

A RESOLUTION PROVIDING COMMENTS ON A NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION CONCEPT PLAN FOR IMPROVEMENTS TO JONES FERRY
ROAD

Draft Resolution No. 166/2011-12

WHEREAS, frequent requests have been made by citizens, Board of Aldermen members, and Town staff to the North Carolina Department of Transportation in recent years regarding safety improvements along Jones Ferry Road; and,

WHEREAS, the Carrboro Bicycle Transportation Plan (2009) recommends bike lanes on Jones Ferry Road between Davie Road and Old Fayetteville Road; and,

WHEREAS, a crash analysis reveals that at or immediately adjacent to the intersection of Jones Ferry and Davie Roads, there were 20 reported crashes in a 5-year period from November 2006 to October 2011; and,

WHEREAS, NCDOT has developed a concept plan for improvements in the Jones Ferry Road corridor with a goal of improving safety for pedestrians, bicyclists, and motor vehicles; and,

WHEREAS, NCDOT has indicated a preference to submit by June 2012 an application to the statewide Spot Safety program to implement the concept plan; and,

WHEREAS, the Board of Aldermen received public comment on the concept plan at its March 27, 2012, public hearing; provided follow-up questions and directed that the concept plan be reviewed by the Transportation Advisory Board; and,

WHEREAS, the Transportation Advisory Board reviewed the concept plan at its April 19 and May 3, 2012, meetings, and adopted a recommendation to the Board;

NOW THEREFORE BE IT RESOLVED by the Carrboro Board of Aldermen that:

1. Subject to the comments in Part 3, the Board endorses the concept plan for improvements to Jones Ferry Road;
2. Subject to the comments in Part 3, the Board recommends that NCDOT move forward with a Spot Safety funding application to implement the concept plan;
3. The following additional comments are provided:

[Options for additional comments]

- a. Construct the medians to allow for future plantings.
- b. Provide a protected bike lane in the eastbound direction between the NC-54 eastbound on-ramp and the Abbey Court Apartments driveway, including a bike lane at least 5 feet wide between the gutter pan and a buffer. At a minimum, the buffer should be at least 3 feet wide and composed of thermoplastic striping with cross-hatching, in accordance with the Manual on Uniform Traffic Control Devices. Alternative design elements should also be considered, including, but

not limited to, supplementing the striped buffer with plastic highway delineators or a raised curb buffer.

- c. Work with Town staff on designs to continue a westbound bike facility west of Alabama Ave., including consideration of a bike lane, protected bike lane, or shared lane markings.
 - d. Sharpen the curb radius at the NC-54 westbound on-ramp to slow the speed of right-turning vehicles.
 - e. Consider how to combine the bike lane and painted bus pull-off.
 - f. _____
 - g. _____
 - h. _____
4. Staff are directed to forward this resolution to NCDOT and continue to coordinate as needed with NCDOT on this project.
 5. After implementation, Planning, Public Works, and Police Department staff are directed to work with NCDOT to monitor if there is an effect on Alabama Ave. and explore a reduction in the posted speed limit.
 6. _____
 7. _____
 8. _____

BE IT FURTHER RESOLVED that the Board of Aldermen expresses appreciation to NCDOT for its efforts toward addressing safety concerns in the Jones Ferry Road corridor.

This is the 5th day of June in the year 2012.

A RESOLUTION RELATING TO A NORTH CAROLINA DEPARTMENT OF
TRANSPORTATION CONCEPT PLAN FOR IMPROVEMENTS TO JONES FERRY ROAD

WHEREAS, frequent requests have been made by citizens, Board of Aldermen members, and Town staff to the North Carolina Department of Transportation in recent years regarding safety improvements along Jones Ferry Road; and,

WHEREAS, the Carrboro Bicycle Transportation Plan (2009) recommends bike lanes on Jones Ferry Road between Davie Road and Old Fayetteville Road; and,

WHEREAS, a crash analysis reveals that at or immediately adjacent to the intersection of Jones Ferry and Davie Roads, there were 20 reported crashes in a 5-year period from November 2006 to October 2011; and,

WHEREAS, NCDOT has developed a concept plan for improvements in the Jones Ferry Road corridor with a goal of improving safety for pedestrians, bicyclists, and motor vehicles; and,

WHEREAS, NCDOT has indicated a preference to submit by June 2012 an application to the statewide Spot Safety program to implement the concept plan; and,

