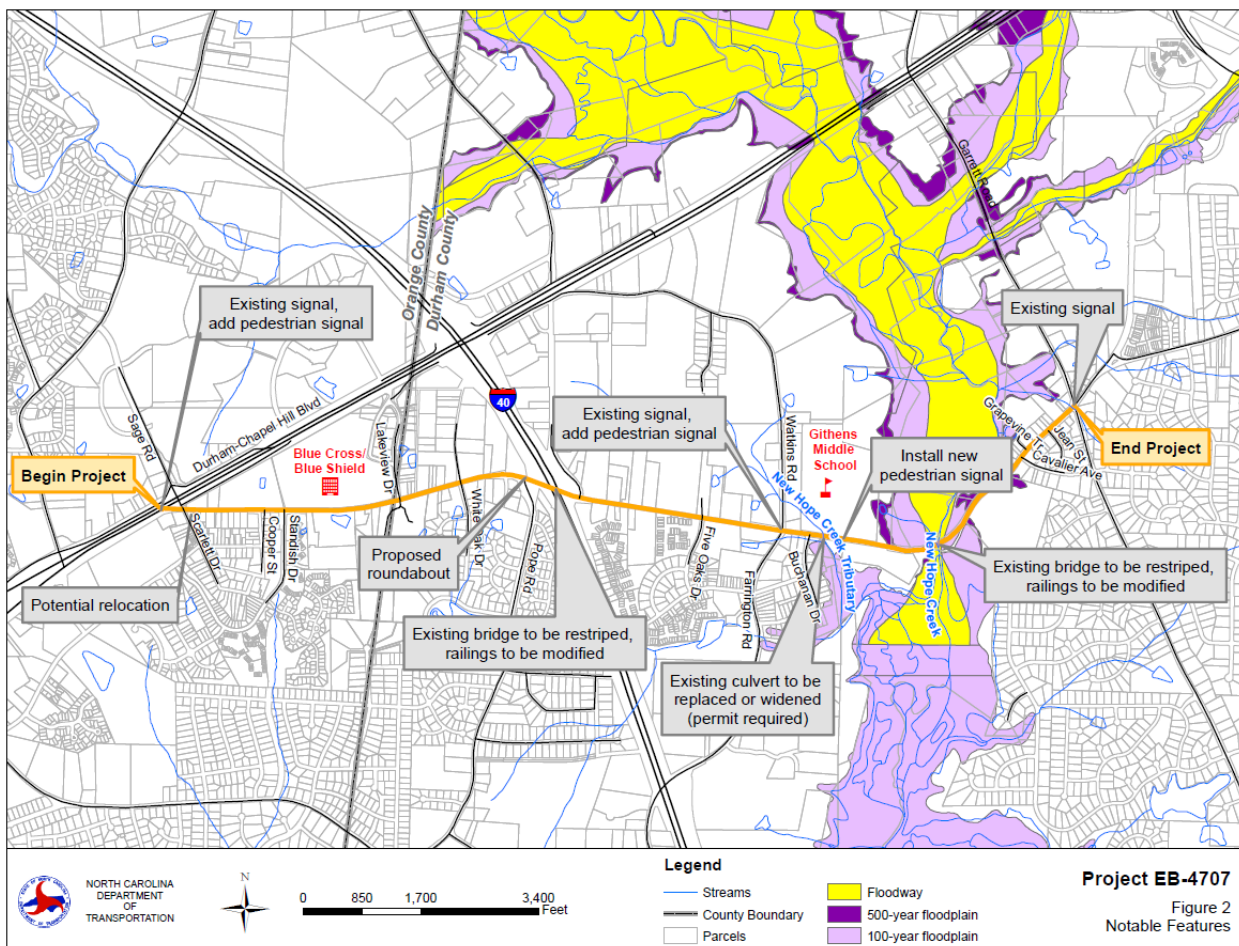


## Project Narrative

### Old Durham Road/Old Chapel Hill Road Complete Streets Project

Prepared by the Durham-Chapel Hill-Carrboro MPO – November 26, 2013

The Old Durham Road/Old Chapel Hill Road Complete Streets Project will make improvements to a 2.7 mile corridor linking Durham and Chapel Hill, North Carolina. The project will add sidewalks and an on-road striped bike lane on both sides of the road, pedestrian signals at two signalized intersections (US 15-501 and Farrington Road), a new pedestrian signal at a crosswalk in front of Githens Middle School, bus stop improvements, intersection lighting, and a roundabout at the intersection with Pope Road.



