

The Cities of Ranson and Charles Town

Transportation Development Fee Study



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SECTION 4: IDENTIFIED TRANSPORTATION PROJECTS AND COSTS



The identification of transportation projects is an important step in estimating potential funding that may be needed to address long range transportation congestion and needs as documented in previous sections. These funding estimates are used as a basis to determine the transportation development fee.

To address forecast regional congestion, project stakeholders including city, county, MPO and WVDOH staff worked to identify future multi-modal transportation capacity and enhancement projects within the Ranson and Charles Town urban growth boundary. This included projects that had been identified and included in the HEPMPO LRTP (*Direction 2035*), both in the financially constrained and unconstrained portions of that plan. Additional projects and studies were also identified based on the needs summarized within this study and recommendations from the consultant team.

Exhibit 4.1 illustrates the locations of the identified projects, and Exhibit 4.2 provides a short description of each project. These projects have only been identified in a preliminary nature. Thus, specific right-of-way, engineering, and environmental issues have not been assessed in detail. As a result, some of these projects may not end up being programmed or funded but have been included here to assist in estimating reasonable fees, to illustrate future needs, and to initiate further discussion and studies for each project. It is the hope of both cities that this report and the projects included are not only used for fee development but also used as a long term plan for identifying key needs and evaluating alternative options to improve the transportation infrastructure.

