Reedy Creek Road Design Study

TIP Project U-5501
Project Summary

• Purpose of the Project:
  – Make Reedy Creek Road a consistent 3-lane roadway
  – Provide sidewalks and bicycle lanes

• Project limits:
  – NC 54 / NE Maynard Road to Harrison Avenue
Project Status

• Current efforts are for planning and design only, including:
  – Traffic and safety studies
  – Environmental analysis
  – Development of alternatives
  – Roadway design
  – Cost Estimate

• Future phases are not yet funded.
Project Status

- Start of Study Letter to State/Federal Agencies
- Traffic Studies
- Safety Assessment
- Natural Resources Study
- Roadway Design and Cost Estimate
- Environmental Document
- Workshop #1 (April 3, 2013)
- Final Design / Construction (Not Funded or Scheduled)
Safety Assessment
Reedy Creek Road Design Study
Purpose of Safety Assessment

- Identify existing safety issues along the corridor for all road users
  - Vehicles
  - Pedestrians
  - Bicycles

- Develop safety recommendations
  - to be incorporated into design improvement process
  - to be considered outside the design process
Reedy Creek Road: Data Collection

• Crash analysis – 01/01/08 through 12/31/12
• Safety field investigation – 03/18/13
  – Speed measurements
  – Observations of current operations
  – Sight distance constraints
• Turning movement counts
  – Collected from 6:00 AM to 10:00 PM on 01/09/2013 through 01/11/13
  – Collected at: N Harrison Avenue, Wyatt’s Pond Lane, E Dynasty/Electra Drive, and NE Maynard Road
Corridor Characteristics

- Bounded by traffic signals on each end that need additional capacity
- Primarily residential uses along corridor
- Mixed cross section (2 lanes vs 3 lanes)
- Two schools in the center of corridor
- Lighting only present at school entrance and on Maynard/Harrison
- No trucks signs along route
- School bus access on side streets
Corridor Characteristics

- Intersections with private driveways, subdivision streets, public streets, school entrances, and commercial entrances
- Pedestrians from schools walking in road
- Bike route from Wyatt’s Pond Lane – bicyclists on road and on sidewalks (where they exist)
Crash Summary: 2008 - 2012

<table>
<thead>
<tr>
<th>Year</th>
<th>Rear End</th>
<th>Angle</th>
<th>Head On</th>
<th>Ran off Road</th>
<th>Fixed Object</th>
<th>Other, Non-Collision</th>
<th>Deer / Other Animal</th>
<th>Pedalcyclist</th>
<th>TOTAL</th>
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35% of Crashes Ran off Road
Crash Summary: 2008 - 2012

<table>
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<tr>
<th>Year</th>
<th>AM (6 - 10)</th>
<th>PM (3 - 7)</th>
<th>Off Peak</th>
<th>Day</th>
<th>Dawn / Dusk</th>
<th>Dark</th>
<th>Dry</th>
<th>Wet</th>
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39% of Crashes Occurred at night
Crash Summary: 2008 - 2012

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<th>Severity</th>
<th>K (1)</th>
<th>A (2)</th>
<th>B (3)</th>
<th>C (4)</th>
<th>None (0)</th>
<th>Total Injury</th>
<th>TOTAL</th>
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71% of Crashes reported no injuries

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<th>Severity</th>
<th>Injury</th>
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<td>Type C Injury</td>
<td>Possible</td>
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<tr>
<td>Property Damage Only</td>
<td>None</td>
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Crash Overview: 2008 - 2012

95th Percentile Confidence Interval for 0.05-mile segments of Reedy Creek Road = 5.05

Reedy Creek Road from N Harrison Avenue to NE Maynard Road (MP 0.7 - 1.85)
Crash Hotspot Analysis

- Common hotspot themes
  - Ran off the road
  - Intersections within curves
- Hotspot 1 – Smokehouse Lane
  - 6 Total Crashes (MP 1.15-1.20)
- Hotspot 2 – Dynasty/Electra Drive
  - 5 Total Crashes (MP 1.25-1.30)
Sight Distance Constraints