*Project Area Map*

Old Durham/Chapel Hill Road is an important corridor for pedestrians, bicyclists, and transit users. The list below summarizes the need for pedestrian and bicycle facility improvements along the corridor.

- Old Durham/Chapel Hill Road is a key transportation connector between Chapel Hill and Durham. It serves as the only direct connection between Durham and Chapel Hill for those who wish to avoid US 15/501. The corridor provides access to Old Chapel Hill Road Park, greenway trails, several existing and planned apartment complexes and townhouse developments, residential neighborhoods, churches, Githens Middle School, Blue Cross/Blue Shield, hotels, shopping, and offices. Both UNC-Chapel Hill and Duke University are within bicycling distance of the corridor.
- Existing pedestrian and bicycle facilities include discontinuous sidewalks and shoulders. There are few opportunities to cross the road, and where they do exist, they lack crosswalks, pedestrian signals, median crossing islands, pedestrian lighting, or other safety treatments. None of the transit stops have benches or shelters. Improvements in the area around Githens Middle School will make it safer for students and staff to walk and bicycle to school. In 2011 a Githens student recently produced a video describing the difficulties of walking and biking to the school:  
<http://www.youtube.com/ShapeYourWorldNC>
- The roadway has bus stops for several transit systems (Triangle Transit, Chapel Hill Transit, and Durham Area Transit Authority (DATA)). Often these bus stops are isolated and difficult to access on foot or by bicycle. Providing safe and convenient pedestrian and bicycle access to transit can make bus service accessible to more customers and increase ridership.



*A middle school student rides a bicycle after school on Old Durham/Chapel Hill Road.*

- Pedestrian and bicycle facilities on Old Durham/Chapel Hill Road would provide residents of the area with more choices in how they travel to nearby destinations. Better pedestrian and bicycle facilities will make it safer for people who are already walking and

bicycling along the roadway. New sidewalks, shared-use paths, bike lanes, and crosswalks will make the roadway more attractive to people who currently avoid this roadway because they feel it is unsafe.

- Pedestrian and bicycle improvements can have a positive effect on air quality. Providing bicycle and pedestrian facilities along Old Durham/Chapel Hill road will provide needed amenities for those who choose to ride because of age, economics or physical barriers to operating a vehicle. Some of the apartment complexes along the corridor cater to college students at UNC-Chapel Hill, Duke University, and N.C. Central University (at least one of the apartment complexes provides dedicated bus transportation to the universities).

The project connects to other existing and under-construction bicycle and pedestrian facilities in Durham and Chapel Hill, including the following:

- NCDOT is improving 2.6 miles of Weaver Dairy Road in Chapel Hill by adding bike lanes and sidewalks to both sides of the road (TIP Project U-3306). This project will connect via Sage Road to the western terminus of Old Durham/Chapel Hill Road. The design of the project can be viewed at the following site:  
[http://www.ncdot.org/doh/preconstruct/highway/roadway/hearingmaps\\_by\\_county/resource/u3306.pdf](http://www.ncdot.org/doh/preconstruct/highway/roadway/hearingmaps_by_county/resource/u3306.pdf)
- In 2010, the City of Durham used ARRA funds to complete sidewalks on both sides of a 1.9 mile portion of University Drive (just east of the project limits) between Old Chapel Hill Road and Academy Drive (TIP Project U-4726HA). This Old Durham/Chapel Hill Road Project will connect to these sidewalks, allowing pedestrian access to numerous office, retail, and residential locations.
- As part of resurfacing projects in 2010 and 2011, the City of Durham has restriped University Drive (just east of the project limits) to provide wide outside lanes for bicyclists. In the future, sharrow markings may be striped on this section of University Drive. University Drive provides a connection to the bike lanes on Martin Luther King Parkway, which can be used to access the American Tobacco Trail rail-trail and Research Triangle Park, a regional employment center.
- The project improves connections to the existing Booker Creek greenway trail in Chapel Hill and the New Hope Creek trail system in Durham.

Old Durham/Chapel Hill Road has been recognized as a critical link for pedestrian and bicycle travel by Durham and Chapel Hill for two decades. Though the two municipalities, and UNC-Chapel Hill and Duke University, are only a few miles apart, there are currently no good bicycle and pedestrian connections between them. Improving the safety and convenience of walking and bicycling along this corridor will help both communities accomplish a task that has long been identified as a critical connection between the two.

