



Transportation Study



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Hagerstown/Eastern Panhandle MPO

4/23/2014



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SECTION 1: INTRODUCTION

This transportation plan for the City of Charles Town, West Virginia provides data, analyses, and project recommendations that will be integrated into the city's comprehensive plan. Specific components of this planning effort include an assessment of the effectiveness of the existing roadway system considering present and future land use, as well as the identification of transportation projects needed to address roadway deficiencies within the city's urban growth boundary.

The plan was based on a combination of data sources, previous studies, stakeholder input, and technical analyses conducted both for this study and the Hagerstown/Eastern Panhandle Metropolitan Planning Organization (HEPMPO) Long-Range Transportation Plan (LRTP). **Exhibit 1** provides a summary of resources used for the development of the plan.

Exhibit 1: Resources for Transportation Plan Development

Previous Studies	<ul style="list-style-type: none"> • Wells & Associates Memo on Charles Town Transportation Projects (2005) • City of Charles Town Comprehensive Plan (2006, as amended) • City of Charles Town Downtown Parking Study (2010) • City of Charles Town Zoning Ordinance (2012) • City of Charles Town Subdivision and Land Development Ordinance (2012) • Ranson-Charles Town Transportation Development Fee Study (2011) • City of Ranson Comprehensive Plan (2012) • U.S. 340 East Gateway Plan (2012)
Stakeholder Input	<ul style="list-style-type: none"> • Meetings with city and county (Jefferson) planning staff • HEPMPO LRTP web-based public involvement tool (August 2013)
Transportation Data	<ul style="list-style-type: none"> • CENSUS 2010 demographics • CENSUS Longitudinal Employment Household Dynamics (LEHD) • TomTom GPS Data (2011-2012 travel time data) • WVDOT Traffic Counts • HEPMPO Regional Travel Model Outputs • Eastern Panhandle Transit Authority Ridership Data

SECTION 2: INVENTORY OF TRANSPORTATION SYSTEM

This section provides an overview of Charles Town's street system including functional class definitions, locations of traffic control devices, and available traffic volume counts. Other multimodal components of the transportation system are also discussed including available bus and rail service within the Eastern Panhandle region.

ROADWAY CLASSIFICATION

The present network of streets is based on the original historic layout designed by Charles Washington and his successors. More recently, additions to the street network were based on individual decisions dictated by property boundaries and timing of development. There was no master plan to guide subsequent street patterning.



The Charles Town Subdivision and Land Development Ordinance (Section 1333.02) provides design standards for any new public or private streets. These design standards are specified for defined functional street types according to the level of service they provide or are intended to provide. The functional street classification schema is applied to the entire network of streets in the City of Charles Town. The defined street functional class system categories are summarized by **Exhibit 2**. Based on these categories, the classification of the existing city streets is illustrated by **Exhibit 3**.

Exhibit 2: Defined Street Types from City Subdivision and Land Development Ordinance

Street Type	Definition Per Section 1333.02
Primary Street	<ul style="list-style-type: none"> Streets carry the principal portion of the vehicular trips entering and leaving urban areas as well as the majority of through movements desiring to bypass the central areas of the City. Significant intra-area travel and important intra-urban travel may be served by this class of facility. It is intended that Primary Streets shall become state maintained highways. Service to abutting land is subordinate to the priority of travel service and major traffic movements for all Primary Streets. Direct access to abutting Lots is restricted on Primary Streets. Street parking is not permitted.
Major Collector	<ul style="list-style-type: none"> The Major Collector Streets interconnect and expand from Primary Streets and provide service to vehicular trips of moderate length at a somewhat lower level of travel mobility. Major Collector Streets are intended to either be state maintained highways or City Streets. Major Collector Streets serve intra-urban vehicular trips between smaller geographic areas than those associated with Primary Streets. Direct access to abutting Lots is restricted on Major Collector Streets, with the exception of commercial uses. Street parking is only permitted on City streets.
Minor Collector	<ul style="list-style-type: none"> Minor Collector Streets differ from Primary and Major Collector Streets in that facilities penetrate neighborhoods. Minor Collector Streets distribute vehicular trips from the Major Collectors. Street parking is permitted.
Neighborhood Center Street	<ul style="list-style-type: none"> Neighborhood Center Streets link neighborhoods with Collector Streets. They are similar to Minor Collector Streets, but with greater emphasis on traffic calming measures and lower speeds. Direct access to abutting Lots is permitted. Street parking is permitted.
Neighborhood Street	<ul style="list-style-type: none"> Neighborhood Streets serve the same purpose as Neighborhood Center Streets but with a greater emphasis on traffic calming measures, lower speeds, and low impact design. Direct access to abutting Lots is permitted. Street parking is permitted.

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** illustrates the current roadways maintained by WVDOH within the city of Charles Town. Improvements to state roadways would be eligible for state funding sources.



Exhibit 3: Existing Street Classification Map

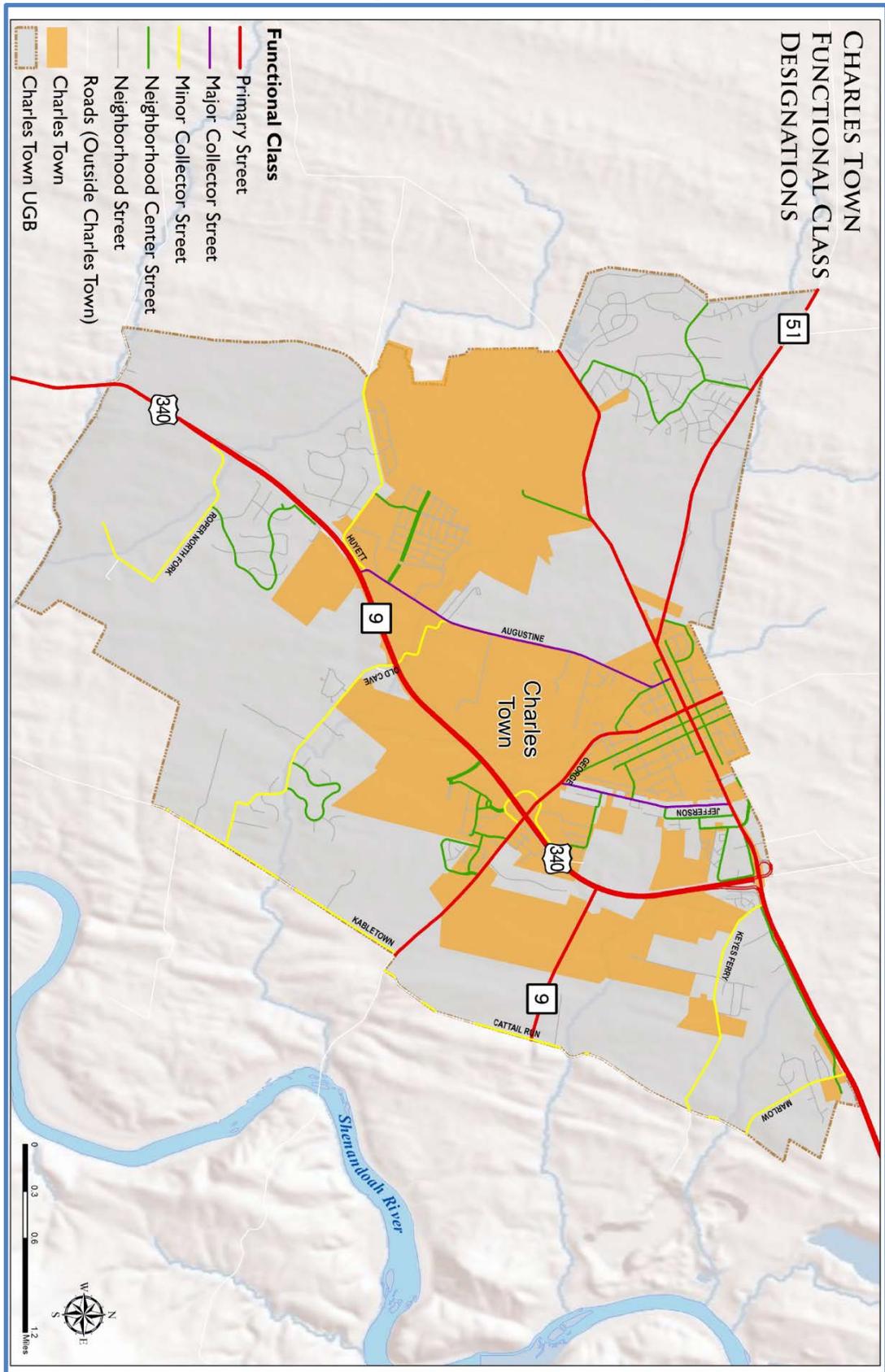
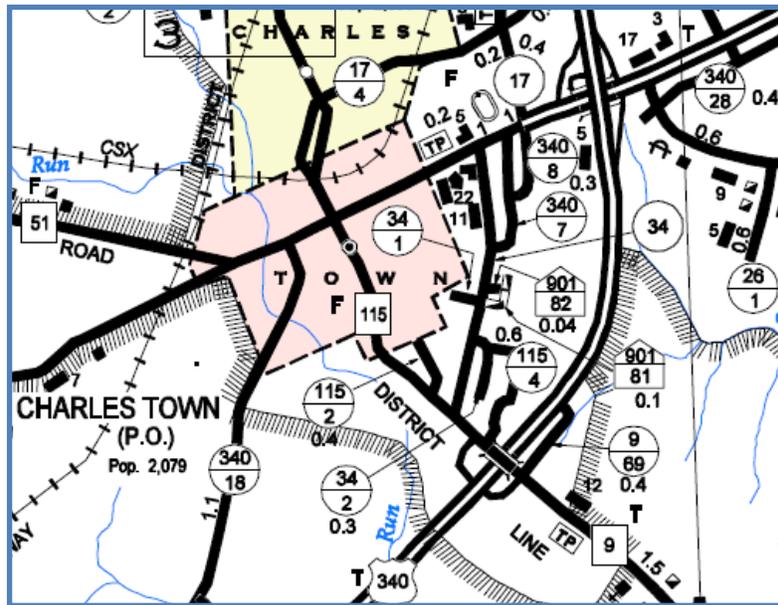




Exhibit 4: WVDOH State Maintained Roadways



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

TRAFFIC CONTROL DEVICES

Intersection traffic control devices are important components for the operation and safety of the transportation system. Traffic signals are necessary for higher volume roadways characterized by significant intersecting cross street traffic. Stop signs are reserved for lower volume roadways and are limited by the amount of traffic that can be processed. **Exhibit 5** illustrates the current locations of traffic signals within the City of Charles Town, which are maintained by WVDOH.

Exhibit 5: Traffic Signal Locations in Charles Town





TRAFFIC VOLUMES

Traffic counts within the Charles Town urban growth boundary were compiled from several sources including:

- West Virginia Department of Highways
- Ranson-Charles Town Transportation Development Fee Study
- Wells & Associates Study

The traffic count volumes for each of the locations (as related through an ID number) are presented in **Exhibits 6A and 6B**. The locations of the traffic counts, as illustrated by **Exhibit 7** (related to tables by ID number), include both mainline (**Exhibit 6A**) and intersection traffic counts (**Exhibit 6B**). Both types of counts provide information on the average daily vehicle traffic and AM/PM peak hour volumes at that particular location. The intersection traffic counts provide volumes for each intersection approach.

Exhibit 6A: Charles Town Mainline Traffic Count Data

ID	Location	Year of Count	Daily Volume	AM Peak Volume	PM Peak Volume
7	E. Washington St. (east of Court St.)	2010	16,627	1,034	1,301
8	Augustine Ave.	2010	4,272	393	409
9	WV 115 (north of Samuel St.)	2010	6,634	424	557
10	Co. Rt. 34 (north of WV 115)	2010	6,736	408	515
11	US 340 (north of WV 115)	2010	24,483	1,525	1,963
12	WV 115 (north of WV 9)	2008	7,097	453	592
13	Summit Point Rd (west of WV 51)	2008	3,588	215	301
14	WV 51 East (west of Co. Rt. 13)	2008	9,864	654	860
15	Co. Rt. 340/4	2010	1,150	72	136
16	Co. Rt. 340/2	2008	410	N/A	N/A
17	US 340 (north of Wheatland)	2008	9,200	N/A	N/A
18	Huyett Road	2008	2,000	N/A	N/A
19	Augustine Ave. (south of Gibsonville Rd.)	2008	2,600	N/A	N/A
20	Cave Rd. (off of Augustine Ave.)	2008	1,400	N/A	N/A
21	US 340 (south of WV 115)	2008	14,400	N/A	N/A
22	Summit Point Rd	2008	3,100	N/A	N/A
23	WV 51 (west of W. Washington Street)	2008	9,100	N/A	N/A
24	US 340 (north of WV 115)	2008	19,800	N/A	N/A
25	US 340 NB Ramp to Washington Street	2008	4,650	N/A	N/A
26	Keyes Ferry Rd.	2008	600	N/A	N/A
27	E. Washington St. (near Somerset Blvd.)	2008	38,000	N/A	N/A
28	WV 115 (north of Kabletown Rd.)	2011	14,900	N/A	N/A
29	Kabletown Rd (south of WV 115)	2011	1,600	N/A	N/A
30	Cattail Run Rd. (north of WV 115)	2011	491	N/A	N/A

