

**TRAFFIC IMPACT
TECHNICAL MEMORANDUM**

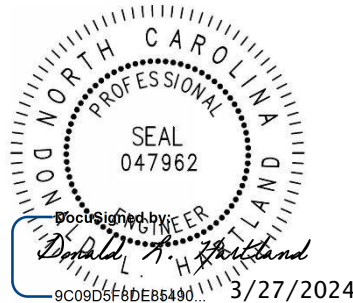
For
Lakeview Farms
City of Belmont, North Carolina

Prepared For:
TriPointe Homes
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March 27, 2024
(Gannett Fleming Project No. 072448)

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INTRODUCTION

The purpose of this memorandum is to discuss the impacts of the anticipated traffic generated by the proposed Lakeview Farms residential development on the traffic conditions at the affected intersections along NC 273 (South Point Road) in Belmont, NC. The planned development will consist of 155 single family homes (ITE Land Use Code 210), 115 units of senior adult housing detached (LUC 251), and 115 units of multifamily low-rise (townhomes) (LUC 220).

The City of Belmont Land Development Code requires a Traffic Impact Analysis (TIA) if a development is expected to generate 1,000 or more daily trips, or 100 trips in a peak hour. Due to the constraints of the area known as the South Point Peninsula, the threshold is reduced to 500 daily trips, and 50 Peak Hour trips.

A TIA was completed by Kimley Horn and Associates (KHA) dated 4-18-22 for the subject development, and specific traffic improvements were recommended. After the completion of the KHA TIA, TriPointe Homes reduced the density of the units proposed for the development (See Appendix C Site Plan dated 6-27-22). Additionally, newer traffic count data (collected by Quality Counts on 4-28-22) was obtained by the City of Belmont on the subject intersections. This memorandum references the KHA TIA, and it is the intention of Gannett Fleming that it be viewed as an update to the KHA TIA based on revised (lowered) densities of the development and the recent traffic volume counts changes.

This memorandum further addresses the concerns that were raised by the KHA TIA and recommends alternative traffic improvements that mitigate site generated traffic and discusses constructability of the KHA and Gannett Fleming recommended improvements.

BACKGROUND

Gannett Fleming was originally engaged by TriPointe Homes to review the TIA prepared by KHA with the objective of understanding and interpreting the information and recommendations contained therein. The TIA prepared by KHA contained recommendations for roadway improvements based on the results of the analyses conducted by KHA. While the recommendations would have yielded improvements in the levels of service and decreased delays along the South Point Road corridor, they are not constructible by TriPointe due to insufficient right of way and the proximity of existing development on South Point Road. The KHA recommended improvements will be discussed in relation to each intersection studied in this memorandum.

During the course of the review and subsequent meetings with the Client, NCDOT, City of Belmont, and KHA, new traffic counts became available. Also, in the time since the KHA TIA was performed, existing Belwood Drive was realigned as part of an adjacent development and added to the existing intersection of South Point Road and the Belmont Middle School driveway. Further, TriPointe Homes reduced the overall density of their proposed development. As a result of the combination of these factors, it was agreed by all parties that additional analyses should be performed to include the updated traffic counts and the additional changed conditions. It was further agreed that the analyses would be conducted as to reflect existing conditions in the field, which include allowing right turns on red and protected/permitted left turns at signalized intersections. The results of the analyses and effects of the traffic on the existing infrastructure expected to be caused by the construction of this development are submitted in the form of this technical memorandum.

ANALYSIS APPROACH

The focus of this analysis is the roadway corridor of NC 273 (South Point Road) between NC 273 (Armstrong Road) and RL Stowe Road. The intersections studied for this memorandum are illustrated in Figures 1A and 1B. The subject intersections are as follows:

1. NC 273 (South Point Road) at NC 273 (Armstrong Road) (unsignalized intersection)
2. NC 273 (South Point Road) at Belmont Middle School/Belwood Drive (signalized intersection)
3. NC 273 (South Point Road) at McKee Farm Lane/Stowe Road (unsignalized intersection)
4. NC 273 (South Point Road) at South Point High School/Red Raider Run (signalized intersection)
5. NC 273 (South Point Road) at RL Stowe Road/Nixon Road (signalized intersection)

The signalized intersections, except the Armstrong Road intersection, will be modeled as coordinated in keeping with the existing signal plans provided by NCDOT. The coordination improves the functionality and traffic flow between these signals. Coordination works by adjusting the timing and offset of the green phases along the main route so that when vehicles are released by the upstream signal, they travel in a group or “platoon” to the downstream signal, receiving a green phase at the right time to keep traffic flowing. This helps reduce the number of stops and minimizes delay.

To mitigate the traffic-related impacts caused by the Lakeview Farms multifamily residential development and to provide for safe, efficient, and reliable traffic flow, Gannett Fleming will identify intersection and roadway improvements for the South Point Road corridor.

