

Proposed Action, Purpose and Need Technical Memorandum

MoPac (State Loop 1) Intersections, Austin District

From North of Slaughter Lane to South of La Crosse Avenue CSJ: 3136-01-015
Travis County, Texas
June 2015

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

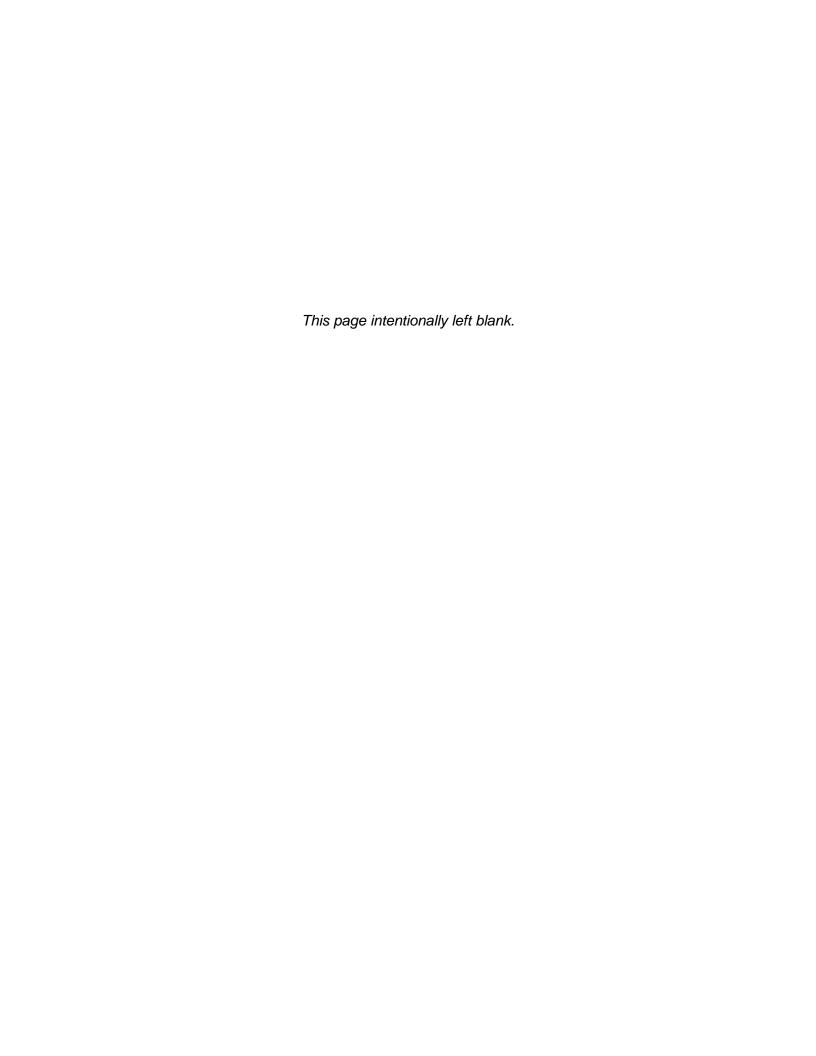
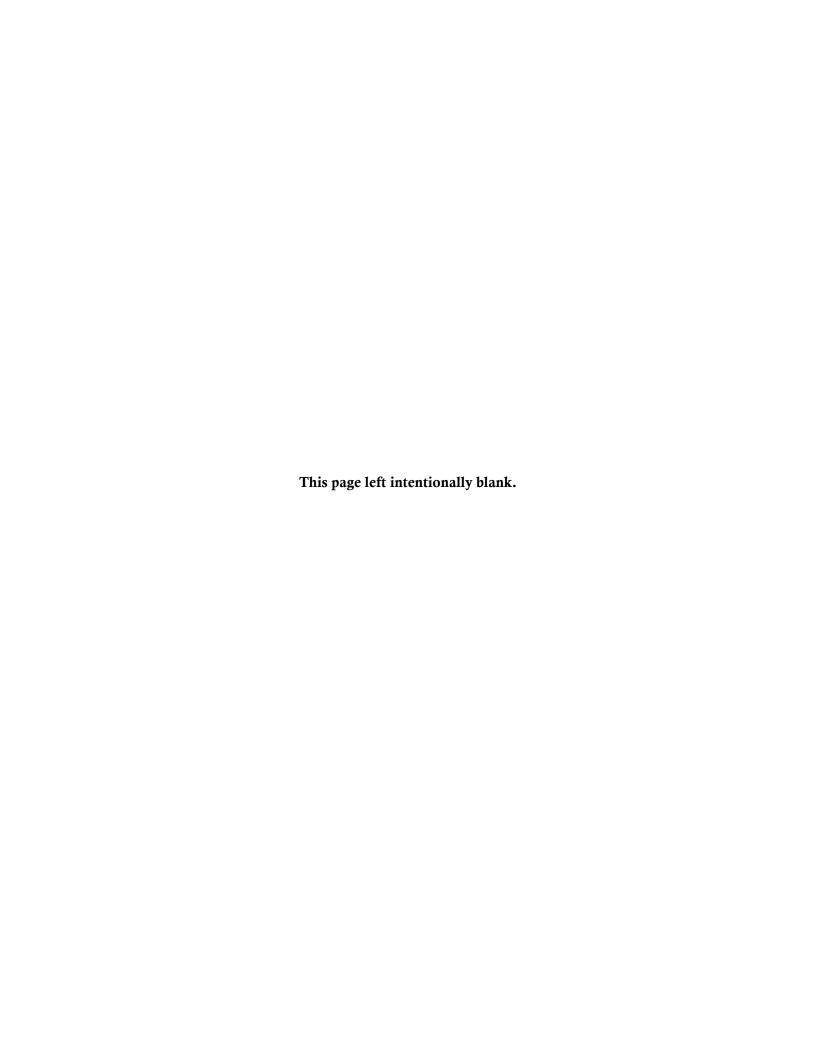