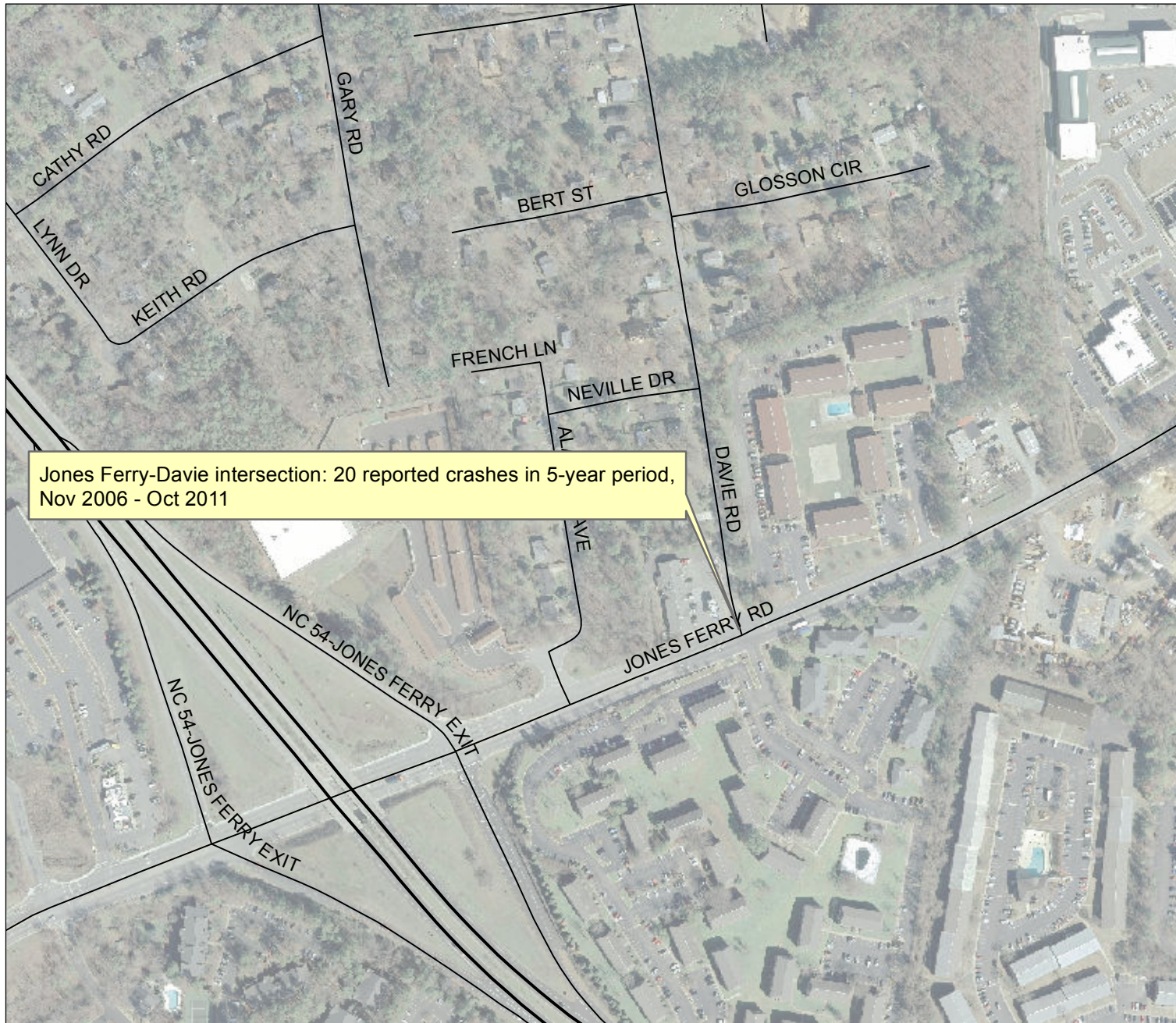
WHEREAS, the Board of Aldermen received public comment on the concept plan at its March 27, 2012, public hearing; provided follow-up questions and directed that the concept plan be reviewed by the Transportation Advisory Board; and,

WHEREAS, the Transportation Advisory Board reviewed the concept plan at its April 19 and May 3, 2012, meetings, and adopted a recommendation to the Board;

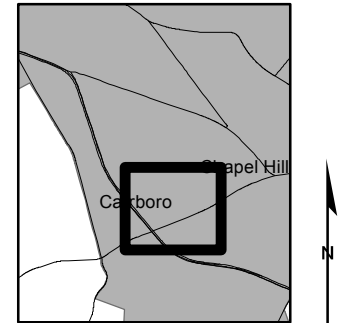
NOW THEREFORE BE IT RESOLVED by the Carrboro Board of Aldermen that:

1. _____
2. _____
3. _____

This is the 5th day of June in the year 2012.



Jones Ferry Rd. Concept Plan Area



0 0.5 1 Miles

**THIS MAP IS NOT A CERTIFIED SURVEY
NO RELIANCE MAY BE PLACED IN ITS
ACCURACY**

The Town of Carrboro assumes no liability for damages caused by inaccuracies in this map or supporting data and makes no warranty, expressed or implied, as to the accuracy of the information presented. The fact of distribution does not constitute such a warranty.



