TRAFFIC STUDY

McDonald's Site

IH 35E at N. Texas Boulevard

Denton, Texas

October 2017

Prepared for

City of Denton

HALFF

1201 North Bowser Road
Richardson, Texas 75081
Firm Registration No. 312

AVO 33166

Dean S. Stuller
10/31/17

EXECUTIVE SUMMARY

Based upon the results of the Traffic Study, the proposed new McDonalds will generate significantly less vehicle traffic (181 vehicle trips in the AM peak hour, 130 vehicle trips in the PM peak hour and 1,978 vehicle trips in a typical 24-hour weekday) than the previous development (Exxon, old McDonalds and IHOP) (308 vehicle trips in the AM peak hour 286 vehicle trips in the PM peak hour and 6,276 vehicle trips in a typical weekday) that were located on the study site. Due to the location of the site, close to the University of North Texas campus, many patrons will be walking to the site instead of driving which will further reduce the number of McDonalds' generated vehicle trips. With the northbound off-ramp being relocated farther to the south (approximately 435 feet) as part of the IH 35E interim improvements, the additional distance gives a motorist more time to complete the weave. The weaving maneuver between the off-ramp and the McDonalds driveway is projected to operate at an acceptable level-of-service based on both year 2017 volumes Level-of-Service (LOS) Level-of-Service (LOS) (LOS A) and year 2037 volumes (LOS C). In addition, as part of the interim improvements on IH 35E, access to the frontage road has been modified, reducing the number of conflict points, by eliminating one driveway serving the site and closing access to Kendolph Drive. This in itself, will improve safety along this section of the frontage road.

Due to the close proximity of the campus to the site, pedestrians will exist in the study area just as they do today around other restaurant / commercial establishments near the campus. Installation of additional signage and providing adequate line of sight at the development driveways will help improve conditions for both pedestrians and vehicles. With the development of the university's "central pedestrian path" on campus and the pedestrian bridge over IH 35E, pedestrians have an option for crossing the freeway without having to use N. Texas Boulevard and mix with the vehicles at the two IH 35E frontage roads.

Table of Contents

List of Figures

List of Tables

I. INTRODUCTION

Halff Associates, Inc. (Halff) conducted a Traffic Study for the McDonald's Corporation as part of the proposed construction of a new McDonalds to replace the previous McDonalds located on the southeast corner of IH 35E and N. Texas Boulevard (assuming IH 35E runs north-south) in Denton, Texas. The purpose of the study is to address issues that were raised in the previous city council meeting. At a meeting with city staff to discuss the issues raised, it was suggested to compare the uses on the original (previous) site to what is being proposed (new McDonalds) with regard to vehicle trip generation, access locations along the frontage road, vehicle weaving between the previous and new IH 35E off-ramp and McDonalds' driveway and impacts the proposed development will have on pedestrians walking between the University of North Texas' facilities on the west side of IH 35E and the main campus. Refer to the area map in Figure 1 below.

Figure 1 - Area Map

II. DATA COLLECTION

As part of the study, for the off ramp weaving analysis, Halff conducted traffic counts on Tuesday September 19, 2017 and Wednesday September 20, 2017 on the northbound frontage road south of the newly relocated off-ramp located south of Avenue C, south of the existing McDonalds' driveway and on the newly relocated off-ramp. In addition, directional traffic counts were conducted Wednesday September 20, 2017 on N. Texas Boulevard adjacent to the site and on Wilshire Lane adjacent to the site. A copy of the traffic count data is located in Appendix A. A sight visit was also conducted at the study site to observe traffic flow, note adjacent roadway geometrics and determine distance between newly relocated off-ramp and McDonalds' driveway.

III. PREVIOUS AND PROPOSED USES ON THE SITE

Previously, the site consisted of three uses including an Exxon facility with eight (8) fueling locations, a McDonalds with 3,001 square feet and an IHOP with 3,496 square feet. This previous configuration is shown in Figure 2 below.

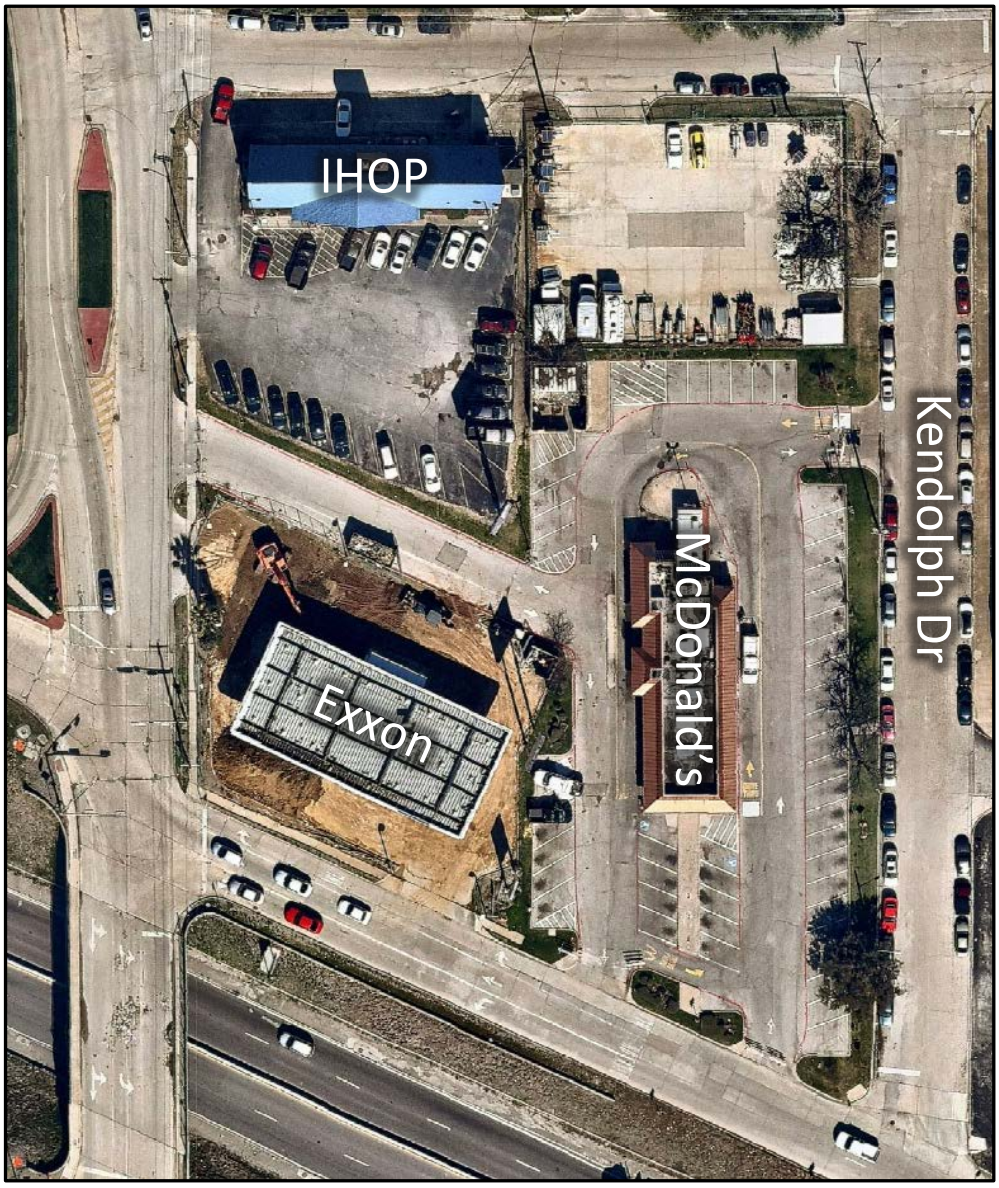

Figure 2 – Previous Site Configuration

As part of the Phase I (interim) widening of IH 35E, additional right-of-way was needed which required the partial taking of both the Exxon facility and McDonalds. The IHOP is the only use that still exists on the site today. The proposed plan is to remove the existing IHOP, combine the remaining McDonalds and existing IHOP properties, and construct a new McDonalds' facility.

The new building will be 3,984 square feet in size, which is an increase of 983 square feet from the original facility. The proposed site plan is show in Figure 3 below.