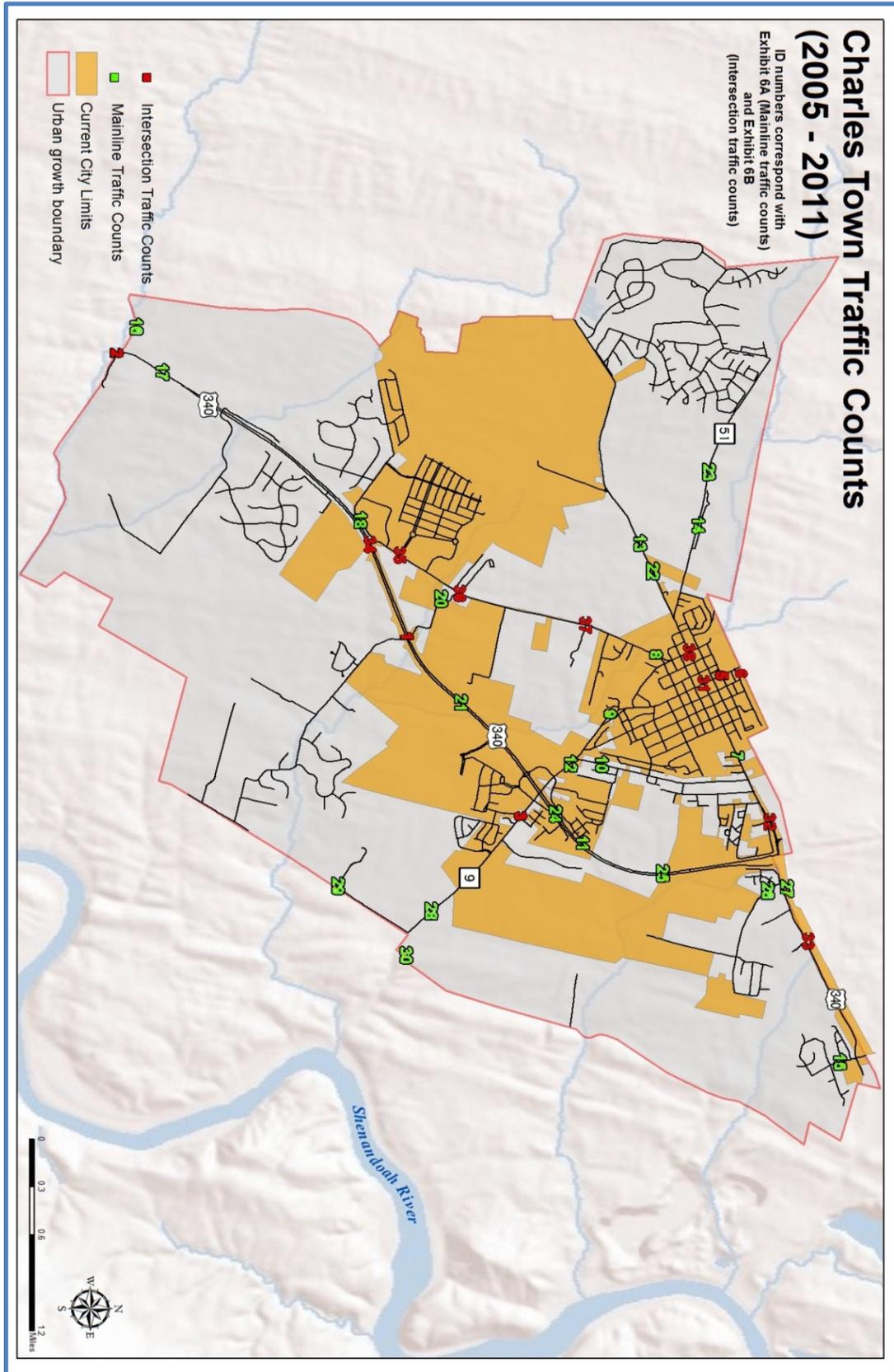


Exhibit 6B: Charles Town Intersection Traffic Count Data

ID	Roadway Approach to Intersection	Year of Count	Daily Volume	AM Peak Volume	PM Peak Volume
1	(N) CO 36	2008	615	35	21
	(E) US 340		14,288	443	635
	(S) CO 36		1,471	72	48
	(W) US 340		13,375	469	604
2	(N) US 340	2010	7,565	346	448
	Strathmore Farm Rd		50	3	2
	(S) US 340		7,499	407	587
	Wheatland Rd		194	7	8
3	Fairleigh Drive	2010	9,592	16	16
	(W) WV 9		20,178	571	671
	(E) WV 9		10,750	468	880
4	(N) George St.	2011	8,329	293	403
	(E) Liberty St.		1,678	45	85
	(S) George St.		6,314	192	286
	(W) Liberty St.		4,317	141	157
5	(N) George St.	2011	8,547	284	379
	(E) North St.		244	8	11
	(S) George St.		7,948	256	339
	(W) North St.		1,119	30	48
6	(N) George St.	2011	9,359	301	436
	(E) 1st St.		276	3	23
	(S) George St.		9,399	331	423
	(W) 1st St.		64	8	3
31	Co. 17 - Flowing Springs	2010	N/A	N/A	1,374
	(E) East Washington (WV 51)		N/A	N/A	2,986
	Access Rd.		N/A	N/A	279
	(W) East Washington (WV 51)		N/A	N/A	2,349
32	(N) WV 115	2011	N/A	N/A	503
	(E) Washington St.		N/A	N/A	890
	(S) WV 115		N/A	N/A	426
	(W) Washington St.		N/A	N/A	999
33	Patrick Henry Way	2010	N/A	N/A	1,364
	(E) US 340		N/A	N/A	2,352
	Somerset Blvd.		N/A	N/A	480
	(W) US 340		N/A	N/A	2,952
34	(N) Augustine Ave.	2005	N/A	289	435
	(E) US 340		N/A	728	1,210
	(S) Augustine Ave.		N/A	1	4
	(W) US 340		N/A	750	1,319
35	(N) Augustine Ave.	2005	N/A	216	188
	(W) Prospect Hill Blvd.		N/A	73	74
	(S) Augustine Ave.		N/A	231	212
36	(N) Augustine Ave.	2005	N/A	305	335
	(E) Old Cave Rd.		N/A	83	32
	(S) Augustine Ave.		N/A	230	298
	(W) Page Jackson School		N/A	185	19
37	(N) Augustine Ave.	2005	N/A	325	320
	(E) Cassilis Lane		N/A	6	4
	(S) Augustine Ave.		N/A	321	316
38	(N) West Street	2005	N/A	167	254
	(E) Washington St.		N/A	737	972
	(S) West Street		N/A	335	474
	(W) Washington St.		N/A	825	1083



Exhibit 7: Charles Town Traffic Count Locations





FREIGHT RAIL

The City of Charles Town is traversed by two Class I freight rail lines owned by CSX that carry both CSX and Norfolk Southern-operated freight trains. The primary line traverses the western portion of the city in a north-south direction and includes at-grade intersection crossings at Summit Point Road and WV Route 51.

The secondary CSX-owned line traverses Charles Town along its border with Ranson in an east-west direction. Although the decline and redevelopment of the city’s former industrial processes has greatly diminished this line’s usage, this line still includes a far greater number of at-grade rail crossings (6) than the primary CSX line given that it traverses the core of both the Charles Town and Ranson urbanized areas.

With respect to rail freight shipments, both CSX and Norfolk Southern have seen significant increases in their respective freight tonnages, which include both hazardous and non-hazardous materials. As a result, an increased crash and pedestrian safety risk may be of concern relative to the at-grade crossings.

PASSENGER RAIL

The City of Charles Town’s has a lower cost of living compared to the Washington DC metropolitan area. When coupled with its proximity to the Washington, DC metropolitan area, the City of Charles Town is an attractive location for weekday commuters who have readily available access to multiple passenger rail services as listed in **Exhibit 8**.

Exhibit 8: Regional Passenger Rail Services

Station Location	Passenger Rail	Connecting Services	Parking Spaces
226 E. Main Street Martinsburg, WV	MARC Brunswick Line Amtrak Capital Limited Line	Eastern Panhandle Transit Authority Blue and Red Lines	81
5057 Flowing Springs Road Duffields, WV	MARC Brunswick Line	None	295
120 Potomac Street Harpers Ferry, WV	MARC Brunswick Line Amtrak Capital Limited Line	Eastern Panhandle Transit Authority Orange Line	98

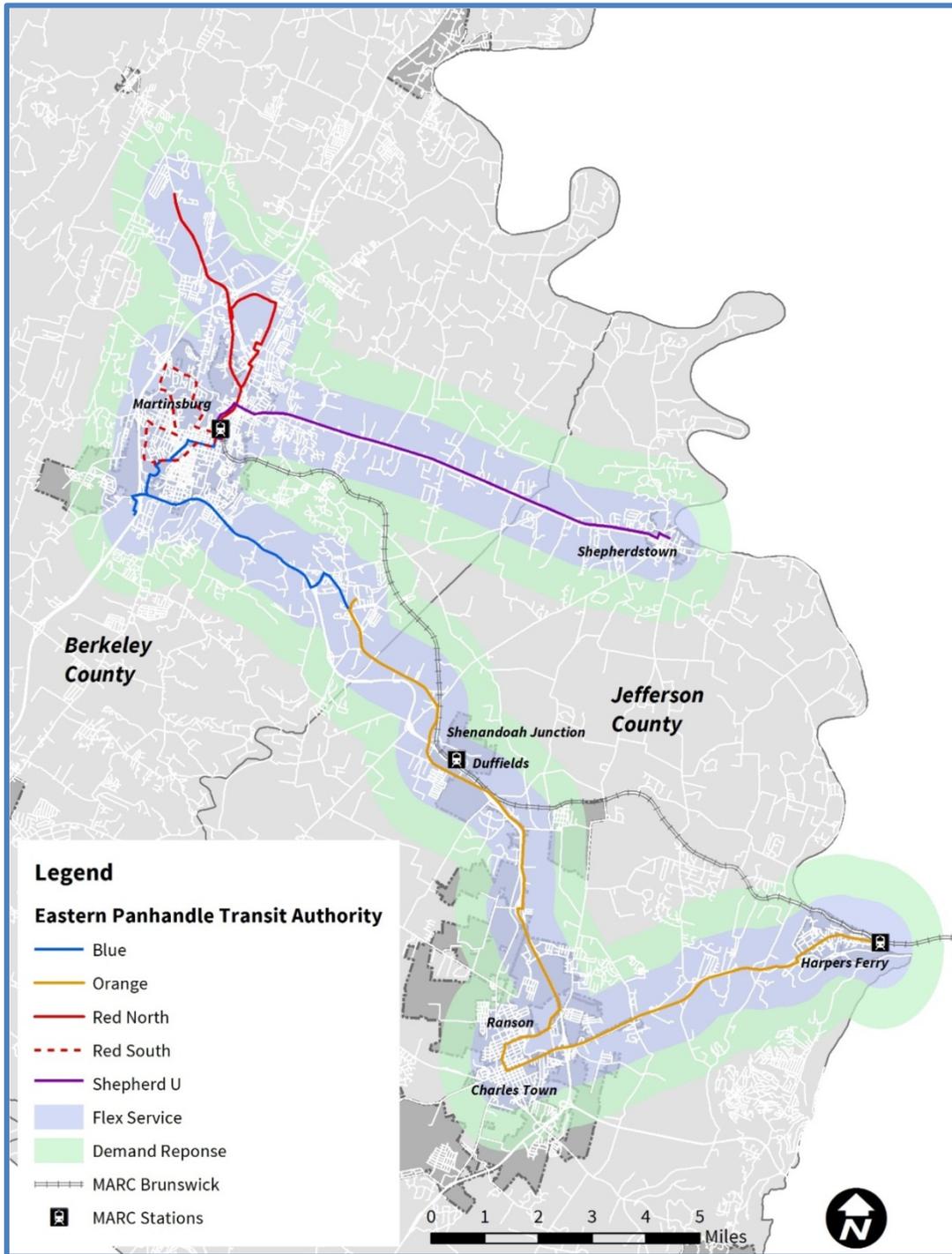
TRANSIT BUS SERVICE

In addition to the above passenger rail services, Charles Town residents are also serviced by the Eastern Panhandle Transit Authority (EPTA), which operates fixed-route, off-route (flex) and demand-response public transportation services throughout Berkeley and Jefferson counties. Fixed-route and off-route services primarily serve Martinsburg, Charles Town, Harpers Ferry, and Shepherdstown. Demand-response service is available in Hedgesville and Inwood, as well as in other select areas of Berkeley and Jefferson counties.

EPTA’s fixed-route service consists of five weekday routes and two Saturday routes. Weekday routes include the Red Line North (Martinsburg/Berkeley County), the Red Line South (Martinsburg), the Blue Line (Martinsburg/Berkeley County), the Orange Line (Charles Town/Harpers Ferry/Jefferson County) and the Shepherdstown University Shuttle (Martinsburg to Shepherdstown). The two Saturday routes operate within Berkeley County, combining the Red Line North, Red Line South and Blue Line. These routes are illustrated in **Exhibit 9**.



Exhibit 9: EPTA Bus Routes



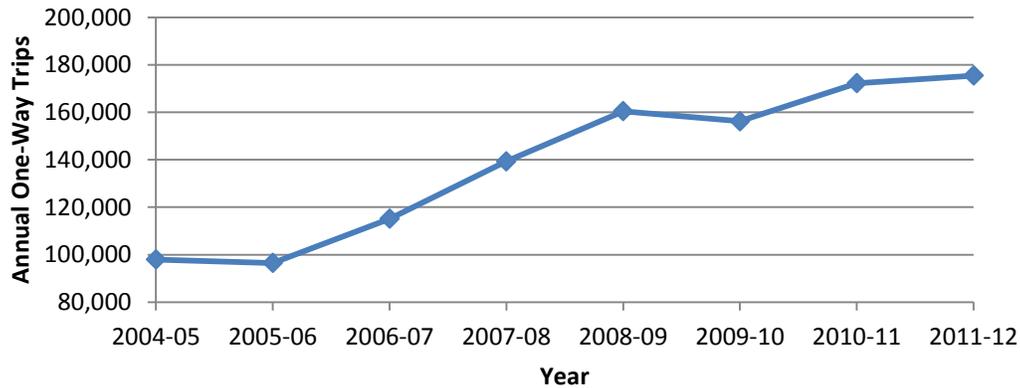
EPTA’s off-route service provides pickups and drop-offs up to ¾ mile from fixed-route service, with reservations required 24 hours in advance and a \$2.00 surcharge for each pickup and drop-off. Demand-response service is available to people who live between three quarters of a mile and 1.5 miles from fixed-route service as well as to people living in Hedgesville and Inwood. Reservations are required 24 hours in advance at a cost of \$3.00.