TOWN OF CARRBORO
301 W. Main St.
Carrboro, NC 27510
Created Mar 21, 2012



TOWN OF CARRBORO

NORTH CAROLINA

MEMORANDUM

DELIVERED VIA: ☐ HAND ☐ MAIL ☐ FAX ☒ EMAIL

DATE: May 31, 2012

TO: David Andrews, Town Manager
Mayor and Board of Aldermen

CC: Christina Moon, Planning Administrator
Patricia McGuire, Planning Director

FROM: Jeff Brubaker, Transportation Planner JSB

RE: Follow-up Information on a Concept for Safety Improvements in the Jones Ferry Road Corridor

This memo includes follow-up information addressing questions and comments on the concept plan developed by NCDOT for Jones Ferry Road safety improvements raised by the Board of Aldermen at the Board's March 27, 2012, public hearing; by citizens; and by the Transportation Advisory Board as a result of the TAB's review on April 19 and May 3, 2012.

Additional information on some of the questions has been requested from NCDOT, but not yet received at the time of submittal of this memo. Any information received subsequently will be presented at the meeting.

Please note that, while the National Association of City Transportation Officials' (NACTO) *Urban Bikeway Design Guide* is cited as a reference in this memo, it has not been formally adopted or endorsed in its entirety by the Town or NCDOT. It is used as a reference only, although its recommendations may not necessarily be inconsistent with the Manual on Uniform Traffic Control Devices or other adopted federal/state policies and procedures.

Board of Aldermen questions – March 27, 2012

1. Relocation of the bus stop in front of Abbey Court Apartments

Summary of NCDOT response

NCDOT has deferred to the Town on this issue.

Additional information

The bus stop in front of Abbey Court Apartments has the highest daily ridership of any bus stop within Carrboro town limits. In FY11, according to Chapel Hill Transit data, there was an average of 660 daily boardings or alightings, which ranked 20th in the Chapel Hill Transit system. The bus stop features two bus shelters, side-by-side, in the standard Carrboro design, located approximately 100 ft. east of the Abbey Court driveway. This location is within the crest of the hill along this section of Jones Ferry Rd., as shown in Figure 1. The contours show a gentler grade coming from the east to the crest of the hill than from the west.

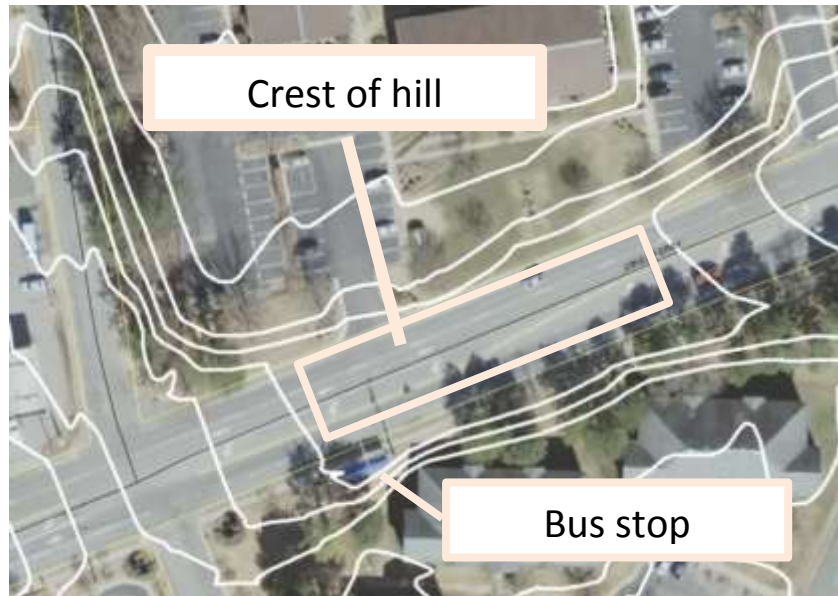


Figure 1. Topography (2 ft. contour intervals) along Jones Ferry Rd., east of Davie Rd.

Although occasional mid-block crossings from Ridgewood Apartments to catch the bus have been observed already, the bus stop is somewhat close to the Davie Rd. intersection. Relocating the bus stop to the east could potentially lead to an increased amount of mid-block crossings and reduce vertical sight distance for eastbound motorists. An advantage of the current location is that it is near proposed high-visibility crosswalks. Moving it further to the east would distance it from those crosswalks. It may also require substantial grading or construction of a retaining wall due to the steep downslope leading from the back of the sidewalk further east. There is a retaining wall to the west of the Abbey Court Apartments driveway which likely constrains the ability to relocate the stop there without the cost of demolishing part of the wall and grading for a new bus shelter.

Staff recommendation

Due to these challenges to relocating the bus stop from its current location, Town staff recommend that the current location be retained.

