2018	4	3	2	8	1	18	2	\$30,000,000 (4)
	Madisonville	2012	7	1	3	1	8	20	3	\$51,000,000 (4)
	Hearne	2021	1	2	4	13	7	27	4	\$20,000,000 (4)
	Cameron	2036	3	6	7	3	12	31	5	\$27,000,000 (2)
	Livingston/ Onalaska*	Beyond 2040	6	8	8	5	4	31	5	\$152,000,000 (2)
	Woodville	2023	10	5	5	10	10	40	7	\$18,000,000 (2)
	Brady	Beyond 2040	11	7	6	12	6	42	8	\$24,500,000 (2)
LONG-TERM	Jasper	Beyond 2040	5	10	9	11	9	44	9	\$28,000,000 (2)
	Menard	Beyond 2040	12	10	14	7	3	46	10	\$11,000,000 (2)
	Newton	Beyond 2040	9	10	13	2	13	47	11	\$14,000,000 (2)
	Eldorado	Beyond 2040	13	10	12	9	5	49	12	\$21,000,000 (2)
	San Saba	2040	8	9	10	13	11	51	13	\$21,500,000 (2)
	Iraan	Beyond 2040	14	10	11	6	14	55	14	\$18,000,000 (2)

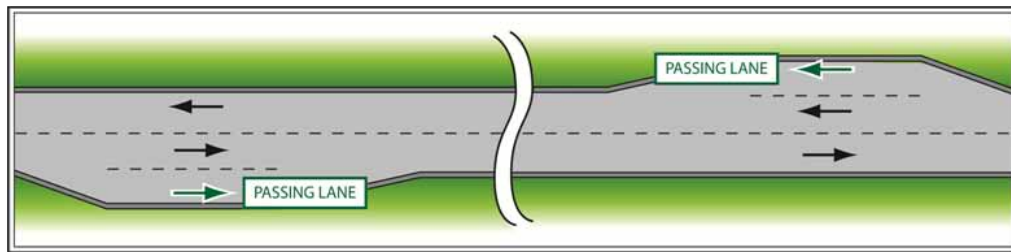
\* Identified in the Draft TRTP



### 7.2.3 Passing Lanes

The TxDOT *Roadway Design Manual* defines Super 2 roadways as those “where a periodic passing lane is added to a two-lane rural highway to allow passing of slower vehicles and the dispersal of traffic platoons. The passing lane will alternate from one direction of travel to the other within a section of roadway allowing passing opportunities in both directions.”<sup>1</sup> An example of this concept is shown on **Figure 7-2**.

**Figure 7-2** Example Super 2 Design



Recent TxDOT and Texas Transportation Institute (TTI) research indicate that the Super 2 concept has travel time and safety benefits for roadways with low to moderate traffic volumes (less than 5,000 vpd) and roadways with traffic volumes approaching 14,000 vpd.<sup>2</sup>

The US 190/I-10 corridor was evaluated to assess potential locations and the feasibility, within traffic constraints, of potential Super 2 sections. For this analysis, the two-lane undivided portions of the US 190/I-10 corridor were divided into 21 discrete sections which were assessed for terrain and existing and forecasted traffic volumes. Additionally, accident history and planned improvements for each individual section were reviewed. **Table 7-3** provides prioritization of each of the sections by near to mid-term (top 12 sections) and long-term (last nine sections). The ordering of these sections into each of the prioritization categories is based on ordering each section highest to lowest by:

1. Long-term need for four-lane roadway
2. Percent of roadway above statewide accident rate
3. 2040 traffic volumes

<sup>1</sup> TxDOT, *Roadway Design Manual*, 2010, Section 6: Super 2 Highways; [http://onlinemanuals.txdot.gov/txdotmanuals/rdw/super\\_2\\_highways.htm](http://onlinemanuals.txdot.gov/txdotmanuals/rdw/super_2_highways.htm)

<sup>2</sup> Woodridge, Mark D. et al., TTI, *Super 2 Highways: Two-Lane Rural Highways With Passing Lanes*, 2002, <http://tti.tamu.edu/documents/4064-S.pdf> (Brewer, Marcus et. al., TTI, *Super 2 Design for Higher Traffic Volumes*, 2011, <ftp://ftp.dot.state.tx.us/pub/txdot-info/rti/psr/6135.pdf>)



