

# HONEYCUTT CREEK GREENWAY ALTERNATIVES ANALYSIS

City of Raleigh, Wake County, North Carolina

## Detailed Analysis of Alignment Design Alternatives

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Date: August 18, 2009

Prepared by:



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**CITY OF RALEIGH - HONEYCUTT CREEK GREENWAY DESIGN  
ALTERNATIVES ANALYSIS OVERVIEW  
UPDATED: August 18, 2009**

The following provides an overview of the process of alternatives analysis to establish a final alignment consistent with the objectives for the design of a greenway for select segments of the proposed Honeycutt Creek Greenway. The information below provides an overview of the project and the methodology applied to evaluate alternatives, and is followed by detailed analyses for each segment.

**Project Background:**

The City of Raleigh Parks and Recreation Department proposes to design and construct the Mine Creek to Honeycutt Creek Greenway (hereafter referred to as Honeycutt Creek Greenway). The project will connect an existing greenway which ends at Long Street just west of Six Forks Road to the South Shore Trail along the south side of Falls Lake at Raven Ridge Road. The trail is proposed as a combination of wayfinding sections, 10-foot wide asphalt paved surface, and a maximum 6' wide natural surface hiking trail. The alignment will follow upstream along the course of East Fork Mine Creek to the north, cross Strickland Road and continue north downstream along the course of Honeycutt Creek to Ravens Ridge Road. The trail will intersect Interstate 540 between Six Forks Road (to the west) and Honeycutt Road (to the east), by passing through an existing pedestrian culvert.

Trail design based on 60% alignment is as follows:

- Length: 5.67 miles
  - Wayfinding (1.53 miles)
  - Traditional (2.51 miles)
  - Trail (1.63 miles)
- Roadway Crossings: 18 proposed
  - Existing Major Crosswalk (1)
  - Minor Crosswalk (12)
  - Minor Mid-Block Crosswalk (1)
  - Major Crosswalk (1)
  - Major Mid-Block Crossing (2)
  - Existing Pedestrian Tunnel (1)
- Stream Crossings: 26 proposed
  - Existing (5)
  - Culvert (13)
  - Boardwalk (2)
  - Bridge (2)
  - Bridge and Boardwalk (4)



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**Project Status:**

Design including preliminary survey, review of conceptual alignment, development of preliminary alignment, wetland delineations, preliminary geotechnical evaluation, and mapping started in May 2007. Updates to the project schedule including the current status are available on the City of Raleigh's website by searching the project name "Honeycutt Creek Greenway". The project is currently at 60% design level, which includes preliminary design suitable to identify design constraints and to communicate design issues and alignment alternatives with stakeholders such as property owners and permitting agencies.

**Overview of Areas of Alternatives:**

To develop the 60% design alignment, we evaluated five (5) segments of the proposed greenway where there are multiple alternatives to consider for final design. They are identified from south to north and briefly described as follows:

1. **East Fork Mine Creek to Strickland:** Includes the connection between the floodplain along East Fork Mine Creek at Old Deer Trail and Strickland Road. This segment passes through a rural neighborhood bordering West Millbrook Middle School and a County Park.
2. **Strickland mid-block crossing:** Includes existing sidewalk along north and south side of Strickland Road, intersection of Carriage Tour Lane with Strickland Road, and alternatives to provide a pedestrian crossing.
3. **Honeycutt including mid-block crossing at Loniker:** Provides connectivity between intersection of Honeycutt and Durant to the north, and Honeycutt Park to the south and was previously analyzed and presented in a December 4, 2007 report to the City. Updated analysis reflects elimination of a proposed alternative to follow the floodplain of Honeycutt Creek.
4. **USACE Land at Falls Lake:** The analysis for this segment is included as part of the November 10, 2008 submittal to the United States Army Corps of Engineers for request for use of land at Falls Lake.

Detailed descriptions and evaluations of segments are included in the specific analyses.



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**Alternative Analysis Methodology:**

Alternatives Analysis includes the following steps:

1. Development of visual based conceptual alignment
2. Development of mapping and data based preliminary alignment
3. Field investigation of preliminary alignment and identification of alternatives
4. Design of 30% alignment and alternatives
5. Development of Alternatives Analyses
6. Design of final alignment

The Alternatives Analyses are based on a consistent methodology that applies numerous factors reflecting the design, construction, and service life of the facility. A narrative provides the overview of the segment including a detailed description of each alternative. Issues of interest for each alternative are identified to provide a broad view of the readily associated pros and cons. The Alternatives Analysis Matrix lists evaluation criteria grouped by categories of potential impacts (Social, Environmental, and Economic).

For each criterion, a value or statement is provided to justify the assignment of a rating. If needed, values are calibrated to a common scale based on contributing variables. Alternatives are not rated against one another through a ranking system. Instead, each alternative is rated against a consistent baseline for the given criteria. For many criteria the rating is based on engineering judgment.

The score assigned to roadway crossings is presented as results from the Pedestrian and Bicycle Safety Index Models published in *Pedestrian and Bicyclist Intersection Safety Indices, FHWA -HRT -06 -130*. These models provide a calculated Safety Index Value (SIV). Pedestrian safety at roadway crossings is a key element of the design of a greenway trail. The calculated value provides a reasonable base form which to develop the overall rating scheme for the Alternatives Analysis Matrices. The indices were evaluated with specific application to an urban greenway to establish upper and lower bounds for results. The governing factor is the SIV generated through the Pedestrian Safety Index Model. For this project, a value of 6 reflects conservative assumptions to determine an upper bound.



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Within the Alternatives Analysis Matrices, **a lower overall rating represents an expected greater overall value.** Value is defined as a measure of the combination of how the proposed project will impact all interested parties including the owner (City of Raleigh), trail users, adjacent property owners, and permitting agencies. In general, a lower value is driven by applications of reduction or mitigation of overall impacts to social, environmental, and economic interest. A rating of 0 represents criteria for which there is either no impact or is not applicable.

**Supporting Documentation:**

For each segment, the following is provided:

1. Narrative describing the segment and each alternative
2. Base Mapping including the mapped alignments, parcel data, and orthophotos
3. Alternatives Analysis Matrix
4. Pedestrian and Bike Safety Rating Indexes

**CITY OF RALEIGH - HONEYCUTT CREEK GREENWAY DESIGN  
ALTERNATIVES ANALYSIS  
EAST FORK MINE CREEK TO STRICKLAND  
UPDATED: August 12, 2009**

The following provides an overview of the alternatives analysis to establish a final alignment consistent with the objectives for the design of a greenway for the segment identified as **East Fork Mine Creek to Strickland** of the proposed Honeycutt Creek Greenway.

**Area Description:**

The area where this segment is located is between the floodplain of East Fork Mine Creek and Strickland Road to the north. There are two main neighborhoods, Weathersfield and Summerfield. The neighborhoods are fully developed single family residential with sections of existing sidewalk. Millbrook Park, owned by Wake County, and West Millbrook Middle School border Strickland Road at the north end of this segment. There are no easements or open space areas through the neighborhood providing direct connectivity. The City has greenway easement at the east end of Mourning Dove that serves as an access point to the school. This section of greenway includes signage but is a narrow sidewalk with steps at the approach.

