

MEMORANDUM

To: Jerry Jensen, P.E., Town of Cary
From: Travis Fluit, P.E., Kimley-Horn
Date: November 9, 2017
Subject: 16-TAR-411A Improvements

The following is a summary of the off-site roadway improvements that the applicant for the Hotels at Harrison Avenue development is and is not offering based on our review of the consultant's TAR for the proposed development.

I-40 WB Ramps at Harrison Avenue – Construct either additional WB left-turn lane or NB to WB loop ramp

Site traffic is expected to account for less than 2% of the traffic at this intersection and has a minimal impact on the operation of the intersection. The intersection is expected to operate at level-of-service (LOS) F in both the AM and PM peak hours with or without this development in place. It is worth noting that while both improvements are expected to improve the LOS as reported by Synchro, it is unlikely that a third westbound left-turn lane on the I-40 off-ramp would provide any significant benefit if it drops as a left-turn lane at the EB on-ramp. Furthermore, the modification of this interchange to add a loop ramp is beyond the scope of a development of this size. *Therefore, the applicant is not offering to perform either of these improvements.*

Harrison Avenue at Weston Parkway – Construct SB right-turn lane and restripe to provide additional SB through lane

Site traffic is expected to account for less than 2.5% of the traffic at this intersection, and has minimal impact on the intersection. The intersection is expected to operate at LOS F in the PM peak hour with or without this development in place. This is due to the significant amount of development (primarily office) along Weston Parkway and not the proposed hotel development. It is worth noting that while the additional through lane is expected to improve the LOS as reported by Synchro, it is unlikely that it will see significant usage if it drops as a right-turn lane at the site driveway approximately 600 feet south of Weston Parkway. It is also questionable whether the right-of-way exists to construct the right-turn lane. *Therefore, the applicant is not offering to perform this improvement.*

Harrison Avenue at Research Drive – Construct a U-turn bulb-out

While we concur with providing a U-turn bulb-out along Harrison Avenue to accommodate vehicles exiting the site, it is our opinion that Montibello Drive would be a more practical location. This will remove the U-turns from the Research Drive intersection and eliminate the conflict with right-turns at that intersection. *Therefore, the applicant is offering to provide a U-turn bulb-out to accommodate passenger vehicles on Harrison Avenue at Montibello Drive.*

Harrison Avenue at Cary Parkway – Construct an exclusive NB right-turn lane

Site traffic is expected to account for less than 0.5% of the traffic at this intersection, only 4 vehicles on the northbound approach in either peak hour, and no vehicles to the northbound right-turn movement. This intersection currently operates at LOS F in the AM peak hour, and this development will have a negligible impact on operation of the intersection. *Therefore, the applicant is not offering to perform this improvement.*

Cary Parkway at Norwell Boulevard – Monitor intersection for traffic signal warrants

Site traffic is expected to account for less than 0.5% of the traffic at this intersection and will add less than 10 vehicles on Cary Parkway in either peak hour and no vehicles to Norwell Boulevard. The side street approaches to this intersection currently operate at LOS E/F, and this development will have a negligible impact on operation of the intersection. *Therefore, the applicant is not offering to perform this improvement.*

Harrison Avenue at Site Driveway – Construct a SB right-turn lane

The applicant is offering to perform this improvement.

The TAR also recommends modifications to corridor signal timings. Since the Town of Cary maintains their own signal timings, these recommendations were not addressed at specific intersections.

Project: Hotels at Harrison Avenue
 TAR #: 16-TAR-411A
 Location: Cary, NC

Improvement Option 1																				
Item #	Intersection	Improvement	AM Peak Hour									PM Peak Hour								
			Total Project Traffic			% Impact at Build-out			Intersection Delay (seconds)			Total Project Traffic			% Impact at Build-out			Intersection Delay (seconds)		
			Movement	Approach	Intersection	Movement	Approach	Intersection	Background	Build-out	Difference	Movement	Approach	Intersection	Movement	Approach	Intersection	Background	Build-out	Difference
1	I-40 WB Ramps at Harrison Ave	Additional WB left-turn lane	20	20	47	1.07%	1.05%	1.60%	101.0	104.8	3.8	19	19	56	1.25%	1.23%	1.77%	94.3	103.4	9.1
2	Harrison Ave at Weston Pkwy	Restripe to add SB through lane and construct SB right-turn lane	59	59	123	5.78%	2.50%	2.25%	27.7	27.8	0.1	58	58	136	3.75%	2.54%	2.41%	108.0	113.6	5.6
3	Harrison Ave at Research Drive	Construct U-turn bulb-out	33	38	46	12.69%	3.51%	1.17%	28.1	35.5	7.4	44	52	60	33.59%	2.71%	1.55%	21.6	21.8	0.2
4	Harrison Ave at Cary Pkwy	Construct NB right-turn lane	0	4	13	0.00%	0.20%	0.32%	149.4	150.5	1.1	0	4	16	0.00%	0.43%	0.41%	34.4	34.7	0.3
5	Cary Parkway at Norwell Blvd	Monitor for signal warrants	0	0	7	0.00%	0.00%	0.44%	84.1	103.3	19.2	0	0	8	0.00%	0.00%	0.47%	235.8	252.1	16.3
6	Harrison Ave at Ste Drive	SB right-turn lane	79	79	158	100.00%	7.04%	4.63%	-	13.7	-	77	77	181	100.00%	3.96%	5.26%	-	26.1	-

Improvement Option 2																				
Item #	Intersection	Improvement	AM Peak Hour									PM Peak Hour								
			Total Project Traffic			% Impact at Build-out			Intersection Delay (seconds)			Total Project Traffic			% Impact at Build-out			Intersection Delay (seconds)		
			Movement	Approach	Intersection	Movement	Approach	Intersection	Background	Build-out	Difference	Movement	Approach	Intersection	Movement	Approach	Intersection	Background	Build-out	Difference
1	I-40 WB Ramps at Harrison Ave	NB to WB loop ramp	27	27	47	2.76%	2.69%	1.60%	101.0	104.8	3.8	37	37	56	2.52%	2.42%	1.77%	94.3	103.4	9.1
2	Harrison Ave at Research Drive	Construct U-turn bulb-out	33	38	46	12.69%	3.51%	1.17%	28.1	35.5	7.4	44	52	60	33.59%	2.71%	1.55%	21.6	21.8	0.2
3	Cary Parkway at Norwell Blvd	Monitor for signal warrants	0	0	7	0.00%	0.00%	0.44%	84.1	103.3	19.2	0	0	8	0.00%	0.00%	0.47%	235.8	252.1	16.3
4	Harrison Ave at Ste Drive	SB right-turn lane	79	79	158	100.00%	7.04%	4.63%	-	13.7	-	77	77	181	100.00%	3.96%	5.26%	-	26.1	-

Key:
 Delay increase warrants improvements per LDO requirements

Notes: