Chapter 4:
Analysis of the Transportation System

This chapter provides an overview of the regional transportation system's current condition and performance and identifies future needs. All modes are addressed, including roads, transit, bicycle/pedestrian facilities, air, rail and waterways. This chapter also discusses the transportation issues that cut across multiple modes: freight movement, systems operations and management, safety and security.

Streets and Highways

This section describes the regional road network and the process used to model future roadway conditions based on the forecasted changes in population and employment discussed in Chapter 2. Roadways that are currently congested, or are projected to be congested in future years, are identified here in a series of maps. Proposed roadway improvements to address the anticipated congestion, outlined in this section, have been developed and tested with the regional travel demand model. These projects, along with proposed timeframes for their implementation, form the basis for the roadway portion of this Plan.

FUNCTIONAL CLASSIFICATION SYSTEM

As in all urban areas, the system of streets and highways in the Fayette/Raleigh MPO follows a hierarchy of functionality, also known as a functional classification system. At the top of the hierarchy are **Interstates** 77 and 64. These two **limited-access highways** run concurrently north-south through the region as the West Virginia Turnpike, a tolled facility. On the south side of Beckley, I-77 heads directly south toward North Carolina, while I-64 runs east-west to cross the New River Gorge National River parklands toward the eastern edge of the region.

The second level in the hierarchy is **arterial routes**, which often are designed with limited or no access in order to more effectively move thru-traffic. U.S. Highway 19 is an excellent example of a principal arterial route, serving as a spine which connects the urban areas of Fayetteville, Oak Hill, Mount Hope and Beckley. West Virginia Highway 16, which closely parallels it, functions as a minor arterial that carries significant volumes of traffic but provides more access to adjoining properties. Other examples of arterials in the region include:

- US 60, which runs across northern Fayette County between Charleston and White Sulphur Springs before joining I-64;
- WV 612, which links Oak Hill and the U.S. 19 corridor with the West Virginia Turnpike; and
- WV 3, which passes through Beckley as it runs east-west across Raleigh County.

Next are **collector** streets, which serve an intermediate function of collecting trips to and from the arterials and distributing them among local streets. Regional examples of collectors include Thurmond-McKendree Road and the loop through northwest Raleigh County that is formed by Maple Fork Road and WV 3.

The primary function of **local** streets, which are at the bottom of the hierarchy, is to provide access to individual properties. As one moves up the hierarchy from local to collector to arterial to Interstate, speeds generally increase and there is a corresponding decrease in access provided to adjoining properties.

Figure 4-1 shows the road network for the MPO region categorized by functional classification. Among these highways, the most heavily traveled routes are of course the West Virginia Turnpike and Interstates 77 and 64, as well as the US 19 corridor. Very high traffic volumes (above 20,000 vehicles per day) are also recorded on WV 16 (Robert C. Byrd Drive) in Beckley near its intersection with US 19 (Eisenhower Drive), and south of its intersection with WV 3 (Harper Road).

Figure 4-2 illustrates the routes in the MPO area whose Average Daily Traffic (ADT) exceeds 10,000 according to recent counts by the WVDOH.

ROADWAY CAPACITY AND TRAFFIC CONGESTION

Traffic flow along a given roadway is often presented in terms of volume-to-capacity ratio (V/C), i.e. the volume of traffic that the road is carrying compared to its maximum capacity. A roadway's capacity is based on its functional classification, number of lanes, posted speed limit, percent of truck traffic, and geometric characteristics. Volume-to-capacity thresholds vary by the functional class of the facility and whether it is classified as urban or rural.

Higher V/C ratios indicate there are a higher number of vehicles relative to the road's capacity. For example, a V/C ratio of 0.70 means that about 70 percent of the road's available capacity is being used. As the V/C ratio nears 1, it means that the traffic volume is almost equal to the maximum number of vehicles the road can carry. Locations that have high V/C ratios are therefore almost certain to be experiencing traffic congestion and delay.

Figure 4-3 shows the V/C ratios on the area's roadway network for the base year of the regional travel demand model (2010). As can be seen, the majority of roadway capacity deficiencies are currently occurring in the urban areas of Beckley and Oak Hill. This is not to say that drivers are not encountering delays on other roads, especially due to poor weather, oversized vehicles, special events and even daily events, such as lowered speeds that are required at certain times of day in school zones. What Figure 4-18 represents are roadway sections that experience congestion and delays for a considerable portion of the day on most days.

Figure 4-1: MPO Roadway Network by Functional Classification

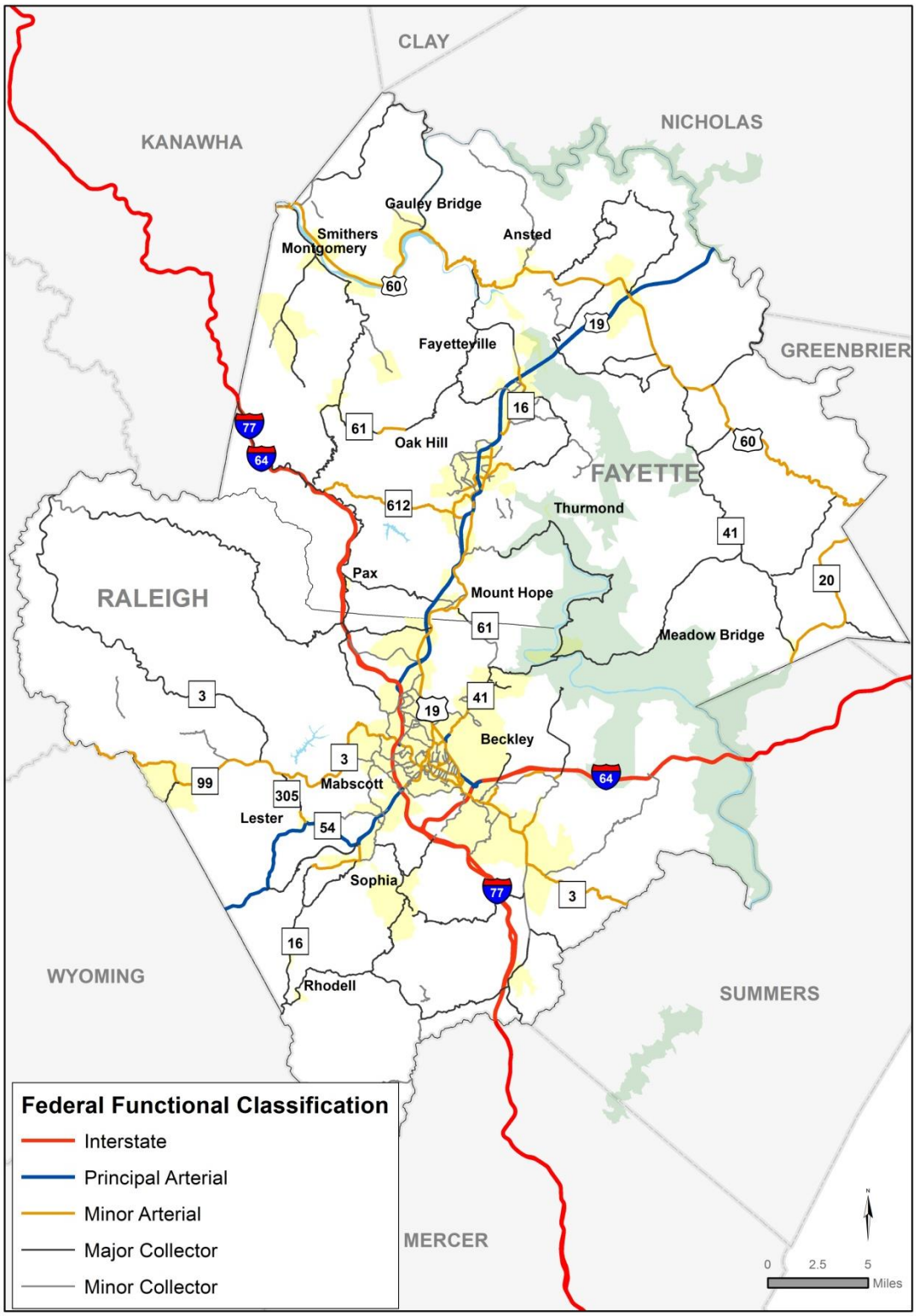
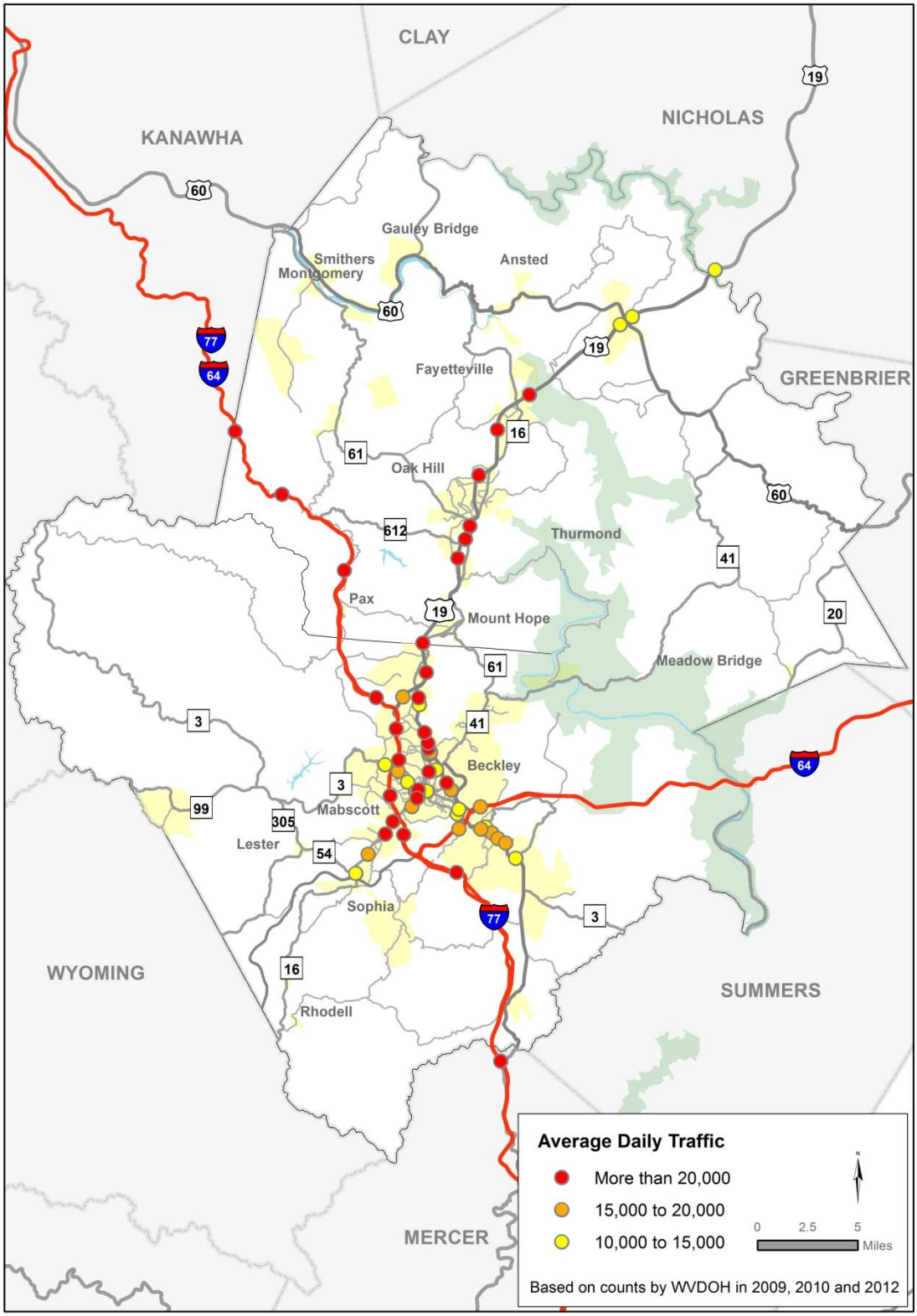


Figure 4-2: Locations with Average Daily Traffic (ADT) Greater Than 10,000



Figures 4-3 and **4-4** provide a closer look at the particular areas in Beckley and Oak Hill where current demand exceeds roadway capacity for at least portions of the day. It is important to note that a higher V/C ratio does not necessarily mean a higher total number of vehicles are traveling on that roadway. High V/C ratios may be a result of having a two-lane road serving an area where there is sufficient traffic demand for a four-lane facility.

The most significant capacity deficiencies in Beckley are found on several sections of US 19, including:

- Between Prosperity Road and the junction of US 19 and WV 16 (Robert C. Byrd Drive);
- Along the heavily commercialized portion of Eisenhower Drive, between Ragland Road and Interstate 64, where serious traffic congestion has been a motivating factor for building the East Beckley Bypass;
- Ritter Drive on the south/east side of I-64, especially between Airport Road and WV 3 (Hinton Road), passing through the Beaver, Daniels and Shady Springs areas.

Traffic issues are also experienced on WV 16 (Robert C. Byrd Drive) on the southwest side of Beckley, resulting in major traffic delays for drivers traveling between Mabscott and Sophia.

In addition, as noted in Chapter 2, Beckley leaders have identified the lack of east-west connectivity as a continuing concern for the city. The regional traffic model confirms this through the high V/C ratios found along the WV 3 (Harper Road) corridor. The demand for travel between downtown Beckley and the I-77 / Harper Road interchange has clearly outstripped the existing roadway capacity.

Roadway capacity problems are less widespread in Oak Hill, where the population is not as large and access control along US 19 provides thru-traffic with a more efficient path to travel. Capacity issues appear primarily on the section of WV 16 that passes through Oak Hill as Main Street.

Figure 4-3: Base Year Volume/Capacity Ratios on Area Roadways

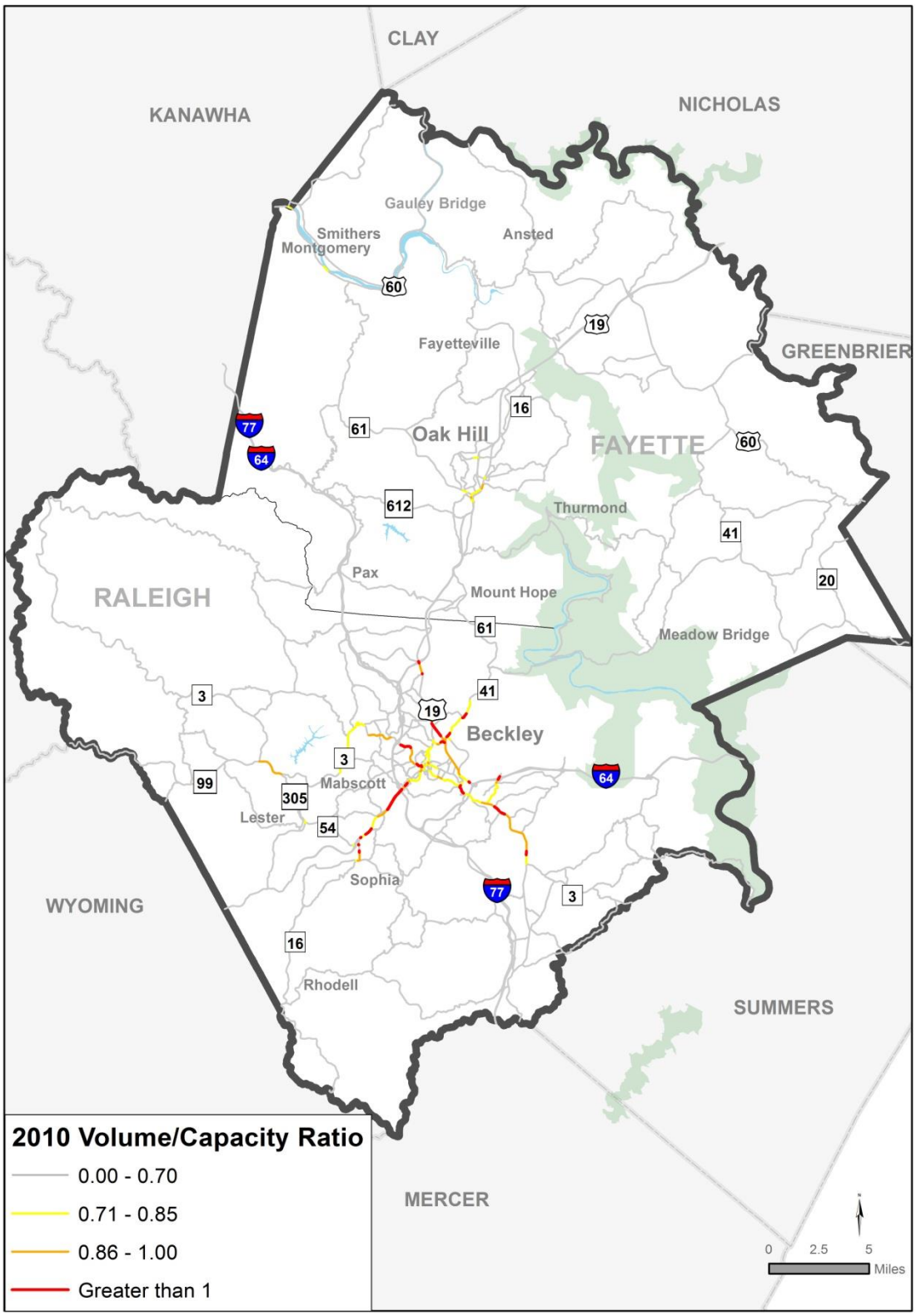
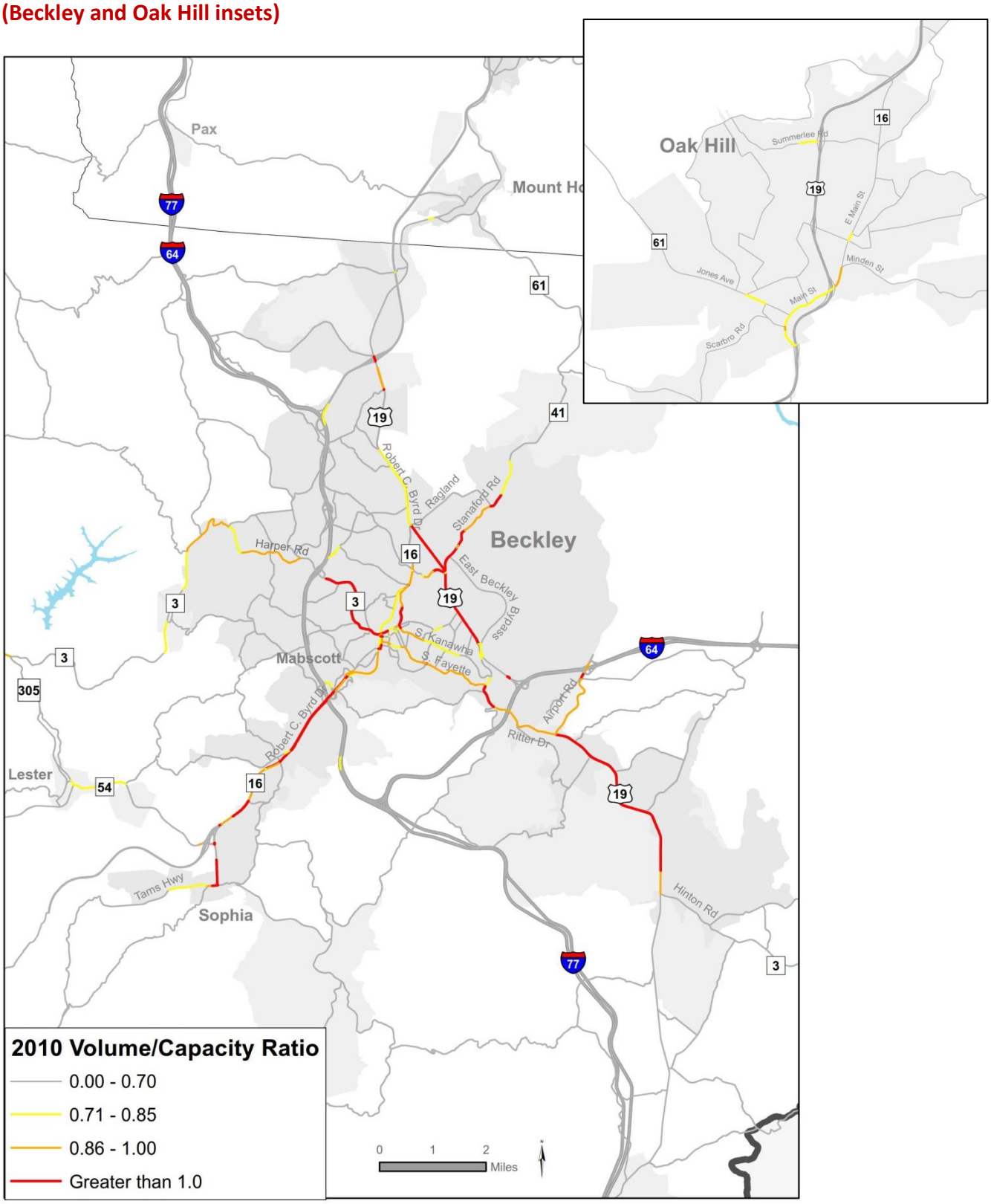


Figure 4-4: Base Year Volume/Capacity Ratios on Area Roadways

(Beckley and Oak Hill insets)



FORECASTING ROADWAY PERFORMANCE

The Fayette/Raleigh MPO's travel demand model is the tool used to identify and analyze future roadway congestion problems. The model essentially divides the region up into various traffic analysis zones for purposes of forecasting. As discussed in Appendix A, forecasts were developed for future population and employment for each traffic analysis zone, then used as key inputs into the model. The model's outputs are an approximation of travel demand between zones, or how many people are expected to travel between home, work or school, shopping, doctor's office, and other destinations.

