

A RESOLUTION RECEIVING AN UPDATE
ON THE TOWN'S GREENWAY PLANNING ACTIVITIES
Resolution No. 69/2009-10

WHEREAS, the Carrboro Board of Aldermen, in 2006, adopted the Recreation and Parks Master Plan update that includes greenways; and

WHEREAS, the Carrboro Board of Aldermen support a network of greenways throughout the Town; and

WHEREAS, the Town has been allocated funding for greenway planning and construction from the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization; and

WHEREAS, the Town has allocated funds from the General Obligation Bond for the purpose of greenway planning and construction.

WHEREAS, the Town has contracted with Greenways, Inc. to develop a conceptual plan for greenway sections along Bolin Creek and Jones Creek, and the Greenways Commission has forwarded the draft plan for Board review;

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

- 1) receive this update and support the continued pursuit of greenway development for these greenway sections;
- 2) direct staff to pursue a municipal agreement with NCDOT to release an RFP and contract with (a) firm(s) to develop construction documents and initiate environmental permitting for Phases 1 and 2 of the greenway trail;
- 3) adopt the conceptual plan developed by Greenways, Inc. as a platform for future planning and implementation of the Bolin Creek and Jones Creek greenway trails.



TOWN OF CARRBORO

NORTH CAROLINA

TRANSMITTAL PLANNING DEPARTMENTDELIVERED VIA: *HAND* *MAIL* *FAX* *EMAIL*

To: **Steve Stewart, Town Manager**
Mayor and Board of Aldermen
Greenways Commission

Via: **Roy Williford, Planning Director**
Anita Jones-McNair, Recreation and Parks Director
Patricia McGuire, Planning Administrator

From: **Jeff Brubaker, Transportation Planner**
Randy Dodd, Environmental Planner
Brendan Moore, Facilities Administrator

Date: **November 30, 2009**

Subject: **Staff Update on Bolin Creek and Jones Creek Greenway Conceptual Planning**

Background

Town staff and the Greenways Commission have been working with Greenways, Inc. to develop a Bolin Creek Conceptual Plan for new greenway trails along the Bolin Creek corridor between Estes Dr. and Homestead Rd. and the Jones Creek corridor on the northern portion of Lake Hogan Farms. The purpose of this memo is to provide staff comments as a supplement to the draft plan prepared by Greenways, Inc. forwarded to the Board of Aldermen (BoA) by the Greenways Commission on November 16th, and to facilitate the transition from the conceptual planning process to the next steps in greenways implementation. This report serves as an update to the report provided to the Board of Aldermen on September, 2009; the information from that report is not repeated.

Information

The proposed greenway facilities address environmental protection and enhancement, connectivity, mobility, and accessibility goals. These topics are discussed below, as are coordination activities and recommendations for next steps.

Environmental Considerations

Staff findings related to environmental considerations are:

1. **The existing sewer easement is a current source of significant environmental impact, most notably erosion and sedimentation.** This impact is by nature very site specific, and associated with a combination of factors, including but not necessarily limited to:
 - a. Proximity of the sewer line to the creek, resulting in a compromised ability of riparian vegetation to buffer runoff and stabilize banks.
 - b. The coinciding of the sewer corridor with the floodplain and, in places, the floodway, increasing the erosive force of runoff. This primarily occurs due to the clearing of the sewer corridor, thereby removing the ability of vegetation to stabilize soils during flood/high runoff events. In several locations, new flood channels have been formed along the sewer corridor, which has also resulted in extensive scouring. (see Table 1; the overlap with the floodway is most pronounced on Carolina North property, in the vicinity of markers 23-25 shown on the map in Chapter 4, p. 49 of the plan))
 - c. The heavy pedestrian, bicycle, and maintenance vehicle use of the corridor over more than 4 decades. Impacts have accelerated over time as recreational use has increased, tire ruts and puddles have expanded, and users seek drier and more stable surfaces
 - d. The native soils and geology. Some of the soil series located near the creek are very erosive, as well as being very shallow. In places, the bedrock is at or very close to the surface grade.
 - e. A situation, due to the above conditions, in which much of the existing sewer corridor is unstable and/or impervious. The imperviousness is a function of the infiltration rate of water on land surfaces. Without detailed studies, it is not possible to precisely quantify the imperviousness of the corridor. However the existing high degree of imperviousness can be qualitatively validated by the puddles that exist along the corridor for many days and even weeks after rain events, as well as the compaction from use, native soils and geology. The instability of soils is a function of their lack of protection/exposure as well as inherent erosivity.
 - f. In several places the sewer line has been exposed because of erosion, and has had to be reinforced with concrete. In other locations, aggregate materials have been brought in to try to improve maintenance access because of the heavy erosion.