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1.0 PROJECT DESCRIPTION

The Central Texas Regional Mobility Authority (Mobility Authority) and Texas Department of Transportation (TxDOT) propose to construct needed operational improvements to two heavily used intersections, Slaughter Lane at MoPac and La Crosse Avenue at MoPac, located in Travis County, Texas (see **Figure 1**). These two intersections make up the MoPac Intersections project. The limits of the proposed project are from approximately 2,500 feet north of Slaughter Lane to approximately 3,700 feet south of La Crosse Avenue. The proposed project is approximately two miles long.

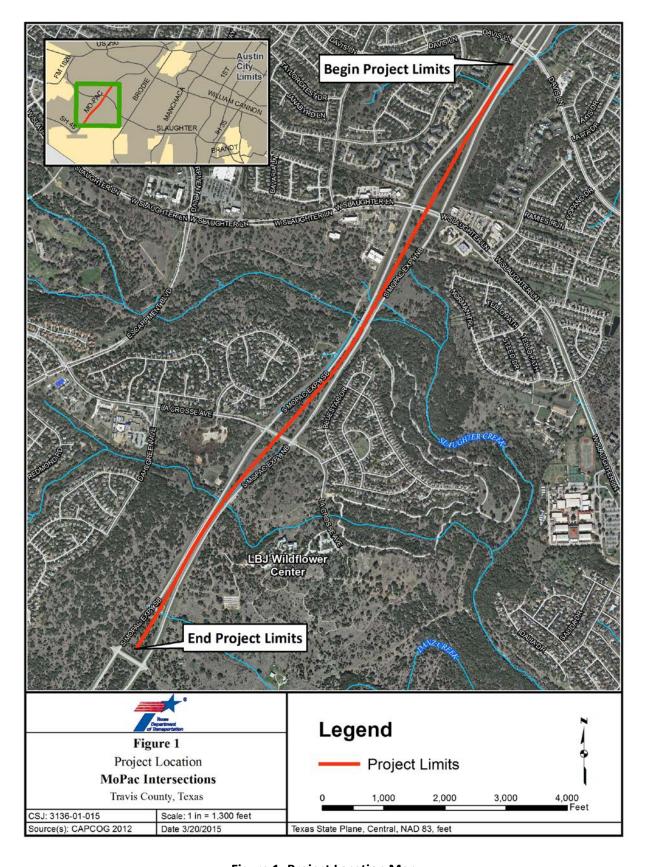


Figure 1: Project Location Map

1.1 FACILITY HISTORY

The entire existing MoPac facility (from SH 45 South to SH 45 North) was constructed over a 34-year period beginning in 1973 and ending in 2006, as summarized in **Table 1**. Development of the MoPac facility has been in response to rapid growth in population and employment in the Austin metropolitan area over the last several decades. Beginning in late 2013, an added capacity design-build project—the MoPac Improvement Project (MIP)—was initiated to add one express lane¹ in each direction from the Cesar Chavez Street/5th Street interchange to Parmer Lane (FM 734). This project is scheduled for completion in late 2015. No other major added capacity improvements have been constructed for any of the other sections of MoPac. The Slaughter Lane and La Crosse Avenue intersections are the only remaining at-grade intersections in the entire MoPac corridor.

Table 1: Timeline of MoPac Construction

From	То	Length (miles)	Type of Work	Year Project Completed
RM 2244	RM 2222	5.4	Construct roadway	November 1975
RM 2222	US 183	4.6	Construct roadway	June 1981
RM 2244	Loop 360	2.1	Construct roadway	March 1982
Loop 360	US 290	1.8	Construct roadway	October 1986
US 183	FM 1325 and FM 734	3.7	Construct roadway	July 1989
RM 2244	Loop 360	1.7	Add frontage roads	October 1990
US 290	Slaughter Lane	3.7	Construct roadway	November 1990
Slaughter Lane	SH 45	2.7	Construct 4-lane parkway	July 1991
FM 734 (Parmer Lane)	SH 45 North/ MoPac Interchange	4.0	Construct toll way	October 2006
US 290	South of William Cannon	1.4	Construct mainlanes and overpass	December 2005
US 290 Southbound Direct Connectors	-	1.0	Add direct connectors	January 2013
Cesar Chavez Street/5th Street Interchange	FM 734 (Parmer Lane)	11.2	Add Express Lanes	Late 2015 ²

