

July 5, 2019

Angelo Ingrassia  
4000 West Ridge Road  
Rochester, New York 14626

RE: Proposed Colgate Divinity Campus Development, City of Rochester, Monroe County, NY  
Response to MCDOT Review Comments, Dated June 28, 2019

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Dear Mr. Ingrassia,

This letter was prepared to address the June 28, 2019 review comments made by the Monroe County Department of Transportation (MCDOT) regarding the proposed Colgate Divinity Campus Development Multi-modal Traffic Impact Assessment (MTIA), dated May 2019. Responses below are numbered to correspond to the numbering in the MCDOT letter.

1. Table I has several errors relative to # of travel lanes, and AADT for the segments identified. These should be corrected.

Response: Table I has been updated and corrected.

2. Under the sight distance evaluation, section IV- D, it should be noted that NYSDOT speed data indicates the 85th% speed is 42 - 44 MPH on this section of S. Goodman Street. Hence, a 45 MPH design speed should be used for the sight distance evaluation. The recommended mitigation remains unchanged - just to a greater extent.

Response: The noted speed data is actually from the segment of S. Goodman St between Highland Ave and Elmwood Ave where speeds are higher. A speed study was conducted by SRF Associates on Monday July 1<sup>st</sup>, 2019 on S. Goodman St at the site driveway. The study results indicate 85<sup>th</sup> percentile speeds of 30 MPH northbound and 32 MPH southbound.

3. Per the traffic assessment, the proposed development is increasing the southbound left turns from S. Goodman onto Elmwood Avenue by 300%, from 15 to 63 in the PM peak hour. The unsignalized intersection currently operates acceptably with only 7 & 15 left turns in the AM & PM peak hours. However, the analysis shows that at full buildout, between the added eastbound left turns onto Goodman and the added southbound left turns onto Elmwood, the intersection does not operate acceptably unsignalized. Traffic signal warrants should be checked for the full developed condition at this intersection.

Response: The site plan has been revised which resulted in a revision to the MTIA. The development is projected to add 33(25) southbound right turns and 8(20) southbound left turns during the AM(PM) peak hours. The increase in the southbound left turn movement is an increase of 133%. It is anticipated that motorists will choose to turn left at the signalized S. Goodman St/Highland Ave intersection if they encounter long delays at the Elmwood Ave intersection. This

“diversion” of southbound left turns was considered and included in the distribution of site traffic and is analyzed as the full development condition.

A Gap Analysis was performed along Elmwood Avenue at its intersection with South Goodman Street to determine the availability of gaps for traffic to make a southbound left turn onto Elmwood Avenue during the PM peak hour. For unsignalized intersections such as this, gap availability can be used as a surrogate methodology for evaluating the ability of side road traffic to enter and exit the fronting traffic stream.

The availability of gaps within the traffic stream primarily determines the side road driver behavior and delay for both entering and exiting motorists. A gap study counts the actual gaps in existing traffic available for a vehicle to enter or exit the side road. The difference between the actual number of gaps and the projected demand for a particular traffic movement can then be calculated as a reserve or deficit capacity.

The 2016 Highway Capacity Manual provides data relative to gap sizes that motorists find acceptable to execute the required maneuver. SRF Associates performed a gap analysis at the intersection of Elmwood Avenue and South Goodman Street utilizing video data collected on Wednesday, January 6<sup>th</sup>, 2016 during the PM peak hour (4:30 – 5:30 PM) to evaluate potential future operating conditions. **Table V** indicates the acceptable gap duration, the theoretical number of gaps based on the duration, the projected traffic volume for the southbound left movement, and the resulting theoretical reserve (or deficit) capacity during the PM peak hour.

**TABLE V (from Updated MTIA)  
PEAK HOUR GAP ANALYSIS RESULTS**

<b>INTERSECTION</b>	<b>MOVEMENT</b>	<b>ACCEPTABLE GAP DURATION</b>	<b>THEORETICAL EXISTING GAPS BASED ON COLLECTED DATA</b>	<b>PROJECTED VOLUME</b>	<b>THEORETICAL RESERVE CAPACITY</b>
Elmwood Avenue/ S. Goodman Street	SB Left	7.5 sec	35	35	0

The availability of existing gaps is representative of the actual gaps documented in the Elmwood Avenue traffic streams. During the data collection, it was observed that the vehicles arrived in platoons in both directions due to traffic signals at South Avenue and South Clinton Avenue.

Based on the field observations, gap study, and projected site generated traffic volumes, it is anticipated that adequate gaps exist to accommodate the projected demand of southbound left turns onto Elmwood Avenue during the PM peak hour. Motorists that experience long delays will opt for alternative routes.

In addition, a signal warrant analysis was performed at the intersection as well. The signal warrant analysis indicates that a signal is warranted in the background conditions without the proposed Colgate Divinity development. Given that sufficient gaps exist to accommodate the project site generated traffic and that motorists leaving the Colgate Divinity site may opt to turn left at the

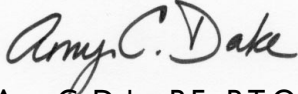
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signalized Highland Ave intersection, no mitigation is warranted or recommended at this intersection as a result of the proposed development.

Please let me know if there are any questions or if any additional information is required.