**Table 7-3 US 190/I-10 Corridor Super 2 Prioritization**

	Highway	Limits	Percent of Roadway Above Statewide Accident Rate	Need for Four Lanes by 2040	Length Weighted ADT 2040	Estimated Cost
NEAR TO MID-TERM	US 190	South of Temple to Rogers	100%	Yes	30,300	\$2,954,400
	US 190	Huntsville to Point Blank	100%	Yes	15,400	\$7,146,600
	US 190	East of Bryan to Madisonville	48%	Yes	26,000	\$14,251,800
	US 190	Rogers to Cameron	44%	Yes	23,500	\$7,780,200
	US 190	East of Milano to Hearne	0%	Yes	18,500	\$8,301,000
	SH 30	SH 90 to Huntsville	0%	Yes	16,100	\$12,589,200
	US 190	Woodville to Jasper	100%		6,700	\$13,914,600
	US 190	East of Livingston to Woodville	100%		6,400	\$11,945,400
	SH 63	Jasper to Newton	44%		8,600	\$5,595,000
	US 277	Eldorado to Sonora	44%		4,200	\$11,268,600
	US 190	Iraan to Eldorado	38%		1,700	\$46,986,000
	US 190	I-10 to Iraan	30%		2,500	\$8,146,200
<b>Near to Mid-Term Sub-Total</b>						<b>\$150,879,000</b>
LONG-TERM	US 83	Menard to Junction	6%		5,300	\$16,520,400
	US 190	South of US 77 to Milano	0%		11,700	\$7,324,200
	SH 63	Newton to LA	0%		6,400	\$6,176,400
	US 190	Richland Springs to San Saba	0%		6,100	\$7,494,000
	US 190	Brady to Richland Springs	0%		4,600	\$15,153,000
	US 190	Menard to Brady	0%		4,100	\$17,248,200
	US 190	San Saba to Lometa	0%		3,800	\$9,837,600
	US 190	Jasper to Louisiana	0%		2,600	\$18,102,000
	US 190	Eldorado to Menard	0%		1,700	\$29,457,000
<b>Long-Term Sub-Total</b>						<b>\$127,312,800</b>

Note: Red highlighted cells identify those sections that indicated the potential need for a four-lane highway by 2040 that are included within the Additional Capacity potential improvements.





## 7.2.4 Roadway Design Improvements

Roadway design analysis included evaluation of existing roadway intersections, at-grade railroad crossings, and minimum standard lane and shoulder widths.

### Roadway Intersections

For conceptual US 190/I-10 corridor planning purposes, an interchange is recommended for ongoing consideration if some of the following criteria were met:

- The volume of traffic on the crossing highway is significantly more than one quarter the total traffic entering the intersection.
- Expansion of the US 190 typical section is not likely to occur due to lack of traffic to justify it.
- The volume of traffic on US 190 is likely to severely limit the potential capacity of an intersecting highway under two-way stop control.
- Intersection channelization improvements are not likely to mitigate the need for a traffic signal.
- The existing intersection or interchange poses a potential hazard due to nonstandard interchange configurations.

Locations identified for potential grade separated interchanges are included in **Table 7-4**. Interchange sites recommended by these criteria are subject to a more detailed operational and safety evaluation which is beyond the scope of this planning study. Cost estimates are conceptual.

**Table 7-4** Potential Interchange Improvements

Intersection	Location	Existing Intersection	Potential Intersection Improvement	Comments	Conceptual Construction Cost Estimates
US 281 at US 190	North of Lampasas	At-grade 3 Leg Intersection	Diamond Interchange	Existing interchange configuration does not meet unfamiliar drivers' expectations	\$8,000,000
US 77 at US 190	East of Cameron	3 Leg Traffic Signal	Trumpet Interchange	Section projected to need 4 lanes by 2040	\$3,000,000
FM 2776 at US 190	Wixon Valley	Flasher Controlled	Diamond Interchange	Existing flasher indicates either increasing volumes on FM 2776 or safety issue. Section forecasted to need 4 lanes by 2040	\$7,000,000



Additional potential interchange locations were identified during the evaluation of the statewide corridor alternatives. These potential interchanges were considered as part of upgrading the existing roadway to a freeway or four-lane highway. The interchanges included as potential transportation improvement strategies are those to be considered if the existing roadway section is not additionally upgraded.

