Durham Traffic Separation Study
Council Work Session
October 10, 2013

A Joint Study Between the City of Durham, NCDOT, Triangle Transit, and Norfolk Southern Railway

Description of the Durham Traffic Separation Study (TSS)

- A comprehensive evaluation of traffic patterns and road usage at public rail/highway crossings in Durham County.
- The purpose of the study is to assess existing conditions and determine needed improvements to enhance safety.

Project Background

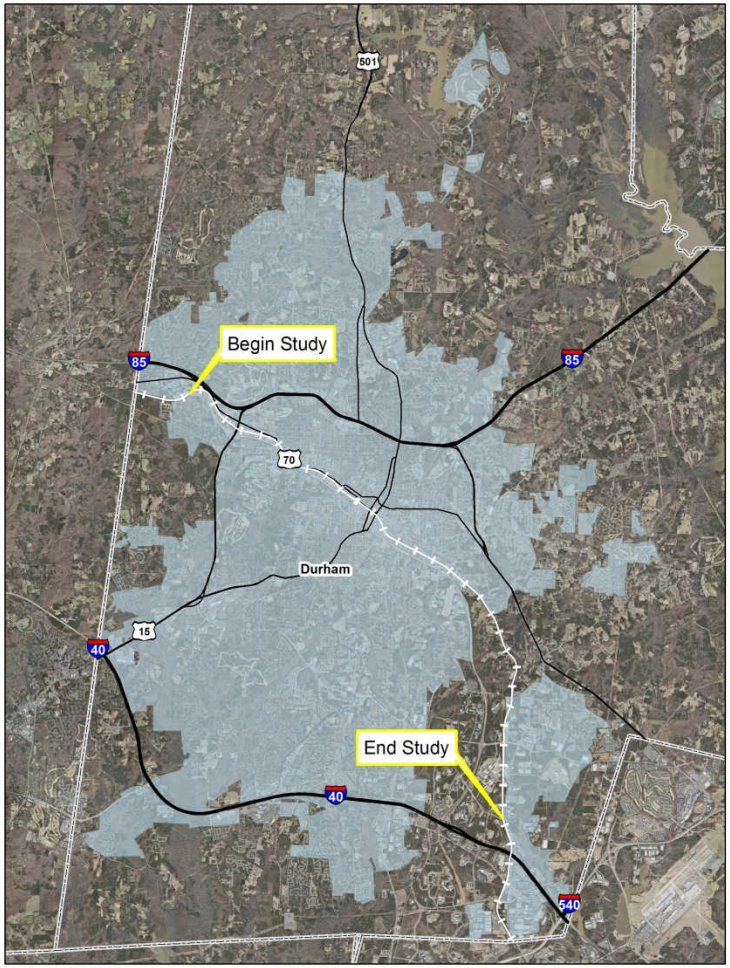
- The City entered into a Traffic Separation Study (TSS) agreement with NCDOT, Norfolk Southern, and Triangle Transit.
- The City Council approved $20,000 for the study.
- The project began in August 2011.

How the Study Will be Used

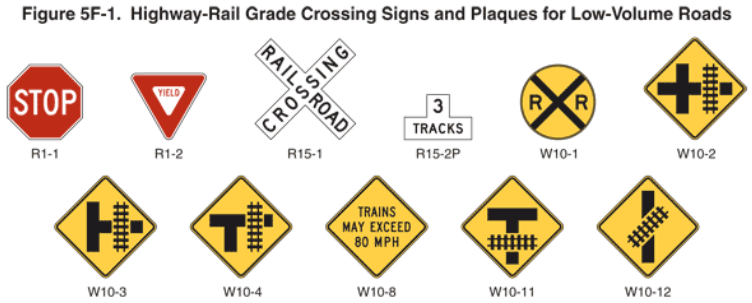
- Provides guidance to the City, NCDOT, NS, and NCRR when identifying and implementing safety improvements along the NCRR corridor through Durham County.
- Provides information for the City, NCDOT, NS, and NCRR to make near- and mid-term safety improvements.
- Provides ranking of long-term projects that may be selected for further study.
- Provides justification and foundation needed to pursue alternative funding sources.