Figure 1A – Study Intersections

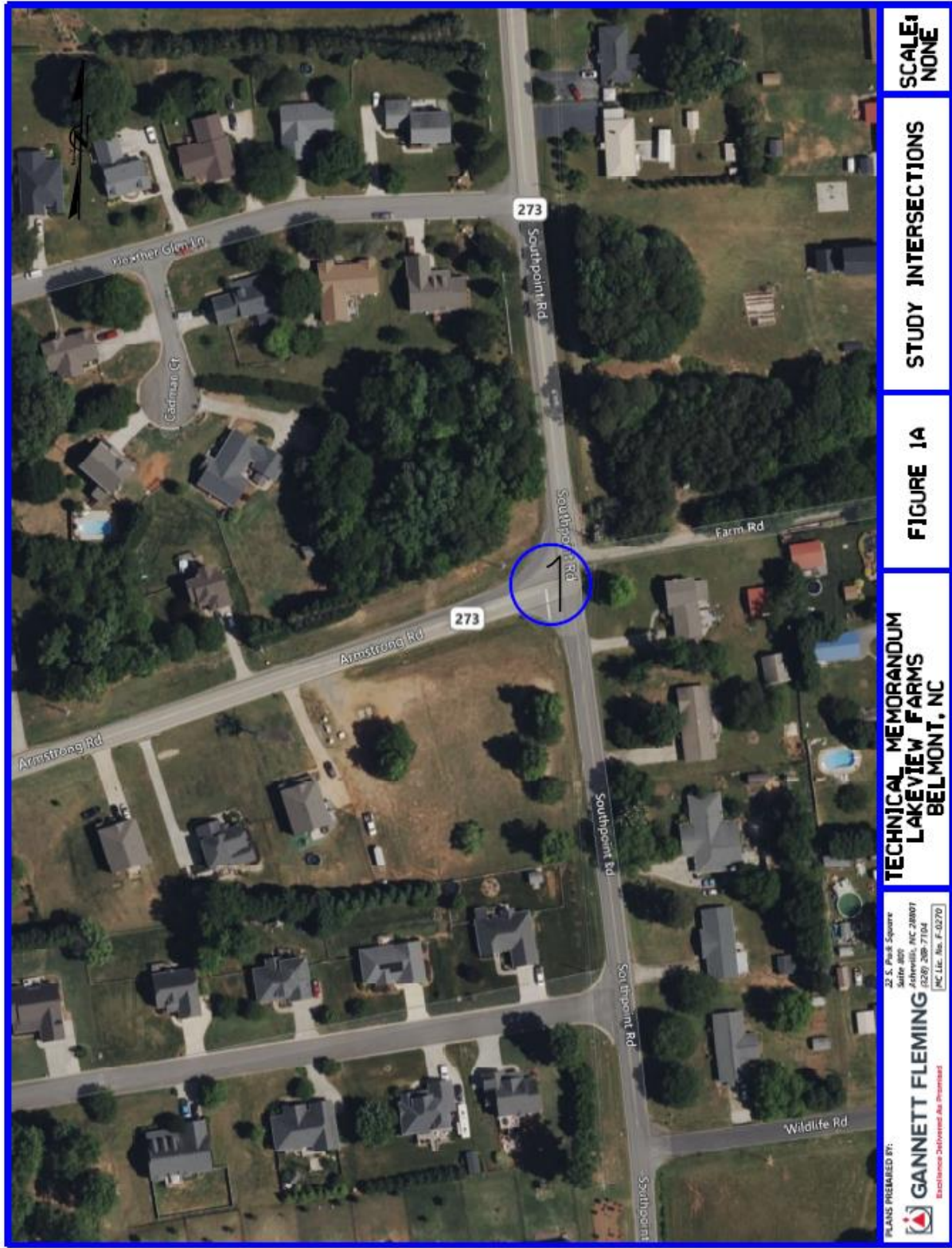


Figure 1B – Study Intersections



SUMMARY OF RECOMMENDED IMPROVEMENTS

As the analysis will show the following intersection and roadway improvements will be needed to mitigate the traffic-related impacts caused by the Lakeview Farms multifamily residential development and to provide for safe, efficient, and reliable traffic flow, Gannett Fleming recommends the following improvements as described below and shown in Figure 2A-2D:

1. NC 273 (South Point Road)/NC 273 (Armstrong Road) Intersection:

The construction of a dedicated southbound right turn lane on the southbound NC 273 approach, as shown on Figure 2A, and installation of a wood pole traffic signal at this intersection (improvement #1).

2. NC 273 (South Point Road)/Belmont Middle School/Belwood Drive Intersection:

The construction of a dedicated 100-foot northbound through/right turn lane on South Point Road. The addition of a second dedicated left turn lane with 175 feet of storage to the eastbound Belmont MS approach to allow for dual left movements into the dual northbound lanes is also recommended. This will require a signal modification.

3. NC 273 (South Point Road)/McKee Farm Lane/Stowe Road Intersection:

The construction of a dedicated left turn lane with 150 feet of full storage be striped on the existing pavement width of the eastbound McKee Farms Road approach to this intersection, as well as a dedicated 150-foot northbound left turn lane and through lane (improvement #6) on South Point Road. Also at this intersection, improvement #7 will end at this intersection as a dedicated southbound right turn lane.

4. NC 273 (South Point Road)/South Point High School/Red Raider Run Intersection:

The construction of a dedicated northbound and southbound through/right turn lanes on South Point Road and signal modifications (improvements #6 and #7).

5. NC 273 (South Point Road)/Nixon Road/R. L. Stowe Road Intersection:

The addition of a second westbound dedicated left turn lane with 100 feet of full storage to the R. L. Stowe approach to this intersection. This will require a signal modification.

6. NC 273 (South Point Road) Northbound:

A second northbound lane be constructed between the Belmont Middle School Drive/Belwood Drive intersection and R.L. Stowe Road intersection.

7. NC 273 (South Point Road) Southbound:

A second southbound lane be constructed between the R.L. Stowe Road intersection and the Belwood Drive/Belmont Middle School Drive intersection.

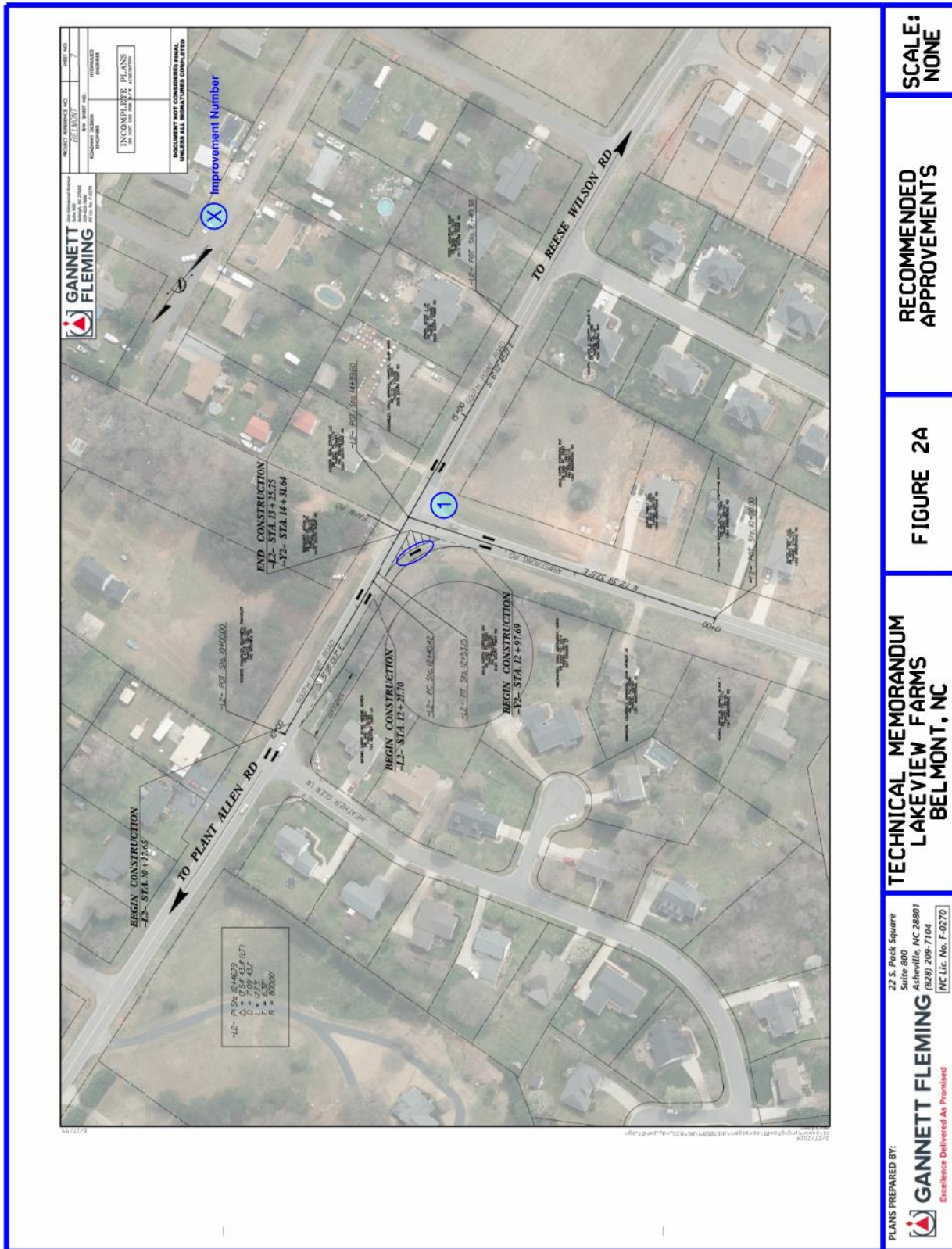
ESTIMATED COST OF RECOMMENDED IMPROVEMENTS

