

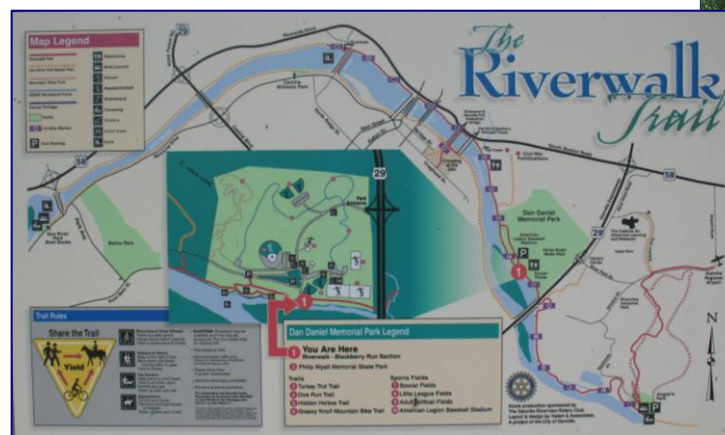
# TRAIL CONNECTOR STUDY

## *Dan River to Ringgold*

*Linking the Riverwalk on the Dan with the Richmond and Danville Rail-Trail*

## FINAL REPORT

JUNE 2012



Prepared for:  
**DANVILLE-PITTSYLVANIA AREA  
METROPOLITAN PLANNING ORGANIZATION**

Prepared by:  
**TOOLE DESIGN GROUP**  
Hyattsville, Maryland  
and  
**URS CORPORATION**  
Richmond, Virginia

*The contents of this report reflect the view of the author(s) who are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the views or policies of the Federal Highway Administration and/or the Commonwealth of Virginia Transportation Board. This report does not constitute a standard, specification or regulation. FHWA acceptance of this report as evidence of fulfillment of the objectives of this planning study does not constitute endorsement/approval of the need for any recommended improvements nor does it constitute approval of their location and design or a commitment to fund any such improvements. Additional project level environmental studies of alternatives may be necessary.*

## Introduction

### Project Description

The Danville–Pittsylvania Metropolitan Planning Organization (MPO), in cooperation with the City of Danville and Pittsylvania County, has engaged the URS / Toole Design Group Team to perform the Dan River to Ringgold Trail Connector Study. The goal of **the study is to...**

*...identify a corridor within which a shared use path(s) for bicyclists and pedestrians and other non-motorized trail users can be constructed. Accommodations for including equestrians along all or a portion of the path will also be considered.*

To achieve the goal, the planning process will use the following strategies:

- Identify all viable trail corridor options within the study area.
- If necessary, consider partially braided corridors with different facilities for distinct trail user groups.
- Establish a set of criteria with which the most viable corridors can be evaluated and conduct such an evaluation.

### Purpose and Need Statement

The following statement of project purpose and need has been developed to further guide the planning process:

*A shared use connector trail is needed to link the east end of the Riverwalk on the Dan at the Danville Regional Airport with the west end of the Richmond and Danville Rail-Trail in Ringgold. The need for trail continuity in this area is heightened because the existing road network in the area does not provide accommodations for bicycle or pedestrian travel that is adequate for existing and future trail traffic.*

*The approximate 5 mile trail link will a) expand recreational opportunities for a variety of trail user groups, b) provide regional bicycle transportation options and local pedestrian travel opportunities, and c) close a gap in the Beaches to Bluegrass Trail - a major route in Virginia's statewide trail system that will link the Tidewater to the Blue Ridge and Southwest Virginia.*

### Project Study Area

Figure 1 on page 2 identifies the project study area, which in general, is bounded by the Dan River and U. S. 29 on the west, the active rail spur on the north, and Ringgold Road and Airport Road on the east and southeast, respectively.



Photo 1: Riverwalk on the Dan – Blackberry Run Section (Looking South)



Photo 2: Richmond and Danville Rail-Trail in Ringgold (Looking West)



Photo 3: Floral Hills Memorial Gardens Cemetery (Looking North)



## Preferred Alternative

Figures 2 and 3 on the following pages show the preferred alternative with a red line. These figures also provide a series of text boxes that describe various issues related to feasibility assessment. A general description of the preferred alternative follows:

- **Segment A to Segment A.3** – The preferred alignment begins with an at-grade crossing of Ringgold Road and a new trail on the north side of the railroad spur which is owned by Pittsylvania County. It will circumvent a planned development pad in the Pittsylvania County Industrial Park, cross Barker Road at grade, and continue along the west side of Cane Creek Parkway (CCPkwy) to Lot #9 in the Cane Creek Industrial Park (CCIP). Segment A.2 is also an option within this alignment.
- **Segment A.3 to Segment B** – The alignment will descend to a crossing of Cane Creek by following a sewer alignment just north of a pond. The CCIP master plan has designated the pond and old farm house for recreational use. The preferred trail alignment climbs back to meet the Cane Creek Parkway southeast of the Swedwood furniture plant; it would then follow the CCPkwy to the southern edge of CCIP. Swedwood has expressed interest in expanding their operations as far south from the current plant as the area designated as CCIP Lot #6 (see Figure 2). The trail segment around the east and southern edges of Lot #6 can be constructed in conjunction with CCIP expansion in this area.
- **Segment B (western tunnel)** – From the CCIP, the alignment would cross the Floral Hill Memorial Gardens cemetery at the foot of the irrigation pond, potentially utilizing the earthen dam on the southern edge (see photo at right). West of the cemetery the preferred alignment must traverse what is now undeveloped private property until it reaches land that the City of Danville owns on the north side of U.S. 58. From this City property, which is in the flight path of one of the airport runways, the trail can be routed through a tunnel that would be constructed under U.S. 58. On the south side of U.S. 58 the alignment turns to the west and runs along the northern border of the airport. There is sufficient space outside the current airport fence line to provide a twelve-foot wide trail and a generous buffer from U.S. 58.
  - In a preliminary review of the preferred alternative, the Virginia Department of Aviation provided the following comments: Construction of a trail on Airport property will require a pen and ink revision to the Airport Layout Plan and Airport Property Map; both of which must be submitted to and approved by the Virginia Department of Aviation and the Federal Aviation Administration. A land release must take place to grant a permanent easement along Airport property. Additionally, when the project moves into preliminary design, further consultation with (FAA) will be necessary to ensure that there are no conflicts between the proposed trail crossing of US 58 and the FAA project to modify the platform for the localizer antennae array between the north end of the runway and US 58.\*
- **Segment B** – The final segment of the preferred alignment would run along the east side of Airport Drive to the existing trail along Stinson Drive. This segment could be built with a City-planned upgrade of Airport Drive. It necessitates an at-grade crossing near the airport terminal, and acquisition of a small amount of residential frontage along five homes on the west side of Airport Drive.

\* Information provided by Scott Denny, Senior Aviation Planner, Virginia Department of Aviation (email: January 27, 2012)



Unused rail corridor owned by Pittsylvania County



Cemetery can be crossed near pond well away from grave sites.



Space available between U.S. 58 and the airport.



Graded shoulder available in CC Industrial Park.



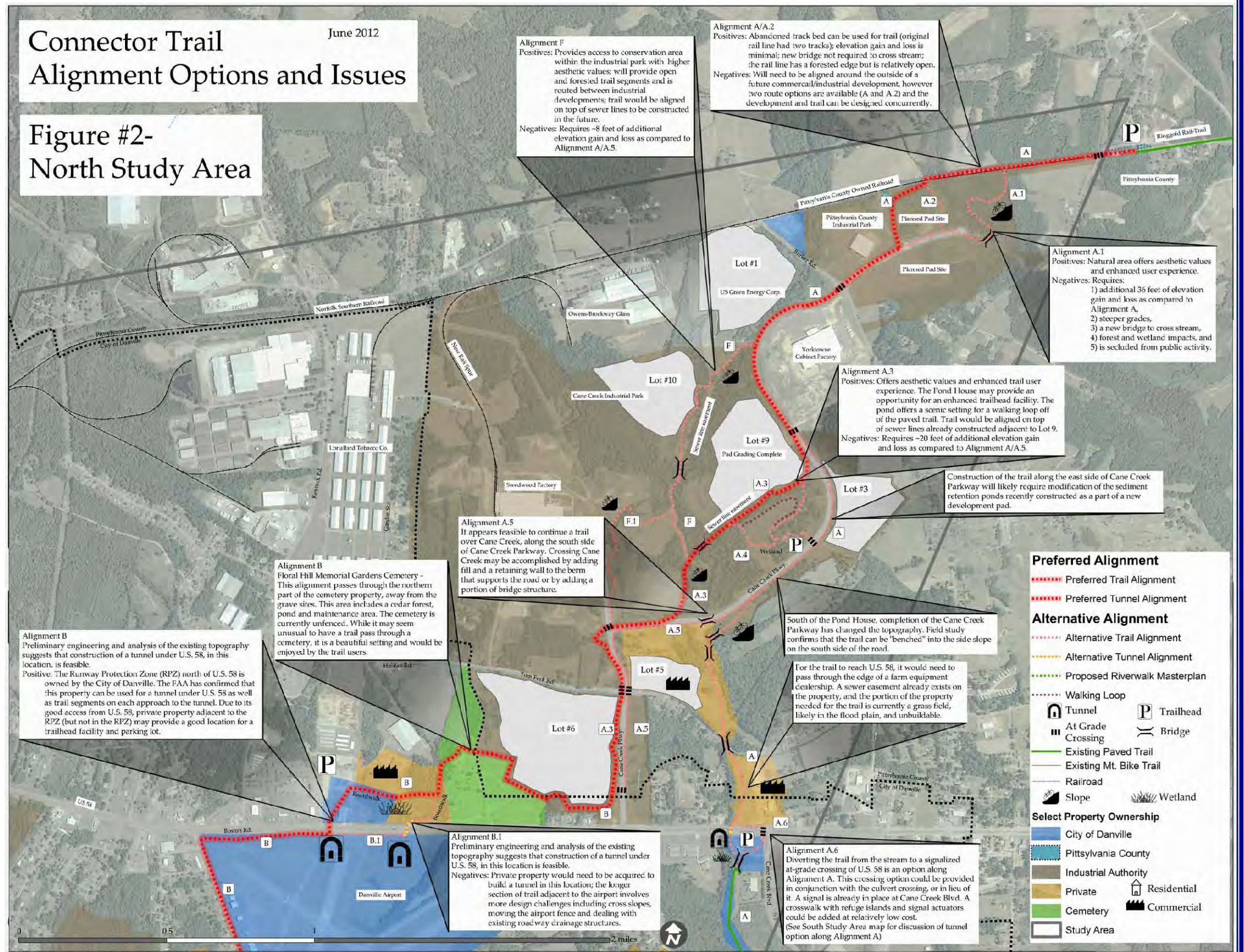
City of Danville owns land for trailhead & tunnel.



Existing Dan River Trail enters industrial park near Stinson Drive.

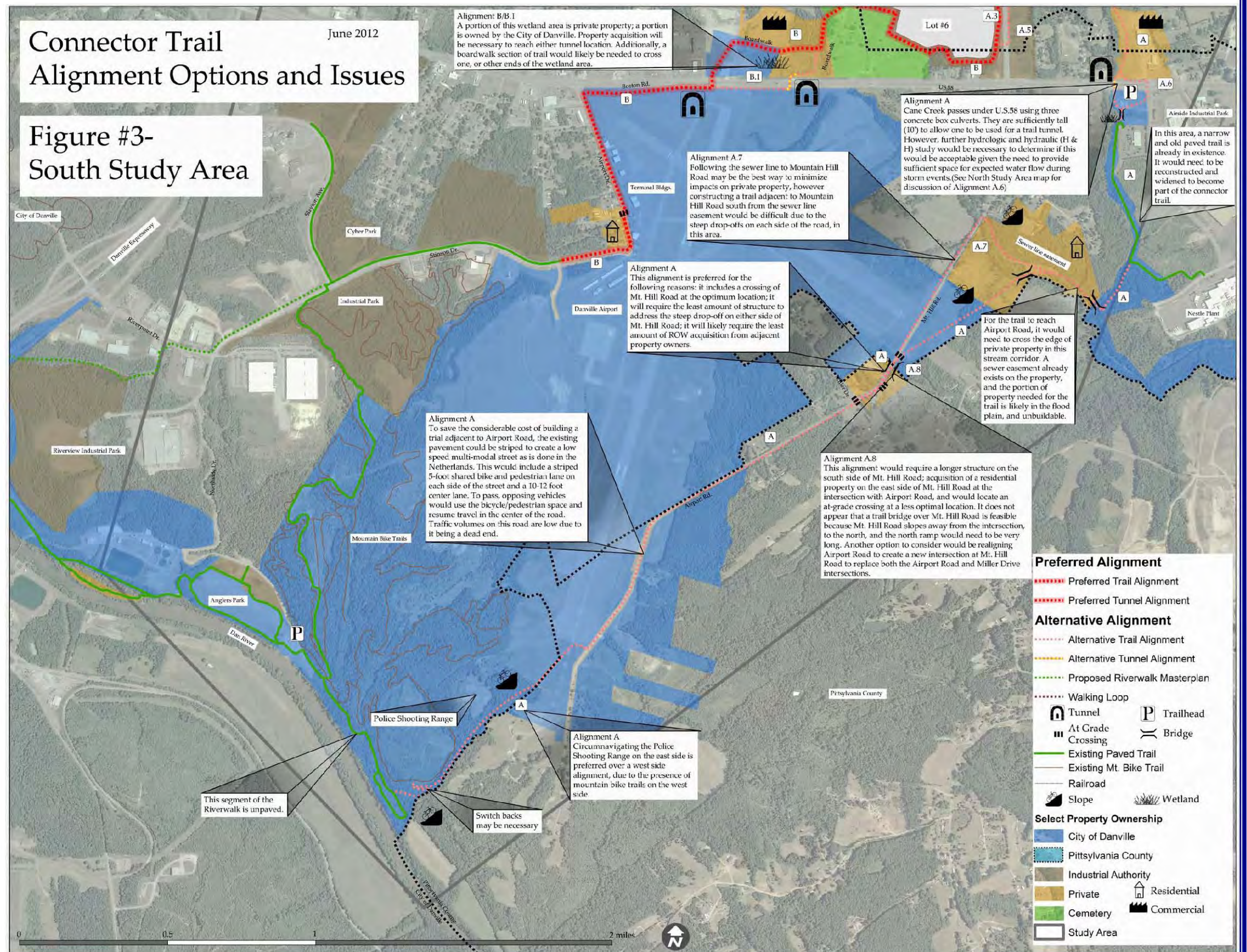


Figure 2: Preferred Alignment North Study Area





**Figure 3: Preferred Alignment South Study Area**





**Advantages of the Preferred Alternative**

The following narrative discusses the advantages of the preferred alignment as they relate to key evaluation criteria.

**Cost:** A 10-foot wide shared use path constructed along the preferred alignment is expected to cost approximately \$5 million, approximately \$2 million less than the "A" alignment along the southern route (Segments A.5 and A around the south side of the airport). Even with the added cost of the tunnel under U.S. 58, the preferred alignment is the most cost effective because a much shorter length of trail needs to be built to complete the overall connection. For detailed cost estimates see Appendix C.

**User Experience:** The preferred alignment provides an attractive mix of trail contexts for the user, including close proximity to retail businesses, pleasant stretches through forests and wetlands and an alignment through the industrial parks that balances aesthetics with easy access for employees in the businesses. The preferred alignment has high visibility to its potential users and will market itself. It provides frequent breaks from traffic noise and commercial activity but never strays too far from "civilization." Traversing many open landscapes and intermittently paralleling roadways will provide users a feeling of safety and security.

**Trailheads:** A number of options exist for providing trailhead facilities that can include motor vehicle parking, trail user information and map kiosks, outdoor eating areas, staging space for larger groups, water and restrooms if desired.

Just north of the airport, the City of Danville owns property contiguous with the Runway Protection Zone (RPZ) for the northern flight approach to the airport runway. While this City property cannot be used for a trailhead, per comments by the Federal Aviation Administration, it may be possible for private property near the RPZ to be purchased for use as a trailhead. Due to its proximity to U.S. 58 and existing retail land uses including restaurants, lodging, grocery stores and restroom facilities, this general area provides a good location for a trailhead facility comprised primarily of a parking lot and trail user staging area. As of 2012, some private properties in this area remained undeveloped.

A second potential trailhead location exists at what is known as the "Pond House" on the Cane Creek Industrial Park property. This location could be developed into a trailhead and nature center, offering environmental and historical information about the area and the trail system, as well as limited motor vehicle parking. All or a portion of the "A.4" trail alignment could be developed to provide a connection to the main trail. A walking path around the pond could also be developed to complement the nature center and take advantage of wetland area interpretation opportunities.

The "Pond House" and U.S. 58 trailhead locations are adequately spaced between the existing trailheads at the Ringgold Depot and Angler's Park. As a group, they would serve trail users coming from locations in the industrial parks and surrounding community, as well as those who come from the greater Danville area and beyond.

**Equestrian Use:** If equestrian use of the trail is desired, the preferred alignment is favorable for creation of a parallel soft surface treadway and access to needed support facilities. The best area for equestrian use is between the proposed U.S. 58 tunnel and the Ringgold Station. Along select portions of the preferred alignment a soft surface equestrian path could be created adjacent to the paved trail.

However, to maximize the attractiveness for recreational equestrians, a horse trail could be developed along a largely separate alignment in the CCIP, such as branching north at the cemetery pond, around the north side of the Swedwood plant and rejoining the paved trail alignment near Barker Road and the CCPkwy. Potentially, other equestrian loops could be developed along the stream buffers and in undeveloped industrial park lands north of Swedwood and around Lot #10. It is possible that these trails could also be mountain bike trails.

In the Danville area, a primary location for equestrian trail use is along the rail-trail between Ringgold and South Boston. The Connector Trail could potentially extend that use as far west as the tunnel under U.S. 58, which would become a natural western endpoint of equestrian access.

**Trail Access and Transportation Use:** The preferred alignment has many access points at roadway crossings and other locations. It will be easy for employees and residents in the general area to access the trail for both recreational and transportation use. Its transportation value is accentuated by multiple access points to industrial park employment sites in three industrial parks, as well as the businesses along U.S. 58 near the airport, and the airport itself.

**Topography:** A general topographical study was done to determine which potential trail alignments being considered could be engineered to provide an ADA accessible treadway. While the preferred alignment does not provide the least amount of total elevation gain and loss between Ringgold and the Dan River, it spreads it out across its entire length. Of the new trail to be built, the most significant descent is along the A.3 segment that dips ~46 feet to cross Cane Creek. The portion of the preferred route that is already built, the ascent from the Dan River to Stinson Drive near the Airport, is the longest and steepest climb on the preferred alignment.

**Emergency Access, Maintenance and Management:** The preferred alignment is favorable for these concerns. Again, its proximity to the already built alignment and roadway network will ensure that these functions can be conducted efficiently and effectively.

**Property Impacts and Synergy with Planned Development:** The preferred alignment scored best among a host of other criteria used in the evaluation, including constructability, potential negative impacts on private property, the need to acquire additional right-of-way from private property owners, and potential synergy with other development in the study area. Because the alignment passes by a number of planned, but unbuilt, pads in the industrial sites, a graded trail bed or even a completed trail can be provided by industrial developers for significant stretches, minimizing the burden on public budgets and amounts that must be sought through grant programs.

**Conclusion**

For most of the twenty-one factors used to evaluate the alternative alignments, the preferred alignment scored best. The greatest challenge for this option is the tunnel under U.S. 58, however, at the outset of the project, a grade-separated crossing of the highway was identified as a very high priority. The western tunnel alignment option has the added benefit of being able to accommodate an interim at-grade crossing near the proposed tunnel crossing, where a signalized intersection provides access to a shopping center. While this lower cost solution may be desirable in the short term for cost savings, it should not preclude the project stakeholder from prioritizing funding for the tunnel.

