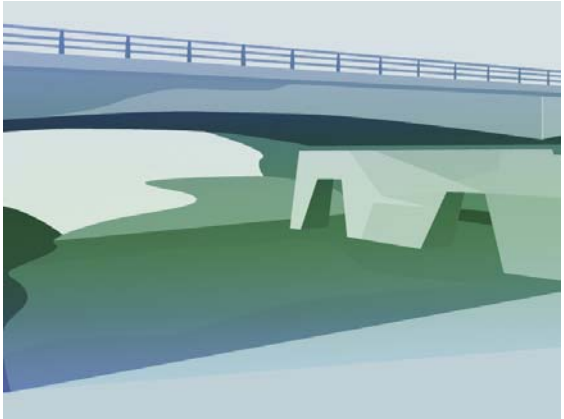
Eco-Logical Free Bridge Area Congestion Relief Project Alternatives Summary



Thomas Jefferson Planning District Commission

401 E. Water Street • Charlottesville, VA 22902 • (434)979-7310 • www.tjpdc.org

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Executive Summary

Executive Summary:

This document provides an overview of the outcomes of Charlottesville Albemarle MPO's Eco-Logical Free Bridge Area Congestion Relief Pilot Project. The document provided a summary of the project and then a discussion of the Eco-Logical approach before discussing the outcomes of the project's stakeholder-driven process. Outcomes of the project included:

1. Developing a set of project alternatives that would help address congestion in and around US-250 Free Bridge;
2. Conducting a pilot implementation of the Federal Highways Administration's Eco-Logical Process;

This document provides a summary of the Eco-Logical Process, the Free Bridge Process and a summary of the seven transportation alternatives that were analyzed as part of this project.

Over an 18 month period beginning September 2013, CA-MPO staff worked with a select group of local stakeholders to conduct a pilot implementation of the Federal Highways Administration's Eco-Logical process. The project applied the Eco-Logical process and principals to developing transportation alternatives for alleviating vehicular congestion at US-250 Free Bridge. Over the 18 month period, the stakeholder group met seven times. Each meeting focused on a different step in the process. During the seven meetings, the stakeholders became familiar with the Eco-Logical Process, the accompanying Regional Eco-Logical Framework Tool, which the CA-MPO and the TJPDC developed with prior funding assistance from the Federal Highways Administration.

The stakeholder group was an integral component the project. The group was made up of local citizens representing a wide variety of local environmental groups, local government staff, elected officials and state agencies. The CA-MPO worked with the University of Virginia's Institute for Environmental Negotiation which provided facilitation services at the stakeholder meetings. Additionally, the CA-MPO through a competitive bid process contracted with Rinker Design Associates (RDA). RDA provided cost estimates, engineering feasibility and a ranking matrix framework for the transportation alternatives that were developed by the stakeholder group process.

The recommendations and comments associated with each of the seven alternatives discussed in this document were developed using a consensus-building process, spearheaded by the Institute for Environmental Negotiation. This process ensured that all voices were heard and that the stakeholders were able to drive the process to the maximum extent possible.

Introduction

Introduction:

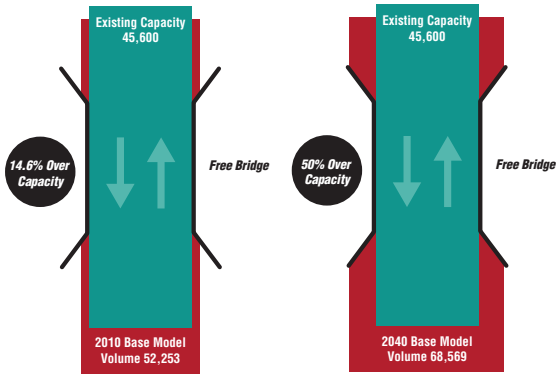
The Charlottesville Albemarle MPO's Eco-Logical Free Bridge Area Congestion Relief Pilot Project set out to further the MPO's integration of the Eco-Logical approach to transportation planning. The MPO achieved this by using the Eco-Logical process to evaluate transportation options aimed at reducing congestion on the US-250 Bridge crossing between the City of Charlottesville and Albemarle County, known locally as "Free Bridge." This project allowed MPO staff to form a diverse local stakeholder group which helped drive the process. The local stakeholder group was made up of representatives from local governments, elected officials, state agencies, concerned citizens and local environmental groups. The group met seven times over the course of the project and with the assistance of The University of Virginia's Institute for Environmental Negotiation, identified and, developed the seven transportation alternatives highlighted in this document.

The Eco-Logical pilot project has two key elements:

1. **Testing the Eco-Logical Process, an ecosystem-based approach to infrastructure planning.** This process fosters interagency cooperation, as well as stakeholder involvement, in the development of new infrastructure. The goal of the process is to collaboratively develop project ideas in an effort to address significant impacts early on in the project development process.
2. **Implementation and enhancement of the Regional Eco-Logical Framework (REF) Tool.** This tool is a mapping resource that identifies and establishes numeric values of ecological resources in the TJPDC region. The tool also provides a way for planners to identify important ecological areas early on in the project planning process.

Statement of Problem:

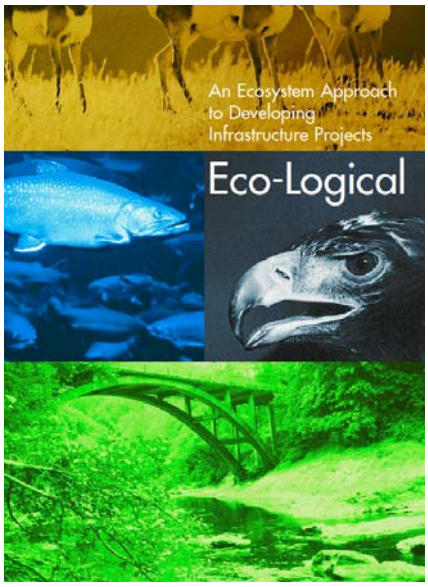
The US 250 link across the Rivanna River, known locally as Free Bridge, a key connection for local and regional traffic, but continued use of this link will result in more congestion and, economic development and public safety issues that must be addressed. Regarding congestion, there are currently 53,000 vehicles per day on Free Bridge which has resulted in an overall level of service of F. Modeling has shown that by 2040, approximately 70,000 vehicles a day will be using the bridge, making the already failing level of service 25% worse.



Over the years, several transportation solutions have been proposed for the corridor, but none have advanced past the exploratory stages. This is due to a myriad of factors, including the project location spanning two jurisdictions, the political realities of building new road projects, and the unique social, cultural and environmental constraints present when trying to build new facilities in an already developed environment. The previous studies have included Albemarle County Pantops Master Plan, the Eastern Connector Study Report and TJPDC's Eastern Planning Initiative.

Eco-Logical Approach

Framework:



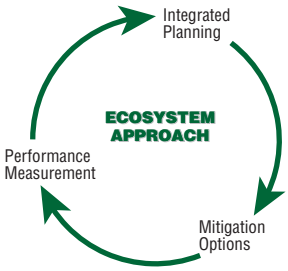
The Eco-Logical approach was developed by the Federal Highways Administration in conjunction with other Federal resource and environmental agencies in response to Executive order 13274, Environmental Stewardship and Transportation Infrastructure project Reviews, signed by then President George W. Bush. This order stipulated that agencies needed to work together to develop transportation projects in an efficient, environmentally sound manner. The Eco-Logical approach lays out a basic framework for identifying the greatest conservation needs associated with the development of infrastructure projects. It is meant to help transportation planning agencies join in partnership with resource agencies and act as a catalyst for greater stakeholder cooperation and coordination. Using the Eco-Logical approach, infrastructure improvements can be advanced in productive harmony with the restoration of fragmented habitats, reduction of wildlife mortality, and other cooperative conservation goals.

The Process:

The Process encourages stakeholders to integrate environmental solutions and goals into planning for infrastructure development and to implement an efficient, predictable and open process for the review and management of ecological effects of infrastructure projects. The approach offers a non-prescriptive approach that enables Local, State, Tribal and Federal partners involved in infrastructure planning, design, review, and construction to work together to make infrastructure projects more sensitive to wildlife and their ecosystems. The approach is centered on three defining principals that encourage an open collaborative approach between stakeholders.

The approach is grounded in three defining principles:

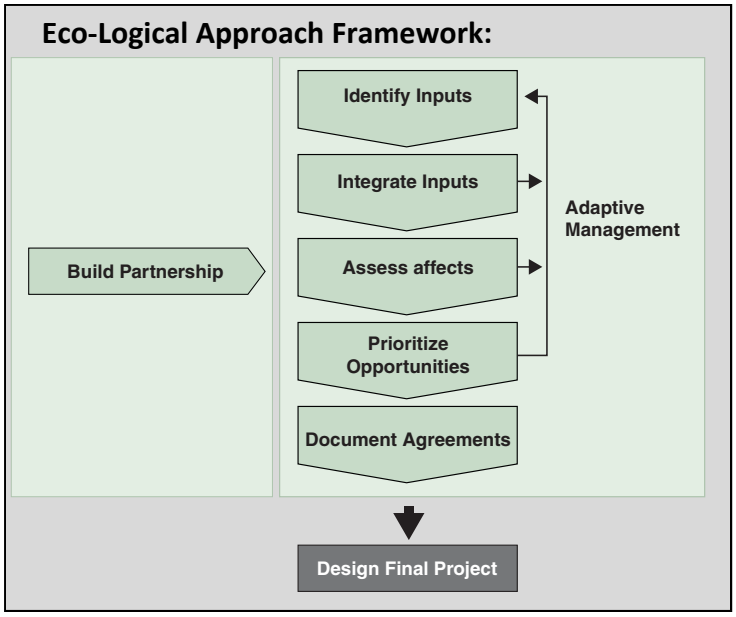
1. Integrate planning between natural resource and transportation agencies.
2. Mitigation options that enhance the Regional Ecological Framework. (Mitigation in the context of regional habitats and ecology)
3. Performance measures that balance predictability and adaptive management.



Eight Step Framework

These principles are implemented through an eight-step framework for integrated planning which is outlined in FHWA's Eco-Logical toolkit.

1. **Build and Strengthen Collaborative Partnerships**
   - Local, Regional, State and Federal
2. **Identify Management Plans**
   - Local, State and Federal (Green Infrastructure Plan, VA Wildlife Action Plan, Chesapeake Bay Program, etc.)
3. **Integration of Plans**
   - Plan priorities combined to create the 'Regional Ecosystem Framework (REF)
4. **Assess Effects**
   - Study how the proposed project could impact ecologically important areas
5. **Establish and Prioritize Opportunities**
   - Use the REF to establish priority conservation areas and priority mitigation areas.
6. **Document Agreements**
   - Work with agencies and partners to reach a consensus and strive to develop agreements with resource agencies.
7. **Design Projects Consistent With Regional Ecosystem Framework**
   - Ensure that the final project keeps within the scope of what was discussed in the context of the REF analysis.
8. **Balance Predictability and Adaptive Management**
   - Predictability in the process is fostered through open communication and understanding between parties.
   - Adaptive management involves continuously learning from the results of previous decisions in order that these decisions can be adjusted to produce even better outcomes.



Free Bridge Process

Meetings:

MPO staff developed a plan that outlined a process by which a stakeholder group of representatives from local governments, elected officials, state agencies, concerned citizens and local environmental groups would work together to help the MPO identify possible solutions. In order to accomplish this MPO staff worked with IEN to develop a series of seven stakeholder meetings that led the stakeholder cohort through the Eco-Logical process. The stakeholder process began with introducing the stakeholders to the Eco-Logical process and explaining the problem and ended with the stakeholders being asked to make recommendations about which alternatives should be moved forward for further analyses by the MPO. Each of the seven stakeholder meetings are summarized below:

Meeting 1: Discuss the issues at Free Bridge, history of planning in the area, and demonstration of the Regional Eco-Logical Framework Tool.

Meeting 2: Identification of important environmental and social resource resources, prioritization of resources and an Eco-Logical Regional Ecological Framework Tool (REF) work session.

Meeting 3: Demonstration of Eco-Logical REF tool results and outputs. Work session where the stakeholder group identified a set of transportation alternatives for analyses and study using the REF.

Meeting 4: Discussion of preliminary cost estimation, construction feasibility, and draft ranking matrix for the stakeholder identified alternatives, provided by RDA.

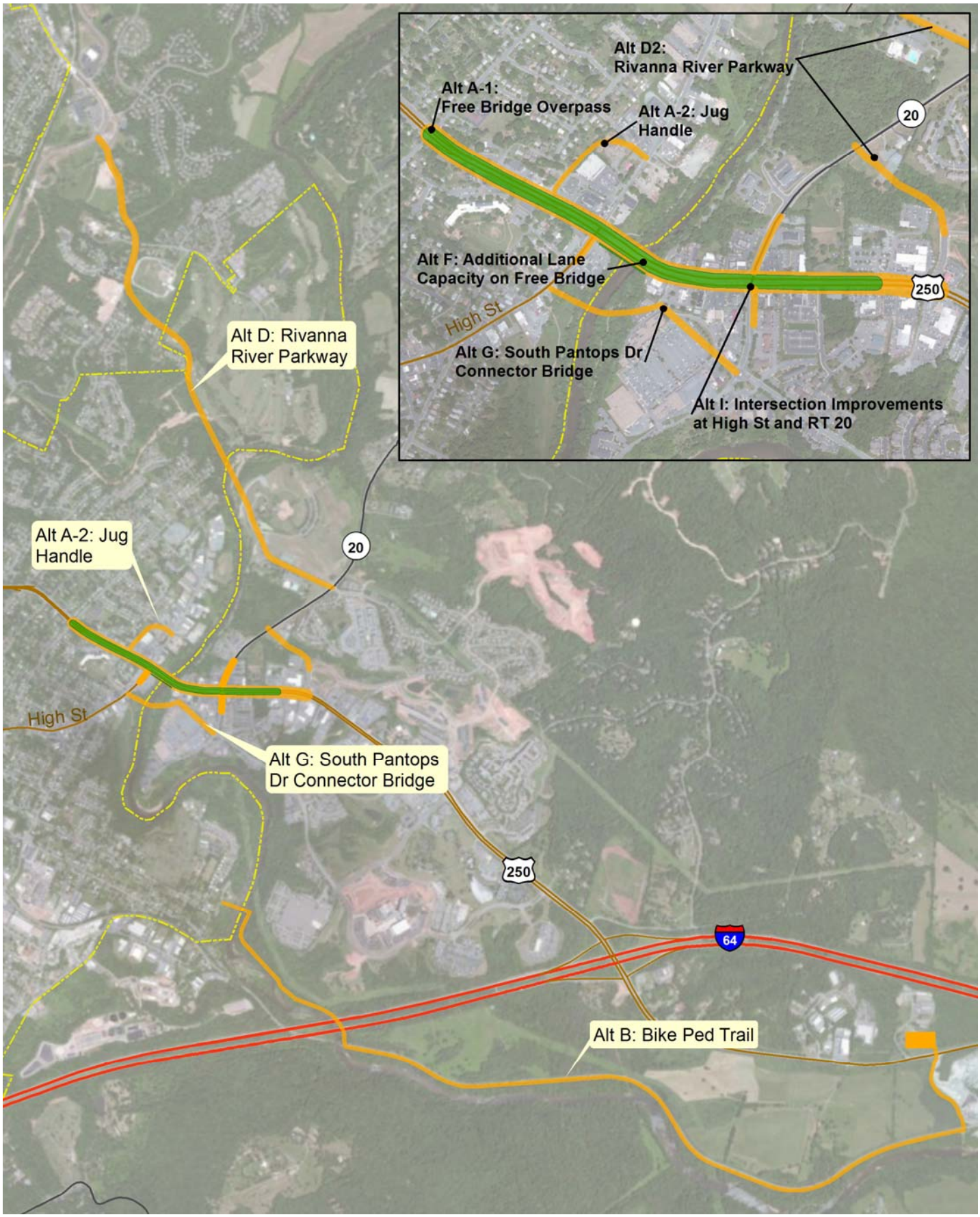
Meeting 5: Discussion of Revised Cost Estimation and Engineering and ranking matrix for alternatives. Stakeholders asked to provide input on each alternative and through a collaborative process discuss any concerns.

Meeting 6: Presentation of Eco-Logical modeling tool results for each of the proposed stakeholder developed project alternatives.

Public Open House: Poster session where public was able to “vote” using dots on their favorite and least favorite project alternative.

Final Meeting: Review of open house feedback and development of final recommendations for each alternative and overall opinions of the Eco-Logical Process.

Map of Alternatives



Alternative Ranking Matrix Summary

Ranking Matrix:

The table below provides a summary of the project cost, expected congestion relief, environmental impact, and construction feasibility. Each project was ranked high, medium, or low in terms of how they rated in each of the categories. The ranking process was based on qualitative and quantitative analyses of each alternative in the context of this project. Note: due to the regional nature of the Charlottesville Albemarle MPO's transportation model, some alternatives could not be evaluated using the model. In these cases the estimated congestion relief is based off engineering evaluation.

Alt	Name	Cost (Million)	Congestion Relief	Ecological Impact Score	Feasibility
I	Intersection Improvements at 20 and High St	$7.4	Low	Low	High
F	Increased Lane Capacity on Free Bridge	$20.5	Moderate	Low	Moderate
B	Rivanna River Trail	$9.3	Low	High	Moderate
G	South Pantops Drive Connector Bridge	$27.0	Low	Moderate	High
A2	High Street Jug Handle	$9.0	Low	Low	High
D2	Rivanna River Parkway	$68.0	Moderate	Moderate	Moderate
A1	US 250 Overpass	$141.2	High	Low	Low

Preferred Scenario:

At the November 19th stakeholder meeting; stakeholders were asked to consider each of the seven alternatives and choose a subset for consideration and study by the MPO. The table below illustrates the stakeholder group's recommendations for the future study of these alternatives.

Alternative	Stakeholder Recommended Actions
I– Intersection improvements at High St and RT 20	Recommended for further analyses and construction
F – Increased lane capacity on Free Bridge (US250)	Recommended for further analyses and construction
B - Rivanna River trail	Valuable project with only negligible impact on congestion
G– South Pantops Drive connector bridge	Group split on recommending this at this time
A2– Jug Handle at US250 and High Sreet	Not Recommended for further consideration or analyses
D2– Rivanna River Parkway	Not Recommended for further consideration or analyses
A1– US250 overpass	Not Recommended for further consideration or analyses

Alternative A-1: US250 Overpass

Project Overview:

Alternative A-1 is intended to reduce congestion at the US 250 and High Street intersection by providing a means of east-and west-bound US 250 through-traffic to bypass the intersections and Free Bridge. This alternative would involve the construction of a new two-lane (one west-bound, one east-bound) elevated road structure above the existing bridge and roadway. The flyover would return to grade at approximately Landonia Circle in the City and Flow Volkswagen in Albemarle. The existing intersections, bridge and roadways would remain below the new structure. This would continue to allow "local" traffic to access businesses and side streets in the vicinity of the project.

Project Information

Cost: $141.2 Million

Impacts on Property: **High**

Environmental Impacts: **Low**

Expected Congestion Relief: **High**

	LOW	Mod	HIGH
Property Impacts			X
Access Impacts			X
Utility Impacts			X
Park Impacts	X		
Trail Impacts	X		
Railroad Impacts	X		
Maintenance of Traffic Impacts			X
Bridges			X
Floodway Influence	X		
Drainage Structures	X		
Earthwork/Terrain	X		
Retaining Walls			X
Construction Feasibility	X		
Expected Congestion Relief @ Free Bridge			X
Expected Cost			$141.2 M
Environmental Impacts (REF)	x		

Expected Benefits:

Provides additional capacity for east-and west-bound US 250 traffic. Would reduce congestion at the intersections of High Street and 20.

Expected Issues:

The project cost and the continuation of traffic flow during construction, as well as significant impacts on adjacent properties and access during and after construction.

General Recommendation:

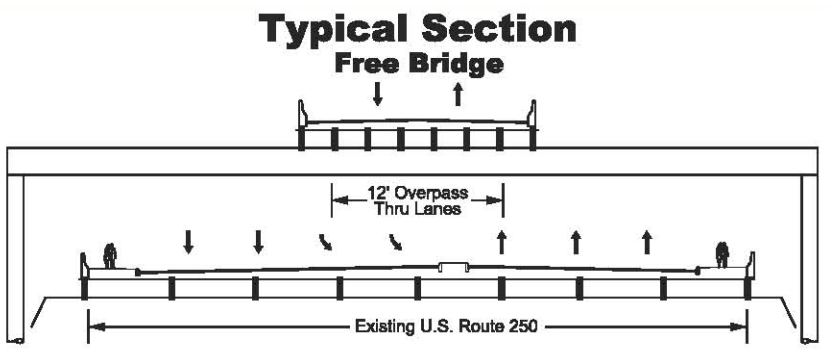
Team members found that this alternative was both costly and unattractive. They pointed out that the pedestrian scale would be lost with this alternative. This alternative was envisioned as a means of segregating local traffic from vehicles traveling between Interstate 64 and Route 29; however, some members suggested that most people do not go through Pantops from I-64 to get to RT29. Another member noted that other alternatives are more ideal for local traffic at this point and that this would be an overkill solution.

Conclusion:

The group agreed that this alternative would not be recommended for further analysis.

Alternative A-1: US250 Overpass

Decking Illustration:



Concept Drawing:

Alternative A-2: High Street Jug Handle

Project Overview:

Alternative A-2, the "Jug Handle", attempts to reduce congestion at the US250/High Street intersection by removing the left turns from 250 onto High Street. This alternative would see the 'left turn' traffic routed through the intersection and back around to River Road via a new road connection located behind CVS and Tractor Supply. The alternative would also include a new signal at Belleview Ave, which would be synced with the High Street/US250 intersection.

Project Information

Cost: $9.1 Million

Impacts on Property: Moderate

Environmental Impacts: Low

Expected Congestion Relief: Low

Expected Benefits:

Provide room for stacking vehicles looking to turn onto High Street from US 250 West. Reduction in backups causes by overflowing turn lanes .

Expected Issues:

Project would require some property acquisition. Additional issues include a new traffic pattern and dealing with some topographic constraints.

	LOW	Mod	HIGH
Property Impacts		X	
Access Impacts		X	
Utility Impacts		x	
Park Impacts	X		
Trail Impacts	X		
Railroad Impacts	X		
Maintenance of Traffic Impacts	X		
Bridges	X		
Floodway Influence	X		
Drainage Structures	X		
Earthwork/Terrain	x		
Retaining Walls		X	
Construction Feasibility			X
Expected Congestion Relief @ Free Bridge	X		
Expected Cost	$ 9.1M		
Environmental Impacts (REF)	X		

General Recommendation:

The members discussed the fact that this alternative is solely for dealing with left-hand turns, and if other alternatives also take care of left-hand turns, this one would not be necessary. Some argued that this is inexpensive and could have a small benefit in combination with other alternatives. Others said that drivers would not actually use this; since River Road can be very busy, they would move on to the next exit instead of looping around to wait at two potential congestion spots. It was pointed out that this adds time to the current wait for a left turn, and the neighbors would also dislike this alternative. Chuck Proctor of VDOT pointed out that this type of scenario only works when it eliminates all left hand turns, but this one only eliminates the one.

Conclusion:

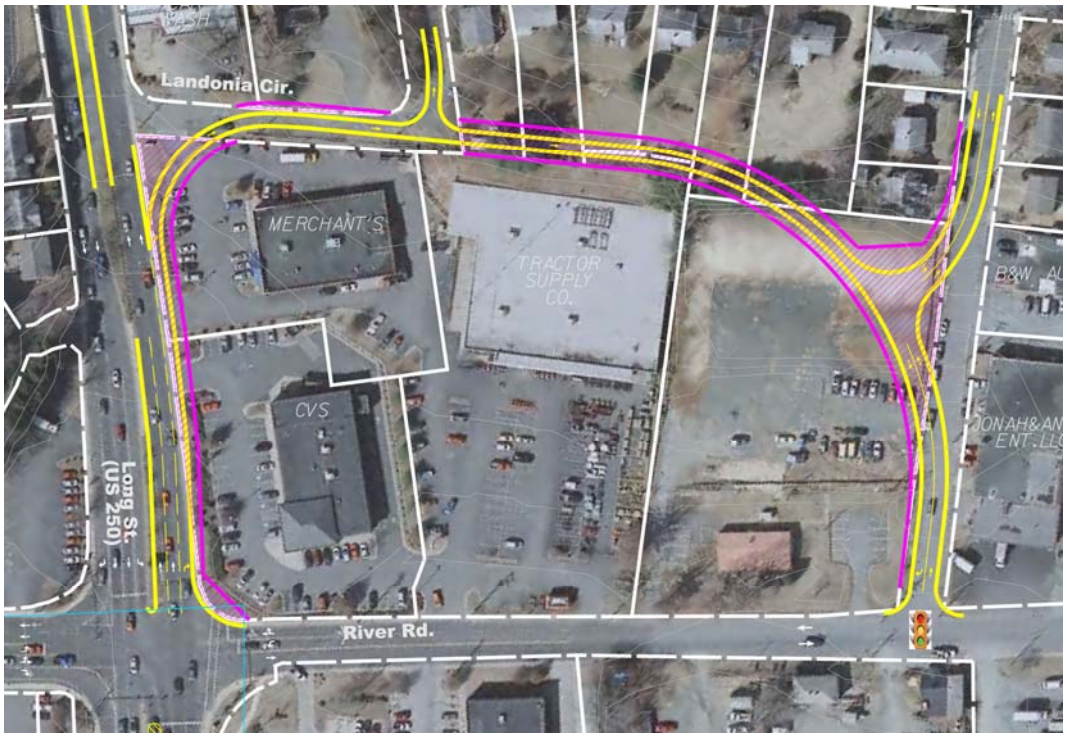
A large majority of the group would like to eliminate this alternative for further analysis; however, some members believe that it may be a viable option at a later time.