Source: Texas Department of Transportation; CTRMA

1.2 EXISTING FACILITY

Within the project limits, MoPac consists of a four-lane divided arterial, with at-grade, signalized intersections at Slaughter Lane and La Crosse Avenue, consisting of two 12-foot lanes, a 10-foot outside shoulder and a 4-foot inside shoulder in each direction; there are no auxiliary lanes. At each of these intersections, the median width increases significantly, from a typical width of 76 feet to approximately

¹ Express lanes are special separated lanes that are designed to remain free-flowing. They utilize variable toll pricing to manage the amount of traffic in the lane. Tolls increase when traffic is heavy and decrease when traffic is light and provide a reliable travel time. The express lanes are toll-free for emergency services, public transit buses, and registered vanpools.

435 feet at Slaughter Lane and 422 feet at La Crosse Avenue. The pavement section consists of asphalt, with intermittent curb and gutter. Drainage from the roadway is accommodated through a combination of curb inlets and open ditches. The right-of-way (ROW) width varies from 300 feet between the intersections to as much as 784 feet at the Slaughter Lane intersection. In addition, this section of MoPac contains several hazardous material trap (HMT) structures to which roadway surface drainage is directed via curb and gutter inlets and subsurface drainage.

The existing pedestrian and bicycle facilities in the project area include a section of trail and the Veloway in Circle C Ranch Metropolitan Park. In addition, a future section of the Violet Crown Trail will also pass through the project area. There is a sidewalk on the south side of the Slaughter Lane and MoPac intersection including crosswalks. At the La Crosse Avenue and MoPac intersection there are crosswalks but no sidewalks. There currently are no bike lanes in the project area and no pedestrian or bicycle facilities that connect the Slaughter Lane and MoPac intersection with La Crosse Avenue and MoPac intersection.

1.3 PROPOSED FACILITY

The proposed improvements would involve grade separating the cross streets of Slaughter Lane and La Crosse Avenue such that MoPac would pass under the existing cross streets. Traffic traveling northbound and southbound in this corridor would no longer need to stop at a signalized intersection to travel through the area. The proposed improvements to MoPac consist of two 12-foot lanes with one auxiliary lane in each direction, and 10-foot outside shoulders and 4-foot inside shoulders in each direction. One of the existing HMT structures would be disturbed by the improvements and would be replaced.

The grade separation at La Crosse Avenue and MoPac would be configured as a standard diamond interchange. The grade separation at Slaughter Lane and MoPac would be accommodated with a diverging diamond interchange (DDI). A DDI is an innovative intersection that shifts traffic approaching the interchange to the left, then back to the right after the interchange to allow drivers who want to turn left to keep moving and reduce the number of traffic signal intervals. See Appendix B for a preliminary layout and typical sections.

The benefits of a diverging diamond intersection include enhanced safety and more effective signal operation (resulting in more "green time").

There is an existing recreational trail outside of the ROW from Slaughter Lane to Slaughter Creek on the west side of MoPac. An additional 10-foot wide shared use path is proposed on the west side of MoPac from Slaughter Creek to La Crosse Avenue. These improvements in combination with existing and other2 pedestrian and bicycle facilities would provide a continuous bicycle and pedestrian connection between Slaughter Lane and La Crosse Avenue (see the preliminary layout Appendix B). Improvements are proposed to be made within existing ROW.

The logical termini of the project are the intersections of Slaughter Lane with MoPac and La Crosse Avenue with MoPac. These termini allow for the consideration of alternatives, including a no build alternative, which would meet the purpose of and need for the project. The proposed project has

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² A small section of the shared use path would be needed outside the ROW in Circle C Metropolitan Park to provide a continuous connection. The park is owned by the City of Austin. This section would be developed by the City of Austin or others.

independent utility without the benefit of any other transportation improvements. The proposed improvements would function as a usable roadway, would not require implementation of any other projects to operate, and would not restrict consideration of alternatives for other foreseeable transportation improvements.

The construction limits extend from approximately 2,500 feet north of Slaughter Lane to approximately 3,700 feet south of La Crosse Avenue, which results in a total project length of 2.07 miles. The construction limits allow the intersection improvements to tie back into the existing MoPac facility north of Slaughter Lane and south of La Crosse Avenue. The proposed improvements would be constructed within existing ROW and would not require any easements.

The preliminary cost estimate for this project is approximately \$46 million.

2.0 PURPOSE AND NEED

The purpose of the project is to reduce travel delay and enhance safety by improving intersection operations.

The need for the project arises from historic population and employment growth in the surrounding area, which has led to traffic congestion, increased delay and a high crash rate at the intersections. Growth trends are expected to continue, leading to further deterioration in intersection operations and safety.