Durham Study Limits

- 18 at-grade crossings
- 2 grade-separated crossings
- 1 proposed crossing
- Neal Road to Cornwallis Road
- Divided into three sections
  - West Section: Neal Road to Buchanan Boulevard
  - Downtown Section: Gregson Street to Driver Street
  - East Section: Ellis Road to Cornwallis Road



Safety Improvements Considered



Near-Term (2-5 years)	Mid-Term (5-7 years)	Long-Term (more than 7 years)
Upgraded Crossing Safety Equipment	Gates and Flashers	Grade Separations
Signs and Pavement Markings	Roadway Traffic Signals	Crossing Closures
Medians and Barriers	Medians and Barriers	Pedestrian Grade Separations
Bike and Pedestrian Improvements		

Outreach Efforts

Stakeholder Meetings

- November 2011
- April 2012
- October 2012
- May 2013

Council Work Sessions

- November 2011
- December 2012

Public Involvement

- Public meetings:
  - November/December 2011
  - March 2013
- Community group briefings
- Key leader interviews

Final Report

Outreach Efforts

- **Stakeholder Committee:**
  - PAC District 5 (Downtown) & District 1 (East Durham)
  - NCDOT Rail Division, Division 5, and District 2
  - City of Durham Planning, Transportation, Police, Fire
  - Durham County EMS, Public Schools, and Chamber of Commerce
  - Durham-Chapel Hill-Carrboro Metropolitan Planning Organization
  - NC Railroad, Norfolk Southern Corporation, Triangle Transit
  - Downtown Durham, Inc., Durham Area Transit Authority
  - Durham Bulls, Durham Performing Arts Center, American Tobacco Campus
  - Research Triangle Park
  - Duke University, North Carolina Central University
  - Triangle J Council of Governments
  - Interneighborhood Council of Durham

Outreach Efforts

- **Community Group Briefings:**
  - Partners Against Crime (PAC) District 5 (Downtown)
  - PAC District 1 (East Durham)
  - El Centro Hispano
  - Durham InterNeighborhood Council
  - Immaculate Conception Church Hispanic membership

Outreach Efforts

- **Key Leader Interviews**:
  - •Uplift East Durham
  - •El Centro Hispano
  - •Northeast Central Durham
  - •Immaculate Conception Church
  - •First Presbyterian Church
  - •Durham Congregations Associations and Neighborhoods
  - •North East Central Durham Livability Initiative Liaison

Data Collection

Multi-Modal Use

- Bike/pedestrian facilities
- Bus routes
- Bike routes

Use of Crossings

- Traffic volumes
- Pedestrian Activities
- Train operations
- Queuing over tracks

Safety

- Crash history
- EMS access
- Warning devices
- Median barriers
- Traffic signal connectivity

Final Report

Near-Term Alternatives – Key Points

- The City has already completed several of the near-term alternatives recommended as part of this study.
- Additional near-term alternatives may be paid for through City, NCDOT, and other funding sources.

Long-Term Alternatives – Key Points

- Due to the complexities of the study, a ranking process was used to assist stakeholders in identifying those projects which best balance safety improvements, cost benefit, community input, environmental impact, and general need.
- Long-term alternatives would be selected for further study as funding becomes available.
- Additional public involvement and environmental assessment will be included in future studies.
- Any long-term improvement project may be selected at any time for further study if conditions warrant.

Project Ranking

Data Factors

- Exposure Index
- Benefit - Cost
- Crash History
- Reduced Auto Delay
- Reduced CO Emissions
- Reduction in Accidents

Environmental Factors

- Neighborhood Impacts
- Property Impacts
- Business Impacts
- Multi-Modal Impacts
- EMS Impacts