The City has a recorded easement passing through the Weathersfield neighborhood. The easement is a natural extension from the headwaters of East Fork Mine Creek in the area upstream of the culvert under Clear Brook. As the easement passes through the neighborhood, consisting of townhouse units, it follows roughly along the edge of a narrow parking area, cut across the travel lane, and follows along a sewer easement between two fences to connect to Mourning Dove. This section has a sidewalk in place with stairs up at the connection to Mourning Dove. The general characteristics of the neighborhood include standard 5' wide concrete sidewalk sections along at least one side of most streets and well established vegetation. Residents state that many students from the school use the side streets to access school property, park for events, and for drop-off and pick-up.



**Existing Easement through Weathersfield**



**Typical Sidewalk Section along Running Cedar**

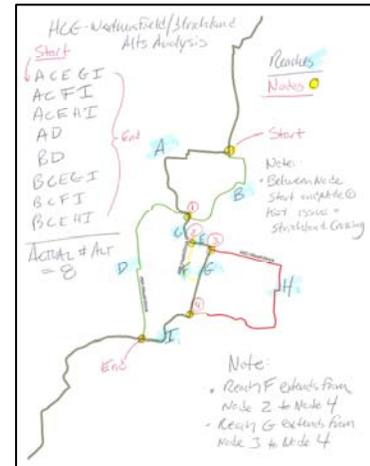
## CITY OF RALEIGH - HONEYCUTT CREEK GREENWAY DESIGN ALTERNATIVES ANALYSIS EAST FORK MINE CREEK TO STRICKLAND UPDATED: August 12, 2009

### Segment Purpose and Need:

Making the connection between East Fork Mine Creek and Honeycutt Creek is critical to provide continuous greenway section along the Honeycutt Creek Greenway. The successful implementation of the Capital Area Greenway System is dependent upon a connected network of corridors and the development of a connected network of trails. The Honeycutt Creek Greenway will provide the key linkage between the recreation areas at Falls Lake and the system developing along the Neuse River and points to the east, back to existing facilities at Prairie Ridge, Umstead Park, the American Tobacco Trail, and Jordan Lake. The existing pedestrian culvert under I-540 provides a key access point for a safe crossing of one of the areas most heavily traveled highways. The new Park provides opportunities for parking and access as well as facilities for users traveling along the trail.

### Segment Specific Alternative Analysis Description:

The area presents significant constraints to being able to develop a continuous greenway due to the lack of available open space for a traditional 10' paved asphalt trail. The evaluation of this area started with more than 8 potential alignments using a combination of a network of possible sections to piece together the connected alignment. Through the initial public participation process and a detailed review of the easements available, as well as the existing sidewalk network, the alternatives have been narrowed down to 2. Throughout this process there have been multiple meetings in the neighborhoods, additional mailers sent directly to property owners, and continued review of constructability issues.



There are 2 alternatives, identified to be consistent with information shown on the mapping exhibit, as follows:

#### 1. Wayfinding - Sidewalk

This alternative would provide a direct connection from the traditional greenway section ending at Clear Brook to Strickland by following the existing sidewalk along the west side of Clearbrook north to Mourning Dove, along the south of Mourning Dove to Running Cedar, and along the west of Running Cedar to Strickland. Work is proposed to remain within the ROW and the existing sidewalk will be replaced with a wider typical section that extends directly from

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top of curb to a width varying between 6 and 7 feet (depending on ROW location). The concrete section will include an 18 inch stamped section adjacent to the curb to clearly identify a conflict area for resetting mail boxes, placement of trash receptacles, and vehicle door opening and closing. The stamped sections will also serve as an element of wayfinding to give the user the sense of being on a section of greenway and not just a sidewalk.



Issues to consider include the need to relocate mailboxes, impacts to established vegetation, number of street and driveway crossings, management through design of cross slope conflicts with driveway transitions, and public perception of sidewalk widening impacts on neighborhood aesthetics. All proposed sections have existing 5' sidewalk with a variable width grass or vegetated offset from top of curb.

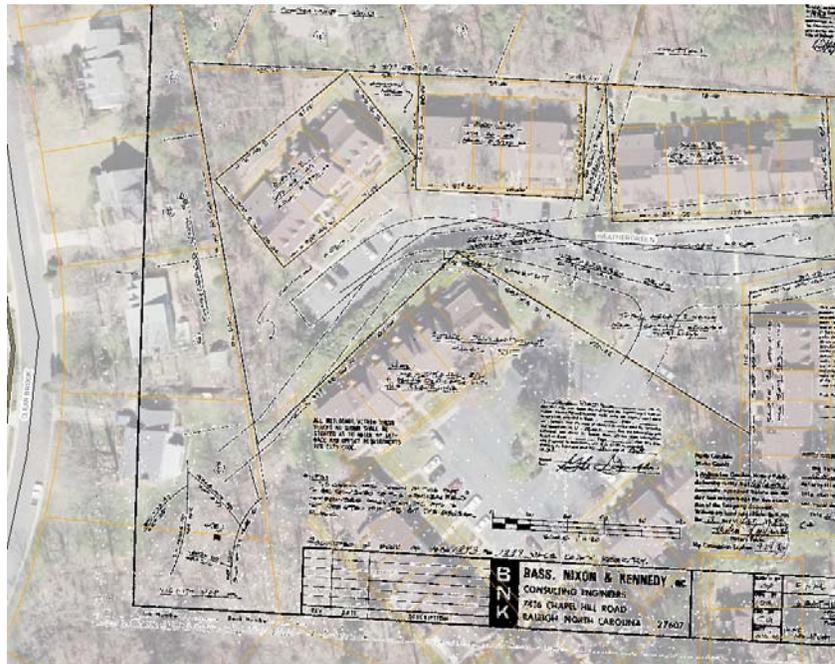
## **2. Alternate "A"**

This alternative would extend from the approaching trail from the southwest at Clearbrook, cross Clearbrook at a mid-block crosswalk, and pass through vegetated lot owned by the City of Raleigh as the trail approaches the Weathersfield neighborhood. Once within Weathersfield, the trail would follow within a greenway easement that crosses a narrow parking area between townhouse units, cuts diagonally across the parking area and travel lane, and passes through an existing easement between single family homes as it approaches Mourning Dove. Once on Mourning Dove, the trail would follow

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ALTERNATIVES ANALYSIS  
EAST FORK MINE CREEK TO STRICKLAND  
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exiting sidewalk section that would be widened where possible to accommodate a 6 to 7 foot wayfinding section to Clearbrook. The trail would then cross Mourning Dove and a new sidewalk section would be added to the cul-de-sac at the north end of Clearbrook. The trail would then cross the cul-de-sac and pass between single family homes, pass through a wooded section on the private lots, and enter the park. Through the park the trail would connect to the parking lot and follow the west entrance road to Strickland.

Issues to consider include the impacts to the Weathersfield neighborhood, the need to acquire additional easement within Weathersfield to accommodate the greenway section (recorded easement is not sufficient for trail placement), safety issues related to placement of the greenway trail within the parking and travel lanes through Weathersfield, and the proximity of the trail to privet houses at the north end of Clearbrook. Additionally, the residents of Weathersfield have gone before City Council to present their concerns about having the greenway through their neighborhood. The resident in the cul-de-sac section of Clearbrook expressed concerns related to safety and the potential use of their street as overflow parking for the park given the easy access that would be created. The constriction created by the existing houses would present a design challenge from the perspective of providing continued privacy for the residents as a 10 foot wide trail section would be within 6 to 10 feet of their windows.