2.1 IMPROVE INTERSECTION OPERATIONS

2.1.1 Existing Operations

Increasing traffic on MoPac has created an additional burden to the already congested intersections at Slaughter Lane and La Crosse Avenue. A level of service (LOS) analysis was performed using peak-hour turning movement counts from October 2013 to understand the intersection operations at the two cross streets with MoPac northbound and southbound lanes. For this analysis, the AM peak hour is defined as 7:00 am to 8:00 am, when most commuters are going northbound, and the PM peak hour is defined as 4:30 pm to 5:30 pm, when most commuters are going southbound. LOS is a measurement on a scale from A (the best) to F (the worst), which characterizes the flow of traffic (free flow to stop and go) as well as a driver's perception of how easy it is to change lanes. Delay per vehicle means the average amount of time a vehicle would have to wait before getting through the intersection, with some vehicles spending less time and some spending more. Delay is calculated as the number of seconds per vehicle, using traffic operations analyses software. The number of vehicles entering the intersection includes all vehicles that are going through that intersection from each direction during the morning or evening peak hour. The total hours of delay is the product of the number of vehicles entering the intersection from that direction and the delay per vehicle, which is converted from seconds to hours to get an overall view of the total delay experienced by vehicles from each direction. The result of this analysis is shown in Table 2.

Table 2: Existing Peak Hour Intersection Levels of Service (2013)

			Al	M Peak Hour			PI	M Peak Hour				
Intersection	Movement	Delay (sec/ veh)	LOS	# of vehicles entering intersection	Total hours of delay	Delay (sec/ veh)	LOS	# of vehicles entering intersection	Total hours of delay			
Slaughter Lane and MoPac												
	Southbound	70.0	E	741	14.4	242.9	F	2,649	178.7			
Canadalaan	Eastbound	35.3	D	1,246	12.2	82.4	F	992	22.7			
Southbound	Westbound	28.1	С	877	6.8	5.4	Α	900	1.4			
	OVERALL	42.1	D		33.4	160.7	F		202.8			
	Northbound	392.0	F	1,363	148.4	404.8	F	752	84.6			
Ni a mt la la a consid	Eastbound	27.7	С	1,472	11.3	49.6	D	2,018	27.8			
Northbound	Westbound	90.7	F	1,528	38.5	60.6	E	1,353	22.8			
	OVERALL	160.7	F		198.2	118.0	F		135.2			
			La C	rosse Avenue a	nd MoPac							
	Southbound	12.1	В	530	1.8	16.7	В	1,366	6.3			
Cauthhaire	Eastbound	33.1	С	402	3.7	28.6	С	297	2.4			
Southbound	Westbound	10.5	В	48	0.1	20.7	С	42	0.2			
	OVERALL	20.5	С		5.6	18.9	В		8.9			
	Northbound	35.1	D	868	8.5	9.9	Α	483	1.3			
Northbound	Eastbound	21.2	С	453	2.7	29.8	С	469	3.9			
Northbound	Westbound	16.1	В	151	0.7	12.5	В	93	0.3			
	OVERALL	28.6	С		11.9	19.1	В		5.5			

Source: Turning Movement Counts taken in October 2013, Jacobs

As shown in **Table 2**, the LOS at Slaughter Lane and MoPac during the AM peak is mostly D or worse with the exception of two movements that are LOS C. During the PM peak, the LOS is mostly E or worse with the exception of two movements that are LOS A and D. At La Crosse Avenue and MoPac, the LOS is D or better during AM peak, and LOS C or better during PM peak.

The overall delay-per-vehicle at the intersection of Slaughter Lane with MoPac during the AM and PM peak hour ranges from 42.1 seconds to 160.7 seconds. When combined with the number of vehicles that are delayed, this comes to a total of over 230 hours of delay in the AM peak hour and over 330 hours of delay in the PM peak hour. Similarly, at La Crosse Avenue and MoPac, the calculated delay during the AM peak hour is over 17 hours and during the PM peak hour is over 14 hours.

2.1.2 Future Operations

Socioeconomic Growth

MoPac has been extended several times since its initial construction. However, despite these improvements, a rapid growth in population and employment of the Austin metropolitan area has led to a corresponding increase in vehicular traffic, ever-increasing congestion during peak hours, slower travel speeds, and longer travel times. In addition, the duration of the congestion has increased for both the morning and evening peaks to the point where it occurs over several hours.

As the metropolitan planning organization (MPO) for Bastrop, Burnet, Caldwell, Hays, Travis, and Williamson counties, the Capital Area Metropolitan Planning Organization (CAMPO) is responsible for conducting the urban transportation planning process for the Austin metropolitan area. As part of this mission, CAMPO constantly monitors regional growth trends and provides forecasts for population, households, and employment for use in both short-term and long-term planning.

Table 3 illustrates the historic and projected population growth; **Table 4** shows the historic and projected household growth; and **Table 5** shows historic and projected employment growth for the two core counties of the project area—Hays and Travis counties. From 1980 to 2012, the population has increased by 159 percent, households have increased by 169 percent, and employment has grown almost 320 percent. These growth trends are expected to continue; between 2012 and 2035, the population is projected to grow by another 61 percent, households are projected to grow by 64 percent, and employment is projected to grow by 74 percent. This continued growth will exacerbate the current congestion problems at the Slaughter Lane and La Crosse Avenue intersections.