2. Will the project create turnaround traffic on Alabama Avenue?

Although it is impossible to predict what route each motorist would choose leaving the gas station, the route lengths can be estimated. As shown in Figure 2, from a common point inside the gas station parcel to the intersection of the Jones Ferry and Davie Rd. centerlines:

- It is 315 feet via the existing gas station driveway onto Davie Rd.
- It is 890 feet for a right turn, followed by a U-turn within Jones Ferry Rd. at Alabama Ave.
- It is 980 feet for a right turn, followed by a right turn into Alabama Ave., followed by a U-turn at the stem of Alabama Ave., followed by a left turn heading eastbound on Jones Ferry Rd.



Figure 2. Distance of potential routes leaving the gas station/pantry property in order to head eastbound on Jones Ferry Rd.

Motorists interested in taking the shortest route from the gas station onto eastbound Jones Ferry Rd. would therefore use the first option.

3. If the project creates a center median on Jones Ferry, should Neville Road be open to traffic in the way that it is currently?

A recent study of road diets by the Federal Highway Administration's Highway Safety Information System states:

Under most annual average daily traffic (AADT) conditions tested, road diets appeared to have minimal effects on vehicle capacity because left-turning vehicles were moved into a

common two-way left-turn lane (TWLTL) [i.e. center turn lane]... However, for road diets with AADTs [annual average daily traffic counts] above approximately 20,000 vehicles, there is an increased likelihood that traffic congestion will increase to the point of diverting traffic to alternative routes.¹

Current average daily traffic volume on Jones Ferry Rd. is 9,000, according to NCDOT AADT data. This suggests that implementation of the road diet will not be a substantial influence of diverting traffic onto Neville Rd.

As described at the March 27 public hearing, two access points would change as a result of implementation of the concept plan as currently presented, resulting in right-in/right-out conditions where there are currently full movement conditions at the following locations:

- Gas station driveway onto Jones Ferry Rd.
- Ridgewood Apts. western driveway onto Jones Ferry Rd.

As described above, depending on where they are headed, motorists exiting the gas station could use the existing Davie Rd. driveway to go north on Davie Rd. or east on Jones Ferry Rd. They could still use the existing Jones Ferry Rd. driveway to turn right and go west on Jones Ferry Rd. Motorists coming from the Ridgewood Apts. western driveway intending to head east on Jones Ferry Rd. would need to either make a U-turn at the Jones Ferry-Davie intersection or drive around back of the apartment buildings to access the eastern driveway to take a left. Motorists intending to go north on Davie Rd. could still take a right onto Jones Ferry Rd. and then a right onto Davie Rd. and continue north. Motorists intending to go west on Jones Ferry Rd. could still take a right onto Jones Ferry Rd. and continue west. None of these scenarios include use of Neville Dr.

4. The final project should have planted medians and create a more welcoming entrance way to Carrboro.

Summary of NCDOT response

Plantings would not be a part of the Spot Safety Funding. It was a suggestion to the town that the median could be built to accommodate plantings in order to dress up this area. Conversations with the District office would have to be conducted on who would install and maintain the plantings. Under this project plantings would not be funded.

Additional information

NCDOT's Guidelines for Planting within Highway Right-of-Way are available at the following link:

http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/design/graphics/PlantingGuidelines

¹ FHWA, Highway Safety Information System (2010). Evaluation of Lane Reduction "Road Diet" Measures on Crashes: Summary Report. FHWA-HRT-10-053.
<http://www.fhwa.dot.gov/publications/research/safety/10053/index.cfm>.

[.pdf.](#)

Some relevant excerpts from the guidelines are listed below:

“Planting and maintenance of specific roadside areas is frequently undertaken by municipalities, garden clubs, or individuals after permission is granted from the Division of Highways.” (p. 1)

* * *

“Upon receipt of a request for planting, accompanied by a plan and typical cross section, the Division Engineer or his representative, in conjunction with the Roadside Environmental Field Operations Engineers, will make an on-site investigation of the proposed planting. If the planting proposal does not conform with the attached guidelines, the request may be denied by the Division Engineer. If the proposed planting conforms with Department guidelines and policies, the Division Engineer will issue a letter-type permit for planting (with a copy of such permit, together with a plan and typical cross section, to the State Roadside Environmental Engineer).

Before any action will be taken on a request for a permit for planting within a municipality, the request must have the approval of the local governing body since the planting permit will be issued to the municipality.” (p. 2)

* * *

Page 3 lists standard conditions to be included in a permit. There are three methods of approval: (1) planting and maintenance responsibilities assumed by the permittee; (2) planting and maintenance responsibilities assumed by NCDOT Roadside Environmental unit, with funding provided by the permittee; and (3) planting and maintenance responsibilities assumed by, and funding provided by, the NCDOT Division of Highways (requires TIP project).

