

Town Of Cary
Southeast Area Plan

Appendix B: Roadway Recommendations – Costs And Details

The roadway recommendations of this plan are based on the findings and recommendations of the *2003 Southeast Gateway Area Traffic Analysis* study, developed by Kimley Horn Associates.¹ Table B-1, below, lists the recommended roadway improvements in priority order. The relative priorities of projects in the table are likely to shift over time, in response to changes in traffic conditions and the precise location and timing of future development.

The table also provides a planning-level construction cost estimate for each project, and a cost estimate for right-of-way acquisition. Cost estimates are not provided for (a) projects that are already programmed or funded by the Town of Cary, (b) most of the projects listed towards the end of the table under “Long Term Improvements” and “Unprioritized Improvements,” for the reasons noted in the table or footnotes. Cost estimates were prepared by Kimley Horn Associates in May 2004.

The cost estimates generally consider each of the listed projects as a stand-alone construction effort. If multiple projects are combined into a single construction contract or phase, then some cost savings may be achieved through (a) the elimination of physical overlap of the limits of the construction projects, (b) economies of scale, and (c) reductions in overall construction disturbance to affected businesses and existing traffic.

The specific recommendations listed in Table B-1 are based on the traffic model results developed by Kimley Horn for the *2003 Southeast Gateway Area Traffic Analysis* study. The modeled improvements are therefore based on the underlying land use and buildout assumptions of the middle two land use scenarios used in that study. While the land use recommendations of this Southeast Area Plan correspond to the general pattern and types of uses included in the middle two traffic model scenarios, the actual intensity or level of development likely under this Plan is projected to be somewhat less intense than either of those two model scenarios. Thus, the roadway improvements listed in Table B-1 reflect conservative, high-end traffic demand assumptions.

In the future, the actual improvements required may vary somewhat from the recommendations listed in Table B-1 in response to: (a) variations between the actual amount, pattern, and intensity of future development in the southeast area and those used in the middle two scenarios for the 2003 traffic model, (b) variations between the actual future levels of background traffic and the background traffic forecasts used in the 2003 model, and (c) the nature and timing of roadway improvements in adjacent Raleigh and Wake County areas.

¹ That study is described in Chapter 3, Section 3.1.

Table B-1: Roadway Recommendations

| IMMEDIATE TERM IMPROVEMENTS (0-3 yrs.) | Planning-Level Construction Cost Estimate | Right-of-Way Acquisition Cost Estimate |
|---|--|---|
| 1. Widen Tryon Road to 4 lanes plus median between Kildaire Farm Road and Campbell Rd., as currently approved and planned. The planned widening project includes improvements to the Tryon Road intersections with SE Cary Parkway, Piney Plains Road, and Walnut Street. | Programmed | Programmed |
| 2. Widen Piney Plains Road to 5 lanes between Tryon Road and Dillard Dr. | Programmed | Programmed |
| 3. Improve the US Hwy 1/64 southbound/westbound interchange with Walnut Street. Specifically: <ul style="list-style-type: none"> ➤ Close the existing on-ramp from Walnut Street to US Hwy 1/64 southbound/westbound, and relocate the on-ramp to the north as shown on Maps 2 and 3, to tie into Walnut Street at the Donaldson Drive intersection. ➤ Close the final couple hundred feet of the existing US Hwy 1/64 southbound/westbound off-ramp onto Walnut Street, as shown on Map 3. Leave the off-ramp open to traffic bound for either Buck Jones Road or the existing flyover bridge into Crossroads Plaza. Provide a new US Hwy 1/64 southbound/westbound off-ramp to Walnut Street as shown on Maps 2 and 3, located west of Walnut Street, and tying into Walnut Street at the Donaldson Drive intersection. | Programmed | Programmed |
| 4. Terminate the old/existing US 1/64 southbound/westbound Walnut Street off-ramp at a roundabout. Provide a two-way connection between the roundabout and Buck Jones Road (see Map 3). The existing flyover bridge will also terminate at the roundabout. Convert the flyover bridge to two-way traffic. | \$ 400,000. ² | \$ 0.00 |
| 5. (a) Build a new one-way (eastbound) connector road from Walnut Street (opposite the US 1/64 northbound/eastbound off-ramp) to Crossroads Blvd., eastbound. This new connection will tie the US 1/64 northbound/eastbound off-ramp directly to Crossroads Boulevard (eastbound). Reconfigure the intersection geometry of the US 1/64 northbound/eastbound off-ramp at Walnut Street to provide dual left-turn lanes (onto northbound Walnut Street), an exclusive eastbound through lane onto the new connector, and an exclusive right-turn lane (onto southbound Walnut Street). Revise the signal phasing at this intersection accordingly. OR... | \$ 1,183,931.00 | \$ 1,253,380.00 |
| (b) Improve the Walnut Street/Meeting Street intersection to provide an additional left-turn lane from southbound Walnut Street onto Meeting Street, for a total of three left turn lanes. Note: This improvement is not necessary if we instead build the one-way connector road described in 5(a), above. It is highly recommended to pursue the one-way connector project instead, if that proves possible within a reasonable time period, due to the high cost of 5(b) as a stand-alone project. ³ | \$ 844,920.00 | \$ 182,952.00 |