The 1993 Regional Bicycle Plan for Durham and Orange Counties identified Old Durham / Chapel Hill Road as a key bicycle connection between Durham and Chapel Hill. The Plan listed

non-motorized trip generators within the corridor and identified opportunities for adding bicycle lanes along the roadway.

Several other plans have also recommended Old Durham/Chapel Hill Road as a key corridor for pedestrian and bicycle improvements:

- The 2004 Town of Chapel Hill Bicycle and Pedestrian Action Plan, adopted October 2004, recommends providing sidewalks on both sides of Old Durham/Chapel Hill Road, striping bicycle lanes along the road, and improving pedestrian and bicycle conditions at the intersection of US 15/501 and Scarlett Drive.
- The Durham Comprehensive Bicycle Transportation Plan and the DurhamWalks! Pedestrian Plan, both adopted in 2006, recommend bicycle lanes and sidewalks on Old Durham/Chapel Hill Road.
- One of the goals of the Durham-Chapel Hill-Carrboro (DCHC) MPO 2035 Long Range Transportation Plan (LRTP) is to establish a “pedestrian and bicycle system that provides a safe alternative means of transportation; allows greater access to public transit; supports recreational opportunities; and includes off-road trails” The 2035 LRTP specifically recommends that bike lanes and sidewalks be provided on Old Durham/Chapel Hill Road.

In 2005 and 2006, the Old Durham/Chapel Hill Road Bicycle and Pedestrian Feasibility Study was prepared. This study included an extensive public outreach component and provided cost estimates and constructability drawings for improvement to the corridor. The feasibility study was adopted by the DCHC MPO in 2006. The study can be downloaded at:

[www.dchcmpo.org/index.php?option=com\\_content&task=view&id=27&Itemid=35](http://www.dchcmpo.org/index.php?option=com_content&task=view&id=27&Itemid=35)

In February 2008, the City of Durham, the Town of Chapel Hill, and the N.C. Department Transportation (NCDOT) approved an inter-governmental agreement to jointly participate in the planning and construction of bicycle and pedestrian facilities along Old Durham/Chapel Hill Road. NCDOT allocated \$400,000 in STP Transportation Enhancement funds to the project. The DCHC MPO allocated \$2,742,400 in STP-DA funds, and Durham and Chapel Hill agreed to provide the 20 percent local match (\$685,600). NCDOT’s Division 5 Office, based in Durham, agreed to manage the project design and construction. Consultant Kimley-Horn and Associates was selected to develop project designs. The project was placed in the State Transportation Improvement Program (STIP) as project number EB-4707.

On August 24, 2010, NCDOT held an open house and public information session on the Old Durham/Chapel Hill Road improvement project. The purpose of this meeting was to provide the public and businesses the opportunity to review the preliminary engineering design plans, provide feedback on the improvements, and discuss project specifics with NCDOT, the consultant, and staff from Durham and Chapel Hill. Around this same time, meetings occurred with one major employer and two neighborhood associations in the corridor to modify the design to address specific concerns.

On February 4, 2011, the Categorical Exclusion for the project was approved by the Division Administrator of the Federal Highway Administration. In the spring and summer of 2011, as final design plans were completed, detailed right-of-way and construction cost estimates were prepared for the project. It became clear that additional funds were needed in order to move forward with right-of-way acquisition and construction of the improvements. Several potential funding sources were explored, and the MPO applied for grant funding under the federal TIGER and TCSP programs. However, these applications were not successful.

The project parties for the Old Durham Road/Old Chapel Hill Road Complete Streets Project include the following:

- City of Durham
- Town of Chapel Hill
- Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO)
- Triangle Transit
- N.C. Department of Transportation (NCDOT)
- Kimley-Horn and Associates (project consultant)

Old Durham/Chapel Hill Road is maintained by NCDOT. In Durham County, the road number is SR 2220. Vehicles per day (vpd) in the Durham County section ranged from 11,000 to 17,000 in 2009. In Orange County, the road number is SR 1838 and vehicles per day in 2009 were 6800.

According to NCDOT's 2008 Pavement Condition Survey (the most recent survey available), the Durham County section of Old Durham/Chapel Hill Road has a pavement condition rating ranging from 96.7 to 100 (on a 100 point scale). The report further indicates that portions of the Durham County section were resurfaced in 2004, and there is no indication of alligator cracking, transverse cracking, raveling, oxidation (weathering), bleeding, or rutting, and ride quality is average. The report estimates the cost of repairs to this section at \$19,861.