The following is a breakdown of the estimated construction costs for the recommended South Point Road corridor improvements and roundabout at Armstrong Road identified in the previous section:

- The South Point Road intersection improvements and widening from Belmont Middle School/Belwood Drive to the Nixon Road/RL Stowe Road intersection has an estimated construction cost of **\$2,600,000**, including utility relocation.
- The intersection improvements at South Point Road and Armstrong Road have an estimated construction cost of **\$210,000**, including traffic signal, southbound right turn lane, utility relocation.

The detailed cost estimate can be found in Appendix D

Figure 2A – Recommended Improvements 1 of 4



SCALE:
NONE

RECOMMENDED
APPROVEMENTS

FIGURE 2A

TECHNICAL MEMORANDUM
LAKEVIEW FARMS
BELMONT, NC

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PLANS PREPARED BY:
GANNETT FLEMING
Excellence Delivered As Promised

Figure 2B – Recommended Improvements 2 of 4

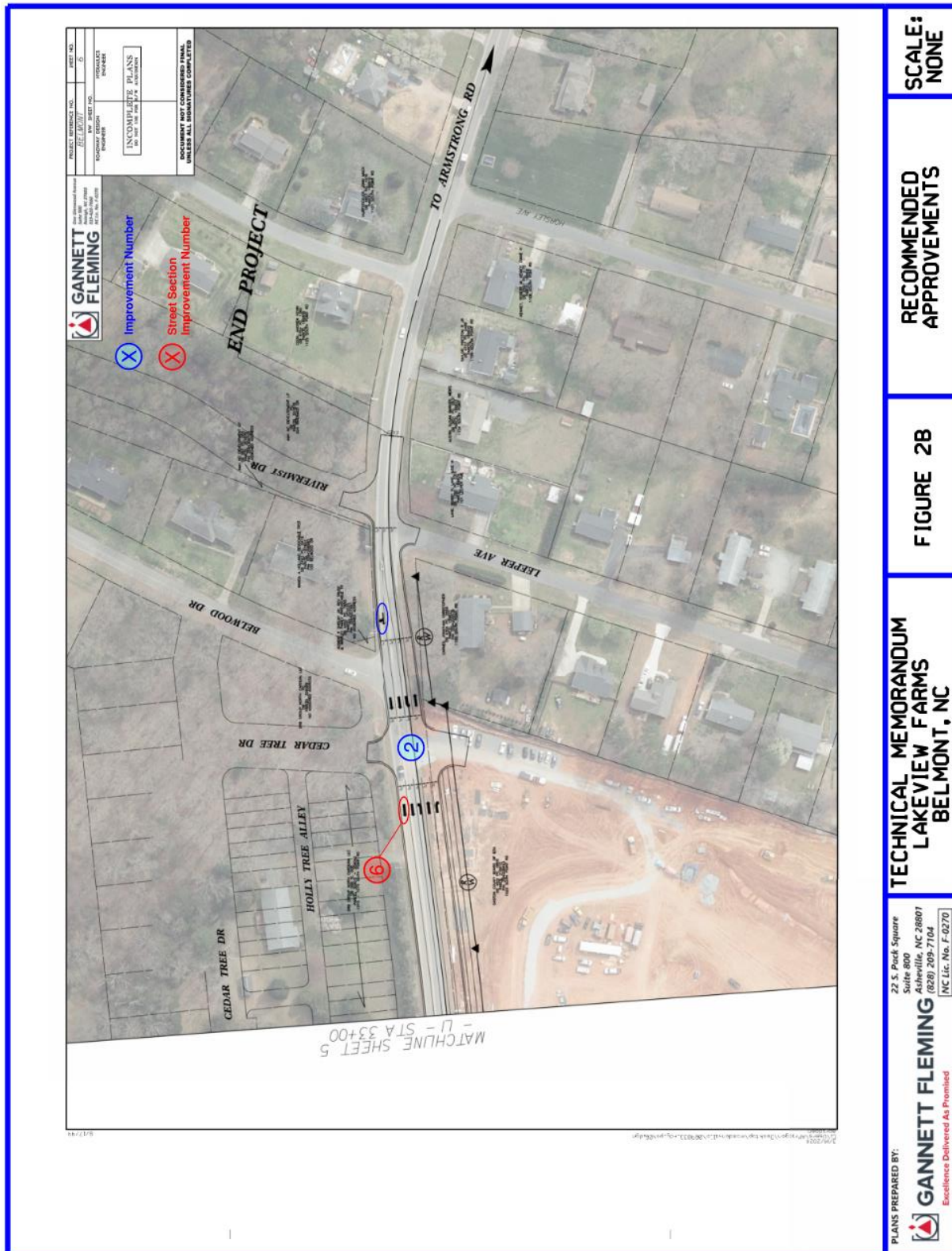


Figure 2C – Recommended Improvements 3 of 4

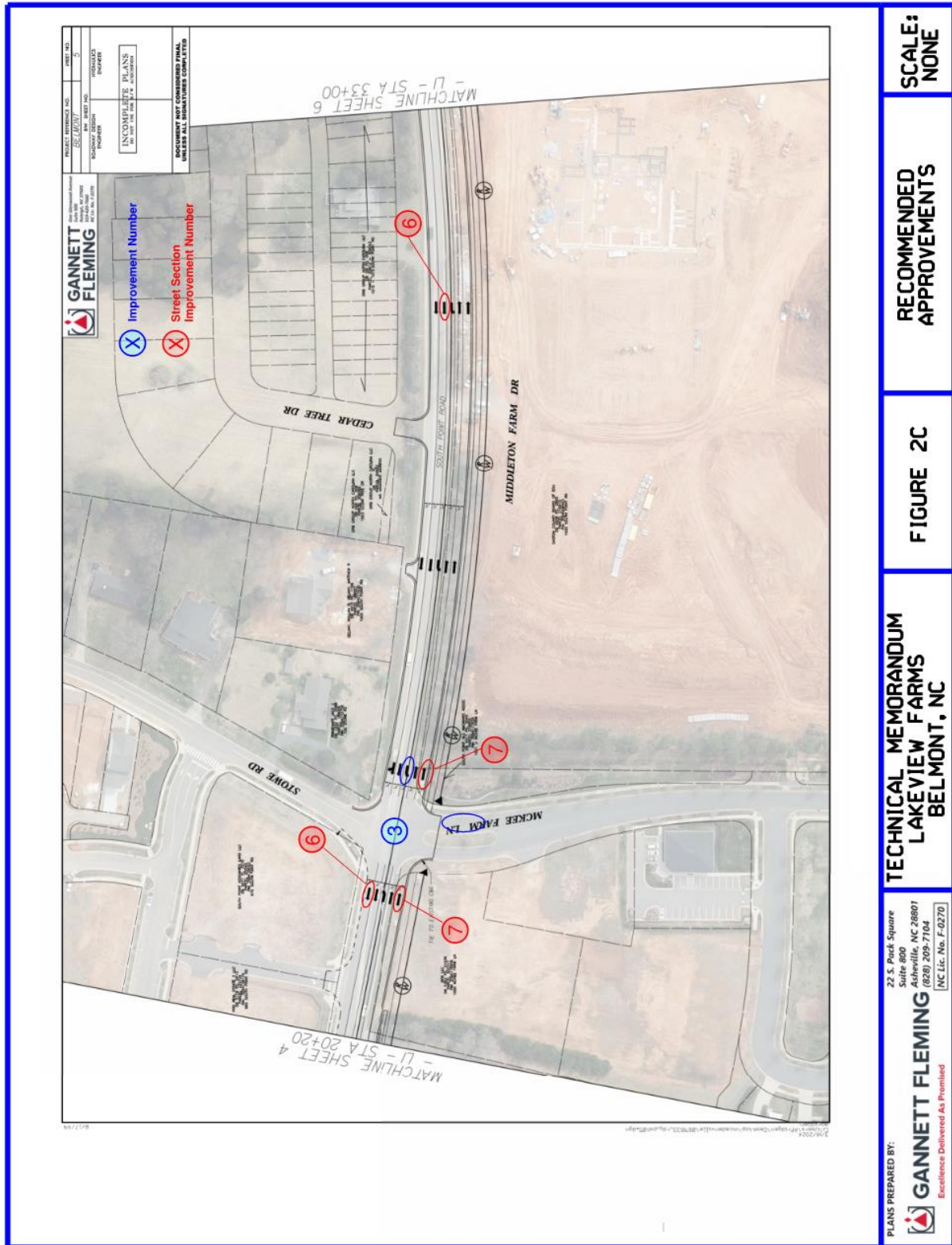
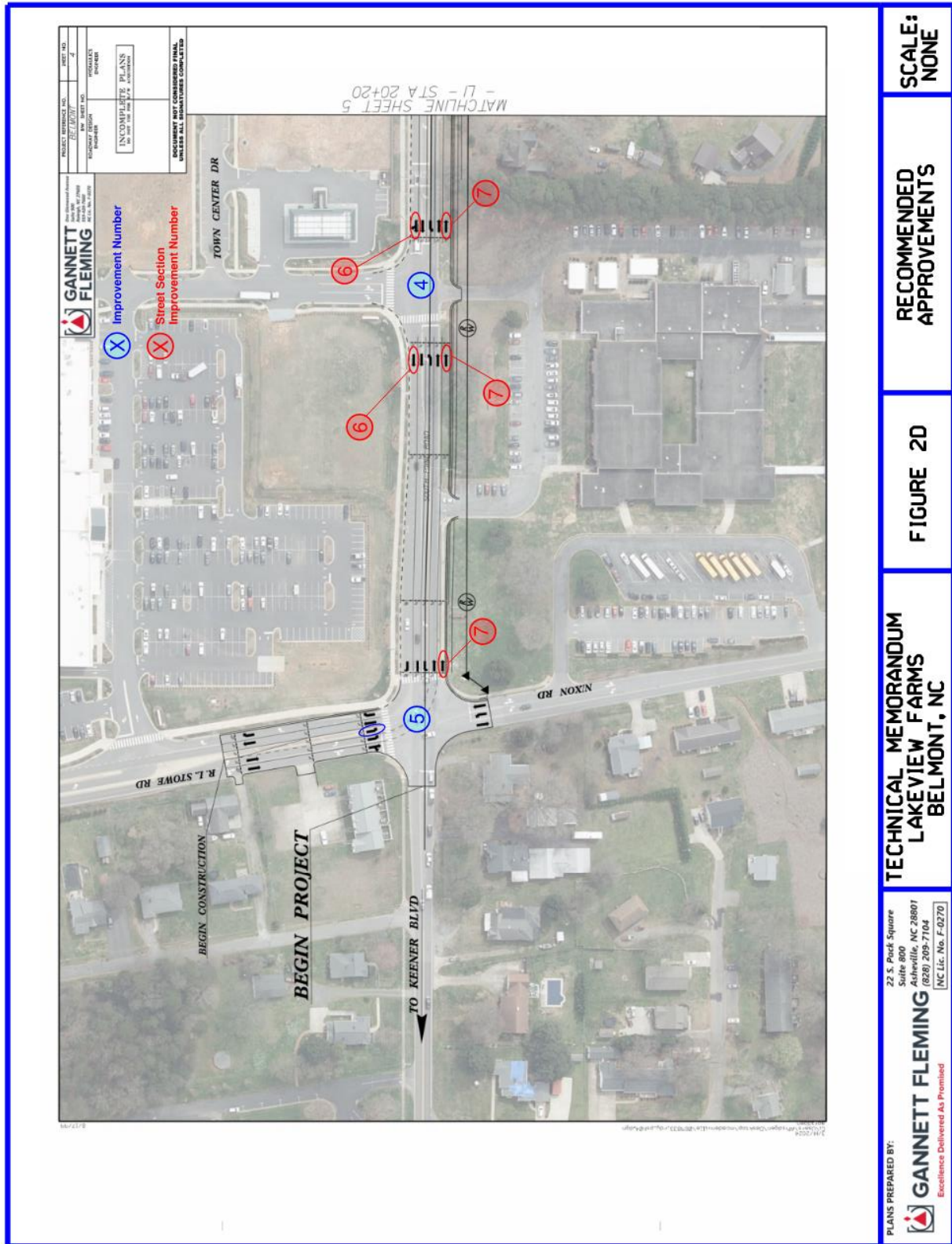


Figure 2D – Recommended Improvements 4 of 4



Trip Distribution

Gannett Fleming consulted the KHA TIA and utilized the same distribution patterns contained therein. The trip distribution was accepted by NCDOT and the City of Belmont as part of the scoping of the original TIA. Gannett Fleming is not aware of any changed circumstances that modify this distribution. Based on the approved distribution, the resulting site traffic was added to the updated 2026 background traffic volumes to obtain 2026 future buildout traffic volumes.