**Appendix C -- Cost Estimates**

| Connector Trail Segment Cost Comparison |                  |   |               |                |                                  |                            |   |                                 |                           |                       |  |   |                    |   | Prepared by Toole Design Group, January 2012 |             |                                |
|---|------------------|---|---------------|----------------|----------------------------------|----------------------------|---|---------------------------------|---------------------------|-----------------------|--|---|--------------------|---|--|-------------|--------------------------------|
| ALT ID                                  | Alignment Status | Description   | Length (feet) | Length (miles) | Trail Base Cost per mile (\$000) | Wall Cost per mile (\$000) | Significant Grading Cost per mile (\$000) | Cost Per Trail Bridge Structure | Cost Per Tunnel Structure | Construction Subtotal | Mobilization Multiplier (10% on Construction Subtotal) | Price/Contingency Multiplier (15% on Construction Subtotal) | Construction Total | Design Multiplier (on Construction Total) | TOTAL  | GRAND TOTAL | Two Primary Route Alternatives |
|   |                  | <b>ACTUAL COSTS</b>   |               |                | \$243                            | \$49                       | \$195                                     | \$273                           | \$1,800                   |                       | 10%  | 15%   |                    | 15%                                       |  |             |                                |
|   |                  | <b>EXAMPLE COST CALCULATION</b>   | 5,280         | 1.00           | \$243                            | \$49                       | \$194                                     | \$273                           | \$1,800                   | \$2,559               | \$256  | \$384   | \$3,199            | \$480                                     | \$3,679                                      |             |                                |
| A                                       | Preferred        | Along the rail spur and near the water tower  | 2,420         | 0.5            | \$111                            |                            |   | \$0                             | \$0                       | \$111                 | \$11   | \$17  | \$139              | \$21                                      | \$160  |             |                                |
| A/A.1                                   | Alternate        | Along the rail spur and east option   | 2,960         | 0.6            | \$136                            |                            | \$109                                     | \$0                             | \$0                       | \$245                 | \$25   | \$37  | \$307              | \$46                                      | \$352  |             |                                |
| A/A.2                                   | Alternate        | Along the rail spur and middle option   | 2,890         | 0.5            | \$133                            |                            | \$106                                     | \$0                             | \$0                       | \$239                 | \$24   | \$36  | \$299              | \$45                                      | \$344  |             |                                |
| A                                       | Preferred        | North side of Cane Creek Parkway near Barker Rd                                       | 2,575         | 0.5            | \$119                            |                            |   | \$0                             | \$0                       | \$119                 | \$12   | \$18  | \$148              | \$22                                      | \$170  |             |                                |
| F/F.1                                   | Alternate        | West sewer easement and near Swedwood west of Cane Creek Parkway                      | 5,780         | 1.1            | \$266                            |                            | \$213                                     | \$273                           | \$0                       | \$752                 | \$75   | \$113   | \$940              | \$141                                     | \$1,081                                      |             |                                |
| F/A.3                                   | Alternate        | West sewer easement west of Cane Creek Parkway  | 5,655         | 1.1            | \$260                            |                            | \$208                                     | \$273                           | \$0                       | \$741                 | \$74   | \$111   | \$927              | \$139                                     | \$1,066                                      |             |                                |
| A/A.3                                   | Preferred        | East sewer easement and along Cane Creek Parkway                                      | 5,995         | 1.1            | \$276                            |                            | \$221                                     | \$273                           | \$0                       | \$770                 | \$77   | \$115   | \$962              | \$144                                     | \$1,106                                      |             |                                |
| A/A.5                                   | Alternate        | Along Cane Creek Parkway to Swedwood  | 6,635         | 1.3            | \$305                            |                            |   | \$273                           | \$0                       | \$578                 | \$58   | \$87  | \$723              | \$108                                     | \$831  |             |                                |
| A.3                                     | Preferred        | Along the west side of Cane Creek Parkway to Route 58                                 | 2,660         | 0.5            | \$122                            |                            |   | \$0                             | \$0                       | \$122                 | \$12   | \$18  | \$153              | \$23                                      | \$176  |             |                                |
| A.5                                     | Alternate        | Along the east side of Cane Creek Parkway to Route 58                                 | 2,505         | 0.5            | \$115                            |                            |   | \$0                             | \$0                       | \$115                 | \$12   | \$17  | \$144              | \$22                                      | \$166  |             |                                |
| B                                       | Preferred        | North of Floral Hill Memorial Garden  | 3,860         | 0.7            | \$178                            |                            |   | \$0                             | \$0                       | \$178                 | \$18   | \$27  | \$222              | \$33                                      | \$255  |             |                                |