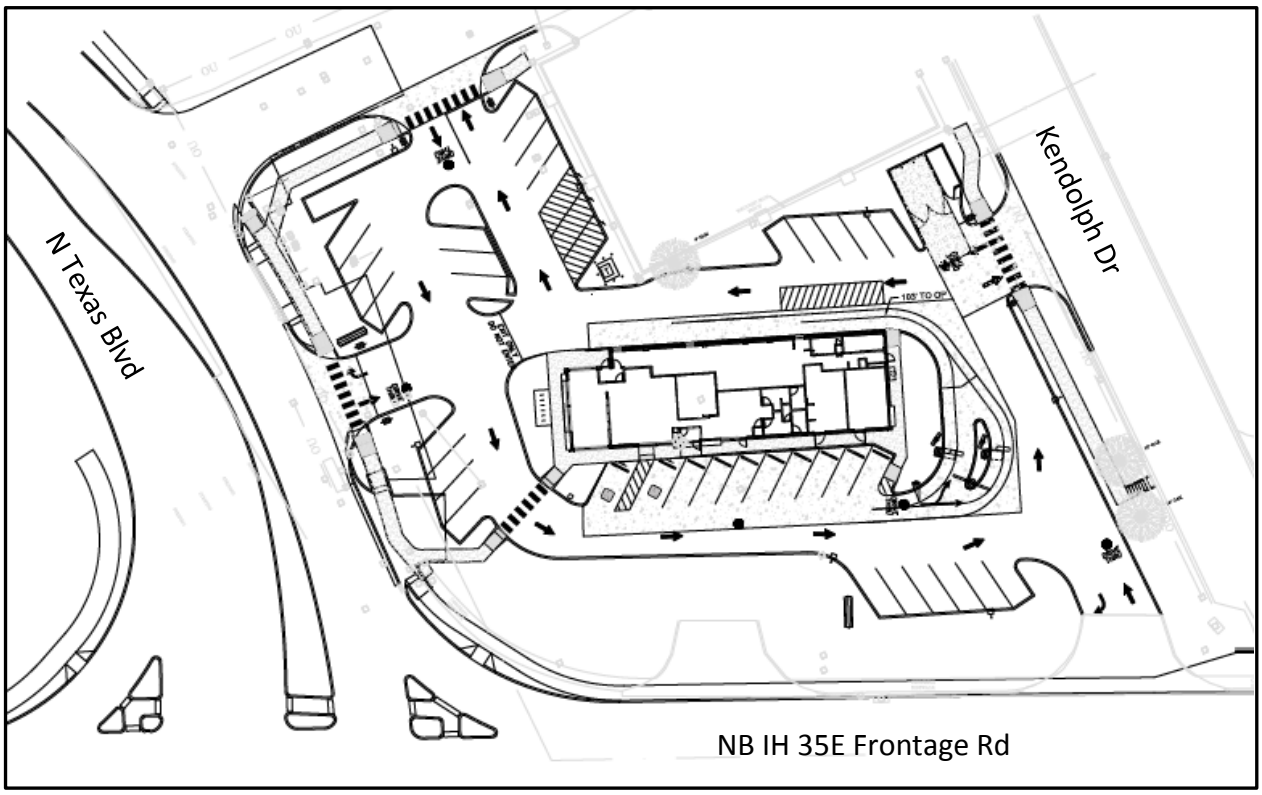

Figure 3 – Proposed Site Plan

In addition, there is approximately 5,000 square feet of property remaining at the hard corner of the IH 35E frontage road / N. Texas Boulevard intersection, after the right-of-way take, owned by the University of North Texas. Based on discussions with city staff and city development requirements, it was assumed a maximum building of 2,100 square foot could be located on the site. Assuming it to be a retail use, on a typical weekday it would generate two (2) vehicle trips in the AM peak hour, eight (8) vehicle trips in the PM peak hour and 90 vehicle trips in a 24-hour period.

IV. FRONTAGE ROAD ACCESS / SITE ACCESS

Based on the old site configuration (see Figure 2 above), there were three (3) driveways along the frontage road serving the site. One driveway served the Exxon facility and two (2) driveways served the original McDonalds. There were also three (3) driveways on N. Texas Boulevard with each of the three previous uses being served by one (1) driveway. In addition, there was one (1) driveway serving the McDonalds on Kendolph Drive, which is located just south of the site and had access to the frontage road.

With the interim improvements to IH 35E substantially completed, there are now only two driveways along the frontage road between N. Texas Boulevard and Kendolph Drive. One (1)

driveway serves the vacant hard corner parcel and the other serves the McDonalds' site and is located just north of Kendolph Drive. Access to Kendolph Drive from the frontage road has been closed as part of the IH 35E interim improvements and will remain closed. Located in Appendix B, is an exhibit of the section of IH 35E interim improvements near the study site. Appendix C has an exhibit of the section of IH 35E, Phase II (ultimate) improvements near the study site.

With the proposed McDonalds' plan, along the frontage road there will be the one (1) driveway (existing) located just north of Kendolph Drive serving the site with right turn turns in and right turns out. Along N. Texas Boulevard, there will be one (1) two-way driveway with right turns in and right turns out serving the site. (It is located at the approximate location of the existing IHOP driveway.) A new two-way driveway to serve the site with full access is proposed on Wilshire Lane, located on the east side of the site. The existing two-way driveway with full access on Kendolph Drive will remain to serve the site. Regarding the hard corner, there is one (1) driveway (existing) along the frontage road just south of N. Texas Boulevard and one (1) driveway (existing) on N. Texas Boulevard just east of the frontage road. Both driveways will function as right in and right out.

V. VEHICLE TRIP GENERATIONS

As part of the comparison between the previous and proposed uses on the site, Halff has calculated the vehicle trips generated by the different development scenarios based upon information provided in the Institute of Transportation Engineers Trip Generation Manual, 9th Edition. The weekday vehicle trip generation data for the previous site and proposed development scenarios is provided in Table 1 and Table 2, respectively, located below.

Table 1 – Land Use and Trip Generation Summary (Previous Site)

Use (ITE Code)	AM Peak Hour		PM Peak Hour		24 Hour (Weekday)	
	Total		Total		Total	
	In	Out	In	Out	In	Out
IHOP 3,496 sqft (932)	38		34		446	
	21	17	21	13	223	223
McDonald's 3,001 sqft (934)	136		98		1,490	
	70	66	51	47	745	745
Exxon 8 Pumps (853)	134		154		4,340	
	67	67	77	77	2,170	2,170
Total	308		286		6,276	
	158	150	149	137	3,138	3,138

Table 2 – Land Use and Trip Generation Summary (Proposed Site)

Use (ITE Code)	AM Peak Hour		PM Peak Hour		24 Hour (Weekday)	
	Total		Total		Total	
	In	Out	In	Out	In	Out
McDonald's 3,984 sqft (934)	181		130		1,978	
	92	89	68	62	989	989
Total	181		130		1,978	
	92	89	68	62	989	989

Table 3 below shows a comparison between the two use scenarios.

Table 3 – Land Use and Trip Generation Summary Comparison

Scenario	AM Peak Hour	PM Peak Hour	24 Hour (Weekday)
	Total	Total	Total
Previous	308	286	6,276
Proposed	181	130	1,978
Net Trip Reduction	-127	-156	-4,298

It should be noted that the trip generation for the proposed project was estimated using a conservative approach which disregards any trip credits resulting from pass-by trips, and the close proximity of the University of North Texas campus which will result in a significantly higher amount of pedestrian traffic to the project (fewer vehicle trips). As can be seen in Table 3 above, the proposed McDonalds development will generate significantly fewer vehicle trips on a typical weekday than the previous uses.

VI. VEHICLE TRIP DISTRIBUTIONS AT SITE

Halff developed a vehicle trip distribution for the proposed McDonalds based upon the attractions in the immediate area of the site; adjacent to a high volume freeway and close to a major university. Typically, the majority of the traffic generated by a fast food facility located along a freeway comes from the freeway. However, since the McDonalds site is close to the university, a significant percentage of the traffic is expected to come from and go to the campus.
In Figure 4 below, is a pictorial indicating the projected percentage of generated vehicle trips entering and exiting the site for the AM peak hour.