The Orange County section of Old Durham/Chapel Hill Road has a pavement condition rating from the 2008 survey of 80.9 (on a 100 point scale). The report indicates that there is alligator cracking on this portion, but no indication of transverse cracking, raveling, oxidation (weathering), bleeding, or rutting, and ride quality is average. The report estimates the cost of repairs to this section at \$29,144.<sup>i</sup>

The project's bike lanes will provide the benefits attributed to paved shoulders — such as the reduction of edge stresses and edge and corner deflections, and reduction of the development of pavement edge drop-offs — increasing pavement life and reducing maintenance costs.<sup>ii</sup> The curb and gutter being provided along portions of the project will also help to extend pavement life by maintaining the integrity of roadway edges.





*New development is occurring along the roadway and in surrounding areas. In order to reduce project costs, Chapel Hill and Durham have taken advantage of opportunities to add pedestrian and bicycle facilities when development occurs, rather than making expensive retrofits in the future after development is already established. An example is the sidewalk and curb and gutter shown in this photo, built as part of a new subdivision.*

The Old Durham/Chapel Hill Road Complete Streets project will increase the efficiency and effectiveness of the transportation system by improving bicycle and pedestrian connections to current bus routes and planned light rail stations and associated transit-oriented development (TOD) areas.

The corridor is currently served by Durham Area Transit Authority (DATA) Route 10, the Chapel Hill Transit D and D Express routes, and the Triangle Transit Route 400. As discussed previously, currently bus stops are often isolated and difficult to access on foot or by bicycle. Providing safe and convenient pedestrian and bicycle access to transit can make bus service accessible to more customers and increase ridership.

The corridor is located near two proposed light rail stations, Gateway and Patterson Place. The light rail line—proposed to open in 2025—would be 17 miles in length and connect Chapel Hill and Durham. Assessments of these station areas for transit-oriented development have stressed the need for improved bicycle and pedestrian access and connectivity, which will be provided in part by the Old Durham/Chapel Hill Road Complete Streets project.

Voters in both Durham and Orange Counties have approved a one-half cent sales tax increase to fund public transportation improvements, as outlined in the Durham County and Orange County Bus and Rail Investment Plans. More information about these plans is on-line at:

<http://www.ourtransitfuture.com/>

# TOD Assessments

### Station Area Site Context

#### Overview

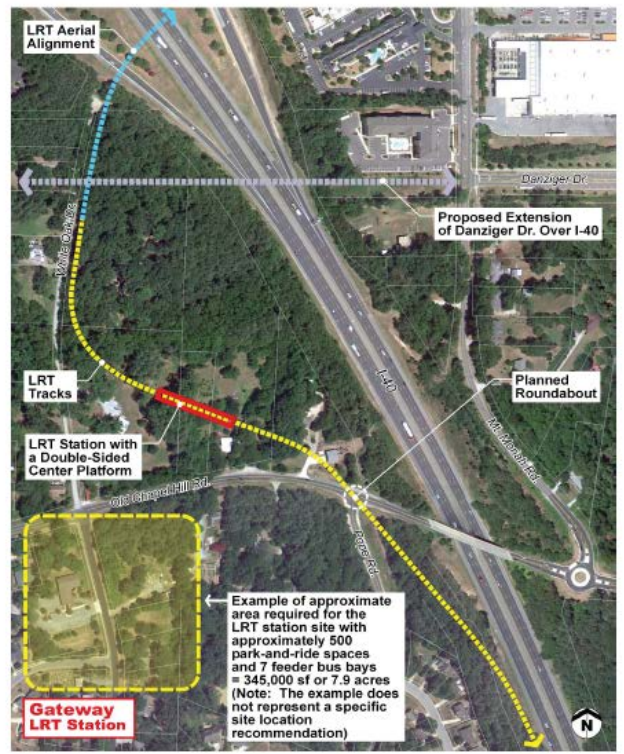
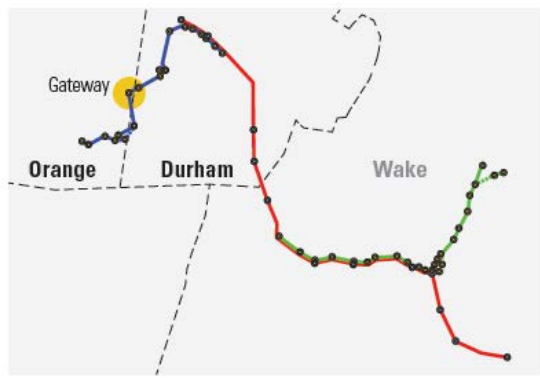
##### LRT Station Location:

Per Durham-Orange County Corridor - Alternatives Analysis, the Gateway Station would be located northeast of the Old Chapel Hill Road and White Oak Drive intersection, west of I-40. The intersection of Old Chapel Hill Road and Pope Road is planned to be reconstructed as a round-a-bout. Also, Danzig Road is proposed to be extended west over I-40.