Alternative A-2: High Street Jug Handle

High Street Intersection Looking North

High Street Intersection Looking West

Concept Drawing:



Alternative B: Rivanna Multi-Use Trail

Project Overview:

Alternative A-2, "Rivanna Multi-Use Trail", is intended to reduce congestion by providing an alternative means for people to reach Charlottesville from the Pantops and other points east of the Rivanna River. This alternative would include the construction of a new Park & Ride lot at VDOT's facility at Shadwell. Persons wishing to enter the city could then do so via a new hard surface trail that would run between the railroad tracks and the river. The trail would then cross the Rivanna River on a bike/pedestrian bridge at Riverview Park.

Project Information

Cost: $11.9 Million

Impacts on Property: **High**

Environmental Impacts: **High**

Expected Congestion Relief: **Low**

	LOW	Mod	HIGH
Property Impacts			X
Access Impacts	X		
Utility Impacts	X		
Park Impacts		X	
Trail Impacts	X		
Railroad Impacts		X	
Maintenance of Traffic Impacts	X		
Bridges		X	
Floodway Influence		X	
Drainage Structures		X	
Earthwork/Terrain		X	
Retaining Walls		X	
Construction Feasibility		X	
Expected Congestion Relief @ Free Bridge	x		
Expected Cost	$11.9M		
Environmental Impacts (REF)			x

Expected Benefits:

Provides transportation options for persons looking to make their way into Charlottesville from points east of town. Would have only a minor impact at reliving traffic at Free Bridge.

Expected Issues:

Trail would be located close to the river and would cross a number of streams and drainage ditches. Additionally, the trail would have to cross the railroad tracks near the Luck Stone Quarry.

General Recommendation:

Stakeholder Team members discussed the high environmental impact score given to this alternative. Staff ran the model again with the smaller buffer (rather than the 200 foot buffer in the other alternatives), and it still returned a high number because there is a significant amount of river buffer along the path, and it is a very long path. Members asked about the actual potential environmental impact. One member said that a lot of the path would be restorable road route because it is the old bed of Three Notched Trail, thus the environmental impacts would be a lot lower than the score indicates.

In response to a question, staff stated that it is possible to change the environmental impact scoring on the report if they think it would actually be lower than what the model said. Another member pointed out that this alternative could actually have a positive environmental impact, getting people out in the environment.

Team members discussed the potential congestion relief of this alternative. Most stated that congestion relief would be low, but some did suggest that it could help relieve congestion. One member said that he is working with Martha Jefferson Hospital to put a trail on the bluff, which could possibly connect to a parking

lot at the hospital. This has the potential to make a more reasonable commuter route from downtown.

Another member brought up the concern that if this project is in the works to be completed through another source, the Stakeholder Team would not want to say anything that could negatively impact its completion. Another member clarified that even if the Team did not recommend it, it would not affect the construction. It was suggested that if the group decides that the alternative would not address in any meaningful fashion the reason this group is convened - traffic congestion - they could still say that they are pleased to see it.

Conclusion:

Members agree that this is a valuable project, with minimal to light reductions of congestion.

Rivanna River

Rivanna River Trail

Concept Drawing:

Alternative D-2: Rivanna River Parkway

Project Overview:

Alternative D-2, "Rivanna River Parkway", is designed to reduce congestion by providing an additional east-west crossing of the Rivanna and a connection between the Pantops and the US 29 north corridor. This alternative is similar to the previously studied Eastern Connector concept. The road cross-section would be similar to that of the John Warner Pkwy (two lane urban parkway with bike lanes). In addition to creating a new corridor, the project would require upgrades to be made on Rio Road.

Project Information

Cost: $68.0 Million

Impacts on Property: **High**

Environmental Impacts: **Moderate**

Expected Congestion Relief: **Mod**

	LOW	Mod	HIGH
Property Impacts			x
Access Impacts	X		
Utility Impacts			X
Park Impacts			X
Trail Impacts	X		
Railroad Impacts	X		
Maintenance of Traffic Impacts		x	
Bridges			X
Floodway Influence			X
Drainage Structures			X
Earthwork/Terrain			X
Retaining Walls			X
Construction Feasibility		X	
Expected Congestion Relief @ Free Bridge		X	
Expected Cost			$68.0 M
Environmental Impacts (REF)		X	

Expected Benefits:

Provides an alternative crossing of the River and provides more direct access between the Pantops and 29 North development areas.

Expected Issues:

The proposed route would have significant impacts on parks and properties along the route. The project would also impact several proposed/new developments slated for construction in both Albemarle and Charlottesville.

General Recommendation:

Members mentioned the fact that this alternative may not be politically viable due to high costs and high impacts on park and residences, although there might be a place for this in the future. Two members noted that while politically it is dead, it was the option that would do most to address the traffic congestion.

Conclusion:

A majority of members though that this should be eliminated from further consideration.

Alternative D-2: Rivanna River Parkway

Meadow Creek Parkway

Darden Towe Park

Concept Drawing:

Alternative F: Increase Capacity US 250

Project Overview:

Alternative F, "Increased capacity on Free Bridge US 250", is designed to reduce congestion by providing additional east-west capacity on Free Bridge and through the intersections at 20 and High Street. This alternative would involve adding an additional east-and west-bound lane across Free Bridge. The new three lane sections would extend west to St Clair Ave and East to Flow Volkswagen. In order to add the additional lanes to Free Bridge, the existing sidewalks would have to be removed and relocated to a new bike and pedestrian bridge just downstream.

Project Information

Cost: $20.5 Million

Impacts on Property: **High**

Environmental Impacts: **Low**

Expected Congestion Relief: **Mod**

	LOW	Mod	HIGH
Property Impacts			X
Access Impacts	X		
Utility Impacts		X	
Park Impacts	X		
Trail Impacts	X		
Railroad Impacts	X		
Maintenance of Traffic Impacts		X	
Bridges			x
Floodway Influence	X		
Drainage Structures	X		
Earthwork/Terrain	X		
Retaining Walls	X		
Construction Feasibility		X	
Expected Congestion Relief @ Free Bridge		X	
Expected Cost		$20.5 M	
Environmental Impacts (REF)	x		

Expected Benefits:

Provide additional through-lane capacity for vehicles traveling through the High Street and 20 intersections on US 250. Relocation of sidewalks to a new dedicated bike/pedestrian bridge adjacent to the existing span.

Expected Issues:

Proposed widening would result in the need to acquire additional right of way and would potentially cause the loss of two businesses.

General Recommendation:

One member mentioned that this alternative would not address the left-hand turn issue on Free Bridge. Another asked why there would be a separate bridge for pedestrians, rather than attaching it to the road structure. The answer is that the cost of building another pedestrian bridge would be cheaper than adding a pedestrian extension onto the existing bridge.

There was concern about required pilings and how close construction would be to the river. Chuck Proctor for VDOT, replied that it could be built in ways that would not need river pilings. Members discussed the issue of pedestrians having difficulty crossing the road, including crossing Rt. 250 North to South. One member reminded the team that it is as necessary to think about the pedestrians navigating the area, as cars and traffic congestion. One member said that there are two objectives for what is happening on the river: 1) the need to move traffic more efficiently; and 2) the interest in slowing people down to bring them to the river for its amenities. He said that a pedestrian crossing might be better at increasing an alternative place.

Alternative F: Increase Capacity US 250

Conclusion:

Members think that this alternative would be most effective combined with Alternative I. The group agreed that this alternative would be recommended to move forward for analysis and construction.