Zones will generate varying levels of traffic based on the numbers of jobs and/or homes they contain. Future traffic projections are also affected by the types of development in a zone. For example, a major regional shopping center will attract several types of trips, including shoppers, the employees who work at the stores, trucks who bring in the food and goods that are sold there, and even the trucks that take away the trash.

Once the level of travel demand is predicted for each zone, the model "loads" the appropriate number of trips onto the existing roadway network. Zones with high travel demand require roadways that have higher capacity, which would typically be an interstate, arterial street or collector street. In zones where population or employment is growing, a roadway may not be able to meet the additional travel demand without capacity improvements – a term which generally includes the addition of new travel lanes, new and modified interchanges, new roadways and roadway extensions. By using the travel demand model, the MPO can make predictions about which roadways will need capacity improvements, and how soon.

More information about the travel demand model can be found in **Appendix A,** which provides a very detailed explanation of the process and data used to update and calibrate the MPO's model.

EXISTING + COMMITTED PROJECTS

Even when a new transportation plan is developed, there are always some roadway improvements that are already in some stage of being constructed or are far enough along in development that they are essentially "committed" to be completed. When a travel demand model is being used, the first step in analyzing future roadway conditions is to identify the "Existing + Committed" (E+C) transportation network. This establishes a no-build condition which serves as the benchmark for identifying future roadway capacity needs and for evaluating the performance of planned projects. In this case, the model's base year is 2010, so the E+C network consists of new or modified roads completed since 2010, plus projects that are funded for construction in the current Transportation Improvement Program.

The region's E+C network includes two major portions of the "Z-way" package of transportation improvements proposed for the Beckley area and the completion of the Raleigh County portion of a long-planned Appalachian Development Highway Corridor:

- The **East Beckley Bypass**, a five-lane highway from I-64 (Exit 124) to WV 41 (Stanaford Road), completed in late 2011;
- The **Industrial Drive Connector**, which will extend the East Beckley Bypass from WV 41 to Industrial Drive where it intersects with WV 16 (Robert C. Byrd Drive); and
- Connecting the existing portion of the **Coalfields Expressway** from Slab Fork to Mullens.

Based on the addition of these three projects to the roadway network and the forecasted population and employment growth, the model was used to project roadway system deficiencies anticipated to occur by the year 2040.

FUTURE ROADWAY CONDITIONS

Future Roadway Conditions Without Additional Improvements

Figure 4-5 depicts the conditions anticipated in future years if the region does not make any roadway capacity improvements after completing the committed projects described above.

Traffic volumes will increase along the West Virginia Turnpike, although not to the point of capacity deficiency. Congestion is expected to increase along Robert C. Byrd Drive in northern Beckley, as well as through the Mabscott area as traffic increases on the Coalfields Expressway. Travel conditions will also worsen for drivers on US 19 (Ritter Drive), particularly near I-64.

However, the completion of the Industrial Drive Connector is expected to result in improved traffic flow in downtown Beckley, on North Eisenhower Drive and along Stanaford Road, with a moderate increase in the number of drivers using Robert C. Byrd Drive north of the Industrial Drive Connector.

As shown in **Table 4-1**, the total number of hours spent driving in congested conditions is expected to increase more than 40 percent by the year 2040, compared with the roadway system's performance in the base year. Much of the additional delay is projected to occur on the urban portions of the Turnpike and along major routes in unincorporated areas.

Figure 4-5: 2040 Existing + Committed Volume/Capacity Ratios on Area Roadways

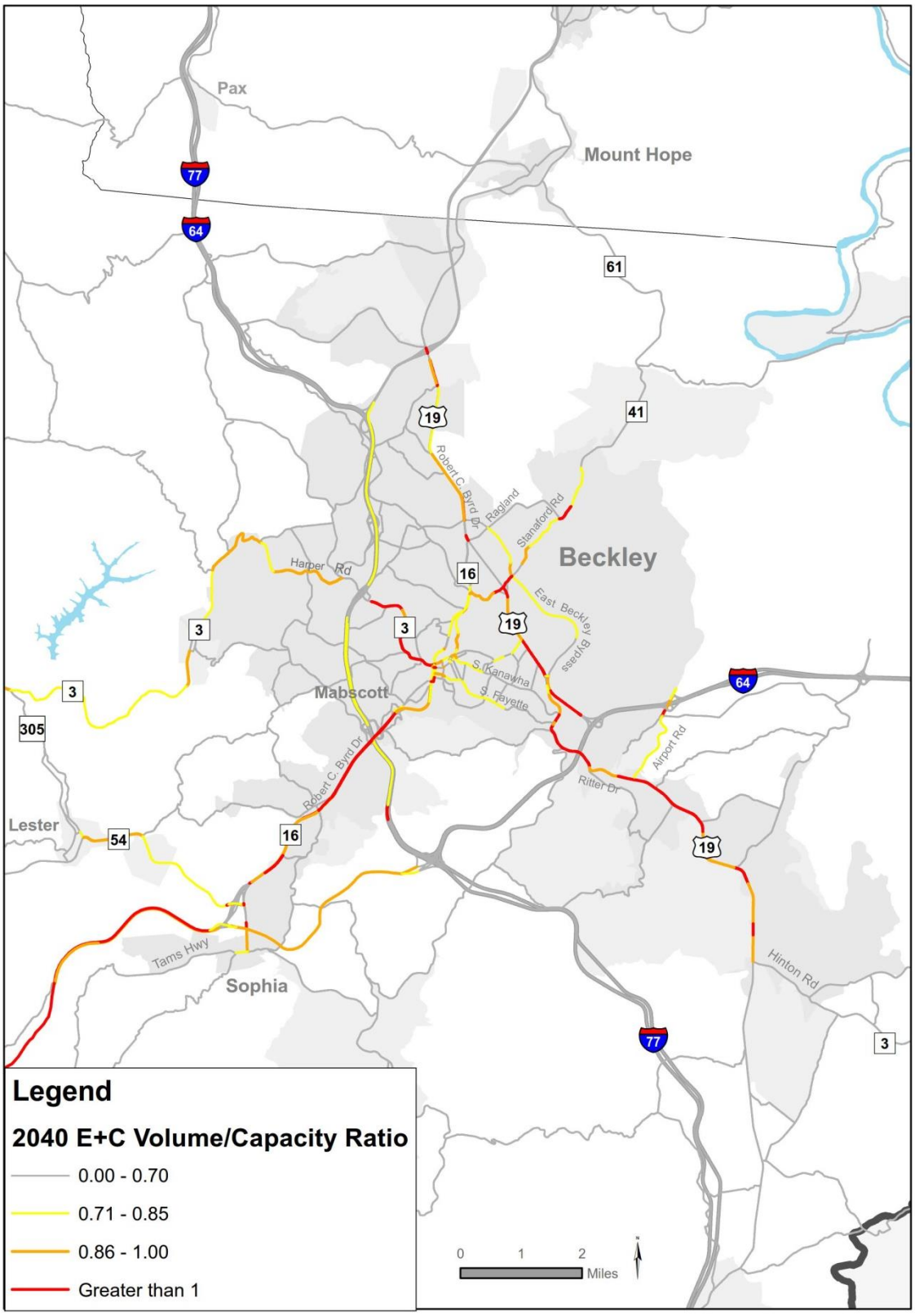


Table 4-1: Vehicle Hours of Delay, 2010 versus 2040 Existing + Committed Network

Roadway Functional Class	2010 Base Year Network	2040 Existing + Committed Network	Percent Change
Freeways	**633**	**1,173**	**85 %**
Arterial Highways	**6,409**	**6,199**	**- 3 %**
Collector Routes	**2,289**	**5,996**	**162 %**
TOTAL	**9,331**	**13,368**	**43 %**

RECOMMENDED ROADWAY PROJECTS

The list of projects on the following pages (**Tables 4-2** through **4-4**) is proposed to address future roadway capacity deficiencies, improve traffic operations, and support important goals identified in adopted local and regional plans.

Projects with numbers beginning with "N" represent new roads or major road widenings which will significantly expand the capacity of the network. Projects with numbers beginning with "T" are recommended operational improvements which may range from modification of traffic signals, intersection improvements or increased access management. Although operational projects typically do not provide as much additional roadway capacity as a new or widened road, they can often be implemented at lower cost, with less impact to adjacent property, and more quickly. (For further discussion of operations and transportation system management, see the pages immediately following this section.)

Note that major projects may be initiated earlier than the period for which they are listed to be completed. For example, preliminary engineering is beginning now for the widening of US 19 (Ritter Drive), but given the size of the project and number of properties involved, the project is unlikely to be complete until after 2020.

- **Table 4-2** lists projects proposed for completion during 2017-2026.
- **Table 4-3** lists projects proposed for completion during 2027-2035.
- **Table 4-4** lists projects proposed for completion during 2036-2040.

Figure 4-6 shows volume/capacity ratios for the region's roadway network in the year 2040, reflecting conditions after the recommended projects have been implemented. Compared with the 2040 E+C scenario, the recommended plan helps relieve congestion along WV 16 (Robert C. Byrd Drive) in north Beckley as well as along US 19 (South Eisenhower Drive and Ritter Drive) near the interstate. While the model indicates that heavy traffic will persist along WV 16 (Robert C. Byrd Drive) in the Mabscott area, WV 3 (Harper Road), and US 19 (Ritter Drive) south of WV 307, the proposed operational improvements will help to manage traffic flow and congestion at peak times.

Table 4-2: Roadway Projects Proposed for Completion in 2015-2020

PROJ NO	ROADWAY	FROM	TO	MILES	COUNTY	TYPE OF IMPROVEMENT
N-5	East Beckley Bypass Industrial Drive Connector	WV 41 (Stanaford Rd)	Ragland Rd.	1.4	Raleigh	New 4-lane highway
N-3	New River Parkway - Section 2	South of Richmond Bottom	Falls Branch	5.3	Raleigh	Construct new 2-lane scenic parkway
N-4	Coalfields Expressway	Wyoming/Raleigh County line	Slab Fork	5.5	Raleigh	Pave remaining section
T-1	WV 3 (Harper Rd)	Dry Hill Rd	Hylton Ln	0.1	Raleigh	Signal operations / Widening - add NB right turn lanes onto Hylton Ln and Pikeview Dr
T-2	WV 3 (Harper Rd)	Dry Hill Rd	Carriage Dr	1.5	Raleigh	Signal operations
T-3	WV 3 (Harper Rd) at Ewart Ave	-	-	-	Raleigh	Intersection Improvement - Align Ewart and N Pike, add SB left turn lane
T-4	Beckley Crossing Shopping Center	WV 16	US 19 (N Eisenhower Dr)	0.2	Raleigh	Roadway Improvement (signs and marking)
T-6	US 19 (N Eisenhower Dr)	WV 16	Dunn Dr.	0.6	Raleigh	Signal operations
T-8	WV 16 (Robert C Byrd Dr)	Reading St	Old Eccles Rd	0.5	Raleigh	Signal operations
T-11	WV 3 (Ritter Dr) at Airport Rd	-	-	-	Raleigh	Intersection improvement
T-12	WV 307 (Airport Rd)	800 ft N of Whispering Pine Dr	Scott Ridge Rd	1.0	Raleigh	Add northbound truck climbing lane

Table 4-3: Roadway Projects Proposed for Completion in 2021-2030

PROJ NO	ROADWAY	FROM	TO	MILES	COUNTY	TYPE OF IMPROVEMENT
N-1	US 19 (Ritter Dr)	WV 3	WV 307 (Airport Rd)	2.4	Raleigh	Widen from 2 to 3 lanes
N-2	US 19 Connector / Beaver Bypass	WV 307 (Airport Rd)	I-64	1.3	Raleigh	Construct new 3-lane highway with overpass at WV 307
N-7	New River Dr	WV 16 (Robert C. Byrd Dr)	Pikeview Dr	1.9	Raleigh	Widen from 2 to 4 lanes with full shoulders
T-7	US 19 (Eisenhower Dr)	WV 41	I-64 overpass	0.4	Raleigh	Add passing lanes on significant grades

Table 4-4: Roadway Projects Proposed for Completion in 2031-2040

PROJ NO	ROADWAY	FROM	TO	MILES	COUNTY	TYPE OF IMPROVEMENT
N-8	Crosstown Connector	New River Dr/Pikeview Dr	VanKirk Dr	0.4	Raleigh	Construct 4-lane overpass across I-64/77 to Tamarack
N-6	East Beckley Bypass Extension	Ragland Rd.	US 19 (Bradley)	4.1	Raleigh	Construct new 4-lane highway
N-9	New River Parkway – Section 3	Falls Branch	I-64 interchange at Sandstone	3.3	Raleigh	Construct new 2-lane scenic parkway, including bridge over the New River

Figure 4-6: 2040 Recommended Plan — Volume/Capacity Ratios on Area Roadways

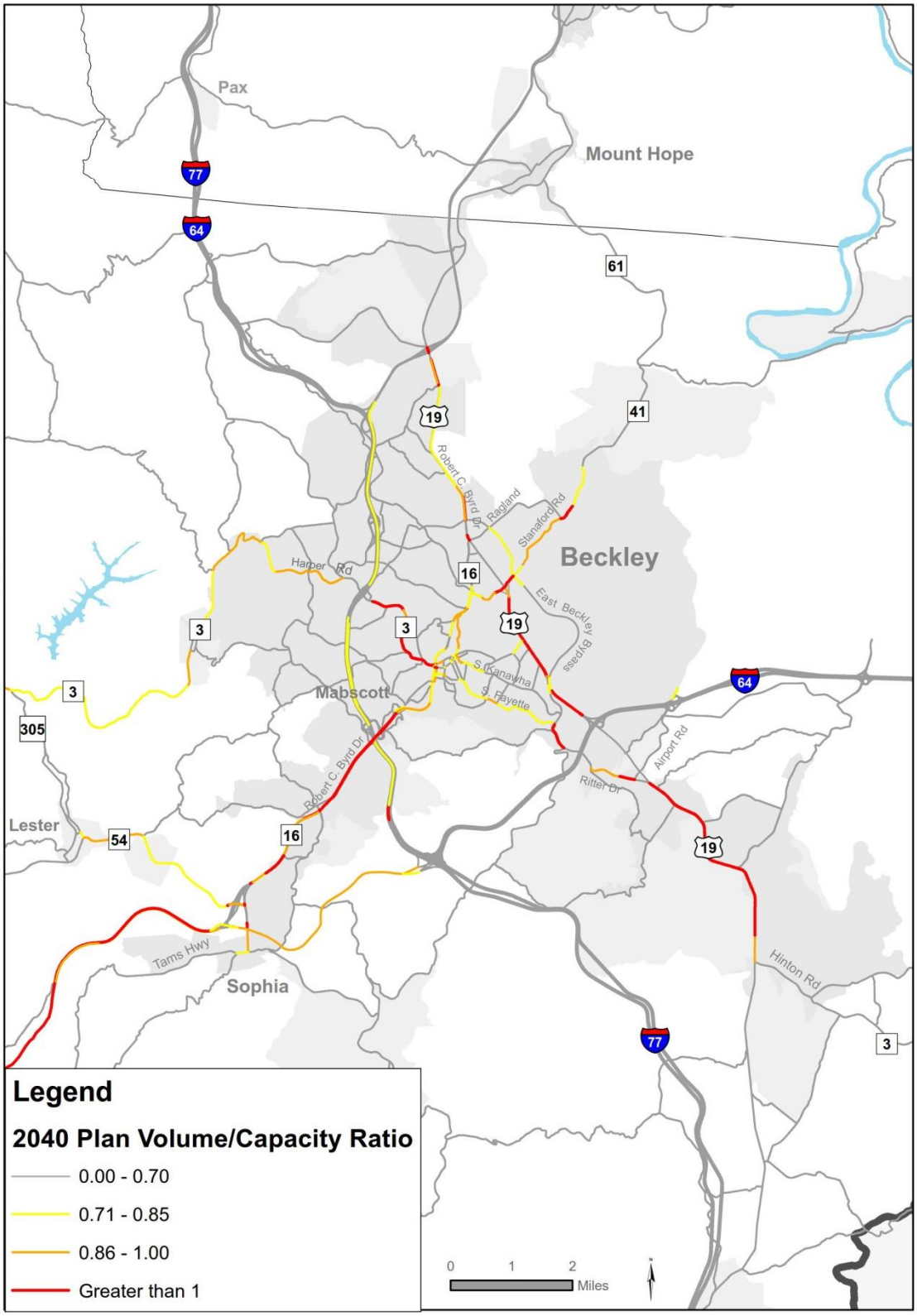


Table 4-5 shows the improvement in regional transportation system performance in the year 2040 after the implementation of the roadway projects in the Plan. Nearly 450 hours of delay will be saved annually for drivers in the Fayette/Raleigh region, primarily on the arterial and collector roads that serve residents and businesses.

Table 4-5: Reduction in Projected Vehicle Hours of Delay by 2040 Recommended Plan

Roadway Functional Class	2040 Existing + Committed Network	2040 Recommended Plan	Hours of Delay Eliminated
Freeways	**1,173**	**1,126**	**47**
Arterial Highways	**6,199**	**5,917**	**282**
Collector Routes	**5,996**	**5,878**	**118**
TOTAL	**13,368**	**12,921**	**447**

Operations and Systems Management

In an era of reduced budgets, transportation agencies are placing increased emphasis on the efficient management of the existing transportation system, as opposed to adding new roadway capacity. There are a wide range of approaches that can be used as lower-cost, lower-impact solutions to congestion. In some cases they may completely eliminate the need to add roadway lanes; in other cases, they extend the useful life of the road and allow an agency to postpone a major widening project. Some approaches involve the use of advanced technology, while others simply require communication and cooperation.