INCLUDING "COMPLETE STREETS" CONCEPTS

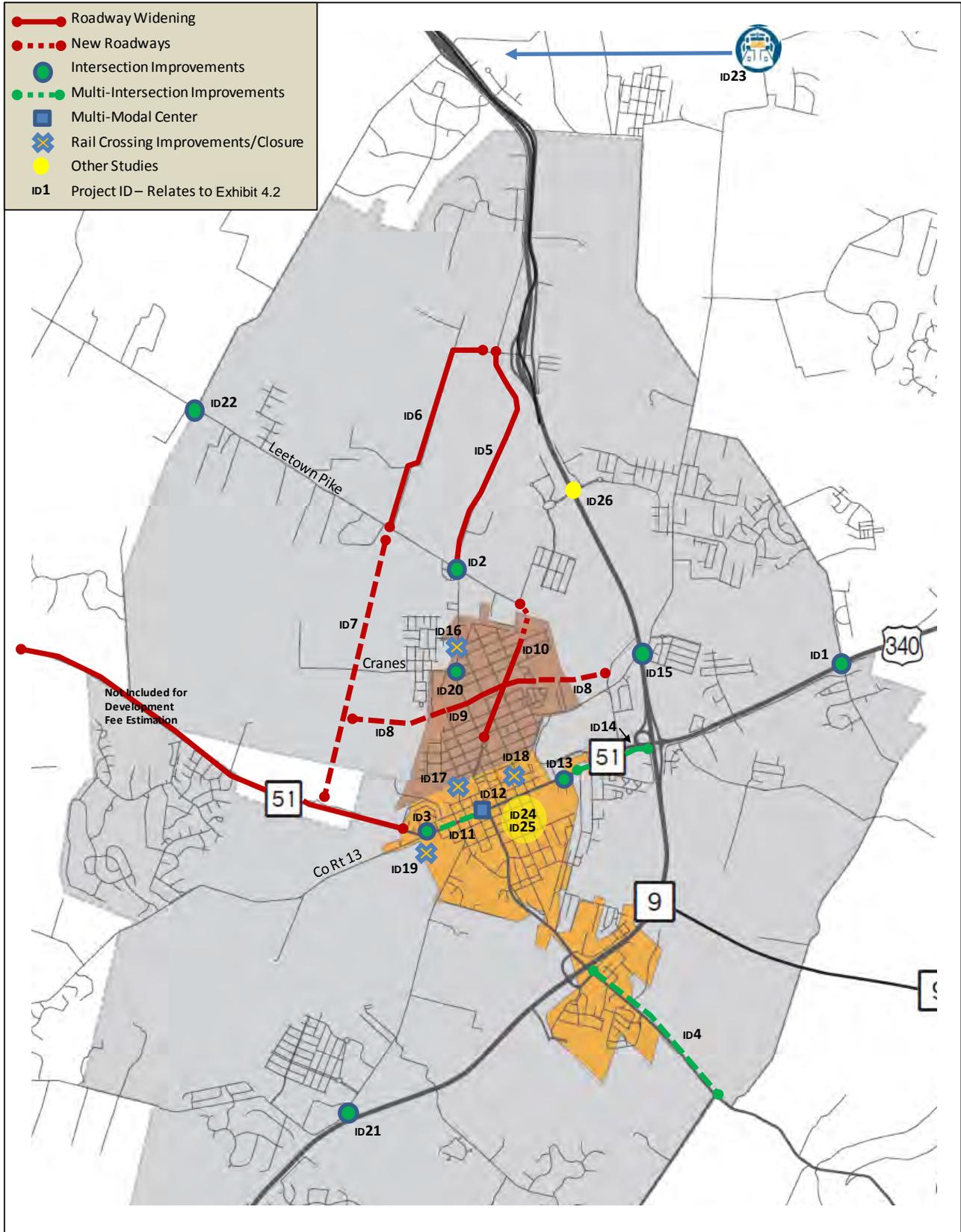


Through this study and future planning efforts, Ranson and Charles Town will strive to ensure that future transportation project designs include the concept of *Complete Streets*. *Complete Streets* are important in helping town centers and Main Streets thrive by improving street connectivity and allowing everyone, whether on foot, bike, or public transportation, to reach community focal points. The construction or widening of streets that function as state highways takes its toll on pedestrian safety and can have a negative impact on small-town economies. In these cases, *Complete Streets* policies at the state and local level help communicate the community's vision and ensure safe, accessible, and attractive streets. Creating complete streets can facilitate reinvestment and economic development in the heart of a small town. Appendix C provides a summary of Complete Streets concepts from the National Complete Streets Coalition. In addition, Exhibit 4.3 provides an example of *Complete Streets* policy requirements.

The *Complete Streets* concepts have been stressed for each of the improvements identified in the Ranson and Charles Town region. These concepts are also applied to the cost estimates for each project as discussed in the following sections.



Exhibit 4.1: Summary of Identified Project Locations



Since the majority of WV51 widening is outside of the Study Area, the project is not included in the Development Fee assessment.



Exhibit 4.2: Summary of Identified Project Descriptions

ID	Project Name	Project Description	In HEPMPO LRTP	
			Financially Constrained	Not Financially Constrained
1	US 340 & Country Club Rd.	Convert at-grade intersection to a grade separated interchange.	X	
2	Mildred St. & Leetown Pike	Install a traffic control roundabout at intersection to improve operations and alignment.	X	
3	WV51 & Summit Point Rd.	Improve intersection where WV51 intersects West Washington St. and Summit Point Rd. Possible addition of a traffic circle.	X	
4	Old Rt. 9: Access Management	Intersection improvements along 4.2 mile segment of old WV9 between Mission Rd. and US340.	X	
5	Mildred St. Widening	Widening to 4 lanes between Currie Lane and Leetown Pike.		X
6	Currie Lane Widening	Widen Currie Lane to 4 lanes with pedestrian amenities between Route 9 and Leetown Pike		X
7	Currie Lane Extension	Extend Currie Lane (possibly as 4-lane roadway) from Leetown Pike to WV51.		X
8	Beltline Extension	Extend Beltline Ave from Currie Lane to possible junction with 5 th Ave. or Sun Rd. Requires multiple rail crossings.		X
9	Beltline Widening	Widen and improve the existing portion of Beltline Ave.		X
10	Fairfax Blvd. Widening	Widen Fairfax Blvd. to 4 lanes with pedestrian amenities between Lancaster Circle to connection with Leetown Rd.		X
11	Traffic Safety and Pedestrian Mobility	Includes improvements referenced above for WV51 and Summit Point Rd. plus additional improvements along West Washington St. including pedestrian improvements.		
12	Charles Washington Hall Facility	Improvements to the multi-modal center including bike facilities, waiting areas, curb extensions, signage and additional amenities.		
13	Co.34 & Washington St.	Intersection improvements to address future congestion and possible deficient intersection operations.		
14	East Washington St. Intersection Improvements	General line item for intersection improvements from Co.34 to Route 9. Project may consist of signal timing improvements and possible turning lanes.		
15	Sun Rd. / Route 9	Intersection improvements with Sun Rd. / Route 9 / Flowing Springs Rd. Includes improved length of accelerations from Sun Rd. onto Route 9 (N and S).		
16	Mildred St. / NS Rail Crossing	Provide grade separated crossing of Norfolk Sothern tracks for Mildred St.		
17	Lawrence St. / CSX Rail Crossing	Signal upgrade or elimination of rail crossing for safety purposes.		
18	Church St. / CSX Rail Crossing	Elimination of rail crossing for safety purposes.		
19	Co. Rt. 13 Rail Crossing Consolidation	Consolidate County Rt. 13 crossing with WV51 crossing of Norfolk Southern rail line.		
20	Cranes Lane & Mildred St.	Improvements to the intersection to address sight distance and capacity issues.		
21	Huyett Road & Augustine Ave.	Intersection improvements to address future increase in traffic volumes at intersection.		

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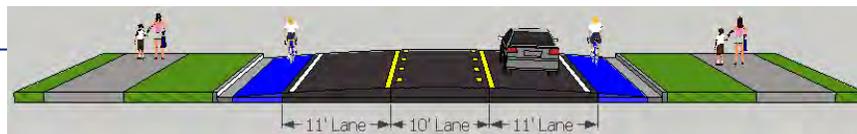


Exhibit 4.2: Summary of Identified Project Descriptions (continued)

ID	Project Name	Project Description	In HEPMPO LRTP	
			Financially Constrained	Not Financially Constrained
22	Brown Shop Rd. & Leetown Pike	Intersection improvements to address future increase in traffic volumes at intersection.		
23	MARC Train Station Relocation	Relocated Duffields train station to Jefferson Orchards development to improve regional access and promote transit-oriented development.		
24	Old Town Local Street Enhancements	General improvements to downtown streets to promote better vehicle and pedestrian mobility and improve streetscape.		
25	Trail and Sidewalk Connection Study	Study improvements to city trails and sidewalks. Address connectivity to Route 340 trail enhancements (not currently defined).		
26	Route 9 & Fairfax Blvd. Study	Study alternatives to intersection design and control to address forecast increases in traffic volumes and potential congestion.		

Exhibit 4.3: Example Complete Streets Policy

- Every project shall use the most appropriate design standards and procedures. Designs shall include accommodations of all users and be context-sensitive.
- A systems approach shall be used in developing roadway projects, including coordination with nearby jurisdictions, projects, and plans.
- Logical termini shall be chosen to include connections through “pinch points.”
- The project shall provide the opportunity for nearby destination points to have access to pedestrians and bicycle facilities.
- Every project shall involve the local transit agency in the design process to ensure sufficient accommodation to transit vehicles and access to transit facilities. Public transit facilities shall be designed with the goals of Complete Streets in mind.
- Every project shall provide the opportunity for utility/telecommunications infrastructure to be appropriately accommodated to allow for existing/future growth.
- The provision of accommodations for one mode shall not prevent the safe use by another mode.



Mid-Ohio Regional Planning Commission, Complete Streets Fact Sheet, August 2010



PROJECT PHASING PRIORITY

The development of the transportation fee considers the costs of all transportation needs for an assumed “build-out” scenario. However, the actual implementation and funding of projects will ultimately occur as distinct phases requiring an assessment of the priority of each project. The projects have been categorized into short-term, mid-term and long-term priority levels as defined in Exhibit 4.4

Exhibit 4.4: Project Priority Levels

Priority Level	Description
Short-Term	Projects that address current mobility, congestion and safety deficiencies that are expected to worsen significantly with future development.
Mid-Term	Projects needed to address future mobility, congestion and safety deficiencies that may occur before full “build-out” conditions are reached.
Potential Long-Term	Potential longer term mobility and congestion needs related to full “build-out” conditions; Will need to be re-evaluated in future plans.

Exhibit 4.5 provides an initial assessment of project priorities. This initial assessment has been based on the following:

- Current congestion and safety concerns
- Projected congestion levels
- Previous efforts in project planning or identification
- Economic development issues

As discussed in previous sections, congestion performance measures have been produced based on current and future projections of regional household and employment. Projects that address corridors that are currently congested have been considered short-term priorities. These include projects that are currently identified on the HEPMPO LRTP including those that improve traffic flow on Route 51, Route 340, Mildred Street and Old Route 9. Likewise, other proposed projects focus on addressing existing vehicle or pedestrian safety; and, these too are considered short-term priorities. These include the Charles Town Traffic Safety and Pedestrian Study and improvements to rail crossings within the city limits. Other short-term priority projects include the Charles–Washington Multi-Modal Facility that provides improved transit service and opportunities for economic development within the city.

Mid-term and long-term project priorities are focused on addressing future congestion problems that have been projected using regional analysis tools. These projects have been identified but may require additional review and stakeholder involvement to better define potential alternatives and to address key right-of-way and design considerations.



Exhibit 4.5: Initial Assessment of Project Priorities

Short - Term	Mid - Term	Potential Long - Term
<ul style="list-style-type: none"> • ID1: US 340 & Country Club Road • ID2: Mildred Street & Leetown Pike • ID3: WV51 & Summit Point Road • ID 4: Old Rt 9 Access Management • ID 8/9: Beltline Ave East Extension and Widening • ID 11: Traffic Safety and Pedestrian Mobility • ID 12: Charles Washington Hall Multi-modal Facility • ID17: Lawrence Street Rail Crossing • ID18: Church Street Rail Crossing 	<ul style="list-style-type: none"> • ID5: Mildred Street Widening • ID 10: Fairfax Boulevard Widening • ID15: Sun Road / Route 9 Improvements • ID16: Mildred Street Rail Crossing • ID20: Cranes Lane and Mildred Street • ID24: Old Town Local Street Enhancements • ID25: Trail and Sidewalk Connection Study 	<ul style="list-style-type: none"> • ID6: Currie Lane Widening • ID7: Currie Lane Extension • ID8: Beltline Extension West • ID13: CO34 & Washington Street • ID14: East Washington Street Improvements • ID19: CO13 Rail Crossing Consolidation • ID21: Huyett Road & Augustine Ave • ID22: Brown Shop Road & Leetown Pike • ID23: MARC Train Station Relocation • ID26: Route 9 & Fairfax Blvd. Study

ROADWAY OWNERSHIP/MAINTENANCE RESPONSIBILITIES

The West Virginia Division of Highways (WVDOH) is responsible for planning, engineering, right-of-way acquisition, construction, reconstruction, traffic regulation and maintenance of more than 34,000 miles of roads within the state. These include interstate routes, US routes, WV Routes and County Routes. Exhibit 4.6 illustrates the current roadways maintained by WVDOH within the study area.