Rivanna River

Rivanna River Trail

Concept Drawing:

Alternative G: S. Pantops Drive Connector

Project Overview:

Alternative G, "South Pantops Drive Connector", is designed to reduce congestion by providing an additional crossing south of Free Bridge. This alternative would provide a linkage between South Pantops Drive and High Street via a new alignment through the Pantops Shopping Center. The bridge would be a two-lane urban-style design that would include two vehicle travel lanes with bike and pedestrian infrastructure. Additionally, the alternative also includes a new traffic light at Willow Drive and two new roundabouts within the confines of the Pantops Shopping Center.

Project Information

Cost: $27.1 Million

Impacts on Property: **High**

Environmental Impacts: **Moderate**

Expected Congestion Relief: **Low**

	LOW	Mod	HIGH
Property Impacts			X
Access Impacts		X	
Utility Impacts	X		
Park Impacts	X		
Trail Impacts	X		
Railroad Impacts	X		
Maintenance of Traffic Impacts		X	
Bridges		X	
Floodway Influence		x	
Drainage Structures	X		
Earthwork/Terrain	X		
Retaining Walls		X	
Construction Feasibility			X
Expected Congestion Relief @ Free Bridge	X		
Expected Cost		$27.1 M	
Environmental Impacts (REF)		x	

Expected Benefits:

Provide an alternate parallel route for vehicles traveling the South Pantops Drive corridor. Increase connection between Pantops and Charlottesville.

Expected Issues:

Project would have significant impacts on properties and businesses in the Pantops Shopping Center.

General Recommendation:

One member pointed out that this alternative has been in the plans for a long time and this is the reason that Pantops Drive was made so wide. Someone asked why the proposed route swings south and doesn't go straight across the river through Cosner's. The answer is that if this route went straight across it would be too close to the other intersection so would not provide a lot of bottleneck relief. The fact that it is so close to the other intersection also means that the congestion relief reading is also very low. Before completing construction, a hydraulic study would need to be carried out.

Discussion of the positive points of this alternative included its potential for reducing traffic congestion and for developing that commercial area. A member pointed out that bike path connectivity could be done in a way that would create a nice route into the commercial area with riverfront commercial interests. This alternative helps local trips rather than people coming off I-64. One member mentioned that in Europe, there are many river crossings in cities and that we should not try to funnel all traffic through one bridge. The transportation grid should also cross the river. Multiple members said that this was the right project. Chuck Proctor noted that this helps with transit plan. David Mitchell, of Great Eastern Managment read a

Alternative G: S. Pantops Drive Connector

message from the property owner at Pantops Shopping Center, saying that they would be in support of this alternative if the traffic circle could be shifted south to avoid the gas station, even if it means they would need to take out some buildings.

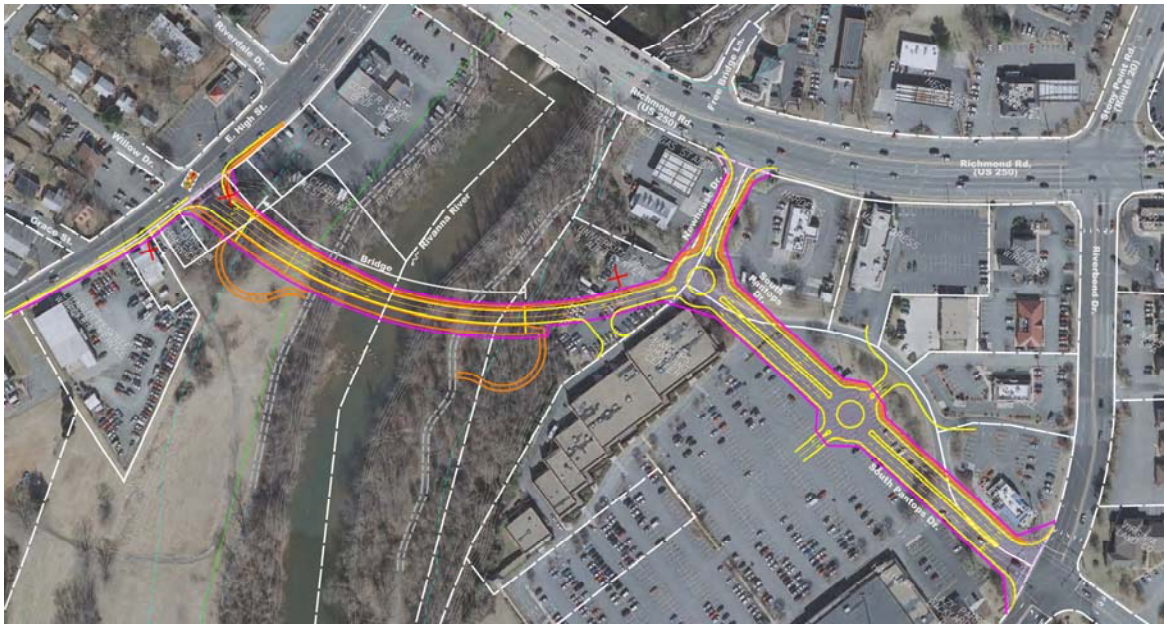
Discussion of the undesirable points of this alternative revolved around political feasibility and recreational use. One member brought up the political element with this alternative as well, saying that they dislike routing more people into the city. They Charlottesville's Mayor said that City Council would never approve this alternative, just like the County may never approve the parkway. There was further discussion about the reality of whether the issue is people coming into the city, or city residents commuting out of the city to the hospital or other workplaces. Another member pointed out that it is not increasing traffic into the city but relocating it.

There was discussion about the recreational use of this area. One member pointed out that many people use the field area on the west side of the river recreationally. It is a beautiful area in the city and he believes that enjoyment of the area would be greatly compromised by putting a road over top of it, even with mitigating design features. Sound carries, regardless of the height that the cars are above the ground. Others suggested that the construction of a road would provide more access to the area and that the bridge could be designed to be aesthetically pleasing, and that the height of the bridge would mean it was less intrusive. At the public meeting, Councilor Kristin Szakos mentioned that they were planning a park in this spot, which is another consideration.

Conclusion:

This group has not been able to address all concerns. Members agree that there is a congestion relief advantage and that there are continuing concerns about increasing development of the commercial area, people entering from the county into the neighborhoods, and impacts to recreation in that area. This warrants further study to address those concerns.

Concept Drawing:



Alternative I: Intersection Improvements

Project Overview:

Alternative I, "Intersection improvements at High Street and Route 20", is designed to reduce congestion by making improvements to the US 250 intersections at High Street and Route 20. The improvements would involve adding additional left turn lanes at Riverbend Drive, Route 20 and East High Street. The additional lanes would allow the traffic light cycles to be adjusted to allow for concurrent signaling (simultaneous left turn movements from side streets). This would increase intersection throughput by increasing efficiency.

Project Information

Cost: $7.4 Million

Impacts on Property: Moderate

Environmental Impacts: Low

Expected Congestion Relief: Low

	LOW	Mod	HIGH
Property Impacts			X
Access Impacts	X		
Utility Impacts		X	
Park Impacts	X		
Trail Impacts	X		
Railroad Impacts	X		
Maintenance of Traffic Impacts		X	
Bridges			x
Floodway Influence	X		
Drainage Structures	X		
Earthwork/Terrain	X		
Retaining Walls	X		
Construction Feasibility		X	
Expected Congestion Relief @ Free Bridge		X	
Expected Cost		$20.5 M	
Environmental Impacts (REF)	x		

Expected Benefits:

Improved safety at the intersections and increase intersection throughput by optimizing intersection signalization

Expected Issues:

Relocation of major above ground utilities and the acquisition of some additional right -of way at both intersections.

General Recommendation:

Some members suggested that this alternative should not even be included for review because it should just be done. One member said it should be paired with Alternative G. Another member stated that this alternative would be essential if the Pantops Connector were chosen. One member was surprised at the cost of this; in reply, the estimated cost includes acquisition of land, relocation of a mega-transformer, and the building of retaining walls.

Conclusion:

The group agreed that this alternative would be combined with F and recommended for analysis and construction.