In addition, this TOD Report evaluates two alternate LRT Station Locations, Options (B) & (C), not included within the Alternatives Analysis.

Option (B): East Lakewood Drive near the intersection with Durham Chapel Hill Boulevard (HWY 15-501).

Option (C): North White Oak Drive midway between I-40 and the intersection at Durham Road.



*The project would improve bicycle and pedestrian access to the proposed Gateway Light Rail Station Area. In the photo above, the light rail line passes through the roundabout at the intersection of Old Durham/Chapel Hill Road and Pope Road.*

(Source: Triangle Transit, Durham-Orange County Corridor Alternatives Analysis: Vol. 4 TOD Assessment Report, May 2011)

## TOD Assessments

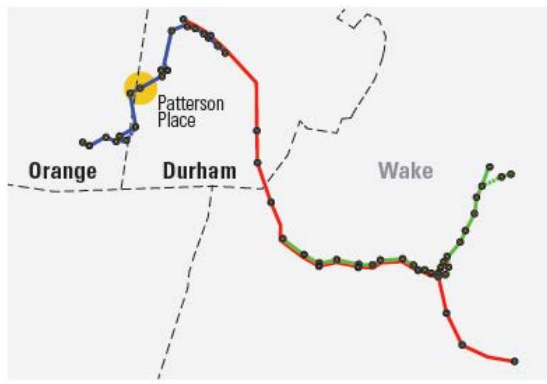
### Station Area Site Context

#### Overview

##### LRT Station Location:

Per Durham-Orange County Corridor - Alternatives Analysis, the Patterson Place Station would be located east of the McFarland and Sawyer Drive Intersections, and southwest of SW Durham Drive.

## Patterson Place Station 2.1



The project would also improve bicycle and pedestrian access to the proposed Patterson Place Light Rail Station Area. Old Durham/Chapel Hill Road is shown at the very bottom of the photo above.

(Source: Triangle Transit, Durham-Orange County Corridor Alternatives Analysis: Vol. 4 TOD Assessment Report, May 2011)

The project addresses the six livability principles developed by USDOT with HUD and EPA as part of the Partnership for Sustainable Communities, as follows:

1. Provide more transportation choices. The project provides more transportation choices by providing options for bicycling and walking in the Old Durham/Chapel Hill Road Corridor. The project improves connections between residential and commercial areas and improves access to existing bus services and proposed future bus and light rail service.
2. Promote equitable, affordable housing. By providing more transportation choices, the project can reduce household transportation costs and support existing affordable housing programs, including promotion of “smart commute” mortgages that are designed to increase homeownership in areas near public transportation. Triangle Transit also provides information for college students on housing that is within walking or biking distance of area campuses or on a bus route, through the [www.redefinetravel.org](http://www.redefinetravel.org) website.



3. Enhance economic competitiveness. The project supports existing Transportation Demand Management (TDM) programs by making bicycling, walking, and transit viable options for residents who work and study at UNC-Chapel Hill, Duke University, and other employers and institutions in the region.
4. Support existing communities. The project targets federal funding toward areas where there is existing and proposed transit-oriented, mixed-use development and proposed future light rail service, and where investment have been made in water, sewer, and transportation infrastructure.
5. Coordinate policies and leverage investment. The project is a collaborative effort of NCDOT, DCHC MPO, and the municipalities of Durham and Chapel Hill. The project has developed out of local and regional planning processes, including long range transportation plans, regional bicycle plans, local comprehensive plans, local greenhouse gas plans, and local bicycle and pedestrian plans.
6. Value communities and neighborhoods. Various studies have shown that making a neighborhood more walkable and bikeable can increase property value and enhance neighborhood desirability and sustainability.<sup>iii</sup> During the project design, there have been individual meetings with affected neighborhoods and businesses to resolve concerns about address design issues that might impact a neighborhood or property.