For fiscal year 2012, EPTA served 175,429 annual passenger trips. **Exhibit 10** illustrates the annual ridership trends since 2004.

Exhibit 10: Eastern Panhandle Transit Authority Annual Ridership Trends

EPTA Ridership (2004 - 2012)



In 2012, EPTA began offering bus service from Brunswick, MD in partnership with the MARC train service. EPTA buses leave the train station in Brunswick, MD at 5:00 p.m. and 9:00 p.m. One bus takes passengers to train stations in Harpers Ferry and Duffields, while the other brings passengers into Martinsburg, dropping off at the Caperton Train Station. This service allows Washington/Baltimore commuters the opportunity to maintain their current commuter schedule despite changes to the MARC train service. Transfers to EPTA buses from MARC trains at Brunswick are provided free of charge to riders with a MARC pass.

OTHER REGIONAL TRANSIT SERVICES IN JEFFERSON COUNTY

Regional Education Service Agency (RESA) VIII Head Start Program: The RESA VIII Head Start Program provides services throughout Jefferson, Morgan, and Berkeley Counties Tuesday through Friday between 6:30 AM and 5:00 PM. The fleet consists of four 24-passenger school buses and sixteen 54-passenger school buses. In 2013, the Head Start Program provided approximately 5,000 trips.

Jefferson County Council on Aging, Inc.: The Jefferson County Council on Aging, Inc. is located at 103 West Fifth Avenue in Ranson, West Virginia. Service is provided in Jefferson County primarily for nutrition, limited shopping, and non-emergency Medicaid transportation between 5:30 AM and 4:30 PM, Monday through Friday. The fleet consists of four vans, one of which is lift-equipped. In 2010, the agency provided over 7,000 trips.

Valley Medical Transport: Valley Medical Transport provides emergency and non-emergency services for all insurances, including Medicaid, to Morgan, Berkeley and Jefferson Counties with additional service to eight hospitals. The service operates 24 hours per day, seven days per week. The fleet consists of 30 ambulances and 7 lift-equipped wheelchair vans. One wheelchair van operates in Martinsburg area while two others operate in the Keyser area. In 2010, the agency provided approximately 1,050 wheelchair transports.

Other Transportation Providers: There are several general transportation providers in the Panhandle Region. The region's for-profit transportation providers include VIP Limousine Service LTD, Formal Express Inc., KAMS Taxi, McCain Taxi, and Community Taxi Service LLC.



TRAILS AND SIDEWALK SYSTEMS

Although no formal pedestrian and bicycle trail system currently exists within the local Charles Town and Ranson area, a coordinated trail planning effort between the cities is underway to establish a local pedestrian and bicycle trail system that will ultimately connect with the partially completed 65-mile Eastern Panhandle Recreational Trail, which traverses Jefferson, Berkeley, and Morgan counties and connects Harpers Ferry, WV to Hancock, MD via Charles Town / Ranson, Kearneysville, Martinsburg, and Berkeley Springs. The trail also provides connections to the Shenandoah River, Shepherdstown, C&O Canal Trail, Appalachian Trail, and the Tuscarora Trail. In addition to increasing their communities' livability, Charles Town and Ranson's local trail network will also increase pedestrian and bicyclist safety by minimizing risk to recent increases in traffic volumes and greater speeds of auto and truck traffic in certain locations. Moreover, the cities' trail development effort is an important local control measure initiative specified in the West Virginia Ozone Early Action Compact (EAC) Plan for the Eastern Panhandle Region.¹

In addition to Charles Town's trail development efforts, the city also has a well-established network of sidewalks located through its downtown area and adjacent residential neighborhoods. The city's Subdivision and Land Development Ordinance requires new residential and commercial developments to provide sidewalks as specified under Section 1333.09. The city's Capital Improvement Plan also calls for the city to establish a formal sidewalk inventory, inspection, and maintenance program to ensure sidewalks are in serviceable condition and do not interfere with user accessibility needs.

SECTION 3: LAND USE AND COMMUTING PATTERNS

Transportation and land use planning decisions have complex interactions affecting both the performance of the transportation system and the locations of future development. This transportation plan examines current land use and related commuter characteristics, as well as future forecasts of land use based on anticipated development locations within the city's urban growth boundary. These forecasts are used to assess the future growth in traffic and to identify potential traffic congestion needs (Section 4).

LAND USE AND TRANSPORTATION

Future transportation planning should be closely integrated with land use planning in Charles Town. The locations and form of development can significantly affect future transportation performance and needs. Integrated smart growth programs can have cumulative effects on regional travel and, in some cases, can reduce vehicle ownership and travel between 20 to 40 percent¹. Such programs can also significantly increase the use of multi-modal transportation such as walking, cycling, and public transit, with even larger vehicle ownership reduction impacts if integrated with other policy changes such as increased investments in alternative modes. **Exhibit 11** illustrates the potential impacts of land use on travel based on recent research.

¹ Accessed online at:

[http://yosemite.epa.gov/r3/r3sips.nsf/9eeb842c677f8f5d85256cfd004c3498/55bc46655f01de538525707e006ca6bf/\\$file/plan_summary_eastern_panhandle_wv_eac_plan.pdf](http://yosemite.epa.gov/r3/r3sips.nsf/9eeb842c677f8f5d85256cfd004c3498/55bc46655f01de538525707e006ca6bf/$file/plan_summary_eastern_panhandle_wv_eac_plan.pdf).



Exhibit 11: Land Use Impacts on Travel²

Factor	Definition	Travel Impacts
Regional accessibility	Location of development relative to regional urban center.	Reduces per capita vehicle mileage. More central area residents typically drive 10-40% less than at the urban fringe
Density	People or jobs per unit of land area (acre or hectare).	Reduces vehicle ownership and travel, and increases use of alternative modes. A 10% increase typically reduces VMT 0.5-1% as an isolated factor, and 1-4% including associated factors (regional accessibility, mix, etc.).
Mix	Proximity between different land uses (housing, commercial, institutional)	Tends to reduce vehicle travel and increase use of alternative modes, particularly walking. Mixed-use areas typically have 5-15% less vehicle travel.
Centeredness (centricity)	Portion of jobs and other activities in central activity centers (e.g., downtowns)	Increases use of alternative modes. Typically 30-60% of commuters to major commercial centers use alternative modes compared with 5-15% at dispersed locations
Network Connectivity	Degree that walkways and roads are connected	Increased roadway connectivity can reduce vehicle travel and improved walkway connectivity increases non-motorized travel
Roadway design	Scale, design and management of streets	Multi-modal streets increase use of alternative modes. Traffic calming reduces VMT and increases non-motorized travel
Walking and cycling conditions	Quantity, quality and security of sidewalks, crosswalks, paths, and bike lanes.	Improved walking and cycling conditions tends to increase non-motorized travel and reduce automobile travel. Residents of more walkable communities typically walk 2-4 times more and drive 5-15% less than in more automobile-dependent areas.
Transit quality and accessibility	Quality of transit service and access from transit to destinations	Increases ridership and reduces automobile trips. Residents of transit oriented neighborhoods tend to own 10-30% fewer vehicles, drive 10-30% fewer miles, and use alternative modes 2-10 times more than in automobile-oriented areas.
Parking supply and management	Number of parking spaces per building unit or acre, and how parking is managed and priced	Tends to reduce vehicle ownership and use, and increase use of alternative modes. Cost-recovery pricing (users finance parking facilities) typically reduces automobile trips 10-30%.
Site design	Whether oriented for auto or multi-modal accessibility	More multi-modal site design can reduce automobile trips, particularly if implemented with improvements to other modes.
Mobility management	Strategies that encourage more efficient travel activity	Tends to reduce vehicle ownership and use, and increase use of alternative modes. Impacts vary depending on specific factors.
Integrated smart growth programs	Travel impacts of integrated programs that include a variety of land use management strategies	Reduces vehicle ownership and use, and increases alternative mode use. Smart growth community residents typically own 10-30% fewer vehicles, drive 20-40% less, and use alternative mode 2-10 times more than in automobile-dependent locations, and even larger reductions are possible if integrated with regional transit improvements and pricing reforms.

² Land Use Impacts on Transport, How Land Use Factors Affect Travel Behavior, Victoria Transport Policy Institute, 2013 (<http://www.vtpi.org/landtravel.pdf>)



LAND USE AND ZONING

Chapter 5 of the City of Charles Town Comprehensive Plan addresses the city's land use goals, key development trends, existing land use composition, and future land use objectives. The Future Land Use Plan for Charles Town is the city's official statement of policy on growth and development (and redevelopment) for the next 10 years. The Future Land Use Plan recognizes the need to strengthen and preserve the integrity of Charles Town's traditional urban core of "Old Town Charles Town." In addition, Charles Town's future land use strategy is to sustainably manage its growth through the establishment of an urban growth boundary (UGB), which will effectively control the city's historic suburban growth pattern and provide a stronger foundation for a more sustainable land use pattern.

The Future Land Use Plan is also a key determinant of public infrastructure needs and requirements, such as roads, schools, transit, water, and wastewater, as well as police, fire, and emergency medical public services. To meet the city's growth and development needs, such infrastructure and services must be expanded and continually maintained at the taxpayer's expense. Therefore, developing a financially sustainable land use plan and growth management strategy is imperative for the city's fiscal health and the quality of life it provides to its residents, employers, and visitors.

Above all, Charles Town must continue to communicate with the public, Jefferson County and its Public Service District, Hagerstown / Eastern Panhandle Metropolitan Planning Organization, the City of Ranson, and other municipalities in Jefferson County so that a coordinated approach to land use planning and implementation as well as the provision of public services and other planning needs is achieved. This also includes, but is not limited to, the coordination of new transportation infrastructure for properties adjacent to the city and developing compatible community and economic development strategies with the City of Ranson and Jefferson County.

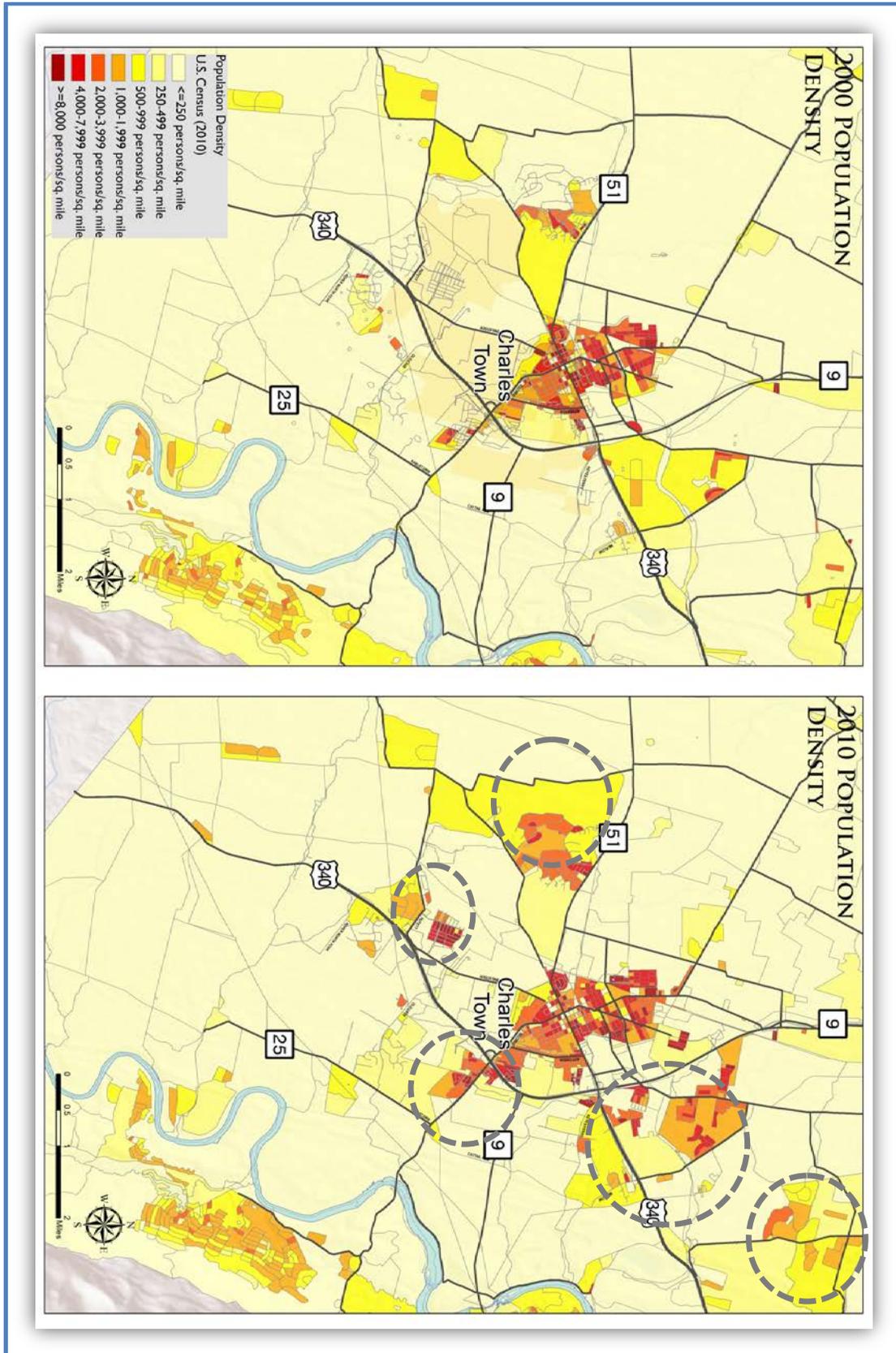
The City of Charles Town enacted and began administering a new zoning ordinance in 2012. Among other technical and administrative changes, this new ordinance reclassified a number of zoning districts to reflect changes in the city's land use patterns since the city's enactment of its 1991 zoning ordinance and to provide consistency with the city's future land use objectives. Furthermore, the 2012 ordinance provides a uniform zoning use classification system based on the land use titles and descriptions found in the most current edition of the ITE Trip Generation Manual and ITE Parking Generation Manual. In addition to standardizing the city's zoning use nomenclature, this system also provides the city with an important land use and transportation planning tool whereby future land use and zoning decisions can be made, in part, based on their transportation impacts according to the ITE trip and parking generation numbers.