Alternative I: Intersection Improvements

US-250 at High St looking west

Route 20 at US-250 looking north

Concept Drawing:

Appendix 1: REF Usage and Environmental Mitigation Analyses Results

Eco-Logical Pilot Project

Free Bridge Congestion Relief

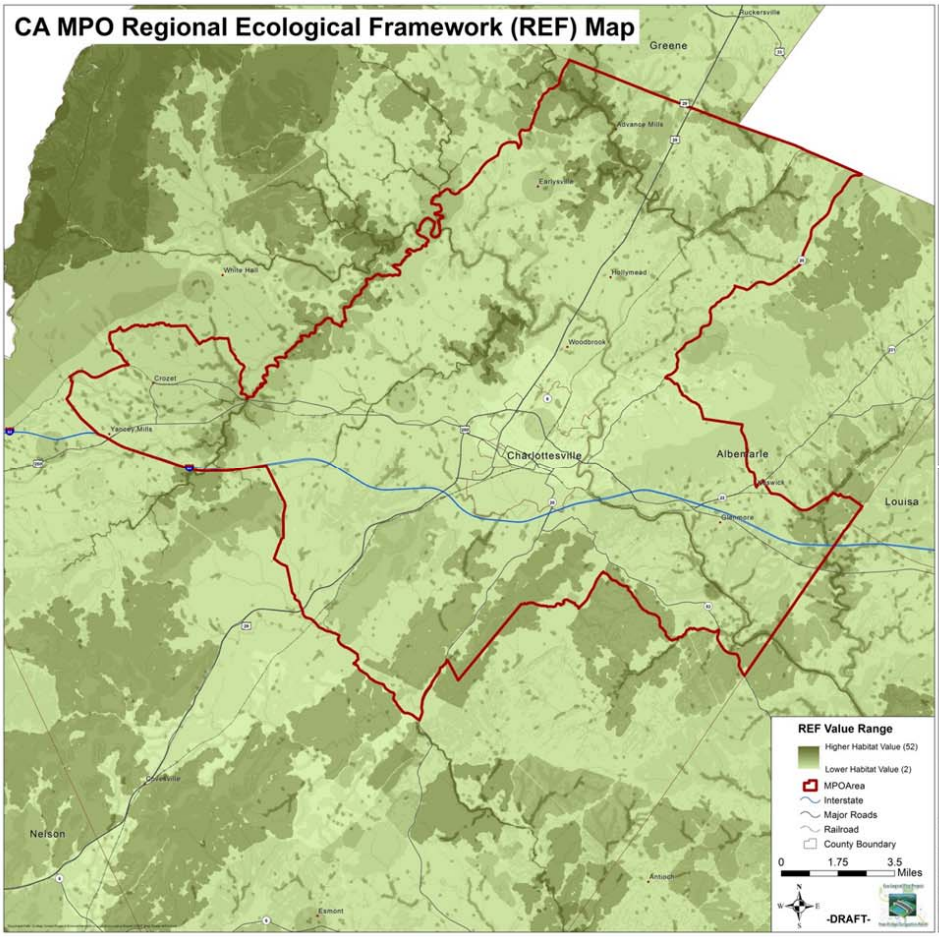
Appendix 1: REF Usage

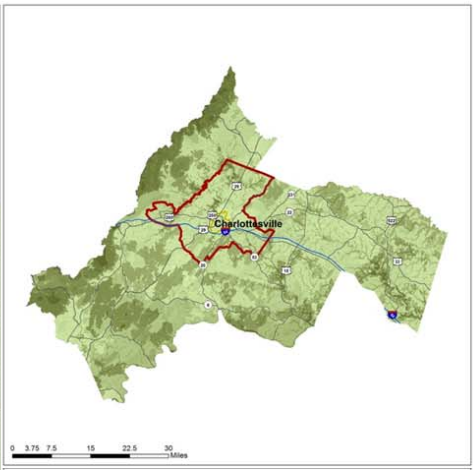
Regional Eco-Logical Framework Usage:

The Regional Eco-Logical Framework (REF) tool was a central part of the alternatives development and analyses process employed by the CA-MPO. Early on in the process, MPO staff spent a significant amount of time on helping the stakeholder group become familiar with the REF tool. Two of seven meetings were dedicated to discussing the REF, and the rational behind the Eco-Logical approach. CA-MPO staff employed the tool in the development and review of transportation alternatives. The tool was used to score each of the transportation alternatives, which allowed the environmental impacts associated with each alternative to be ranked in the context of the project scope. The environmental scores were used along with cost, construction feasibility, and expected congestion relief to rank the final set of alternatives. REF scores were based on a ranking system that ranks environmental datasets and attributes according to their relative rarity and importance within the PDC10 area.

The ranking system in the REF was evaluated by the stakeholders and by resource agency staff and was found to be adequate. One drawback of the REF was its poor performance at scoring smaller scale projects located within already developed areas. Staff found that the resolution of input data limited the REF tools ultimate resolution to a 30x30 meter resolution. Staff found that the tool performed better when analyzing long linear projects associated with new right of way development. The following pages present the results of the REF modeling and scoring for the seven transportation alternatives identified as part of this project.

Map of the CA-MPO REF Framework Tool:





REF Pixel Value Distribution

Percentile	Pixel Value
Lower Limit	2
25th Percentile	3
50th Percentile	6
75th Percentile	14
Upper Limit	52

REF Pixel Value Distribution Plot

Atribute Scores Used to Form the REF

The table on the left lists the10 datasets that make up the Regional Ecological Framework (REF). The table also highlights the number of attributes and how they were ranked by the Technical Advisory Committee. The rankings are what drives the color density of the REF.

Dataset	Attribute	Rank
DGIF Tiered Species Habitat (terrestrial and aquatic)	2	10
	1	8
DGIF Threatened & Endangered Species Waters	Tier I	10
	Tier II	8
DGIF Species Observations - Diversity, # of Species Present	1	4
	2	6
	3	8
	4	10
DCR Virginia Natural Landscape Assessment (VaNLA)		
Habitat Cores	1	10
	2	8
Habitat Corridors		2
Cores 3 - 5 that intersect corridors	3	6
	4	4
	5	2
DCR Priority Conservation Sites	B1	N/A
	B2	9
	B3	8
	B4	7
	B5	6
	General	4
Audubon Important Bird Areas		4
USFWS National Wetlands Inventory	wetlands	8
	200' buffer	6
DCR VCLNA Watershed Integrity Model	5	N/A
	4	8
	3	6
	2	4
	1	2
NHD 1:100,000 streams		
1st order	50' buffer	3
2nd order	75' buffer	3
3rd order and above	100' buffer	3
DGIF Cold Water Stream Survey - Classes I - IV - 100' buffer	Class I	7
	Class II	6
	Class III	5
	Class IV	4

Alternative A-1: US250 Overpass

Alternative Description:

The US250 overpass would provide a overpass viaduct that would direct east-west US250 through traffic up and over the existing US250 river crossing known as 'Free Bridge'. The alternative would allow two lanes of through traffic to avoid the intersections at High Street and Route 20. The intersections and existing river crossing would remain at current grade below the overpass. This alternative would provide congestion relief by providing free movement of east and west-bound traffic through the Free Bridge corridor.

Project Ranking Matrix:

Estimated Cost	Congestion Relief	Construction Feasibility	REF Impacts	Overall Rank
High	High	Low	Low	Moderate
$ 141,244,826	1	3	1	9.5

Resource Impacts:

Layer	
Average REF Score* (Mean)	2.99
100 Year Flood* (acres)	12.1
Wetlands* (acres)	2.0
Buildings (number)	0
Parkland* (acres)	1.6

*within 500ft project buffer

Concept Sketch:

Environmental Resources:

REF Modeling:

Alternative A-2: High Street Jug Handle

Alternative Description:

The High Street Jug handle would improve traffic flow by relocating left turns from west bound US250 High street traffic bound for High street. Traffic wanting to make a left would exit the 250 mainline by making a right just past the High street intersection. Traffic would be looped around to River Road where they would cross over 250 and head south on High Street. This alternative would involve acquiring additional right of way and adding a new signalized intersection where the jug handle joins with River Road.