CAPACITY ANALYSIS

The study area intersections were analyzed using the methods outlined in the *Highway Capacity Manual*¹ and Synchro Version 11 Software. The *Highway Capacity Manual*¹ defines capacity as “the maximum rate of flow at which persons or vehicles can be reasonably expected to traverse a point or uniform section of a lane or roadway during a specified time period under prevailing roadway, traffic, and control conditions, usually expressed as vehicles per hour or persons per hour”.

Level of Service (LOS) is a term used to represent different traffic conditions and is defined as a “qualitative measure describing operational conditions within a traffic stream, and their perception by motorist/or passengers”. Level of Service varies from Level A, representing free flow, to Level F where traffic breakdown conditions are evident. Level B represents good progression with minimal congestion. At Level C, the number of vehicles stopping is significant, although many still pass through the intersection without stopping. Level D represents more congestion, but the overall operations are acceptable. At Level E, freedom to maneuver within the traffic stream is extremely difficult with driver frustration being generally high.

For signalized intersections, service levels pertain to each approach as well as an overall value. The unsignalized intersection analysis method in the *Highway Capacity Manual*¹ assigns LOS values for each movement that yields the right-of-way, but not to the overall intersection. This movement is generally a secondary movement from a minor street. At an unsignalized intersection, the primary traffic on the main roadway is virtually uninterrupted. Therefore, the overall LOS is usually much greater than what is represented by the results of the minor street movements. Synchro Version 11 will calculate an amount of delay for the overall intersection but will not assign an LOS value. Therefore, the overall intersection delay is not reported in the summary tables of this report. Generally, LOS D is acceptable for signalized intersections in suburban areas during peak periods. With the current method of reporting levels of service for unsignalized intersections, it is not uncommon for some of the minor street movements to be operating at LOS F during the peak hours.

Tables 2 and 3 present the signalized and unsignalized LOS criteria for each level of service as indicated in the *Highway Capacity Manual*¹.

Table 2- Signalized Intersection Level of Service Criteria

Signalized Intersection Level of Service Criteria	
Level of Service	Stopped Delay Per Vehicle (sec)
A	≤ 10.0
B	>10.0 and ≤ 20.0
C	>20.0 and ≤ 35.0
D	>35.0 and ≤ 55.0
E	>55.0 and ≤ 80.0
F	>80.0

Table 3 - Unsignalized Intersection Level of Service Criteria

Unsignalized Intersection Level of Service Criteria	
Level of Service	Average Total Delay (sec/veh)
A	≤ 10
B	>10 and ≤ 15
C	>15 and ≤ 25
D	>25 and ≤ 35
E	>35 and ≤ 50
F	>50

Capacity analyses were performed for the updated 2026 background conditions and 2026 future buildout conditions for the following intersections:

- NC 273 (South Point Road) at NC 273 (Armstrong Road) (unsignalized intersection)
- NC 273 (South Point Road) at Belmont Middle School/Belwood Drive (signalized intersection)
- NC 273 (South Point Road) at McKee Farm Lane/Stowe Road (unsignalized intersection)
- NC 273 (South Point Road) at South Point High School/Red Raider Run (signalized intersection)
- NC 273 (South Point Road) at RL Stowe Road/Nixon Road (signalized intersection)

Gannett Fleming conducted computer modeling and simulations to determine the effects of the traffic volumes generated by the Lakeview Farms development to the operation of the subject intersections. The simulations and modeling were conducted under AM and PM Peak Hour conditions.

In preparation of the KHA TIA, the signalized intersections were modeled with the prohibition of right turns on red per NCDOT Congestion Management Guidelines. Additionally, all left turns from dedicated left turn lanes were modeled as being protected only, with no permitted left turns. This is intended to represent a “worst-case scenario” for the traffic signals but is not consistent with conditions in the field. Restricting rights on red adds additional delay to an approach and may add delay to the operation of the intersection as a whole. The same is true with protected only left turns. Implementing either of these constraints in the field is generally the result of an engineering study and would require further improvements to the intersection to mitigate the delay that would be caused by the implementation. Right turns are currently allowed on red indications at all the subject signalized intersections as are protected/permitted left turns. Gannett Fleming is not aware of any plans to restrict rights on red or

protected/permitted left turns at any of the study intersections (except at the proposed dual left turn lanes at the intersection of South Point Road and R. L. Stowe Road/Nixon Road). During a meeting between City of Belmont Staff, Kimley-Horn, TriPointe, and Gannett Fleming on 7-21-22, it was agreed that for the purposes of this memorandum, modeling and simulation would be conducted under existing conditions, allowing rights on red and protected/permitted left turns (except for dual left turn lanes) in order to replicate field conditions for use in the determination of recommendations.

For the analysis of the 2026 future buildout condition, the recommended improvements identified previously and shown on the Improvement Exhibit in Appendix D were assumed.

1. South Point Road/Armstrong Road – Intersection 1

The intersection of South Point Road and Armstrong Road is currently an unsignalized three-approach intersection. Because of existing traffic, the intersection has been identified for improvements. An NCDOT State Transportation Improvement Plan (STIP) project, U-6150, has been developed for the construction of a multi-lane roundabout and is currently funded to begin the acquisition of right of way and the design of utility relocations in the year 2028. The actual construction of the roundabout is unfunded, but planned for “future years”, which will be beyond 2029, the date range of the current STIP. As planned, this project will construct a multi-lane roundabout in the subject intersection. KHA recommended in their TIA the construction of a multi-lane roundabout. Gannett Fleming analyzed this intersection with the installation of a traffic signal (as opposed to a roundabout due to the inability to obtain the necessary right of way).

There were also improvements identified in addition to the multi-lane roundabout; a southbound right turn slip lane with 200 feet of storage, an additional eastbound shared left/through/right lane with 200 feet of storage, and two northbound receiving lanes with 600 feet of storage. Currently, there is insufficient right of way at this intersection to accommodate the recommended improvements. Additionally, there would be significant impacts to existing utilities. This was confirmed by the NCDOT District Engineer during a meeting with Gannett Fleming, KHA, and City Staff.

During the 2026 background traffic conditions, assuming no improvements, the eastbound Armstrong Road approach is expected to function at LOS F, with delays of 1109.3 and 581.5 seconds in the AM and PM Peak Hours, respectively. The northbound South Point Road approach is predicted to operate at LOS A with delays of 2.1 seconds and 3.5 seconds in the AM and PM Peak Hours respectively.