# Legend

- Traditional Greenway
- Hiking Trail
- Wayfinding - Sidewalk
- Bent Creek Trail (Existing)
- Honeycutt Park Trail (Existing)
- Alternate A

## Road Crossings

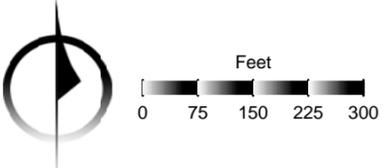
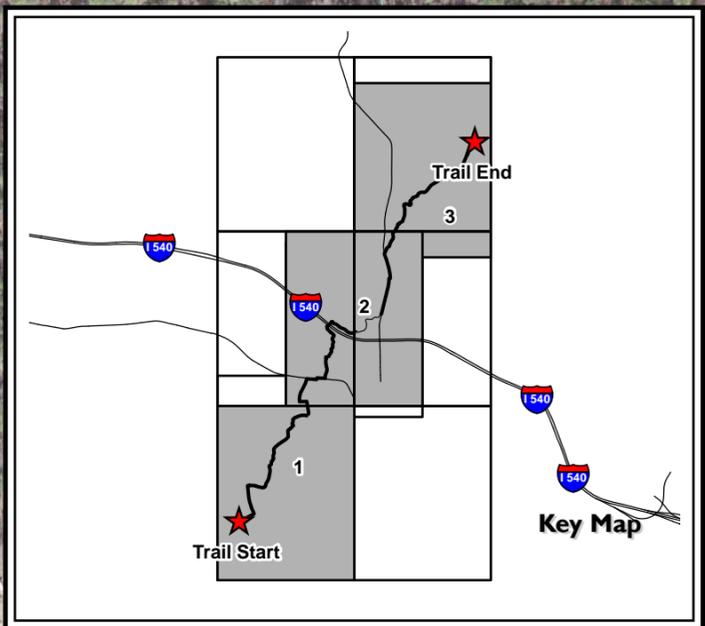
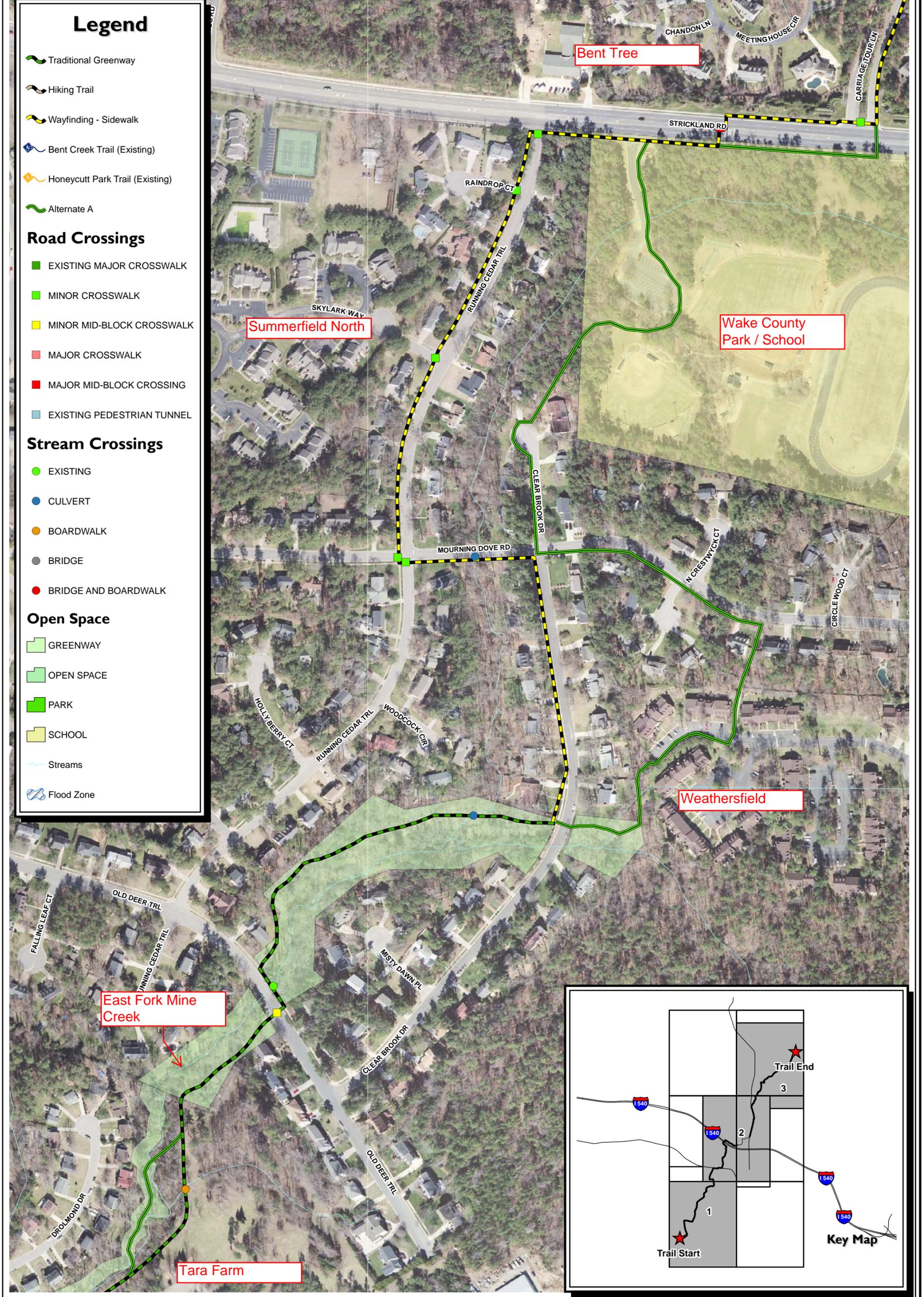
- EXISTING MAJOR CROSSWALK
- MINOR CROSSWALK
- MINOR MID-BLOCK CROSSWALK
- MAJOR CROSSWALK
- MAJOR MID-BLOCK CROSSING
- EXISTING PEDESTRIAN TUNNEL

## Stream Crossings

- EXISTING
- CULVERT
- BOARDWALK
- BRIDGE
- BRIDGE AND BOARDWALK

## Open Space

- GREENWAY
- OPEN SPACE
- PARK
- SCHOOL
- Streams
- Flood Zone



# Honeycutt Creek Greenway

## 60% Design - Strickland South Alternatives

August 2009



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**Honeycutt Creek Greenway - Alternatives Analysis Matrix**  
**Segment ID - East Fork Mine Creek to Strickland**  
**Ratings Based Analysis (0-6 w/ 6 Representing Least Desirable Impact)**