² Cost estimate by Town of Cary Engineering Department

³ Completing the improvement in 5(b) separately from the Walnut Street widening recommended in (7) will increase overall cost due to adjustments necessary in the Walnut St. cross section to accommodate the left-turn lane. These cross section adjustments would be “thrown away” after Walnut St. is widened.

| | | |
|--|-----------------|-----------------|
| <p>6. Improve the US Hwy 1/64 northbound/eastbound interchange with Walnut Street as follows:</p> <ul style="list-style-type: none"> ➤ Provide an additional exclusive left-turn lane from northbound Walnut Street onto the US Hwy 1/64 northbound/eastbound on-ramp. (i.e., Provide dual lefts onto the on-ramp.) ➤ Provide an exclusive right-turn lane from southbound Walnut Street onto the US Hwy 1/64 northbound/eastbound on-ramp. ➤ Widen the US 1/64 northbound/eastbound on-ramp located on the west side of Walnut Street to two lanes to accept the two dual left-turn lanes from northbound Walnut Street (see a., above), as well as the exclusive right-turn lane from southbound Walnut Street (see b., above). Extend the on-ramp to provide additional merge distance to funnel the 2-lane traffic to a single lane prior to the on-ramp's final approach onto the freeway. ➤ At the end of the US 1/64 northbound/eastbound off-ramp onto Walnut Street (at its intersection with Walnut Street), maintain the dual left-turn lanes onto northbound Walnut Street, and provide an additional right-turn lane onto southbound Walnut Street. | \$ 1,596,954.00 | \$ 141,668.00 |
| <p>7. Widen Walnut Street to six through lanes (i.e., three through lanes in each direction), from Donaldson Drive in the north to just south of Dillard Drive, where Walnut Street is already widened to six through lanes all the way south to Tryon Road. This widening should include widening the Walnut Street bridge over US 1/64, in order to provide appropriate tapers for the through lanes on Walnut Street after a second left-turn lane is added from northbound Walnut Street onto the US 1/64 northbound/eastbound on-ramp. (See Project #6, above.)</p> | \$ 9,321,406.00 | \$ 624,840.00 |
| <p>8. Improve the Walnut Street/Dillard Drive intersection as follows:</p> <ul style="list-style-type: none"> ➤ Provide dual through lanes on the westbound approach (Dillard Dr.) – and retain an exclusive left and an exclusive right-turn lane. Revise the signal phasing to include a right-turn overlap phase for the for the exclusive right on the westbound approach. ➤ After Walnut Street is widened to 6 lanes (or concurrently), maintain an exclusive right-turn lane on the northbound approach, and provide an exclusive right on the southbound approach. ➤ After Walnut Street is widened to 6 lanes (or concurrently), continue to provide dual left-turn lanes on the northbound, southbound (Walnut Street), and eastbound (Dillard Drive) approaches. | \$ 765,835.00 | \$ 188,952.00 |
| <p>9. Extend Meeting St. to Crossroads Blvd., close Caitboo Avenue between Crossroads Blvd. and Meeting Street, and reconfigure the Meeting Street/Caitboo Avenue intersection.⁴</p> | \$ 1,217,109.00 | \$ 1,099,720.00 |