Table 1: Sewer Corridor Statistics for Bolin Creek: Estes Dr. to Homestead Rd.¹

	Length (feet)	% of total length
Total sewer corridor length ²	12,030	100%
Sewer corridor within floodplain	11,500	94%
Sewer corridor within floodway	4,600	37%
Sewer corridor within Zone 1 of Town buffer ³	3030	59%
Sewer corridor within Zone 1 of State buffer ⁴	2775	39%

2. In recognition of the Jordan Lake riparian buffer rules and similar rules recently passed by the Town, staff invited two NC Division of Water Quality (DWQ) staff (Mr. Paul Clark, DWQ's representative to the Bolin Creek Watershed Restoration Team, and Mr. Martin Richmond, who is responsible for interpretation of DWQ buffer rules for the region served by the Raleigh Regional Office) to walk the stream corridor between Estes Drive and Homestead Road. Both state and town rules require that greenway trails be located within buffers where a demonstration can be made that there are "no practical alternatives". DWQ staff reported verbally to Town staff that this interpretation is for a condition in which there is no or minimal current disturbance, and that in fact, a location of a greenway trail along a sewer easement is preferable because of the existing disturbance and imperviousness associated with the maintenance corridor and a desire to not create new disturbance. Therefore, it does not appear that DWQ will prohibit the planned trail as currently aligned, and in fact Mr. Clark and Mr. Richmond were encouraging of the use of the sewer corridor for a trail during the site visit. DWQ's review of the greenway trail planning process is currently focusing on the definition of jurisdictional waters along the corridor to determine where permits may be needed for tributary crossings and/or wetlands disturbance.

It is important to note in this review that DWQ has direct jurisdiction over all State-owned land for Jordan Lake rule implementation. This is most relevant to the Carolina North property; any interpretation of these rules for UNC property will be a discussion directly between NCDWQ and UNC, with no Town role. DWQ staff reported that they will be preparing a report for the Town for the study area within Town jurisdiction based on their site visit in the near future. This will guide the regulatory review process as the planning process moves from conceptual planning to development of construction documents.

A fact sheet about permitting of trails in riparian buffers is available at <http://h2o.enr.state.nc.us/ncwetlands/documents/Greenways-Hiking.pdf> (this fact sheet has not yet been updated to acknowledge the Jordan Lake rules which became effective in the summer of 2009). The Town (and UNC for Carolina North property) will need to apply for buffer permits prior to pursuing construction

¹ Estimated with GIS

² Corridor defined as area defined by 15' on either side of sewer line

³ Zone 1 is defined as 50' from top of streambank; % pertains to % of Town regulated buffer only

⁴ Town buffers do not apply on UNC property; DWQ directly regulates UNC. Zone 1 is defined as 25' from top of streambank. % pertains to % State regulated buffer

3. **UNC staff have indicated that the sewer corridor is a preferred location for a greenway trail on UNC land primarily because of the existing disturbance and the need to avoid new disturbance (see Attachment 1.)**

4. **Transportation funding and support can be sought for environmental purposes, along with funds from EPA and State environmental agencies.** Transportation Enhancement funds, provided by the Federal Highway Administration and implemented by state DOTs, may be a source for supporting environmental enhancements to the project (http://www.enhancements.org/12_activities.asp). The eligible activities specifically include “environmental mitigation of runoff pollution and provision of wildlife connectivity” (#11). The American Association of State Highway Transportation Officials (AASHTO), through its Center for Environmental Excellence, offers technical assistance for strategies to decrease the environmental footprint of transportation projects. According to the website (http://environment.transportation.org/center/tech_experts), experts are available for Water Quality assistance, including stormwater quality, erosion prevention, and sediment control on construction sites.

Given all of the above observations, **staff find that the location of an AASHTO-compliant greenway trail along the sewer line does not have regulatory constraints, is preferred by the largest landowner, and has the potential to improve environmental conditions via several mechanisms:**

- a. Inclusion of protective surfacing will protect soil particles from being dislodged by the impact of both wheels and feet, and therefore can be expected to reduce erosion relative to the existing condition.
- b. A protective surface tread, potentially with useable shoulders, will concentrate use into a narrower corridor (10-15’ wide rather than the existing 25-50’ wide) and allow for stabilization and restoration of adjacent areas.
- c. The trail can be designed and installed in a manner that will both drain adequately and be protected from erosion, while also providing a stable and softer surface for runners and walkers who prefer an alternative to a hard surface, and one less prone to injury and tripping than the existing condition.

An environmental consideration that is implicit in the conceptual plan is that through the provision of high quality, multi use, AASHTO-compliant off road facilities, vehicle miles traveled will be significantly reduced, thereby reducing emissions of multiple pollutants (nitrous oxides, carbon dioxide, hydrocarbons, etc). These reductions will be important for reduction of both local air quality concerns such as low level ozone concentrations as well as the global concern of climate protection, and will support Carrboro’s participation in the Cities for Climate Protection program, Triangle Clean Cities Coalition, and the Mayor’s Climate Protection Agreement.

Transportation Considerations*Planning*

Planning for a greenway along Bolin Creek, as can be seen in Table 2 below, has occurred for over a decade as part of multiple planning processes. Most recently, the *Carrboro Comprehensive Bicycle Transportation Plan* of 2009 identified the Bolin Creek Greenway (BCG) as “the major paved north/south spine of the greenway system”.

Table 2: Selected local plans including a greenway in the Bolin Creek Corridor.