ID #	Criteria	Wayfinding		Alternate A		N/A		Notes
		Quantity	Rating	Quantity	Rating	Quantity	Rating	
	<b>Social Impacts</b>							
1	impact to property owners - land acquisition (acres)	0	0	0.3	6			Weathersfield easement not sufficient
2	impact to property owners - physical changes to property	N/A	2	N/A	5			Impact on parking and vegetation for Weathersfield
3	aesthetic impacts for adjacent uses (homes, roadways)	N/A	2	N/A	4			Need to evaluate response to sidewalk widening
4	roadway crossings (#)	6	4	5	5			A would include mid-block crossing
5	Pedestrian Intersection Safety Indices	N/A	0	N/A	0			highest value (least safe) applied
6	Bicycle Intersection Safety Indices	N/A	0	N/A	0			highest value (least safe) applied
7	crossing enhancement variable	N/A	2	N/A	4			Traditional enhances traffic calming
8	grade and curve radius constraints	N/A	0	N/A	2			Crossing Mourning Dove at Clearbrook a concern
9	perception of safety	N/A	2	N/A	5			Increased neighborhood access to school a concern
10	personal security	N/A	0	N/A	1			related to emergency vehicle access
11	accessibility for users	N/A	0	N/A	0			Provided at park parking area
12	connectivity with other facilities	N/A	2	N/A	0			A provides direct park access
	<i>Rating subtotal</i>		14		32		0	
	<b>Environmental Impacts</b>							
13	segment length (lf)	2735	2	3420	4			from point to point
14	land use compatibility	N/A	0	N/A	0			not a factor
15	historical sites affected (#)	0	0	0	0			need to confirm
16	archeological sites affected (#)	0	0	0	0			need to confirm
17	FEMA CLOMR/LOMR requirements	N/A	0	N/A	0			no detailed study
18	elevated boardwalk section (lf)	0	0	0	0			not a factor
19	retaining walls (sf)	0	0	0	0			not a factor
20	removal of natural vegetation (ac)	0.1	2	0.2	4			includes trees and other natural features
21	stream bank impacts (lf)	0	0	30	2			related to crossings and adjacent sections
22	stream buffer Impacts (ac)	0	0	0.1	2			variable based on existing cleared sections
23	401/404 permit requirements	N/A	0	N/A	0			requires wetland investigation
24	utility conflicts	N/A	4	N/A	2			need SUE along sidewalks to confirm
25	infrastructure improvements	N/A	4	N/A	2			sidewalk, signage, and mailboxes
26	aesthetics for trail user	N/A	4	N/A	2			offset from roadway better setting
	<i>Rating subtotal</i>		16		18		0	

ID #	Criteria	Wayfinding		Alternate A		N/A		Notes
		Quantity	Rating	Quantity	Rating	Quantity	Rating	
	<b><i>Economic Impact</i></b>							
27	integration with multi-modal transportation	N/A	0	N/A	0			no known or proposed facilities
28	use of existing greenway easements	N/A	0	N/A	2			Weathersfield would use easement but require more
29	use of existing easements - other	N/A	0	N/A	4			Wayfinding within ROW
30	stream impact mitigation costs (lf)	0	0	0	0			based on assumed cost per lf
31	budgetary cost	N/A	2	N/A	4			A requires increased length and property acquisition
	<i>Rating subtotal</i>		2		10		0	
	<b>TOTAL RATING</b>		<b>32</b>		<b>60</b>		<b>0</b>	combined subtotals
	<b>RANKING BASED ANALYSIS (1-3)</b>		<b>23</b>		<b>34</b>		<b>0</b>	assigned 1, 2, or 3 for each variable; 1 is best

**CITY OF RALEIGH - HONEYCUTT CREEK GREENWAY DESIGN  
ALTERNATIVES ANALYSIS  
STRICKLAND MID-BLOCK CROSSING  
UPDATED: August 12, 2009**

The following provides an overview of the alternatives analysis to establish a final alignment consistent with the objectives for the design of a greenway for the segment identified as **Strickland mid-block crossing** of the proposed Honeycutt Creek Greenway.

**Area Description:**

The area where this segment is located is the brief section of the greenway that runs along Strickland Road between Running Cedar Trail and Carriage Tour Lane. There is no existing pedestrian crossing along this section of Strickland. The area is bordered on the south by Millbrook Park and West Millbrook Middle School and to the north by the Bent Tree neighborhood.



**Looking East Along Strickland from Park Entrance**

**Segment Purpose and Need:**

Strickland Road presents a significant obstacle to connectivity of the greenway as a traditional trail section to connect up to the existing pedestrian culvert under I-540. Providing a crossing is required to make the connection and to eliminate the need to continue the trail to either the west or east to provide for crossing at major intersections with Six Forks Road or Falls of Neuse Road. The successful implementation of the Capital Area Greenway System is dependent upon a connected network of corridors and the development of a connected network of trails. The Honeycutt Creek Greenway will provide the key linkage between the recreation areas at Falls Lake and the system developing along the Neuse River and points to the east, back to existing facilities at Prairie Ridge, Umstead Park, the American Tobacco Trail, and Jordan Lake. The existing pedestrian culvert under I-540 provides a key access point for a safe crossing of

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STRICKLAND MID-BLOCK CROSSING  
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one of the areas most heavily traveled highways. The new Park provides opportunities for parking and access as well as facilities for users traveling along the trail.

**Segment Specific Alternative Analysis Description:**

Crossing of Strickland Road on the broad scale can be accomplished in one of three ways: over, across, or under. The existing conditions along Strickland Road, and issues related to cost and constructability, make the over and under alternatives not feasible at this time. The width of the roadway section and the required approach to accommodate a subsurface pedestrian tunnel would require land acquisition, a solution to provide appropriate drainage, and would likely support a lack of public perception of safety. The cost and impact to traffic from construction would also be significant. In order to place a pedestrian bridge there would be significant land acquisition to create the appropriate approach sections to gain required clearance elevation. The viewshed impact for Bent Tree residents would also be an issue of concern. Similar to the tunnel alternative, the cost and impacts from construction would be significantly greater than the preferred alternative.

There are 2 alternatives, identified to be consistent with information shown on the mapping exhibit, as follows:

**1. Wayfinding - Sidewalk**

This alternative provides for a mid-block crossing in a location that provides balance between approach curves along the road. The location of the crosswalk also reduces conflicts with existing turning lanes and was identified by local residents as the location where they currently cross to gain access to the park. The crossing will require balance of



providing safety while still encouraging pedestrians to be aware of the risks surrounding the environment for this crossing. The proposed design would include the construction of a monolithic concrete pedestrian refuge island to include a staggered crosswalk. Pedestrian signage would be included to make motorists and pedestrians aware of the crossing conflict. As pedestrians cross from one side they will approach a gated island that forces a turning toward traffic motion. This ensures that pedestrians will face traffic and relate the risk to their crossing action. The pedestrian will then make the second crossing motion to complete the Strickland Road crossing. The greenway will continue east toward Carriage Tour Land, across Carriage Tour using a traditional crosswalk, and turn north into the Bent Tree neighborhood.



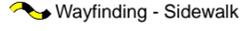
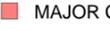
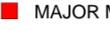
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STRICKLAND MID-BLOCK CROSSING  
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Issues to consider include the introduction of a significant change to the composition of this section of Strickland Road. The existence of the staggered crosswalk in the median will provide a greater sense of channelization for users of the center turn lane. The key to this alternative is that it is cost-effective and it does not create too strong a sense of pedestrian safety as a result of the lack of elaborate lighted crossing systems.

