

Wake Bus Rapid Transit (BRT): Southern Corridor

Alternatives Selection Memorandum

To: City of Raleigh
From: WSP
Date: June 12, 2020
Subject: Alternatives Selection Memorandum

I. Purpose

The purpose of this memorandum is to summarize the analysis performed to date to provide sufficient information for the selection of a Locally Preferred Alternative (LPA) along the Wake Bus Rapid Transit (BRT): Southern Corridor between Downtown Raleigh and Purser Drive in Garner. This includes endorsement of the LPA by both Raleigh's City Council and Garner's Town Council, the recommendation of an LPA from the Wake Transit Concurrence Process and the adoption of the LPA by the Capital Area Metropolitan Planning Organization (CAMPO). The cost estimates presented in this memorandum are draft and subject to change as the project design is further refined.

The six alternatives, shown in Figure 1, evaluated for the Wake BRT: Southern Corridor include:

- Alternative 1 – South Street to South Saunders Street to Wilmington Extension
- Alternative 2 – South Street to South Saunders Street to Fayetteville Road
- Alternative 3 – Martin Luther King Jr Boulevard to South Saunders Street to Wilmington Extension

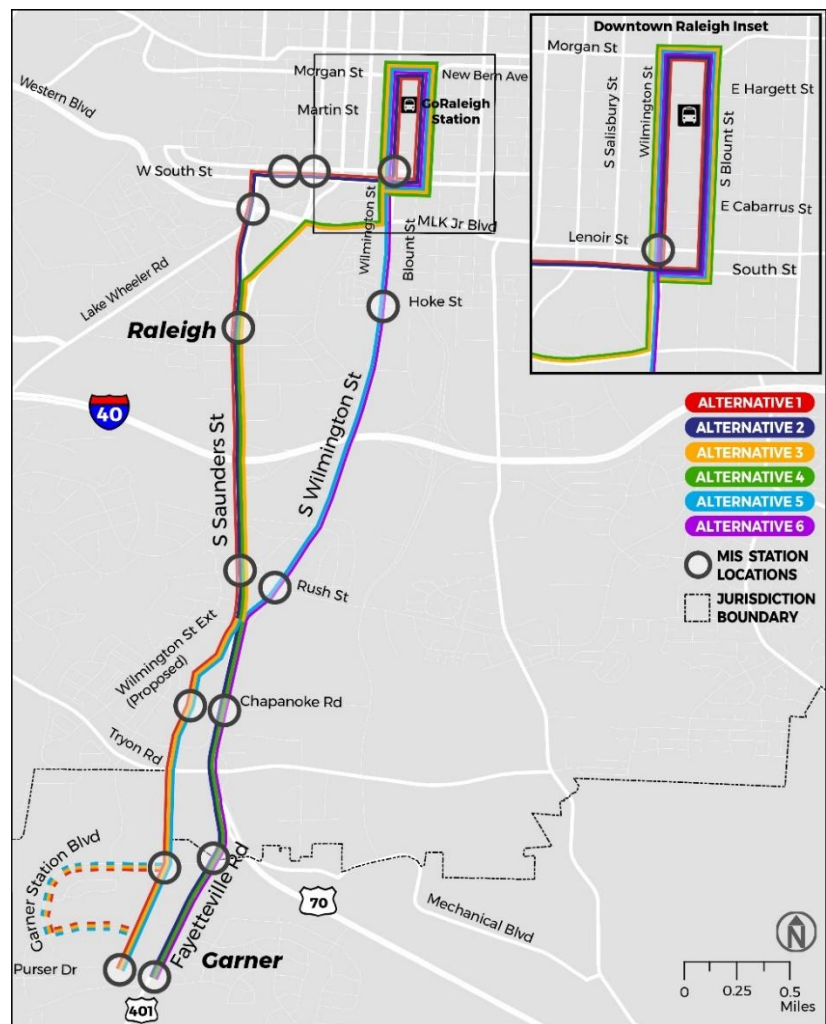


Figure 1: Wake BRT: Southern Corridor Alternatives

- Alternative 4 – Martin Luther King Jr Boulevard to South Saunders Street to Fayetteville Road
- Alternative 5 – South Wilmington Street to Wilmington Extension
- Alternative 6 – South Wilmington Street to Fayetteville Road

The six alternatives were previously identified in the Major Investment Study (MIS) and the dashed lines along Garner Station Boulevard represents routing options between North South Station and Purser Drive in the Town of Garner.