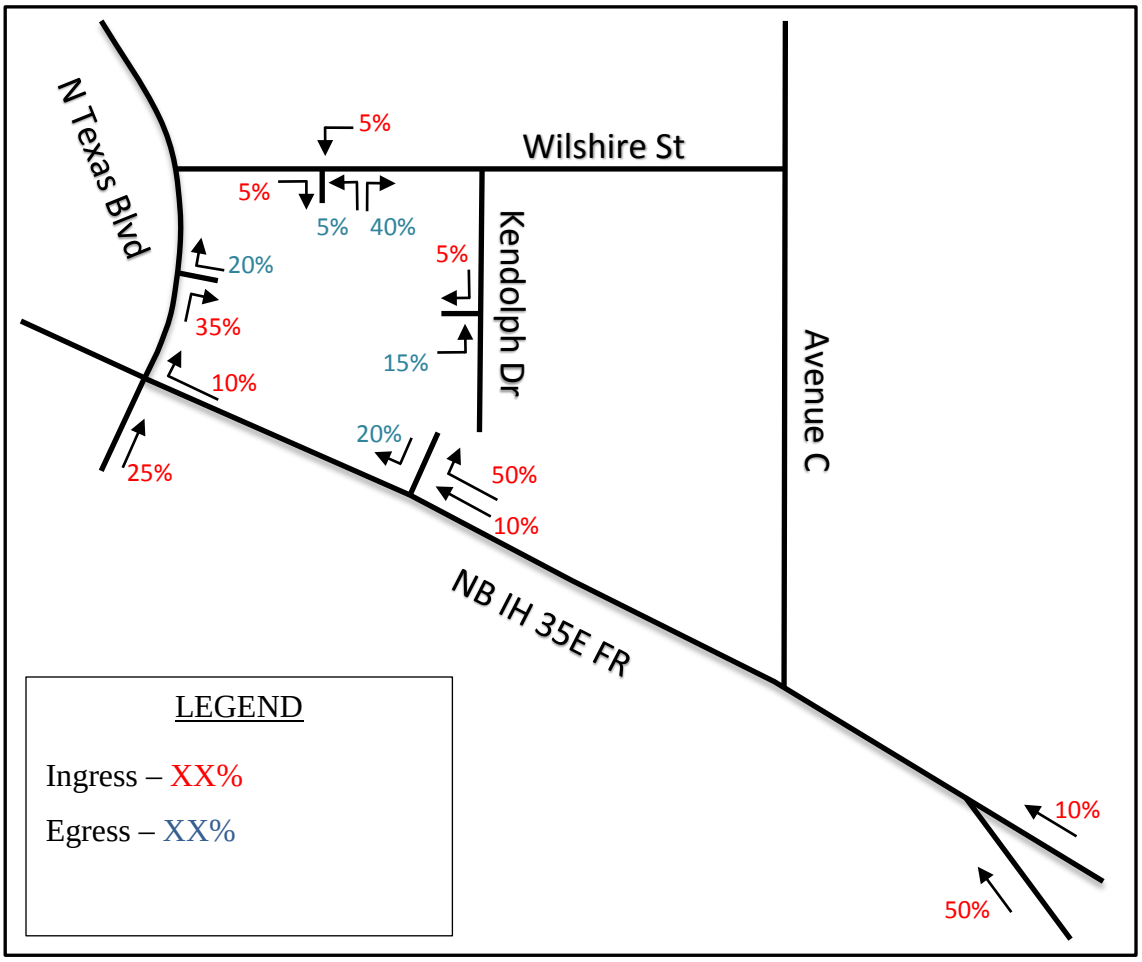

Figure 4 – Trip Distribution Percentages (AM Peak Hour)

Based upon the percent distribution of generated trips for the proposed McDonalds during the AM peak hour shown in Figure 4 above, Figure 5 below indicates the projected number of vehicles entering and exiting the site during that one-hour time period.

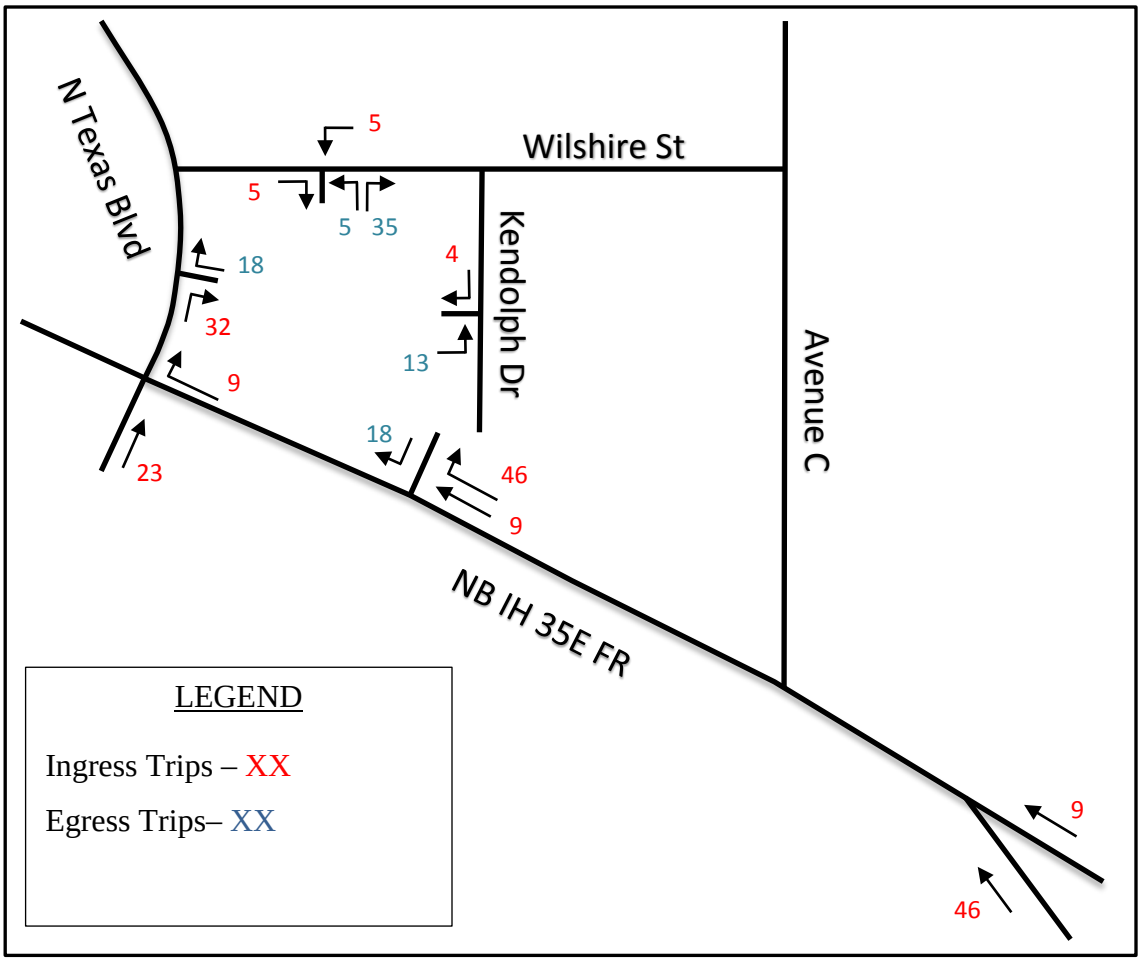

Figure 5 – AM Peak Hour Trips

As indicated in Figure 4, 60 percent of the vehicles going to the site come from the south on IH 35E with 50 percent using the off-ramp. Of the 46 vehicles (Figure 5) using the off-ramp, 38 of those vehicles are projected to weave across the frontage road and turn right into the McDonalds' driveway.

VII. WEAVING ANALYSIS

As part of the Traffic Study for the proposed site, it was requested that the section of the frontage road adjacent to the site be evaluated between the newly relocated off-ramp and the remaining McDonalds' driveway and the previous location of the off-ramp and the remaining McDonalds' driveway. When IH 35E was originally constructed, the northbound off-ramp to N. Texas Boulevard (previously Avenue D) was relatively close to Avenue D and even closer to the driveways that served the corner site. As part of the IH 35E interim improvements, the frontage road adjacent to the site was pushed out to make room for the ultimate improvements (managed lanes down the middle of the facility). Since the frontage road was being reconstructed, TxDOT used the opportunity to relocate the off-ramp to provide more distance between it and N. Texas Boulevard which also increased the distance between the off-ramp and the existing McDonalds' driveway. The frontage road adjacent to the site and the newly relocated off-ramp will not be affected by the ultimate improvements.

The purpose of a weaving analysis is to analyze a segment of roadway where weaving maneuvers (the crossing of lanes) take place in order to get from Point A to Point B. In this case, it is to get from the off-ramp to the remaining McDonalds' driveway. Based on the trip generation discussion from the above section and the traffic count data collected, the AM peak hour was determined to be the worst case scenario for conducting a weaving maneuver and was used as the basis for the weaving analysis scenarios presented below. As mentioned above, the weaving analysis was conducted based on both the locations of the previous off-ramp (approximately 185 feet from McDonalds' driveway) and the newly constructed off-ramp (approximately 620 feet from McDonalds' driveway).

Halff used the TxDOT methodology for determining the level-of-service (LOS) for a weaving section on a frontage road. Based on that methodology, the weaving area described earlier was evaluated for the following scenarios:

- 2017 combined development and background volumes with old ramp spacing (185').
- 2017 combined development and background volumes with new ramp spacing (620').
- 2037 combined development and background volumes with old ramp spacing (185').
- 2037 combined development and background volumes with new ramp spacing (620').

(Year 2017 was used for an analysis year since it is existing conditions and it coincides with the substantially completed interim improvements on IH 35E. Year 2037 was use assuming the ultimate improvements would be completed by that year.)

Table 4 below summarizes the density calculations and Level-of-Service (LOS) for the weaving for the four scenarios.

Table 4 – Weaving Analysis Level-of-Service (LOS) Summary

Scenario	Density (veh/km/ln)	LOS
Year 2017 (Old Ramp)	38.8	B
Year 2017 (New Ramp)	18.9	A
Year 2037 (Old Ramp)	73.0	D
Year 2037 (New Ramp)	53.1	C

The table above shows that with the new ramp in place, the Level-of-Service (LOS) of weaving section greatly improves as a result of the additional distance between the off-ramp and the McDonalds driveway. In both the current year (2017) and the year 2037, there is a decrease in vehicle density by nearly 20 vehicles/kilometer/lane (veh/km/ln) and one Level-of-Service (LOS) grade improvement between the previous and new locations of the off-ramp. Based on the results, the weaving movement between the new off-ramp location and McDonalds' driveway is anticipated to operate with an acceptable Level-of-Service (LOS) rank of C or better, even with projected year 2037 volumes.