Year	Plan	Policy / Language	Section / Policy # (page)
2009	<u>Comprehensive Bicycle Transportation Plan</u>	BCG identified as major north/south spine of greenway system	3.6 (3-36)
2006	<u>Recreation and Parks Master Plan</u>	BCG on list of Action Plan projects. Hierarchy of trails with main Bolin Creek trail to meet Type IV trail standard (paved surface, 10 feet in width)	III (17)
2000	<u>Vision 2020</u>	Network of connected greenways throughout town	1.11, 1.14, 5.31, 5.32 (9,18)
1998	<u>Facilitated Small Area Plan for Carrboro's Northern Study Area</u>	Develop trail along Bolin Creek and connect with Homestead Rd. and subsidiary trails	Obj. 1-3 (3)
1994	<u>Recreation and Parks Master Plan</u>	Develop trail along Bolin Creek	

Given the Bolin Creek corridor's proximity to five schools, the greenway also has the potential to supplement the Town's current Safe Routes to Schools programs. Examples include the Wilson Park multi-use path's proximity to Carrboro Elementary School and the Jones Creek Greenway's provision of access to Morris Grove Elementary School via the Twin Creeks Greenway (expected to begin construction in 2010).

Trail surfacing

For conceptual planning purposes, Greenways, Inc. has provided preliminary cost estimates that assume a primary trail surface of concrete in creekside/flood prone areas and asphalt for hillslopes and upland areas. This specification is non-binding, and has been pursued for planning for funding requests. There will be ample opportunity for further technical review and public input especially for Phases III and IV prior to the final specification. Staff recommend that final trail surface design be completed as part of construction document preparation, and that the following design guidelines be adhered to:

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- 1) That no material that is prone to washing and high maintenance be used in flood prone areas. This includes organic and inorganic aggregates.
- 2) That AASHTO guidelines be followed for a multi-use trail surface.

An important point here is that the proposed facilities are being designed to maximize facility use and alternative transportation through several approaches:

- the proposed alignment and routes follow gentle grade changes
- Off road alternatives are proposed through areas that will naturally attract users. (This approach has received strong community support in the public workshops for this project as well as through other forums such as recent adoption of the bicycle plan.)
- The alignment maximizes opportunities for connectivity. Improved bicycle and pedestrian connectivity will be provided to many neighborhoods, public schools, parks, the Carolina North forest, downtown, and both university campuses.

Recreation Considerations

Design guidelines are provided in the Conceptual Plan to maximize the multiuse goals. These guidelines will support pedestrians, bicyclists, strollers, rollerbladers, wheelchairs, and maintenance and public safety access. For usability and accessibility, staff specifically find that including an AASHTO compliant trail will:

1. Provide a safe, consistent surface for the widest range of user groups. Pavement markings provide defined corridors for safe two way traffic and help minimize the risk of accidents during high volume traffic of multiple user groups.
2. Allow for the highest number of user groups, thus encouraging physical activity for the highest number of citizens.
3. Allow for more programming opportunities through special events (running events, biking events, guided nature hikes).
4. Be accessible to wheelchairs, road bikes, roller blades, and strollers, and provide access to natural areas currently inaccessible to a large percentage of persons with mobility issues.

Public Input

Public workshops were held in May and September with approximately 100 attendees, and 72 people submitting written comments. Subsequent to the workshop, staff and the Greenways Commission have received communications in opposition to a paved surface along the creek. Staff's overall assessment of the public input is that there is considerable community support for continuing with greenway trail development as well as the proposed alignment, while acknowledging that concerns particularly regarding a paved surface in parts of the study area along Bolin Creek also exists. Staff assessment of the primary tension in public input is that some residents enjoy and value the existing conditions and view a new paved surface as a violation of the creekside environment and an undesirable change of the existing use. Other residents seek greater multi-use access and off-road transportation alternatives. Virtually all residents support environmental protection and enhancement in general, although there appears to be some discrepancy and/or uncertainty in public sentiment about the degree of existing degradation, the potential improvement or additional impact of a transportation compliant facility along the sewer corridor, and how to best achieve restoration goals.

Implementation Plan

After construction documents have been prepared, it is likely that Phase 1a can proceed to construction more quickly than Phase 1b because of less complex landowner, stakeholder, and utility interactions and the need for environmental permitting and review for Phase 1b. With regard to Phase 1b, alternatives are presented in the plan to recognize the uncertainty in the final alignment in consideration of landowner approval and stakeholder coordination, flood management, tree removal, and financial considerations. The major constraint for implementation for Phase 2 appears to be availability of funding.

For Phases 3 and 4, staff recommends that the Town work with OWASA and landowners to seek to time the eventual replacement of the sewer line along Bolin Creek with trail installation to avoid multiple future major construction impacts on the riparian area along the creek. This 45 year old 15" concrete line was originally installed to serve Chapel Hill High School. Sewer line upgrade for this section is currently not programmed in OWASA's Capital Improvement Program (FY 2010-2024). However, a larger capacity (18") and newer ductile iron pipe was installed from Homestead Rd. north when Lake Hogan Farms was approved, and a newer larger line is planned for installation in 2010 from Estes Drive to MLK Boulevard. Town staff are prepared to research state and federal funding sources to facilitate the consideration of sewer line improvements coinciding with trail improvements and restoration efforts. Staff also recommend as part of a future upgrade that the line be moved further from the creek to reduce buffer impacts, where engineering and environmental conditions support doing so. Finally, staff recommend that future sewer line improvements be pursued such that the greenway trail is at least 25' from the creek, and outside of the floodway and floodplain to the maximum extent possible. This will protect the riparian and creek ecosystem, and minimize trail maintenance costs. In terms of alternative alignment for Phase 3, it is important to note that UNC has determined that new clearing on UNC property will in general not be supported for trail installation. UNC has also specifically recommended utilization of the sewer corridor adjacent to the creek for a greenway trail, as documented in Attachment 1.

