MEMO

TO: Brian McHugh, Buckhead Community Improvement District
FROM: Jagan Kaja, AICP, WSP | Parsons Brinckerhoff
SUBJECT: Wieuca Road at Phipps Boulevard Intersection Improvements Project
DATE: October 27, 2015

This purpose of this study was to evaluate existing traffic conditions along the Wieuca Road / Phipps Boulevard corridor and develop concepts to alleviate traffic congestion and improve safety in anticipation of several major new developments along the corridor. In particular, the Phipps Boulevard at Wieuca Road intersection was found to have the greatest capacity and safety improvement needs along the corridor. This intersection, shown in Figure 1, serves as a gateway to the North Buckhead residential neighborhood and is adjacent to multiple high traffic-generating sites, including Phipps Plaza and Lenox Square shopping malls, and the Park Avenue high rise condominium tower.

Planned developments, including a second residential tower, a large mixed-use development, and executive hotel will be located on parcels at or in close proximity to this intersection. Once built, these developments are expected to generate additional trips and add to the area’s existing congestion. In addition to long queues and traffic delays, the intersection’s current design has several safety issues. These issues include limited sight-distance for left-turning vehicles on both Phipps Boulevard approaches, and safety concerns for pedestrians crossing Wieuca Road and its free-flow northbound movement.
Methodology

Multiple design concepts were developed to improve traffic operations at this intersection and along both Phipps Boulevard and Wieuca Road. These concepts were developed with the site’s limited right-of-way and the construction time table of the new buildings in mind, as stakeholders wanted to mitigate the additional traffic from the apartments and hotel. Projects that would result in significant right-of-way impacts would likely face additional hurdles that would lengthen the project’s delivery.

Prior to evaluating these concepts, traffic counts and signal timing data were collected at 7 intersections around the site to better understand existing traffic patterns. These intersections are listed below and illustrated in Figure 2.

1. Phipps Boulevard at Lenox Road
2. Phipps Boulevard at Alexander Road
3. Phipps Boulevard at Longleaf Drive
4. Wieuca Road at Old Ivy Road
5. Wieuca Road at Phipps Boulevard
6. Wieuca Road at Longleaf Road
7. Wieuca Road at Peachtree Road
The traffic counts were then balanced and factored to their projected 2017 volumes, which is the opening year of the apartments, mixed use building, and hotel. These balanced, factored volumes were then used to calibrate the BCID mesoscopic travel demand model. This model, which had been developed previously for BCID, includes parcel-level land use and trip generation data, and thus, as part of this project, the land use of the future development parcels was updated to reflect their completion in 2017. The model then calculated the corresponding impact of these developments on local traffic volumes to use in evaluating the proposed design alternatives.

Prior to developing the design concepts, a northbound left-turn lane was proposed at the Wieuca Road at Longleaf Drive intersection to provide northbound Wieuca Road access to the new hotel. The turn lane improvement is shown in Figure 3. This left-turn lane can be constructed within the existing curb and requires no new right-of-way.

The proposed design adds a median while maintaining southbound access to Wieuca Road Baptist Church and continues right-in, right-out access from Longleaf Drive (west side of Wieuca Road) and the church driveway (east side of Wieuca Road).
Alternatives

After determining the projected 2017 traffic volumes, three alternatives for the intersection of Phipps Boulevard at Wieuca Road were developed to improve operations and safety. The alternatives were evaluated with respect to traffic operations, safety improvements, and right-of-way impacts.

Alternative 1

Alternative 1 would add an exclusive southbound right-turn lane from Wieuca Road onto westbound Phipps Boulevard, convert Wieuca Road from a two-lane to a three-lane cross section between Phipps Boulevard and Old Ivy Road, and add a protected northbound Wieuca Road left-turn signal phase for safer access to Park Avenue. These modifications, shown in Figure 4, would improve traffic flow on northbound and southbound Wieuca Road north of Phipps Boulevard and improve the safety of northbound left turning vehicles. Alternative 1 would also add a second signal to the Wieuca Road free flow northbound movement to improve pedestrian safety, as shown in Figure 4. Alternative 1 was projected to have minimal roadway and right-of-way impacts and cost approximately $250,000 to construct.

Figure 4: Alternative 1 Inset
(see Appendix for full page concepts)
Alternative 2

Alternative 2 would widen Wieuca Road between Phipps Boulevard and Old Ivy Road to a 4-lane cross section, as illustrated in Figure 5. At the intersection, Alternative 2 maintains the southbound Wieuca Road right-turn bay proposed in Alternative 1, but modifies the northbound Wieuca Road free-flow lane to include a “Hawk” pedestrian signal. Alternative 2 would thus increase roadway capacity north of Phipps Boulevard and improve pedestrian safety for those crossing Wieuca Road. The additional capacity added by the fourth Wieuca Road lane north of Phipps Boulevard would, however, increase roadway and right-of-way impacts. Alternative 2 was projected to cost approximately $1 million to construct.