DEMOGRAPHICS

The decennial CENSUS provides population and household data for 2010. Charles Town (within the urban growth boundary) has a 2010 population of 11,982, an increase of more than 115% since 2000. **Exhibit 12** illustrates the population density changes between 2000 and 2010. Areas of growth are highlighted by gray dashed circles within the exhibit. The high rate of growth has resulted in significant traffic increases accessing key routes within the city including Augustine Avenue, Summit Point Road, US340, and WV51.



Exhibit 12: CENSUS 2000 and 2010 Population Density



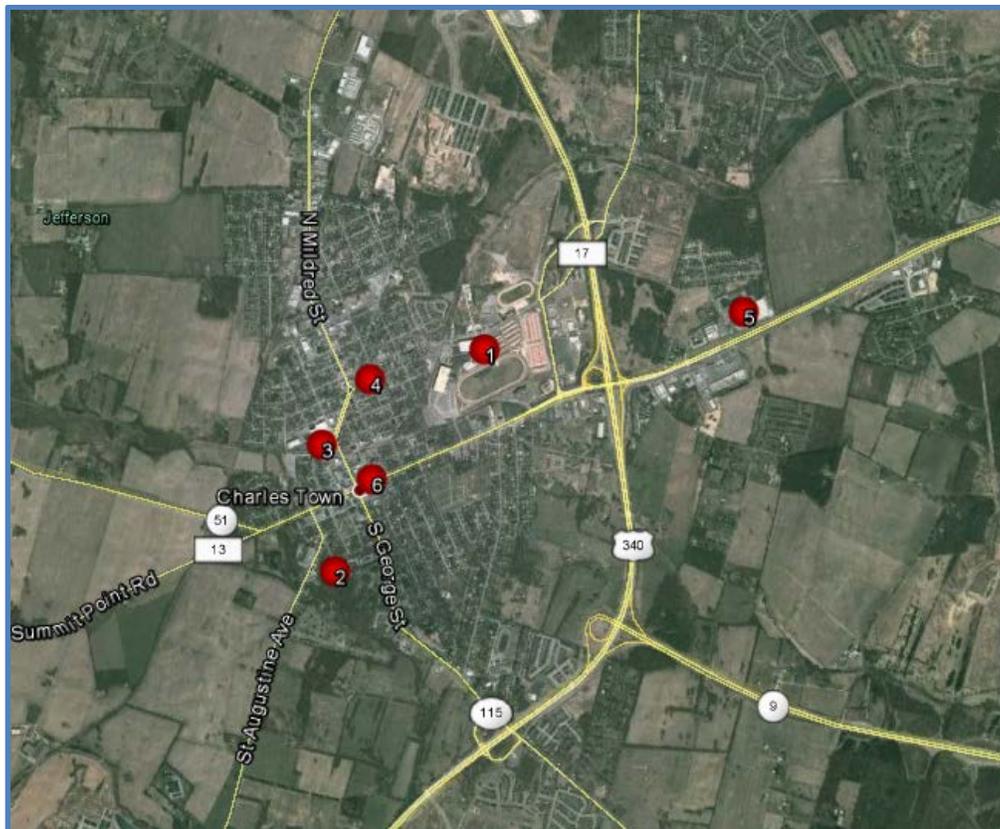


Workforce West Virginia updates statewide economic and labor market information each year (<http://workforcewv.org/lmi/EandWAnnual/TopTenEmployersByCounty.html>). In 2013, six of the top ten largest employers in Jefferson County were located in the vicinity of Charles Town. These include (as shown in **Exhibit 13**):

- PNGI Charles Town Gaming (*ID 1 on map*)
- Jefferson County Board of Education (*ID 2*)
- American Public University System (*ID 3*)
- Jefferson Memorial Hospital (*ID 4*)
- Walmart Stores Inc. (*ID 5*)
- Jefferson County Commission (*ID 6*)

The locations and attributes of these and other employers affect the demand and operation of the city transportation system. Hollywood Casino attracts large amounts of traffic on East Washington Street in the vicinity of the US 340 interchange. The US 340 intersection with Patrick Henry Way provides primary access to the Walmart shopping center and is considered one of the highest congested locations along the corridor. The continued growth of American Public University will continue to impact downtown streets in both Charles Town and Ranson.

Exhibit 13: Major Employers in Vicinity of Charles Town



COMMUTING CHARACTERISTICS

The Longitudinal Employer-Household Dynamics (LEHD) program is part of the Center for Economic Studies at the U.S. Census Bureau. The LEHD program combines data from the Unemployment Insurance earnings data, the Quarterly Census of Employment and Wages (QCEW), additional administrative data, and data from



censuses and surveys. The data has been used to synthesize worker commuting patterns for those working and/or living in the City of Charles Town. This information provides valuable insights into the travel decisions of future population growth and other strategies to address multi-modal decisions.

Exhibit 14 provides a summary of commuting destinations for those currently living in Charles Town’s urban growth boundary. **Exhibit 15** provides a summary of the commuting origins for those currently working in Charles Town. The exhibits illustrate distinct differences in the commuting patterns between those living and working in the area. Charles Town residents have a wide range of areas for work destinations including over 35% of residents that commute out-of-state. In contrast, those working in Charles Town primarily reside in either Jefferson or Berkeley counties.

Exhibit 14: CENSUS LEHD Commuting Characteristics for Those Living in Charles Town

County Where Residents Work	2011 Percentage
Jefferson County	33.7 %
Loudon County, VA	13.3 %
Fairfax County, VA	11.3 %
Berkeley County	10.7 %
Montgomery County, MD	5.5 %
Frederick County, MD	4.6 %
All other locations	20.9 %

Highlighted blue areas indicate distribution of typical work destinations for residents.

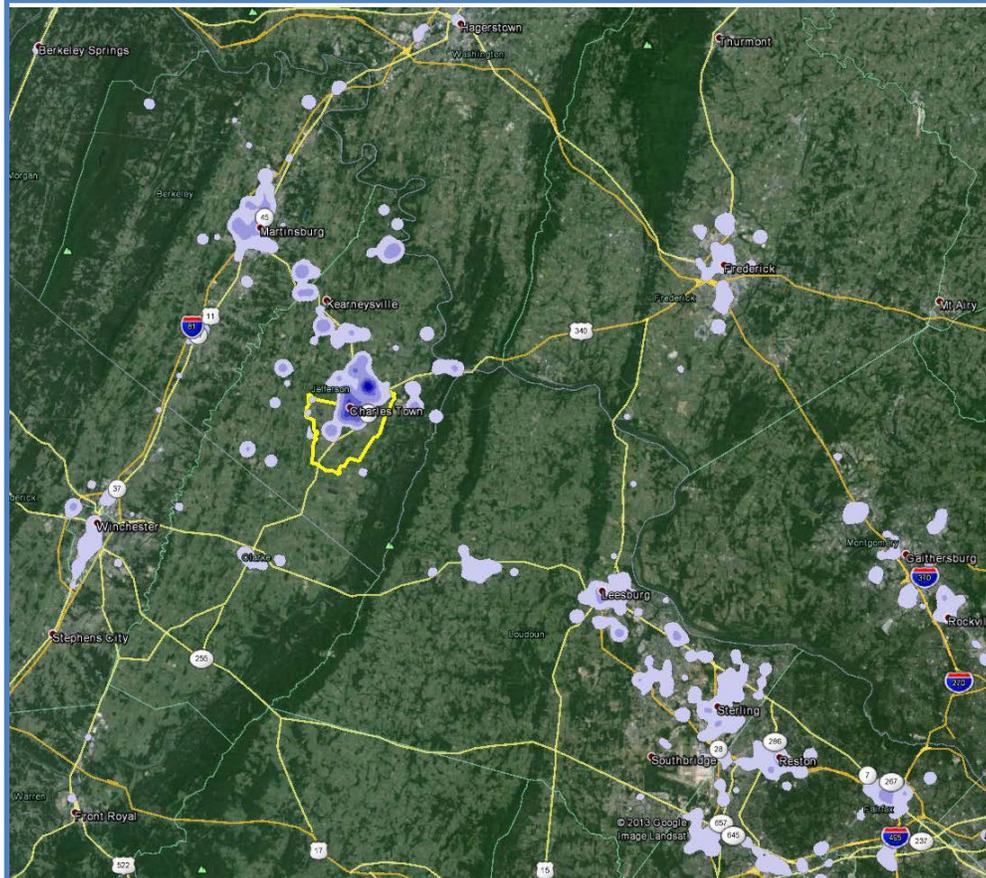
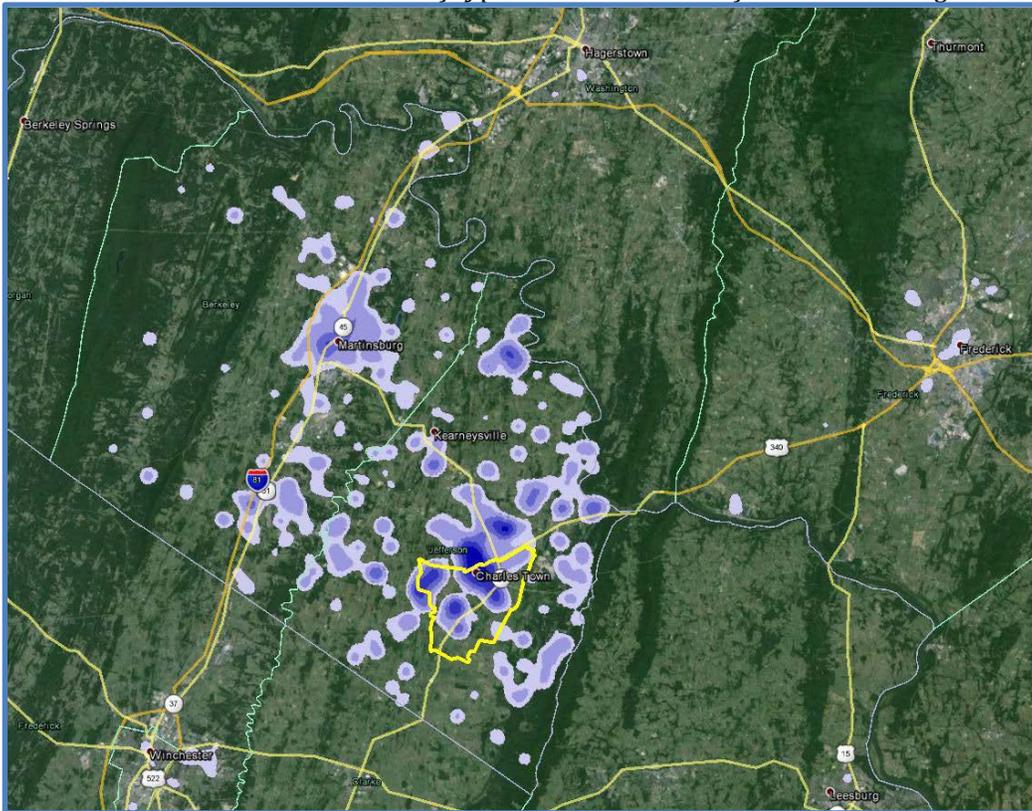




Exhibit 15: CENSUS LEHD Commuting Characteristics for Those Working in Charles Town

County Where Workers Live	2011 Percentage
Jefferson County	52.4 %
Berkeley County	23.6 %
Frederick County, MD	3.1 %
Morgan County	2.3 %
Washington County, MD	2.2 %
Frederick County, VA	2.0 %
All other locations	14.4 %

Highlighted blue areas indicate distribution of typical home locations for those working in Charles Town



FORECASTED LAND USE

A key component of this transportation plan was to develop a forecasted vision of land use and demographics (e.g. households and employment) within the city of Charles Town’s urban growth boundary. This work effort included close coordination with the Charles Town and Jefferson County planning departments to assemble information on existing and proposed developments in the region.

Exhibit 16 summarizes key developments that have been identified and included in this study. Several of the housing developments including Locust Hill, Greenfield, Eastland, and Spruce Hill have been completed. In addition, portions of Huntfield, Windmill Crossing, and Norborne Glebe have been completed though significant future growth is still anticipated at these locations. For each of the identified developments, available information was collected on zoning density categories, potential splits between residential and commercial uses, and the approximate number of dwelling units and commercial square footage. Build out completion percentages were estimated for the 2020 and 2035 analysis years. Primary locations of



SECTION 4: TRAFFIC CONGESTION AND SAFETY NEEDS

An assessment of existing and future traffic congestion within Charles Town was completed in an effort to identify transportation needs and projects. The assessment included the collection of data, future year analyses, and input from city and county planning staff.