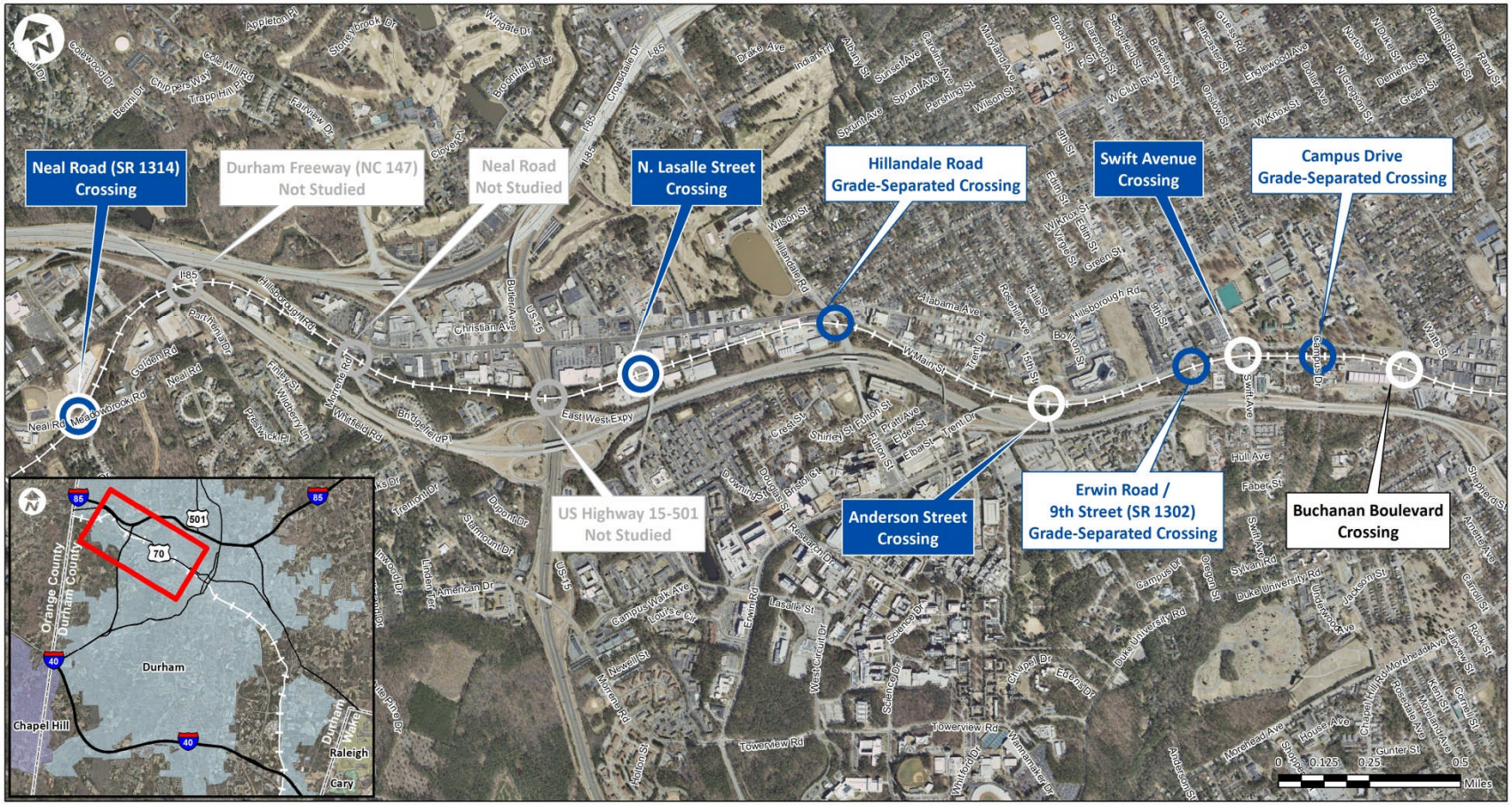
Stakeholder Input

- Stakeholder Feedback
- Community Input

Final Ranking

Long-Term Alternative Ranking

Crossing	Section	Alternative	Rank
Blackwell, Mangum, and Roxboro Streets	Downtown	Grade Separation	1
Ellis Road West	East	Grade Separation	2
S. Dillard Street	Downtown	Close Crossing (Construct Pedestrian Underpass)	3
Ramseur Street	Downtown	Close Crossing (Construct Pedestrian Underpass)	4
Cornwallis Road	East	Grade Separation	5
Briggs Avenue	Downtown	Grade Separation	6
Ellis Road East	East	Grade Separation	7
Plum Street	Downtown	Close Crossing (Construct Pedestrian Underpass)	8
N. LaSalle Street	West	Grade Separation	9
Fayetteville Street	Downtown	Grade Separation	10
Glover and Wrenn Roads	East	Grade Separation at Glover Road and Close Wrenn Road	11
Neal Road	West	Grade Separation	12