### **Railroad Crossings**

At-grade highway/railroad crossings are not desirable as they pose a safety risk as well as create intermittent delays on the roadway for passenger and emergency vehicles. Existing at-grade railroad crossings along the US 190/I-10 corridor include:

- US 190 at Gulf Colorado and San Saba Railway in Brady
- US 190 at Gulf Colorado and San Saba Railway near FM 429 between Rochelle and Richland Springs
- US 190 at BNSF in Cameron
- SH 30 at BNSF in Shiro

None of the at-grade railroad crossings along the corridor are recommended as a potential improvement within the 2040 horizon year of this study. There are low current and projected traffic volumes on the No-Build condition at all locations. The crossings in Brady and Cameron are within the city limits where US 190 operates as a city street with a reduced speed limit and several signalized intersections. ROW is also limited in these locations. There is potentially adequate ROW at the locations near Rochelle and in Shiro, but the low traffic volumes do not warrant a grade separation by 2040 based on the forecasts in this study. If traffic were to increase beyond that of the forecasts used in this study, these crossings should be evaluated individually.

### **Minimum Roadway Design Criteria**

Based on a November 2008 roadway field inventory, available mapping, and field investigations, locations which potentially do not meet current design standards and could be upgraded are listed in **Table 7-5**. This table also includes the previously identified potential improvements that have been identified within these areas. None of the potential minimum roadway design criteria projects listed in Table 7-5 are recommended as potential individual projects at this time because if the previously identified improvements are constructed, the new facility would be constructed to current design standards. The only location that does not have a previously identified improvement associated with it is the Colorado Bridge between San Saba and Lometa. This location is not currently experiencing above average crash rates.



**Table 7-5** Potential Minimum Roadway Design Criteria

Location	Potential Design Deficiency	Previously Identified Potential Improvements
US 190 curve just north of Rochelle	<ul style="list-style-type: none"> <li>– No shoulders</li> <li>– High curbs directly adjacent to travel lanes</li> </ul>	Passing lanes (Long-Term)
Colorado River bridge between San Saba and Lometa	<ul style="list-style-type: none"> <li>– No shoulders</li> </ul>	
US 190 between Rogers and Buckholts	<ul style="list-style-type: none"> <li>– Sharp S-curves to accommodate existing railroad overpass</li> <li>– Narrow shoulders</li> <li>– Tight horizontal clearances at underpass</li> </ul>	Added capacity
Brazos River bridge between Gause and Hearne	<ul style="list-style-type: none"> <li>– No shoulders</li> </ul>	Added capacity
Navasota River bridge between Bryan and Madisonville	<ul style="list-style-type: none"> <li>– No shoulders</li> </ul>	Added capacity
US 190 in North Zulch	<ul style="list-style-type: none"> <li>– Narrow shoulders</li> <li>– Tight horizontal clearances at railroad overpass</li> </ul>	Added capacity
B.A. Steinhagen Lake bridge	<ul style="list-style-type: none"> <li>– No shoulders</li> </ul>	Passing lanes (Near- to Mid-Term)
SH 63 from Jasper to Louisiana	<ul style="list-style-type: none"> <li>– Sub-standard shoulders</li> </ul>	Passing lanes (Long-Term)

## Intelligent Transportation Systems

With the US 190/I-10 corridor being part of the proposed Gulf Coast Strategic Highway System and 14th Amendment Highway Corridor, one of the primary goals focuses on the movement of freight and military equipment in addition to the daily commuters. **Table 7-6** illustrates the relative value of the various Intelligent Transportation Systems (ITS) services for the US 190/I-10 corridor, considering both the individual regions and larger multi-state corridor efforts. The primary ITS Services recommended for the US 190/I-10 corridor include advanced traveler information services, emergency management, and commercial vehicle operations.



**Table 7-6** Relative Importance of ITS Services by Section

ITS Service	I-10	West US 190	Central US 190	East US 190
Travel and Traffic Management	●	◐	◑	◒
Electronic Payment	◐		◑	◒
Commercial Vehicle Operations	●	◐	◑	◒
Emergency Management	◑	◑	●	●
Advanced Traveler Information Services	●	◐	●	●
Information Management (Archived Data)	◑	◒	◑	◑
Maintenance and Construction Management	◑	◐	◑	◑

● Most Important ◐ Least Important

### 7.2.5 Public Input

Public comments received as part of the US 190/I-10 Feasibility Study, SLRTP 2035, and TRTP 2035 were reviewed to identify any projects associated with US 190, US 277, US 83, SH 30, or SH 63.