**2. Alternate "A"**

This alternative would extend from the approximate location of the crossing for the proposed Wayfinding staggered crosswalk, remaining on the south side of Strickland Road and extending to a point where a traditional crosswalk would be provided at the east side of the intersection of Strickland Road and Carriage Tour Lane. The crosswalk would connect in-line with the sidewalk section along Carriage Tour as it enters the Bent Tree Neighborhood. This intersection is not signalized and there are not significant warrants to provide a signal at this time. Through coordination with Wake County Public Schools and City of Raleigh staff it was decided there is not interest in signalizing this intersection. Future plans to realign the bus entrance at the school to be in line with Carriage Tour Lane would likely include signalization. From discussion with Bent Tree residents, there is not interest in the City placing a signal at this intersection for the purpose of the greenway connectivity. Although this alternative would eliminate the crossing of Carriage Tour Lane along Strickland, without a signal it might create additional vehicle to pedestrian conflicts. The area also lacks sufficient space within the median to provide a staggered crosswalk design. Issues to consider include the expected increase in pedestrian to vehicle conflicts, and the lack of signalization at either Carriage Tour Lane or the school.

# Legend

-  Traditional Greenway
  -  Hiking Trail
  -  Wayfinding - Sidewalk
  -  Bent Creek Trail (Existing)
  -  Honeycutt Park Trail (Existing)
  -  Alternate A
- Road Crossings**
-  EXISTING MAJOR CROSSWALK
  -  MINOR CROSSWALK
  -  MINOR MID-BLOCK CROSSWALK
  -  MAJOR CROSSWALK
  -  MAJOR MID-BLOCK CROSSING
  -  EXISTING PEDESTRIAN TUNNEL
- Stream Crossings**
-  EXISTING
  -  CULVERT
  -  BOARDWALK
  -  BRIDGE
  -  BRIDGE AND BOARDWALK
- Open Space**
-  GREENWAY
  -  OPEN SPACE
  -  PARK
  -  SCHOOL
  -  Streams
  -  Flood Zone



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## Honeycutt Creek Greenway 60% Design - Strickland Alternatives August 2009

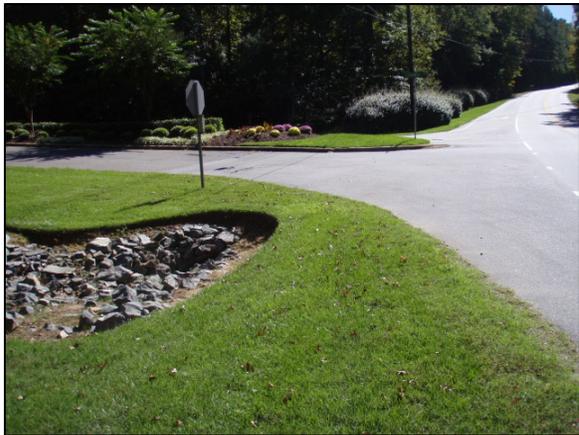


**CITY OF RALEIGH - HONEYCUTT CREEK GREENWAY DESIGN  
ALTERNATIVES ANALYSIS  
HONEYCUTT INCLUDING MID-BLOCK CROSSING AT LONIKER  
UPDATED: August 18, 2009**

The following provides an overview of the alternatives analysis to establish a final alignment consistent with the objectives for the design of a greenway for the segment identified as **Honeycutt including mid-block crossing at Loniker** of the proposed Honeycutt Creek Greenway.

**Area Description:**

The area where this segment is located is parallel to Honeycutt Road extending from the south at the t-intersection of Loniker Drive with Honeycutt Road to the north at Durant Road. Recently the Honeycutt Park opened on a large parcel just north of I-540 and west of Honeycutt, and includes recreational fields, a playground, a bath house, and an approximately 0.4 mile section of greenway trail that starts at the intersection of Clear Creek Farm Road, which also serves as the entrance to the Park, and extends to the west and south to a terminus within the Progress Energy right of way that leads down the slope to the existing pedestrian culvert under I-540. A connection between the park entrance on Honeycutt and the start of the trail section heading north from the intersection of Honeycutt and Durant will be designed and constructed as part of the Honeycutt Creek Greenway.



**Intersection of Honeycutt and Loniker**



**Intersection of Honeycutt and Durant**

**Segment Purpose and Need:**

The connection between the existing pedestrian culvert under I-540 and the intersection of Honeycutt and Durant is critical to extend the trail system of the Capital Area Greenway Master Plan and link it to the numerous natural resource areas in and around the City. The successful implementation of the Capital Area Greenway System is dependent upon a connected network of corridors and the development of a connected network of trails. The Honeycutt Creek Greenway will provide the key linkage between the recreation areas at Falls Lake and the system developing along the Neuse River and



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points to the east, back to existing facilities at Prairie Ridge, Umstead Park, the American Tobacco Trail, and Jordan Lake. The existing pedestrian culvert under I-540 provides a key access point for a safe crossing of one of the areas most heavily traveled highways. The new Park provides opportunities for parking and access as well as facilities for users traveling along the trail.

**Segment Specific Alternative Analysis Description:**

Making the connection from the approximate headwaters of Honeycutt Creek in the vicinity of I-540 back to the floodplain along Honeycutt Creek as it flows from the south to the north to a confluence with Falls Lake requires development of a trail section parallel and adjacent to the road. Previous alternatives to follow the floodplain of Honeycutt Creek and to stay immediately adjacent and parallel to Honeycutt along the west side between Loniker and Durant have been analyzed and eliminated based on constraints related to impacts on private property and significant environmental impacts, respectively. This analysis is included in a December 4, 2007 report.

Extending north from the entrance to Honeycutt Park, the trail will remain on the west side of Honeycutt Road as a typical 10' wide paved section offset from edge of curb. The design goal is to minimize impact on existing drainage ditch sections, using the ditch section as a natural barrier between the road and the trail. Reviewing these alternatives includes consideration of the crossing of the intersection of Honeycutt and Durant, as the side of the road for the trail as it approaches from the south is a key factor in designing the required crossing(s).

There are 2 alternatives, identified to be consistent with information shown on the mapping exhibit, as follows:

**1. Traditional Greenway**

This alternative would provide a crossing of Honeycutt at the north side of the intersection with Loniker. The trail would cross Durant at the east side of Honeycutt. This alternative eliminates the double crossing motion at the intersection of Honeycutt and Durant and reduces impacts to the stream network located at the southwest corner of the intersection.

Issues to consider include the challenge of designing a crosswalk at Loniker that promotes safety and perception of safety for pedestrians and vehicle traffic, the potential need to complete storm drainage utility work to provide a closed system for roadway drainage in place of the ditch section, and the possible requirement for sections of retaining wall north of Loniker and again near the intersection of Honeycutt and Durant to mitigate impacts on private property and natural

**CITY OF RALEIGH - HONEYCUTT CREEK GREENWAY DESIGN  
ALTERNATIVES ANALYSIS  
HONEYCUTT INCLUDING MID-BLOCK CROSSING AT LONIKER  
UPDATED: August 18, 2009**

drainage. Finally, the trail section along Honeycutt would be within a power easement (information not yet confirmed) resulting in the need to coordinate with controlling stakeholder.