Funding

Two federal funding programs (STP-DA and CMAQ) currently programmed to partially fund greenway segments have been subject to a federal rescission that could affect the amount of funding or the timing of receipt of those funds. Town staff are currently determining the impact of the rescission in concert with the Technical Coordinating Committee of the MPO. The implication of the rescission is that recipients of federal transportation funding should make every effort to implement projects as soon as possible during or after the fiscal year in which they are programmed, or risk losing funding.

Town staff have submitted an application for supplemental funding in the amount of \$4.28 million to the Transportation Investments Generating Economic Recovery (TIGER) program of the U.S. Department of Transportation – part of economic stimulus funding. However, this program is highly competitive, with significantly more funding requested from local jurisdictions and NCDOT than can be allocated to North Carolina. A decision will be made on the Town's application no later than February 17, 2010.

Greenways, Inc has helped staff develop a preliminary budget for Phase 1a (Table 3). A preliminary budget has not been prepared for Phase 1b pending primarily final alignment determination, negotiation of details with property owners, and receipt of approval from NCDOT for a trail underpass.

Table 3: Preliminary budget for Phase 1A

Bolin Creek Greenway Phase 1A	
Component	Cost
Demolition	\$ 4,770.00
Trail Development	\$ 299,044.35
Design	\$ 40,340.32
Subtotal	\$ 344,154.67
15% contingency	\$ 51,623.20
Total	\$ 395,777.87
Funding sources	Revenues
STP-DA - Wilson Path allocation (FY10)	\$ 168,684.00
Local match (25%), bond	\$ 42,171.00
Fit Community*	\$ 48,000.00
STP-DA - portion of Bolin Creek allocation (FY08)	\$ 136,922.87
Total	\$ 395,777.87

* Denotes portion of Fit Community grant that could be applied to cover Phase 1A costs. Assumes full grant amount of \$60,000 awarded.

Pending the result of the TIGER application, staff also recommend that funding be pursued for the next available funding cycles from the following programs. These funding sources include transportation oriented and other sources.

Adopt-A-Trail

Administered by the North Carolina Division of Parks and Recreation, this \$5000 maximum, non-matching grant is funded through the North Carolina General Fund to support trail improvements and amenities.

Federal Recreational Trails Grant

Administered by the North Carolina Division of Parks and Recreation, this \$75,000 maximum, 25% matching grant is funded through the Safe, Accountable, Flexible, and Efficient Transportation Equity Act.

Fit Community Grants

The North Carolina Health and Wellness Trust Fund and Active Living by Design established the *Fit Community* grant program to fund projects that encourage more physical activity or healthier eating patterns in North Carolina communities. Projects involve implementing physical improvements (such as building greenways or sidewalks) and accompanying policy changes to remove barriers to physical activity. Grants are for up to \$60,000 over two years. The Town of Carrboro is already designated as a Fit Community under this program. A Fit Community grant could potentially supplement other funding sources in building a small greenway segment and/or supporting amenities. One potential project is to supplement the cost of Phase 1A, including the Wilson Multi-use Path, by constructing a segment of the path along Estes Dr. and supporting improvements, such as a crosswalk from Estes Park Apartments driveway to the path, safety features, and other supporting amenities.

Federal Transportation Enhancement program

See description above.

Partnerships

Staff recommend that the Town consider funding partnerships as outlined in the Conceptual Plan, and seek Board of Aldermen direction in terms of funding partnerships that the Board would like staff to pursue. Examples include working with OWASA to pursue State and federal funding to replace and relocate the sewer line along Bolin Creek, and working with UNC to identify funding opportunities both trail installation and riparian restoration. UNC has initiated greenways planning as part of the Carolina North Development Agreement (Attachment 2).

Recent and Planned Coordination

With regard to coordination activities, staff have contacted or intend to contact in the immediate future a number of parties as indicated in Table 2 in addition to related public workshops and Greenways Commission activities.

Table 2: Summary of Coordination Efforts

Organization	Purpose	Notes
UNC	Coordinate alignment and plan on UNC property	UNC review comments included as Attachment 1
OWASA	Discuss sewer corridor issues	Meeting notes included as Attachment 3
CHCCS	Coordinate alignment near schools and safe routes	Planned for early December
Duke Energy	Coordinate utility easement issues	Staff presented draft alignment; awaiting response
NCDOT	Coordinate Homestead Rd. underpass and Estes Drive ROW	Construction plan approval and encroachment agreements likely required for both
NCDWQ	Coordinate water quality regulatory review	Site visit completed for Estes to Homestead. Report on permit/review recommendations pending
Chapel Hill Greenways Commission	Coordinate planning	Carrboro staff presented to CHGC December 2 nd
Claremont developers	Coordinate alignment and Phase 1b installation	Site visit completed; follow up planned.
Friends of Bolin Creek	Schedule an educational hike along the sewer corridor	Purpose: look at existing environmental impacts and potential approaches for improvements.