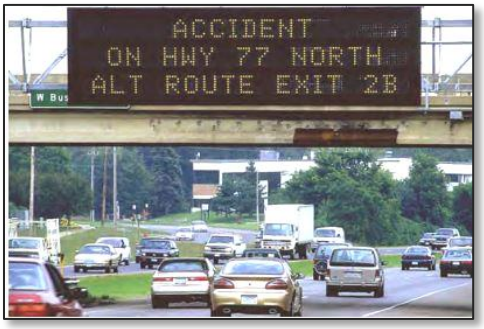
INCIDENT MANAGEMENT

FHWA estimates that up to a third of our highway congestion is caused by incidents such as crashes, roadway debris, construction work zones, bad weather, and special events. Often the congestion resulting from a primary incident causes secondary incidents, such as rear-end crashes from drivers who were slow to notice the line of stopped traffic, or vehicles overheating or running out of fuel while waiting for the primary incident to be cleared. Given the cost of delay and the risk of secondary incidents, it is clear why state and local officials have begun to increase their focus on roadway incident management.

Courtesy Patrol. The state contracts for operation of a Courtesy Patrol which operates roadside assistance trucks on more than 800 miles of interstate and Appalachian Corridor routes in 30 counties, working seven days a week between 3 p.m. and 7 a.m. Routes patrolled within the MPO region include I-64 from the I-77/I-64 junction eastward in Raleigh County, and US 19 in both Raleigh and Fayette counties.

The Patrol maintains a statewide dispatch center (located in McDowell County) that sends the nearest truck to assist motorists who have run out of gas, need directions or help in changing a flat tire, or are in need of first aid. Patrol drivers also remove hazardous debris reported in the roadway and assist with traffic management during incidents as well as in scheduled work zones. The contract is managed by DOH and funded by the state Tourism Commission.

Incident Management Plans. The DOH has developed an Emergency Traffic Control Plan that is followed when necessary to divert traffic from the Turnpike. While this is not a regular occurrence, the recent intensity of freeze/thaw cycles experienced in southern West Virginia has resulted in a growing number of rock slides along the Turnpike. Chemical spills and major traffic accidents also require the occasional closure of the Turnpike at affected locations. The traffic that would normally use the interstate must then travel on other routes in the counties through which the Turnpike passes.



WVDOH

Because of the large volume of tractor-trailers that use the interstate, an effective detour route must meet certain dimensional standards. According to the Turnpike Emergency Control Plan, detour routes must have lanes at least 11 feet wide, grades of 8 percent or less, vertical clearance of 14 feet and 6 inches, and curves that can be safely traveled by a vehicle that is 73.5 feet in length. Detour routes should also provide basic motorist services, such as places to purchase food and gasoline.

Although there are a number of opportunities to exit the Turnpike between Charleston and Beckley, most of the intersecting routes do not meet the detour requirements. US-19 in Fayette and Raleigh counties is therefore a designated detour route for a 45-mile stretch of the Turnpike between Exit 85 (Chelyan) in Kanawha County and the I-77/I-64 junction located on the south side of Beckley.

Given the importance that US 19 plays in the MPO area, the addition of interstate traffic to this busy corridor certainly creates disruptions in local transportation patterns. The Emergency Traffic Control Plan states that when detours are necessary, the state's Traffic Management Center will alert law enforcement and local officials for assistance in traffic control at intersections, especially where US 19 passes through busy commercial areas or downtowns.

INTELLIGENT TRANSPORTATION SYSTEMS

Intelligent Transportation Systems (ITS) refers to the use of advanced technologies to manage the existing transportation system more effectively, improve its efficiency, and to make the system more user friendly.

A variety of ITS technologies are in use in the MPO region, ranging from dynamic message signs that display motorist advisories to automatic vehicle locator (AVL) systems that allow the Raleigh County Community Action Association to know where its transit vehicles are at any given moment.

Closed-circuit cameras installed at strategic locations on I-77, I-64 and and US 19 send video footage back to DOH's state Traffic Management Center and the Parkway Authority's Traffic Operations Center to allow monitoring of traffic conditions.

Table 4-6 provides a list of key ITS technologies currently used in the region.

Table 4-6: ITS Equipment Used in the MPO Region

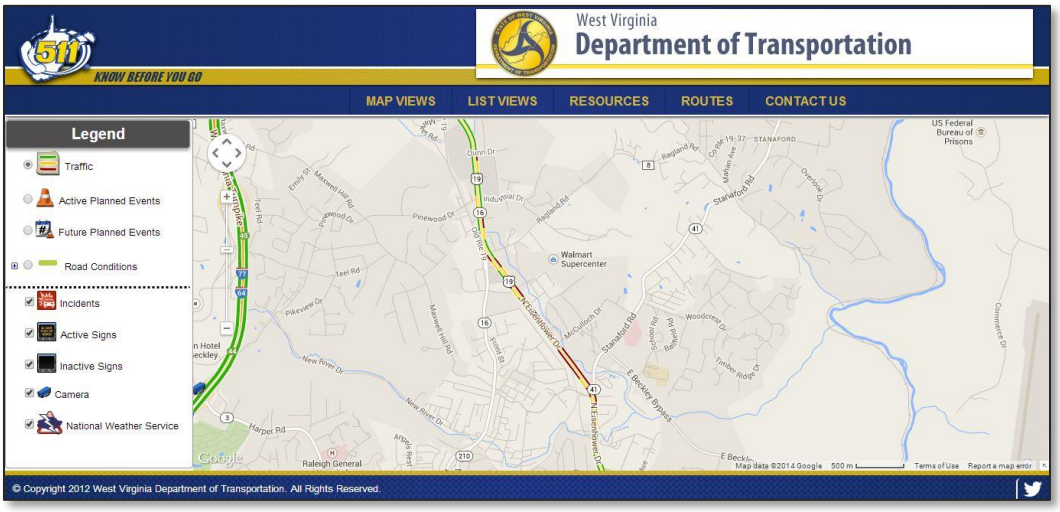
Type	Location	Purpose
Electronic Toll Collection (EZ Pass)	Turnpike, at toll plazas	Allows motorists and truckers to pay tolls electronically instead of with cash, reducing need to stop at toll plaza
Automatic Vehicle Location (AVL)	On RCCAA transit vehicles throughout Raleigh County	Real-time vehicle tracking so that a central dispatch can determine location or re-route a vehicle if needed
Dynamic Message Signs	I-77 southbound: • Mile Marker 81.9 near Fayette/Kanawha county line • Mile Marker 75.8 • Mile Marker 55.8 • Mile Marker 36.5, near WV County Route 19/41 • Mile Marker 26.4, near Flat Top Road I-77 northbound: • Mile Marker 68.3 • MM 58.5 • MM 55.8 US 19: • North of Appalachian Heights Road	Advise drivers of important road conditions. Examples: caution is needed ahead, a detour is required, or a certain exit is closed.
Closed circuit video cameras	On I-77: • Mile Marker 44 (WV 3 / Harper Road interchange) • US 19/N. Beckley interchange • Mile Marker 74 (WV 83 / Paint Creek Road interchange) On I-64: • Mile marker 125, near the WV 307 / Airport Road interchange On US 19: • Appalachian Heights Road • Glen Jean interchange • New River Gorge Bridge	Monitor traffic conditions at a remote operations center. Provide real-time video footage on public website.

Traveler information

West Virginia has implemented a statewide 511 system allowing travelers to access information about road and weather conditions by phone. Similar information is made available on the WVDOT's website in both list and map formats.

The WVDOT's 511 website (right) offers real-time maps showing the location of reported incidents, current traffic conditions (color-coded from green to red, construction work zones, and weather-related issues.

Within the MPO region, this real-time information is available for the I-77, I-64 and US 19 corridors.



Website: www.wv511.org

Signal coordination

In most regions, the traffic signal system is one of the best opportunities to make significant improvements to congestion at a relatively low cost. Proper signal coordination can greatly improve traffic flow along urban highways by reducing delay and the number of stops. Signal coordination can also decrease intersection crash rates, reduce rear-end conflicts, and reduce crashes during turning movements at signalized intersections.

However, the proper functioning of the system requires regular maintenance. Signal timing must be updated periodically as new access points are added along a road, or when development changes result in new traffic patterns. In addition, signal coordination requires individual traffic signals to be linked by a communications system, controlled by a central computer. Older signals often do not have the necessary electronic equipment to be connected in this way.

Currently WVDOH operates a coordinated system for several traffic signals along the Eisenhower Drive portion of US 19. This Plan recommends that the MPO work with WVDOH to evaluate the need for coordinated signal control on other parts of the corridor, especially given the role that US 19 is expected to play when it is necessary to divert Turnpike traffic to the corridor. A number of traffic operations projects have been recommended for near-term implementation as part of the proposed roadway projects shown in Table 4-2.

ACCESS MANAGEMENT

A road's operational efficiency and safety can be significantly affected by the way it is designed. This is an important issue to consider as various road projects in the 2040 Plan are implemented, particularly if the region wants to preserve the capacity that is being added through those projects.

Each time a vehicle makes a turn, it increases the number of potential conflict points with other vehicular movements on the same road, and thus increases the crash risk. A driver making a left turn across oncoming traffic is in a particularly vulnerable position: in addition to the potential for being struck from the side by an oncoming vehicle, the driver is also at some risk of being rear-ended or struck at an angle by vehicles traveling in the same direction as the driver and approaching from behind.

The potential severity of such a crash is much greater on a higher-speed road, and its risks are multiplied when the road is a multi-lane highway. Some multi-lane highways are designed with a center two-way left turn lane, particularly in areas with extensive commercial development on either side of the road. There are some benefits to having this center lane. It provides a place for a left-turning vehicle to move out of the main flow of traffic while waiting to complete the left turn, which helps reduce delay for vehicles approaching from behind, as well as the risk that they will strike the turning vehicle.

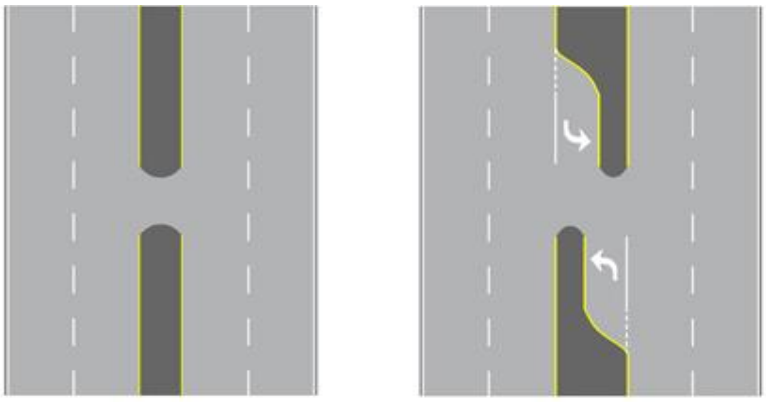
However, the center lane also introduces new risks, including the potential for a crash with other vehicles trying to move into the center lane for the same purpose. Having a continuous two-way left turn lane also means that drivers must contend with the possibility of having another vehicle move directly into their path at any given location along the road. This effectively slows the speed at which they can safely travel, particularly if they must periodically brake to avoid left-turning drivers.

Medians

Medians serve an important safety purpose on multi-lane roadways by providing a clear physical separation between bi-directional traffic. Medians also improve traffic flow by limiting left turns across oncoming traffic to a small number of designated locations.

At locations where there are frequently multiple vehicles waiting to turn left, turn bays are provided to allow turning vehicles to move out of the travel lane until there is an opportunity to cross, so that other motorists are not delayed behind the vehicle that is waiting to turn. (See **Figure 4-7**.)

Figure 4-7: Median Crossover Designs (from *Model Inventory of Roadside Elements:* FHWA, 2010)



WVDOH's policy does not permit new median openings on divided highways unless it is proven through a traffic impact study that they are necessary and that the new opening will not degrade the highway's level of service for thru-traffic.

Driveway Management

As noted earlier in this chapter, roads are classified according to their function. The primary purpose of low-speed roads is to provide property access, whereas higher-speed roadways provide few access points because their primary purpose is to carry thru-traffic. On higher-speed roads, therefore, there should be fewer driveways overall.

Driveway management on arterial routes can yield considerable operational benefits, allowing traffic speeds to improve as much as 15 to 20 miles per hour. **Figure 4-8** shows there is also a significant safety benefit. Statistics indicate that an arterial road with 10 driveways per mile has 30 percent fewer crashes than a similar road that has 20 driveways per mile.

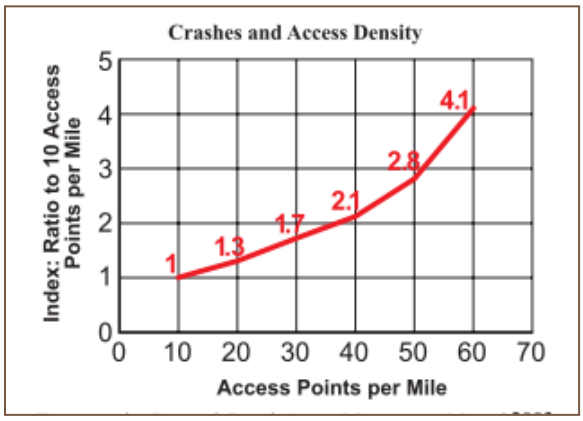


Figure 4-8: Relationship between a road's crash rate and the number of access points per mile. From the Transportation Research Board's *Access Management Manual* (2003).

In order to create a new driveway on a state route, the property owner must first apply to WVDOH for a permit. WVDOH then reviews the proposed number of driveways as well as their location and design against its regulations, which were adopted in 2004 in order to preserve operational capacity and safety on public roads.

Generally, a property with 50 feet or less of road frontage is allowed one driveway. No more than two driveways are permitted for a single property unless a traffic study shows that additional driveways would improve traffic operations on the adjoining highway. Driveways must be located so that drivers have a certain minimum sight distance, which varies according to the speed of traffic on the adjoining highway.

Implementation

The best opportunity to achieve good access management is when a new road is being constructed, or when a major road widening project is scheduled so that driveway locations can be adjusted during construction. Local and state officials should work with adjoining property owners to discuss driveway locations during the engineering/design phase of the road project.

To preserve efficient and safe traffic flow along US 19 in Fayette County, it is very important for state and local officials to work together to maintain existing access management policies as new development occurs. Better access management should also be a goal along the commercial areas of WV 16 (Robert C. Byrd Drive) and US 19 (Eisenhower Drive, Ritter Drive) in Raleigh County.

Freight

Although many people think most often about the transportation system in terms of their commute to and from work, it plays a vital role in a strong economy by providing efficient movement of freight and goods. Nearly 175 million tons of freight, valued at $55 billion, is shipped from West Virginia annually.

The U.S. Bureau of the Census periodically collects data on freight shipments through the Commodity Flow Survey, most recently performed in 2012. While data at the metropolitan level had not been released in time for use in this plan, many trends impacting the Fayette/Raleigh MPO region can be understood through the state-level data that has been made available. The West Virginia Department of Transportation is also undertaking a statewide freight plan which will include additional data collection and provide an opportunity for the MPO region to participate in developing future strategies.

TOP COMMODITIES AND TRANSPORTATION MODES

West Virginia uses rail to transport a much greater percentage of its total freight tonnage than the U.S. as a whole: 57 percent for the state versus only 16 percent nationally. This is largely due to coal's continued importance in the state's economy. As shown in **Table 4-7**, coal makes up more than three-fourths of the total freight tonnage shipped from West Virginia annually, and is also the top commodity ranked by value.

However, most of the other major commodities being shipped from West Virginia – either by tonnage or by dollar value – are predominantly transported by truck. Trucks are expected to continue to dominate the transport of goods in West Virginia for the next 25 years, according to the Federal Highway Administration's Freight Analysis Framework projections, carrying an additional 70% of freight tonnage by 2040. In light of these trends, it is critical to continue investing in the regional freight network, and to manage congestion on US 19, WV 16, WV 3 and other major routes that trucks use to access the interstates that run through the region.

Table 4-7: Top Commodities Shipped from West Virginia, by Tonnage

Commodity Code	Description	Pct of Total Tonnage	By Truck	By Rail
15	Coal	76%	15%	71%
12	Gravel and Crushed Stone	6%	99%	-
31	Non-metallic Mineral Products	4%	83%	17%
19	Other Coal and Petroleum Products	2%	44%	*
20	Basic Chemicals	2%	66%	29%
26	Wood Products	2%	99%	-
32	Base Metal in Primary or Semi-Finished Form	2%	95%	-
24	Plastics and Rubber	1%	41%	58%

Source: U.S. Bureau of the Census, 2012 Commodity Flow Survey (CFS). All other commodities are less than 1 percent of total tonnage. The symbol * indicates values not reported in the 2012 CFS due to data confidentiality or other issues.

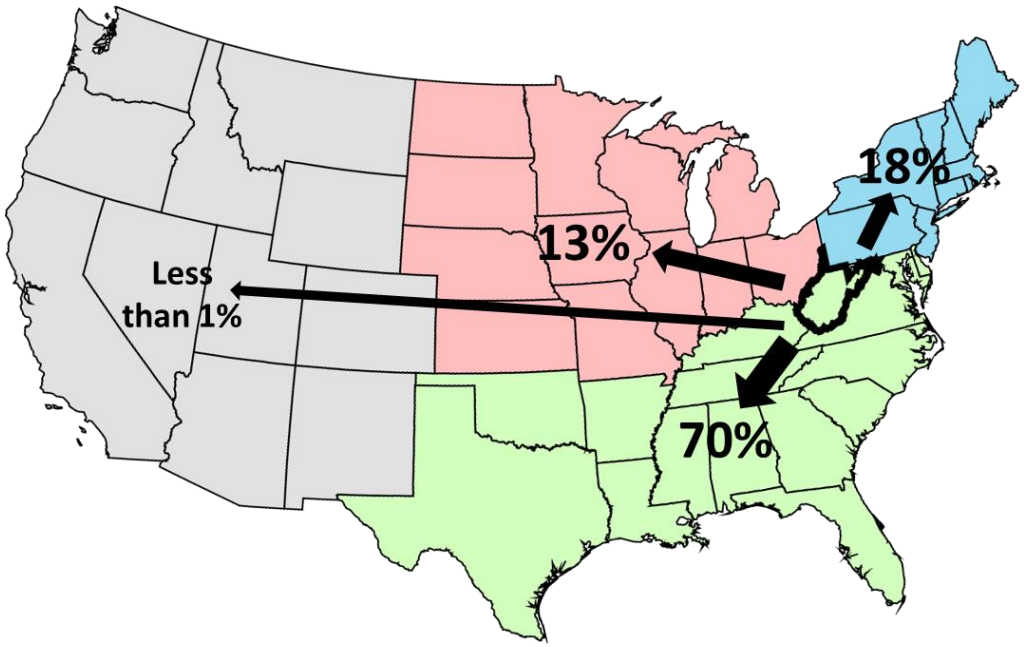
Table 4-8: Top Commodities Shipped from West Virginia, by Dollar Value

Commodity Code	Description	Pct of Total Value	By Truck	By Rail
15	Coal	17%	15%	71%
21	Pharmaceutical Products	13%	100%	-
32	Base Metal in Primary or Semi-Finished Form	7%	95%	-
20	Basic Chemicals	7%	66%	29%
34	Machinery	7%	98%	-
24	Plastics and Rubber	6%	41%	58%
19	Other Coal and Petroleum Products	5%	44%	*

Source: 2012 CFS. All other commodities are less than 5 percent of total value.