PUBLIC AND STAKEHOLDER COMMENTS

Public involvement activities for the HEPMPO LRTP included an interactive website to collect comments on transportation needs throughout the MPO region. This effort was conducted in July and August of 2013. Meetings were also conducted to obtain input from city and county planning staff during the fall of 2013. These meetings provided insights on local needs and alternative transportation strategies. **Exhibit 17** provides a summary of the comments.

Exhibit 17: Public and Stakeholder Comments on Transportation Needs

Factor	Travel Impacts
<p>Comments from LRTP Public Website Survey</p>	<ul style="list-style-type: none"> ▪ Widening of WV 51 to address congestion and safety needs or alternatively the construction of a bypass to support east-west travel through Charles Town and Ranson. ▪ Improvements at the US340/Patrick Henry Way intersection and the US 340/East Washington Street interchange. Alternatively, recommendations were provided for additional east-west connections either north or south of the interchange ▪ Additional transit service to locations within the city, to new development locations along Augustine Avenue, and to locations near US 340/WV 115 and in vicinity of the new hospital location off WV 9. ▪ Walking paths along Augustine Avenue to the high school. ▪ Bike and pedestrian paths along US 340 from Charles Town to Harpers Ferry ▪ Potential widening of Cattail Run Road due to recent volume increases
<p>Comments from other Stakeholder Meetings</p>	<ul style="list-style-type: none"> ▪ Additional roadway connections needed to Summit Point Road to support continued development at Huntfield ▪ Supported recommendations identified in the East Gateway and Ranson-Transportation Development Fee Study. ▪ Safety issues along WV 115 including intersection with Cattail Run Road ▪ Improvements needed at intersection of Keyes Ferry Road and Southerly Lane need for improvements may increase upon completion of the hospital ▪ Intersections of Jefferson Avenue at East Washington Street and WV 115. ▪ Mordington Avenue and Augustine Avenue intersection ▪ Concern over Huyett Road and Augustine Avenue intersection ▪ Additional connections needed on High Street and Hillside Drive



GPS DATA ASSESSMENT OF EXISTING TRAFFIC CONGESTION

To support the assessment of existing traffic congestion, aggregated TomTom GPS data (available through efforts conducted for the HEPMPO LRTP) was used to evaluate travel times. The data reflects average 2010-2012 travel times for peak and off-peak conditions within the city. A travel time index (TTI), measuring the ratio of travel time in the peak period to the travel time under off-peak conditions, was estimated for each roadway segment based on the available GPS data. For example, a roadway section where TTI = 1.25 indicates that travel time during the AM and PM peak travel conditions is 25% higher than under off-peak travel conditions. **Exhibit 18** provides a summary of the travel time index values which were grouped into categories reflecting medium and high levels of congestion.

TTI ratios appear to be highest at the approaches to traffic signals and typically correspond closely with those locations characterized by high congestion. Specifically, the data indicates key areas of high congestion at the following locations:

- US 340 and East Washington Street between Flowing Springs Road and Old Country Club Road
- West Washington Street from WV 51 to North Church Street
- North George Street from East Washington Street to Ranson
- WV 51 intersection with West Washington Street
- South West Street from West Washington Street to Augustine Avenue
- Jefferson Road intersections with East Washington Street and WV 115
- Augustine Avenue intersection with Huyett Road and US 340
- Mordington Avenue including intersections with South West Street and South George Street

The data corroborates with many of the public and stakeholder comments on transportation needs within the region. The congestion on Mordington Avenue was not previously noted and most likely relates to the peak hour vehicles entering and leaving the Jefferson County Board of Education facility. Specific vehicle counts are not available that indicate how many vehicles are utilizing these intersections; thus, future spot counts may be warranted to further assess this location. Currently, Mordington Avenue has stop sign control at each of the aforementioned intersection locations.

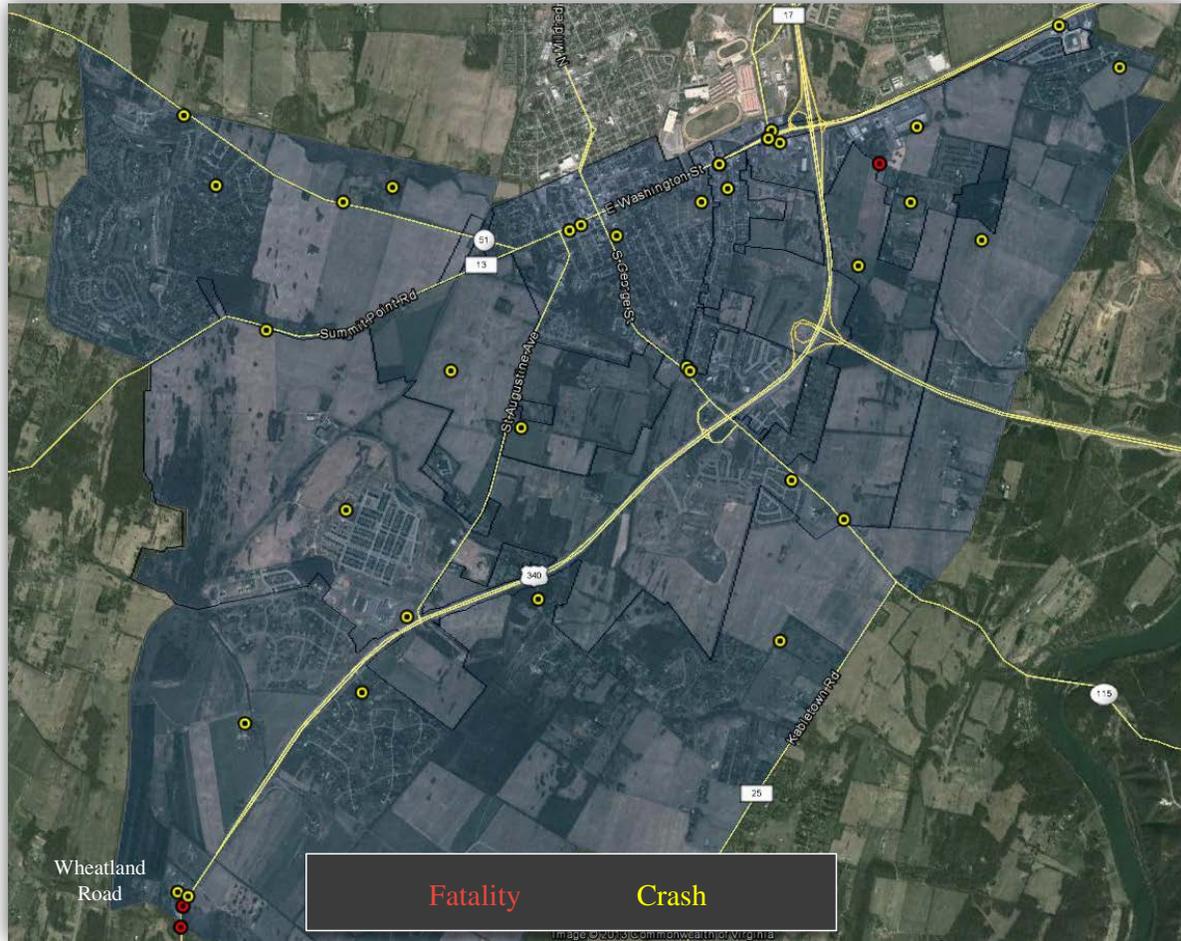
CRASH DATA

The WVDOH has recently assembled 2009-2011 statewide crash and fatality data geocoded to roadway locations. Although the data has been found to contain some geocoding errors and discrepancies with actual crash records, it still provides a valuable geographic resource for assessing potential safety issues on the transportation system. **Exhibit 19** illustrates the crash data for the areas within the City of Charles Town urban growth boundary.

The crash data indicates several areas of safety concern. At the southern end of the Charles Town urban growth boundary, there have been a significant number of crashes and fatalities just north of Wheatland Road on US 340. At this location, US 340 is a two-lane highway with a restaurant and parking area often used by trucks. The WVDOH is currently studying US 340 south and investigating the possible widening of the road to the state border. Some crashes have occurred on WV 115 (Charles Town Road) in the vicinity of the US 340 interchange. This area has been identified in the past as a safety concern due to high speeds and limited sight distances at some intersection locations. The WVDOH is currently conducting a study that may result in



Exhibit 19: WVDOT 2009-2011 Crash and Fatality Data



ASSESSING FUTURE CONGESTION NEEDS

Future traffic volume growth and congestion has been estimated using available tools and data. This includes application of the HEPMPO regional travel model and available information on truck growth based on national modeling conducted by the Federal Highway Administration (FHWA). These regional tools have provided an outlook of traffic volume growth and congestion on the higher classification roadways including US 340, WV 9, and WV51. A more detailed assessment of future development impacts on traffic has been conducted to complement the regional results. These analyses provide further insights into potential transportation needs for other roadways in the city of Charles Town including Augustine Avenue, Jefferson Avenue, and WV 115.

Regional Assessment

Pivoting off analysis work conducted for the HEPMPO LRTP, the regional travel model has been used to forecast traffic volume growth between 2010 and 2040 based on household and employment growth assumptions. Demographic growth is based on a “top-down” approach that allocated agreed upon county totals to smaller areas within the HEPMPO region. The model indicates the following roadway traffic volume growth over the next 30 years:



- US 340 East of WV 9: **+12,000-15,000** vehicles per day (includes nearly 3,000 trucks per day)
- US 340 South of Washington St: **+12,000** vehicles per day
- W. Washington Street: **+3,500-4,000** vehicles per day
- E. Washington Street: **+3,500-6,000** vehicles per day
- WV51: **+2,100** vehicles per day

The projected growth along the US 340 corridor as well as increases to through travel over the corridor will result in significant traffic congestion. **Exhibit 20** illustrates projected locations of congestion as measured by level-of-service (LOS) values (LOS E-F is considered unacceptable levels). The exhibit also illustrates areas of vehicle trip growth with darker shades of gray indicating higher trip growth locations. Within Charles Town, the travel model estimates potential traffic congestion needs along much of US 340, portions of East Washington Street near the casino and Flowing Springs Road, at the George Street intersection, and at the WV 51 / Summit Point Rd. / West Washington St. intersection.

Exhibit 20: Regional Model Projections of Traffic Congestion





Development Assessment

Based on the Section 3 assumptions for future development within the Charles Town urban growth boundary, analyses were conducted to estimate the potential traffic impact of further development. These analyses complement the regional travel model results by providing a more detailed estimate of development impacts on the local roadway system and by providing estimates of a potential “build-out” scenario. These estimates were based on the following key assumptions:

- Estimates of build-out percentages for each development for 2020 and 2035. These estimates were conducted in coordination with Charles Town city planning staff based on past development trends and current construction activities. The 2035 values provide an estimate assuming near full build-out of the planned development units.
- Trip end rates are derived from the Institute of Transportation Engineers (ITE) Trip Generation Handbook (8th Edition). This study utilizes the rates provided in Exhibits 6.5 and 6.7 the Ranson-Charles Town Transportation Fee Study. The rates are used to estimate the number of daily vehicle trip ends generated from each development based on the projected number of housing units and employment square footage.
- Assumptions on the access points of each development onto the roadway network.
- Potential origins/destinations of trips from each development are used to estimate in which direction development traffic may travel from each development access point. In many cases, it is difficult to determine exact travel paths. Generalized information has been based on locations of key commercial and employment centers near or within the city, commuting patterns based on the CENSUS LEHD data as described in Section 3, and other planning assumptions.

Exhibit 21 and **Exhibit 22** provide estimated trip end growth from each development for 2020 and 2035, respectively. These estimates illustrate the potential access and direction of the generated trips. For example, in 2020, Huntfield and the Village of Foxfield are estimated to generate 5,733 trip ends on Summit Point Road; 3,318 of which are expected to be headed to or from the city of Charles Town. In this respect, this chart indicates that total number of trip ends may increase by 3,318 (in both directions) on Summit Point Road east of these developments. The exhibits illustrate that future development will have significant impacts on the streets to which they are connected. The Huntfield and Village of Foxfield developments are two of the largest in the city and both are expected to generate high numbers of vehicle trips even before their full-build out. It is anticipated that these vehicle trips will access Augustine Avenue with future access to Summit Point Road. Assumptions have been made regarding the distribution of these trips to each of these access points.

Based on the forecasted trip end growth, an assessment of future transportation capacity deficiencies has been prepared using available traffic count data and planning level roadway capacity assumptions. The roadway capacity estimates have been derived based on information contained in *NCHRP Report 365 Travel Estimation Techniques for Urban Planning*.