Legend

- At-Grade Crossings
- Grade-Separated Crossings
- Proposed Grade-Separated
- Rail Corridor
- Other Crossings - Not in Project

Durham Traffic Separation Study

Section 1

Durham County, North Carolina

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NORFOLK SOUTHERN

Kimley-Horn and Associates, Inc.

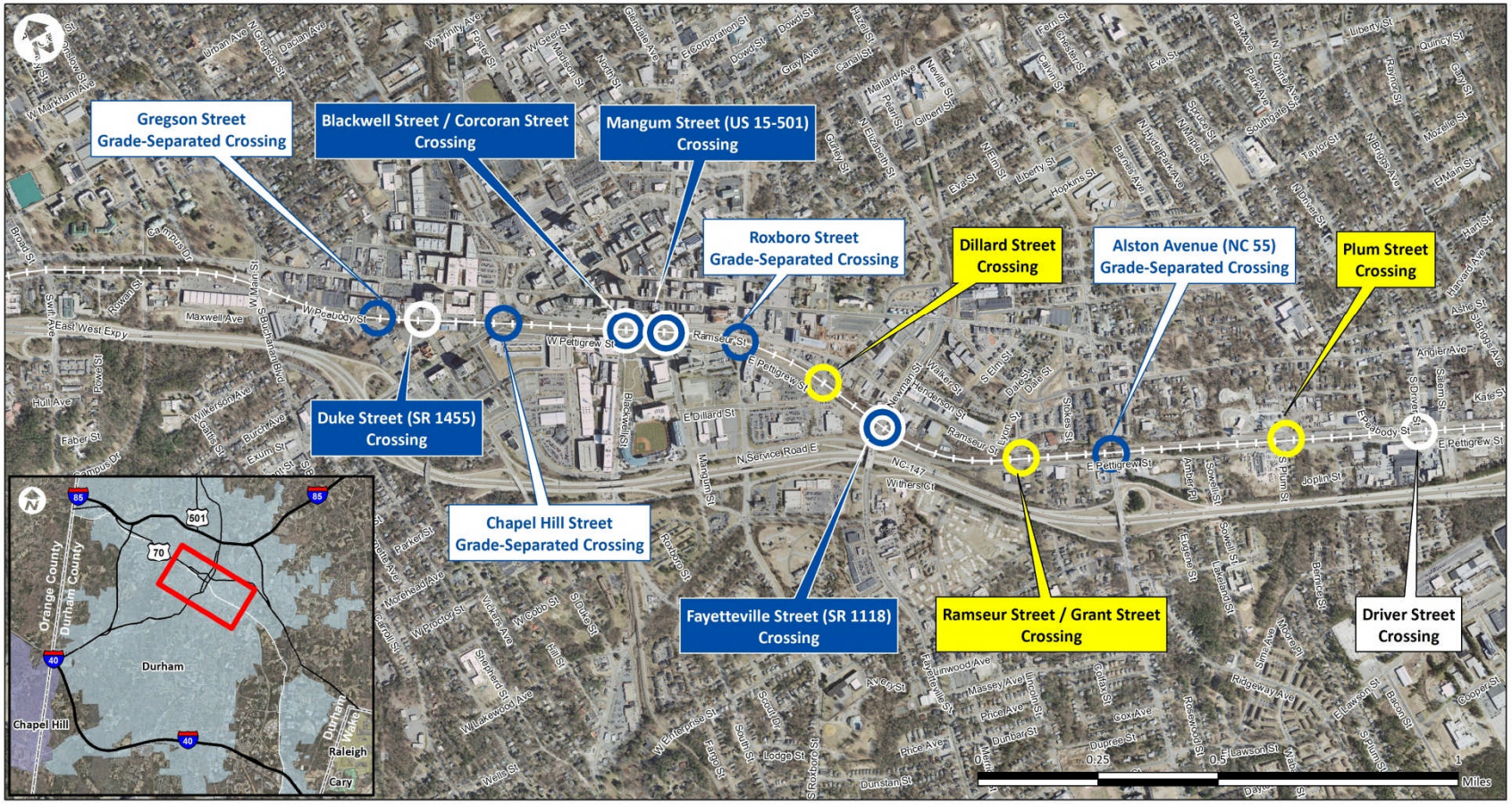
West Section
Near and Mid-Term Alternatives