- Melody Lane > 390\* feet (left barely)

\*390’ minimum for 35mph design speed
Sight Distance Constraints

- Wyatt’s Pond Lane > 390* feet (left barely)

*390’ minimum for 35mph design speed
Sight Distance Constraints

- Electra Drive < 390* feet left – ok to the right

*390’ minimum for 35mph design speed
Sight Distance Constraints

- Indigo Drive > 390* feet (right barely)

*390’ minimum for 35mph design speed
Pedestrian Safety Concerns

• Intersections
  – Other than at the two traffic signals, there is a lack of pedestrian crosswalks especially near school
  – No pedestrian pushbuttons at traffic signals

• Between intersections
  – Sidewalk is not continuous (most will be solved by project)
  – School-related crossings
Pedestrian Safety Concerns

- School-related crossings
Pedestrian Safety Concerns

- Pedestrian desire lines or “goat paths”
  - Pedestrians using the west side of the roadway
Pedestrian Safety Concerns

- Sidewalk tie-in points
- ADA-compliant ramps
School-Related Signs and Markings

- 25 mph school zone with single flashing light
- School crossing warning signs
- School zone pavement markings
**Bicycle Safety Concerns**

- Designated bike route (East Ridge) from E. Dynasty Drive left onto Reedy Creek Road to the south and left onto Wyatt’s Pond Lane
- Narrow shoulders with
  - Pot holes
  - Drop offs
N Harrison Avenue

Safety Issues
- Southbound lefts from Harrison Avenue cut across Reedy Creek Road westbound stop bar
- Curvature of Reedy Creek Road is cause of crashes
- No pedestrian signals or pushbuttons
- No safe storage for pedestrians when crossing N Harrison Avenue

Consider Staggering Stop Bar to Avoid Left-Turn Conflict

Sight Distance for Reedy Creek Road Right Turns
Dublin Woods Drive

Safety Issues
- Two object marker signs partially blocking view to the left out of Dublin Woods Drive (design)
- Rutting on right out of Dublin Woods and right in off of Reedy Creek Road (design)
- Poor pavement condition (design)
Melody Lane

Safety Issues
- Vertical curve hindering sight distance to the left from Melody Lane
- Tree hindering sight distance to the right
- Buses turn onto Melody Lane in afternoon

Sight Distance for Reedy Creek Road Left Turns
Wyatt’s Pond Lane/ Reedy Creek School Driveway

Safety Issues
- Pedestrian crossings
- Sight distance for Wyatt’s Pond Lane turning movements questionable especially with summer foliage
- Minor congestion during school drop-off and pick-up times

AM Peak Hour – about 8:00 AM

PM School Peak Hour – about 3:30 PM
Hotspot 2 – E Dynasty/Electra Drive

Safety Issues
- Sight distance to the left out of Electra Drive does not meet minimum standards
- Right turn radius not adequate for buses
- 2 out of 5 crashes ran off road
- Chevron spacing should be checked

Rutting on Electra Drive
Hotspot 1 – Smokehouse Lane

Safety Issues
- Sight distance to the right impaired by superelevation of the curve
- Poor shoulder conditions
  - 3 out of 6 crashes ran off road
- 2 out of 6 crashes with injuries
  - 1 Type A injury, 1 Type C injury
Indigo Drive

Safety Issues
- Noticeably more narrow entrance width than other intersecting streets
- Rutting occurring for both right turn out of Indigo Drive and right turn in from Reedy Creek Road
Safety Issues
- Significant left turn queuing during PM peak hour – entire queue not served in one cycle
- No pedestrian accommodations other than ADA-compliant ramps
- Possibly stagger stops bars on northbound approach for right-turn sight distance
Overall Corridor Observations

- Pavement is in fair condition
- Pavement markings (turn arrows especially) are in poor condition, except where new projects have allowed for recent striping
- Inconsistent pedestrian accommodations
Overall Corridor Observations

- Inconsistent use of stop bars
  - Only located on the E. Dynasty Drive approach
- Good signing for schools – pavement markings could be improved
- Advance curve warning signs in place – may need speed advisory plaques