* * *

Page 4 covers the procedures to be followed in obtaining a permit.

* * *

Page 5 covers the design factors considered in the approval of a permit, including distance from the travel lane, vertical clearance, sight distance, plant selection, need for pavement removal, effect on mowing and drainage, and traffic operation and safety. Pages 6-14 show design details, examples, and suggestions.

* * *

Pages 15-17 shows standard plants generally acceptable in NCDOT right-of-ways. Page 15 states: “When possible, the Department promotes the practical use of native species.”

Staff recommendation

At this point in the project, the key issue is a median design that accommodates planting arrangements, in accord with the NCDOT guidelines. Questions of safety, maintenance, potential for coordination with adjacent neighborhoods and residents, opportunities and constraints, costs and benefits of various planting permit arrangements, and other applicable issues should also be considered as the project develops.

Given that the Board expressed its desire to have planted medians in its March 27 resolution, and that NCDOT stated the Spot Safety project itself would not fund median plantings but could be designed to accommodate future plantings, staff recommend that the Board consider as part of any resolution a recommendation to NCDOT that the medians be built to accommodate future plantings, with details to be ironed out as the project moves forward. If median planting is pursued, depending on the arrangement of who would be in charge of planting and maintain the area, a future agenda item may be expected allowing the Board to consider approval of a planting permit application, such approval being required by the NCDOT guidelines.

Comments by Anissa McLendon – April 3, 2012

Additional comments were provided by Anissa McLendon on April 3, 2012, and are addressed below. A copy of the comments is included in *Attachment E* of the agenda item.

5. Before reducing travel lanes try reducing the speed limit from 35 mph to 30 mph.

One of the most effective methods for reducing vehicle speeds tends to be changing the design of a road. If a speed limit is set well below the speed at which most drivers are comfortable driving, it may not be effective in actually lowering speeds. Speed data collected by the Town in March 2005 indicates that the 85th-percentile speed on Jones Ferry Rd. at the crest of the hill east of Davie Rd. is 40 mph. Starting at Ridgewood Apts. and heading west, the road widens to two through lanes in the westbound direction. It narrows from two lanes to one lane in the eastbound direction, but the pavement width is still at or above 60 feet. The relative lack of “enclosure” – the visual effect that streetscapes in downtown areas with small building setbacks have in calming traffic – along this part of the road may also play a role.

Road diets generally result in reduced speeds. As reported in the FHWA study:

On a four-lane street, speeds can vary between lanes, and drivers must slow or change lanes due to slower vehicles (e.g., vehicles stopped in the left lane waiting to make a left turn). In contrast, on streets with two through lanes plus a center turn lane, drivers’ speeds are limited by the speed of the lead vehicle in the through lanes, and through vehicles are separated from left-turning vehicles. Thus, road diets may reduce vehicle speeds and vehicle interactions, which could potentially reduce the number and severity of vehicle-to-vehicle crashes.²

² FHWA HSIS 2010. See link above.

The concept plan extends the length of the road with only one through lane. In the eastbound direction, the current cross-section includes two through lanes between Ashbrook Apts. driveway and Abbey Court Apts. Between the NC-54 westbound off-ramp and Abbey Court driveway, the right lane becomes a deceleration lane. The eastbound right lane is converted into a bike lane. In the westbound direction, the cross-section maintains only one through lane until west of Alabama Ave., where it expands to two through lanes. The TAB has recommended changes to this segment from what is shown in the concept plan, including continuing a bike lane or sharrows west of Alabama Ave. and sharpening the curb radius to slow down cars turning onto the NC-54 westbound on-ramp. See the “Additional staff comments on the concept plan” section below for further information.

Staff recommendation

Staff recommend that after the implementation of the Spot Safety project, a reduction of the posted speed limit be explored through coordination between Planning, Public Works, Police Department, and NCDOT staff.

6. Moving the Chapel Hill Transit bus stop at Abbey Court (501 Jones Ferry Road) eastward along Jones Ferry Road.

See response to Board question #1.

7. Moving the loading and unloading bus location for the Chapel Hill-Carrboro City School for Abbey Court.

This is a question that would be the purview of Chapel Hill-Carrboro City Schools.

8. Check with Abbey Court Management to see if they would agree to extending driveway where the tennis courts are located. Vehicles would have a second location to enter/exit.

A new eastern driveway to the parking area may be challenging because buildings and the courts themselves block access to Jones Ferry Rd., as shown in Figure 3. There is no access to Abbey Court Apartments other than the current Jones Ferry driveway. Communication with Abbey Court management staff confirmed that there were no plans to create another driveway, nor did the staff person believe that a driveway in that location was possible given the buildings and tennis courts.

Staff recommendation

If the Board wishes to explore options for alternative accesses in the vicinity of Abbey Court, it is recommended that the Board provide direction to staff as a follow-up task independent from input on the Jones Ferry Road concept plan.