**Looking south from Loniker**



**Looking south from Durant along Honeycutt**

## **2. Alternate A**

This alternative would provide an alignment that would continue along the west side of Honeycutt north of Loniker. There are significant environmental impacts as a series of blue line streams meander along the edge of pavement at the front of the private property. This alternative would require a design that would meander offset from the alignment of Honeycutt and would also include several structural elements to reduce stream impacts. The alternative would require a 2-motion crossing of the intersection of Honeycutt and Durant.

Issues to consider include the need to impact a greater land area on private property to offset from Honeycutt, added cost to provide required structural elements (boardwalk sections and bridges, and the safety and perception of safety related to a 2-motion crossing at the intersection of Honeycutt and Durant (currently a 4-way stop with no known plans or warrants to justify signalization). It should be noted that alternatives considered outside the range of acceptable cost and constructability have not been considered. This might include proposing a pedestrian bridge over the intersection or elevating the intersection (currently located in a sump) to provide for a pedestrian tunnel. Given the trail section extending north of this location will be a hiking trail; there is not justification for any significant reworking of this intersection to accommodate pedestrian traffic.

# Legend

- Traditional Greenway
- Hiking Trail
- Wayfinding - Sidewalk
- Bent Creek Trail (Existing)
- Honeycutt Park Trail (Existing)
- Alternate A

## Road Crossings

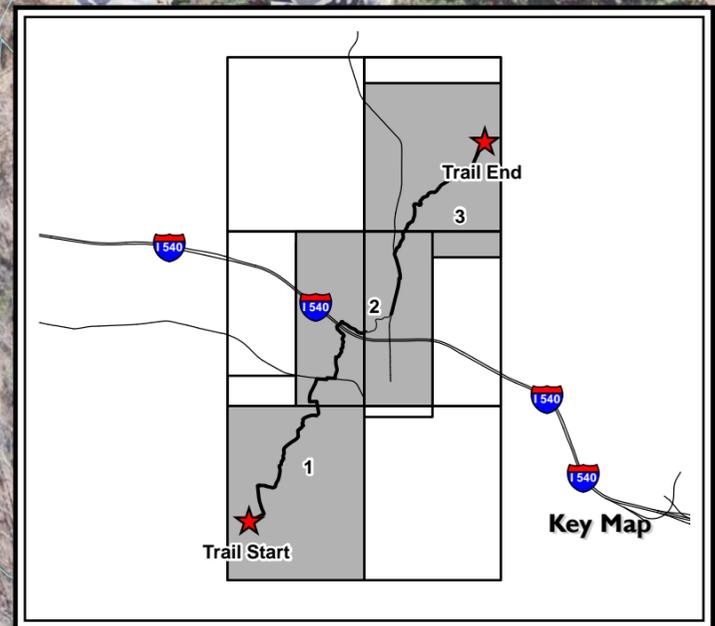
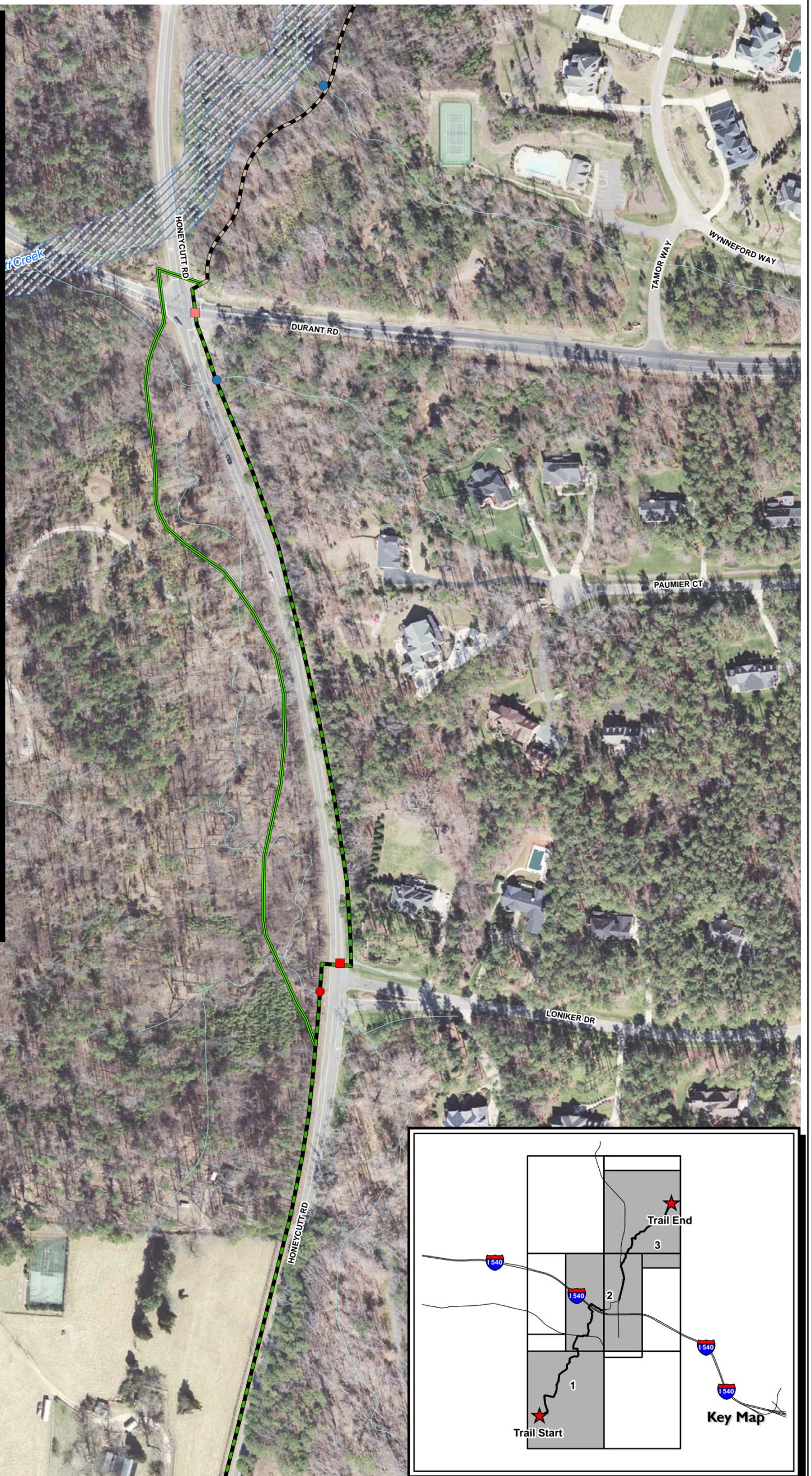
- EXISTING MAJOR CROSSWALK
- MINOR CROSSWALK
- MINOR MID-BLOCK CROSSWALK
- MAJOR CROSSWALK
- MAJOR MID-BLOCK CROSSING
- EXISTING PEDESTRIAN TUNNEL

## Stream Crossings

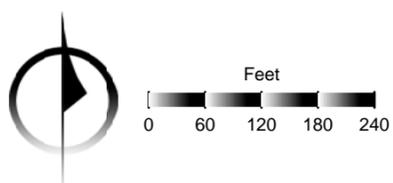
- EXISTING
- CULVERT
- BOARDWALK
- BRIDGE
- BRIDGE AND BOARDWALK

## Open Space

- GREENWAY
- OPEN SPACE
- PARK
- SCHOOL
- Streams
- Flood Zone



V:\Projects\GIS\Projects\07-4029 Honeycutt Creek Greenway\01-GIS\Maps\60%Alignment\_S1\_Small.mxd