Crossing Name	Pvmt. Mrks.	Warning Signs	Signal Upgrade	Asphalt / Sidewalk	Median Barrier
Neal Road					
N. LaSalle Street		X *			X
Anderson Street	X *				
Swift Avenue	X	X *	X #	X	
Buchanan Boulevard				X	

Signal must meet warrant requirements and be approved by NCDOT
* Complete

Long-Term Alternatives
West Section

Crossing	Alternative	Rank
N. LaSalle Street	Grade Separation	9
Neal Road	Grade Separation	12



Legend

- Rail Corridor
- At-Grade Crossings
- Grade-Separated Crossings
- Proposed Grade-Separated
- Proposed Crossing Consolidation
- Other Crossings - Not in Project

Durham Traffic Separation Study

Section 2

Durham County, North Carolina

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NS NORFOLK SOUTHERN

Kimley-Horn and Associates, Inc.

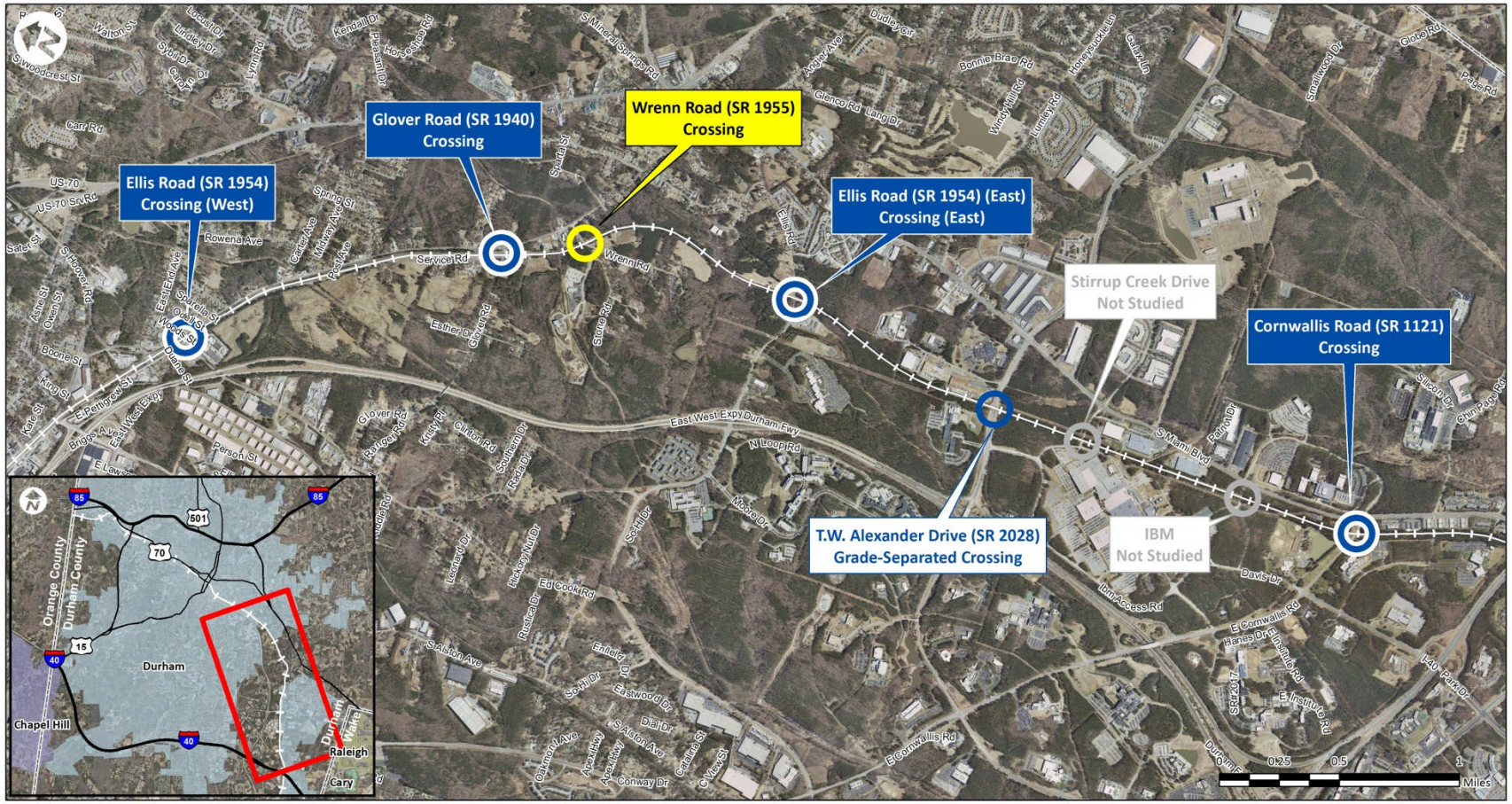
Downtown Section Near to Mid-Term Alternatives