II. Findings

For the northern portion of the corridor, from Downtown Raleigh to the flyover where South Saunders Street and South Wilmington Street merge, the Southern Gateway Corridor Study (SGCS) highlighted the potential conflicts with BRT running along South Saunders Street. The SGCS, the City of Raleigh's 2030 Comprehensive Plan, and public input support BRT running along South Wilmington Street.

For the southern portion of the corridor, various memorandums noted that there were minimal differences between Alternative 5A and Alternative 5B, but Alternative 5 (both 5A and 5B) and Alternative 6 are different in terms of potential benefits and cost. Alternative 5 is likely to provide the greatest TOD opportunities and more comfortable bicycle and pedestrian environment, but at a higher cost than Alternative 6.

Based on previous planning efforts and the potential benefits, the recommended Wake BRT: Southern Corridor LPA is the South Wilmington Street to Wilmington Extension, identified as Alternative 5 in Figure 1 and Table 1. Alternative 5 would allow for the construction of dedicated BRT lanes and pedestrian and bicycle facilities on a low traffic volume street in the northern portion of the corridor. In the southern portion of the corridor, the Wilmington Extension would allow for the construction of dedicated BRT facilities and general-purpose lanes, as called for in previous planning efforts, greater economic development opportunities and provide a parallel facility to Wilmington Street with lower vehicle speeds and lower traffic volumes.

III. Existing Conditions

The existing conditions along the corridor were evaluated and previous plans for the corridor were reviewed.

The *Wake BRT: Southern Corridor Existing Conditions Analysis* includes a full review of existing conditions along the corridor. The analysis did not identify any fatal flaws that would preclude any of the six (6) alternatives from being selected as the preferred alternative.

The *Wake BRT: Southern Corridor Summary of Existing Plans and Proposed Projects* includes a full review of previous plans and highlighted major plans, including but not limited to, the Wake Transit Plan BRT Major Investment Study (MIS), the City of Raleigh Southern Gateway Corridor Study (SGCS), and the Town of Garner Comprehensive Plan and Transportation Plan.

IV. Engagement Executive Summary

In February and March of 2020, the first round of public meetings for the Wake Bus Rapid Transit (Wake BRT): Southern Corridor were held, with one meeting in Raleigh and one meeting in Garner. The purpose of the meetings was to educate the community on the benefits of BRT, highlight previous planning studies in the area, and present the corridor alternatives. Attendees had the opportunity to discuss the project directly with City of Raleigh and Town of Garner staff and project consultants, participate in activities to provide feedback on priorities, and provide additional feedback on comment forms. The feedback requested from attendees focused on rating priorities for evaluation considerations and categories related to selecting a preferred alternative alignment.

At the public meetings and through the online survey and comment form, participants were asked to respond to two questions regarding evaluation considerations and station locations.

Table 1 shows the combined results of the evaluation considerations collected from the results from the display board activity at the public meetings, and the online survey and paper comment form results.

Table 1 – Results of Evaluation Considerations, Combined Results

How important to you are the following categories for selecting a BRT alignment (choose one for each category)?			
Category	This category is a low priority for me.	This category is a medium priority for me.	This category is a high priority for me.
Availability of Bike and Pedestrian Connections	20	41	113
Potential Number of BRT Riders	11	60	95
Public Support from the Major Investment Study	24	72	64
Economic Development Opportunities	14	47	110
Average Daily Vehicular Traffic Along the Corridor	36	68	72
Total Cost to Construct the BRT	47	81	44
Amount of Right of Way (ROW) Required for BRT	57	83	28
Length of Implementation Timeline	24	70	78

The station location question was a question on both the online survey and paper comment form and the results are shown in Table 2.