# Honeycutt Creek Greenway 60% Design - Honeycutt Alternatives August 2009



**Honeycutt Creek Greenway - Alternatives Analysis Matrix**  
**Segment ID - Honeycutt including mid-block crossing at Loniker**  
**Ratings Based Analysis (0-6 w/ 6 Representing Least Desirable Impact)**

ID #	Criteria	Traditional		Alternate A		N/A		Notes
		Quantity	Rating	Quantity	Rating	Quantity	Rating	
	<b>Social Impacts</b>							
1	impact to property owners - land acquisition (acres)	0	0	0	0			assuming Parker donation, no acquisition needed
2	impact to property owners - physical changes to property	N/A	2	N/A	5			minor impacts at Loniker, significant impact on Parker
3	aesthetic impacts for adjacent uses (homes, roadways)	N/A	2	N/A	3			includes changes to infrastructure and viewsheds
4	roadway crossings (#)	2	4	2	6			quantity only
5	Pedestrian Intersection Safety Indices	2.14	3	2.14	3			highest value (least safe) applied
6	Bicycle Intersection Safety Indices	2.6	3	2.6	3			highest value (least safe) applied
7	crossing enhancement variable	N/A	3	N/A	5			Traditional eliminates 2nd motion at Honeycutt/Durant
8	grade and curve radius constraints	N/A	6	N/A	4			Traditional crossing of Honeycutt is a concern
9	perception of safety	N/A	4	N/A	5			2-motion crossings intimidating
10	personal security	N/A	0	N/A	0			related to emergency vehicle access
11	accessibility for users	N/A	0	N/A	0			parking at Park in-line with trail a benefit
12	connectivity with other facilities	N/A	0	N/A	0			not a factor
	<i>Rating subtotal</i>		27		34		0	
	<b>Environmental Impacts</b>							
13	segment length (lf)	1550	3	1690	4			from west side of Honeycutt at Loniker
14	land use compatibility	N/A	2	N/A	0			potential for widening Honeycutt
15	historical sites affected (#)	0	0	0	0			need to confirm
16	archeological sites affected (#)	0	0	0	0			need to confirm
17	FEMA CLOMR/LOMR requirements	N/A	0	N/A	0			no detailed study
18	elevated boardwalk section (lf)	100	2	300	4			mitigate impacts to natural drainage/ditch sections
19	retaining walls (sf)	200	2	300	3			Honeycutt near Loniker slope issues
20	removal of natural vegetation (ac)	0.2	2	0.6	6			includes trees and other natural features
21	stream bank impacts (lf)	120	2	250	4			related to crossings and adjacent sections
22	stream buffer Impacts (ac)	0.1	1	0.3	4			variable based on existing cleared sections
23	401/404 permit requirements	N/A	2	N/A	6			requires wetland investigation
24	utility conflicts	N/A	6	N/A	2			Power easement and other
25	infrastructure improvements	N/A	5	N/A	1			closed system drainage along Honeycutt possible
26	aesthetics for trail user	N/A	4	N/A	2			offset from roadway better setting
	<i>Rating subtotal</i>		31		36		0	

ID #	Criteria	Traditional		Alternate A		N/A		Notes
		Quantity	Rating	Quantity	Rating	Quantity	Rating	
	<b><i>Economic Impact</i></b>							
27	integration with multi-modal transportation	N/A	0	N/A	0			no known or proposed facilities
28	use of existing greenway easements	N/A	0	N/A	0			no existing easements
29	use of existing easements - other	N/A	0	N/A	0			no existing easements
30	stream impact mitigation costs (lf)	120	2	250	4			based on assumed cost per lf
31	budgetary cost	N/A	2	N/A	5			based on total, not per lf
	<i>Rating subtotal</i>		4		9		0	
	<b>TOTAL RATING</b>		62		79		0	combined subtotals
	<b>RANKING BASED ANALYSIS (1-3)</b>		24		33		0	assigned 1, 2, or 3 for each variable; 1 is best



Intersection photo

**Honeycutt Rd @ Loniker Dr (N)**

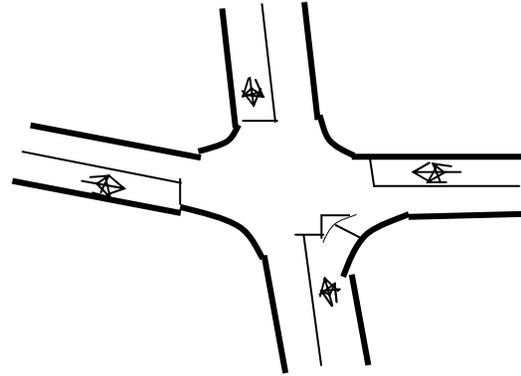
Source: Pedestrian and Bicyclist Intersection Safety Indices, FHWA -HRT -06-130

PEDESTRIAN SAFETY INDEX MODEL					
Name of Crossing		Leg 1	Leg 2	Leg 3	Leg 4
SIGNAL	Signalized ( 1 = yes, 0 = no )	0			
STOP	Stop controlled ( 1 = yes, 0 = no )	1			
THRULNS	Number of through lanes on main street (both directions)	2			
SPEED	85th percentile speed on main street (speed in mph)	35			
MAINADT	Main street traffic volume (ADT in thousands)	6			
COMM	Commercial Area (i.e., retail, restaurants) ( 1 = yes, 0 = no )	0			
<b>Ped Safety Index Value =</b>		<b>1.87</b>			

BICYCLE SAFETY INDEX MODEL					
Name of Crossing		Leg 1	Leg 2	Leg 3	Leg 4
MAINADT	Main street traffic volume (ADT in thousands)	6			
MAINHISPD	Main street speed limit $\geq$ 35 mph (1 = yes, 0 = no)	1			
TURNVEH	Presence of turning vehicle traffic across the path of through cyclists (1 = yes, 0 =no)	1			
RTLANS	Number of right turn traffic lanes on main street approach	1			
BL	Bike lane present ( 1=yes, 0 = no)	0			
NOBL	No bike lane present (1=yes, 0 =no)	1			
CROSSADT	Cross street traffic volume	1			
SIGNAL	Signalized ( 1 = yes, 0 = no )	0			
PARKING	On street parking on main approach ( 1 = yes, 0 = no )	0			
RTCROSS	Number of traffic lanes for cyclists to cross to make a right turn	0			
CROSSLNS	Number of through lanes on cross street	2			
LTCROSS	Number of traffic lanes for cyclists to cross to make a left turn	0			
<b>Safety Index Through Value =</b>		<b>2.60</b>			
<b>Safety Index Right Turn Value =</b>		<b>1.32</b>			
<b>Safety Index Left Turn Value =</b>		<b>1.10</b>			