Crossing Name	Pvmt. Mrks.	Pedestrian Lighting	Signal Upgrade	Asphalt/ Sidewalk	Median Island	Resurface	Repaint Bridge
Duke Street	X			X			
Chapel Hill Street	X	X *	X	X	X		X
Blackwell / Corcoran St.	X *	X	X	X *		X *	
Mangum Street	X	X		X		X	
Roxboro Street		X *		X		X	X
Dillard Street							
Fayetteville Street	X		X				
Ramseur Street							
Plum Street							
Driver Street							

* Complete

Long-Term Alternatives
Downtown Section

Crossing	Alternative	Rank
Blackwell, Mangum, and Roxboro Streets	Grade Separation	1
S. Dillard Street	Close Crossing (Construct Pedestrian Underpass)	3
Ramseur Street	Close Crossing (Construct Pedestrian Underpass)	4
Briggs Avenue	Grade Separation	6
Plum Street	Close Crossing (Construct Pedestrian Underpass)	8
Fayetteville Street	Grade Separation	10



Legend

- Rail Corridor
- At-Grade Crossings
- Grade-Separated Crossings
- Proposed Grade-Separated
- Consolidated Crossing
- Other Crossings - Not in Project

Durham Traffic Separation Study

Section 3

Durham County, North Carolina

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NS NORFOLK SOUTHERN

Kimley-Horn and Associates, Inc.

East Section
Near and Mid-Term Alternatives

Crossing Name	Pvmt. Mrks.	Warning Signs	Close Driveway	Asphalt / Sidewalk	Median Barrier
Ellis Road (West)			X		
Glover Road		X			
Wrenn Road					
Ellis Road (East)					
Cornwallis Road	X			X	

* Complete

Long-Term Alternatives
East Section

Crossing	Alternative	Rank
Ellis Road West	Grade Separation	2
Cornwallis Road	Grade Separation	5
Ellis Road East	Grade Separation	7
Glover and Wrenn Roads	Grade Separation at Glover Road and Close Wrenn Road	11

Long-Term Alternative Ranking

Crossing	Section	Alternative	Rank
Blackwell, Mangum, and Roxboro Streets	Downtown	Grade Separation	1
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Neal Road	West	Grade Separation	12

Next Steps

- The City has already completed many of the near-term alternatives recommended as part of this study.
- Public Hearing October 21, 2013
  - Receive public comments.
- December Council Meeting
  - Seeking a resolution to endorse TSS including recommendations and priority list.
- City and NCDOT to begin using study as a foundation for seeking out funding for future improvements.

Comments/Questions?