VIII. PEDESTRIAN ACTIVITY

As part of the study, city staff suggested looking at pedestrian activity in the vicinity of the site, with a focus along N. Texas Boulevard. With expansion of university facilities west of IH 35E around the football stadium, such as Victory Hall dormitory, students will have the option to use the pedestrian bridge or N. Texas Boulevard to cross IH 35E to access the main campus. Consistent with the UNT Master Plan (exhibit in Appendix D), there is an existing "central pedestrian path" through campus that crosses N. Texas Boulevard north of Eagle Drive and leads to the existing pedestrian bridge over IH 35E that accesses the area around the stadium. N. Texas Boulevard also provides a less attractive / safe option for pedestrians to cross IH 35E with higher pedestrian interaction with vehicle traffic at the interchange of N. Texas Boulevard and the IH 35E frontage roads.

IX. SUMMARY

Based upon the results of the Traffic Study, the proposed new McDonalds will generate significantly less vehicle traffic (181 vehicle trips in the AM peak hour, 130 vehicle trips in the PM peak hour and 1,978 vehicle trips in a typical 24-hour weekday) than the previous development (Exxon, old McDonalds and IHOP) (308 vehicle trips in the AM peak hour 286 vehicle trips in the PM peak hour and 6,276 vehicle trips in a typical weekday) that were located on the study site. Due to the location of the site, close to the University of North Texas campus, many patrons will be walking to the site instead of driving which will further reduce the number of McDonalds' generated vehicle trips. With the northbound off-ramp being relocated farther to the south (approximately 435 feet) as part of the IH 35E interim improvements, the additional distance gives a motorist more time to complete the weave. The weaving maneuver between the off-ramp and the McDonalds driveway is projected to operate at an acceptable level-of-service based on both year 2017 volumes Level-of-Service (LOS) Level-of-Service (LOS) (LOS A) and year 2037 volumes (LOS C). In addition, as part of the interim improvements on IH 35E, access to the frontage road has been modified, reducing the number of conflict points, by eliminating one driveway serving the site and closing access to Kendolph Drive. This in itself, will improve safety along this section of the frontage road.

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APPENDIX A

Traffic Count Data

QUALITY COUNTS, INC.
DATA COLLECTION & ANALYSIS
214-349-4861

#2 WILSHIRE N TEXAS TO KENDOLPH
DENTON, TX

Site: #2 WILSHIRE N TEXAS TO KENDOLPH
9/20/2017
Wednesday

Daily Volume

Interval Start	NB		SB		Combined	
12:00 AM	0	2	2	5	2	7
12:15 AM	2		2		4	
12:30 AM	0		0		0	
12:45 AM	0		1		1	
1:00 AM	0	1	0	0	0	1
1:15 AM	0		0		0	
1:30 AM	1		0		1	
1:45 AM	0		0		0	
2:00 AM	0	1	0	1	0	2
2:15 AM	1		0		1	
2:30 AM	0		1		1	
2:45 AM	0		0		0	
3:00 AM	0	0	1	4	1	4
3:15 AM	0		0		0	
3:30 AM	0		2		2	
3:45 AM	0		1		1	
4:00 AM	0	0	0	1	0	1
4:15 AM	0		0		0	
4:30 AM	0		0		0	
4:45 AM	0		1		1	
5:00 AM	0	1	0	1	0	2
5:15 AM	0		1		1	
5:30 AM	0		0		0	
5:45 AM	1		0		1	
6:00 AM	0	4	1	3	1	7
6:15 AM	2		0		2	
6:30 AM	1		1		2	
6:45 AM	1		1		2	
7:00 AM	3	17	2	22	5	39
7:15 AM	7		7		14	
7:30 AM	7		8		15	
7:45 AM	0		5		5	
8:00 AM	2	4	5	18	7	22
8:15 AM	1		4		5	
8:30 AM	0		6		6	
8:45 AM	1		3		4	
9:00 AM	0	8	3	11	3	19
9:15 AM	4		1		5	
9:30 AM	2		3		5	
9:45 AM	2		4		6	
10:00 AM	3	14	5	20	8	34
10:15 AM	1		2		3	
10:30 AM	7		4		11	
10:45 AM	3		9		12	
11:00 AM	2	18	8	33	10	51
11:15 AM	6		6		12	
11:30 AM	10		11		21	
11:45 AM	0		8		8	

Interval Start	NB		SB		Combined	
12:00 PM	7	17	5	25	12	42
12:15 PM	1		8		9	
12:30 PM	6		10		16	
12:45 PM	3		2		5	
1:00 PM	3	6	7	21	10	27
1:15 PM	0		6		6	
1:30 PM	3		5		8	
1:45 PM	0		3		3	
2:00 PM	0	3	0	7	0	10
2:15 PM	0		2		2	
2:30 PM	0		1		1	
2:45 PM	3		4		7	
3:00 PM	2	12	5	17	7	29
3:15 PM	1		1		2	
3:30 PM	5		3		8	
3:45 PM	4		8		12	
4:00 PM	2	9	3	20	5	29
4:15 PM	3		7		10	
4:30 PM	1		5		6	
4:45 PM	3		5		8	
5:00 PM	3	13	13	30	16	43
5:15 PM	3		2		5	
5:30 PM	3		11		14	
5:45 PM	4		4		8	
6:00 PM	3	8	3	32	6	40
6:15 PM	2		11		13	
6:30 PM	1		13		14	
6:45 PM	2		5		7	
7:00 PM	4	15	7	17	11	32
7:15 PM	4		3		7	
7:30 PM	3		3		6	
7:45 PM	4		4		8	
8:00 PM	2	12	6	14	8	26
8:15 PM	3		2		5	
8:30 PM	2		3		5	
8:45 PM	5		3		8	
9:00 PM	2	7	2	8	4	15
9:15 PM	0		1		1	
9:30 PM	3		3		6	
9:45 PM	2		2		4	
10:00 PM	2	5	3	8	5	13
10:15 PM	0		2		2	
10:30 PM	2		3		5	
10:45 PM	1		0		1	
11:00 PM	2	3	0	6	2	9
11:15 PM	0		4		4	
11:30 PM	0		1		1	
11:45 PM	1		1		2	

Volume Totals

	NB	SB	Combined
12:00 AM - 12:00 PM	70 (37.0%)	119 (63.0%)	189
12:00 PM - 12:00 AM	110 (34.9%)	205 (65.1%)	315
24 Hours	180 (35.7%)	324 (64.3%)	504

Peak Hours

	NB	SB	Combined
12:00 AM - 12:00 PM	10:45 AM	10:45 AM	10:45 AM
Volume	21	34	55
Factor	0.53	0.77	0.65
12:00 PM - 12:00 AM	12:00 PM	6:15 PM	6:15 PM
Volume	17	36	45
Factor	0.61	0.69	0.80

Quality Counts
TWO CHANNEL SUMMARY
Starting: 9/20/2017

Site Reference: 000000000000
Site ID: NORTH TEXAS
Location: N TEXAS EAST OF IH 35E

File: 35E.prn
City: DENTON, TX
County:

TIME	LANE 1 EB				LANE 2 WB				TOTAL			
	am		pm		am		pm		am		pm	
00:15	24		81		15		74		39		155	
00:30	13		90		11		65		24		155	
00:45	17		79		7		84		24		163	
01:00	13	**67**	73	**323**	3	**36**	120	**343**	16	**103**	193	**666**
01:15	4		71		5		64		9		135	
01:30	6		102		8		73		14		175	
01:45	10		73		7		102		17		175	
02:00	3	**23**	37	**283**	4	**24**	152	**391**	7	**47**	189	**674**
02:15	7		42		3		67		10		109	
02:30	1		53		1		67		2		120	
02:45	2		50		5		88		7		138	
03:00	2	**12**	64	**209**	4	**13**	96	**318**	6	**25**	160	**527**
03:15	3		46		5		113		8		159	
03:30	2		52		1		133		3		185	
03:45	5		69		2		97		7		166	
04:00	4	**14**	70	**237**	3	**11**	117	**460**	7	**25**	187	**697**
04:15	5		62		2		92		7		154	
04:30	0		61		2		110		2		171	
04:45	4		79		4		119		8		198	
05:00	2	**11**	65	**267**	6	**14**	183	**504**	8	**25**	248	**771**
05:15	11		66		5		140		16		206	
05:30	8		96		9		82		17		178	
05:45	18		75		13		98		31		173	
06:00	10	**47**	72	**309**	17	**44**	89	**409**	27	**91**	161	**718**
06:15	23		73		10		98		33		171	
06:30	28		78		16		104		44		182	
06:45	60		61		24		61		84		122	
07:00	60	**171**	68	**280**	28	**78**	63	**326**	88	**249**	131	**606**
07:15	122		70		22		62		144		132	
07:30	181		70		28		64		209		134	
07:45	202		56		25		68		227		124	
08:00	155	**660**	56	**252**	34	**109**	68	**262**	189	**769**	124	**514**
08:15	131		47		31		78		162		125	
08:30	185		31		16		61		201		92	
08:45	171		63		36		96		207		159	
09:00	105	**592**	54	**195**	56	**139**	75	**310**	161	**731**	129	**505**
09:15	96		47		30		79		126		126	
09:30	104		47		33		56		137		103	
09:45	100		35		54		102		154		137	
10:00	73	**373**	38	**167**	61	**178**	73	**310**	134	**551**	111	**477**
10:15	87		28		36		42		123		70	
10:30	110		22		48		40		158		62	
10:45	92		29		55		26		147		55	
11:00	73	**362**	33	**112**	93	**232**	21	**129**	166	**594**	54	**241**
11:15	61		28		51		26		112		54	
11:30	100		24		62		15		162		39	
11:45	80		23		82		20		162		43	
12:00	65	**306**	15	**90**	100	**295**	18	**79**	165	**601**	33	**169**
TOTALS	5362				5014				10376			
AM Times	07:45				11:15				07:30			
AM Peaks	673				295				787			
Factors	PHF: .83				PHF: .73				PHF: .86			
PM Times	12:45				16:30				16:45			
PM Peaks	325				552				830			
Factors	PHF: .79				PHF: .75				PHF: .83			

Quality Counts
TWO CHANNEL SUMMARY
Starting: 9/19/2017

Site Reference: 000000000000
Site ID: IH 35E
Location: IH 35E SOUTH OF N TEXAS

File: TEXAS.prn
City: DENTON, TX
County:

TIME	LANE 1 RAMP				LANE 2 FRTRD				TOTAL			
	am		pm		am		pm		am		pm	
00:15	8		58		10		44		18		102	
00:30	11		47		7		36		18		83	
00:45	7		54		13		42		20		96	
01:00	2	**28**	45	**204**	3	**33**	40	**162**	5	**61**	85	**366**
01:15	6		50		9		48		15		98	
01:30	8		65		1		45		9		110	
01:45	3		56		6		60		9		116	
02:00	3	**20**	44	**215**	5	**21**	47	**200**	8	**41**	91	**415**
02:15	3		34		3		29		6		63	
02:30	3		43		5		35		8		78	
02:45	3		35		2		37		5		72	
03:00	1	**10**	56	**168**	9	**19**	51	**152**	10	**29**	107	**320**
03:15	5		50		3		44		8		94	
03:30	4		32		5		40		9		72	
03:45	2		50		3		41		5		91	
04:00	2	**13**	29	**161**	6	**17**	35	**160**	8	**30**	64	**321**
04:15	0		41		3		38		3		79	
04:30	2		53		1		42		3		95	
04:45	3		54		5		51		8		105	
05:00	2	**7**	40	**188**	4	**13**	50	**181**	6	**20**	90	**369**
05:15	10		44		6		51		16		95	
05:30	13		51		16		37		29		88	
05:45	28		55		14		43		42		98	
06:00	13	**64**	52	**202**	4	**40**	49	**180**	17	**104**	101	**382**
06:15	23		56		16		54		39		110	
06:30	32		52		16		39		48		91	
06:45	41		53		27		45		68		98	
07:00	62	**158**	55	**216**	23	**82**	34	**172**	85	**240**	89	**388**
07:15	107		52		37		36		144		88	
07:30	126		41		66		44		192		85	
07:45	154		38		49		36		203		74	
08:00	125	**512**	38	**169**	42	**194**	32	**148**	167	**706**	70	**317**
08:15	87		23		35		39		122		62	
08:30	96		23		30		35		126		58	
08:45	105		23		50		34		155		57	
09:00	137	**425**	31	**100**	48	**163**	34	**142**	185	**588**	65	**242**
09:15	98		33		48		109		146		142	
09:30	57		14		36		40		93		54	
09:45	61		34		38		34		99		68	
10:00	64	**280**	25	**106**	25	**147**	26	**209**	89	**427**	51	**315**
10:15	70		19		30		26		100		45	
10:30	79		23		38		16		117		39	
10:45	64		14		50		24		114		38	
11:00	43	**256**	17	**73**	38	**156**	12	**78**	81	**412**	29	**151**
11:15	36		10		39		6		75		16	
11:30	47		13		31		13		78		26	
11:45	47		14		35		24		82		38	
12:00	70	**200**	18	**55**	47	**152**	10	**53**	117	**352**	28	**108**
TOTALS	3830				2874				6704			
AM Times	07:15				07:15				07:15			
AM Peaks	512				194				706			
Factors	PHF: .83				PHF: .73				PHF: .86			
PM Times	13:00				20:45				13:15			
PM Peaks	216				217				415			
Factors	PHF: .83				PHF: .49				PHF: .89			

Site Reference: 000000000000
Site ID: IH 35E NBFR
Location: IH 35E NB FRT RD SOUTH OF N TEXAS

File: TEXAS.prn
City: DENTON, TX
County:

TIME	LANE 1 NB				LANE 2 NB				TOTAL			
	am		pm		am		pm		am		pm	
00:15	15		103		0		0		15		103	
00:30	21		104		0		0		21		104	
00:45	17		103		0		0		17		103	
01:00	6	**59**	78	**388**	0	**0**	0	**0**	6	**59**	78	**388**
01:15	17		108		0		0		17		108	
01:30	9		119		0		0		9		119	
01:45	8		124		0		0		8		124	
02:00	8	**42**	105	**456**	0	**0**	0	**0**	8	**42**	105	**456**
02:15	6		67		0		0		6		67	
02:30	8		78		0		0		8		78	
02:45	4		67		0		0		4		67	
03:00	12	**30**	103	**315**	0	**0**	0	**0**	12	**30**	103	**315**
03:15	8		110		0		0		8		110	
03:30	8		91		0		0		8		91	
03:45	5		109		0		0		5		109	
04:00	9	**30**	77	**387**	0	**0**	0	**0**	9	**30**	77	**387**
04:15	4		91		0		0		4		91	
04:30	3		110		0		0		3		110	
04:45	6		104		0		0		6		104	
05:00	5	**18**	110	**415**	0	**0**	0	**0**	5	**18**	110	**415**
05:15	15		114		0		0		15		114	
05:30	31		91		0		0		31		91	
05:45	35		90		0		0		35		90	
06:00	18	**99**	107	**402**	0	**0**	0	**0**	18	**99**	107	**402**
06:15	37		112		0		0		37		112	
06:30	43		95		0		0		43		95	
06:45	56		92		0		0		56		92	
07:00	69	**205**	100	**399**	0	**0**	0	**0**	69	**205**	100	**399**
07:15	119		82		0		0		119		82	
07:30	156		88		0		0		156		88	
07:45	157		75		0		0		157		75	
08:00	143	**575**	85	**330**	0	**0**	0	**0**	143	**575**	85	**330**
08:15	111		70		0		0		111		70	
08:30	113		61		0		0		113		61	
08:45	129		61		0		0		129		61	
09:00	155	**508**	73	**265**	0	**0**	0	**0**	155	**508**	73	**265**
09:15	124		146		0		0		124		146	
09:30	93		56		0		0		93		56	
09:45	93		69		0		0		93		69	
10:00	78	**388**	59	**330**	0	**0**	0	**0**	78	**388**	59	**330**
10:15	92		49		0		0		92		49	
10:30	105		43		0		0		105		43	
10:45	112		41		0		0		112		41	
11:00	87	**396**	34	**167**	0	**0**	0	**0**	87	**396**	34	**167**
11:15	80		14		0		0		80		14	
11:30	74		26		0		0		74		26	
11:45	83		41		0		0		83		41	
12:00	100	**337**	33	**114**	0	**0**	0	**0**	100	**337**	33	**114**
TOTALS	6655				0				6655			
AM Times	07:15								07:15			
AM Peaks	575								575			
Factors	PHF: .91								PHF: .91			
PM Times	13:15								13:15			
PM Peaks	456								456			
Factors	PHF: .91								PHF: .91			

Site Reference: 000000000000
Site ID: IH 35E
Location: IH 35E SOUTH OF N TEXAS

File: TEXAS.prn
City: DENTON, TX
County:

TIME	LANE 1 RAMP				LANE 2 FRTRD				TOTAL			
	am		pm		am		pm		am		pm	
00:15	8		51		10		32		18		83	
00:30	9		64		6		36		15		100	
00:45	10		54		8		45		18		99	
01:00	4	**31**	45	**214**	7	**31**	48	**161**	11	**62**	93	**375**
01:15	2		49		3		35		5		84	
01:30	5		73		3		33		8		106	
01:45	6		59		3		43		9		102	
02:00	1	**14**	22	**203**	6	**15**	51	**162**	7	**29**	73	**365**
02:15	7		33		1		40		8		73	
02:30	1		37		3		33		4		70	
02:45	2		35		2		30		4		65	
03:00	2	**12**	41	**146**	7	**13**	41	**144**	9	**25**	82	**290**
03:15	2		36		3		40		5		76	
03:30	2		25		0		53		2		78	
03:45	1		51		2		36		3		87	
04:00	2	**7**	51	**163**	3	**8**	31	**160**	5	**15**	82	**323**
04:15	3		47		3		45		6		92	
04:30	1		47		0		43		1		90	
04:45	2		60		7		57		9		117	
05:00	2	**8**	43	**197**	2	**12**	53	**198**	4	**20**	96	**395**
05:15	8		41		6		61		14		102	
05:30	10		61		9		44		19		105	
05:45	20		60		14		50		34		110	
06:00	11	**49**	55	**217**	13	**42**	42	**197**	24	**91**	97	**414**
06:15	22		47		12		29		34		76	
06:30	25		45		21		37		46		82	
06:45	45		43		21		39		66		82	
07:00	44	**136**	46	**181**	21	**75**	28	**133**	65	**211**	74	**314**
07:15	75		50		38		41		113		91	
07:30	115		45		34		41		149		86	
07:45	150		51		51		35		201		86	
08:00	119	**459**	18	**164**	43	**166**	31	**148**	162	**625**	49	**312**
08:15	95		25		34		43		129		68	
08:30	125		26		42		53		167		79	
08:45	98		84		58		142		156		226	
09:00	83	**401**	39	**174**	41	**175**	56	**294**	124	**576**	95	**468**
09:15	63		21		31		27		94		48	
09:30	73		17		40		42		113		59	
09:45	61		16		31		20		92		36	
10:00	51	**248**	32	**86**	25	**127**	22	**111**	76	**375**	54	**197**
10:15	59		24		25		21		84		45	
10:30	70		9		32		18		102		27	
10:45	48		22		27		16		75		38	
11:00	50	**227**	27	**82**	38	**122**	21	**76**	88	**349**	48	**158**
11:15	44		19		28		11		72		30	
11:30	63		10		36		15		99		25	
11:45	49		9		36		13		85		22	
12:00	51	**207**	8	**46**	53	**153**	12	**51**	104	**360**	20	**97**
TOTALS	3672				2774				6446			
AM Times	07:45				08:00				07:45			
AM Peaks	489				177				659			
Factors	PHF: .81				PHF: .76				PHF: .81			
PM Times	13:00				20:15				20:15			
PM Peaks	226				294				468			
Factors	PHF: .77				PHF: .51				PHF: .51			

Site Reference: 000000000000
Site ID: IH 35E NBFR
Location: IH 35E NB FRT RD SOUTH OF N TEXAS

File: TEXAS.prn
City: DENTON, TX
County:

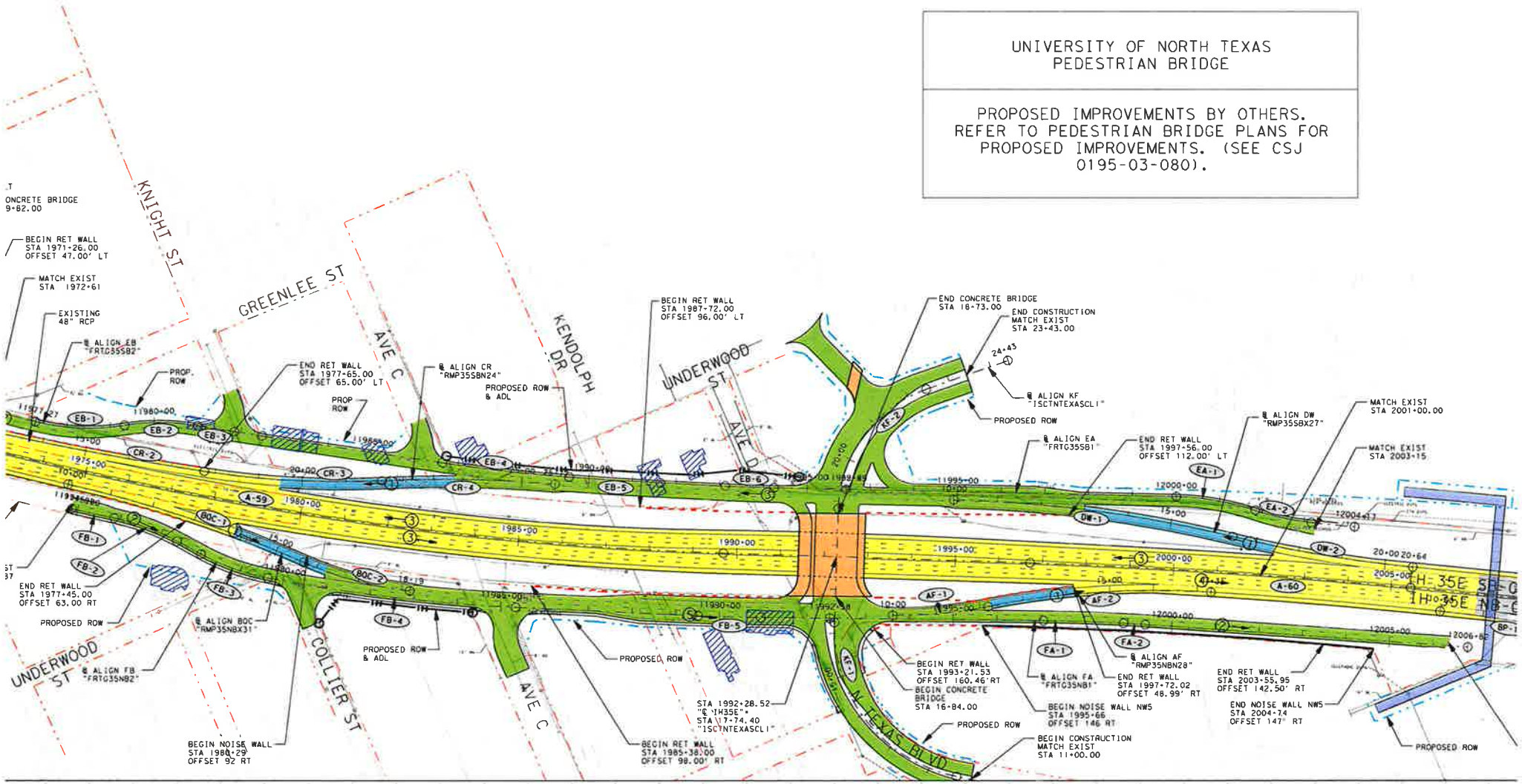
TIME	LANE 1 NB		LANE 2 NB		TOTAL	
	am	pm	am	pm	am	pm
00:15	16	87	0	0	16	87
00:30	18	100	0	0	18	100
00:45	20	105	0	0	20	105
01:00	12 **66**	109 **401**	0 **0**	0 **0**	12 **66**	109 **401**
01:15	7	85	0	0	7	85
01:30	6	95	0	0	6	95
01:45	8	115	0	0	8	115
02:00	5 **26**	94 **389**	0 **0**	0 **0**	5 **26**	94 **389**
02:15	7	75	0	0	7	75
02:30	4	75	0	0	4	75
02:45	4	72	0	0	4	72
03:00	10 **25**	87 **309**	0 **0**	0 **0**	10 **25**	87 **309**
03:15	5	92	0	0	5	92
03:30	3	95	0	0	3	95
03:45	3	94	0	0	3	94
04:00	5 **16**	102 **383**	0 **0**	0 **0**	5 **16**	102 **383**
04:15	9	98	0	0	9	98
04:30	1	86	0	0	1	86
04:45	10	130	0	0	10	130
05:00	4 **24**	125 **439**	0 **0**	0 **0**	4 **24**	125 **439**
05:15	14	117	0	0	14	117
05:30	16	100	0	0	16	100
05:45	30	115	0	0	30	115
06:00	28 **88**	96 **428**	0 **0**	0 **0**	28 **88**	96 **428**
06:15	34	87	0	0	34	87
06:30	50	88	0	0	50	88
06:45	57	88	0	0	57	88
07:00	61 **202**	86 **349**	0 **0**	0 **0**	61 **202**	86 **349**
07:15	98	97	0	0	98	97
07:30	121	102	0	0	121	102
07:45	160	90	0	0	160	90
08:00	138 **517**	59 **348**	0 **0**	0 **0**	138 **517**	59 **348**
08:15	113	70	0	0	113	70
08:30	143	79	0	0	143	79
08:45	123	232	0	0	123	232
09:00	110 **489**	95 **476**	0 **0**	0 **0**	110 **489**	95 **476**
09:15	91	59	0	0	91	59
09:30	107	53	0	0	107	53
09:45	83	45	0	0	83	45
10:00	75 **356**	53 **210**	0 **0**	0 **0**	75 **356**	53 **210**
10:15	80	53	0	0	80	53
10:30	95	32	0	0	95	32
10:45	75	40	0	0	75	40
11:00	88 **338**	48 **173**	0 **0**	0 **0**	88 **338**	48 **173**
11:15	63	33	0	0	63	33
11:30	97	27	0	0	97	27
11:45	82	22	0	0	82	22
12:00	96 **338**	21 **103**	0 **0**	0 **0**	96 **338**	21 **103**
TOTALS	6493		0		6493	
AM Times	07:45				07:45	
AM Peaks	554				554	
Factors	PHF: .86				PHF: .86	
PM Times	20:15				20:15	
PM Peaks	476				476	
Factors	PHF: .51				PHF: .51	