Figure 3. Oblique aerial view of Abbey Court Apartments.

9. Explore the qualifications that would be needed to place a traffic light at the dangerous intersection of Davie and Jones Ferry Roads.

Summary of NCDOT response

A traffic signal is not currently warranted. A traffic signal may be warranted if the traffic volume on Davie Rd. increases. If traffic from Ridgewood Apartments were to use a new driveway onto Davie Rd., the additional traffic may lead to a warrant for a traffic signal. Apartment traffic could then use the signal to access Jones Ferry Rd., as opposed to turning left out of the driveways, which may serve to reduce crashes on Jones Ferry.

Also, there would be a negative impact to Alabama Avenue...

- **Hinder the entrance to Alabama Avenue. Residents have trouble now with traffic coming off Jones Ferry Road cutting thru to Neville Drive**

The concept plan does not propose to change access at the Alabama Ave. intersection. Left turns into and out of Alabama Ave. would still be possible.

- **If the gas station is made to take a right turn west onto Jones Ferry Road – vehicular traffic will turn around in Alabama Avenue's entrance.**

See response to Board question #2.

- **Alabama Avenue’s vehicular traffic attempting to take a left eastbound onto Jones Ferry Road will have wait in order to across lanes of traffic that are carrying more vehicles. The placement of the median will force vehicles to wait longer because presently drivers can wait in the painted median until it is clear to drive into the eastbound travel lane.**

As described in Board question #3, road diets typically can be completed on roads carrying at most 20,000 vehicles per day without bringing about congestion. Jones Ferry Road has about 9,000 vehicles per day.

The center turn lane’s purpose is not for vehicles to merge into traffic. As stated in the North Carolina Driver’s Handbook (2012):

On certain multi-lane highways, a special center lane is reserved exclusively for two-way left-turn movements in both directions. The two-way left-turn lane must not be used for passing another vehicle or for the purpose of merging into traffic.³

Comments and questions from Carrboro Transportation Advisory Board – May 3, 2012

The TAB adopted a recommendation for the Board of Aldermen on May 3, 2012, which is included in *Attachment D*. The Board may wish to consider whether to include the suggestions in this recommendation in a resolution on the concept plan. More information on the suggestions is provided in the additional staff comments section below.

Questions from Michael Adamson – May 9, 2012

10. What is the maximum allowable size of trucks that can be used for delivery in Carrboro?

There is no maximum size for delivery trucks included in the Carrboro Land Use Ordinance. Sec. 15- 300(b) of the LUO requires that “[t]he loading and unloading area must be of sufficient size to accommodate the numbers and types of vehicles that are likely to use this area, given the nature of the development in question.”

North Carolina has maximum truck weight regulations, which are described in the following document: <http://www.nccrimecontrol.org/div/hp/motorcarrier/NCTruckingBrochure.pdf>, Ch. 5.

11. Can the maximum allowable truck can make a left turn from Jones Ferry onto Alabama with the median and left turn lane as shown in [the concept plan]. Has the concept plan been developed with this in mind? Can the turn be made without an incursion on the through lane and without running over the median?

This information is still forthcoming from NCDOT.

³ P. 76 of the Handbook, available at: http://www.ncdot.gov/download/dmv/handbooks_ncdl_english.pdf.

12. Could such a truck make a right turn into Alabama and then into [proposed] Family Dollar from Jones Ferry, coming from town?

This information is still forthcoming from NCDOT.

Additional staff comments on the concept plan

Protected eastbound bike lanes

The reduction in the number of travel lanes allows for the addition of bike lanes west of Davie Rd. Because the width of the travel lane is 5-6 ft. wider than a standard 4-ft. bike lane plus 2-ft. gutter pan, there is an opportunity to provide a buffer between the bike lane and travel lane in the eastbound direction. This would result in a protected bike lane – sometimes called a “cycle track” – for cyclists traversing the uphill section of Jones Ferry Rd. Implementation of protected bike lanes in cities and towns across the country over the last few years has in some cases resulted in substantial increases in bicycling, and decreases in crashes,⁴ in the corridor, although there is a limited amount of research because the treatment in the U.S. is relatively new.

Typically, the buffer comprises thermoplastic striping at a minimum. Flexible delineators can be added for additional visual separation, as shown in Figure 4. A raised curb can provide a continuous barrier between the bike lane and travel lane, with curb breaks as needed to provide access to and from cross streets and driveways. The striping-only buffer may present the least challenges for maintenance activities such as street sweeping and snow removal. According to the National Association of City Transportation Officials (NACTO), “[s]now removal and street sweeping may require special equipment. This is the case if the combined width of cycle track and buffer, or the cycle track width inside of the raised curb is too narrow for existing street maintenance equipment.”⁵ Many protected bike lanes in other municipalities are between the curb and “floating” parking lanes, but some are placed on streets without parking lanes. Pavement markings within the bike lane should follow the standards of the Manual on Uniform Traffic Control Devices (MUTCD), but some protected bike lanes feature green-colored pavement for additional visibility (Figure 4). This green-colored pavement option has interim approval from MUTCD, meaning that agencies can submit a request to allow its use to the Federal Highway Administration, subject to conditions.⁶

⁴ For one study focusing on Montreal, see here:

<http://injuryprevention.bmj.com/content/early/2011/02/02/ip.2010.028696.full>.