CAMPO has also compiled information on the geographic nature of the population, employment and housing growth expected by the year 2035. **Figure 2** and **3** illustrate the projected population and employment growth within the two-county area. **Figure 4** illustrates expected household growth between 2005 and 2035. (Note: negative numbers referenced in the legends for **Figures 2** through **4** indicate geographic areas where the range of anticipated change in population, employment and households, respectively, includes a slight decline.)

Table 3: Historic and Projected Population Data for Hays and Travis Counties

County	1980 ¹	1990 ¹	2000 ¹	2010 ¹	2012 ²	2035 ³	Change (2012-2035)
Hays	40,594	65,614	97,589	157,107	158,464	371,245	202,781
Travis	419,573	576,407	812,280	1,024,266	1,034,842	1,555,281	520,439
Total	460,167	642,021	909,869	1,181,373	1,193,306	1,926,526	733,220

Source: ¹U.S. Census Bureau, 1980, 1990, 2000 and 2010 Census; ²U.S. Census Bureau, 2008-2012 American Community Survey; ³CAMPO, 2035 Forecast

Table 4: Historic and Projected Household Data for Hays and Travis Counties

County	1980 ¹	1990 ¹	2000 ¹	2010 ¹	2012 ²	2035 ³	Change (2012-2035)
Hays	12,583	22,218	33,410	50,479	54,543	132,751	78,208
Travis	158,432	232,861	320,766	390,862	405,406	619,325	213,919
Total	171,015	255,079	354,176	441,341	459,949	752,076	292,127

Source: ¹U.S. Census Bureau, 1980, 1990 and 2000 Census; ²U.S. Census Bureau, 2006-2010 American Community Survey; ³U.S. Census Bureau, 2008-2012 American Community Survey; ⁴CAMPO, 2035 Forecast

Table 5: Historic and Projected Employment Data for Hays and Travis Counties

County	1980 ¹	1990 ¹	2000¹	2010 ¹	2012 ²	2035 ³	Change (2012-2035)
Hays	13,000	18,000	34,000	76,494	81,674	144,786	63,112
Travis	147,000	335,000	535,000	559,045	589,989	1,026,485	436,496
Total	160,000	353,000	569,000	635,539	671,663	1,171,271	499,608

Source: ¹U.S. Census Bureau, 1980, 1990, 2000 and 2010 Census; ²U.S. Census Bureau, 2006-2010 American Community Survey; ³U.S. Census Bureau, 2008-2012 American Community Survey; ⁴CAMPO, 2035 Forecast

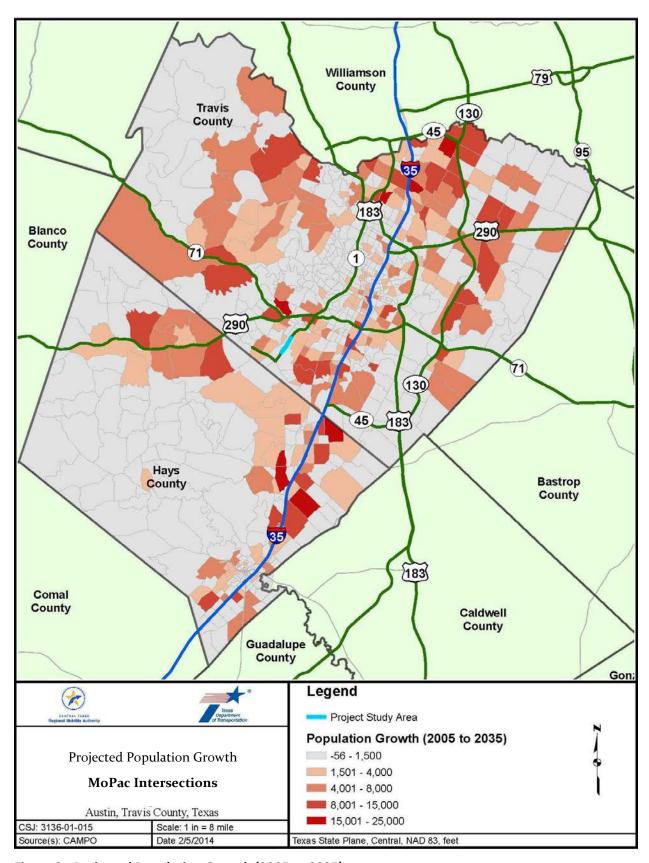


Figure 2: Projected Population Growth (2005 to 2035)

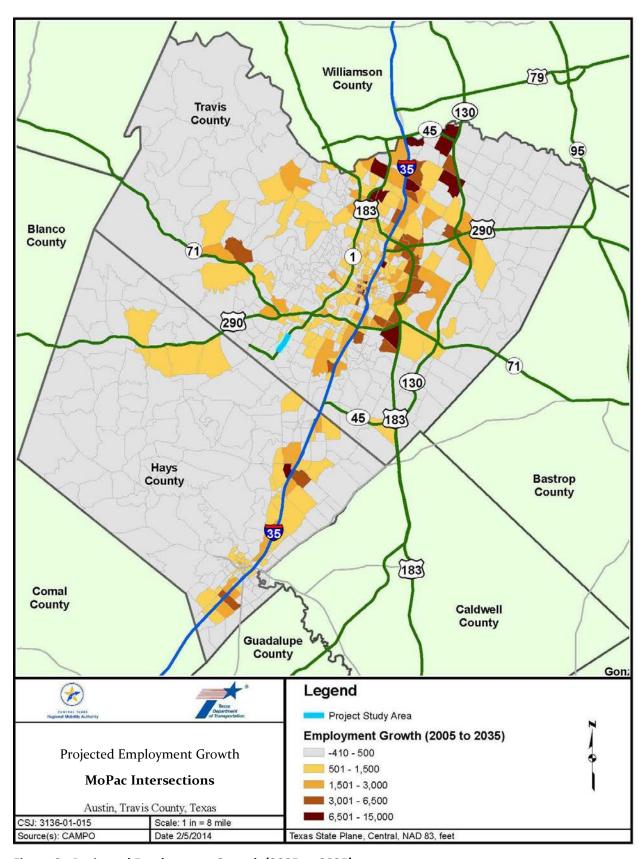


Figure 3: Projected Employment Growth (2005 to 2035)

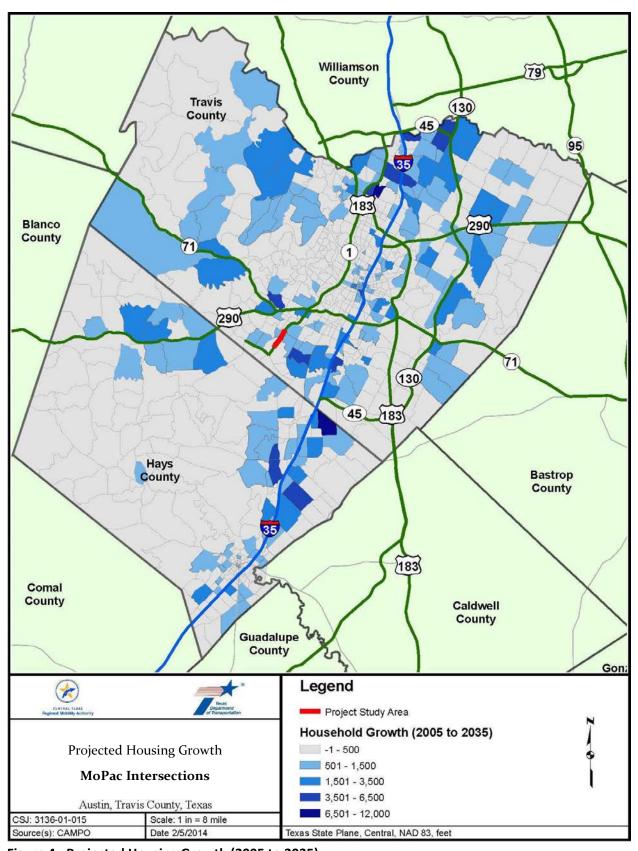


Figure 4: Projected Housing Growth (2005 to 2035)

Traffic Growth

Construction of MoPac south of US 290 was completed in 1991, and traffic has increased significantly since then. **Table 6** shows the growth in traffic (vehicles per day) since 1995, and forecasted traffic in 2035. Between 2000 and 2012, traffic has almost doubled, with a compound annual growth rate (CAGR) of over 4 percent. About one-third of that growth in traffic occurred between 2010 and 2012.

Table 6: Historic and Forecasted Traffic (vehicles per day)

Location along MoPac*	1995	2000	2005	2010	2012	2035 Forecast	CAGR (2000- 2012)	CAGR (2012- 2035)
North of Slaughter Lane	15,700	28,000	27,870	39,000	45,000	70,000	4.0%	1.9%
Between Slaughter Lane and La Crosse Avenue	14,300	11,900	12,650	18,300	21,000	38,000	4.8%	2.6%
South of La Crosse Avenue	2,500	5,600	5,100	10,600	13,500	18,000	7.6%	1.3%
Average	10,800	15,200	15,200	22,600	26,500	42,000	4.7%	2.0%

^{*} Includes both northbound and southbound traffic

Source: TxDOT traffic maps (1995 - 2012); CDM Smith (2035)

Future Intersection Operations

The forecasted increase in traffic along MoPac will impact its intersection operations at Slaughter Lane and La Crosse Avenue. A LOS analysis was performed using peak-hour turning movement forecasts to evaluate the intersection operations at the two cross streets with MoPac northbound and southbound lanes. The results for the 2035 No-Build and Build Scenarios are shown in **Table 7** and **8**.