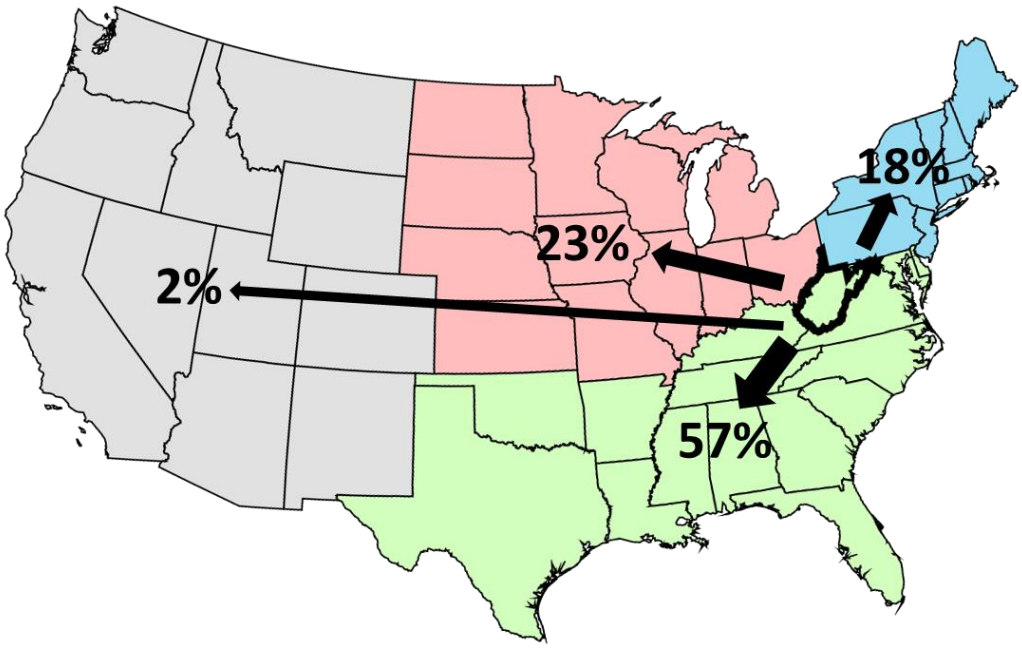
A majority of freight shipped from West Virginia is headed for destinations in the U.S. South, as shown in **Figures 4-9** and **4-10**, which underscores the statewide importance of efficient traffic flow on Interstates 64 and 77. In fact, a 2011 report by the Institute for Trade and Transportation Studies (ITTS) named Virginia and North Carolina among the state's top trading partners.

Figure 4-9: Freight Shipments by Tonnage from West Virginia to U.S. Regions



Source: Calculated from 2012 CFS data.

Figure 4-10: Freight Shipments by Dollar Value from West Virginia to U.S. Regions



Source: Calculated from 2012 CFS data.

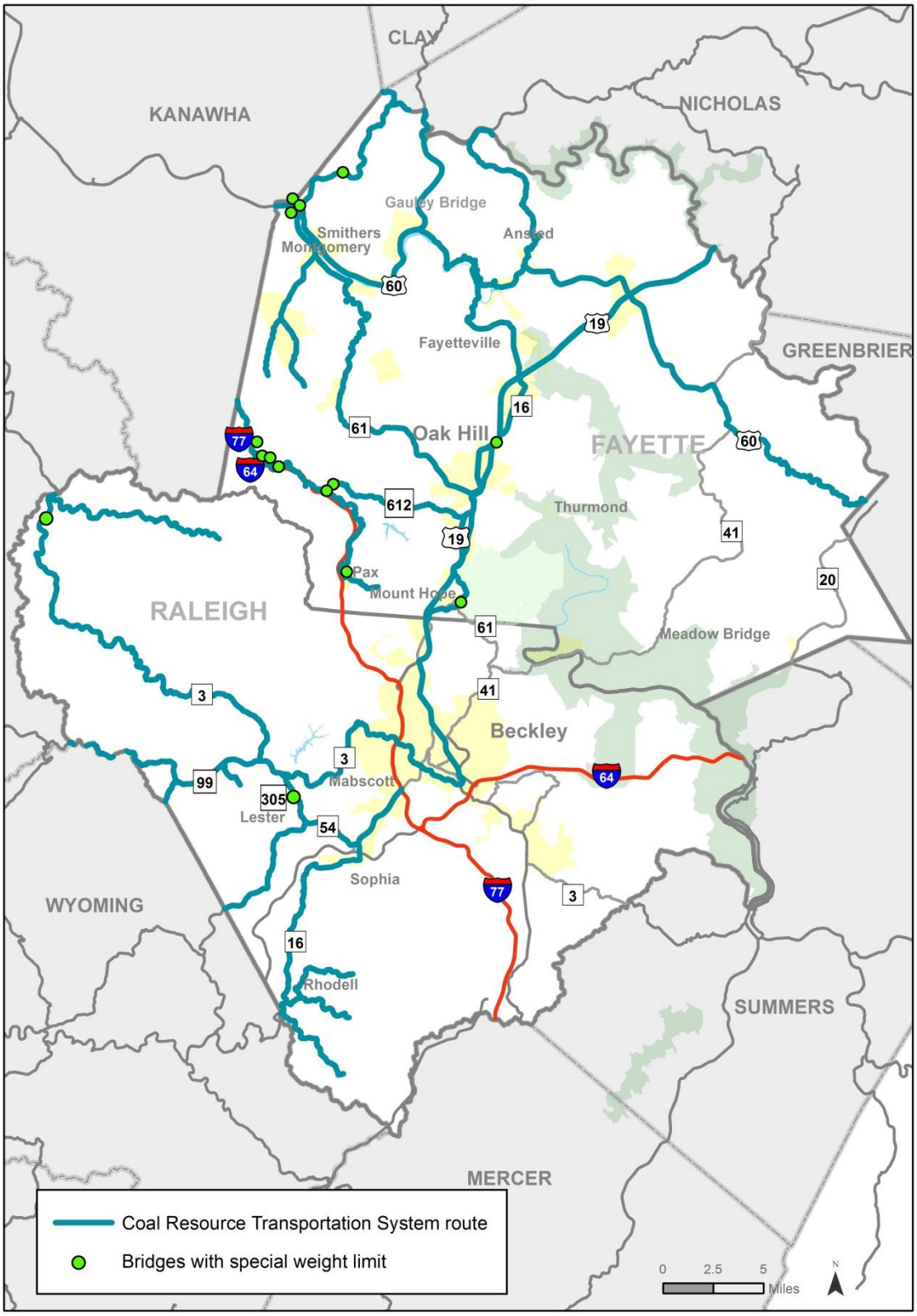
REGIONAL ISSUES

This Plan recommends operational improvements at several locations which could help to address challenges stemming from a mix of heavy truck traffic with local and tourist automobile traffic. Particular problem spots include the I-77 interchanges at WV 3 (Harper Road) and WV 16 (Robert C. Byrd Drive) in Mabscott. Traffic flow at these interchanges is affected by the close spacing of other major roads, making it essential to establish and maintain proper signal timing. At the I-77/WV 16 interchange, heavy trucks also encounter a steep grade as they approach from the southwest, which may become more problematic as traffic volumes increase after the Coalfields Expressway is completed. Residents and local businesses near the I-64/Airport Road interchange indicated that heavy trucks encounter problems attempting to use WV 307 East (Scott Ridge Road), which has very narrow lane widths and sharp curves in certain locations. Measures could include modifying the existing overhead sign for WV 307 West to indicate it leads to US 19. Local officials may also wish to consult with WVDOH about potential vehicle restrictions for WV 307 East.

Coal Resource Transportation System (CRTS)

Certain designated roads in Fayette and Raleigh counties are part of the Coal Resource Transportation System (CRTS), established in 2003. On these routes, coal haulers may purchase a permit to allow a Gross Vehicle Weight (GVW) of up to 120,000 pounds depending on their truck configuration. Permit fees are deposited into the Coal Resource Transportation Fund, a special account used by WVDOH to match funds provided by coal companies and other parties to repair and improve the CRTS system of roads and bridges. Bridges marked in **Figure 4-11** have special gross maximum vehicle weight limits.

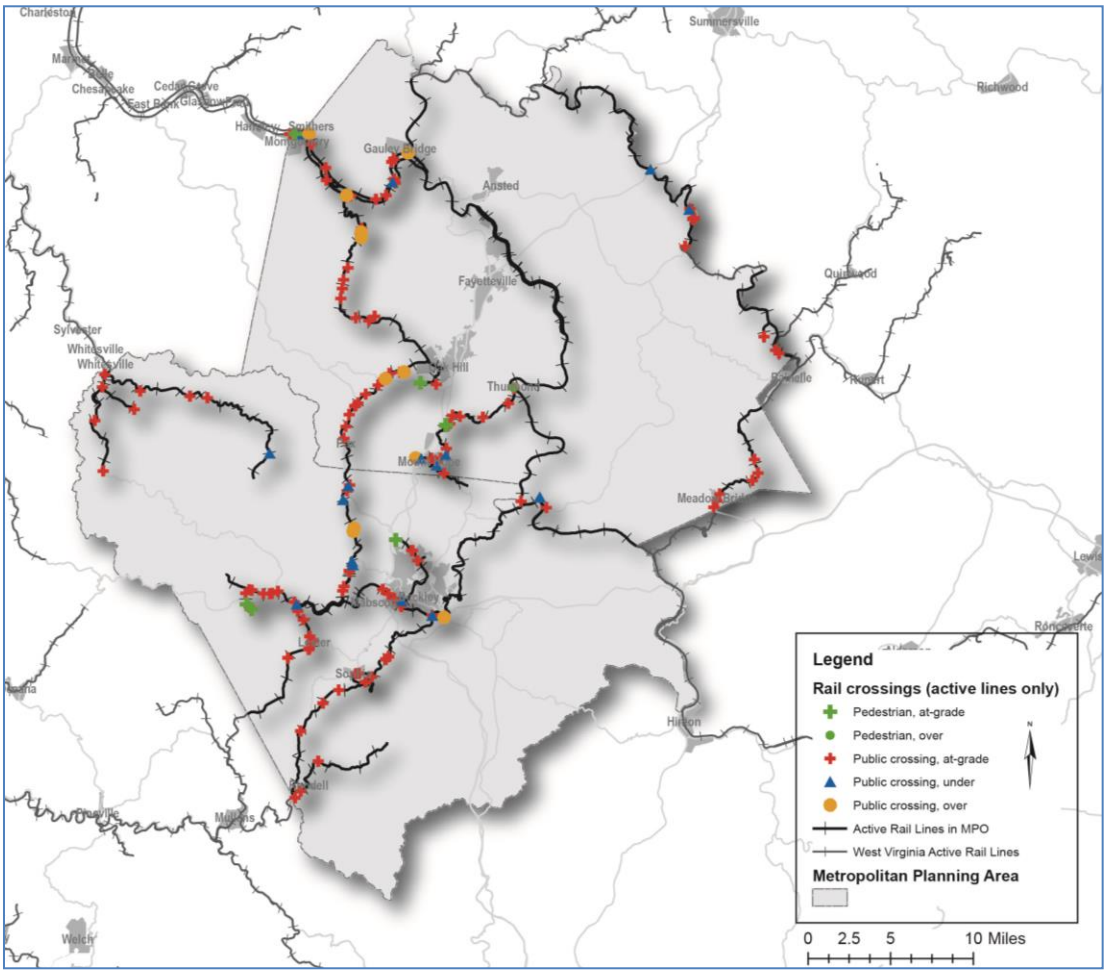
Figure 4-11: Coal Resource Transportation System (CRTS) Routes in the Fayette/Raleigh MPO



Rail

The Fayette/Raleigh MPO is one of the most rail-dense parts of West Virginia, with 301 miles of active rail line that represents about 10% of the state's active rail network. An additional 143 miles of track is classified as abandoned, consisting primarily of spurs that previously served coal mines or other industrial sites that are no longer in operation.

Figure 4-12: Active Rail Network and Crossings



Source: U.S. Bureau of Transportation Statistics, 2001 National Transportation Atlas Database

RAIL OWNERSHIP

Nearly all of the active track in the MPO region is owned by Class 1 railroads, specifically CSXT and Norfolk Southern, as shown in **Table 4-9** below.

Table 4-9: Rail Ownership in the MPO Region

Owner	Name	Mileage
CSXT		**181.1**
	Baltimore and Ohio	2.0
	Chesapeake and Ohio	113.2
	Fredericksburg/Gordonsville	9.8
	Unnamed	56.2
Norfolk Southern		**118.8**
	Chesapeake and Ohio	5.1
	Conrail	10.6
	Fredericksburg/Gordonsville	8.9
	Nicholas Fayette Greenbrier	19.4
	Norfolk and Western	50.2
	Unnamed	24.5
Private		**0.6**
Total		***300.5***

Source: U.S. Bureau of Transportation Statistics, 2001 National Transportation Atlas Database

CROSSINGS

The region has 129 at-grade rail-highway crossings, or one for every 2.3 miles of active track. The majority of crossings are equipped with some sort of warning equipment, as shown below in **Table 4-10**.

Only 8 train collisions have been recorded in the region since 2004, and none resulted in fatalities. Six of those were at public crossings.

Table 4-10: Warning Equipment Used at Grade Crossings

		Type of Highway Warning Equipment				
Railroad	**Total**	**None**	**Signs**	**Flashers**	**Gates**	**Other**
CSX	81	6	26	28	5	16
Norfolk Southern	50	2	13	22	0	13
Total	**131**	**8**	**39**	**50**	**5**	**29**

Source: U.S. Federal Railroad Administration, Office of Safety (March 2014)

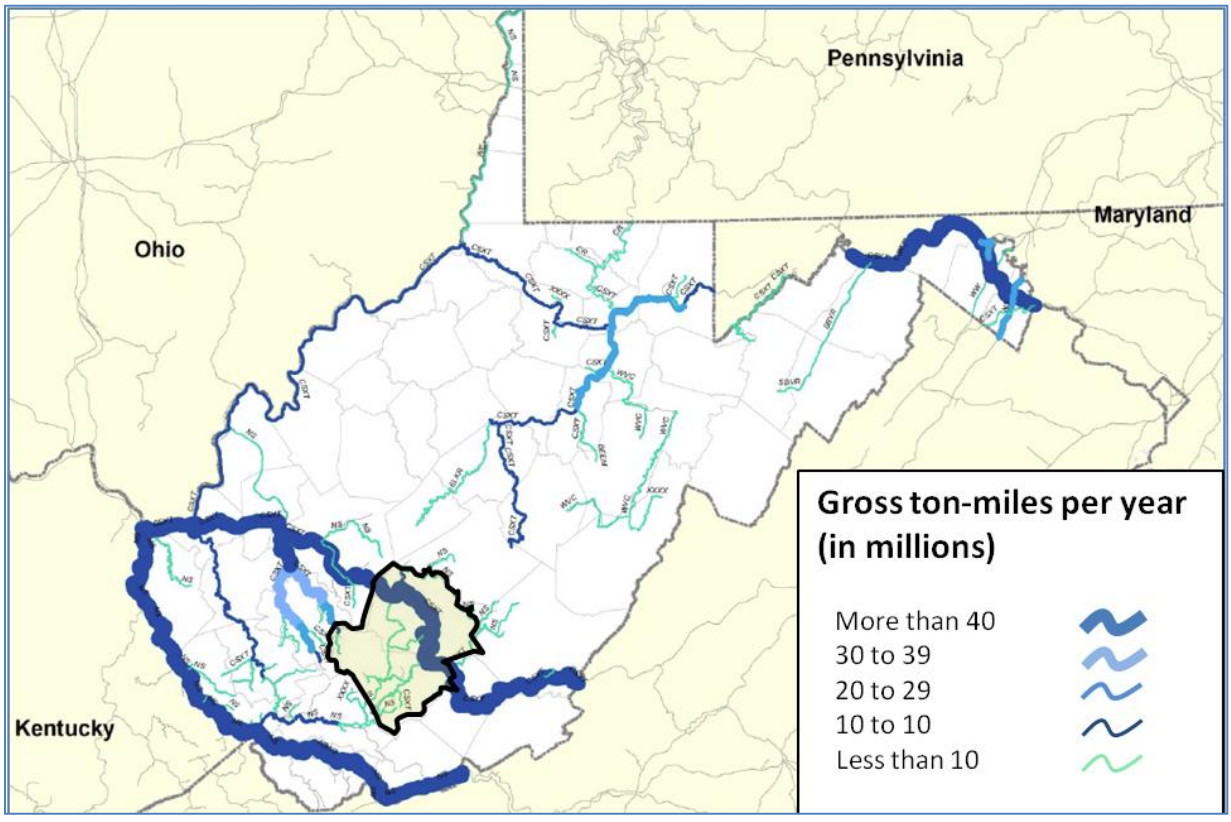
Seven grade crossings are pedestrian-only, including these locations:

- The New River line north of Mount Hope;
- The New River line in Thurmond;
- The New River line in Montgomery;
- The Raleigh Southwest south of Oak Hill;
- The short line (C&O) to the northwest of Beckley;
- Along the Pocahontas spur northwest of Lester; and
- The terminus of the Pocahontas spur northwest of Lester.

FREIGHT RAIL SERVICES

Some of the state's most heavily used tracks (in terms of ton-miles) pass through Fayetteville, corresponding to the old Chesapeake and Ohio RR currently utilized by CSXT, and shown below in **Figure 4-13**:

Figure 4-13: Rail Freight Density, 2003

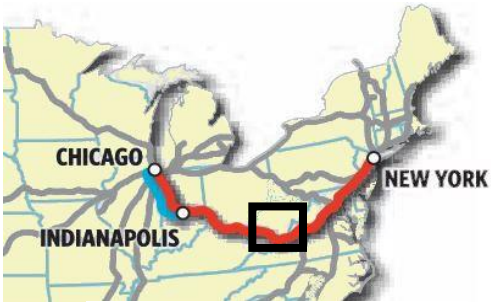


Source: WVDOT State Rail Plan

According to the recently completed State Rail Plan (2013), approximately 94% of all originating and 76% of all terminating rail traffic is coal. No major freight rail service improvements are planned for the MPO area.

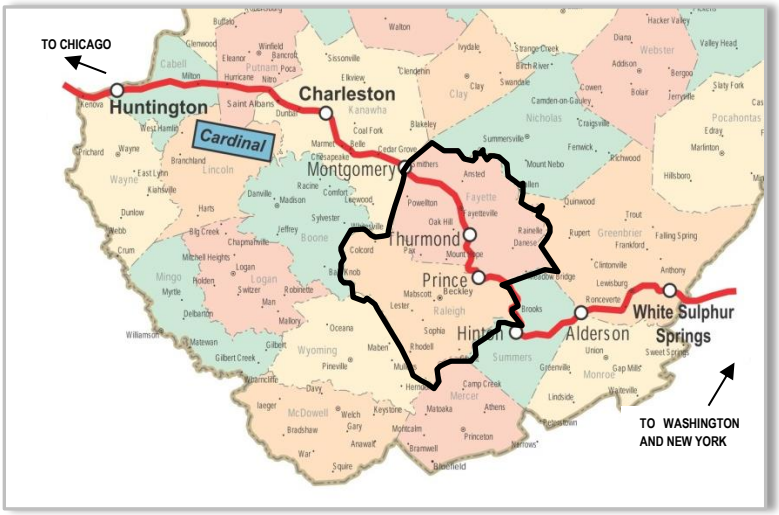
PASSENGER RAIL SERVICES

Amtrak currently services the Cardinal Line, which provides overnight service three times a week that connects Chicago, Washington D.C., and New York City. The Cardinal passes through Kentucky and southern West Virginia on its route between Chicago and Washington.