For 2026 future buildout conditions, a traffic signal and a southbound right turn lane was assumed to be constructed at this intersection (See Figure 2A). The analysis demonstrates that a signal will allow the intersection to operate more efficiently than with the existing unsignalized stop controlled intersection. The eastbound Armstrong Road queues are expected to improve with the installation of a traffic signal. It should be noted that the installation of a traffic signal will not preclude the future construction of a multi-lane roundabout in this intersection.

Table 4 documents the level of service and delay for the subject intersection for 2026 background conditions and 2026 future buildout conditions. Synchro LOS reports and Sim Traffic queue reports are contained in Appendix B of this memorandum.

Table 4 – South Point Road/Armstrong Road Level of Service

TABLE 4			
S. Point Rd at Armstrong Rd		AM Peak Hour	
		2026 Background	2026 Future
		Buildout	
Intersection Level of Service (LOS)		N/A	C
Total Intersection Delay (Seconds)		N/A	28.5
Armstrong Rd Eastbound	LOS	F	C
	Approach Delay	1109.3	34.2
	LOS		
	Approach Delay		
S. Point Rd Northbound	LOS	A	D
	Approach Delay	2.1	44.3
S. Point Rd Southbound	LOS	A	A
	Approach Delay	0.0	7.8
S. Point Rd at Armstrong Rd		PM Peak Hour	
		2026 Background	2026 Future
		Buildout	
Intersection Level of Service (LOS)		N/A	B
Total Intersection Delay (Seconds)		N/A	14.1
Armstrong Rd Eastbound	LOS	F	C
	Approach Delay	581.5	21.6
	LOS		
	Approach Delay		
S. Point Rd Northbound	LOS	A	C
	Approach Delay	3.5	27.6
S. Point Rd Southbound	LOS	A	A
	Approach Delay	0.0	6.2

	Delay Decrease or LOS Improvement
	Delay Increase > 25% or LOS Decrease by 1 Letter Grade

2. South Point Road/Belmont Middle School/Belwood Drive/Bellwood Drive – Intersection 2

The intersection of South Point Road and Belmont Middle School/Belwood Drive is currently a signalized four-way intersection. The intersection was recently modified by an adjacent development, to realign Belwood Drive to become the fourth stem of the intersection, which includes a southbound left turn lane. The original TIA by KHA did not include this approach modification in the background conditions.

For the 2026 background conditions, the AM Peak Hour delay for the intersection is predicted to be 99.7 seconds, with LOS F. The PM Peak Hour delay is expected to be 31.3 seconds with LOS C. The eastbound Belmont MS approach is expected to experience an LOS F during the AM Peak Hour, with a delay of 159.0 seconds. The PM LOS of this approach is predicted to be D with a delay of 52.7 seconds.

Under 2026 future buildout conditions with recommended improvements, the AM Peak Hour LOS for the intersection is expected to be C with a delay of 25.2 seconds. The PM Peak Hour delay is expected to be 36.1 seconds with a LOS D. The northbound South Point Road approach is expected to experience less delay, decreasing from 145.2 seconds with LOS F during the background condition AM Peak Hour to a delay of 23.1 seconds and a LOS C during the 2026 future buildout condition. In the PM Peak hour, the approach delay is predicted to be 11.7 seconds with LOS B. The eastbound Belmont MS approach is expected to decrease from 159.0 seconds to 47.7 seconds during the AM Peak Hour with the LOS improving from F to D. The PM Peak Hour LOS of this approach is predicted to be D with a delay of 46.5 seconds.

KHA recommended in their TIA the construction of an additional northbound through lane with 500 feet of storage south of the intersection and extending north to the intersection of South Point Road and South Point High School/Red Raider Run. Gannett Fleming cannot confirm that the right of way is sufficient to allow the lane to extend for a full 500 feet. Therefore, Gannett Fleming recommends that the length of the through/right lane be maximized and believes that in the absence of a survey that at least 200 feet can be accommodated.

Table 5 documents the level of service and delay for the subject intersection for 2026 background conditions and 2026 future buildout conditions. Synchro LOS reports and Sim Traffic queue reports are contained in Appendix B of this memorandum.

Table 5 – South Point Road/Belmont Middle School/Belwood Drive Level of Service

TABLE 5			
S. Point Rd at Belmont MS/Belwood Drive		AM Peak Hour	
		2026 Background	2026 Future
		Buildout	
Intersection Level of Service (LOS)		F	C
Total Intersection Delay (Seconds)		99.7	24.5
Belmont MS Eastbound	LOS	F	D
	Approach Delay	159.0	47.7
Belwood Dr Westbound	LOS	C	C
	Approach Delay	28.0	25.9
S. Point Rd Northbound	LOS	F	C
	Approach Delay	145.2	23.0
S. Point Rd Southbound	LOS	C	B
	Approach Delay	22.3	14.4
S. Point Rd at Belmont MS/Belwood Drive		PM Peak Hour	
		2026 Background	2026 Future
		Buildout	
Intersection Level of Service (LOS)		C	D
Total Intersection Delay (Seconds)		31.3	36.1
Belmont MS Eastbound	LOS	D	D
	Approach Delay	52.7	46.5
Belwood Dr Westbound	LOS	E	C
	Approach Delay	64.1	24.0
S. Point Rd Northbound	LOS	C	B
	Approach Delay	27.8	11.7
S. Point Rd Southbound	LOS	C	D
	Approach Delay	32.3	54.7

Delay Decrease or LOS Improvement

Delay Increase > 25% or LOS Decrease by 1 Letter Grade

3. South Point Road/McKee Farm Lane/Stowe Road – Intersection 3

The intersection of South Point Road and McKee Farms Road/Stowe Road is currently an unsignalized four-approach intersection. During the 2026 Background traffic conditions, the McKee Farm Lane and Stowe Road approaches are predicted to operate at an LOS of F. Entering the intersection from either of these approaches to make through or left turn movements would be very difficult, as evidenced by the delays. The delays for the eastbound McKee Farm Lane and westbound Stowe Road approaches are excessive to the point that Synchro is unable to calculate a realistic value.

For the northbound movement on South Point Road, an alternate route to get to R. L. Stowe Road, can be to make a right on Stowe Road (See Figure 3a). It can be assumed that a certain number of vehicles take these routes at the present time, but due to the difficulty of determining the percentage, Gannett Fleming did not assume a value. The analyses herein can be considered a more conservative approach. Additionally, McKee Farm Lane has alternate access to Nixon Road as shown in (See Figure 3b).

Table 6 displays the level of service and delay for the subject intersection for the 2026 Background conditions and 2026 Future Buildout conditions. Synchro LOS reports and Sim Traffic queue reports are contained in Appendix B of this memorandum.

