



Appendix B

Technical Memoranda and Reports

Disclaimer:

Technical memoranda and reports were prepared as independent documents to support the preparation of the Final Environmental Impact Statement (FEIS) for the Dallas CBD Second Light Rail Alignment (D2 Subway). Information from these documents was incorporated into the FEIS to provide information on existing conditions, and in some cases, assess potential impacts to the resources. Information contained in the FEIS is the most current and supersedes information in the technical memoranda and reports.



B-16a

Evaluation of Conversion of Akard Street from Two-way to One-way between Elm Street and Commerce Street



MEMORANDUM

Date: Thursday, September 24, 2020

Project: DART General Planning Consultant Contract
TO39 D2 Subway – Traffic Evaluation

To: Kay Shelton – Assistant Vice President, Capital Planning
Ernie Martinez – D2 Subway Project Manager

From: Reddy Edulakanti, PE, PTOE – HDR

Subject: DART TO39 D2 Subway Project Development
Evaluation of Conversion of Akard Street from two-way to one-way between Elm Street and Commerce Street

INTRODUCTION

Based on recent discussions with the City of Dallas, DART is proposing to change one block of South Akard Street from Main to Commerce to one-lane southbound for the 30% design. The 20% design had maintained current conditions as a two-way street with one lane in each direction for two blocks, between Elm Street and Commerce Street (see attached photos of existing conditions). DART street modification plans only affect the one block from Main to Commerce Street. However, Downtown Dallas, Inc. (DDI) recommended that the analysis consider also converting the other block between Main and Elm Streets, and the City of Dallas requested a traffic analysis for the change.

This memorandum provides an evaluation of expected traffic operations due to the conversion of South Akard Street from two-way to one-way southbound for the two blocks between Elm Street and Commerce Street. The proposed condition would include two southbound only lanes between Elm Street and Main Street, one of which would turn onto Main, and one southbound only lane between Main Street and Commerce Street. Based on the traffic counts conducted in March 2017 (see attachment), there are more left-turning vehicles compared to right-turns on the southbound approach of Akard Street at Main Street. Hence, it is recommended that the inside lane is converted to a left-turn only lane and dropped at Main Street while the curbside lane carry traffic to Commerce Street.

The reason for this change is to create a more pedestrian friendly corridor linking Akard Station, Pegasus Plaza/Adolphus Tower/Commerce Station, and ATT Discovery District. The reduced traffic and pedestrian emphasis also provides for better viewing of AT&T's 104' tall media wall. As background, this two-block section operated as one-way southbound previously but was changed to two-way operations a few years ago. Since the remainder of Akard Street to the north operates as one-way southbound, DDI noted that this two-block segment has not functioned as originally intended as part of a larger two-way conversion of Akard.

TRAFFIC VOLUMES

The traffic counts conducted in March 2017 at the following intersections were taken into account for this analysis and presented as attachment to this memorandum:

1. Akard Street and Elm Street
2. Akard Street and Main Street
3. Akard Street and Commerce Street
4. Field Street and Elm Street
5. Field Street and Main Street
6. Field Street and Commerce Street
7. Ervay Street and Elm Street
8. Ervay Street and Main Street and
9. Ervay Street and Commerce Street.

The projected traffic along Akard Street for the future year 2045, both with and without the D2 Subway project (Build and No-Build condition) were extracted from the Transmodeler traffic model and used in this analysis (see attachment).

NORTHBOUND TRAFFIC

The northbound traffic along Akard Street on the two City blocks being evaluated has two sources of incoming traffic – one through eastbound turning traffic at Commerce Street; and another through eastbound and westbound turning traffic at Main Street. Based on the March 2017 counts, together this traffic is less than 100 vehicles per hour (vph) during both AM and PM peak hours. It is projected to stay less than 100 vph during 2045 No-Build and Build conditions as well.

ALTERNATIVE TRAVEL PATHS

The eastbound traffic from Commerce Street (approximately 40 vph during both AM and PM peak hours) entering northbound Akard Street can alternately turn either at Field Street on the west or Ervay Street on the east. Both of these intersections are expected to operate at a Level of Service (LOS) A/B during both peak hours in 2045 and hence can easily accommodate the additional northbound traffic from Akard Street.

