Kimley *Whorn*

MEMORANDUM

To: Ms. Emily Estes, GRTA

From: Ms. Elizabeth Johnson, P.E.

Date: May 22, 2018

RE: 17TH & Spring DRI #2800 Addendum to Traffic Study

Kimley-Horn is pleased to provide this addendum to the 17th & Spring DRI #2800 Transportation Analysis.

PROJECT OVERVIEW

The 17th & Spring development is a proposed mixed-use development on a 4-acre site located north of 16th Street, south of 17th Street, east of Spring Street, and west of West Peachtree Street in the City of Atlanta, GA. The traffic study of record was submitted on May 9, 2018. On May 17, 2018, GRTA requested an addendum to the study since recommended improvements were determined not to be feasible.

The study recommended an improvement under Projected 2021 Build conditions to allow vehicles to utilize the EB and WB "bus-only" lanes along 17th Street during the peak hours. The "bus-only" lanes have federal provisions; therefore, they cannot be converted to general purpose lanes. This memo presents an alternative recommendation to improve the level-of service at the intersection of 17th Street at I-75/I-85 NB Ramp (Intersection 1).

REVISED PROJECTED 2021 BUILD IMPROVED CONDITIONS

Under Projected 2021 Build Conditions, the intersection of 17th Street at I-75/I-85 NB Ramp (Intersection 1) is projected to operate at LOS F during the AM peak hour. Consistent with the GRTA Letter of Understanding, dated March 21, 2018, improvements must be recommended to return the intersection to the level-of-service standard LOS E. The following improvement is recommended to result in Intersection 1 operating at an acceptable LOS:

- Restripe the NB approach of I-75/I-85 NB Ramps so that it consists of one (1) left-turn lane, one (1) shared left/right-turn lane, and one (1) right-turn lane. Note: This improvement was not initially recommended due to past experience with the City of Atlanta and their reluctance to allow dual right-turns.
- Provide an exclusive pedestrian phase for pedestrians crossing north and south.

Please see the attached **Figure 1** for a visual representation of the Revised Projected Build 2021 Improved conditions.

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The results of the capacity analysis for Intersection 1 is summarized in **Table 1**. Detailed *Synchro* results are included in this memo. HCM 2000 was used for the Revised Projected 2021 Build Improved Conditions analysis due to the inability of HCM 2010 to model an exclusive pedestrian phase.

	Table 1	: Trip Gene 17 th & Sprir	eration Company Ng DRI #2800	arison		
Intersection	LOS	Control	Projected Cond	2021 Build itions	Revised Pro Build Improve	ed Conditions
intersection	Std.	Control	AM Peak	PM Peak	AM Peak	PM Peak
1. 17th Street at I-75/I-85 NB Ramp	E	Signal	F (84.1)	B (18.6)	C (30.6)	B (19.6)

Note: If assuming HCM 2000 methodology, the Projected 2021 Build conditions are projected to operate at LOS *E* (78.0) during the AM, therefore an improvement would not be required at this location.

As shown in **Table 1**, the recommended improvement results in the intersection operating at an acceptable level-of-service under the Revised Projected 2021 Build Conditions.

SUMMARY

As requested by GRTA, a revised improvement scenario was presented for the intersection of 17th Street at I-75/I-85 NB Ramp (Intersection 1). This was requested because the previously recommended improvements were not considered feasible. The following improvement is recommended as an alternative:

- Restripe the NB approach of I-75/I-85 NB Ramps so that it consists of one (1) left-turn lane, one (1) shared left/right-turn lane, and one (1) right-turn lane.
- Provide an exclusive pedestrian phase for NB pedestrians

With this improvement, the intersection of 17th Street at I-75/I-85 NB Ramp (Intersection 1) is projected to operate at an acceptable level-of-service during the AM and PM peak hours under the Revised Projected 2021 Build Improved Conditions.

It should be noted that with the HCM 2000 methodology, the previously mentioned improvement would not be required for the intersection to meet the LOS standard during the Projected 2021 Build conditions.

We hope this information is helpful. If you have any questions concerning this letter or need additional information, please do not hesitate to contact me.

Sincerely,

KIMLEY-HORN AND ASSOCIATES, INC.

Elizalith Johnson

Elizabeth Johnson, P.E.