Figure 3A – Alternate Route to R. L. Stowe Road/Nixon Road 1 of 2

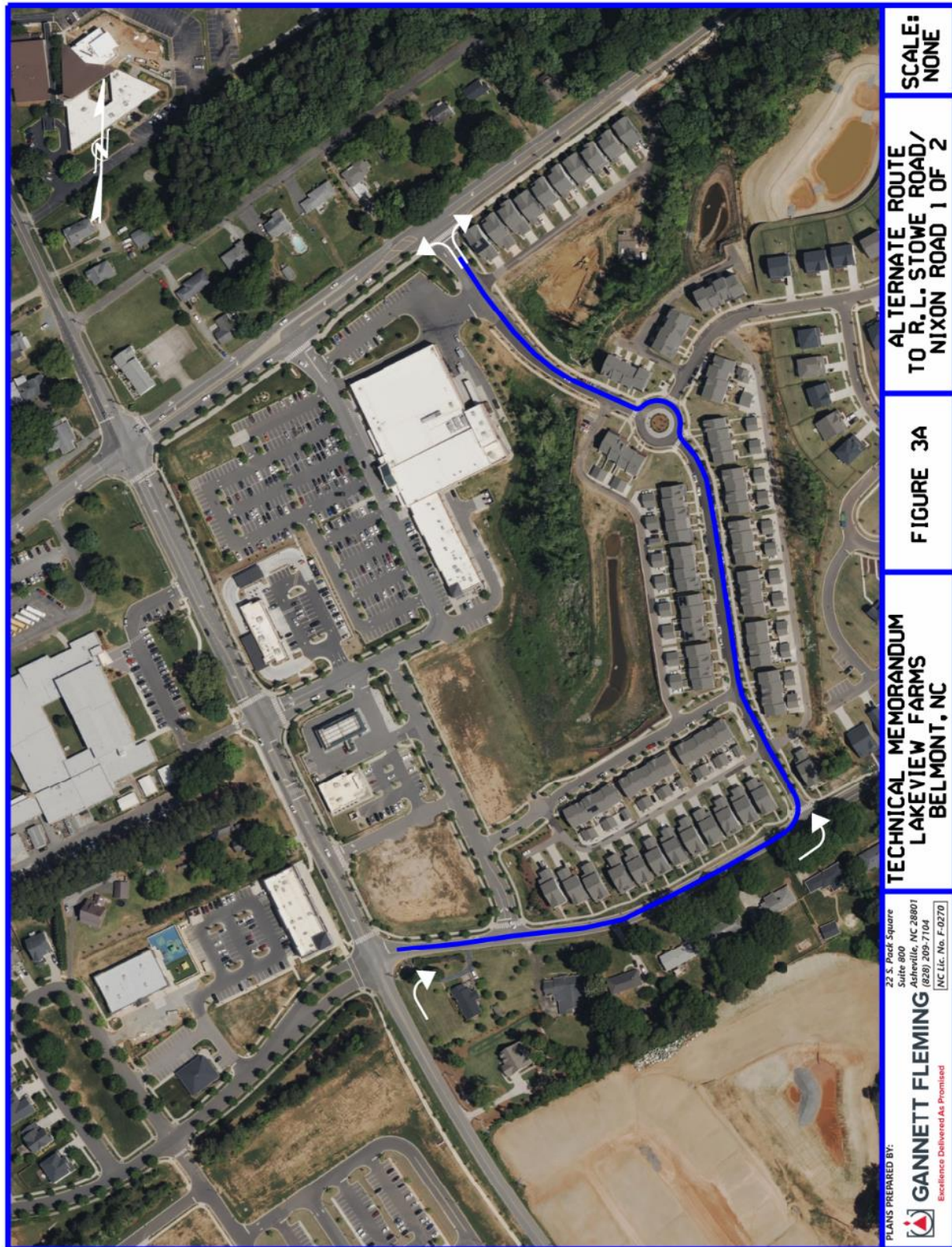


Table 6 – South Point Road/McKee Farm Lane/Stowe Road Level of Service

TABLE 6			
S. Point Rd at Stowe Rd - McKee Farm Rd		AM Peak Hour	
		2026 Background	2026 Future
		Buildout	
Intersection Level of Service (LOS)		N/A	N/A
Total Intersection Delay (Seconds)		N/A	N/A
McKee Farm Rd Eastbound	LOS	F	F
	Approach Delay	1110.2	174.5
Stowe Rd Westbound	LOS	F	F
	Approach Delay	503.6	286.9
S. Point Rd Northbound	LOS	A	A
	Approach Delay	0.2	0.2
S. Point Rd Southbound	LOS	A	A
	Approach Delay	0.6	0.6
S. Point Rd at Stowe Rd - McKee Farm Rd		PM Peak Hour	
		2026 Background	2026 Future
		Buildout	
Intersection Level of Service (LOS)		N/A	N/A
Total Intersection Delay (Seconds)		N/A	N/A
McKee Farm Rd Eastbound	LOS	F	F
	Approach Delay	3517.5	837.6
Stowe Rd Westbound	LOS	F	F
	Approach Delay	3293.7	1307.4
S. Point Rd Northbound	LOS	A	A
	Approach Delay	0.1	0.1
S. Point Rd Southbound	LOS	A	A
	Approach Delay	0.6	0.6

	Delay Decrease or LOS Improvement
	Delay Increase > 25% or LOS Decrease by 1 Letter Grade

4. South Point Road /South Point High School /Red Raider Run – Intersection 4

The intersection of South Point Road and South Point High School/Red Raider Run is currently a signalized four-approach intersection.

KHA recommended in their TIA the construction of additional northbound and southbound through lanes that extend north to the intersection of South Point Road and Nixon Road/R. L. Stowe Road and south to the intersection of South Point Road at Belmont Middle School/Belwood Drive.

During the 2026 background traffic conditions, the intersection is predicted to operate at LOS D in the AM Peak Hour and E in the PM Peak Hour with delays of 46.3 and 56.9 seconds, respectively. The northbound South Point Road approach is expected to operate at LOS E in the AM and PM Peak Hours with delays of 74.0 and 61.9 seconds, respectively. The southbound approach of South Point Road is expected to operate at LOS A in the AM Peak Hour and D in the PM Peak Hour with delays of 8.3 and 41.1 seconds, respectively. The westbound Red Raider Run approach is predicted to operate at an LOS D in the AM Peak Hour and F in the PM Peak Hour with delays of 52.4 and 83.3 seconds, respectively.

Under 2026 future buildout conditions with recommended improvements, the intersection is predicted to operate at LOS B with 14.1 seconds of delay in the AM Peak Hour, and LOS B with 13.6 seconds of delay in the PM Peak Hour. The AM Peak Hour delay for the northbound South Point Road approach is predicted to become 9.6 seconds, with LOS A. The PM Peak Hour delay for this approach is expected to be 12.3 seconds with a LOS B. The southbound approach of South Point Road is predicted to operate at LOS B in the AM and a LOS A in the PM Peak Hours with delays of 10.8 and 6.3 seconds, respectively. The westbound Red Raider Run approach is predicted to operate at LOS D for both the AM and PM Peak Hour with delays of 38.5 and 37.5 seconds, respectively.