If no improvements are made the LOS in 2035 at Slaughter Lane and MoPac during AM peak is mostly F with the exception of one movement that has LOS B (**Table 7**). During the PM peak, the LOS is mostly F with the exception of one movement that has LOS E. At La Crosse Avenue and MoPac, the LOS is mostly C or worse during AM peak and PM peak, with the exception of three movements that have LOS B.

With no improvements, the overall delay per vehicle in 2035 at the intersection of MoPac and Slaughter Lane during the AM and PM peak hours ranges from 192 seconds to 500 seconds. When combined with the number of vehicles that are delayed, this comes to a total of over 1,140 hours of delay in the AM peak hour and about 740 hours of delay in the PM peak hour. At La Crosse Avenue and MoPac the delay during the AM peak hour is 285 hours and during the PM peak hour is 106 hours.

Table 7: Peak Period Intersection Levels of Service – No-Build Scenario (2035)

			AN	l Peak Hour			PM	Peak Hour				
Intersection	Movement	Delay (sec/ veh)	LOS	# of vehicles entering intersection	Total hours of delay	Delay (sec/ veh)	LOS	# of vehicles entering intersection	Total hours of delay			
Slaughter Lane and MoPac												
	SB	371.5	F	1,356	139.9	298.4	F	3,710	307.5			
Southbound	EB	213.4	F	1,973	117.0	240.3	F	1,413	94.3			
Southbound	WB	12.4	В	1,589	5.5	112.7	F	1,279	40.0			
	OVERALL	192.9	F		262.4	248.5	F		441.8			
	NB	568.2	F	2,162	341.2	392.5	F	1,443	157.3			
Northbound	EB	406.2	F	2,187	246.8	65.9	Е	2,324	42.5			
Northbound	WB	526.2	F	2,022	295.5	219.5	F	1,609	98.1			
	OVERALL	500.0	F		883.5	199.4	F		297.9			
			La C	crosse Avenue an	d MoPac							
	SB	22.0	C	1,141	7.0	96.5	F	2,260	60.6			
Southbound	EB	39.3	D	463	5.1	82.9	F	727	16.7			
Southbound	WB	26.3	C	436	3.2	30.7	С	165	1.4			
	OVERALL	27.4	C		15.3	89.9	F		78.7			
	NB	466.1	F	2,056	266.2	11.6	В	1,107	3.6			
Northbound	EB	18.7	В	480	2.5	146.0	F	584	23.7			
NOTHIDOUIIG	WB	24.9	С	202	1.4	14.5	В	183	0.7			
	OVERALL	356.9	F		270.1	53.7	D		28.0			

Source: CAMPO Travel Demand Model 2035; CDM Smith

Under the Build Scenario, the proposed intersection improvements (diverging diamond interchange at Slaughter Lane and standard diamond interchange at La Crosse Avenue) improve 2035 traffic operations compared to the No-Build Scenario. As shown in **Table 8**, the LOS at Slaughter Lane and MoPac varies between B to D in the AM peak hour and between A to E during the PM peak hour. The LOS at La Crosse Avenue and MoPac is C or better during AM peak and PM peak.

Table 8: Peak Period Intersection Levels of Service – Build Scenario (2035)

				AM	Peak Hour			PN	/I Peak Hour			
	Intersection	Movement	Delay (sec/ veh)	LOS	# of vehicles entering intersection	Total hours of delay	Delay (sec/ veh)	LOS	# of vehicles entering intersection	Total hours of delay		
	Slaughter Lane and MoPac											
_		SB	17.7	В	463	2.3	22.0	С	1,861	11.4		
D (<u>C</u>	Southbound	EB	53.0	D	1,354	19.9	27.0	С	1,236	9.3		
Diverging Diamond Interchange (DDI)		WB	39.1	D	1,934	21.0	10.2	Α	1,674	4.7		
		OVERALL	40.9	D		43.2	19.3	В		25.4		
	Northbound	NB	15.9	В	1,636	7.2	3.2	Α	933	0.8		
erg		EB	25.9	С	1,496	10.8	71.1	Е	1,674	33.1		
Pi		WB	15.1	В	2,032	8.5	72.6	Е	1,601	32.3		
		OVERALL	18.3	В		26.5	63.7	E		66.2		
			Į	La Cross	e Avenue and M	loPac						
		SB	7.9	Α	598	1.3	13.9	В	857	3.3		
) uc	Southbound	EB	15.3	В	453	1.9	16.7	В	636	2.9		
am.	Southbound	WB	10.7	В	97	0.3	16.9	В	69	0.3		
Dia		OVERALL	11.1	В		3.5	15.2	В		6.5		
Standard Diamond Interchange		NB	4.4	Α	165	0.2	6.5	Α	72	0.1		
ng Int	Northbound	EB	20.9	С	546	3.2	25.7	С	1,003	7.2		
Sta	Northbound	WB	8.3	Α	203	0.5	10.1	В	174	0.5		
		OVERALL	14.2	В		3.9	22.4	С		7.8		

Source: CAMPO Travel Demand Model 2035; CDM Smith, 2014

Table 9 compares 2013 existing conditions, 2035 No-Build Scenario and 2035 Build Scenario. Due to anticipated growth, traffic service levels will deteriorate to LOS F in most instances by 2035 if no improvements are made. When considering the proposed improvements, the Build Scenario results in a LOS of D or better in most cases. The number of hours of delay during AM peak period is reduced by as much as 1,000 hours for the Slaughter Lane intersection, and over 250 hours for the La Crosse Avenue intersection. During the PM peak the delay is reduced by as many as 680 hours at the Slaughter Lane intersection, and over 100 hours at the La Crosse Avenue intersection.