⁵ <http://nacto.org/cities-for-cycling/design-guide/cycle-tracks/protected-cycle-track>

⁶ http://mutcd.fhwa.dot.gov/resources/interim_approval/ia14/index.htm



Figure 4. Example of a protected bike lane. Source: NACTO

NACTO's Urban Bikeway Design Guide states that the creation of a protected bike lane with a painted buffer would be in accordance with MUTCD. The following MUTCD sections are relevant:

- Section 3D.01 – 01 establishes a bike lane as one type of preferential lane. <http://mutcd.fhwa.dot.gov/htm/2009/part3/part3d.htm#section3D01>.
- Section 3B.24 – 01 allows crosshatch markings to be used in “buffer spaces between preferential lanes and general-purpose lanes”. The section is available here: <http://mutcd.fhwa.dot.gov/htm/2009/part3/part3b.htm#section3B24>.

The concept plan already shows a striped buffer, but in this case the striped buffer is shown between the bike lane and gutter pan. Creating a protected bike lane would involve swapping locations of the bike lane and buffer.

Continuation of westbound bike facility west of Alabama Ave.

The TAB recommended that NCDOT should consider a protected bike lane, bike lane, or shared lane marking in the westbound direction west of Alabama Ave. Currently, there are three lanes in the westbound direction – two through and one combined-through-right. The concept plan drops the bike lane at Alabama Ave., in advance of the combined-through-right. It continues the same number of through lanes west of Alabama Ave., but replaces the center turn lane with a painted median and tapered left turn lane.

One of the options discussed by the TAB to continue the bike lane west would be changing the right lane to a right-turn-only lane, and then continuing the bike lane to the left of the right-turn only lane, as required by MUTCD Sec. 9C-04. This would be possible if there is enough room to fit the bike lane between the two travel lanes. West of the NC-54 westbound on-ramp, the facility could be continued as a bike lane or protected bike lane adjacent to the gutter pan. This would require removing the right-hand through lane.

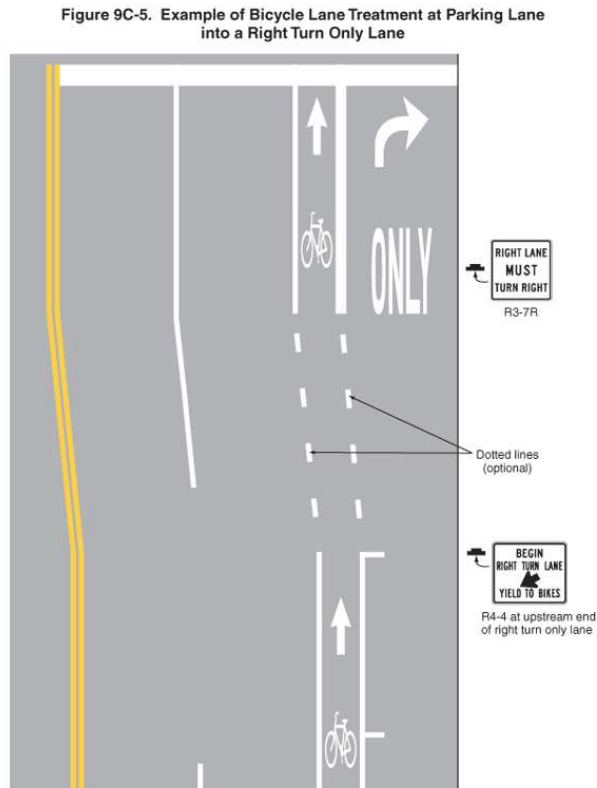
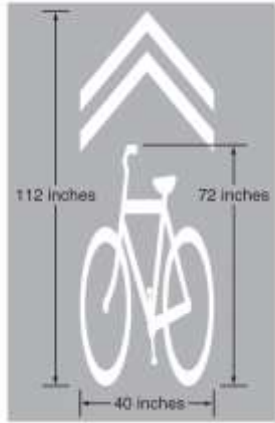


Figure 5. MUTCD recommendation for continuing a bike lane to the left of a right-turn only lane.