Table 7 documents the level of service and delay for the subject intersection for 2026 background conditions and 2026 future buildout conditions. Synchro LOS reports and Sim Traffic queue reports are contained in Appendix B of this memorandum.

Table 7 – South Point Road /South Point HS /Red Raider Run Level of Service

TABLE 7			
S. Point Rd at South Point HS		AM Peak Hour	
		2026 Background	2026 Future
		Buildout	
Intersection Level of Service (LOS)		D	B
Total Intersection Delay (Seconds)		46.3	14.1
South Point HS Eastbound	LOS		
	Approach Delay		
Red Raider Run Westbound	LOS	D	D
	Approach Delay	52.4	38.5
S. Point Rd Northbound	LOS	E	A
	Approach Delay	74.0	9.6
S. Point Rd Southbound	LOS	A	B
	Approach Delay	8.3	10.8
S. Point Rd at South Point HS		PM Peak Hour	
		2026 Background	2026 Future
		Buildout	
Intersection Level of Service (LOS)		E	B
Total Intersection Delay (Seconds)		56.9	13.6
South Point HS Eastbound	LOS		
	Approach Delay		
Red Raider Run Westbound	LOS	F	D
	Approach Delay	83.3	37.5
S. Point Rd Northbound	LOS	E	B
	Approach Delay	61.9	12.3
S. Point Rd Southbound	LOS	D	A
	Approach Delay	41.1	6.3

	Delay Decrease or LOS Improvement
	Delay Increase > 25% or LOS Decrease by 1 Letter Grade

5. South Point Road/R. L. Stowe Road/Nixon Road –Intersection 5

The intersection of South Point Road and Nixon Road/R. L. Stowe Road is currently a signalized four-approach intersection.

KHA recommended in their TIA the extension of the northbound through lane south to the intersection of South Point Road at South Point High School/Red Raider Run. Additionally, the KHA TIA recommended an additional westbound left turn lane with 275 feet of storage. Due to the proximity of an adjacent development east of the roadway, the additional width required for the northbound lane would require substantial impacts to adjoining businesses and property along the east side of South Point Road.

For the 2026 background traffic conditions, the intersection is predicted to operate with LOS D in the AM Peak Hour and LOS F in the PM Peak Hour with delays of 45.8 and 82.7 seconds, respectively. The LOS for the westbound approach of R. L. Stowe Road is predicted to be E in the AM and F in the PM Peak Hours, with delays of 68.6 and 130.0 seconds, respectively. The LOS for the northbound South Point Road approach is predicted to be C during the AM Peak Hour with a delay of 30.2 seconds and D during the PM Peak Hour with a delay of 49.4 seconds.

Under 2026 future buildout conditions with recommended improvements, this intersection is predicted to operate at LOS C with 30.3 seconds of delay in the AM Peak Hour, and LOS D with 49.4 seconds of delay in the PM Peak Hour. The AM Peak Hour delay for the northbound South Point Road approach is predicted to become 13.7 seconds, with LOS B. The PM Peak Hour delay is expected to decrease significantly to 20.7 seconds, with the LOS becoming C. The southbound South Point Road approach is expected to have 34.6 seconds of delay with LOS C in the AM Peak Hour and 44.0 seconds in the PM Peak Hour with LOS D.

Table 8 documents the level of service and delay for the subject intersection for the 2026 background conditions and 2026 future buildout conditions. Synchro LOS reports and Sim Traffic queue reports are contained in Appendix B of this memorandum.

Table 8 – South Point Road/R. L. Stowe Road/Nixon Road Level of Service

TABLE 8			
S. Point Rd at RL Stowe Rd Nixon Rd		AM Peak Hour	
		2026 Background	2026 Future
		Buildout	
Intersection Level of Service (LOS)		D	C
Total Intersection Delay (Seconds)		45.8	30.3
Nixon Rd Eastbound	LOS	E	E
	Approach Delay	70.5	65.2
RL Stowe Rd Westbound	LOS	E	D
	Approach Delay	68.6	46.0
S. Point Rd Northbound	LOS	C	B
	Approach Delay	30.2	13.7
S. Point Rd Southbound	LOS	D	C
	Approach Delay	49.3	34.6
S. Point Rd at RL Stowe Rd Nixon Rd		PM Peak Hour	
		2026 Background	2026 Future
		Buildout	
Intersection Level of Service (LOS)		F	D
Total Intersection Delay (Seconds)		82.7	49.4
Nixon Rd Eastbound	LOS	F	F
	Approach Delay	86.8	97.6
RL Stowe Rd Westbound	LOS	F	E
	Approach Delay	130.0	78.4
S. Point Rd Northbound	LOS	D	C
	Approach Delay	49.4	20.7
S. Point Rd Southbound	LOS	F	D
	Approach Delay	88.8	44.0

	Delay Decrease or LOS Improvement
	Delay Increase > 25% or LOS Decrease by 1 Letter Grade

CONCLUSIONS

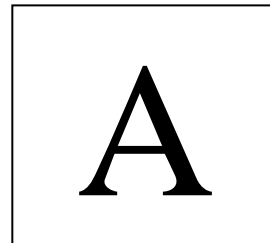
This memorandum was prepared to discuss the anticipated traffic impact of the proposed Lakeview Farm residential development. Based on the information available and the results of the trip generation exercise and capacity analyses, it is the opinion of Gannett Fleming that there is no indication that the proposed development at the revised density will have an undue adverse impact on the corridor analyzed for this memorandum if the recommended improvements are constructed.

References:

- ¹ *Highway Capacity Manual*, Transportation Research Board, 6th Edition, Washington, DC, 2019.
- ² *Trip Generation Manual*, Institute of Transportation Engineers, 11th Edition, Washington, D. C., 2017.
- ³ *A policy on Street and Driveway Access to North Carolina Highways*, NCDOT, Raleigh, NC, July 2003.
- ⁴ NCDOT Rate vs. Equation Spreadsheet

Appendix A – Traffic Data
Appendix B – Capacity Software Reports
Appendix C – Site Plan
Appendix D – Construction Cost Estimates
Appendix E – Improvement Exhibit

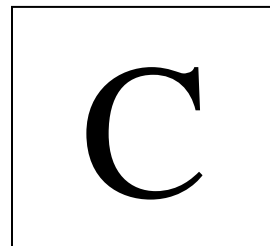
Appendix A: Traffic Data



Appendix B: Capacity Analysis Reports

B

Appendix C: Site Plan



Appendix D: Cost Estimate

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