From Amtrak

The train makes three stops in the MPO region, all of which are in Fayette County. Heading toward Washington and New York, the Cardinal makes its stops in the region between 8:45 and 10 a.m. on Wednesdays, Fridays and Sundays. When bound for Chicago, the train stops in Fayette County between about 6:35 and 7:45 p.m. on Mondays, Thursdays and Saturdays.



- The **Montgomery** station, located in the far northwestern part of the region near the Kanawha County line, had about 600 riders in FY2013. The Kanawha Valley Regional Transit Authority previously provided service to the Montgomery station but this is no longer the case.

- The **Thurmond** station is located just north of the intersection of County Highways 25 and 2. Passengers board at a grade crossing within a short distance of the old station building, which doubles as a National Park Service visitor center. At the height of the area's coal mining days in the early 20th century, more than 75,000 passengers boarded at this location. During FY 2013 it had a ridership of 563, making it the state's least-frequented stop according to Amtrak. Thurmond is a flag stop, meaning the train stops only if a passenger has made a reservation to board or alight at that location.

- **Prince** is the only staffed ticket office in the area and the only one that provides Amtrak baggage checking services. More than 3,400 boardings were recorded at the Prince station in FY2013. Although it is located on WV 41 just over the Fayette/Raleigh county line, this location is described by Amtrak as the Beckley depot. The nearest regular public transit service which rail passengers might use is the Raleigh Express, whose Gold Route serves Stanaford Road (WV 61) to a point about 4.5 miles from the Prince station.

In recent years local interest in the Prince station has increased, particularly with the creation of the national Boy Scout Reserve located less than 10 miles from the station. Fayette and Raleigh counties have formed a joint authority to seek funds to make improvements at the site, including facility upgrades to increase ADA compliance.

The Cardinal Line continues to experience challenges with respect to its overall performance compared with Amtrak's other routes, ranking in the bottom third, according to the State Rail Plan. Successful operation of this service on a broader basis is therefore essential for the continued viability of passenger rail service in southern West Virginia.

Aviation

The nearest airport with regular multi-airline commercial service for the MPO region is Yeager Airport (CRW) in Charleston, located about 60 miles north of Beckley via I-77.

Within the MPO region, the only public airport is Raleigh County Memorial Airport (airport location ID BKW), which is a general aviation airport that supports one commercial airline and a small amount of air cargo. It is governed by the Raleigh County Airport Authority, which has responsibility for the maintenance of the airfield. In addition to Raleigh and Fayette counties, the airport's official service area also includes Summers and Nicholas counties.

Courtesy of Raleigh County Memorial Airport Authority

LOCATION AND ACCESS

From the air, Raleigh County Memorial Airport is approximately three nautical miles (6 km) east of Beckley's central business district.

Access is via Airport Road, which connects with I-64 (East/West), I-77 (North/South directions) and US 19/WV County Road 3 to the south.

Available ground transportation includes three rental car services and a limousine/tour bus service.

AIRPORT CHARACTERISTICS

The airport has two intersecting asphalt runways in order to separate airplane classes and to accommodate cross-wind conditions. Both runways are in good condition, according to the most recent Airport Master Record, and are automatically lighted at dusk and dawn.

Runway 01/19 is the main runway. As shown in **Table 4-11,** its greater length and load rating makes it suitable for a wider range of airplane classes than Runway 10/28.

Table 4-11: Runway Characteristics

	Runway 01/19	Runway 10/28
Length	6,750 ft.	5,001 ft.
Width	150 ft.	100 ft.
Load rating		
Single-wheel	75,000 lbs.	45,000 lbs.
Double-wheel	150,000 lbs.	60,000 lbs.
Double-tandem	200,000 lbs.	-

Source: Airport Master Record

AIRPORT USAGE

One of the airport's essential regional functions is the role it plays in emergency and military air operations. In a region where not all areas are accessed easily or quickly by road, helicopters are vital in medical emergencies. Military operations also comprise a significant portion of BKW's air traffic. A small amount of air cargo is served, primarily from FedEx, a tenant in the adjacent industrial park.

The level of general aviation traffic at BKW has been increasing substantially over the past decade, even during the national Great Recession which significantly impacted many larger airports. This reflects a larger trend that will likely mean expansion for the region's airport.

Industry experts expect continued growth in general aviation traffic, particularly corporate, due to the changing nature of commercial air service. The delays and inconvenience of passenger security screening, as well as major airlines' on-time performance problems, are attracting more businesses to general aviation flights. Some are even jointly leasing corporate aircraft or purchasing them on a "time-share" basis.

Courtesy of Raleigh County Memorial Airport Authority

The average number of daily aircraft operations at Raleigh County Memorial Airport has doubled since 2007. As shown in **Table 4-12**, most of the air traffic is general aviation. In addition, much of the recent growth has been in transient traffic – defined as those whose origin or destination is a different airport – as opposed to local users who are both departing and returning to BKW. Since 2007, transient traffic has increased 22 percent.

Table 4-12: Average Daily Aircraft Operations, 2013

Type of Operations	Pct
Local General Aviation	43%
Transient General Aviation	42%
Military	8%
Air Taxi (LocAir)	7%

** For 12 month period ending Sept. 30, 2013.*

Source: AirNav, LLC, 2014

Based Aircraft

The number of based aircraft has remained consistent over the past several years, totaling 52 aircraft in 2013 (**Table 4-13**). While the majority are small aircraft, the airport is beginning to see some larger airplane classes as general aviation traffic has increased. If this trend continues, it will affect not only on-site storage requirements but also the design standards for future runway improvements.

Table 4-13: Based Aircraft by Type, 2013

Aircraft Type	Number
Single Engine	28
Multi-engine	13
Jet	5
Helicopter	6
Total	**52**

Source: AirNav, LLC, 2014

COMMERCIAL SERVICES

Like many small airports, Raleigh County Memorial Airport has benefited from the federal Essential Air Service program, which provides funds to help guarantee flights and affordability of service. Through this program's assistance, the airport maintains commercial service by United Express (operated by Via Air, Inc.) to Shenandoah Valley and Washington-Dulles, which provides passengers with connections to international flights.

Albatross Air is a fixed base operator that provides maintenance and flight training. They provide minor and major aircraft maintenance for both airframe and power plant repair and services. Pilot training is also available, including ground school for both private and multi-engine pilots, and a Certified Flight Instructor (CFI) is available for flight checks. Jack's Flying Service also provides flight training.

RECENT IMPROVEMENTS

The airport recently received a $800,000 Federal Aviation Administration (FAA) grant to improve safety and enhance the airport's functionality. The project includes the rehabilitation of runway 19, the addition of taxiway lighting and enhanced markings, and improvements to the current regulators, navigational equipment, and electrical support.

Funds were also recently awarded for rehabilitation of the interior of the airport's terminal building (built in 1978) to modernize it and to better accommodate Transportation Security Administration regulations.

Courtesy of Raleigh County Memorial Airport Authority

Other recent improvements have included the completion of the Airport Road loop, which improved traffic flow and safety for the Airport Industrial Park and provided bi-directional access to the airport.

AVIATION NEEDS/ISSUES

The Raleigh County Memorial Airport's Master Plan, completed in September 2011, performed a study of existing airport needs and projected future growth in order to plan for capital improvements that will be needed through the year 2029. After analyzing the level and types of future demand for aviation services in the region, the Airport Master Plan found that current airfield capacity should be adequate to handle projected growth. No road improvements are recommended except as needed for access to new airport facilities that are built in the future.

However, the Master Plan does identify a number of other issues that need to be addressed so they do not become potential obstacles to the airport's growth during the next two decades:

Safety improvements to runway areas. Portions of the airport's runway visibility zones are obstructed by trees and buildings, according to the plan, and there is no clear line of sight between the ends of the two intersecting runways.

The plan also identifies concerns that the size of the runway safety areas at the ends of Runway 10-28 is below standard. A previous analysis of this issue found the amount of fill needed to moderate the steep grades was cost-prohibitive. The plan therefore recommends re-marking Runway 10-28 to move the thresholds closer in. While this reduces the available runway length by up to 340 feet for some operations, it allows the runway to meet safety area standards. If the airport authority wishes to preserve the entire 5,000 foot runway, it will be necessary to revisit the re-grading project at a future time.

Air Traffic Control Tower (ATCT). The purpose of the control tower is to provide weather updates, traffic separation, and safer ground movements. Weather conditions at this airport can change rapidly, particularly fogging, due to its location in relation to the plateau. Since Raleigh County Memorial Airport currently has no tower, pilots operating under Instrument Flight Rules (IFR) must currently contact Yeager Airport for clearance.

The lack of a control tower is a issue frequently mentioned by parties who currently use the airport, as well as those who say they would use it if the tower were constructed. During the development of the Master Plan, the Federal Correctional Institute reported it would like to use the airport for prisoner transport to and from the major facility which it operates on lands adjacent to the airport. However, the agency is required to use a facility with a control tower, resulting in a drive of nearly an hour to Greenbrier Valley Airport.

Raleigh County Memorial Airport is currently involved in testing a high-tech, computer-driven "virtual tower" which was used successfully in 2013 for the Boy Scouts' summer Jamboree.

Three potential control tower sites were evaluated as part of the Master Plan. The recommended site is shown in **Figure 4-14**, along with other improvements recommended in the adopted Master Plan.

Figure 4-14: Planned Improvements at Raleigh County Memorial Airport

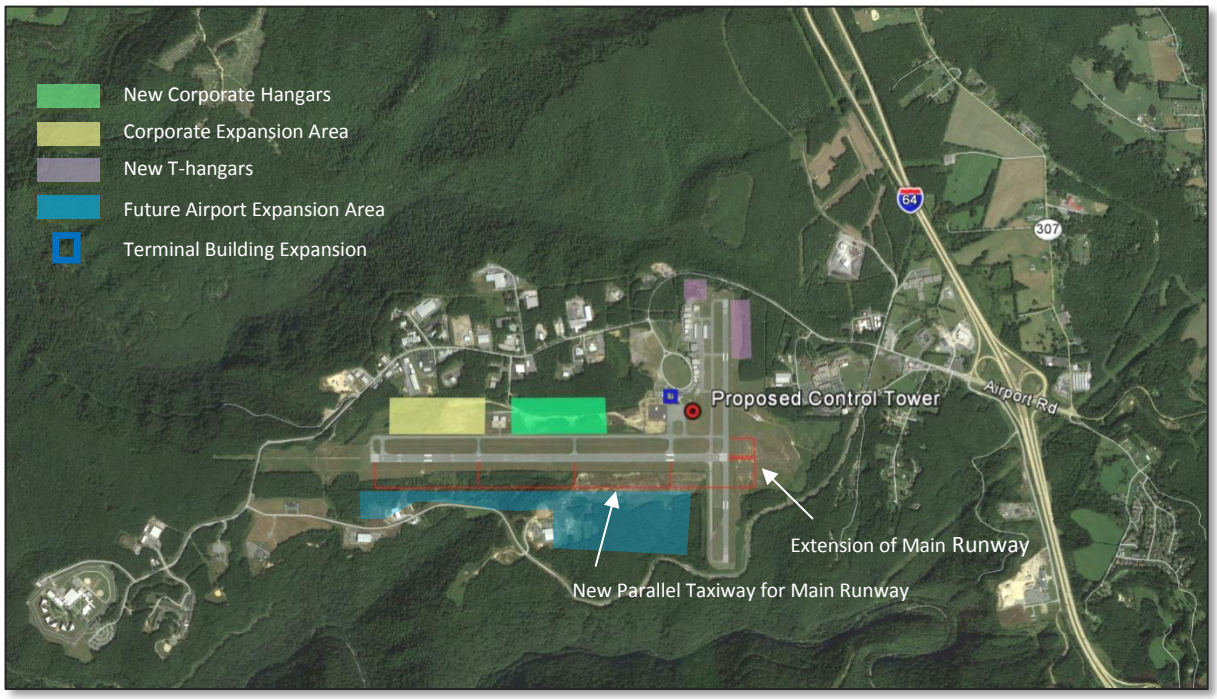


Image from Google Earth

Main runway extension. The airport's future space needs are largely driven by the size and type of aircraft that use it frequently. As noted earlier in this section, the majority of the airport's current traffic consists of turboprop planes and smaller aircraft. However, as corporate traffic increases, Raleigh County Memorial Airport is beginning to see a growing number of flight operations by larger aircraft such as the Gulfstream V. Although this plane can use the existing airfield, it would be preferable to shift to runway design standards for the larger class of aircraft when it is possible to do so. Ideally this would occur when other major improvement projects are scheduled.

The Master Plan also identifies a trend in greater use of the airport by jets making long-range trips. The additional fuel that must be carried for these flights makes the plane significantly heavier, requiring a longer distance for takeoff.

Runway 1-19 is therefore recommended for future extension to 7,400 feet. The plan also recommends that during this project, the runway threshold should be relocated to improve safety so that aircraft using the main runway will no longer need to taxi along Runway 10-28.

The plan notes that the future extension of Runway 10/28 would also be desirable but is not likely to be feasible due to steep terrain.

Compatibility of adjoining land uses. Local governments and landowners adjoining the airport property should be aware that the Runway Protection Zone may need to be expanded in conjunction with the future extension of Runway 1-19.

In fact, the Airport Master Plan notes that local government zoning and development regulations do not currently specify height restrictions for structures built within the runway approach areas. In order for the region to maintain its aviation services and its eligibility for federal funds, it is important to ensure these safety requirements are addressed.

Additional space for based aircraft. To meet the projected demand for local general aviation traffic, the plan identifies a need over the next two decades to construct additional corporate hangar space suitable for the larger aircraft that are beginning to use the airport, six new t-hangar bays, and additional apron tie-down parking.

Separation of commercial and GA traffic. The U.S. Transportation Security Administration advises airports to maintain separation between general aviation traffic and the more secure areas for commercial aircraft and passengers. To address this issue as the airport grows, the Master Plan recommends expansion of the terminal apron so that transient general aviation aircraft can be parked separately from commercial traffic. Future expansion of the terminal building to the north is also planned in order to provide a separate area for commercial air service.

Safety & Security

SAFETY

Efforts to improve roadway safety involve multiple agencies that span the federal, state, and local levels. Activities typically fall into two categories: the improvement of existing roadways, and education/outreach programs designed to improve traveler behavior.

Federal

Highway safety at the federal level is administered through the **Highway Safety Improvement Program** (HSIP), most recently codified in the *Moving Ahead for Progress in the 21st Century Act* (MAP-21). The HSIP provides funding to state and local agencies for highway safety programs contingent on the fulfillment of several requirements that promote a data-driven, strategic approach to reducing fatalities and injuries on highways throughout the nation. Additionally, the HSIP sets aside funding to evaluate and improve safety at highway-rail grade crossings under 23 USC 130, commonly referred to as the ***"Section 130"*** program. These funds are apportioned to the states for rail crossing safety data analysis, the installation of protective devices at crossings, and other improvements.

The U.S. DOT coordinates the implementation of the HSIP through its agencies, including the **Federal Highway Administration** (FHWA) and the **National Highway Traffic Safety Administration** (NHTSA). The FHWA and the NHTSA establish programs for states to receive funding for highway improvements and driver education efforts, respectively.

State

The West Virginia Department of Transportation (WVDOT) addresses highway safety across all of West Virginia, including Fayette and Raleigh counties. Several areas within the department have responsibilities related to highway safety, including:

- The **Traffic Safety Planning and Analysis Section** of the Division of Highways (DOH) Traffic Engineering Division, which manages and analyzes the state's crash data, leads the state's implementation of the Highway Safety Improvement Program (HSIP), and conducts various highway safety studies; and
- The **Governor's Highway Safety Program (GHSP)**, an office of the Division of Motor Vehicles (DMV), which manages safety promotion, education, and enforcement programs throughout the state.

Highway Crash Fatality Data

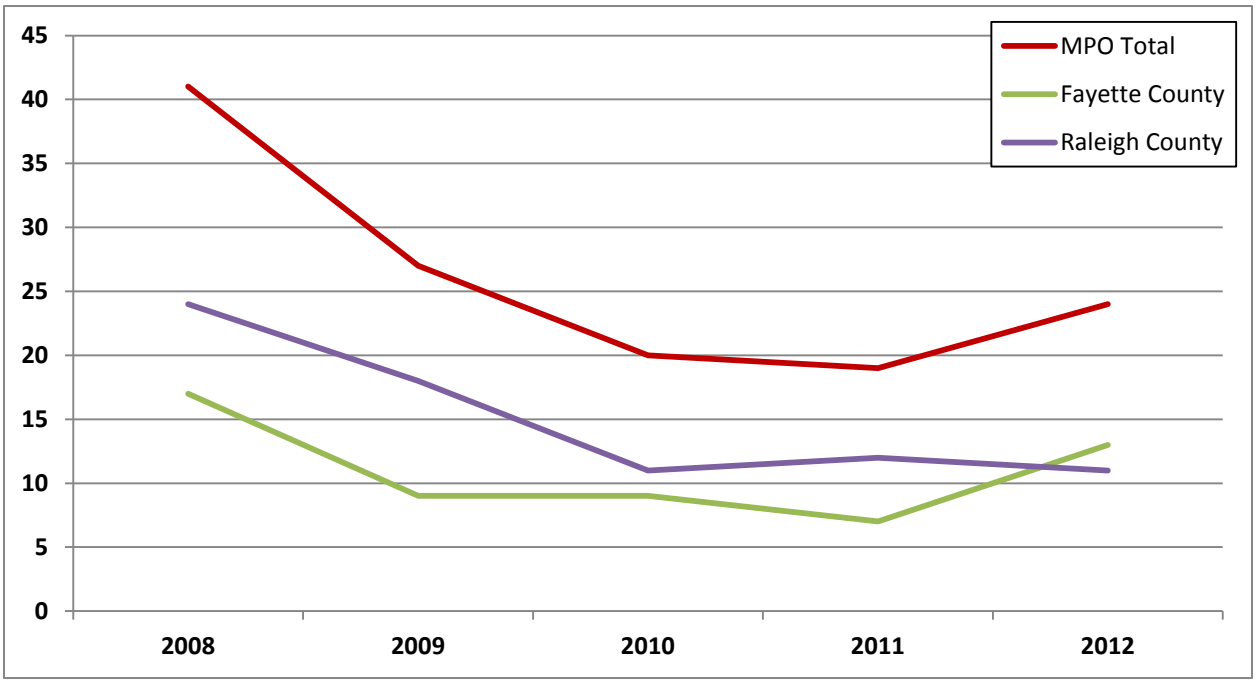
The **National Center for Statistics and Analysis** (NCSA), an office of the NHTSA, collects and publishes a wide range of safety data for public use, including fatality data for public highways as part of the **Fatality Analysis Reporting System** (FARS).

The most recent data available from FARS covers the five-year period from 2008 to 2012. During this time period, highway crashes in the Fayette/Raleigh MPO area resulted in 131 fatalities, of which 55 occurred in Fayette County and 76 occurred in Raleigh County. **Table 4-14** lists the number of fatalities annually for the study period for each county and the total MPO area, and **Figure 4-15** displays the trend.