Exhibit 21: 2020 Development Trip End Growth

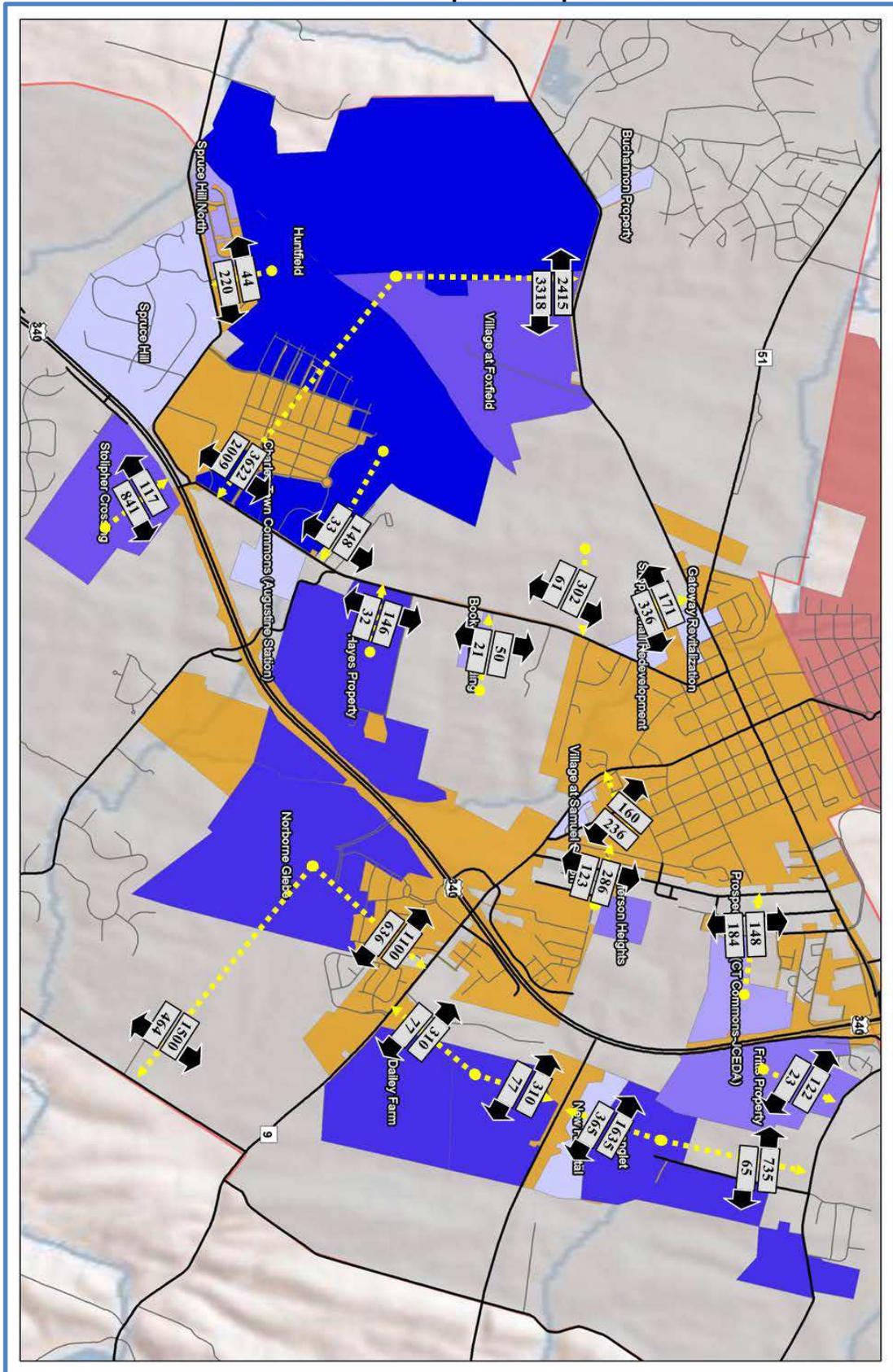




Exhibit 22: 2035 Development Trip End Growth (Full Build-Out Scenario)

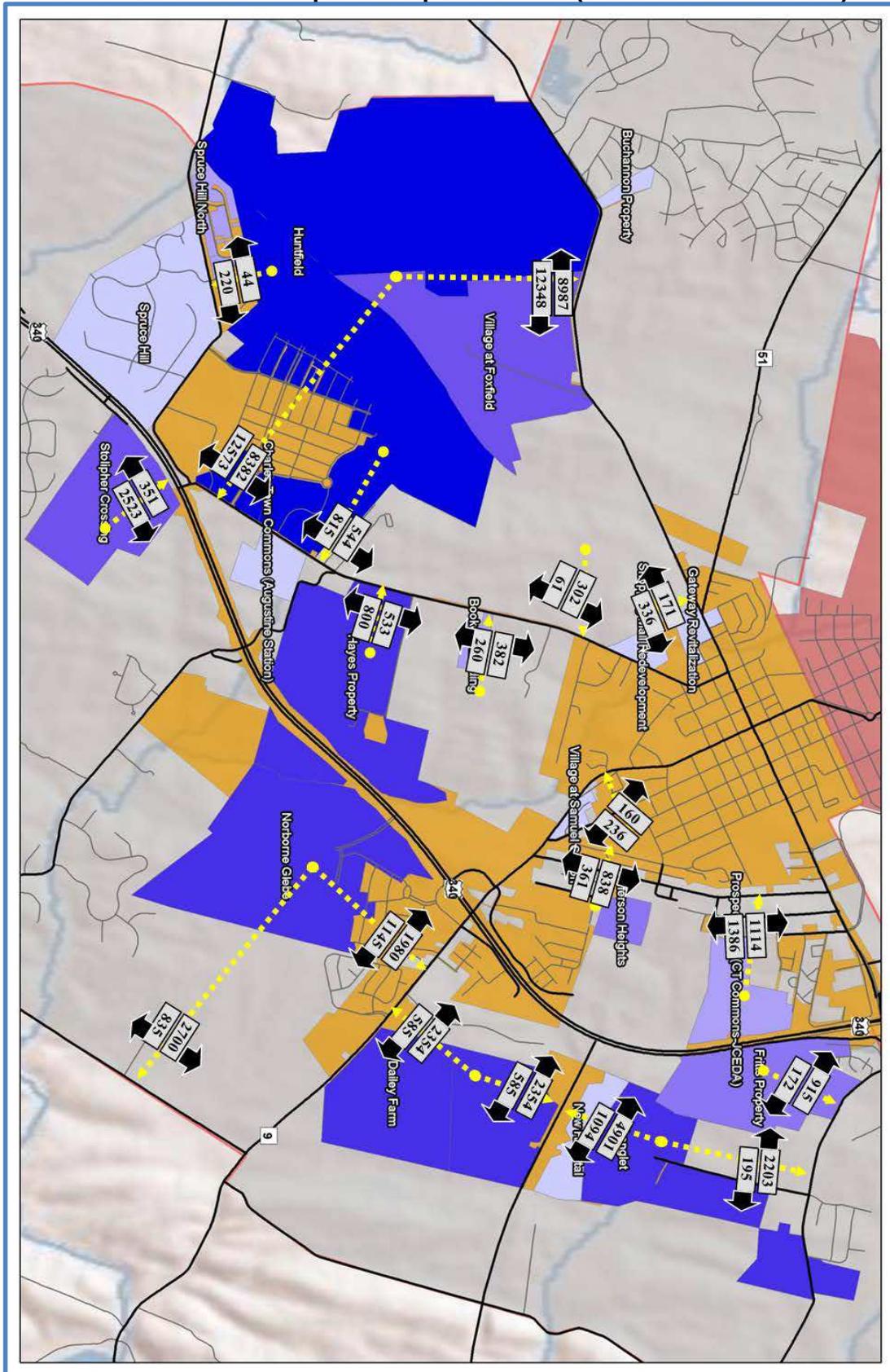




Exhibit 23A (Table) and **Exhibit 23B** (Map) summarize the roadway capacity assessment both for mid-block and intersection locations. Mid-block deficiencies indicate the potential need for additional travel lanes. Intersection deficiencies indicate the potential need for more intersection turn lanes or alternative intersection configurations and/or operation. Unacceptable values for level of service (LOS-E or F) are assumed when traffic volumes are greater than 80% of the roadway or intersection capacity.

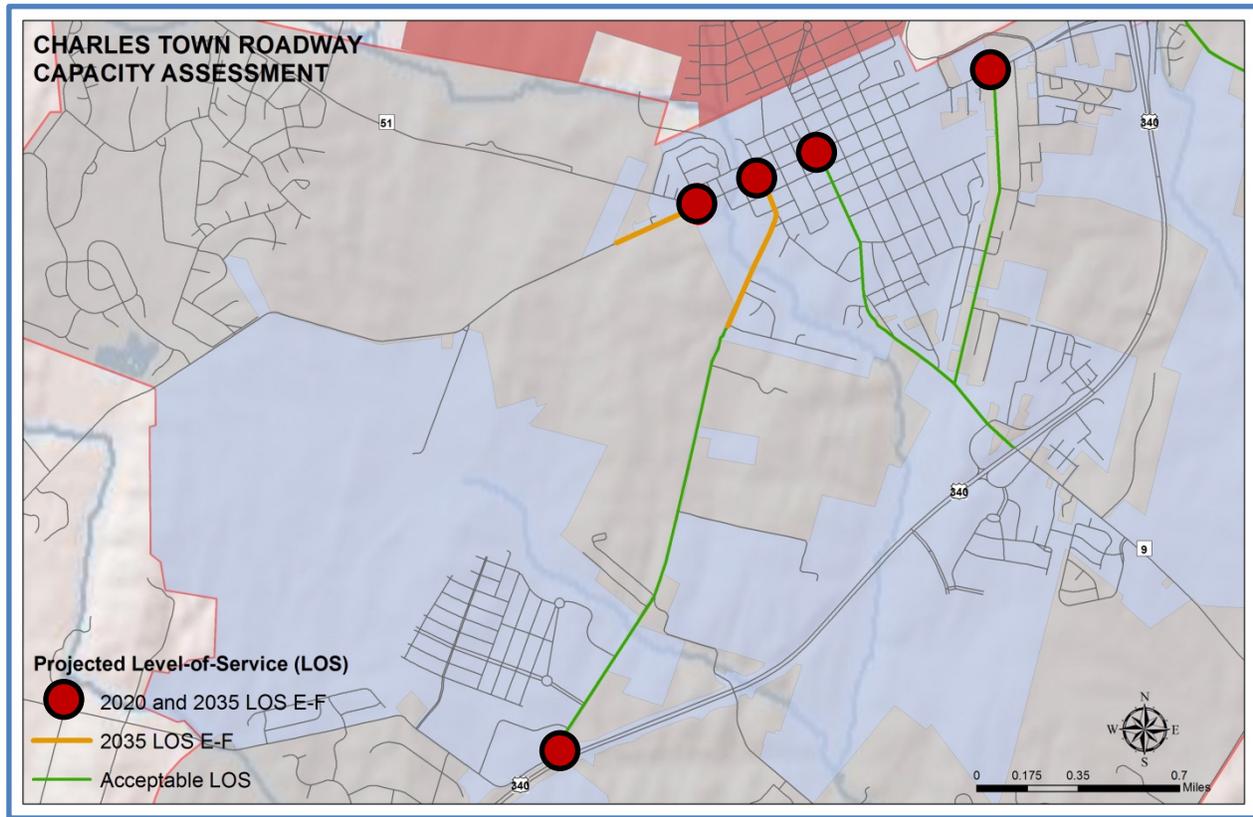
Exhibit 23A: Roadway Capacity Assessment

Roadway Location	Latest Daily Count	2020 Volume Estimate	2035 Volume Estimate	Midblock / Intersection Approach	Estimated Daily Capacity*	2020 Peak LOS E-F	2035 Peak LOS E-F
Augustine Avenue (South of Craighill Drive)	4,272	8,540 (+4,268)	14,415 (+10,143)	Mid-block	19,200	No	No (LOS D)
				Intersection with US340	8,250	Yes	Yes
Augustine Avenue (North of Craighill Drive)	4,272	8,540 (+4,268)	14,415 (+10,143)	Mid-block	16,000	No	Yes
				Intersection with Washington	5,500	Yes	Yes
Summit Point Road (East of Rail Crossing)	3,588	7,077 (+3,489)	16,107 (+12,519)	Mid-block	16,000	No	Yes
				Intersection with Washington	5,000	Yes	Yes
S. George St (N of Jefferson)	6,634	7,499 (+865)	8,961 (+2,327)	Mid-block	16,000	No	No
				Intersection with Washington	8,250	Yes	Yes
WV 115 (west of US340)	7,097	8345 (+1,248)	11,247 (+4,150)	Mid-block	19,200	No	No
				----	-----	-----	-----
Jefferson Avenue (WV115 to Washington)	6,736	7,558 (+822)	10,865 (+3,307)	Mid-block	16,000	No	No
				Intersection with Washington	8,250	Yes	Yes
Keyes Ferry Road (E. Washington to Southerly Ln)	600	1,358 (+758)	2,975 (+2,375)	Mid-block	16,000	No	No
				----	-----	-----	-----

* Based on Chapter 10 of NCHRP Report 365: Travel Estimation Techniques for Urban Planning



Exhibit 23B: Roadway Capacity Assessment



In 2020, it is not anticipated that additional through lanes will be needed on the roadways listed in **Exhibit 23A**. However, potential congestion is anticipated at many of the key intersections and these may require additional turn lanes or alternative traffic routing to provide more vehicle capacity. With the large increases in trips from Huntfield development, intersections along Augustine Avenue are of primary concern. At the signalized intersection with US 340, traffic queues on Augustine Avenue will also create both operation and safety concerns with the Huyett Road intersection. Increased traffic volumes along Augustine Avenue also create potential safety concerns for other stop sign approaches to that roadway. Future evaluations will be required to identify if traffic signals may be warranted at select locations including South West Street. It is anticipated that with future development access to Summit Point Road, this roadway will be required to service a larger number of vehicles. Key locations of concern include the rail crossing and the stop sign intersection with WV 51.

Under the 2035 build-out scenario, many of the problems identified under the 2020 scenario become even worse. Additional considerations may be needed to evaluate if potential through or turn lanes are needed along portions of Augustine Road and Summit Point Road as illustrated by the orange colored segments in **Exhibit 23 B**.



SECTION 5: RECOMMENDED PROJECTS AND STRATEGIES

This section provides recommended projects and strategies that will improve transportation mobility and safety for roadways within Charles Town's urban growth area. These strategies are based on the transportation needs presented in the previous sections and were identified in coordination with the city and county planning departments. Efforts conducted for the HEPMPO LRTP were also integrated into this planning study, including public input on transportation needs, a transit needs assessment, and a compilation of key bike/pedestrian projects within the region.

TRANSPORTATION PROJECTS

Exhibit 24 (Table) and **Exhibit 25** (Map) provide recommended transportation projects for the Charles Town transportation system. These strategies include lower-cost safety improvements, intersection signalization and reconfiguration, additional lanes on existing facilities, and new road construction to improve regional connectivity. As referenced in the exhibit, many of these projects have been identified in other recent planning efforts within Jefferson County. Several of these improvement projects extend to areas outside of Charles Town. Such projects include the WV 51 reconstruction and US 340 widening to the Virginia State Line, both of which have been identified as regional projects within the HEPMPO LRTP.