Table 9: Comparison of Existing and Future (2035) No-Build and Build Peak Hour Intersection Levels of Service

Movement		2013		2035 No-Build		035 uild	Reduction in Hours of Delay between 2035 No-Build and 2035 Build	
	AM	PM	AM	PM	AM	PM	AM	PM
Slaughter Lane and MoPac SB	D	F	F	F	D	В	219	229
Slaughter Lane and MoPac NB	F	F	F	F	В	Е	857	138
La Crosse Avenue and MoPac SB	С	В	С	F	В	В	12	75
La Crosse Avenue and MoPac NB	С	В	F	D	В	С	266	31

Source: CAMPO Travel Demand Model 2035; CDM Smith, 2014

2.2 ENHANCE SAFETY

MoPac is a grade-separated and access-controlled facility from its northern terminus at SH 45 North down to Davis Lane. South of Davis Lane, MoPac has at-grade intersections with Slaughter Lane and La Crosse Avenue, representing the only remaining signalized intersections on the entire facility. An analysis of the crash data from 2008 to mid-2013 was performed to compare conditions and crash rates for the two sections: William Cannon Boulevard/Davis Lane and Slaughter Lane/La Crosse Avenue.

Table 10: Crash Data comparison between William Cannon Boulevard/Davis Lane and Slaughter Lane/La Crosse Avenue

Comparison Measure		on Boulevard/ s Lane	Slaughter Lane/ La Crosse Avenue							
Length (miles)	3	3.1	2.3							
Average Daily Traffic	67	,400	2	9,730						
Vehicle Miles Traveled (100 million)	4	1.2		1.4						
Crash Rate (Crashes per 100 million VMT)	4	7.1		55.7						
Crash Details										
Comparison Measure	Number	Percent of Total	Number	Percent of Total						
Total Crashes	198	100.0%	78	100.0%						
Injury Crashes	95	48.0%	48	61.5%						
Non-injury/unknown Crashes	103	52.0%	30	38.5%						
Intersection/Driveway-related	76 38.4%		55	70.5%						
Non-intersection	122	61.6%	23	29.5%						

Source: TxDOT Crash Reports, 2008-2013

As shown in **Table 10**, the grade-separated section with William Cannon Boulevard/Davis Lane has a crash rate of 47.1 crashes per 100 million vehicle miles travelled (VMT), as compared to 55.7 crashes per 100 million VMT for the section with Slaughter Lane/La Crosse Avenue, both of which have at-grade signalized intersections with MoPac. The grade-separated section has a lower crash rate even when it carries more than double the traffic volume. In addition, the percentage of injury crashes for the grade-separated section is lower (48.0 percent) as compared to the percentage of injury crashes for at-grade intersections (61.5 percent). Additionally, a majority of the crashes are intersection-related or driveway-related for the Slaughter Lane/La Crosse Avenue section (70.5 percent) as compared to the William Cannon Boulevard/Davis Lane section (38.4 percent).

Bicycle and pedestrian safety at the intersections is also a concern. Major bicycle and pedestrian traffic generators include Sendera South and Circle C Ranch neighborhoods; Bernice Kiker Elementary School; the Lady Bird Johnson Wildflower Center; the Veloway; and the Alamo Drafthouse. Existing pedestrian facilities at Slaughter Lane and MoPac include sidewalks along the north and south sides of Slaughter Lane both east and west of MoPac. The Slaughter Lane sidewalk continues across MoPac on the south side of Slaughter Lane, but not on the north side, although pedestrians have created a dirt path on the north side. There are pedestrian crossing signals at each crossing, but only two of eight crossings are marked. At the intersection of La Crosse Avenue and MoPac, there are currently sidewalks along the north and south sides of La Crosse Avenue west of MoPac. The sidewalk does not continue across MoPac. To the east of MoPac, the sidewalk occurs only on the north side of La Crosse Avenue. There are pedestrian crossing signals at each crossing but only four of eight crossings are marked. There are no bicycle lanes at either intersection.

Counts of pedestrian crossings taken by CDM Smith for a 13-hour period (from 6:00 am to 7:00 pm) on October 29, 2013 identified a total of 48 pedestrians crossing the intersection of La Crosse Avenue and MoPac, and 81 pedestrians crossing the intersection of Slaughter Lane and MoPac. Approximately one in six comments received at an open house held on October 24, 2013 mentioned bicyclists and pedestrians. The comments stressed the importance of including safer facilities for bicyclists and pedestrians at these intersections.