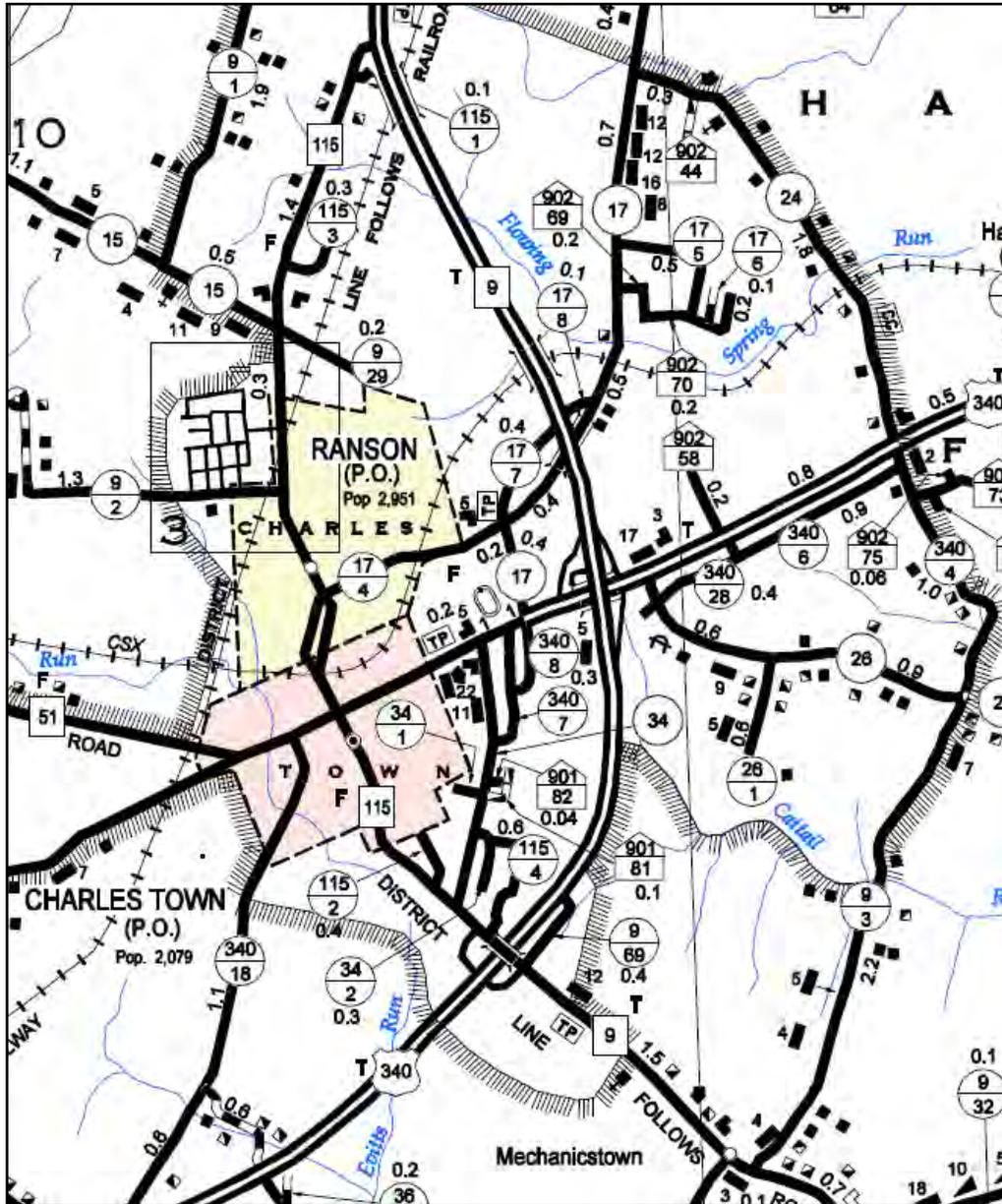
Several of the proposed improvements involve roadways not covered under the current state system. These include the Fairfax Boulevard, Beltline Road, and Currie Road widening and extension projects. Each of these projects focus on providing future congestion relief to current state maintained routes; and may warrant future consideration for inclusion as part of the state roadway system.

As illustrated previously in Exhibit 3.5, traffic along Mildred Street, Washington Street and 5th Avenue are projected to exceed acceptable level-of-service standards based on forecast housing and employment development in the region over the next 20 years. However, there are significant constraints that prevent widening existing state maintained roadways. These include abutting businesses, lack of right-of-way (ROW), and rail crossings (e.g. Mildred Street - Norfolk Southern crossing). In addition, continued widening of downtown streets does not fit into the Complete Streets vision. As a result, alternative options and new roadway routes allow for congestion relief and Complete Streets design options to improve traffic operations and provide a unique city environment to promote future economic development. Both Ranson and Charles



Town will continue to work with WVDOH in reviewing project alternatives and whether the transfer of certain city streets to the WVDOH roadway system is justified and beneficial.