Recommendations

1. Staff recommend that the Board adopt the attached resolution directing staff to immediately pursue municipal agreements with NCDOT to release an RFP to contract with (a) firm(s) to develop construction documents and initiate environmental permitting for Phases 1 and 2 of the trail. Staff recommend that the Town act immediately to both respond to public interest and to reduce the risk of loss of currently allocated STP-DA funding. It is likely that Phase 1a can proceed to construction more quickly than Phase 1b because of less complex landowner, stakeholder, and utility interactions and the need for environmental permitting and review for Phase 1b. Additional funding will need to be secured prior to proceeding to construction for Phase 2.

Staff propose this because:

- a. As mentioned above, currently available STP-DA funds are at risk of being lost if they are not spent.
- b. These phases of the project will be of immediate and significant benefit in creating extremely useful bicycle and pedestrian connections to facilitate safe routes to schools, increase public safety (particularly by creating an alternative to bicycle and pedestrian travel on Estes Drive), and create meaningful recreational connections and facilities.
- c. These phases of the project have received overwhelming public support, including support from the Greenways Commission and key stakeholders, including property owners, utilities, and CHCCS.

2. Staff recommend that the Board adopt the attached resolution adopting the plan as a platform for future planning and implementation of the Bolin Creek and Jones Creek greenway trails. In doing so, staff and the Greenways Commission are directed to proceed with necessary steps such as pursuit of funding, continuing coordination with landowners and stakeholders (including acquisition of easements and other cooperative arrangements), and public outreach.

Attachment 1
UNC COMMENTS ON THE PROPOSED CARRBORO GREENWAY
October, 2009

The University of North Carolina desires to support and work with the Town of Carrboro in establishing a Greenways Trail for public use through certain tracts of land owned by the University. In response to a proposal by the Town to establish such a Greenway, the following comments, restrictions, and mandates were compiled and agreed to by various UNC personnel and departments for such Greenway development through the Carolina North property owned by the University. The following should be considered as University policies that must be followed

- UNC will grant the Town of Carrboro a “right of entry” onto the Carolina North property owned by the University for specific purposes and under certain conditions and restrictions as specified by the University.
- UNC will make the final determination where the Greenway will be located on the property owned by the University. Consideration of the old logging roads for a Greenway trail may or may not be appropriate for a sustainable alignment.
- The north-south route proposed by the Town along Bolin Creek must be within the existing OWASA corridor.
- It is understood that OWASA will be replacing older pipelines within the next few years. Their replacement schedule should be coordinated with any Greenway Trail construction.
- UNC concurs that an east-west corridor is needed but that its location is yet to be determined on the trail location between Tripp Farm and the Seawell School Road.
- The Greenway crossing with a public road must have adequate safety features to assure safe crossing of pedestrian and bicycles.
- UNC will make the final determination as to the material to be used for the surface of the Greenway (concrete, asphalt, or other material) and the allowable width. The Greenway must be constructed to support the use of both pedestrians and bicyclists.
- The entire design of the Greenways Trail must be reviewed and approved by UNC, but it shall comply with the provisions of AASHTO (American Association of Highway and Transportation Officials), and ABA (Architectural Barriers Act). Note that the ABA allows a certain leeway from the ADA (American Disabilities Act) regarding slopes, surfaces, and special provisions for protecting the natural environment.
- The project will be subject to the Jordan Lake Rules for buffer protection (50’ buffer), diffuse flow, and new development treatment. Greenways are an allowable use within the buffer. The buffer must be avoided, but if there are no practical alternatives, an authorization can be requested from the Division of Water Quality (DWQ). The

maximum width of a Greenway in the buffer is 10 feet with a two foot wide grassed maintenance corridor on each side.

- The Greenway connector must terminate at gate # 2 on Sewall School Road.
- UNC shall identify and regulate all parking facilities at trailheads located on University property.
- All erosion and sediment control measures and storm water treatment shall comply with UNC design guidelines.
- There shall not be any additional stream crossings on UNC property other than the existing crossing identified on the plans.
- UNC shall review and approve all proposed signage proposed for the Greenway as to size, color, and design.
- UNC shall review and approve construction schedules, access, limits, staging areas, and tree protection plans within the property owned by the University.
- Wildlife and Nature habitats and corridors must be clearly defined and respected.
- UNC shall manage and maintain all Greenways located on UNC property.
- Any funding sources, costs, or cost sharing formulas expected of the University shall be discussed in detail and mutually agreed to before any commitments can be made.

Attachment 2

Excerpt from Carolina North Development Agreement (highlights provided for emphasis)

16. Greenways**5.16.1. Greenway Planning and Partnership.**

a. The Town and University shall collaboratively examine the feasibility and form of a new partnership for planning and funding a program to address common interests in an effective system of bicycle, pedestrian, and greenway pathways. It is in the interest of the Town and University to establish such a system as an effective additional alternative to automobile and public transit.

b. This examination shall consider a model comparable to the partnership that has been established to address the Town and University interests in public transit. This examination shall, among other appropriate topics, review: (1) potential funding sources for implementation of the system, including state and federal funding; (2) institutional mechanisms for on-going or continued planning and implementation of the program; and (3) appropriate cost-sharing agreements among the partners. Appropriate Town advisory boards, University students, the Town of Carrboro, and the public shall be consulted in this examination. A report on this examination and recommendations for implementing action shall be submitted with the first Annual Report mandated by this Agreement.

c. The plans and improvements mandated by Section 5.16 of this Agreement shall be undertaken in conformance with the recommendations of this examination, provided that any adjustments to mandated improvements or the schedule for their completion must be mutually agreed upon by the Town Manager and University and promptly reported to the Town Council.