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Attachments:

- Figure 1: Revised Projected 2021 Build Conditions
- Synchro Analysis Results

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Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	<u> </u>			^	Ϋ́Υ	1		
Traffic Volume (vph)	1491	0	0	446	379	853		
Future Volume (vph)	1491	0	0	446	379	853		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Total Lost time (s)	5.8			5.8	6.4	6.4		
Lane Util. Factor	0.91			0.91	0.97	0.91		
Frpb, ped/bikes	1.00			1.00	0.99	0.98		
Flpb, ped/bikes	1.00			1.00	1.00	1.00		
Frt	1.00			1.00	0.92	0.85		
Flt Protected	1.00			1.00	0.98	1.00		
Satd. Flow (prot)	5085			5085	3221	1417		
Flt Permitted	1.00			1.00	0.98	1.00		
Satd. Flow (perm)	5085			5085	3221	1417		
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94		
Adj. Flow (vph)	1586	0	0	474	403	907		
RTOR Reduction (vph)	0	0	0	0	174	344		
Lane Group Flow (vph)	1586	0	0	474	683	109		
Confl. Peds. (#/hr)		22	22			4		
Turn Type	NA			NA	Prot	Perm		
Protected Phases	6			2	4			
Permitted Phases						4		
Actuated Green, G (s)	69.5			69.5	28.9	28.9		
Effective Green, g (s)	69.5			69.5	28.9	28.9		
Actuated g/C Ratio	0.58			0.58	0.24	0.24		
Clearance Time (s)	5.8			5.8	6.4	6.4		
Vehicle Extension (s)	4.0			4.0	3.0	3.0		
Lane Grp Cap (vph)	2945			2945	775	341		
v/s Ratio Prot	c0.31			0.09	c0.21			
v/s Ratio Perm						0.08		
v/c Ratio	0.54			0.16	0.88	0.32		
Uniform Delay, d1	15.4			11.7	43.9	37.5		
Progression Factor	1.31			1.00	1.00	1.00		
Incremental Delay, d2	0.6			0.1	11.5	0.5		
Delay (s)	20.8			11.8	55.4	38.0		
Level of Service	С			В	E	D		
Approach Delay (s)	20.8			11.8	49.4			
Approach LOS	С			В	D			
Intersection Summary								
HCM 2000 Control Delay			30.6	H	CM 2000	Level of Service	e	С
HCM 2000 Volume to Capa	acity ratio		0.60					
Actuated Cycle Length (s)			120.0	S	um of lost	t time (s)	-	15.2
Intersection Capacity Utiliza	ation		74.6%	IC	CU Level of	of Service		D
Analysis Period (min)			15					
c Critical Lane Group								

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Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	<u></u>			^	ኘቸ	1		
Traffic Volume (vph)	1118	0	0	998	399	277		
Future Volume (vph)	1118	0	0	998	399	277		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Total Lost time (s)	5.8			5.8	6.4	6.4		
Lane Util. Factor	0.91			0.91	0.97	0.91		
Frpb, ped/bikes	1.00			1.00	1.00	0.98		
Flpb, ped/bikes	1.00			1.00	1.00	1.00		
Frt	1.00			1.00	0.98	0.85		
Flt Protected	1.00			1.00	0.96	1.00		
Satd. Flow (prot)	5085			5085	3379	1406		
Flt Permitted	1.00			1.00	0.96	1.00		
Satd. Flow (perm)	5085			5085	3379	1406		
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91		
Adj. Flow (vph)	1229	0	0	1097	438	304		
RTOR Reduction (vph)	0	0	0	0	12	186		
Lane Group Flow (vph)	1229	0	0	1097	499	45		
Confl. Peds. (#/hr)		81	81			8		
Turn Type	NA			NA	Prot	Perm		
Protected Phases	6			2	4			
Permitted Phases						4		
Actuated Green, G (s)	75.7			75.7	23.2	23.2		
Effective Green, g (s)	75.7			75.7	23.2	23.2		
Actuated g/C Ratio	0.63			0.63	0.19	0.19		
Clearance Time (s)	5.8			5.8	6.4	6.4		
Venicle Extension (s)	4.0			4.0	3.0	3.0		
Lane Grp Cap (vph)	3207			3207	653	2/1		
v/s Ratio Prot	c0.24			0.22	c0.15	0.00		
v/s Ratio Perm	0.00			0.04	0.74	0.03		
V/C Ratio	0.38			0.34	0.76	0.16		
Uniform Delay, d I	10.8			10.4	45.8	40.3		
Progression Factor	0.72			1.25	1.00	1.00		
Incremental Delay, d2	0.3			0.2	5.3	0.3		
Delay (S)	8.1			13.3	51.1	40.6		
Level of Service	A 0.1			12.2	U 47.0	D		
Approach LOS	٥. I ۸			13.3 D	47.8			
Approach LOS	А			D	D			
Intersection Summary			46.5					
HCM 2000 Control Delay			19.6	H	CM 2000	Level of Servic	е	
HCM 2000 Volume to Capa	acity ratio		0.44	-				
Actuated Cycle Length (s)			120.0	Si	um of lost	t time (s)		-
Intersection Capacity Utiliza	ation		68.8%	IC	U Level (of Service		
Analysis Period (Min)			15					