Exhibit 4.6: WVDOT State Maintained Roadways



General Highway Map: Jefferson County Sheet 2, 2011 West Virginia Department of Transportation



PROJECT COSTING ESTIMATES

To assist in the calculation of a transportation development fee, an estimated total cost is needed for each project. Estimating project costs can be difficult since environmental and engineering efforts have not been completed for most long range vision projects, many being conceptual in nature. For this study, cost estimates have relied on values prepared for the HEPMPO LRTP and a review of national research to determine average costs per mile for different project types. Exhibit 4.8 summarizes the unit costs for roadway improvements assumed for this study. Included in the exhibit are key resources used to determine these estimates.

Exhibit 4.8: Assumed Unit Costs by Project Type (2010 Million US \$)

Project Type	Undivided Highways	
	Built-Up Area	Outlying Area
Right-of-Way (ROW) Acquisition	0.65 <i>(Per Lane Mile)</i>	0.26 <i>(Per Lane Mile)</i>
New Construction (New Road)	2.60 <i>(Per Lane Mile)</i>	2.19 <i>(Per Lane Mile)</i>
Reconstruction With New Lanes	3.26 <i>(Per Lane Mile)</i>	2.45 <i>(Per Lane Mile)</i>
Interchange	30.00	24.00
Sidewalk / Pedestrian Improvements	0.20 <i>(Per Mile)</i>	0.15 <i>(Per Mile)</i>
Trail Development	0.29 <i>(Per Mile)</i>	0.29 <i>(Per Mile)</i>
Intersection Signalization / Rail Crossing Improvements	0.36	0.25
Intersection Reconfiguration and Design	2.50	1.60
Add Intersection Turn Lanes	0.35	0.30
Resources:		
<ul style="list-style-type: none"> Victoria Transport Policy Institute, Transportation Cost and Benefit Analysis Techniques, Estimates and Implications [Second Edition], Chapter 5.6 Roadway Facility Costs, March 2011. Table 5.6.3-4 Adjusted to 2010 US dollars using CPI. (http://www.vtpi.org/tca/) VDOT Statewide Planning Level Cost Estimates, Transportation & Mobility Planning Division, January 2009. FDOT Generic Cost Per Mile Models (Updated annually). Version Used obtained in March of 2011. (http://www2.dot.state.fl.us/SpecificationsEstimates/costpermile.aspx) FDOT Roadway Cost Per Centerline Mile, June 2010 (http://www.dot.state.fl.us/planning/policy/costs/costs-D7.pdf) 		

For projects contained in the financially constrained portion of the HEPMPO LRTP (e.g. project ID1-4), the LRTP project costs are used as the estimates for this study with one key adjustment. For the LRTP, a significant portion of ROW costs were built into each total project cost as a conservative estimate. Based on the review conducted for this study, it was determined that these ROW costs were excessive for these four projects. As a result, the LRTP estimates were adjusted to remove the ROW costs. The remaining project costs were estimated using Exhibit 4.8 with some specific adjustments per individual project scopes. Exhibit 4.9 summarizes the individual project costs and total estimated cost for all regional projects.



Exhibit 4.9: Estimated Project Costs (2010 Million US \$)