5.16.2. Consistent with Section 5.8.19 of this Agreement, the Town and University shall expeditiously explore the location and funding for a greenway and bike path connection between the Carolina North Project and main campus. This exploration shall seek a pathway that is not located within the Martin Luther King, Jr. Blvd. roadway, that avoids steep grades where feasible, and that is consistent with the planning process and other specific improvements mandated by Section 5.16 of this Agreement. The route could include existing or planned greenways for a portion of the route. A report on the potential location and funding alternatives for implementation of this connection shall be included in the first Annual Report mandated by this Agreement. This production of this report shall be coordinated to the extent feasible with the examination mandated by Section 5.16.1 of this Agreement.

5.16.3. The general location of greenways and paved paths for pedestrians and cyclists on the Carolina North Tract shall be consistent with the 50-year development plan for Carolina North. The University shall maintain continued public access to greenways and paved paths for pedestrians and cyclists in the Carolina North Tract. Greenways on the Carolina North Tract not within the development area identified in Section 5.5.3 of this Agreement shall be under the management and direction of the Carolina North Office of Forestry Management or its successor.

5.16.4. A general plan for additional greenway locations shall be provided with the first individual site development permit application at Carolina North. The production of this plan shall be undertaken in a manner consistent with the recommendations of the examination mandated by Section 5.16.1 of this Agreement. This plan shall include a greenways maintenance plan that identifies maintenance routines and responsibilities and the location of site fixtures and amenities at designated trail heads (which may include but are not limited to informational kiosk, map/locator/wayfinding device, gated access to prohibit motorized access, trash cans, recreational parking, and/or bicycle racks). Each Annual Report prepared after the submission of this plan shall include information about the current status of the design and funding of greenway connections at Carolina North.

5.16.5. The Town plans to build a major paved greenway trail to the edges of the Carolina North Project from both the south and the north. The University and Town shall cooperate to assure that the trail systems are built in a logical manner such that non-motorized vehicle transportation and recreation are enhanced in the most efficient manner possible. The University and Town shall work to link the north-south trail corridor to other trails in the Town and University system and to eventually provide continuous access south to the Town's Bolin Creek Trail and north to the Town Operations Center.

5.16.6. All greenways shall be built to AASHTO or Town standards for multi-use pedestrian and bicycle trails.

5.16.7. The University shall maintain all greenways built by the University under the terms of this Agreement.

5.16.8. The public shall be permitted to use all greenways on the Carolina North Tract without charge.

5.16.9. Installation of greenways and paths for pedestrians and cyclists within the Chapel Hill portion of the Carolina North Tract shall be provided as follows:

1) A temporary, non-paved central trail from Estes Drive Extension to Homestead Road shall be provided within one year of the closing and deactivation of the airport runway.

2) Additional improvements shall include:

i. A paved trail from Estes Drive Extension to connect with the Town's extension of the Bolin Creek Trail from the south and running to or through the development area identified in Section 5.5.3 of this agreement, with an appropriate connection to Martin Luther King, Jr. Blvd.;

ii. A paved trail from the development area identified in Section 5.5.3 of this Agreement running northward to Homestead Road to connect with the Town's Horace Williams Trail to the north;

iii. A paved trail in an east/west direction through the center of the development area identified in Section 5.5.3 of this Agreement to connect with the Carrboro/Chapel Hill extension of the Bolin Creek Trail; and

iv. A means of crossing Estes Drive extension.

3) A map setting forth the potential general location of these greenways is attached as Exhibit F. The exact alignment of the greenways may be adjusted by mutual agreement of the Town and University as necessary to avoid environmentally sensitive areas, coordinate with connecting greenways, and coordinate with the transit, traffic, pedestrian, bicycle, and greenway plans required by Section 5.8 of this Agreement.

4) One of the four improvements identified in Subsection 5.16.9(2) shall be constructed prior to the completion of the initial 800,000 square feet of total building space within the Carolina North Project constructed pursuant to this Agreement. A second of these improvements shall be constructed prior to the completion of 1.5 million square feet of total building space at the Carolina North Project constructed pursuant to this Agreement. A third of these improvements shall be constructed prior to the completion of 2.25 million square feet of total building space of the Carolina North Project constructed pursuant to this Agreement. The fourth of these improvements shall be constructed prior to the completion of 3.0 million square feet of total building space at the Carolina North Project constructed pursuant to this Agreement. The Town shall provide the University with the priority order for these improvements. The Town shall provide the University with these priorities with sufficient lead time to allow timely completion of the projects consistent with the schedule set by this Section.

5.16.10. The University shall construct a greenway along Martin Luther King Jr Blvd. in conjunction with any frontage improvements related to the first building that fronts Martin Luther King Jr Blvd.

5.16.11. Additional greenways may be provided upon mutual agreement of the Town and University.

5.16.12. The University shall continue to show the greenway along the existing rail line on the Carolina North Tract for potential development in the future.

5.16.13 The University shall use the stormwater management "working landscapes" within the 50 year development area to locate access trails connecting to the major greenway corridors where appropriate and feasible.