Project Ranking Matrix:

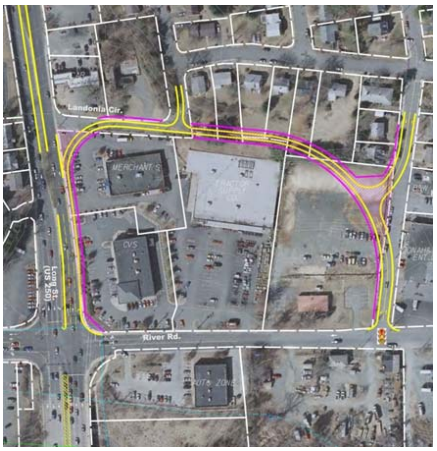
Estimated Cost	Congestion Relief	Construction Feasibility	REF Impacts	Overall Rank
Low	Low	High	Low	Low
$ 9,077,175	3	1	2.0	6.5

Resource Impacts:

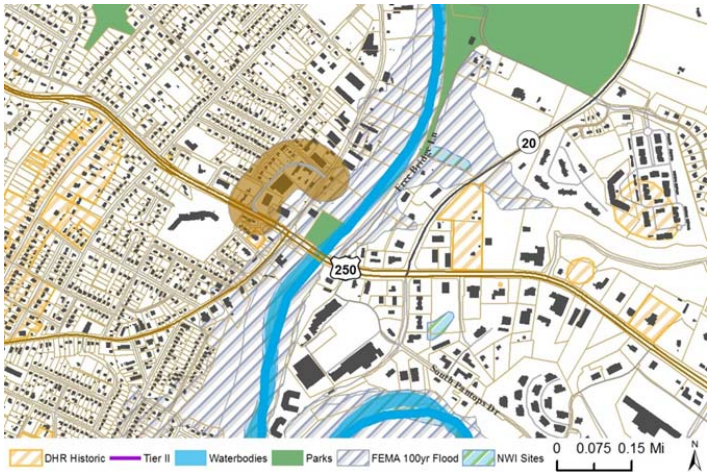
Layer	
Average REF Score* (Mean)	2.0
100 Year Flood* (acres)	2.9
Wetlands* (acres)	0
Buildings (number)	0
Parkland* (acres)	0

*within 500ft project buffer

Concept Sketch:



Environmental Resources:



REF Modeling:

Alternative B: Rivanna Multi-Use Trail

Alternative Description:

The Rivanna Multi-Use trail would cause a minor reduction in congestion by providing connectivity and transportation options that would encourage movement between the City of Charlottesville and the Pantops area of Albemarle County. The trail would be linked to a new park and ride lot located near the VDOT offices on US250 east of the Pantops area.

Project Ranking Matrix:

Estimated Cost	Congestion Relief	Construction Feasibility	REF Impacts	Overall Rank
Low	Low	Moderate	High	Moderate
$ 9,978,273*	3	2	3	9.5

*Average of stone dust and paved trail cost

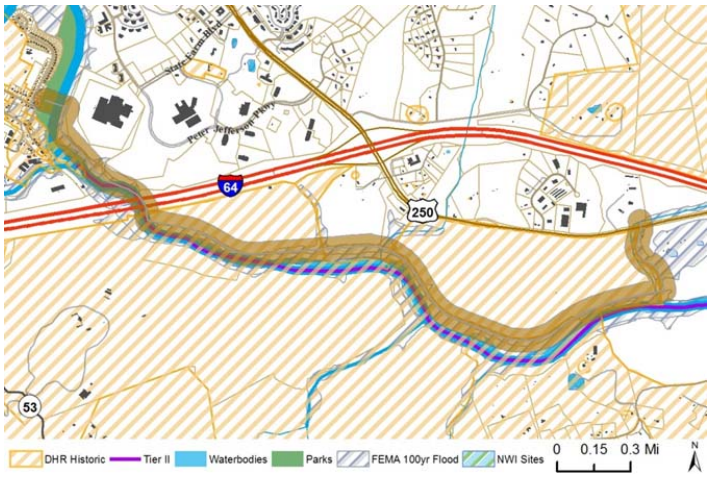
Resource Impacts:

Layer	
Average REF Score* (Mean)	11.09
100 Year Flood* (acres)	126
Wetlands* (acres)	31.2
Threatened and endangered species	2.8
Buildings (number)	0
Parkland* (acres)	0

*within 500ft project buffer

Concept Sketch:

Environmental Resources:



REF Modeling:

Alternative D-2: Rivanna River Parkway

Alternative Description:

The Rivanna River Parkway would provide an additional crossing to the north of Free Bridge. The new bridge and roadway would connect the Route 20 corridor with the Rio Road corridor. The alignment would alleviate traffic in the Free Bridge area by providing a bypass for traffic bound for the 29 North corridor. The new parkway alignment would be a two lane urban style road with bike and pedestrian facilities incorporated into the design.

Project Ranking Matrix:

Estimated Cost	Congestion Relief	Construction Feasibility	REF Impacts	Overall Rank
High	Moderate	Moderate	Moderate	High
$ 68,041,997	2	2	2	10.5

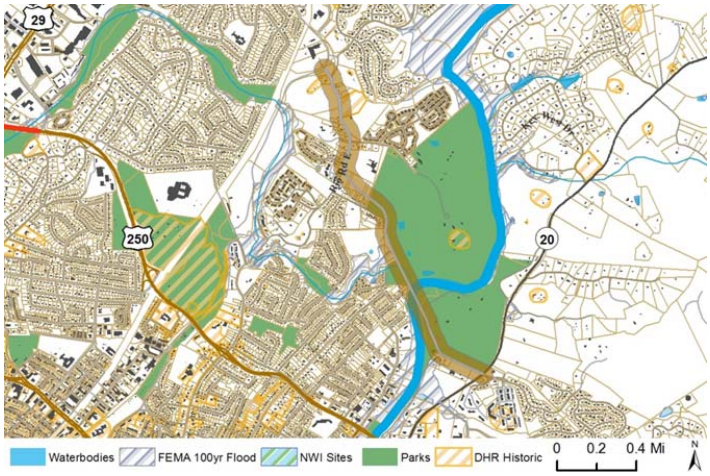
Resource Impacts:

Layer	
Average REF Score* (Mean)	3.65
100 Year Flood* (acres)	30.3
Wetlands* (acres)	4.6
Buildings (number)	4
Parkland* (acres)	52.6

*within 500ft project buffer

Concept Sketch:

Environmental Resources:



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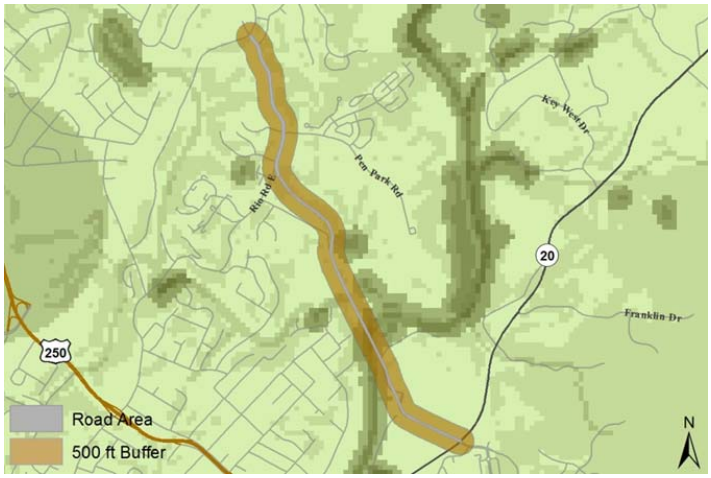


Alternative F: Increased Capacity on US250

Alternative Description:

Increasing capacity of US250 Free Bridge would be accomplished by adding one additional east and west-bound lane to Free Bridge and extending those lanes out on either side of the High street and Route 20 intersections. Some additional right of way would be needed to accommodate the additional travel lanes. Also, the current sidewalks on Free Bridge would be relocated to a new bike and pedestrian only bridge directly down stream.

Project Ranking Matrix:

Estimated Cost	Congestion Relief	Construction Feasibility	REF Impacts	Overall Rank
Moderate	Moderate	Moderate	Low	Moderate
$ 20,544,335	2	2	1	8

Resource Impacts:

Layer	
Average REF Score* (Mean)	2.96
100 Year Flood* (acres)	11.8
Wetlands* (acres)	2.03
Buildings (number)	2
Parkland* (acres)	0

*within 500ft project buffer

Concept Sketch:

Environmental Resources:

REF Modeling:

Alternative G: S. Pantops Drive Connector

Alternative Description:

The South Pantops Drive Connector would provide localized congestion relief by providing an additional river crossing just downstream of Free Bridge. The new two lane bridge would provide a connection between High Street in Charlottesville with South Pantops Drive in Albemarle County. This alternative would have the benefit of increasing connectivity between major employment, shopping, and residential areas in both Albemarle County and the City of Charlottesville.