APPENDIX B

Interim IH 35E Schematic

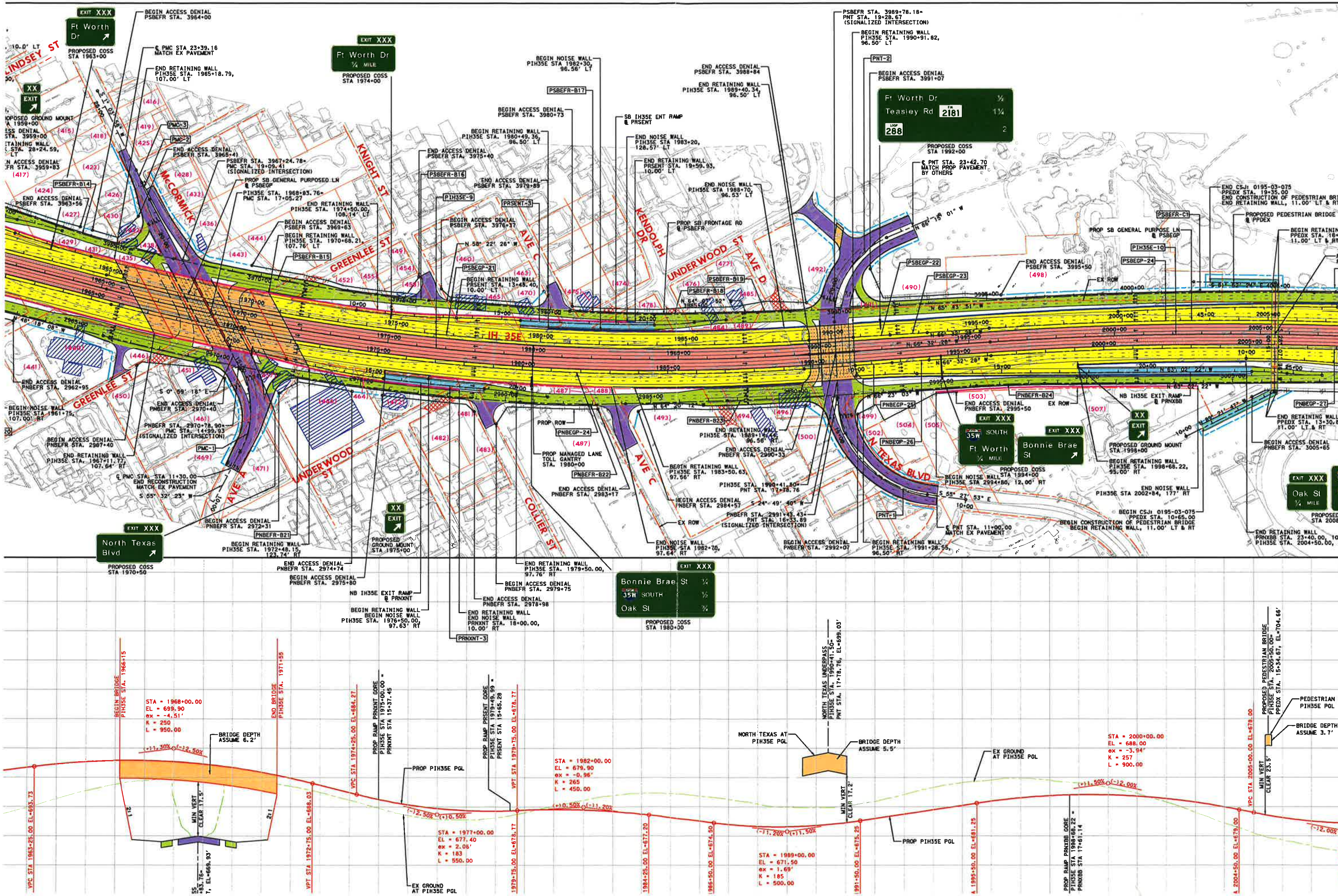
UNIVERSITY OF NORTH TEXAS
PEDESTRIAN BRIDGE

PROPOSED IMPROVEMENTS BY OTHERS.
REFER TO PEDESTRIAN BRIDGE PLANS FOR
PROPOSED IMPROVEMENTS. (SEE CSJ
0195-03-080).