| B                                       | Preferred        | North of wetland to western proposed tunnel under Route 58                            | 2,010         | 0.4            | \$93                             | \$19                       | \$74                                      | \$273                           | \$1,800                   | \$2,258               | \$226  | \$339   | \$2,823            | \$423                                     | \$3,246                                      |             |                                |
| B.1                                     | Alternate        | East of wetland through eastern proposed tunnel under Route 58                        | 2,000         | 0.4            | \$92                             | \$18                       | \$74                                      | \$273                           | \$1,800                   | \$2,257               | \$226  | \$339   | \$2,821            | \$423                                     | \$3,245                                      |             |                                |
| B                                       | Preferred        | South of Route 58, along Airport Drive and Stinson Drive to existing trail            | 5,325         | 1.0            | \$245                            |                            |   | \$0                             | \$0                       | \$245                 | \$25   | \$37  | \$306              | \$46                                      | \$352  | \$5,136     | Total for Preferred Route      |
| A                                       | Alternate        | Along Cane Creek Parkway to Cane Creek crossing where segment A branches to the South | 4,000         | 0.8            | \$184                            |                            | \$147                                     |                                 |                           | \$331                 | \$33   | \$50  | \$414              | \$62                                      | \$476  |             |                                |
| A                                       | Alternate        | Along Cane Creek from CC Parkway to Nestle Plant (assumes tunnel alignment)           | 11,915        | 2.3            | \$548                            | \$110                      | \$439                                     | \$1,365                         | \$0                       | \$2,462               | \$246  | \$369   | \$3,077            | \$462                                     | \$3,539                                      |             |                                |
| A                                       | Alternate        | Tunnel  | 580           | 0.1            | \$27                             | \$5                        | \$21                                      | \$273                           | \$0                       | \$326                 | \$33   | \$49  | \$408              | \$61                                      | \$469  |             |                                |
| A.6                                     | Alternate        | At-grade crossing of Route 58 and Cane Creek Blvd                                     | 1,100         | 0.2            | \$51                             | \$10                       | \$41                                      | \$0                             | \$0                       | \$101                 | \$10   | \$15  | \$127              | \$19                                      | \$146  |             |                                |
| A                                       | Alternate        | West of Nestle Plant, part way on sewer easement and to Mt Hill Rd                    | 3,190         | 0.6            | \$147                            |                            | \$117                                     | \$546                           | \$0                       | \$810                 | \$81   | \$122   | \$1,013            | \$152                                     | \$1,165                                      |             |                                |
| A.7                                     | Alternate        | West of Nestle Plant, sewer easement to and along Mt Hill Rd                          | 5,625         | 1.1            | \$259                            | \$52                       | \$207                                     | \$273                           | \$0                       | \$791                 | \$79   | \$119   | \$988              | \$148                                     | \$1,137                                      |             |                                |
| A                                       | Alternate        | North Side of Mt. Hill Road   | 1,400         | 0.3            | \$64                             |                            | \$52                                      | \$273                           | \$0                       | \$389                 | \$39   | \$58  | \$486              | \$73                                      | \$559  |             |                                |
| A.8                                     | Alternate        | South Side of Mt. Hill Road   | 1,380         | 0.3            | \$64                             | \$13                       | \$51                                      | \$273                           | \$0                       | \$400                 | \$40   | \$60  | \$500              | \$75                                      | \$575  |             |                                |
| A                                       | Alternate        | Along Airport Road  | 3,515         | 0.7            | \$162                            |                            | \$129                                     | \$0                             | \$0                       | \$291                 | \$29   | \$44  | \$364              | \$55                                      | \$419  |             |                                |
| A                                       | Alternate        | Along Airport Road and east side of police range to existing trail                    | 6,100         | 1.2            | \$281                            |                            | \$225                                     | \$0                             | \$0                       | \$505                 | \$51   | \$76  | \$632              | \$95                                      | \$726  |             |                                |
| A                                       | Alternate        | Along existing Dan Riverwalk Trail that is currently unpaved                          | 2,600         | 0.5            | \$120                            |                            | \$0                                       | \$0                             | \$0                       | \$120                 | \$12   | \$18  | \$150              | \$22                                      | \$172  | \$7,202     | Total for Best Southern Route  |