The eastbound traffic from Main Street turning left to Akard Street (approximately 30 vph or less during both AM and PM peak hours) do not have immediate turning opportunities at Field Street or Ervay Street. The eastbound left turns are restricted (except buses) during peak hours from Main Street to both Field Street and Ervay Street. However, according to 2017 traffic counts, notable number of vehicles were observed making the turn during both AM and PM peak hours.

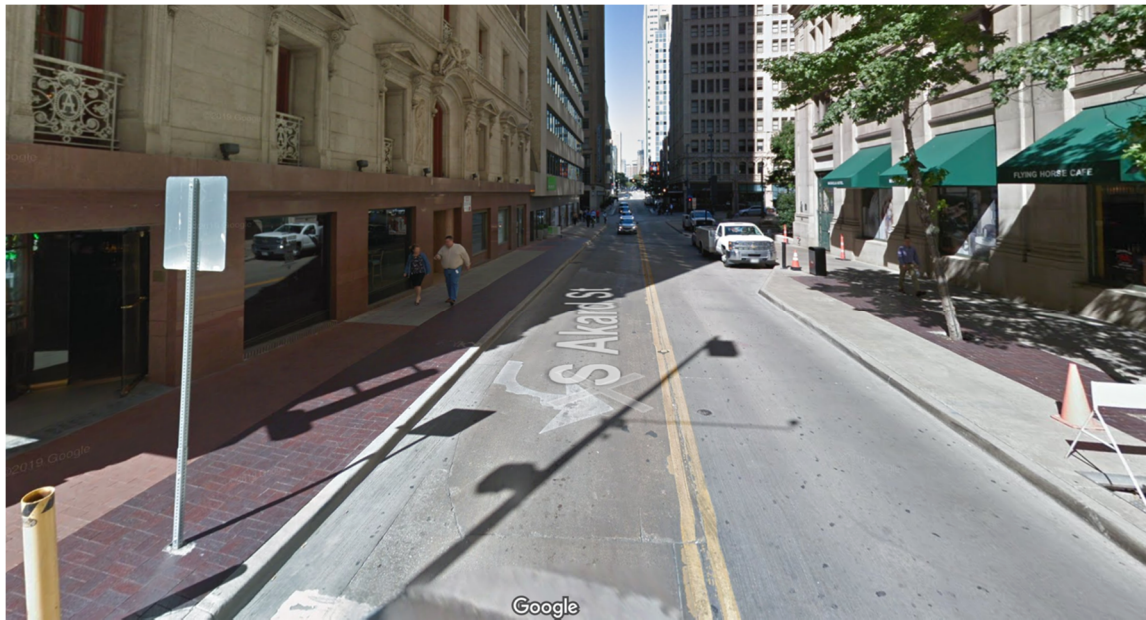
Once Akard Street is converted to one-way southbound street, the eastbound left turning traffic at Main Street would either have to turn further west at Griffin Street or further east at Pearl Expressway. The low number of vehicles (30 vph) does not require a reconsideration of turn restrictions at Field Street and Ervay Street intersections along Main Street.

The westbound traffic from Main Street turning right to Akard Street is less than 15 vph during both AM and PM peak hours. This traffic can be easily accommodated along Field Street or Ervay Street.

CONCLUSION

Based on a traffic evaluation using Synchro software, the intersections expected to receive current northbound Akard Street traffic are projected to operate at a LOS B or better during both AM and PM peak hours. The number of peak vehicles using the northbound lanes in the AM and PM peak is low at less than 100 vehicles per hour. Hence, nearby intersections can easily accommodate the additional traffic from northbound Akard Street.

In summary, the conversion of Akard Street back to one-way southbound operations is not expected to have any impacts on traffic operations in this immediate area and would also support a more pedestrian friendly environment. As the design advances, considerations of loading areas for adjacent businesses will need be accommodated and/or consolidated, especially in the one block segment from Main to Commerce.



View looking north from Commerce Street.



View looking north from Main Street.



View looking south on Akard from Main St.