5.16.14. All improvements for greenways shall be designed in compliance with this Section. The Annual Report shall include a description of all such improvements made in the previous year and document compliance with the provisions of this Section. The University shall identify which applicable accessibility standards were used in the design of each project. All greenway and paved paths for pedestrians and cyclists shall be designed to:

1) Minimize disturbance and provide good material and maintenance choices of greenways;

2) Be consistent with the terms of the conservation easement(s) required by Section 5.5.1 of this Agreement and any other applicable resource protection terms of this Agreement;

3) Co-locate greenways, pedestrian paths and other access needs in the more developed areas of campus;

4) Co-locate greenways, utilities and roads in the less developed areas of the property;

5) Make use of cleared and active utility easements, even in floodways, floodplains and stream buffers, in order to avoid additional forest clearing;

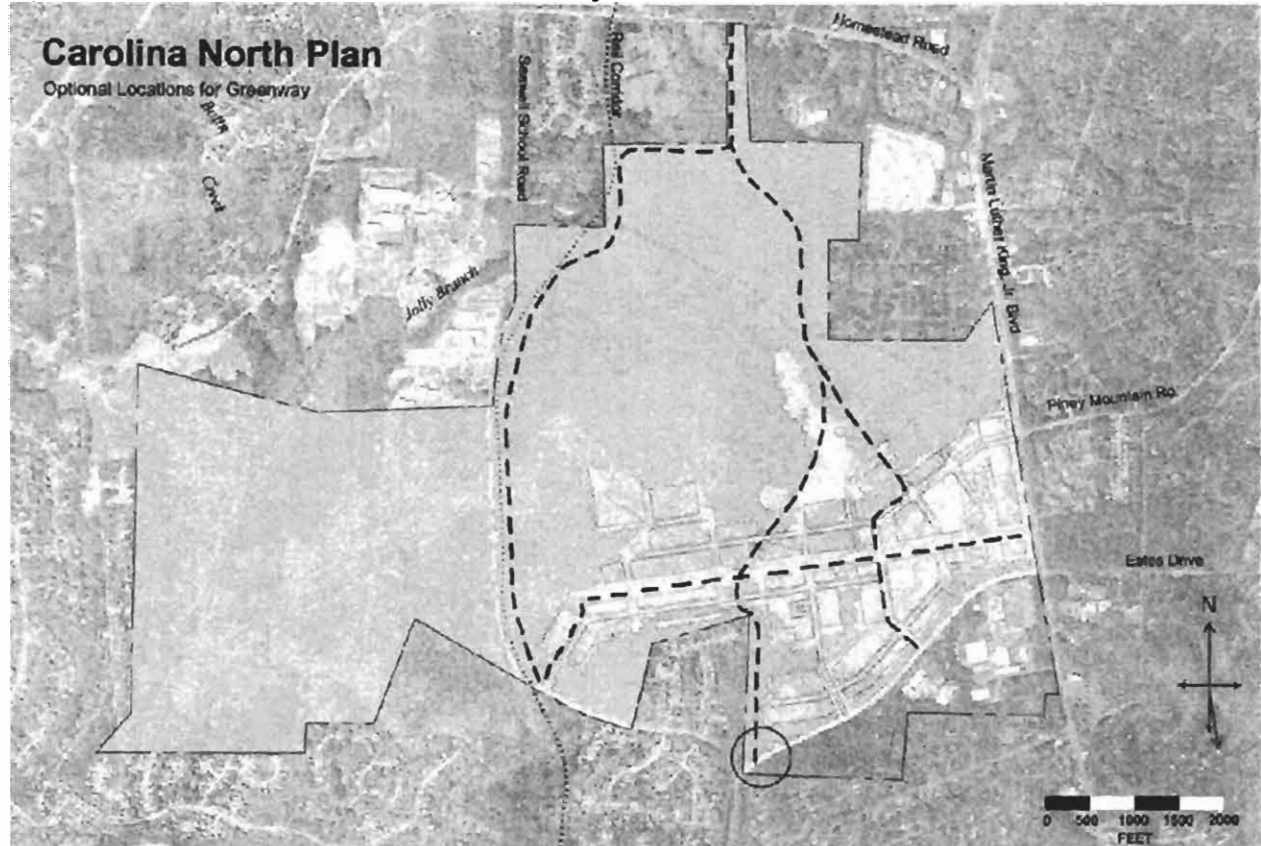
6) Integrate cyclists safely back into the flow of car traffic using appropriate traffic signaling or signage at locations where greenways and roadways cross or come together; and

7) Avoid undisturbed regulatory floodplains and stream buffers to the maximum extent possible.

5.16.15. The parties shall periodically consider the need for, location, design, and feasibility of pedestrian connections between the Carolina North Project and adjacent residential neighborhoods. This consideration shall be conducted concurrently with the production of each Transportation Impact Analysis

update mandated by Section 5.8.9 of this Agreement and a report of that consideration shall be included in the Annual Report that follows that consideration. The University and Town shall work with neighborhoods to determine if neighborhoods want paved connectors, non-paved connectors, or no direct trail connection to the University's trail system. Neighborhoods that should be approached include Glen Heights, Ironwoods, North Haven, Elkin Hills, and Homestead Village. If neighborhoods prefer paved connector trails these should be provided.

EXHIBIT F. Map: General Location of Greenways and Paved Paths



Note: The dashed lines indicate the general location of potential greenways. The circled area indicates the general location of a crossing. All will require future field study.