Project Ranking Matrix:

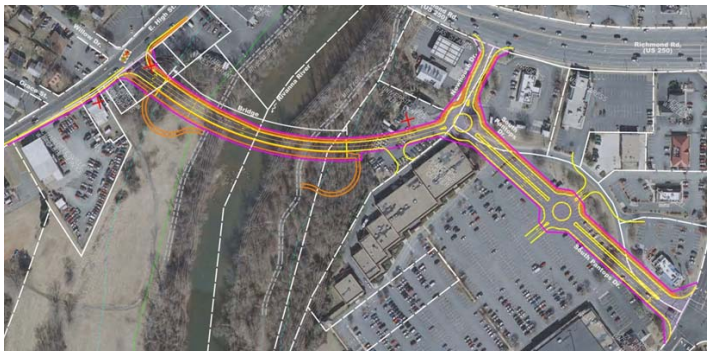
Estimated Cost	Congestion Relief	Construction Feasibility	REF Impacts	Overall Rank
Moderate	Low	High	Moderate	Moderate
$ 27,106,079	3	1	2	9

Resource Impacts:

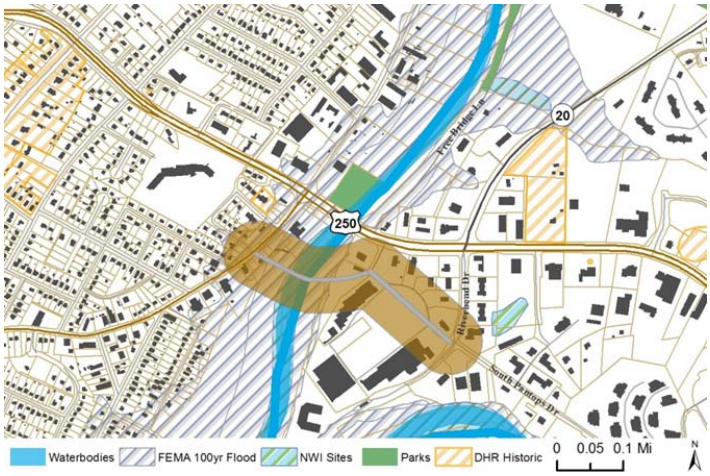
Layer	
Average REF Score* (Mean)	4.77
100 Year Flood* (acres)	10.24
Wetlands* (acres)	1.93
Buildings (number)	3
Parkland* (acres)	n/a

*within 500ft project buffer

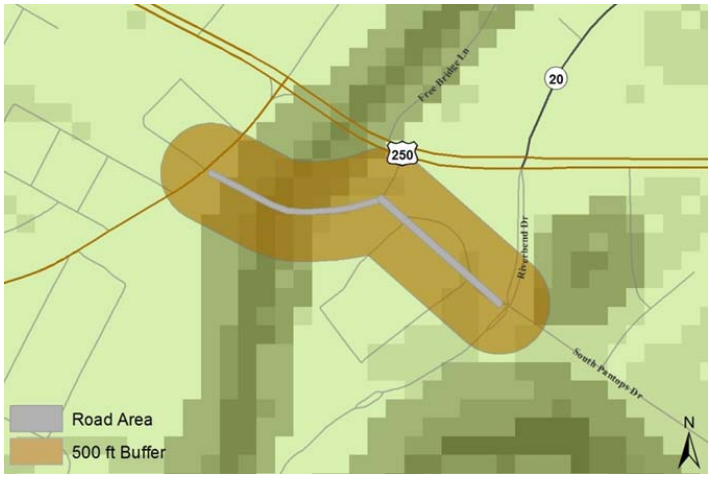
Concept Sketch:



Environmental Resources:



REF Modeling:



Alternative G: Intersection Improvements

Alternative Description:

Intersection improvement at High Street and Route 20 would focus on improving intersection efficiency. This would be achieved by adding and reconfiguring turn lanes on Rout 20 and High street. The new intersection configurations would allow more efficient vehicle movements because the light timing could be adjusted from split to full phase timing. Furthermore the improvement also have the potential to increase intersection safety by reducing lane backing and congestion.

Project Ranking Matrix:

Estimated Cost	Congestion Relief	Construction Feasibility	REF Impacts	Overall Rank
Low	Low	High	Low	Low
$ 7,420,443	3	3	1	6.5

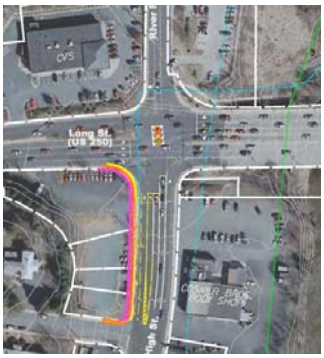
Resource Impacts:

Layer	
Average REF Score* (Mean)	2.0
100 Year Flood* (acres)	6.9
Wetlands* (acres)	0
Buildings (number)	0
Parkland* (acres)	0

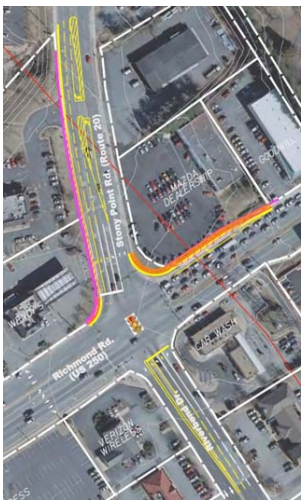
*within 500ft project buffer

Concept Sketch:

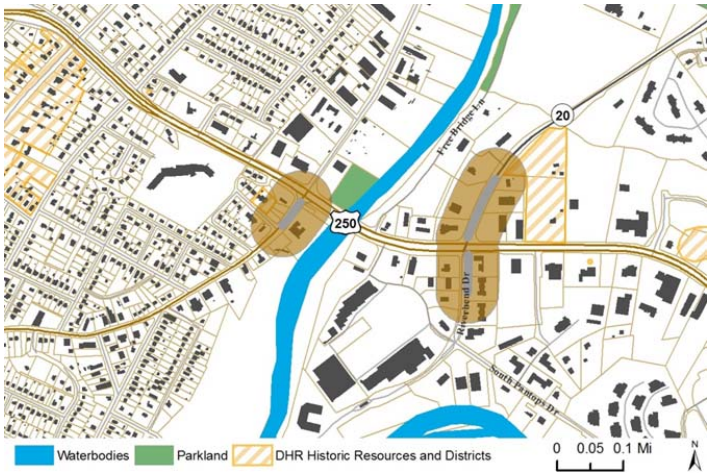
High St at US250



Route 20 at US250



Environmental Resources:



REF Modeling:

Appendix 1: Weighted Ranking Matrix

Scoring Matrix:

In order to be able to adequately assess each of the seven alternative staff developed a weighted ranking system that took into account the four major factors. The four factors analyzed included:

1. Estimated project cost, which was based on VDOT planning and estimating tools and best professional judgment by the engineering contractor;
2. Congestion relief, which was based on the results of the CA-MPO regional travel demand model and engineering best professional judgment;
3. Construction feasibility, which was based on a review of project concepts by the engineering contractor;
4. Anticipated environmental impact, which was based on REF modeling and scoring.

Once all the analyses and information had been compiled CA-MPO staff used the information to then develop a weighted ranking system for the transportation alternatives. The weighted ranking system assigned numeric values to the qualitative system employed by the engineering contractor during their feasibility analyses. Because of its preceded importance to the stakeholder group, the cost factor received a weight factor of 50%. The other three categories receive no additional weighting factors. The table below Highlights the final results of the weighting exercise and is intended to illustrate what when into the final scenario highlighted on page 7 of the report.

The stakeholder group had mixed reactions to the weighted ranking system. Ultimately they felt that it was more appropriate to use the verbal matrix for determining the final outcomes than a weighted system. There was significant concern from the stakeholder that the use of the weighted system would cause confusion at the public open house. Based on these suggestions CA-MPO staff used the ranking system as advice and ultimately developed the verbal ranking system that is highlighted on page 7. The weighted ranking matrix included below was reviewed by the stakeholder group at the September 17th stakeholder meeting.

Weighted Ranking Matrix*:

Alt	Description	Estimated Cost	Cost Rank	Congestion Relief	Congestion Rank	Construction Feasibility	Feasibility Rank	Average REF Score	Eco-Rank	Total Project Score
D2	Rivanna River Parkway	$ 68.0	3	Moderate	2	Moderate	2	3.65	2	10.5
B	Trail Stone Dust	$ 9.3	1	Low	3	Moderate	2	11.09	3	9.5
A1	US250 Overpass	$ 141.2	3	High	1	Low	3	2.99	1	9.5
G	S. Pantops Drive Connector	$ 27.0	2	Low	3	High	1	4.77	2	9.0
F	Increased Lane Capacity	$ 20.5	2	Moderate	2	Moderate	2	2.96	1	8.0
A2	Jug Handle	$ 9.0	1	Low	3	High	1	2.00	1	6.5
I	Intersection Improvements	$ 7.4	1	Low	3	High	1	2.00	1	6.5

*Matrix not approved by stakeholders