ID	Project Name	Notes	Cost
1	US 340 & Country Club Rd.	Cost Per HEPMPO LRTP	23.8
2	Mildred St. & Leetown Pike	Cost Per HEPMPO LRTP	3.9
3	WV51 & Summit Point Rd.	Cost Per HEPMPO LRTP	6.3
4	Old Rt. 9: Access Management	Cost Per HEPMPO LRTP	1.5
5	Mildred St. Widening	Per Exhibit 4.7: 1.5 mi length of 4 lane reconstruction and widening + Complete Streets	16.9
6	Currie Lane Widening	Per Exhibit 4.7 – 1.5 mi length of 4 lane reconstruction and widening + Complete Streets	16.9
7	Currie Lane Extension	Per Exhibit 4.7: 1.5 mi length of 4 lane new construction + ROW acquisition + Complete Streets	16.7
8	Beltline Extension	Per Exhibit 4.7: 1.2 mi length of 4 lane new construction + ROW acquisition + Complete Streets	13.3
9	Beltline Widening	Per Exhibit 4.7: 0.5 mi length of 4 lane reconstruction and widening + Complete Streets	5.6
10	Fairfax Blvd. Widening	Per Exhibit 4.7: 1.2 mi length of 4 lane reconstruction and widening + Complete Streets	13.5
11	Safety & Pedestrian Mobility	Charles Town Estimate – Reduced due to overlap with ID3	0.7
12	Charles-Washington Hall	Charles Town Estimate	3.0
13	Co. 34 & Washington St.	Per Exhibit 4.7: Intersection reconfiguration + 50% increase due to utility relocation needs	3.8
14	East Washington St. Intersections	Per Exhibit 4.7: Assume 2 intersection reconfigurations	5.0
15	Sun Rd. / Route 9	Per Exhibit 4.7: Extension of acceleration lane – assume 0.25mi new construction + Intersection reconfiguration	2.2
16	Mildred St. / NS Rail Crossing	Per Exhibit 4.7: Due to significant efforts to go over rail lines, assume 50% of interchange	12.0
17	Lawrence St./CSX Rail Crossing	Per Exhibit 4.7: Assume reconfiguration or possible signalization	0.4
18	Church St./CSX Rail Crossing	Per Exhibit 4.7: Assume closure requires intersection modifications	0.3
19	Co. Rt. 13 Rail Crossing	Per Exhibit 4.7: Assumes diversion of traffic and possible construction of new 2 lane roadway (0.1 mi)	0.5
20	Cranes Lane & Mildred St.	Per Exhibit 4.7: Intersection reconfiguration to improve sight distance	2.5
21	Huyett Road & Augustine Ave.	Per Exhibit 4.7: Possible intersection signalization	0.3
22	Brown Shop Rd. & Leetown Pike	Per Exhibit 4.7: Additional	0.3
23	MARC Train Station Relocation	Per offline assessment including construction of parking lot and loading platform.	15.0
24	Old Town Street Enhancements	Per Exhibit 4.7: Assume 2.3 miles of pedestrian and sidewalk improvements + Additional 50% for other beautification items.	0.7
25	Trail and Sidewalk Improvements	Assume 200k study + 2 miles of trail development	0.8
26	Route 9 & Fairfax Blvd. Study	Assume 200k study	0.2
TOTAL			166.1



Some projects required specific assessments to determine costs. For new construction and existing reconstruction projects, the Complete Streets design concepts have been stressed in this study and in the project definitions. As indicated in Complete Streets research, careful planning can lead to the inclusion of effective measures at little or no extra cost and eliminate the need for costly retrofits. Some agencies (e.g. Mid-Ohio Planning Commission) have capped the costs of Complete Streets efforts to no more than 15% of the existing project cost. The assumption used for this study follows a similar approach and assumes that projects with Complete Streets concepts will include a 15% increase in cost. This does not apply to the Old Town Street Enhancements project, which may include these concepts as its core goal. This project was estimated using the typical costs for sidewalk and pedestrian improvements with some additional dollars added for landscaping and other city street beautification efforts.

The Duffields MARC train station project has been identified and includes relocation of the current station closer to Route 9. This project would allow for better regional access and support transit-oriented development. The project costs have been estimated assuming the station would be comparable to that at the current location, which consists of a parking lot and a platform for passenger loading. Estimates were developed based on consultant experience in project costs of similar train stations. The costs do not include the construction of station buildings if they should be deemed to be included in the project scope.



Photo from Google Maps

A Trail and Sidewalk Improvement Study and the Route 9 & Fairfax Boulevard Intersection Study have been estimated to be 200,000 dollars each. This represents an average cost for studies that include some assessment of alternatives. The trail study will be conducted in close coordination with other county trail plans along the Route 340 corridor and will aim to improve connectivity between the City of Ranson / Charles Town and other areas within the County. Included in the Trail and Sidewalk Improvement project are the costs associated with the construction of 2 miles of trails.

A total of 166.1 million dollars of transportation projects have been identified based on current and projected needs within the region. Exhibit 4.10 provides a breakout of the costs by the assumed project priority types.

Exhibit 4.10: Estimated Project Costs by Priority Level

Priority Level	Project Cost Totals
Short-Term	\$52.2 million
Mid-Term	\$48.6 million
Potential Long-Term	\$65.3 million
Total	\$166.1 million