In order to coordinate the project with communities and neighborhoods, several public involvement activities have been held. As part of the Old Durham/Chapel Hill Road Bicycle and Pedestrian Facilities Study (completed in February 2006), a two-day design charrette/open house was held in April 2006 and attended by over 50 people, and a public open house was held in June 2005 and attended by 35 people. Fifty-two people completed and returned public surveys.

On August 24, 2010, an open house was held to present the most current designs to the public. Forty citizens signed in during the open house, and comments from 16 citizens were returned either during the workshop or in the comment period following the workshop. Five people thought that sidewalks were only needed on one side, and four liked the project as proposed. The remaining comments included concerns about removing trees, safety on bridges, and accommodations for tractor-trailers through the roundabouts.

Traffic along Old Durham/Chapel Hill Road has steadily increased over the past several years. Traffic volumes along in the western portion of the corridor are 11,000 vehicles per day (vpd) and the eastern portion 17,000 vpd. High traffic volumes along the corridor will continue to be problematic for safe pedestrian and bicycle mobility if provisions are not made for these alternative modes.

Existing pedestrian and bicycle facilities include several disconnected sidewalks and shoulders. In most portions of the corridor, there is little space to walk or bicycle. Public surveys administered in 2005 found that comfort and personal safety in traffic were the primary concern for cyclists in Durham and Chapel Hill in deciding where to ride.

Safety for bicyclists and pedestrians will not improve without measures being taken. By adding facilities, crashes will likely decrease, as shown through research published in FHWA's Bicycle Safety-Related Research Synthesis (publication no. FHWARD-94-062, April 1995) which indicated that adding bike lanes to communities in Oregon and Denmark reduced accident rates and improved the feeling of cyclists safety.

Analysis performed in 2002 by the N.C. Department of Transportation found that the North Carolina average crash rate for a 2- to 3-lane undivided state route is 393 crashes per 100 million vehicle miles traveled (MVMT). Between August 31, 2001 and August 31, 2004, NCDOT reported 416 crashes along Old Durham/Chapel Hill Road. This translates to a total crash rate of 1,758 crashes per 100 MVMT, which is almost five times the state average crash rate for a similar road.

By providing a roundabouts and pedestrian walkways, the project incorporates safety countermeasures recommended by the FHWA Safety Program. To improve safety for bicyclists and pedestrians, the project will add sidewalks and an on-road striped bike lane on both sides of the road, pedestrian signals at two intersections (US 15-501 and Farrington Road), a pedestrian signal at a crosswalk in front of Githens Middle School, and bus stop improvements.

In addition, the extra pavement width provided by the bike lanes will provide the benefits attributed to paved shoulders -- studies included in TRB Special Report 214, "Designing Safer Roads - Practices for Resurfacing, Restoration, and Rehabilitation" and Publication No. FHWA/RD-87/094, "Safety Cost-Effectiveness of Incremental Changes in Cross-Section Design - Informational Guide" have cited reduced accident rates with the use of paved shoulders. The bike lanes also provide a place for buses and other vehicles to temporarily pull over during emergencies.

The 2006 feasibility study also recommended roundabouts at two intersections in the corridor, Mt. Moriah Road and Pope Road. Roundabouts have demonstrated substantial safety and operational benefits compared to other forms of intersection control, with reductions in fatal and injury crashes of from 60 to 87 percent. The roundabout at Mt. Moriah Road has already been built by a private developer to mitigate traffic impacts of a new development near the corridor. The other roundabout at Pope Road will be built as part of the project.



*A roundabout at Mt. Moriah Road has already been built by a private developer to mitigate traffic impacts of a new development near the Old Durham/Chapel Hill Road corridor.*

## **End Notes**

<sup>i</sup> NCDOT Pavement Condition Survey Files website, accessed September 23, 2011, [http://ncdot.gov/doh/pmu/PavementInfo/PCS\\_Download/](http://ncdot.gov/doh/pmu/PavementInfo/PCS_Download/)

<sup>ii</sup> FHWA Technical Advisory on Paved Shoulders, accessed October 15, 2011, <http://www.fhwa.dot.gov/pavement/t504029.cfm>

<sup>iii</sup> For instance, see “Walking the Walk,” accessed October 29, 2011, <http://www.ceosforcities.org/work/walkingthewalk> and “How Much is a Bike Trail Worth?” accessed October 29, 2011, <http://www.theatlanticcities.com/commute/2011/10/how-much-bike-trail-worth/382/>