Table 4-14: Number of Traffic Fatalities, 2008–2012

Area	Traffic Fatalities					TOTAL
	2008	2009	2010	2011	2012	
Fayette County	17	9	9	7	13	55
Raleigh County	24	18	11	12	11	76
MPO TOTAL	41	27	20	19	24	131

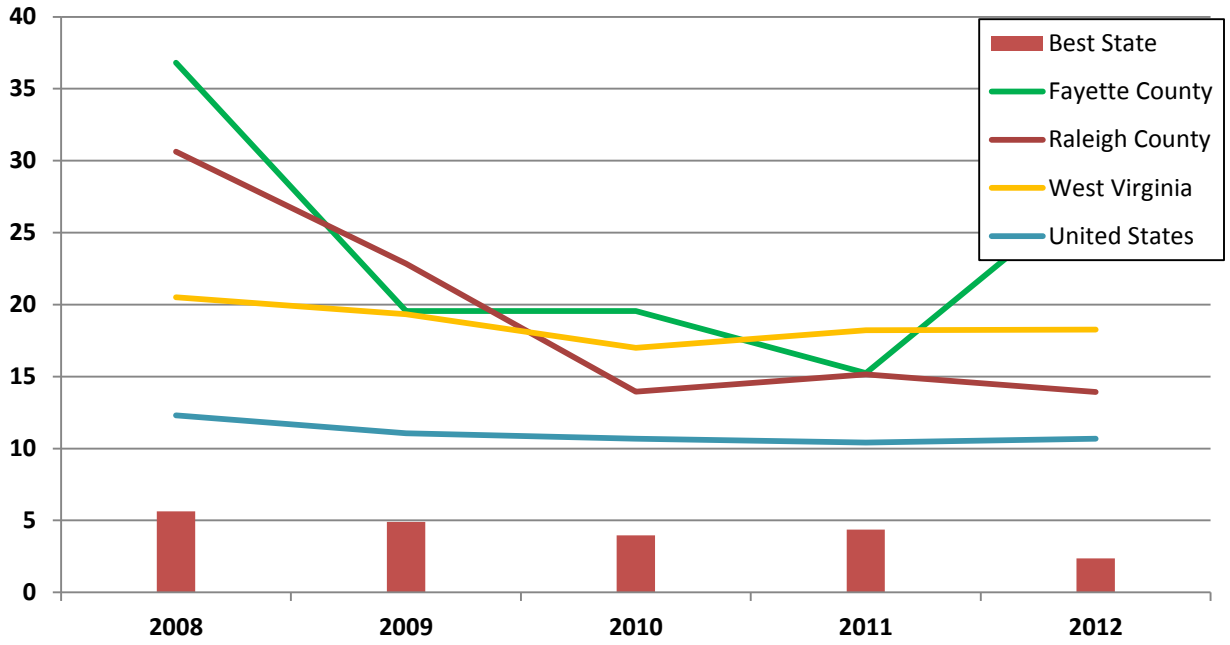
Figure 4-15: Traffic Fatality Trend, 2008–2012



In 2012, Fayette County had the sixth-highest number of traffic fatalities of all counties in West Virginia, accounting for approximately 4% of the state's 339 fatalities, while Raleigh County had the ninth-highest number of fatalities and 3% of the state total.

FARS also provides *fatality rates*, or the number of traffic fatalities in a particular area per 100,000 residents of that area, as a means of comparing fatalities in areas of varying population. **Figure 4-16** lists the annual fatality rates per 100,000 people during the study period for Fayette and Raleigh counties, West Virginia, the United States, and the best-performing state (as determined by having the lowest traffic fatality rate that year).

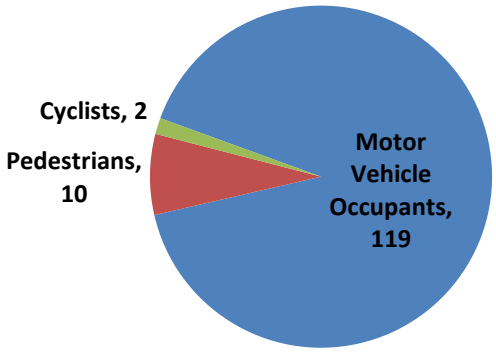
Figure 4-16: Traffic Fatality Rates per 100,000 Persons, 2008–2012



Highway User Type

Of the 131 roadway traffic fatalities that occurred in the MPO area during the study period, the vast majority were motor vehicle occupants, at 91 percent. Pedestrians and cyclists made up just under 10 percent of the total, with 10 pedestrian deaths and 2 cyclist fatalities, as shown in **Figure 4-17**.

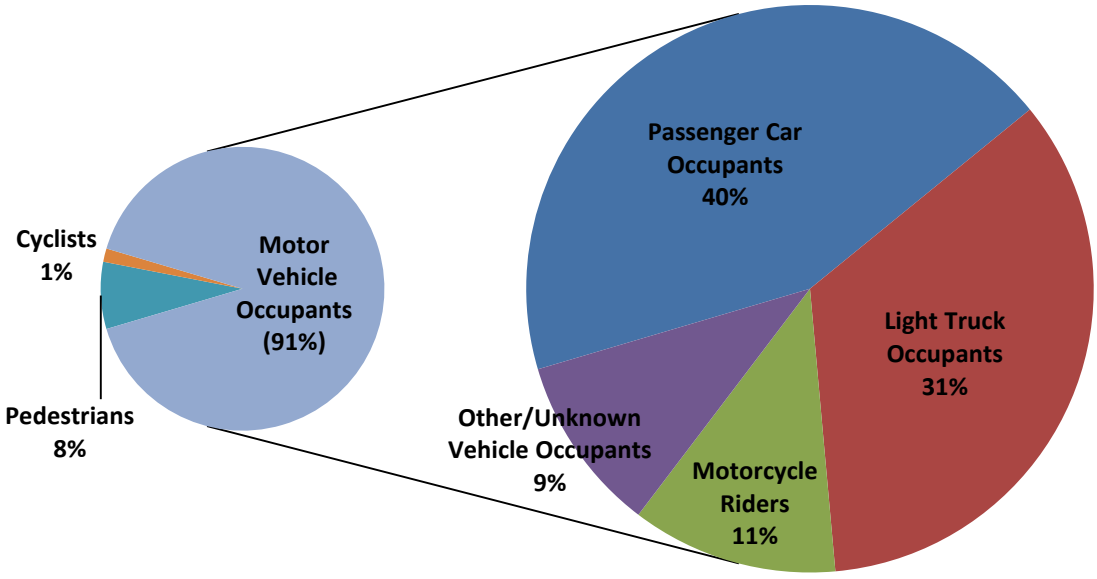
Figure 4-17: Roadway Traffic Fatalities by Roadway User Type, 2008–2012



Vehicle Type

Most of the 119 motor vehicle occupant fatalities that occurred in the MPO area during the study period occurred in a passenger car or light truck. A total of 14 fatalities involved motorcycle occupants.

Figure 4-18 — Motor Vehicle Occupant Traffic Fatalities by Vehicle Type, 2008–2012



Compared with the state and U.S. as a whole, recent motor vehicle traffic fatalities in Raleigh County involved a slightly higher percentage of persons who were not using a seatbelt.

In terms of motorcycle fatalities, the majority of fatalities in Fayette County involved riders who were not wearing a helmet.

Figure 4-19: Passenger Car and Light Truck Traffic Fatalities by Restraint Use, 2008–2012

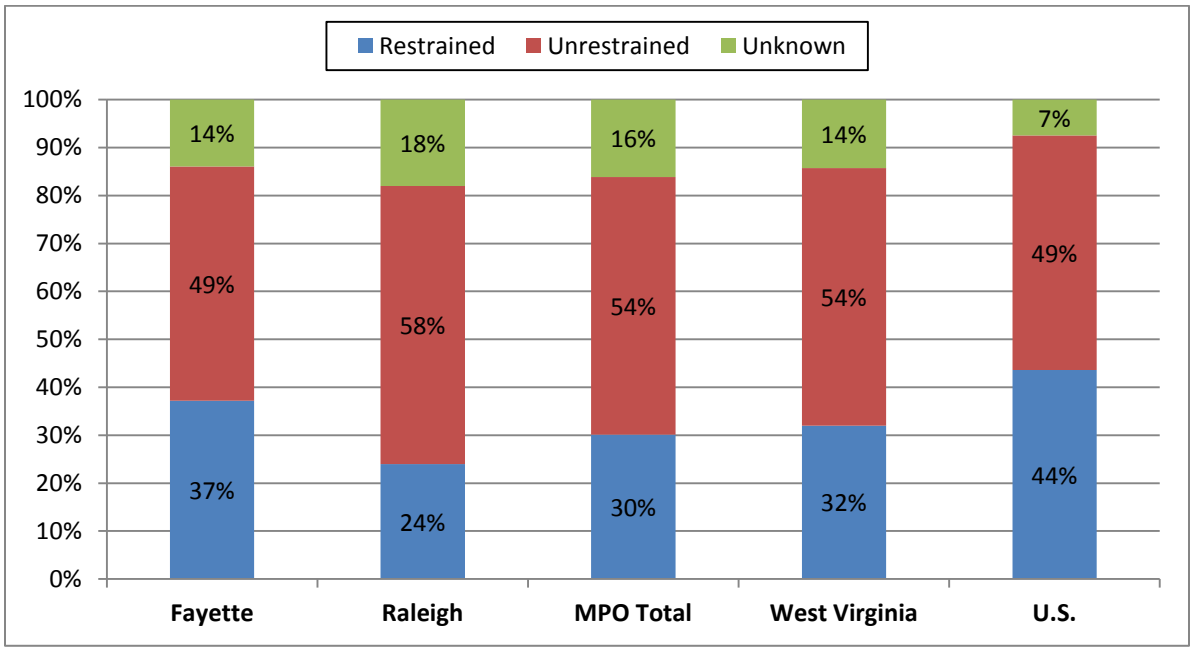
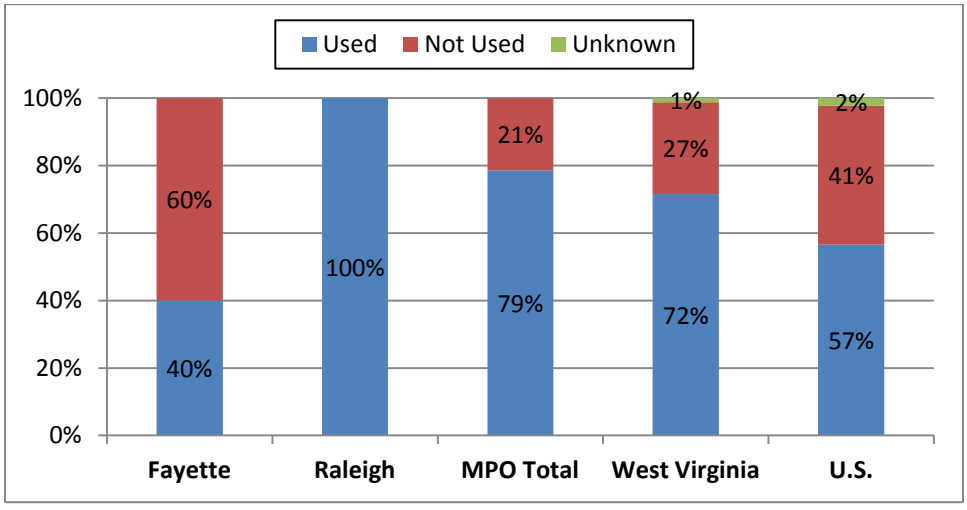


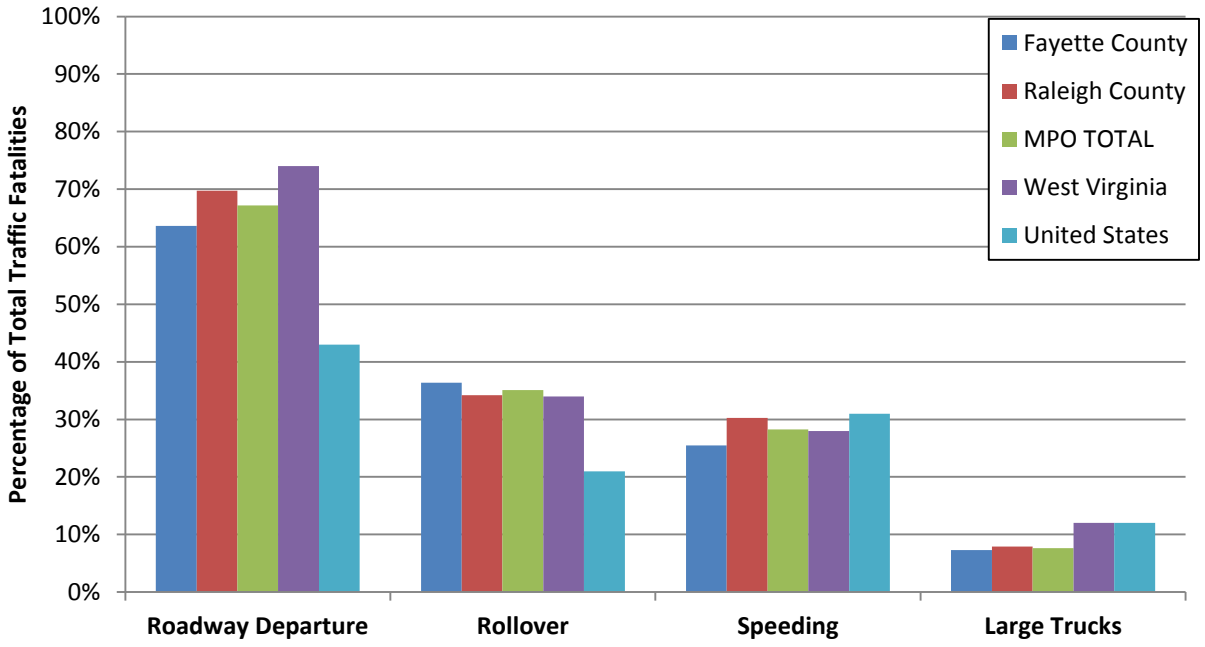
Figure 4-20: Motorcycle Traffic Fatalities by Helmet Use, 2008–2012



Contributing Factors

NHTSA records factors that are considered to have contributed to traffic fatalities, including roadway departures, vehicle rollovers, speeding, or the involvement of large trucks. **Figure 4-21** displays contributing factors to traffic fatalities recorded by NHTSA as a percentage of the total traffic fatalities for the study period for each county, the MPO area, West Virginia, and the United States.

Figure 4-21: Contributing Factors to Traffic Fatalities, 2008–2012



As shown in the figure above, the MPO as well as the state overall has a significantly higher rate of fatalities due to *vehicle rollover* or *roadway departure* crashes – defined by the FHWA as occurring outside of an intersection and after a vehicle crosses an edge line or center line, or otherwise leaves the traveled way. This is not surprising given the number of road-miles in the region with extreme curves and grades, and the number of road-miles without nighttime lighting.

On the favorable side, Figure 4-21 also shows the region has a relatively low percentage of fatalities resulting from crashes involving large trucks.

Pedestrian Fatalities

A total of 10 pedestrian traffic fatalities occurred in the MPO area during the study period: 3 in Fayette County and 7 in Raleigh County. (**Table 4-15**)

Table 4-15: Pedestrian Traffic Fatalities, 2008–2012

Area	Pedestrian Traffic Fatalities					TOTAL
	2008	2009	2010	2011	2012	
Fayette County	1	0	0	0	2	3
Raleigh County	2	3	0	0	2	7
MPO TOTAL	3	3	0	0	4	10

Cyclist Fatalities

Two cyclist traffic fatalities occurred in the MPO area during the 5-year study period, both in Raleigh County.

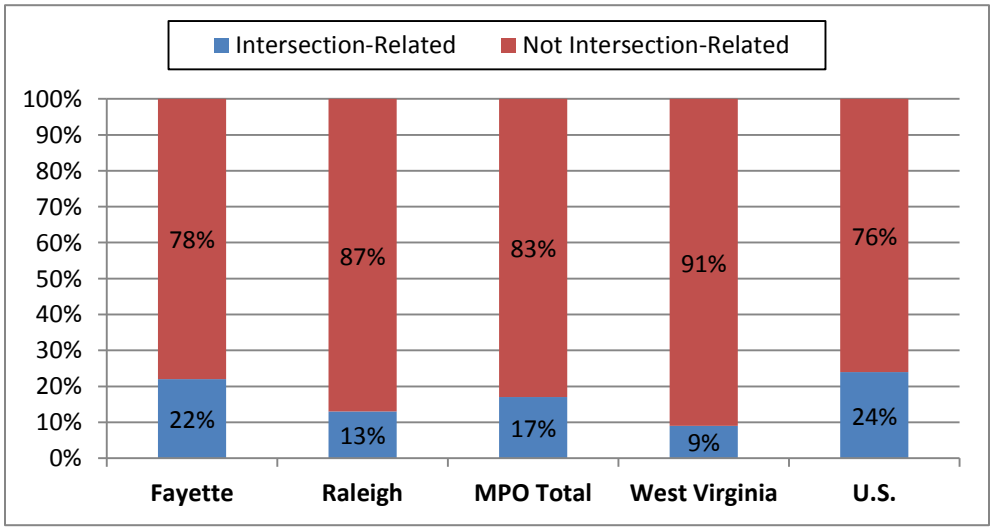
Table 4-16: Cyclist Traffic Fatalities in Fayette/Raleigh MPO, 2008–2012

Area	Cyclist Traffic Fatalities					TOTAL
	2008	2009	2010	2011	2012	
Fayette County	0	0	0	0	0	0
Raleigh County	1	0	0	0	1	2
MPO TOTAL	1	0	0	0	1	2

Location

Of the 131 traffic fatalities that occurred during the study period, 22 were intersection-related. For Fayette County, intersection-related crashes represented about 1 in 5 traffic fatalities.

Figure 4-22: Traffic Fatalities by Location Type, 2008–2012



RECOMMENDED ROADWAY SAFETY IMPROVEMENTS

Since data regarding the location of reported crashes in the MPO region was not available for the development of this Plan, a series of interviews was conducted with area law enforcement and emergency officials who are responsible for responding to serious traffic incidents. These stakeholders, along with members of the 2040 Plan's Steering Committee, identified a number of key locations for analysis of roadway safety issues and evaluation of potential improvements.

Table 4-17 shows the roadway safety projects recommended for the 2040 Plan.

Several projects stem from the need to accommodate visitor traffic more safely on area roadways. Many visitors are driving large recreational vehicles or pulling trailers, especially on roads that provide access to state and federal parklands, whitewater rafting businesses and other outdoor recreational business locations. Roadway modifications such as widening horseshoe turns can provide more room for large vehicles to maneuver. Other potential upgrades include the addition of acceleration/deceleration lanes at key access points to compensate for the additional time needed for heavy vehicles to reach normal operating speed (or slow down enough to turn into a driveway). These improvements have the potential to improve safety not only for visitors but also for freight traffic. This is particularly true for regional routes such as US 60, which is designated as a scenic byway but also functions as a highway on which heavy trucks are allowed to operate.

There are also a number of routes, including WV 61 and Gatewood Road, where the addition of shoulders will enhance motor vehicle safety while also providing more space for bicyclists to safely use the road. Enabling safer travel by bicycle on these routes will provide better connections between Mount Hope, Oak Hill and Fayetteville for local residents as well as visitors who have come to the region to enjoy opportunities for active outdoor recreation.

Improvements are proposed to reduce the number of intersection-related accidents, particularly along the US 19 corridor in Fayette County, where limited access allows motorists to travel at higher speeds and leads to crashes of greater severity. While the safety issues at the US 19/Glen Jean intersection have received particular attention from stakeholders and the general public, the 2040 Plan recommends that the MPO conduct a comprehensive study of the entire US 19 corridor to prioritize other locations for safety improvements and develop site-specific designs.