APPENDIX C

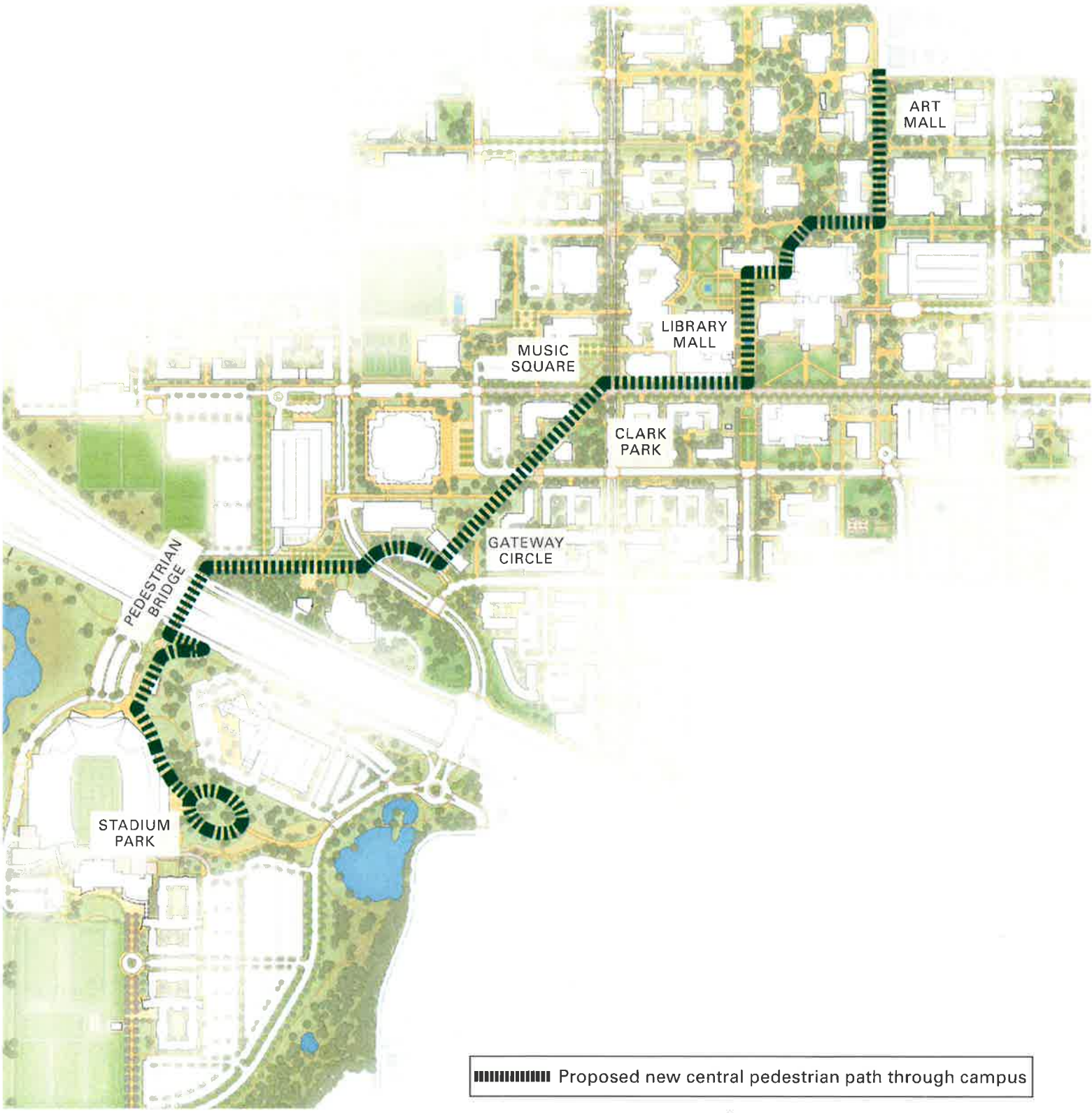
Ultimate IH 35E Schematic



EXIT XXX
Ft Worth Dr
BEGIN ACCESS DENIAL PSBEFR STA. 3964+00
PROPOSED COSS STA 1963+00
LINDSEY ST
C PMC STA 23+39.16 MATCH EX PAVEMENT
END RETAINING WALL PIH35E STA. 1965+18.79, 107.00' LT
Ft Worth Dr ¼ MILE
PROPOSED COSS STA 1974+00
BEGIN NOISE WALL PIH35E STA 1982+30, 96.56' LT
PSBEFR-B17
BEGIN ACCESS DENIAL PSBEFR STA. 3980+73
BEGIN RETAINING WALL PIH35E STA. 1980+49.36, 96.50' LT
SB IH35E ENT RAMP C PRSENT
END NOISE WALL PIH35E STA 1983+20, 128.57' LT
END RETAINING WALL PRSENT STA. 19+59.93, 10.00' LT
END ACCESS DENIAL PSBEFR STA. 3988+84
END RETAINING WALL PIH35E STA. 1989+40.34, 96.50' LT
BEGIN NOISE WALL PIH35E STA 1988+70, 96.53' LT
PROP SB FRONTAGE RD C PSBEFR
PSBEFR STA. 3989+78.18= PNT STA. 19+28.67 (SIGNALIZED INTERSECTION)
BEGIN RETAINING WALL PIH35E STA. 1990+91.82, 96.50' LT
PNT-2
BEGIN ACCESS DENIAL PSBEFR STA. 3991+07
Ft Worth Dr ½
Teasley Rd 2181 1¼
288 2
PROPOSED COSS STA 1992+00
C PNT STA. 23+42.70 MATCH PROP PAVEMENT BY OTHERS
END CSJ: 0195-03-075 PPEDX STA. 19+35.00 END CONSTRUCTION OF PEDESTRIAN BRIDGE END RETAINING WALL, 11.00' LT & RT
PROPOSED PEDESTRIAN BRIDGE C PPDEX
PROP SB GENERAL PURPOSE LN C PSBEGP
END ACCESS DENIAL PSBEFR STA. 3995+50
EX ROW
McCORMICK
KNIGHT ST
GREENLEE ST
AVE C
KENDOLPH DR
UNDERWOOD ST
AVE D
IH 35E
AVE A
COLLIER ST
N TEXAS BLVD
END ACCESS DENIAL PSBEFR STA. 3966+41
PSBEFR STA. 3967+24.78= PMC STA. 19+09.41 (SIGNALIZED INTERSECTION)
PROP SB GENERAL PURPOSED LN C PSBEGP
PIH35E STA. 1968+83.76= PMC STA. 17+05.27
END RETAINING WALL PIH35E STA. 1974+50.00, 108.14' LT
BEGIN ACCESS DENIAL PSBEFR STA. 3969+63
BEGIN RETAINING WALL PIH35E STA. 1970+68.21, 107.76' LT
END ACCESS DENIAL PSBEFR STA. 3975+40
END ACCESS DENIAL PSBEFR STA. 3979+89
BEGIN ACCESS DENIAL PSBEFR STA. 3976+37
BEGIN RETAINING WALL PRSENT STA. 13+48.40, 10.00' LT
END ACCESS DENIAL PSBEFR STA. 3963+56
END ACCESS DENIAL PNBEFR STA. 2962+95
BEGIN NOISE WALL PIH35E STA 1961+75, 107.00' RT
BEGIN ACCESS DENIAL PNBEFR STA. 2967+40
END RETAINING WALL PIH35E STA. 1967+11.72, 107.64' RT
END ACCESS DENIAL PNBEFR STA. 2970+40
PNBEFR STA. 2970+78.90= PMC STA. 14+99.93 (SIGNALIZED INTERSECTION)
C PMC STA. STA 11+30.00 END RECONSTRUCTION MATCH EX PAVEMENT
North Texas Blvd
PROPOSED COSS STA 1970+50
BEGIN ACCESS DENIAL PNBEFR STA. 2972+31
BEGIN RETAINING WALL PIH35E STA. 1972+48.15, 123.74' RT
END ACCESS DENIAL PNBEFR STA. 2974+74
BEGIN ACCESS DENIAL PNBEFR STA. 2975+80
PROPOSED GROUND MOUNT STA 1975+00
NB IH35E EXIT RAMP C PRNXNT
BEGIN RETAINING WALL BEGIN NOISE WALL PIH35E STA. 1976+50.00, 97.63' RT
END ACCESS DENIAL PNBEFR STA. 2978+98
END RETAINING WALL END NOISE WALL PRNXNT STA. 18+00.00, 10.00' RT
PRNXNT-3
BEGIN ACCESS DENIAL PNBEFR STA. 2979+75
END RETAINING WALL PIH35E STA. 1979+50.00, 97.76' RT
PROP MANAGED LANE TOLL GANTRY STA. 1980+00
END ACCESS DENIAL PNBEFR STA. 2983+17
Bonnie Brae St ¼
35W SOUTH ½
Oak St ¾
PROPOSED COSS STA 1980+00
BEGIN RETAINING WALL PIH35E STA. 1983+50.63, 97.56' RT
BEGIN ACCESS DENIAL PNBEFR STA. 2984+57
END NOISE WALL PIH35E STA 1982+70, 97.64' RT
END RETAINING WALL PIH35E STA. 1989+14.42, 96.50' RT
END ACCESS DENIAL PNBEFR STA. 2990+33
PIH35E STA. 1990+41.50= PNT STA. 17+78.76
PNBEFR STA. 2991+43.43= PNT STA. 16+33.89 (SIGNALIZED INTERSECTION)
BEGIN ACCESS DENIAL PNBEFR STA. 2992+07
BEGIN RETAINING WALL PIH35E STA. 1991+28.55, 96.50' RT
C PNT STA. 11+00.00 MATCH EX PAVEMENT
BEGIN NOISE WALL PIH35E STA 2994+80, 12.00' RT
END ACCESS DENIAL PNBEFR STA. 2995+50
Ft Worth ¼ MILE
Bonnie Brae St
PROPOSED COSS STA 1994+00
NB IH35E EXIT RAMP C PRNXBB
PROPOSED GROUND MOUNT STA 1998+00
BEGIN RETAINING WALL PIH35E STA. 1998+68.22, 95.00' RT
END NOISE WALL PIH35E STA 2002+84, 177' RT
BEGIN CSJ: 0195-03-075 PPEDX STA. 10+65.00 BEGIN CONSTRUCTION OF PEDESTRIAN BRIDGE BEGIN RETAINING WALL, 11.00' LT & RT
END RETAINING WALL PPEDX STA. 13+30.82, 11.00' LT & RT
BEGIN ACCESS DENIAL PNBEFR STA. 3005+65
Oak St ¼ MILE
END RETAINING WALL PRNXBB STA. 23+40.00, 10.00' PIH35E STA. 2004+50.00, 95.
BEGIN BRIDGE PIH35E STA. 1966+15
STA = 1968+00.00 EL = 699.90 ex = -4.51' K = 250 L = 950.00
BRIDGE DEPTH ASSUME 6.2'
END BRIDGE PIH35E STA. 1971+55
MIN VERT CLEAR 17.5'
PROP PIH35E PGL
PROP RAMP PRNXNT CORE PIH35E STA 1975+00.00 = PRNXNT STA 15+37.45
PROP RAMP PRSENT CORE PIH35E STA 1979+49.99 = PRSENT STA 15+65.28
STA = 1977+00.00 EL = 677.40 ex = 2.06' K = 183 L = 550.00
EX GROUND AT PIH35E PGL
STA = 1982+00.00 EL = 679.90 ex = -0.96' K = 265 L = 450.00
NORTH TEXAS AT PIH35E PGL
NORTH TEXAS UNDERPASS PIH35E STA. 1990+41.50= PNT STA. 17+78.76, EL=699.03'
BRIDGE DEPTH ASSUME 5.5'
MIN VERT CLEAR 17.2'
STA = 1989+00.00 EL = 671.50 ex = 1.69' K = 185 L = 500.00
EX GROUND AT PIH35E PGL
STA = 2000+00.00 EL = 688.00 ex = -3.94' K = 257 L = 900.00
PROP RAMP PRNXBB CORE PIH35E STA 1998+68.22 = PRNXBB STA 17+61.14
PROPOSED PEDESTRIAN BRIDGE PIH35E STA. 2005+50.00= PPEDX STA. 15+34.67, EL=704.66'
PEDESTRIAN BRIDGE PIH35E PGL
BRIDGE DEPTH ASSUME 3.7'
MIN VERT CLEAR 23.5'

APPENDIX D

Central Pedestrian Path Exhibit
from the
University of North Texas 2013 Master Plan


ART
MALL
LIBRARY
MALL
MUSIC
SQUARE
CLARK
PARK
GATEWAY
CIRCLE
PEDESTRIAN
BRIDGE
STADIUM
PARK
Proposed new central pedestrian path through campus