Figure 5: Alternative 2 Inset
(see Appendix for full page concepts)

Alternative 3

Alternative 3 would convert the existing Wieuca Road at Phipps Boulevard signalized intersection into a multi-lane roundabout, as shown in Figure 6. Alternative 3 is projected to provide the greatest congestion and safety benefit with the least impact to Wieuca Road north of Phipps Boulevard. In addition, the roundabout’s design mitigates the existing intersection’s sight-distance issues and allows pedestrians to safely cross each leg of the roundabout at crosswalks. Alternative 3 is projected to cost approximately $2 million to construct. The roundabout design is typically safer for pedestrian/bicycle crossing, especially on the approach.

Figure 6: Alternative 3 Inset (see Appendix for full page concept)
legs. On the departure legs, if needed, a “Hawk” pedestrian signal or other treatment can be installed in the future if pedestrian crossing is observed to be a safety concern. The costs for any such future signal treatment are not included in the approximately $2 million construction cost.

Preferred Alternative

Alternative 3 was selected as the preferred alternative by the project stakeholders due to its multitude of potential benefits, which include:

- The greatest potential for traffic operations improvements as compared to Alternatives 1 and 2
- Mitigation of sight distance issues and improved pedestrian safety crossing Wieuca Road
- Limited impacts to Wieuca Road and residential community north of Phipps Boulevard
- Ability to serve as a signature gateway to the neighborhoods and control speeds

To aid in visualizing how traffic would flow through the roundabout, Vissim micro-simulation models were created to illustrate traffic operations in the 2017 AM and PM peak hours. The models incorporated the projected traffic volumes output by the calibrated travel demand model, which included the impact of the planned developments. These micro-simulation models demonstrated that the roundabout would successfully accommodate the additional traffic volumes projected to be generated by the additional development in all but the most congested PM peak hour of the day.

Next Steps

With the selection of a roundabout as the preferred alternative, additional work remains to finalize its final design, footprint, and property impacts. Once implemented, the roundabout should provide congestion relief and improved vehicular and pedestrian safety for the residents and employees of North Buckhead. First however, the following steps need to be undertaken as the next steps in this endeavor:

- Development of traffic projections for design (horizon year)
- Confirmation of preferred alternative and project limits
- Development of Concept Layout of Preferred Alternative (color on aerial photography)
- Preparation of conceptual construction cost estimate
- Public involvement / public information meetings / stakeholder information meetings
- Development of survey database including Right of Way and property information
- Conduct environmental screening
- Perform Subsurface Utility Engineering (SUE) survey (Quality Level B, as per FHWA recommendation for an urban project)
- Preliminary Plans including updated cost estimate
- Right of Way Plans
- Final Plans including updated cost estimate
- Permitting Land Disturbance, Lane closures/ Right of Way Permits
APPENDICES
Alternative 3: Multi-approach, Hybrid Roundabout.
## Cost Benefit Table

<table>
<thead>
<tr>
<th>Alt</th>
<th>Description</th>
<th>Peak Hour Traffic Issues</th>
<th>Potential property and/or environmental impacts</th>
<th>Bicycle &amp; Pedestrian Accessibility</th>
<th>Preliminary Estimate of Costs*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Add SB right turn bay; add signal for NB Wieuca</td>
<td>Creates traffic queues on Northbound Wieuca Road</td>
<td>Least impact to property; addition of right turn lane across pocket-park frontage</td>
<td>Pedestrians have signalized access point to cross northbound Wieuca</td>
<td>Approx. $250K</td>
</tr>
<tr>
<td>2</td>
<td>Add one lane to Wieuca up to Old Ivy; Restripe NB Wieuca between Phipps and Old Ivy</td>
<td>Creates potential weaving issues on Northbound Wieuca Road (between Phipps Boulevard signal &amp; Old Ivy Road intersection)</td>
<td>Greatest impact along Wieuca between Phipps and Old Ivy to add turn lane</td>
<td>Pedestrians still must cross free-flow northbound lane; HAWK signal recommended</td>
<td>Approx. $1M</td>
</tr>
<tr>
<td>3</td>
<td>Multi-Lane Roundabout</td>
<td>Satisfies peak hour demands</td>
<td>Some impact to pocket park, residential tower property</td>
<td>Pedestrians cross each leg of roundabout in safer environment</td>
<td>Approx. $2M</td>
</tr>
</tbody>
</table>

*Very rough cost estimate based on limited project data; it does not include costs for right-of-way or any major environmental / utility impacts; may change as analysis moves further through the screening process*