Another option would be to retain the combined-right-through condition in the right lane and install a shared lane marking in that lane. A shared lane marking would not require the removal of that lane. Since this is a downhill section, careful consideration should be given in the design to the expected speed and turning movements of bicyclists. The NACTO guide does advise that shared lane markings may be more appropriate for downhill sections.⁷ More details and graphics will be presented at the meeting.

⁷ See here: <http://nacto.org/cities-for-cycling/design-guide/bikeway-signing-marking/shared-lane-marking/>.

Figure 9C-9. Shared Lane Marking**Figure 6. Source: MUTCD.****Figure 7. Example of a shared lane marking in a combined-right-through lane. Source: NACTO.**

Curb radius at the NC-54 westbound on-ramp

At its April 19, 2012, meeting, the TAB suggested that NCDOT explore reducing the curb radius at the NC-54 westbound on-ramp to calm vehicle speeds as they turn onto the on-ramp. The crosswalk is less than 100 ft. after the beginning of the turn. Figure 8 and Figure 9 show the existing turning conditions and a conceptual sketch of a sharpened curb radius, respectively. Staff concur that NCDOT should consider the feasibility of such a curb extension as part of the project.

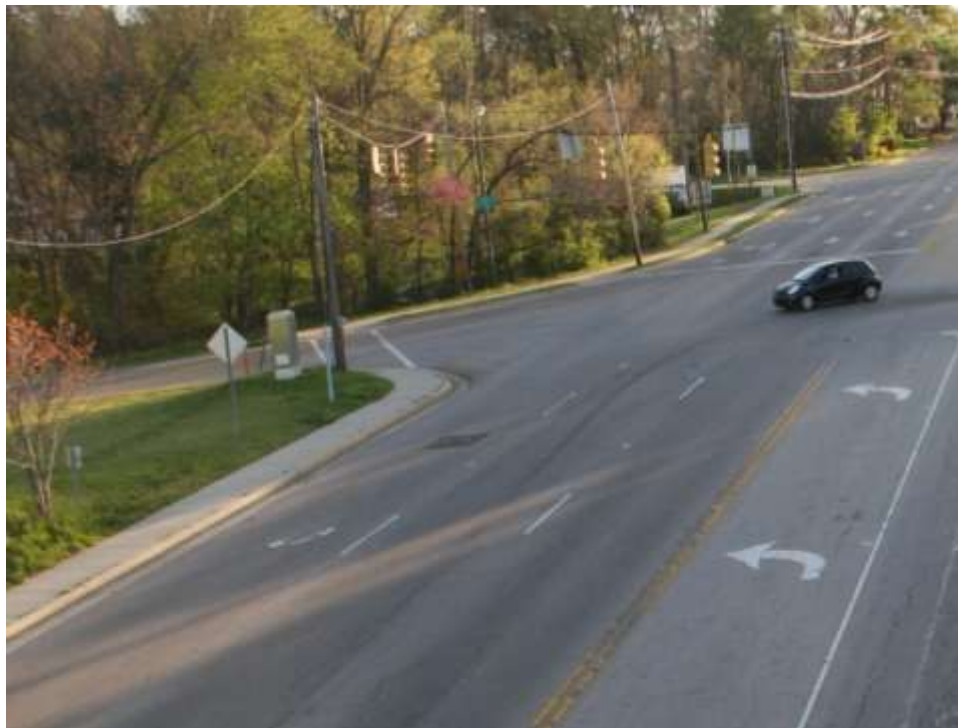
**Figure 8. View of the NC-54 westbound on-ramp.**



Figure 9. Aerial view of Jones Ferry Rd. at the NC-54 westbound on-ramp with conceptual sketch of sharpened curb radius.

Painted bus pull-off in front of Abbey Court Apts.

The TAB recommended that NCDOT consider options for continuing a bike facility through the painted bus pull-off. Currently, the bus stop is located where the right vehicle lane transitions into the eastbound bike lane. The concept plan adds a painted bus pull-off via a striped bulb-out with cross-hatching.

Staff recommendation

Staff recommend that the Board recommend that NCDOT consider alternatives for continuing the bike facility through the painted bus lane.

Summary of comments that could be included in a resolution

- That the medians be constructed such that plantings may be added.
- That a protected bike lane be provided in the eastbound direction between the NC-54 eastbound on-ramp and Abbey Court Apts. driveway. The bike lane should be buffered at least by a 3-ft.-wide striped buffer, and use of plastic delineators should also be considered. Another option would be to construct a curb separating the bike lane from travel lane.
- That a westbound bike lane or shared lane marking be installed west of Alabama Ave.
- That NCDOT explore reducing the curb radius at the NC-54 westbound on-ramp to calm vehicle speeds as they turn onto the on-ramp.
- That NCDOT explore options for continuing the bike facility through the painted bus pull-off.

- Another comment that could be considered relates to the potential to change the cross-section of the NC-54 westbound off-ramp, as recommended by the TAB.