Very truly yours,  
*SRF Associates*



Amy C. Dake, P.E., P.T.O.E.  
Senior Managing Traffic Engineer

Attachments:

Updated MTIA

Signal Warrant Analysis

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# Traffic Signal Warrant Analysis

South Goodman/Elmwood - Background Conditions  
City of Rochester, Monroe County

Hour	Existing Fluctuation in Artery Volumes - Elmwood				Full Development Artery Volume on Elmwood at South Goodman	Existing Fluctuation in Artery Volumes - South Goodman				Warrant Analysis			
	per NYSDOT count on Route Elmwood		per NYSDOT count on Route Elmwood			per NYSDOT count on Route South Goodman		per NYSDOT count on Route South Goodman		Warrant 1 Condition A	Warrant 1 Condition B	Warrant 2 (4 hour)	
	EB	WB	Two-Way	Hourly Fluctuation		NB	SB	Two-Way	Hourly Fluctuation	600/150	900/75	80 vph	
6:00 AM to 7:00 AM	653	225	878	4.09%	986	43	276	319	7.31%	Y	Y	Y	
7:00 AM to 8:00 AM	1061	571	1632	7.60%	1833	167	342	509	9.06%	Y	Y	Y	
8:00 AM to 9:00 AM	1080	550	1630	7.59%	1830	165	316	481	8.37%	Y	Y	Y	
9:00 AM to 10:00 AM	743	468	1211	5.64%	1360	160	252	412	6.68%	Y	Y	Y	
10:00 AM to 11:00 AM	644	510	1154	5.37%	1296	160	242	402	6.41%	Y	Y	Y	
11:00 AM to 12:00 PM	621	604	1225	5.71%	1376	210	229	439	6.07%	Y	Y	Y	
12:00 PM to 1:00 PM	681	669	1350	6.29%	1516	126	249	375	6.60%	Y	Y	Y	
1:00 PM to 2:00 PM	641	650	1291	6.01%	1450	206	238	444	6.31%	Y	Y	Y	
2:00 PM to 3:00 PM	689	775	1464	6.82%	1644	273	253	526	6.70%	Y	Y	Y	
3:00 PM to 4:00 PM	746	928	1674	7.80%	1880	348	247	595	6.54%	Y	Y	Y	
4:00 PM to 5:00 PM	725	1165	1890	8.80%	2122	404	205	609	5.43%	Y	Y	Y	
5:00 PM to 6:00 PM	787	1255	2042	9.51%	2293	415	271	686	7.18%	Y	Y	Y	
6:00 PM to 7:00 PM	637	734	1371	6.39%	1540	266	265	531	7.02%	Y	Y	Y	
7:00 PM to 8:00 PM	427	663	1090	5.08%	1224	284	153	437	4.05%	N	Y	Y	
8:00 PM to 9:00 PM	310	607	917	4.27%	1030	252	128	380	3.39%	N	Y	N	
9:00 PM to 10:00 PM	243	409	652	3.04%	732	165	108	273	2.86%	N	N	N	
					24,110	3,644	3,774	7,418		3,123	13	15	14

Note: Existing volume includes left turns plus 70% of right turns. It is assumed that approximately 30% of right turns will exit via RTOR and are not included.

# Traffic Signal Warrant Analysis

South Goodman/Elmwood - Full Development Conditions  
 City of Rochester, Monroe County

Hour	Existing Fluctuation in Artery Volumes - Elmwood				Full Development Artery Volume on Elmwood at South Goodman Total	Existing Fluctuation in Artery Volumes - South Goodman				Warrant Analysis		
	per NYSDOT count on Route Elmwood		per NYSDOT count on Route Elmwood			per NYSDOT count on Route South Goodman		per NYSDOT count on Route South Goodman		Warrant 1 Condition A	Warrant 1 Condition B	Warrant 2 (4 hour)
	EB	WB	Two-Way	Hourly Fluctuation		NB	SB	Two-Way	Hourly Fluctuation	600/150	900/75	80 vph
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7:00 AM to 8:00 AM	1061	571	1632	7.60%	1817	167	342	509	9.06%	Y	Y	Y
8:00 AM to 9:00 AM	1080	550	1630	7.59%	1815	165	316	481	8.37%	Y	Y	Y
9:00 AM to 10:00 AM	743	468	1211	5.64%	1349	160	252	412	6.68%	Y	Y	Y
10:00 AM to 11:00 AM	644	510	1154	5.37%	1285	160	242	402	6.41%	Y	Y	Y
11:00 AM to 12:00 PM	621	604	1225	5.71%	1364	210	229	439	6.07%	Y	Y	Y
12:00 PM to 1:00 PM	681	669	1350	6.29%	1503	126	249	375	6.60%	Y	Y	Y
1:00 PM to 2:00 PM	641	650	1291	6.01%	1438	206	238	444	6.31%	Y	Y	Y
2:00 PM to 3:00 PM	689	775	1464	6.82%	1630	273	253	526	6.70%	Y	Y	Y
3:00 PM to 4:00 PM	746	928	1674	7.80%	1864	348	247	595	6.54%	Y	Y	Y
4:00 PM to 5:00 PM	725	1165	1890	8.80%	2105	404	205	609	5.43%	Y	Y	Y
5:00 PM to 6:00 PM	787	1255	2042	9.51%	2274	415	271	686	7.18%	Y	Y	Y
6:00 PM to 7:00 PM	637	734	1371	6.39%	1527	266	265	531	7.02%	Y	Y	Y
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9:00 PM to 10:00 PM	243	409	652	3.04%	776	165	108	273	2.86%	N	N	N
					23,910	3,644	3,774	7,418		3,410		

Note: Existing volume includes left turns plus 70% of right turns. It is assumed that approximately 30% of right turns will exit via RTOR and are not included.