Table 2 – Results of Station Locations, Combined Results

Which of the following station locations would best serve your travel needs? (Select up to three locations)	
Station Locations	Number of Selections
(1) GoRaleigh Station	105
(2 & 3) Lenoir Street	26
(4) South Street	39

(5) Western Boulevard	39
(6) Summit Avenue	10
(7) Hoke Street	14
(8 & 9) Rush Street/ Ileagnes Road	24
(10 & 11) Chapanoke Road	22
(12 & 13) Garner Station Boulevard	52
(14 & 15) Purser Drive	35

V. Alternatives Analysis

Northern Section

The Southern Gateway Corridor Study (SGCS) is the most recent planning effort by the City of Raleigh along the Wake BRT: Southern Corridor and identified South Wilmington Street, from Downtown Raleigh to the flyover where South Saunders Street and South Wilmington Street merge, as the preferred alignment for the northern portion of the Wake BRT: Southern Corridor. South Saunders Street did not meet the planning intention of the Wake BRT: Southern Corridor, due to high traffic volumes and concerns over bicycle and pedestrian safety. The City of Raleigh's 2030 Comprehensive Plan also identifies South Wilmington Street as a BRT Corridor. In addition to the technical analysis from the SGCS that ruled out South Saunders Street, the feedback from public engagement show a preference of South Wilmington Street over South Saunders Street for the northern portion of the corridor. During the MIS public engagement, 49 percent of respondents preferred South Wilmington Street alignment, compared to 25 percent for the South Saunders Street/Lenoir Street/West Street routing and 29 percent for the South Saunders Street/McDowell Street routing. South Wilmington Street is also supported by information gathered at public engagement efforts that took place in February and March 2020. The online and in-person survey for this round of engagement asked participants to identify how important each of the below evaluation consideration category was to them for selecting a BRT alignment: high, medium, or low priority. Table 2 below shows that the availability of bike and pedestrian connections, along with economic development opportunities were the categories that ranked as a high priority for the greatest number of participants, which are key characteristics of South Wilmington Street.

Southern Section

The extent of the southern portion of the Wake BRT: Southern Corridor is between the flyover where South Saunders Street and South Wilmington Street merge in the City of Raleigh, to the north, and Purser Drive in the Town of Garner, to the south. Two alternatives for the southern portion were considered initially:

- Existing Fayetteville Road
 - Alternative 6
 - Proposed dedicated transit lanes
 - Proposed bicycle and pedestrian infrastructure
 - Existing general purpose lanes

- Proposed Wilmington Extension
 - Alternative 5A
 - Proposed dedicated transit lanes
 - Proposed bicycle and pedestrian infrastructure
 - Proposed general purpose lanes

These two alternatives were the only alternatives evaluated for the southern portion during the MIS and during the SGCS, with the SGCS recommending the Wilmington Extension as the preferred alignment. Constructability considerations, not directly addressed in the MIS, were reviewed in the *Wake BRT: Southern Corridor Wilmington Extension Memorandum* and found:

- Previous local plans did not identify funding sources for the proposed Wilmington Extension.
- Additional studies for the proposed Wilmington Extension and flyover recommended by the SGCS have not been started.
- Funding for the proposed Wilmington Extension will likely require a combination of funding sources, not just FTA and Wake Transit Plan funds.
- The current flyover is not scheduled to be replaced within the next 10 years, meaning the cost to modify or replace the bridge require a combination of local funding and BRT transit funding (FTA and Wake Transit Plan funds).
- Without the dedication of land through private redevelopment, the City of Raleigh and Town of Garner would have to acquire all the right-of-way needed for the proposed Wilmington Extension.
- The need to construct the proposed Wilmington Extension on new alignment, as opposed to implementing BRT on existing roadways, could add additional time to the schedule.

The *Wake BRT: Southern Corridor Wilmington Extension Memorandum* highlighted that the findings should not be considered fatal flaws for the project but should be considered prior to selecting a BRT route that includes Wilmington Extension. Additional studies, as recommended by the SGCS, would likely provide more clarity on funding and allow for additional coordination between Town of Garner, City of Raleigh, CAMPO, and NCDOT.