SAFETY COUNTERMEASURES

In addition to the specific projects identified in Table 4-17, this Plan recommends that various safety countermeasures (shown in **Table 4-18**) be incorporated into routine road maintenance projects as they occur throughout the region. The list includes low-cost measures such as *Safety Edge*, which several states have found effective in reducing roadway departure crashes on two-lane roads with unpaved shoulders. With this asphalt paving technique, the road pavement edge is tapered at a 30-degree angle instead of being left as a vertical dropoff. When a driver's wheel drops off the road, the gentler angle helps prevent the driver from losing control as he or she steers back onto the roadway.

Table 4-17: Roadway Safety Projects Proposed for Implementation in the 2040 Plan

PROJ NO	ROADWAY	FROM	TO	MILES	COUNTY	TYPE OF IMPROVEMENT
S-1	Virginia St at Oyler Ave	-	-	-	Fayette	Intersection safety improvements
S-2	Virginia St at Oak Hill Rail-Trail	-	-	-	Fayette	Intersection safety improvements, incl. pedestrian crossing
S-3	WV 16 at Veterans Dr	-	-	-	Raleigh	Intersection safety improvements
S-5	Minden Road Underpass	-	-	-	Fayette	Vehicle detection/warning with pullouts
S-8	US 60	Hawks Nest Lookout	New River Campground	6.9	Fayette	Add shoulders and widen horseshoe turns for trucks and RVs. Add pulloffs for scenic touring and/or slow moving vehicles to allow passing.
S-10	US 19 / WV 16 junction	Pinewood Dr	McCulloch Dr	1.0	Raleigh	Safety improvements, including consolidation of access points where possible
S-11	WV 61	Page Bottom Rd	Baker St	7.6	Fayette	Add minimum shoulders, safety-related signage and markings
S-12	New River Dr	WV 16 (Robert C. Byrd Dr)	Pikeview Dr	1.9	Raleigh	Improve intersection with WV 16 (Robert C. Byrd Dr)
S-21	US 60 at Hawks Nest Golf Course entrance	-	-	-	Fayette	Intersection safety improvements
S-24	CR 25/2 – Thurmond Bridge	-	-	-	Fayette	Replace narrow 2-lane bridge with 2 vehicular lanes and a separated 8-foot lane for bicyclists and pedestrians
S-25	WV 16 (Robert C. Byrd Dr) at N. Kanahwa St	-	-	-	Raleigh	Intersection safety improvements
S-6	WV 16 (Robert C. Byrd Dr) at I-64/77	Stovers Fork Rd	Old Eccles Rd	0.3	Raleigh	Corridor safety improvements, including access management
S-22	US 19 Corridor Safety Improvements	WV 16 (Court St., Fayetteville)	Wood Mountain Rd (CR 19/19)	10.7	Fayette	Safety improvements at US 19 intersections throughout Fayette County
S-16	US 19 / Glen Jean intersection	-	-	-	Fayette	Upgrade to interchange
S-4	WV 16 (Robert C. Byrd Dr)	Locust St	Ellison Ave	0.3	Raleigh	Construct roundabout at WV 16 / WV 3 junction
S-9	Gatewood Rd	WV 16 (E. Main St, Oak Hill)	WV 16 (N. Court St, Fayetteville)	10.2	Fayette	Add 4-foot shoulders, other safety improvements

Table 4-18: Safety Countermeasures to Incorporate into Routine Roadway Maintenance Projects

Contributing Factor to Crashes	Countermeasures
ROADWAY DEPARTURE	
Involved in **64% of crashes** in Fayette and Raleigh counties (19 points higher than national rate) Contributed to **88 traffic deaths** between 2008-2012	**Rumble strips / rumble stripes** – Alerts driver when vehicle departs the travel lane **High-friction pavement surfaces** – Increases skid resistance on wet pavement **Guardrail / concrete barrier** – Restrains out-of-control vehicles from dropoff or roadside obstacles
VEHICLE ROLLOVER	
Involved in **36% of crashes** in Fayette and Raleigh counties (15 points higher than national rate) Contributed to **46 traffic deaths** between 2008-2012 Ten times more likely to result in fatality	**Safety Edge SM** – Increases driver control when recovering from pavement edge dropoff **Seatbelt use** – Reduces occupant ejection during crashes **Curve warning signs** – Alerts drivers of rollover-prone vehicles to sharp or sudden curves
SPEEDING	
Involved in **25% of crashes** in Fayette and Raleigh counties Contributed to **37 traffic deaths** between 2008-2012	**Speed advisory signs** – Alerts drivers to conditions requiring lower speeds **Regulatory signs** – Reminds drivers of posted speed for roadway **Traffic calming** – Encourages lower speeds on urban low-speed roads

SECURITY

Generally the role of transportation agencies in security is to provide support to the state, local and/or federal emergency management officials who oversee overall response efforts. Traffic control is often an essential service to emergency agencies when they are managing a crisis situation.

Transportation agencies may also work in coordination with emergency and homeland security officials to identify transportation infrastructure that is particularly critical or vulnerable, and develop plans to reduce the risk that these locations or routes will become impassable. Often the plans or lists generated through this process are not made publicly available so that the area is not advertising its weaknesses to those who might pose a threat.

Fayette and Raleigh counties each have a Local Emergency Planning Committee (LEPC) responsible for designating facilities for emergency use and ensuring preparedness to restore critical infrastructure, as well as a Emergency Management Center which coordinates the response of public and private agencies to incidents, including those that impact the region's transportation system.

HIGHWAYS

Strategic Highway Network (STRAHNET). The Strategic Highway Network, also known as STRAHNET, is a system of about 61,000 miles of highways which are considered important to the nation's strategic defense. An additional 2,000 miles of STRAHNET major connectors link approximately 200 major military installations and ports. Together, STRAHNET and the Connectors define the total minimum public highway network necessary to support military deployment needs. Special considerations for STRAHNET routes include maintenance of bridge capability, pavement conditions, and congestion management.

STRAHNET routes in the MPO region include I-77 and I-64.

Real-time monitoring. The state's Courtesy Patrol (described in more detail under Operations and Systems Management) uses drivers who receive Homeland Security training to monitor roadways, bridges and overlooks as they make their regular rounds on interstates and other major highways. Suspicious activities and potential threats are reported to law enforcement, along with the locations of concern. Patrol drivers also help law enforcement when Amber Alerts are issued by watching area highways for vehicles and persons who are being sought in connection with the alert.

TRANSIT

The Raleigh County Community Action Association, which provides various public transportation services throughout Raleigh County, has automatic vehicle location technology on its vehicle fleet. This allows a central dispatcher to monitor in real time where its drivers are located. Two-way communications also allow transit drivers to inform dispatchers if they encounter a threatening situation either on the road or if an issue occurs on the vehicle.

Transit

Framework for Services

The designation of Fayette and Raleigh counties as a Metropolitan Planning Organization led to a number of changes in the way transit services are funded and administered in the region. In March 2014, several local governments jointly formed the **New River Transit Authority**, a two-county body responsible for directing the operations and finances of the region's public transit services.

Prior to the creation of the new authority, there was no public transit agency in Raleigh County, although the Raleigh County Community Action Association (RCCAA) is a nonprofit agency that has essentially operated public transit for many years. Local governments in Fayette County were members of the Mountain Transit Authority (MTA), whose service area also includes Nicholas, Webster, and Greenbrier counties. (**Figure 4-23**)

Figure 4-23: Regional Public Transit Authorities in Southern West Virginia

When Fayette County's transit classification changed from rural to urban as a result of the MPO designation, it was determined to be more effective for Fayette and Raleigh counties to establish joint urban transit operations, especially since the rest of MTA's service area remains rural.

The New River Transit Authority's operating funds are primarily federal and are received through the MPO. The transit authority is responsible for coordinating with the MPO Policy Board to identify transit needs for the area and assist in developing the multi-modal Regional Transportation Plan.

All federally funded transit projects and programs must be included in the MPO's Plan and its short-term Transportation Improvement Program.

Existing service in Raleigh County

Raleigh County has transportation service provided by 6 agencies in the health/human services sector, and by five small operators of private taxicabs, limousines or ambulance service, shown below in **Tables 4-19** and **4-20**.

Table 4-19: Human Services Agencies that Provide Transportation in Raleigh County

Agency	Type of Services
Burlington United Methodist Family Services	Treatment facility for troubled teens
FRMS Health Systems	Psychiatric and primary care for persons with mental health and/or substance abuse issues
Mountain State Centers for Independent Living	Education/employment for persons with disabilities
Raleigh County Commission on Aging	Services to senior citizens
Raleigh County Community Action Association	Range of services for low-income persons, including public transportation, housing/shelter, food and clothing, employment services, disability services, Head Start and medical services
Women's Resource Center	Domestic violence shelter

Table 4-20: Private Taxicab/Ambulance Operators

Ambassador Limousine & Taxi Service
Best Transports Ambulance
Jan-Care Ambulance Service
New River Taxi
General Ambulance

Except for the Raleigh County Community Action Association (RCCCA), each of the human services agencies' services are currently limited to a particular group of clients. FRMS Health Systems, Inc. provides transportation to its mental health/substance abuse program participants; Mountain State Centers for Independent Living provides transportation to education and employment sites for individuals with disabilities; and the Raleigh County Commission on Aging provides transportation for senior citizens, primarily to nutrition sites. RCCAA provides program-specific transportation for Head Start. All other RCCAA transportation services are open to the general public.

DEVIATED FIXED-ROUTE SERVICE

Through its "Raleigh Express" program, RCCAA operates four deviated fixed routes: the Red and Gold routes which provide daily weekday service within the City of Beckley, and two county routes which each operate two days per week (**Figure 4-24**).

CITY ROUTES

The Red and Gold routes operate Monday through Friday from 8 a.m. to 4 p.m. and include both scheduled stops as well as "flag" stops, at which the bus will pick up or drop off passengers only when there is a specific request or if there are people waiting at the designated location. The Red and Gold routes both begin and end at the Walmart on North Eisenhower Drive, providing a transfer point between the two routes.

The Raleigh Express operates its bus routes as a deviated fixed-route system, meaning that the bus will deviate up to 3/4 mile to pick up or drop off a passenger. This policy is important because the U.S. Department of Transportation requires public transportation operators to provide ADA-compliant "paratransit" service for people with a disability that makes them unable to use the regular fixed route. The paratransit service must be provided for the same days and hours of service as the fixed routes. The minimum required service area for paratransit is a corridor that extends 3/4 mile from each side of the fixed route. However, if a transit system has flexible routing that will deviate at least that distance, it meets the ADA requirement and a separate paratransit service is not required.

Red Route

Geographically, the Red Route serves the western portions of Beckley, generally tracing a circle that leaves from Walmart and turns south onto West Virginia Highway 16 (Robert C. Byrd Drive) and on to downtown via North Kanawha Street. The bus makes a loop past the public library, City Hall and the West Virginia University campus, then along Second Street and Neville Street, providing access to key governmental agencies including local offices for Medicaid, WV Works, and other family assistance programs.

The Red Route then leaves downtown via Prince Street and follows Harper Road, providing riders with access to Raleigh General Hospital, the public health department, Kroger and other major retail stores. Heading north along Dry Hill Road, Deering Drive and Prosperity Road to U.S. Highway 19, the bus then heads north on US 19 to Crossroads Mall before returning down Robert C. Byrd Drive past the Raleigh Mall and back to the Walmart where riders may transfer to the Gold Route.

Gold Route

The Gold Route serves East Beckley, the Eisenhower Drive corridor, Stanaford and portions of Piney View. Leaving Walmart, it travels northeast along Ragland Road past manufacturing facilities such as Lewis-Goetz & Company, then drives along WV 41 into Lanark and Piney View. As the bus returns south

on Stanaford Road, it provides service to the Beckley Appalachian Regional (BAR) Hospital and clinic. Upon reaching Eisenhower Drive the bus turns south to Johnstown Road, passing Pinecrest Hospital, then loops around East Beckley past the post office, down F Street and around to Barber Avenue, past Stratton Elementary School and the police annex.

The Gold Route then heads westward toward downtown via South Fayette Street, Beaver Avenue past the Corner Shop, and then along Hargrove Street. Although there are no formal transfer points here, the Gold and Red Routes are close enough together that a passenger could leave the Gold Route bus and walk to a Red Route stop, where the wait would be 45 to 60 minutes based on current schedules.

Schedule

Each Gold and Red bus stop is served by two morning runs and two afternoon runs, each an hour and a half apart. Morning and afternoon runs are two hours apart to allow a half-hour lunch break for the drivers, as shown in RCCAA's published schedule (**Figure 4-25**).

COUNTY ROUTES

The Raleigh Express also operates two county routes. Each provides service two days a week between rural portions of the county and the Beckley Walmart used by the city routes as a transfer point. The Monday/Wednesday bus route serves the area southwest of Beckley, running along WV 16 through Mabscott and west along WV 97 to Lester. This includes service to the communities of Macarthur, Crab Orchard and Glen White. The Monday/Wednesday county route also serves Sophia and extends even further south to the Coal City community.

The Tuesday/Thursday route reaches county residents living southeast of Beckley, running down US 19 through the Beaver-Daniels, Shady Springs and White Oak communities. It provides service as far south as Ghent, Winterplace Resort and Flat Top, and westward along the Raleigh/Mercer County line to the Odd community. Service is also provided north to Grandview State Park and eastward along Interstate 64 to Exit 133 (WV County Route 27/Pluto Road).

FARES

All public bus routes cost $2.50 for a one-way trip, plus $2 for each additional stop.

RIDERSHIP

The Red and Gold city routes typically carry more than 75% of the ridership on the Raleigh Express, averaging between 9,000 and 10,000 passenger trips per year. The county routes, which operate fewer days per week and serve less populated areas, average between 2,000 and 3,000 annual passenger trips. (**Figures 4-26** and **4-27**) According to Raleigh Express staff, ridership on the county routes is notably higher around the first of each month, perhaps because this is when households typically receive transfer payments from public assistance programs and thus have money available to purchase food, medicine and other items.

Figure 4-24: Red and Gold Routes (RCCAA)

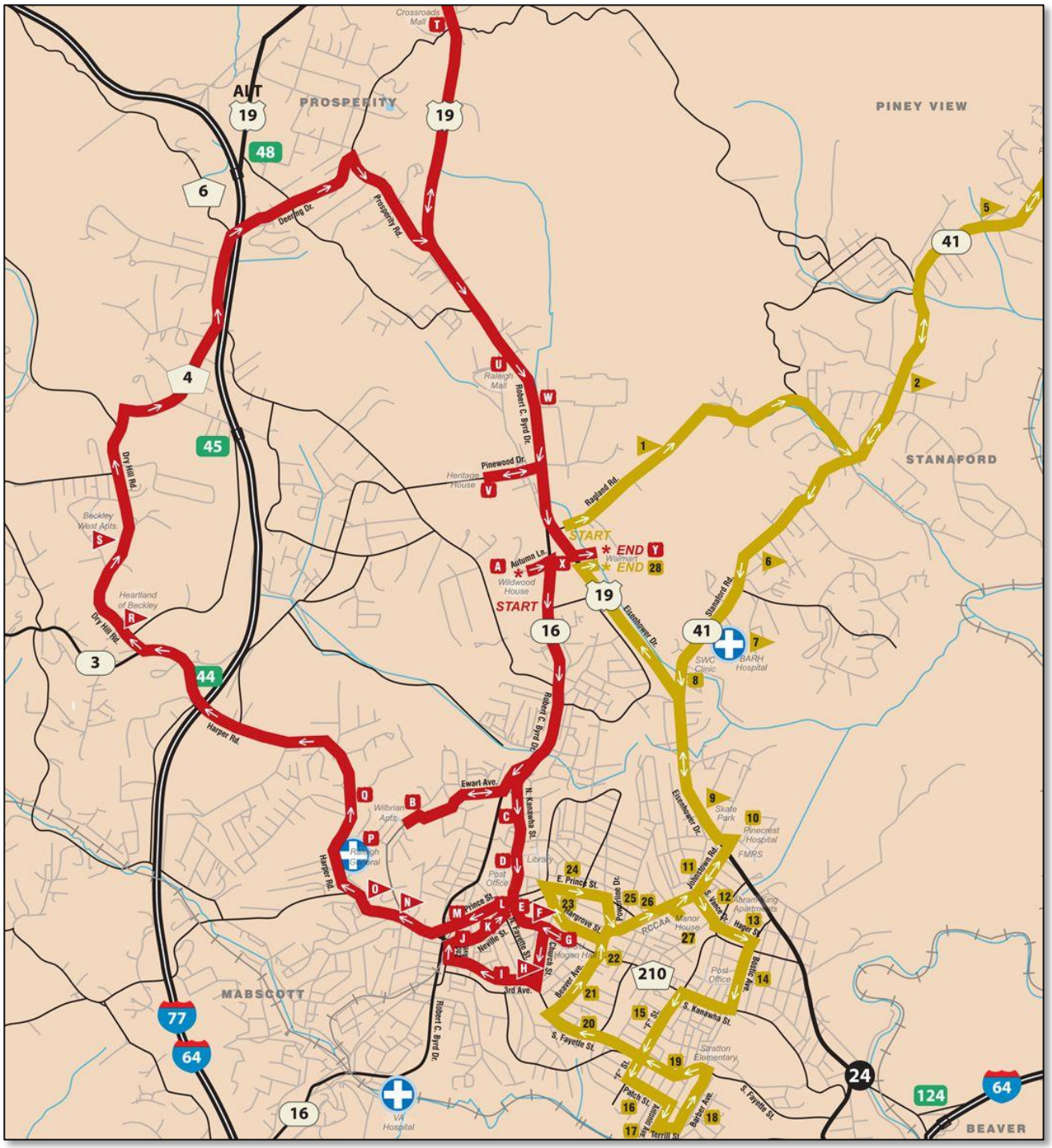


Figure 4-25: Red and Gold Route Schedule

RED ROUTE

(Arrival Times)

A	RC Byrd/Wildwood Apts.	8:30	10:00	12:00	1:30
B	Wilbrian Apartments	8:34	10:04	10:04	1:34
C	North Kanawha	8:38	10:08	12:08	1:38
D	Library	8:39	10:09	12:09	1:39
E	Executive Manor Apt	8:40	10:10	12:10	1:40
F	City Hall	8:41	10:11	12:11	1:41
G	MSU/Hogan Hall	8:42	10:12	12:12	1:42
H	Church Street	8:43	10:13	12:13	1:43
I	Second Avenue	8:44	10:14	12:14	1:44
J	Neville Street	8:45	10:15	12:15	1:45
K	Main Street/Court House	8:46	10:16	12:16	1:46
L	N. Fayette Street	8:47	10:17	12:17	1:47
M	East Prince St/Post Office	8:48	10:18	12:18	1:47
N	Harper Road	8:50	10:20	12:20	1:50
O	Health Center	8:51	10:21	12:21	1:51
P	Raleigh General Hospital	8:52	10:22	12:22	1:52
Q	Kroger (Harper Road)	8:54	10:24	12:24	1:54
R	Heartland	9:06	10:36	12:36	2:06
S	Beckley West Apts.	9:12	10:44	12:42	2:12
T	Crossroads Mall	9:30	11:02	1:02	2:30
U	Raleigh Mall	9:40	11:12	1:12	2:40
V	Heritage House	9:42	11:14	1:14	2:42
W	K-Mart/Staples	9:45	11:17	1:17	2:45
X	Kroger (Beckley Crossing)	9:50	11:27	1:22	2:50
Y	Wal-Mart (transfer location)	10:00	11:30*	1:30	3:00

*driver's lunch break

GOLD ROUTE

(Arrival Times)

1	Ragland Road	8:30	10:10	12:10	1:40
2	Stanaford Road	8:34	10:14	12:14	1:43
3	Smiths/Piney view	8:40	10:18	12:18	1:48
4	Lanark Post Office	8:46	10:22	12:20	1:50
5	Hughes Packette	8:52	10:23	12:23	1:53
6	White Pines Court	8:56	10:26	12:26	1:56
7	B.A.R. Hospital	9:00	10:28	12:28	1:58
8	SWV/ARH Clinic	9:05	10:30	12:30	2:00
9	Eisenhower Drive	9:09	10:32	12:32	2:02
10	Pinecrest Hospital	9:13	10:35	12:35	2:05
11	Johnstown Road	9:16	10:37	12:35	2:07
12	S. Vance Drive	9:18	10:39	12:39	2:09
13	Abram King /Hager	9:20	10:40	12:40	2:10
14	Bostic Avenue	9:21	10:41	12:41	2:11
15	F Street	9:23	10:44	12:44	2:14
16	Patch Street	9:25	10:46	12:46	2:16
17	Antonio Avenue	9:28	10:50	12:50	2:20
18	Barber Avenue	9:30	10:52	12:52	2:22
19	E Beckley Police Annex	9:33	10:54	12:54	2:24
20	S. Fayette Street	9:36	10:56	12:56	2:26
21	Beaver Avenue	9:38	11:00	1:00	2:30
22	Corner Shop	9:40	11:03	1:03	2:33
23	Hargrove Terr. Apt	9:42	11:05	1:05	2:35
24	E Prince Street	9:44	11:07	1:07	2:37
25	Powerline Drive	9:46	11:09	1:09	2:39
25	Johnstown Road	9:48	11:12	1:12	2:42
27	Manor House Apt	9:50	11:15	1:15	2:45
28	Wal-Mart	10:00	11:30*	1:30	3:00

*driver's lunch break

WORKFORCE TRANSPORTATION (JOB ACCESS)

A majority of the new jobs being added to the U.S. economy over the past 20 years are in the services sector, and the Fayette/Raleigh MPO area is no exception. Many of these jobs do not fit the traditional office schedule of 8 a.m. to 4 p.m. This means a growing percentage of the labor force is unable to use the local bus routes to travel to and from work. The issue is one that many communities across the U.S. are facing, thus the launch of the federal Job Access program to help address the challenge. Many communities used the funds to increase bus service frequency and/or to extend the hours of service, so that second and third shift employees would have transportation options. Although the program was discontinued when Congress passed the transportation legislation that took effect in 2012, the same level of funding previously allocated to Job Access has been rolled into the FTA-5307 urbanized transit funding program. Like other federal transit funds, it requires matching dollars.