⁴ The cost estimate does not include modifications to individual business sites, or modifications or demolition/reconfiguration of existing parking areas. The estimate does include the roadway elements and cost of right-of-way acquisition. The Town may be willing to delay Improvement #9 until a later year in the Mid-Term, or when warranted by changing traffic conditions, if Crossroads Plaza proposes and implements an acceptable alternate design in the Immediate

| MID-TERM IMPROVEMENTS (3-15 yrs.) | Planning-Level Construction Cost Estimate | Right-of-Way Acquisition Cost Estimate |
|---|--|---|
| <p>10. Improve the Walnut Street/Meeting Street intersection by reconfiguring the intersection geometry as follows:</p> <ul style="list-style-type: none"> ➤ On both the eastbound and westbound approaches, provide dual left-turn lanes, and one through lane. ➤ On the westbound approach, provide dual right-turn lanes. ➤ On the eastbound approach, provide an exclusive right-turn lane. ➤ Maintain an exclusive right on the NB approach after Walnut is widened. ➤ Modify the intersection's signal phasing to remove the current split phasing eastbound/westbound, and instead provide concurrent east/west movement phasing. | \$ 844,920.00 | \$ 23,000 |
| 11. Widen Holly Springs Road to a four-lane median divided road from south of Cary Pkwy. to Tryon Rd. | Programmed | Programmed |
| 12. Widen Jones Franklin Road to a four-lane median divided facility from Tryon Road to I-440. With the widening, improve the intersection of Jones Franklin and Macedonia Roads, to make Jones Franklin Road the through movement across the intersection in both the northbound and southbound directions. ⁵ | \$ 3,981,135.00 | \$ 1,004,808.00 |
| 13. Improve the Tryon Road/Jones Franklin Road intersection to provide dual left-turn lanes on the southbound approach (Jones Franklin Rd.), turning onto Tryon Road eastbound, and provide two through lanes on the northbound approach (Jones Franklin Road). Also, reserve right-of-way on the southbound approach to accommodate an exclusive right, which may be needed in the long term. | \$ 674,315.00 | \$ 226,968.00 |

Term. Any alternative design should be reviewed and approved by the Town of Cary, and should not preclude or impede the eventual construction of Improvement #9.

⁵ The cost estimate only includes the portion of Jones Franklin Road within or bordering Cary's jurisdiction (i.e., the section south of I-40 and north of Tryon Road). The cost estimate includes the cost of widening both sides of the roadway, even though most of the eastern side of the roadway is in Raleigh's jurisdiction. The cost would be reduced by some factor if only half the cross section was widened (Cary's side), or costs are shared with Raleigh.

| | | |
|--|----------------------|---------------------|
| <p>14. Improve the Tryon Road/Yates Mill Pond Road intersection, as follows:</p> <ul style="list-style-type: none"> ➤ Provide the southbound approach, which does not yet exist. That is, extend Yates Mill Pond Road north of Tryon Road to connect with Prince Drive, as a collector road. Also, provide an exclusive left on the SB approach.⁶ ➤ On the northbound approach (Yates Mill Pond Rd.), provide dual left-turn lanes (onto Tryon Road westbound) and an exclusive right-turn lane (onto Tryon Road eastbound), with or after the widening of Tryon Road to 4 lanes. Following the addition of the north leg of the intersection, the northbound (Yates Mill Pond Road) right-turn lane should be re-stripped to be a shared through and right-turn lane. ➤ On the eastbound (Tryon Rd.) approach, provide a left-turn lane onto Yates Mill Pond Rd. northbound, once that road segment is built. ➤ On the westbound (Tryon Road) approach, provide a right-turn lane onto Yates Mill Pond Rd. northbound, once that extension of Yates Mill Pond Rd. is built. After Tryon Road is widened to 4 lanes, the exclusive right would convert to a shared through and right-turn lane.⁷ | <p>\$ 420,575.00</p> | <p>\$ 32,500.00</p> |
| <p>15. Improve the Jones Franklin Road/Dillard Drive intersection by providing an exclusive left-turn lane and a shared through and right-turn lane on the westbound approach. After Jones Franklin Road is widened to 4 lanes, maintain exclusive lefts on both the northbound and southbound approaches.</p> | <p>\$ 827,742.00</p> | <p>\$ 49,800.00</p> |
| <p>16. Improve the Holly Springs Road/Jones Franklin Road intersection by installing a traffic signal and providing an additional left-turn lane on the westbound (Jones Franklin Road) approach (turning onto southbound Walnut St.).</p> | <p>\$ 584,960.00</p> | <p>\$ 77,384.00</p> |

⁶ Traffic modeling for the 2003 Southeast Gateway Area Traffic Analysis study included these improvements, but the model results don't rely on this connection, although it does improve operations. The cost of the extension of Yates Mill Pond Road to Prince Drive is not included in the cost estimate, since it is in Raleigh's jurisdiction. The exclusive left on the southbound approach is recommended, if Raleigh can achieve it.