#### US 190/I-10 Feasibility Study

A summary of the public meetings held for this study, and comments received during the public involvement process is presented in *Chapter 2 – Public Involvement*. Projects identified from public comments are included in **Appendix B**.

#### SLRTP 2035 Public Comments

- Each of TxDOT's 25 Districts hosted two open house/public meetings in May and August 2010 during the development of the 2035 SLRTP
- 566 comments received
- Only one comment received during the SLRTP 2035 comment period identified roadway improvements associated with the US 190/I-10 Corridor. The City of Killeen recommended that the Gulf Coast Strategic Highway (GCSH) be included in the SLRTP on September 7, 2010.

#### TRTP 2035 Stakeholder Comments

- TRTP 2035 initiated in June 2011 (currently underway)
- One series of stakeholder meetings held from August 22 through September 1, 2011 at eight locations throughout the state; 120 stakeholders participated



- Second series of stakeholder meetings held March 2012; 29 stakeholders participated
- 26 public meetings hosted by 24 of TxDOT's 25 districts in March 2012; 205 persons participated

At this time, no additional projects have been proposed by either stakeholders or the public for inclusion in the TRTP, other than those developed by TxDOT.

## 7.3 Summary of Recommended Potential Improvements

All goals of this study were taken into consideration in the identification of potential improvements along the US 190/I-10 corridor. This section summarizes all of the potential improvements into near to mid-term projects and long-term projects. All potential improvements would serve to address the corridor needs identified for this study and complement the Conceptual Alternatives that were evaluated.

The list of recommended potential improvements is not financially constrained, and local decision makers will need to weigh the needs, benefits, and costs of improvements to the US 190/I-10 corridor against other local needs. Near to mid-term improvements are those that are recommended to begin the project development process prior to 2030, while long-term improvements are those that are recommended to begin the project development process prior to 2040. The recommended near to mid-term potential improvements along with conceptual construction cost estimates are included in **Table 7-7** and recommended long-term potential projects are included in **Table 7-8**. These projects are also located graphically by improvement type on **Figure 7-3** and **Figure 7-4**.

While individual ITS projects are not included in the listing of potential projects, it should be considered in the planning and design of any improvement as a design concept and alternative analysis within each of the potential projects. It is expected that any ITS deployment of sensors, DMS, CCTV, or other field devices will be coordinated and managed by the appropriate TxDOT district or municipality.



**Table 7-7 Recommended Near to Mid-Term Potential Improvements**

Improvement Type	Roadway	Limits	Existing Facility	Potential Improvement	Conceptual Cost Estimate (\$ Millions)
Added Capacity	US 190	Constitution Drive in Copperas Cove to I-35 in Temple <sup>2</sup>	4- to 6-lane freeway	6-lane freeway	240
Relief Routes	US 190	Huntsville	NA	New location 4-lane highway	64
	US 190	Lampasas <sup>1</sup>			30
	US 190	Madisonville			51
	US 190	Hearne <sup>1</sup>			20
	US 190	Cameron		New location 2-lane highway	27
	US 190	Livingston/Onalaska <sup>1</sup>			152
	US 190	Woodville			18
Passing Lanes	US 190	South of Temple to Rogers	2-lane highway	Super 2	3
	US 190	Huntsville to Point Blank <sup>1*</sup>			7
	US 190	East of Bryan to Madisonville <sup>1*</sup>			14
	US 190	Rogers to Cameron <sup>1*</sup>			8
	US 190	East of Milano to Hearne			8
	SH 30	SH 90 to Huntsville <sup>1*</sup>			13
	US 190	Woodville to Jasper <sup>1</sup>			14
	US 190	East of Livingston to Woodville <sup>1</sup>			12
	SH 63	Jasper to Newton <sup>1</sup>			6
	US 277	Eldorado to Sonora			11
	US 190	Iraan to Eldorado			47
	US 190	I-10 to Iraan			8
Roadway Design	US 281 at US 190	North of Lampasas	At-grade 3 Leg Interchange	Diamond Interchange	8