Downtown Charles Town

Washington Street and George Street in downtown Charles Town serve the highest traffic volumes within the city limits. With limited options for capacity increases, alternative strategies are needed to address potential future growth in traffic and congestion. Such projects could include alternative bypass roadways or the designation of one-way streets to improve traffic flow.

The City of Ranson has identified new roadway projects that are anticipated to provide important mobility options to improve traffic flow throughout the region. Fairfax Boulevard is currently planned for construction, providing additional north-south capacity and diverting traffic from Mildred Street. The Currie Lane and Beltline Avenue projects provide additional east-west and north-south connections that would divert traffic from Washington and George Streets in Charles Town and improve intersection operations throughout the city.

Other Locations of City Development

Future development (both housing and commercial) may have significant impacts on the operation of several key collector routes including Augustine Avenue, Summit Point Road, and Jefferson Avenue. Intersections along each of these routes are forecasted to have unacceptable levels of service. Specific projects have been identified to provide improvements at key intersection locations along these routes. As future traffic volumes increase, several additional locations may require traffic signals to allow safe turning movements from side streets during peak hours.

Based on existing analyses no significant lane increases may be required by 2020. However, under potential full-build conditions, additional lane capacity may be needed along portions of Augustine Avenue and West Street.



Exhibit 24: Transportation Projects
 (Project MAP ID does not indicate Priority Order)

Map ID	Roadway / Location	Description	Developer Funded	Identified in LRTP	In Other Studies*	Estimated Cost (\$2013)
1	US 340	Widen US340 to four lanes from existing 4-lane section to Virginia State Line.		x		\$60.0M
2	US 340 / Augustine Avenue / Huyett Road Intersections	Intersection improvements and redesign to address future traffic increases and safety concerns.		x	(1)	\$0.3M
3	Huntfield Connection to Summit Point Road	Extension of Prospect Hill Blvd north to Summit Point Road providing additional access points to the Huntfield development.	x			\$6.2M
4	WV 115	Access management and intersection improvements on WV 115 from US 340 to Mission Road. May include additional turn lanes or traffic signalization to improve safety along the corridor.		x	(1)	\$0.8M
5	North-South Roadway Connections to Hospital	Construct new roadway connecting WV 115 and Southerly Lane providing access to the new Hospital location. Includes construction of an intersection with WV 9.	x			\$6.0M
6	Hillside Drive and Barley Lane	Extend Barley Lane to provide access to Hillside Drive. Allows development access to WV 115/Hillside intersection with better sight distance for turning vehicles.				\$0.2M
7	WV 115 / Citizens Way	Intersection improvement including possible signalization to support future traffic growth and safety concerns for turning vehicles.				\$0.3M
8	WV 115 / Jefferson Avenue	Intersection improvement including possible signalization to support future traffic growth and safety concerns for turning vehicles.				\$0.3M
9	Crescent Drive and High Street Connection	Extend Crescent Drive to High Street along portions of Hale Road. Provides additional access point for traffic destined to Charles Town.				\$0.7M
10	Augustine Ave. and West Street	Intersection improvement including possible signalization to support future traffic growth and safety concerns for turning vehicles.				\$0.5M
11	Summit Point Road Rail Crossing Consolidation	Eliminate the Summit Point Road CSX and Norfolk Southern rail line crossing by rerouting Summit Point Road to a new intersection location with WV 51 west of the current at-grade crossing. This new configuration increases safety and supports future traffic growth		x	(1)	\$1.4M

* (1) Ranson – Charles Town Transportation Development Fee Study
 (2) East Gateway Study



Exhibit 24: Transportation Projects (continued)

(Project MAP ID does not indicate Priority Order)

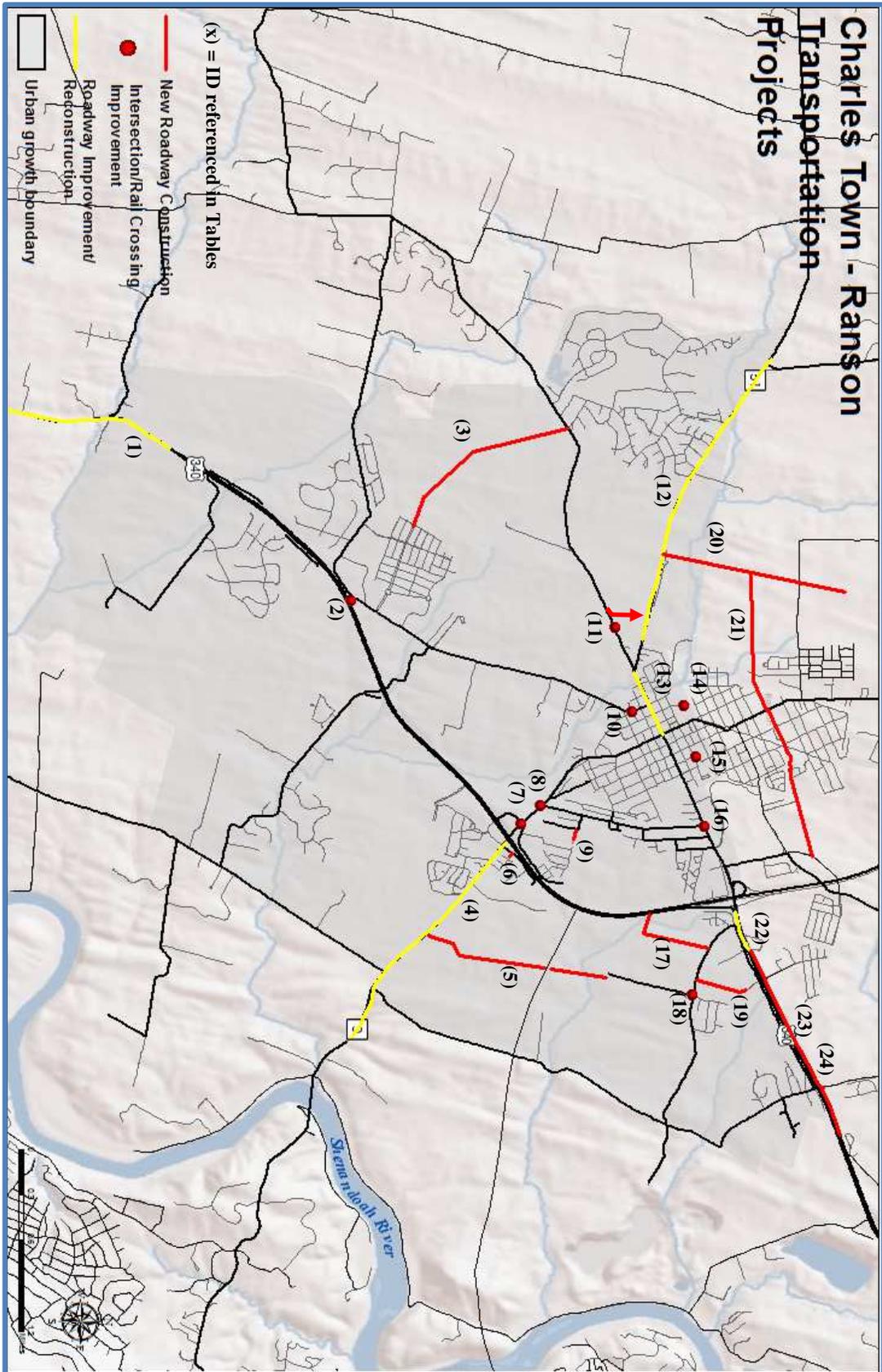
Map ID	Roadway / Location	Description	Developer Funded	Identified in LRTP	In Other Studies*	Estimated Cost (\$2013)
12	WV 51 Reconstruction	New 2-lane alignment from W. Washington Street to Berkeley County that includes intersection improvements.		x		\$9.3M
13	West Washington Street Improvements	Intersection improvements along West Washington Street from WV 51 to South George Street. Includes intersection redesign for WV 51/Summit Point Road/West Washington Street (potential roundabout) and pedestrian improvements along corridor.		x	(1)	\$0.8M
14	Lawrence St. CSX Rail Crossing	Signal upgrade or elimination of rail crossing for safety purposes.		x	(1)	\$0.4M
15	Church St. CSX Rail Crossing	Elimination of rail crossing for safety purposes.		x	(1)	\$0.3M
16	Jefferson Ave. / Washington St.	Intersection improvements to address future congestion.		x	(1)	\$4.3M
17	North-South Roadway Connection	New roadway to provide a north-south connection from US 340 to Keyes Ferry Road.	x	x	(2)	\$2.5M
18	Keyes Ferry / Southerly Lane	Intersection improvements including possible intersection signalization to address potential future traffic volume increases due to Hospital and new roadway connections.				\$0.3M
19	North-South Roadway Connection	New roadway to provide a north-south connection between Keyes Ferry Road and Somerset Blvd.		x	(2)	\$1.8M
20	Currie Lane Extension	Extend Currie Lane (possibly as 4-lane roadway) from Leetown Pike to WV 51		x	(1)	\$17.8M
21	Beltline Extension	Extend Beltline Avenue from Curie Lane to possible junction with 5 th Avenue or Sun Road. Requires multiple rail crossings.		x	(1)	\$20.1M
22	US 340 Widening	Extension of turn lanes on US 340 between WV 9 interchange and Jefferson Terrace Road		x	(2)	\$4.9M
23	US 340 Frontage Road	East-West frontage road on northern side of US 340 from Jefferson Terrace Road to Halltown Road.		x	(2)	\$9.8M
24	US 340/ Country Club Road	Construct interchange at US 340 and Country Club Road. Interchange may be located west of current intersection requiring roadway reconfiguration.		x	(2)	\$30.6M

* (1) Ranson – Charles Town Transportation Development Fee Study

(2) East Gateway Study



Exhibit 25: Map of Transportation Projects





US 340 East of Charles Town

Portions of US 340 east of Charles Town currently experience the highest congestion levels in the region. With increased development along the corridor, congestion is expected to significantly increase in future years. Within the East Gateway Study, several sections of US 340 were identified for possible capacity expansion. **Exhibit 26** illustrates the possible extension of existing turning lanes between WV 9 and Jefferson Terrace Road. This project would provide additional capacity for turning movements and may provide some reduction in vehicle queuing between the two intersections.

Exhibit 26: US 340 Turning Lane Extension (WV 9 to Jefferson Terrace Road)



Further considerations may include carrying these additional turn lanes through to where they would intersect with Patrick Henry Way. This may be particularly valuable for westbound traffic, allowing a dedicated lane from Patrick Henry Way to the US 340 ramp onto WV 9 North. In addition, the HEPMPO LRTP has discussed the possible extension of lanes west to Flowing Springs Road. This alternative may create the need for the expansion of the current overpass.

In lieu of capacity increases on other sections of US 340, many stakeholders and public comments have expressed support for an integrated frontage road system. The recommended new roads would primarily provide additional east-west options to travel through the corridor. A frontage road system may also be important in providing access to regional commercial and employment centers during peak hours, providing more flexibility to limit left turns at un-signalized intersections with safety concerns, and integrating with a bike and pedestrian trail system. Frontage roads currently exist on the southern side of US 340 from Jefferson Terrace Road to just east of Old Country Club Road. Alternatives frontage road alignments may include:

- Extending the existing frontage road to Blair Road. The extension may also include a relocation of existing portions of the roadway. This frontage road extension would provide additional access to land use growth along the corridor and provide some alternative intersection strategies at Blair Road.
- Constructing a new frontage road on the northern side of US 340. The frontage road would extend and connect to Halltown Road providing an east-west route parallel to US 340. The design and construction of this frontage road may include a portion of the bike and pedestrian trail from Charles Town to Harpers Ferry.

The design and operation of these frontage roads may serve as important access points to existing commercial development near Patrick Henry Way. These roads may serve an even greater purpose if larger scale investments are made to construct an interchange near the existing intersection at US 340 and Old Country Club Road. That scenario could include closing the US 340 at-grade intersections at Patrick Henry Way and



Jefferson Terrace Road, while providing access directly from the frontage roads. If an interchange is determined to be a long-term need priority, then efforts must begin now to preserve the right-of-way needed to construct the interchange.

TRANSPORTATION PROJECT COSTS

As shown in **Exhibit 24**, project costs have been estimated for each of the roadway projects provided in the previous section. These costs can be used to assess the economic viability of each project and the potential need for alternative funding sources. Estimating project costs can be difficult since environmental and engineering efforts have not been completed for these projects, with some 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. The costs include an estimate of ROW acquisition and include potential *Complete Streets* design standards.

TRANSPORTATION PROJECT IMPLEMENTATION

As the projects evolve through the planning process, the following key implementation steps are anticipated:

- Conduct focus studies to determine project alternatives and design elements
- Integration of *Complete Street* concepts into project design
- Incorporation of selected project alternatives into the HEPMPO LRTP
- Prioritization of projects based on future development timing and traffic growth
- Identification of potential funding sources and maintenance responsibilities for new roads

Complete Streets are important in helping town centers and main streets thrive by improving street connectivity and allowing everyone, whether commuting by 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 negatively impact 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. The City of Ranson has incorporated these concepts into the design of Fairfax Boulevard and such concepts should be stressed for future transportation projects.