⁷ The cost estimate does not include the westbound right-turn lane, since it is within Raleigh's jurisdiction.

| Long-Term Improvements (15 or more years out) | Planning-Level Construction Cost Estimate | Right-of-Way Acquisition Cost Estimate |
|---|---|--|
| <p>17. Improve the Holly Springs Road/Cary Parkway intersection, as follows:</p> <ul style="list-style-type: none"> ➤ With or after the widening of Holly Springs Road to 4 lanes, provide an exclusive right-turn lane on the southbound (Holly Springs Road) approach. Continue to provide an exclusive left on the northbound approach. (It is also recommended to reserve right-of-way to permit dual lefts on the northbound approach at some point in the future, as there is a possibility that they may be needed in the long term.) ➤ With or after the eastward extension of SE Cary Parkway, provide/maintain an exclusive right-turn lane and left-turn lane on the eastbound (SE Cary Pkwy) approach, and provide an exclusive right and exclusive left on the westbound approach, and an exclusive left on the southbound approach. | \$ 674,315.00 | \$ 215,749.00 |
| <p>18. Provide a new connector road linking South Hills Mall/Buck Jones Road and Crossroads Blvd., crossing over US 1/64 with a bridge.⁸ (See Map 3.)</p> | not estimated. | not estimated. |
| <p>19. Extend SE Cary Pkwy. eastward to Campbell Road, and thence to the I-40/Gorman Street interchange.⁹</p> | not estimated. | not estimated. |
| <p>20. Widen Dillard Drive to 4 lanes from just east of Columbus Avenue to Jones Franklin Road. This widening is not anticipated to be needed during the time frame of this plan (2015-2025), and is therefore not included in the cost estimates.¹⁰</p> | not estimated. | not estimated. |

⁸ This is recommended in the *Southeast Gateway Area Traffic Analysis* study as a long-term improvement, but the traffic model did not include or rely on the connection. Hence, no cost estimate is given. However, the connection would provide excellent connectivity and may be needed as traffic conditions change.

⁹ Traffic modeling for the *2003 Southeast Gateway Area Traffic Analysis* study included this connection, but cost estimates were not prepared since (a) it is a low priority project, and (b) Cary will not be responsible for construction of most of the segment. If the connection does not occur, the intersections on Holly Springs Road between the parkway and Tryon Road may need additional improvements.

¹⁰ Per the *2003 Southeast Gateway Area Traffic Analysis* study by Kimley Horn Associates.

| Unprioritized Improvements | Planning-Level Construction Cost Estimate | Right-of-Way Acquisition Cost Estimate |
|---|---|--|
| 21. Provide a traffic signal at the intersection of Jones Franklin Road and Crossroads Blvd. Link the signal timing to the signal at Jones Franklin Road and Dillard Drive. ¹¹ | Programmed | Programmed |
| 22. Provide new westward extension of Prince Drive to the new north-south collector. ¹² | not estimated. | not estimated. |
| 23. Provide a new north-south collector from intersection of Piney Plains and Dillard, south to Tryon. ¹² | not estimated. | not estimated. |
| 24. Provide a southerly extension of Columbus Ave. from Dillard to Macedonia Rd. or the westward extension of Prince Dr. ¹² | not estimated. | not estimated. |
| Total costs, all phases:¹³ | \$22,493,197.00 | \$4,938,769.00 |

¹¹ This improvement was not specifically included or modeled in the *2003 Southeast Gateway Area Traffic Analysis* study produced by Kimley Horn Associates. However, Kimley Horn consultants confirmed that NCDOT’s plans for the signal were warranted, and that the signal is needed.

¹² This collector road is listed as “unprioritized” because the need for the road is tied to the timing of development of the surrounding parcels. Cost estimates are not provided because it is anticipated that the facility will be provided as part of or in conjunction with new development.

¹³ For task 5, the totals include the cost estimates for Immediate Term Improvement 5(a) rather than 5(b). That is, it is assumed that 5(a) will be constructed, removing the need to construct 5(b).