Due to the cost of constructing a new roadway along the Wilmington Extension, the southern portion was evaluated in more detail and a third alternative was identified. The third alternative is like the Wilmington Extension (Alternative 5A), but without general purpose lanes:

- Proposed Wilmington Extension
 - Alternative 5B
 - Proposed dedicated transit lanes
 - Proposed bicycle and pedestrian infrastructure

Further analysis of the three alternatives for the southern portion included evaluating the following criteria:

- Estimated Total Project Cost
- Potential to Require Additional Local Funding Above Wake Transit Plan Monies
- Estimated Potential Right of Way (ROW)
- Potential Development Opportunities

- Estimated Time to Design /Construct
- Known Environmental Red Flags/ Fatal Flaws
- Known Conformity with Prior Planning Efforts
- Potential Bicycle and Pedestrian Comfort
- Potential Transit Rider Comfort and Safety
- Known Public Support (MIS)

Table 3 presents estimated quantitative and qualitative differences between the alternatives to inform agencies, elected officials, and stakeholders during the LPA selection process.

Table 3: Evaluation Criteria for Southern Portion

Alternative	Alternative 5 (Wilmington Extension Alternative)		Alternative 6 (Fayetteville Road Alternative)
	Alternative 5A	Alternative 5B	Alternative 6
	Wilmington Extension - With General Purpose Lanes	Wilmington Extension - Without General Purpose Lanes	Fayetteville Road
Estimated Total Project Cost**	\$69M - \$90M	\$65M - \$86M	\$36M - \$38M
Potential to Require Additional Local Funding Above Wake Transit Plan Monies	Likely	Possible	No
Estimated Potential Right of Way (ROW)	Mostly partial parcels, some full parcels/buildings	Mostly partial parcels, some full parcels/buildings	Partial parcels
Potential Development Opportunities	Great; Can Create New Transit Oriented District	Great; Can Create New Transit Oriented District	Limited; Existing Auto Oriented Land Use
Estimated Time to Design /Construct	5-8 years	5-8 years	4-6 years
Known Environmental Red Flags/ Fatal Flaws	None	None	None
Known Conformity with Prior Planning Efforts	Southern Gateway Corridor Study; Raleigh Comprehensive Plan	Southern Gateway Corridor Study; Raleigh Comprehensive Plan	None
Potential Bicycle and Pedestrian Comfort	Lower vehicle speed, lower traffic volumes; fewer travel lanes to cross	No vehicular traffic; fewest number travel lanes to cross	Higher vehicle speeds, higher traffic volumes; largest number of travel lanes to cross
Potential Transit Rider Comfort and Safety	Lower vehicle speed, lower traffic volumes; opportunity for TOD development	No vehicular traffic; opportunity for TOD development	Higher vehicle speeds, higher traffic volumes; limited pedestrian access to transit
Known Public Support (MIS)	52%	N/A*	48%

*The MIS did not consider the Wilmington Extension without general purpose lanes.

** Cost estimates presented in this memorandum are draft and subject to change as the project design is further refined.

The analysis included in the *Wake BRT: Southern Corridor Scenarios for Southern Portion Memorandum*, highlighted the differences between Alternative 5 and Alternative 6, after recognizing minimal differences between Alternative 5A and Alternative 5B.

The Wilmington Extension alternatives (Alternative 5A and Alternative 5B), both with and without general purpose lanes, would likely have the highest costs and require the most time to acquire ROW and construct. They are also likely to offer the greatest TOD opportunities, based on Future Land Use Maps (FLUM), and the potential for larger scale economic development projects. The Wilmington Extension would also provide a new parallel connection to Wilmington Street, that could provide more direct access to businesses and a more comfortable bicycle and pedestrian environment. In addition to the analysis above, a separate memorandum (*Wake BRT: Southern Corridor Potential ROW Estimates along Wilmington Extension and Fayetteville Road*) was developed to determine the potential number, location, and areas of properties within the City of Raleigh (COR) and Town of Garner (TOG) planning jurisdictions that are located within the potential right-of-way (ROW) of the proposed Wake BRT: Southern Corridor. The memorandum found that the ROW estimates were very similar between Alternative 5A and Alternative 5B. The cost estimates presented in this memorandum are draft and subject to change as the project design is further refined.