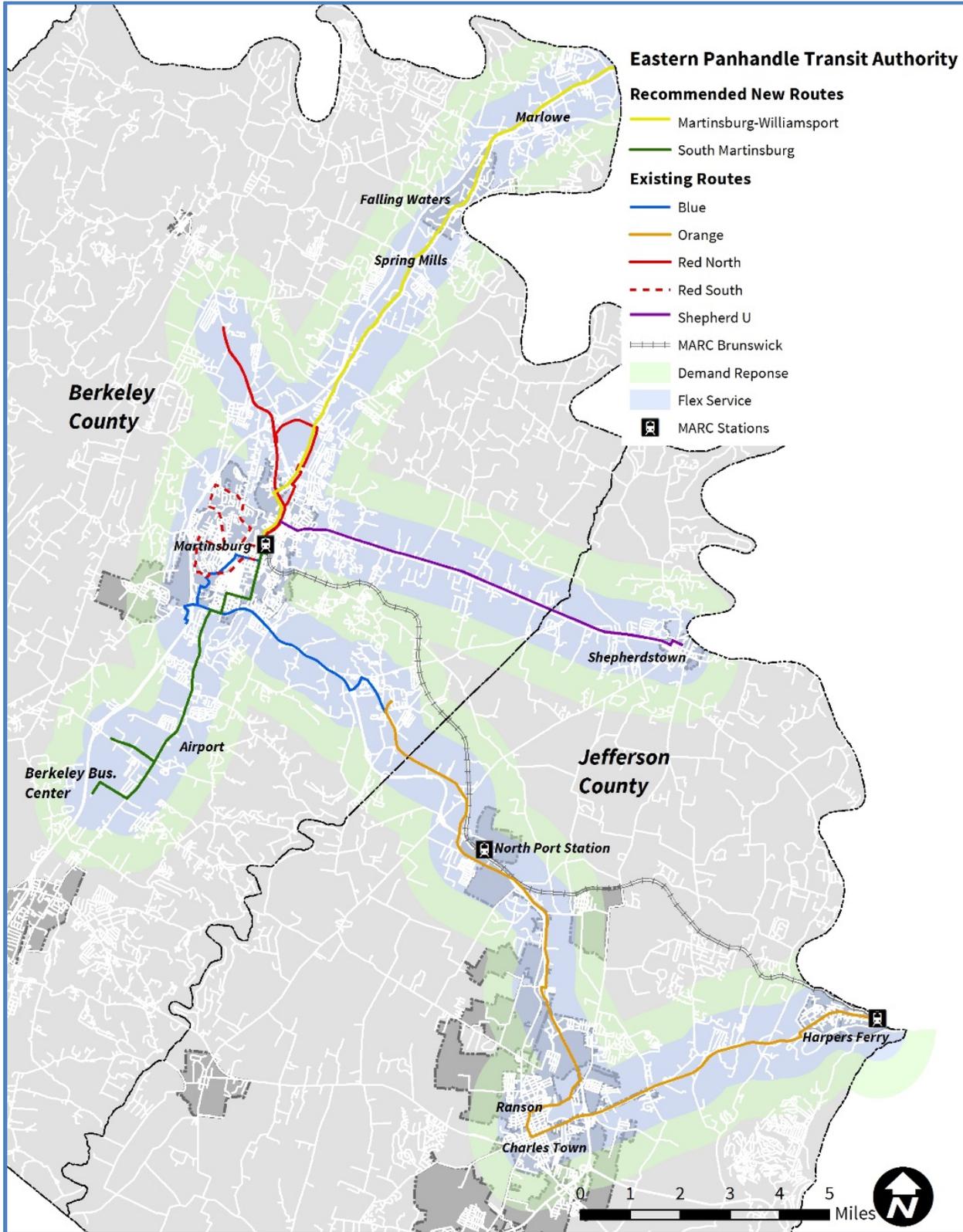
Several of the proposed improvements involve roadways not covered under the current state system (see **Exhibit 4**). These include the construction of the new roadways for Beltline Road, Currie Road, and the Southerly Lane connections. Both Ranson and Charles Town will continue to work with WVDOH in reviewing project alternatives and identifying roadway maintenance responsibilities.

TRANSIT STRATEGIES

Transit improvements can be an important strategy to address both tourist and commuting travel growth in the region. EPTA is working to identify system-wide improvements to provide better transit routes and linkages to other state and county systems in Maryland and Virginia. Future efforts will also include enhanced marketing of transit services to residents within the region. An assessment of transit strategies has been conducted for the HEPMPO LRTP. **Exhibit 27** summarizes the recommended EPTA system from that plan.



Exhibit 27: Transit Recommendations (Jefferson and Berkeley Counties)





A number of different strategies could be used to reduce gaps and better utilize agency resources in Berkeley and Jefferson Counties, including:

- Implement a new fixed-route along the US-11 corridor between Martinsburg and Hagerstown that connects the MARC stations in Martinsburg, Spring Mills, Falling Waters, Marlowe, Williamsport, and the Hagerstown downtown transit center. If coordinated with the County Commuter Williamsport Route, this route could instead terminate in downtown Williamsport, with a discounted transfer fare between the two routes..
- Implement a new fixed-route along the US-11 corridor between the Berkeley Business Center (US-11/Corning Way) and the Martinsburg MARC station, with an alignment through the Boydsville neighborhood on the east side of Martinsburg.
- Add Saturday service on the Orange Route (VA Hospital-Charles Town-Harpers Ferry).
- Improve peak period headways on all routes to 60 minutes.
- Relocate the current Duffield MARC station to the intersection of Route 9 and First Street in Kearneysville as part of the proposed North Port Station mixed-use development and connecting to the new Route 9 bike path.
- In accordance with the 2013 MARC Growth and Investment Plan, implement three additional peak roundtrips on the Brunswick Line.

In addition to the recommendations noted for each transit service, a series of coordination strategies is recommended to improve the efficiency and effectiveness of transit services in the region. These strategies include:

Coalitions

A coalition is a group of agencies and organizations that are committed to coordinating transportation and that have access to funding. The coalition should include local stakeholders, providers, decision-makers, business leaders, councils of government, users, and others as appropriate. The coalition can be either a formal or informal group which is recognized by the decision-makers, and which has some standing within the community. Coalitions can be established for a specific purpose (such as obtaining specific funding) or for broad-based purposes (such as educating local communities about transportation needs).

Common fare instruments

Common fare instruments between agencies in a single region maximize simplicity in using multiple transit services. This will become especially important when service between Martinsburg and Williamsport is implemented, as riders will now be able to transfer between two separate transit systems. While Washington County currently utilizes electronic fare cards, EPTA does not. EPTA should investigate the potential for adopting an electronic fare card system compatible with the Washington County system in order to allow smooth and simple transfers between the two systems. Coordination with MTA should be undertaken as well to allow for seamless transfers to MTA services in the region, including MTA Route 991 and the MARC Brunswick Line.

There is some coordination with EPTA and MARC with regard to the Brunswick stop in the evenings, as well as with the MARC stops in Martinsburg and Harpers Ferry. One of the major transit recommendations is to



link the EPTA system with the Washington County Commuter system. HEPMPO is currently partnering with EPTA to update their Transit Development Plan which will take a closer look at these connections.

Joint Planning and Marketing

This level of coordination involves agencies working cooperatively, either with other similar agencies or with a local provider, in order to make known the needs of their clients and become involved in the local planning and marketing of services. For example, several local human service agencies may meet with local transit planners in an area to develop operating and marketing plans which attempt to meet the needs of the agencies' clients.

On-Call Center

A shared informational telephone line provides potential users with the most convenient access to information on all transportation services in the area.

Joint Grant Applications

The transit providers in the region can agree that they will submit a single grant to the state and/or FTA for transit funding for their capital and operational needs.

Joint Training Programs

Joint training programs between agencies in everything from preventative maintenance to safe wheelchair tie-down procedures can lead to more highly skilled employees. Joint training can lead to reduced training costs for agencies that each have a specialized trainer who can be responsible for one or more disciplines. For example: one agency can provide Passenger Assistance Training (PATs), and one agency can specialize in preventative maintenance training. Agencies can also purchase special training from reputable organizations/companies and allow other agencies' employees to attend. The joint training costs are shared between the agencies.

Contracts for Service

Contracts for service are created with another human service agency or a public provider to provide needed trips. This can be done occasionally on an as-needed basis or as part of scheduled service. One example is a local Head Start program contracting for service with a local public transportation provider. The contract revenue can then be used as local match for the local public transportation provider using the same drivers and vehicles as used previously. Many times the drivers are also Head Start aides or teachers.

BIKE/PEDESTRIAN IMPROVEMENTS

As part of work efforts for the HEPMPO LRTP, bike and pedestrian projects have been compiled from previous regional and state transportation studies. The projects in the vicinity of Charles Town are illustrated in **Exhibit 28** (Map) and **Exhibit 29** (Table). Public input conducted for the LRTP indicated significant support for bike and pedestrian projects in portions of Jefferson County. Specific public comments noted the need for paths and trails between Charles Town and Harpers Ferry as well as improved bike and pedestrian access to the high school off Augustine Avenue.



Exhibit 28: Bike and Pedestrian Projects from HEPMPO LRTP

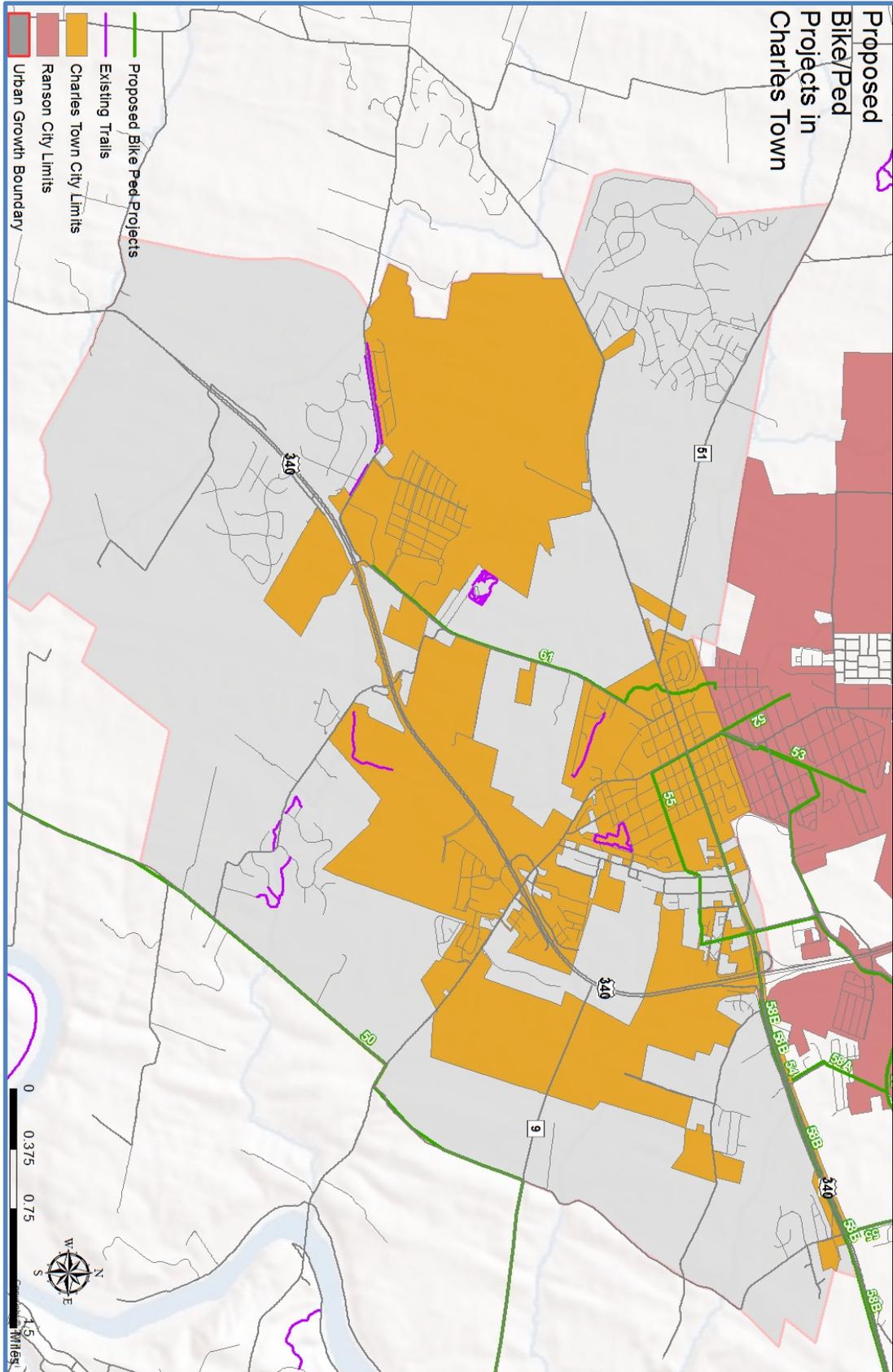




Exhibit 29: Bike and Pedestrian Projects from HEPMPO LRTP

Map ID	Location	Type	Limits	Source
50	CR 25, WV 9, CR 27, WV 340	WV Bike Route	VA state line to MD state line at Shenandoah River	WV Statewide Bicycle Route Connectivity Plan
52	George Street	Bike Lanes	City limits to Fairfax Boulevard	City of Ranson Comprehensive Plan (2002)
53	Fairfax Boulevard	Bike Lanes	George Street to Ranson City Limits	City of Ranson Comprehensive Plan (2002)
54	US 340	Shared Use Path	Charles Town to Harpers Ferry	US 340 Corridor Study
55	Old Country Club Road	Shared Use Path	Charles Town to Harpers Ferry	US 340 Corridor Study
58A	Harpers Ferry - Charles Town Trail	Multi-Use Trail	Charles Town to Harpers Ferry	1999 HEPMPO Study
58B	US 340 Parkway	Paved bike path	Charles Town to Harpers Ferry	US 340 East Gateway Study and Public Input
61	Augustine - Evitts Run	Proposed Trail	Evitts Run Park to US 340	City of Charles Town