Intersection photo



Intersection sketch

**Durant Rd @ Honeycutt Rd (E)**

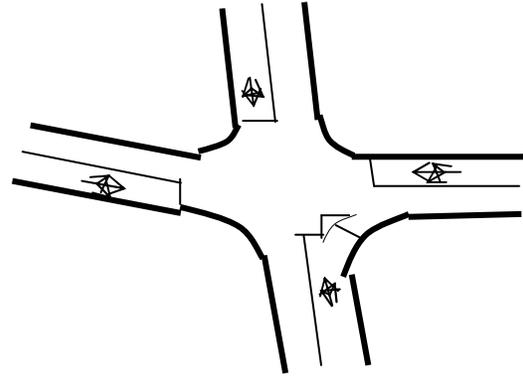
Source: Pedestrian and Bicyclist Intersection Safety Indices, FHWA -HRT -06-130

PEDESTRIAN SAFETY INDEX MODEL					
Name of Crossing		Leg 1	Leg 2	Leg 3	Leg 4
SIGNAL	Signalized ( 1 = yes, 0 = no )	0			
STOP	Stop controlled ( 1 = yes, 0 = no )	1			
THRULNS	Number of through lanes on main street (both directions)	2			
SPEED	85th percentile speed on main street (speed in mph)	50			
MAINADT	Main street traffic volume (ADT in thousands)	6			
COMM	Commercial Area (i.e., retail, restaurants) ( 1 = yes, 0 = no )	0			
<b>Ped Safety Index Value =</b>		<b>2.14</b>			

BICYCLE SAFETY INDEX MODEL					
Name of Crossing		Leg 1	Leg 2	Leg 3	Leg 4
MAINADT	Main street traffic volume (ADT in thousands)	6			
MAINHISPD	Main street speed limit ≥ 35 mph (1 = yes, 0 = no)	1			
TURNVEH	Presence of turning vehicle traffic across the path of through cyclists (1 = yes, 0 =no)	1			
RTLANS	Number of right turn traffic lanes on main street approach	0			
BL	Bike lane present ( 1=yes, 0 = no)	0			
NOBL	No bike lane present (1=yes, 0 =no)	1			
CROSSADT	Cross street traffic volume	6			
SIGNAL	Signalized ( 1 = yes, 0 = no )	0			
PARKING	On street parking on main approach ( 1 = yes, 0 = no )	0			
RTCROSS	Number of traffic lanes for cyclists to cross to make a right turn	0			
CROSSLNS	Number of through lanes on cross street	2			
LTCROSS	Number of traffic lanes for cyclists to cross to make a left turn	0			
<b>Safety Index Through Value =</b>		<b>2.60</b>			
<b>Safety Index Right Turn Value =</b>		<b>1.32</b>			
<b>Safety Index Left Turn Value =</b>		<b>1.10</b>			



Intersection photo



Intersection sketch

**Durant Rd @ Honeycutt Rd (W)**

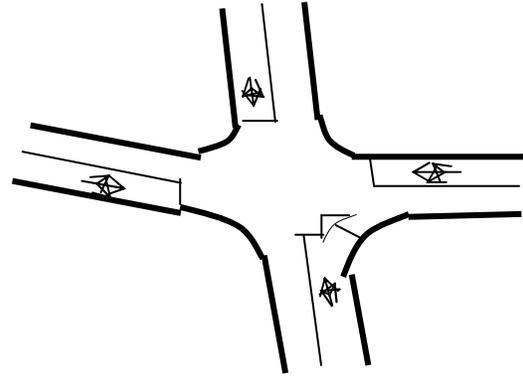
Source: Pedestrian and Bicyclist Intersection Safety Indices, FHWA -HRT -06-130

PEDESTRIAN SAFETY INDEX MODEL					
Name of Crossing		Leg 1	Leg 2	Leg 3	Leg 4
SIGNAL	Signalized ( 1 = yes, 0 = no )	0			
STOP	Stop controlled ( 1 = yes, 0 = no )	1			
THRULNS	Number of through lanes on main street (both directions)	2			
SPEED	85th percentile speed on main street (speed in mph)	50			
MAINADT	Main street traffic volume (ADT in thousands)	6			
COMM	Commercial Area (i.e., retail, restaurants) ( 1 = yes, 0 = no )	0			
<b>Ped Safety Index Value =</b>		<b>2.14</b>			

BICYCLE SAFETY INDEX MODEL					
Name of Crossing		Leg 1	Leg 2	Leg 3	Leg 4
MAINADT	Main street traffic volume (ADT in thousands)	6			
MAINHISPD	Main street speed limit ≥ 35 mph (1 = yes, 0 = no)	1			
TURNVEH	Presence of turning vehicle traffic across the path of through cyclists (1 = yes, 0 =no)	1			
RTLANS	Number of right turn traffic lanes on main street approach	0			
BL	Bike lane present ( 1=yes, 0 = no)	0			
NOBL	No bike lane present (1=yes, 0 =no)	1			
CROSSADT	Cross street traffic volume	6			
SIGNAL	Signalized ( 1 = yes, 0 = no )	0			
PARKING	On street parking on main approach ( 1 = yes, 0 = no )	0			
RTCROSS	Number of traffic lanes for cyclists to cross to make a right turn	0			
CROSSLNS	Number of through lanes on cross street	2			
LTCROSS	Number of traffic lanes for cyclists to cross to make a left turn	0			
<b>Safety Index Through Value =</b>		<b>2.60</b>			
<b>Safety Index Right Turn Value =</b>		<b>1.32</b>			
<b>Safety Index Left Turn Value =</b>		<b>1.10</b>			



Intersection photo



Intersection sketch

**Honeycutt Rd @ Durant Rd (N)**

Source: Pedestrian and Bicyclist Intersection Safety Indices, FHWA -HRT -06-130

PEDESTRIAN SAFETY INDEX MODEL					
Name of Crossing		Leg 1	Leg 2	Leg 3	Leg 4
SIGNAL	Signalized ( 1 = yes, 0 = no )	0			
STOP	Stop controlled ( 1 = yes, 0 = no )	1			
THRULNS	Number of through lanes on main street (both directions)	2			
SPEED	85th percentile speed on main street (speed in mph)	50			
MAINADT	Main street traffic volume (ADT in thousands)	6			
COMM	Commercial Area (i.e., retail, restaurants) ( 1 = yes, 0 = no )	0			
<b>Ped Safety Index Value =</b>		<b>2.14</b>			

BICYCLE SAFETY INDEX MODEL					
Name of Crossing		Leg 1	Leg 2	Leg 3	Leg 4
MAINADT	Main street traffic volume (ADT in thousands)	6			
MAINHISPD	Main street speed limit ≥ 35 mph (1 = yes, 0 = no)	1			
TURNVEH	Presence of turning vehicle traffic across the path of through cyclists (1 = yes, 0 =no)	1			
RTLANS	Number of right turn traffic lanes on main street approach	0			
BL	Bike lane present ( 1=yes, 0 = no)	0			
NOBL	No bike lane present (1=yes, 0 =no)	1			
CROSSADT	Cross street traffic volume	6			
SIGNAL	Signalized ( 1 = yes, 0 = no )	0			
PARKING	On street parking on main approach ( 1 = yes, 0 = no )	0			
RTCROSS	Number of traffic lanes for cyclists to cross to make a right turn	0			
CROSSLNS	Number of through lanes on cross street	2			
LTCROSS	Number of traffic lanes for cyclists to cross to make a left turn	0			
<b>Safety Index Through Value =</b>		<b>2.60</b>			
<b>Safety Index Right Turn Value =</b>		<b>1.32</b>			
<b>Safety Index Left Turn Value =</b>		<b>1.10</b>			