Mar 21, 2017 TRAFFIC COUNTS

8:00 - 9:00 AM

<div>153 ←</div> <div>116 ↓</div> <div>10 ←</div> <div>110 ↓</div> <div>22 ↓</div> <div>11 ↑</div> <div>277 →</div> <div>16 ↓</div> <div>85 ↓</div> <div>197 ↑</div> <div>857 →</div> <div>66 ↓</div>	<div>287 ↑</div> <div>1460 ←</div> <div>46 ←</div> <div>112 ←</div> <div>289 ↑</div> <div>32 ↑</div> <div>210 ←</div> <div>45 ←</div> <div>22 ←</div> <div>187 ↓</div> <div>52 ↓</div> <div>36 ←</div> <div>360 ↑</div> <div>9 ↑</div> <div>28 ↑</div> <div>256 →</div> <div>7 ↓</div> <div>192 ↓</div> <div>224 ↑</div> <div>60 ↑</div> <div>40 ↑</div> <div>948 →</div>	<div>1534 ←</div> <div>47 ←</div> <div>76 ←</div> <div>13 ↑</div> <div>256 ←</div> <div>6 ←</div> <div>15 ←</div> <div>29 ↑</div> <div>3 ↑</div> <div>40 ↑</div> <div>279 →</div> <div>208 ↑</div> <div>708 →</div>	<div>270 ↑</div> <div>1446 ←</div> <div>313 ←</div> <div>852 ↑</div> <div>96 ↑</div> <div>238 ←</div> <div>39 ←</div> <div>1013 ↑</div> <div>42 ↑</div> <div>887 ↑</div> <div>124 ↑</div> <div>Elm St</div>
			<div>96 ↑</div> <div>238 ←</div>
			<div>96 ↑</div> <div>238 ←</div>
			<div>96 ↑</div> <div>238 ←</div> <div>Commerce St</div>
Field St	Akard St	Erway St	

5:15 - 6:15 PM

<div>372 ←</div> <div>214 ↓</div> <div>37 ←</div> <div>179 ↓</div> <div>51 ↓</div> <div>11 ↑</div> <div>230 →</div> <div>7 ↓</div> <div>112 ↓</div> <div>75 ↑</div> <div>881 →</div> <div>25 ↓</div>	<div>161 ↑</div> <div>1064 ←</div> <div>53 ←</div> <div>62 ←</div> <div>198 ↑</div> <div>23 ↑</div> <div>279 ←</div> <div>43 ←</div> <div>26 ←</div> <div>153 ↓</div> <div>112 ↓</div> <div>28 ←</div> <div>180 ↑</div> <div>13 ↑</div> <div>9 ↑</div> <div>271 →</div> <div>10 ↓</div> <div>43 ↑</div> <div>1015 →</div>	<div>1016 ←</div> <div>70 ←</div> <div>54 ←</div> <div>5 ↑</div> <div>282 ←</div> <div>9 ←</div> <div>20 ←</div> <div>12 ↑</div> <div>10 ↑</div> <div>65 ↑</div> <div>323 →</div> <div>167 ↑</div> <div>997 →</div>	<div>280 ↑</div> <div>972 ←</div> <div>124 ←</div> <div>439 ↑</div> <div>49 ↑</div> <div>255 ←</div> <div>39 ←</div> <div>490 ↑</div> <div>41 ↑</div> <div>418 ↑</div> <div>168 ↑</div> <div>Elm St</div>
			<div>280 ↑</div> <div>972 ←</div>
			<div>280 ↑</div> <div>972 ←</div>
			<div>280 ↑</div> <div>972 ←</div> <div>Main St</div>
Field St	Akard St	Erway St	
			<div>Commerce St</div>

2045 No-Build		AM PEAK HR			PM PEAK HR		

2045 Build		AM PEAK HR		PM PEAK HR	
		154 ↙	241 ↓	← 1819 ↙ 47	Elm St
				↖ 7	
		20 ↙	211 ↓	59 ↘	Main St
		0 ↖	220 →	31 ↘	
				↖ 0	↗ 0
				↖ 0	↗ 17