The Fayetteville Road alternative (Alternative 6) would likely have the lowest cost and require less time to acquire ROW and construct the project. Due to the nature of existing auto oriented development along Fayetteville Road, and based on FLUM, there is likely to be the least opportunity for TOD development. Fayetteville Road also has higher vehicle speeds, that are undesirable for pedestrians and cyclists, and the widest cross section for transit riders to cross when accessing BRT stations, making it a less comfortable environment than the Wilmington Extension.

VI. Conclusion

For the northern portion of the corridor, from Downtown Raleigh to the flyover where South Saunders Street and South Wilmington Street merge, the Southern Gateway Corridor Study (SGCS) highlighted the potential conflicts with BRT running along South Saunders Street. The SGCS, the City of Raleigh's 2030 Comprehensive Plan, and public input support BRT running along South Wilmington Street.

For the southern portion of the corridor, Figure 2 shows the alignments of each three alternatives, with both Wilmington Extension alternatives sharing the same alignment. Various memorandums noted that there were minimal differences between Alternative 5A and Alternative 5B, but Alternative 5 (both 5A and 5B) and Alternative 6 are different in terms of potential benefits and cost. Alternative 5 is likely to provide the greatest TOD opportunities and more comfortable bicycle and pedestrian environment, but at a higher cost than Alternative 6.

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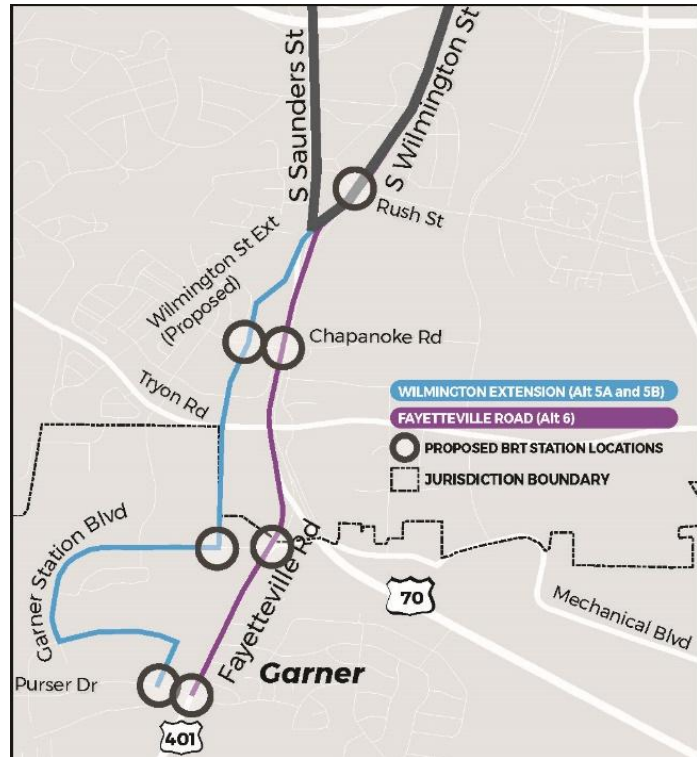


Figure 2: Wake BRT: Southern Corridor Southern Portion

While an LPA selection allows the project to enter the Federal Transit Administration (FTA) project process, the LPA only needs to identify the alignment, mode, and termini of the project and therefore the decision to include general purpose lanes or not along the Wilmington Extension (Alternative 5A vs. 5B) can be decided later. Variations, such as general purpose lanes, could impact project cost but does not materially change the benefits for riders. Further study and refined design work are recommended to provide more detail on the cross section of the alternative, refined routing options, and possibility of grade separations. While Alternative 5 is recommended due to the benefits for BRT operations, there were no fatal flaws identified with Alternative 6.

VII. Appendix