Attachment 3

Greenways Meeting – OWASA, UNC, Town of Carrboro

November 6, 2009, OWASA office

Attendees

OWASA – Todd Spencer, Randy Horton, Nick Parker

UNC – Ray Magyar, Sally Hoyt

Town of Carrboro – Trish McGuire, Randy Dodd, Brendan Moore, Jeff Brubaker

Items discussed

1. Greenways planning history
 - a. Nick mentioned the Greenways Summit in 2006 and subsequent formation of the Greenways Commission. Jeff noted that several prior Town planning documents included greenway construction as a priority.
 - b. Randy Dodd mentioned that a site visit had been conducted with DWQ. Sally stated that Sharon Myers (UNC) needs to be contacted if DWQ is visiting UNC property.
2. Bolin Creek Greenway – Phase 1B (S. of Homestead Rd.)
 - a. Randy Dodd presented excerpts from the draft Bolin Creek Greenway Master Plan, which includes a phasing plan for different segments in the corridor. The focus was on Phase 1B, a greenway from Carolina North to Claremont.
 - b. The proposed creek crossing location is based on cost and time considerations: the floodplain is narrow near Homestead Rd. but widens significantly downstream. The proposed crossing would likely be less costly and have less permitting challenges than a crossing further downstream.
 - c. A crossing is important to provide greenway access to schools from nearby neighborhoods.
 - d. Co-location of the trail and sewer line would limit cleared corridors to one, given environmental restoration of a previously-used corridor.
 - e. The sewer line immediately south of Homestead Rd. is a ductile iron line with a long lifespan. Replacing or relocating this portion of the line is not currently in OWASA's capital plans.
 - f. Town-funded relocation of this portion of the sewer line would add extra costs to greenway construction. A general timeline for relocations is about 8 months. Design, permitting, bidding, and awarding contract could add significant time prior to construction phase for relocating long segments of sanitary sewer.
 - g. For whichever alignment is selected, if it is along a sewer easement, OWASA's usual considerations should be addressed (e.g. maintenance access, depth, slope, etc.). OWASA normally mows easements 1/year even if no repair work is needed. Access must be maintained at all times.
 - h. UNC will not allow a greenway alignment that is not in an OWASA sewer clearing or other existing clearing.
3. Bolin Creek Greenway – Phase 3 (Carolina North Forest)

- a. The feasibility of locating the greenway, and relocating a portion of the sewer line, further from the creek, along with environmental restoration of the current sewer line corridor, was discussed. Foot traffic, recreational cycling, and other activity have led to trail braiding along the corridor. Environmental concerns over a creek-side alignment have been raised by some Carrboro residents.
 - b. The sewer line is concrete and was installed in the 1960s. OWASA has not identified any repair needs within the Carolina North vicinity.
 - c. Ray and Sally expressed concern over the impact on overall tree canopy of an alignment further from the creek. An alignment on a slope would have a wider impact than the current alignment. The lateral slope along this alignment could also affect OWASA access. Overall, UNC is supportive of a greenway segment aligned with the clearing for the OWASA sewer, given that all comments from UNC staff are addressed. UNC will not allow a greenway that is not aligned with the OWASA sewer. Sally suggested that Town's consultant assess feasibility of relocating sanitary sewer. Construction drawings have not yet been developed. OWASA and UNC will provide comments upon review of design details.
 - d. The Town is planning to keep track of state and federal funding opportunities that could expedite a relocation of the sewer line for Phase 3. OWASA's legal obligation under the Sale and Purchase Agreement require that benefitting parties pay the cost of utility construction. As the applicant and benefitting party, the cost of the utility relocation would be borne by the Town of Carrboro. The conventional arrangement for accomplishing any relocation work would be for the applicant to retain a licensed professional engineer to prepare design drawings for the sewer relocation and submit to OWASA for regulatory review and permitting. Afterward, a licensed utility contractor would relocate the sewer main presumably as a component of the overall construction work. OWASA's role, as on any 3rd part construction project, would be inspection to ensure that sewer utility construction meets OWASA Standards and Specifications prior to acceptance for ownership and operation. Any alternate arrangement for constructing or funding the sewer relocation work would require Carrboro to offer a formal proposal to OWASA detailing specifics of their request in writing.
4. Bolin Creek Greenway – Phase 1A (Wilson Park)
- a. No specific issues were raised about this phase.

Follow-up items

1. The Town will ensure that the Bolin Creek Greenway Master Plan includes more details on the Phase 3 alignment further from the creek, including elevation and slope.
2. The Town will also more closely examine Phase 1B alternatives in terms of costs.
3. OWASA will conduct further analysis of the concrete sewer line along Bolin Creek in Phase 3 to determine if, and when, a future upgrade may be required. OWASA has plans for an evaluation of its entire sanitary sewer collection system in 2010. Results will lead to a list of priorities for projects to begin no earlier than July '10. Future work will likely include

rehabilitation of existing pipes rather than replacement. There are no known problems with the referenced sewer line and it is likely only high priority lines will be identified and scheduled for rehabilitation or replacement.

4. OWASA will also check on the status of the sewer line near Homestead Rd. Sewer mains on north side of Homestead are relatively new 24-inch DIP. Sewer mains south of Homestead are older and smaller in size.