<sup>1</sup> - Identified in Draft TRTP \* indicates portions include widening to 4-lanes in the Draft TRTP

<sup>2</sup> - Identified in STIP



**Table 7-8 Recommended Long-Term Potential Improvements**

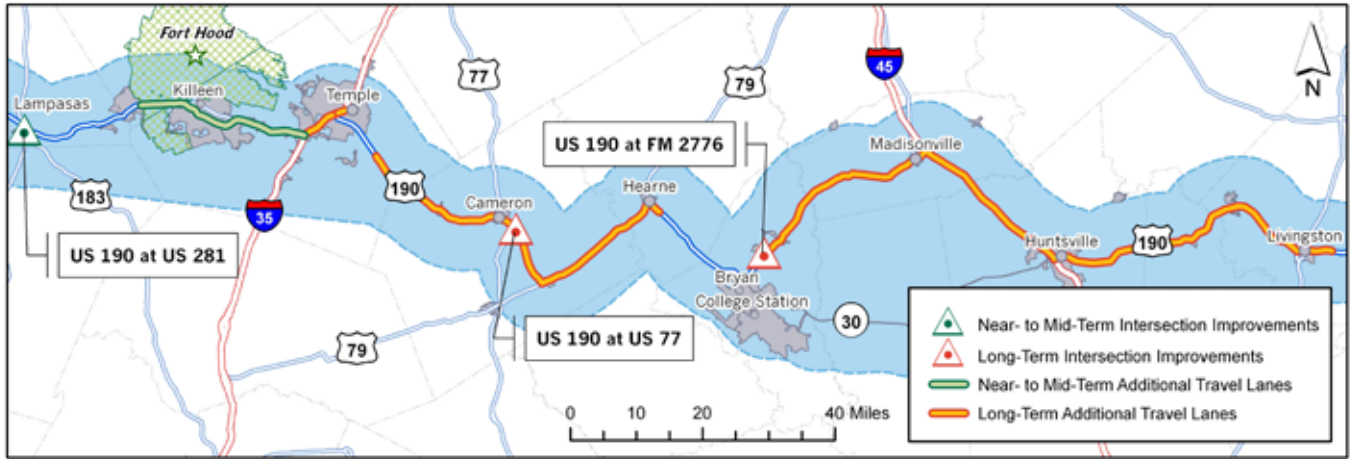
Improvement Type	Roadway	Limits	Existing Facility	Potential Improvement	Conceptual Cost Estimate (\$ Millions)
Added Capacity	US 190	Constitution Drive in Copperas Cove to I-35 in Temple	4- to 6-lane freeway	8-lane freeway	280
	I-35	US 190/I-35 Interchange (S) to US 190/I-35 Interchange (N)	6-lane freeway	8-lane freeway	51
	US 190	Heidenheimer to Hearne	2-lane highway	4-lane highway	266
	US 190	Kurten to I-45	2-lane highway	4-lane highway	118
	I-45	Madisonville to Huntsville	4-lane freeway	6-lane freeway	215
	US 190	I-45 to Livingston <sup>1</sup>	2-lane highway	4-lane highway	168
Relief Routes	US 190	Brady	NA	New location 2-lane highway	24
	US 190	Jasper			27
	US 190	Menard			11
	US 190	Newton			14
	US 190	Eldorado			21
	US 190	San Saba			21
	US 190	Iraan			18
Passing Lanes	US 83	Menard to Junction <sup>1*</sup>	2-lane highway	Super 2	17
	US 190	South of US 77 to Milano			7
	SH 63	Newton to Louisiana			6
	US 190	Richland Springs to San Saba			7
	US 190	Brady to Richland Springs			15
	US 190	Menard to Brady			17
	US 190	San Saba to Lometa			10
	US 190	Jasper to Louisiana			18
	US 190	Eldorado to Menard			29
Roadway Design	US 77 at US 190	East of Cameron	3 Leg Traffic Signal	Trumpet Interchange	3
	FM 2776 at US 190	Wixon Valley	Flasher controlled	Diamond Interchange	7

<sup>1</sup> - Identified in Draft TRTP \* indicates portions include widening to 4-lanes in the Draft TRTP

<sup>2</sup> - Identified in STIP



**Figure 7-3 Recommended Potential Added Capacity and Roadway Design Improvements**



**Figure 7-4 Recommended Potential Relief Routes and Passing Lanes**