RCCAA has been able to secure federal grant funds over the past several years through the Job Access program. The funds have been used to extend service to Saturdays as well as increasing the number of hours that daily service is available. RCCAA now operates vans from 6 a.m. to midnight, Monday through Saturday, to transport riders to their workplace or to adult education/training classes. The fare is the same as deviated fixed route or Dial-a-Ride service: $2.50 per one-way trip.

Seats on a van are reserved by calling RCCAA and providing advance information about the location, days of the week and schedule for which a recurring ride is needed. RCCAA then puts together vans based on groups of people who are going to the same general location on roughly the same timeframe. Recognizing that many households are either single parents or both parents are working the same hours, RCCAA also allows riders to schedule a side trip to childcare on the way to and from work.

More than 9,000 passenger trips are made annually by people using the RCCAA vans to travel to work or employment training. Like Dial-a-Ride, the program is now at capacity until additional resources can be identified.

SENIOR & DISABLED PERSONS TRANSPORTATION

Similar to the Job Access program, there was until recently a standalone funding program called New Freedoms which was used to fund additional service for senior citizens and disabled persons. The program was discontinued in 2012 and the funds were then rolled into the FTA-5307 funding program.

RCCAA has used these funds in a way similar to the Job Access funds: to provide extended hours of service. Depending on the desired schedule and origin/destination, the same van may be able to transport riders in both categories. About 2,000 to 2,500 annual passenger trips are made using this service. It should be noted that the Raleigh County Commission on Aging also provides transportation for senior citizens, so the demand for RCCAA's service is likely for locations and/or times that the Commission on Aging does not serve.

CONTRACT SERVICE

RCCAA also provides special transportation on a contract basis, apart from its regular services, when drivers and vehicles are available. This can be an important source of revenue for a transit agency since it provides non-federal funds that can be used to match other program dollars.

Historically, most contract service is requested during the summer in association with youth camps. RCCAA's contract service represents about 28,000 passenger trips per year, of which the majority occur as part of a single week's event held by the YMCA.

Figure 4-26: RCCAA Passenger Trips in 2013, by Type of Service

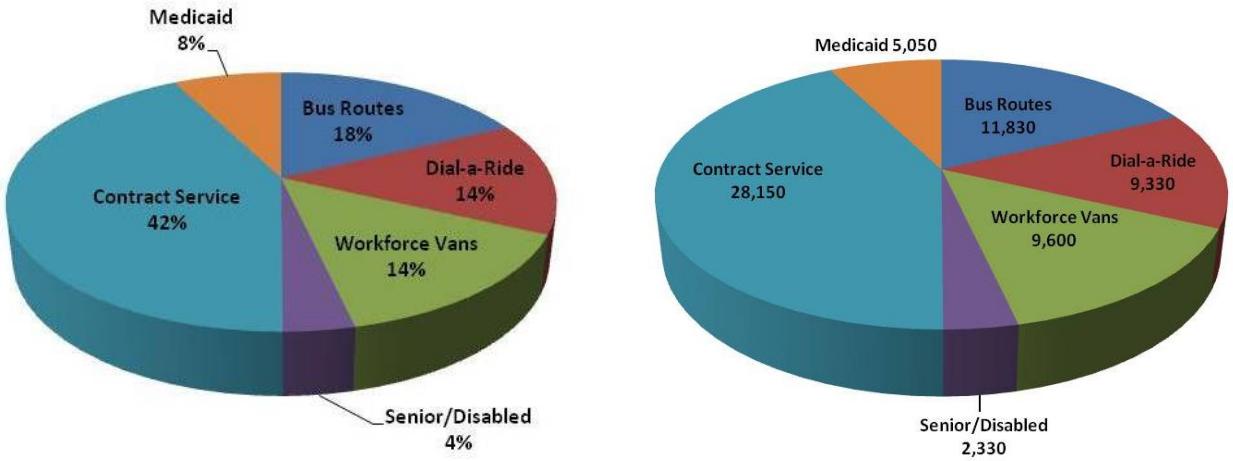
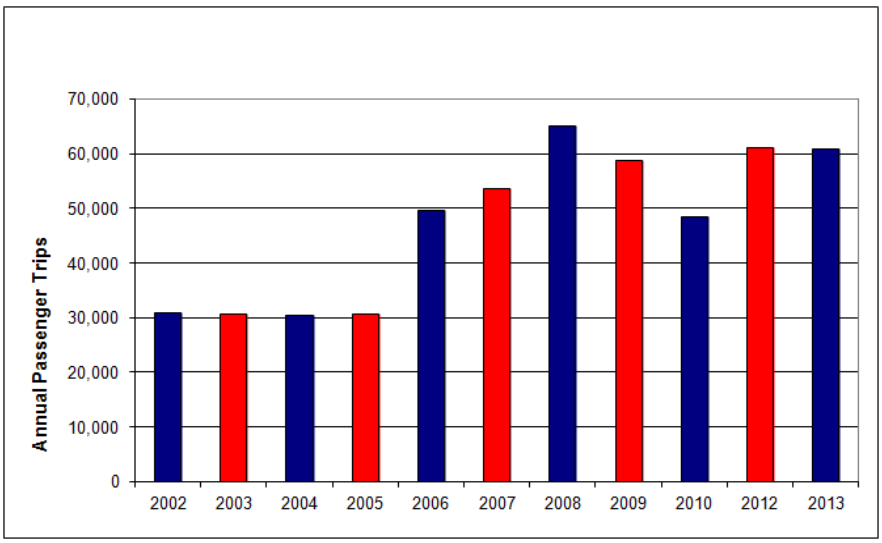


Figure 4-27: RCCAA Ridership Trends, 2002 to Current



Source: RCCAA. 2011 ridership data not available.

CAPITAL FACILITIES & EQUIPMENT

Table 4-21 shows the vehicles currently owned by RCCAA for use in public transportation services. Like many agencies, RCCAA was able to take advantage of federal economic stimulus funds provided under the American Recovery and Reinvestment Act (ARRA) to acquire a number of new vehicles. Nonetheless, multiple vehicles are beyond their useful life and need replacement soon, particularly the vans in the fleet. Federal matching ratios are favorable for such capital expenditures. Whereas transit operating funds require a one-to-one match (50/50), capital purchases are eligible for an 80/20 match.

Table 4-21: RCCAA Vehicle Fleet

Year	Type	Number
2003	Ford Econoline	1
2004	Ford Econoline	1
2006	Ford E450	2
1989	Ford E340	1
1999	Chevy Venture	1
2008	Ford Econoline	1
2005	Dodge Caravan	1
2008	Chevy Uplander	2
2011	Converted Van - Dial A Ride	1
2009	Goshen Coach	1
2010	Goshen Coach	1
2011	Goshen Coach	1

Source: RCCAA Transportation Operations

RCCAA is notable in the region for having its own vehicle maintenance facility, a distinct advantage in cost and convenience for a transit provider. The agency operates Action Auto, a program in which mechanics employed by RCCAA perform auto repair for the general public at sliding scale rates based on income. In addition to working on customers' vehicles, the mechanics are responsible for maintaining the vehicles used for RCCAA's Head Start program, Dial-a-Ride and the Raleigh Express.

However, staff have identified a critical need for vehicle storage space. As the transportation program has grown, the RCCAA site is becoming unable to accommodate the size of the vehicle fleet. Expansion of the current building and parking area is unlikely, so an offsite location is needed.

FUNDING

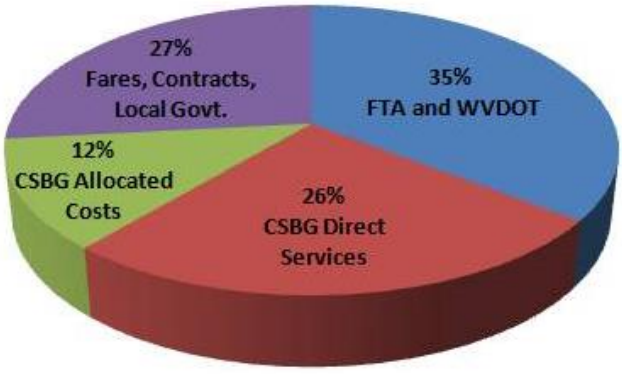
Despite not having a public transit authority, Raleigh County has for years enjoyed one of the state's most robust rural public transportation services. By housing the transportation program at the local community action agency, rather than forming a standalone organization, RCCAA has been able to leverage resources from the wide range of other social services programs that it operates.

This arrangement is an excellent example of the funding coordination that federal agencies have been encouraging through the "United We Ride" initiative over the past decade. The U.S. Departments of Transportation (DOT), Housing & Urban Development (HUD), Health and Human Services (HHS), and Veterans Administration (VA) have urged their state and local-level grantees to work cooperatively so that federal dollars are not spent on duplicative transportation services. As an example, multiple agencies that need to provide transportation for their clients could pool the federal funds used for that purpose and provide a more centralized, cost-effective service.

To promote and incentivize this cooperation, the U.S. government has begun to allow Federal Transit Administration program funds to be matched by other federal funds from non-DOT programs. This is an unusual opportunity for local agencies to stretch federal funds even further, and can be particularly helpful to communities where per capita incomes are lower than average.

RCCAA is Raleigh County's designated agency for receipt of Community Service Block Grant (CSBG) funds through HHS and the West Virginia Department of Economic Opportunity. A portion of those federal CSBG funds are being spent directly on the public transportation programs that RCCAA operates, and also serve as match for the federal transportation funds that RCCAA has been receiving from WVDOT. **Figure 4-28** and **Table 4-22** show the breakdown of revenue sources for RCCAA's transportation programs based on the agency's FY2014 budget.

Figure 4-28: FY2014 Revenue Sources for RCCAA Transportation Services



About one-quarter of the funding for public transportation in Raleigh County currently comes from farebox revenue, contract service such as the YMCA summer programs, and support from local governments. In recent years the City of Beckley has provided $35,000 and Raleigh County has provided $30,000 annually to support the services.

Table 4-22: FY2014 Revenue Sources for RCCAA Transportation Services

Source	Amount
Federal Transit Administration Funds	**$ 243,443**
CSBG Direct Services	$ 175,245
CSBG Allocated Costs	$ 83,147
Fares	$ 46,200
Contract income	$ 71,420
City of Beckley	$ 35,000
Raleigh County	$ 30,000
TOTAL	**$684,455**

Source: RCCAA FY2014 budget

Existing Service in Fayette County

Public transportation services in Fayette County are very limited in comparison with those available in Raleigh County. This partly reflects the more rural nature of the county. As noted earlier, the only areas designated as urbanized by the U.S. Census Bureau are Mount Hope, Oak Hill and Fayetteville along the US 19 corridor. Fixed route service is financially difficult to operate in areas where the population density is less than 4 homes per acre, which describes most of the county.

Fayette County does have service provided by 7 agencies in the health/human services sector, and by 6 small operators of private taxicabs, limousines or ambulance service as shown in **Tables 4-23** and **4-24**.

Table 4-23: Human Services Agencies that Provide Transportation

Agency	Type of Services
Mountain Transit Authority	Regional public transit authority serving Fayette, Nicholas, Webster, and Greenbrier counties
New River Health Associates	Medical services
Southern Appalachian Labor School (SALS)	Wide range of social service programs, including afterschool and summer school programs where transportation is a significant challenge
Energy Express	Youth summer camp provided through the WVU Extension Service
Fayette County Senior Programs	Services for senior citizens, including transportation to non-emergency medical appointments and nutrition sites
Fayette County Child Development	Operates the Head Start program
Metropolitan Community Development Corporation	Transportation to non-emergency medical appointments, with priority given to seniors and disabled persons

Table 4-24: Private Taxicab/Ambulance Operators

City Cab Company
General Ambulance
Jan-Care Ambulance Service
Medical Runners
MTS Medical Transportation Services
Multi-County Transportation Services
Ready Transportation Services

DEVIATED FIXED-ROUTE SERVICE

As this plan is under development, Mountain Transit Authority is operating one deviated fixed route which serves the US 19 corridor between the Town of Fayetteville and the Fayette/Raleigh county line, turning around at Crossroads Mall. (**Figure 4-29**) Service is provided Monday through Friday from 8:30 a.m. to 4 p.m. The route is convenient to several of the area's apartment complexes and is important in providing service to the Mount Hope Housing Authority's properties. MTA is scheduled to operate this service until the end of calendar year 2014, at which point the New River Transit Authority must find a new provider.

Figure 4-29: Deviated Fixed-Route Service in Fayette County (from MTA)

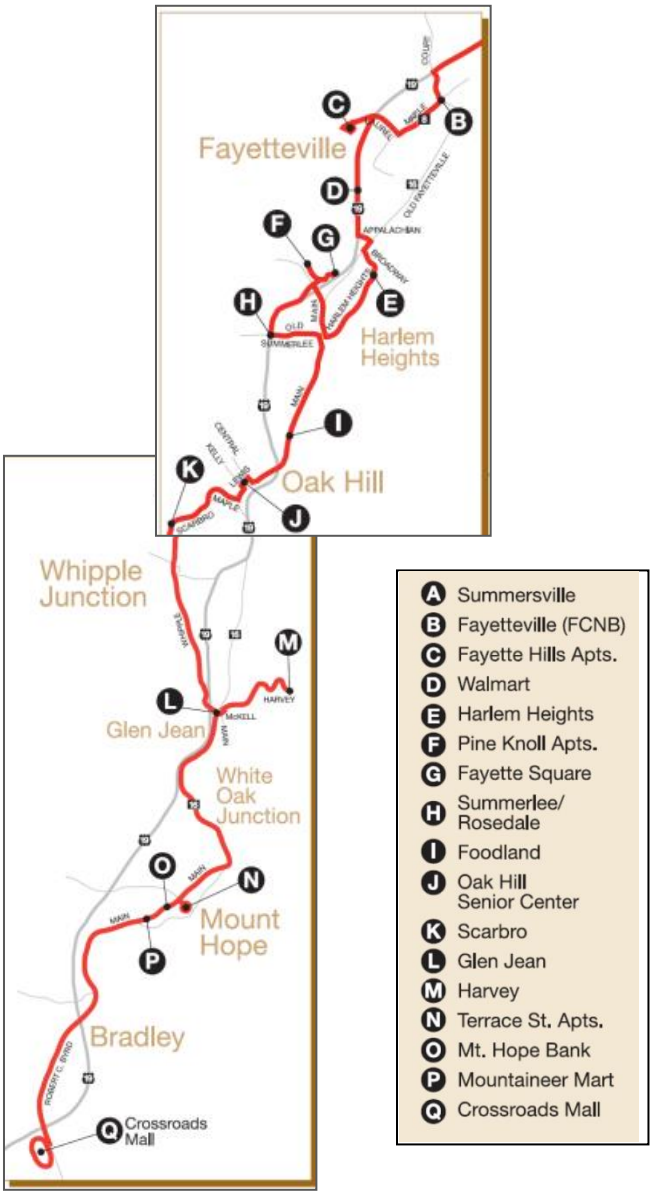


Figure 4-30: Fayette County Deviated Fixed Route Schedule

Summersville	8:00 AM	----------
Fayetteville (FCNB)	8:30 AM	12:30 PM
Fayette Hills Apts.	8:40 AM	----------
Walmart	8:45 AM	12:40 PM
Harlem Heights	8:50 AM	----------
Pine Knoll Apts.	8:55 AM	----------
Fayette Square	9:00 AM	12:50 PM
Summerlee/Rosedale	9:05 AM	----------
DHHR	Call For Service	
Foodland	9:30 AM	1:00 PM
Oak Hill Senior Center	9:35 AM	1:05 PM
Scarbro	9:40 AM	1:10 PM
Glen Jean	9:45 AM	1:15 PM
Harvey	Call For Service	1:25 PM
Terrace St. Apts.	10:00 AM	1:35 PM
Mt. Hope Bank	10:05 AM	1:40 PM
Mountaineer Mart	10:10 AM	1:45 PM
Crossroads Mall	10:20 AM	1:55 PM
Mountaineer Mart	10:30 AM	2:05 PM
Mt. Hope Bank	10:35 AM	2:10 PM
Glen Jean	10:45 AM	2:20 PM
Harvey	10:55 AM	Call For Service
Scarbro	11:00 AM	2:35 PM
Oak Hill Senior Center	11:05 AM	2:40 PM
Foodland	11:10 AM	2:45 PM
Harlem Heights	11:15 AM	----------
Pine Knoll Apts.	11:20 AM	----------
Fayette Square	11:25 AM	2:55 PM
Walmart	11:35 AM	3:10 PM
Fayette Hills Apts.	11:40 AM	3:15 PM
Fayetteville (FCNB)	11:50 AM	3:20 PM
Summersville	----------	4:00 PM

Like the Raleigh Express, MTA operates a deviated fixed route system by providing service upon advance request to areas located within 3/4 mile of either side of the route. The entire route operates with flag stops, each of which is served twice daily based on the current schedule. (**Figure 4-30**)

The service has experienced the same "vicious circle" that challenges many other very small transit operations: if buses are not frequent, then ridership is low – and if ridership is low, it is difficult to justify providing more frequent buses.

TRANSIT NEEDS AND ISSUES

Input on the region's transit needs was obtained through questionnaires and a stakeholders workshop as part of a 2013 study sponsored by WVDOT and the MPO. Key transit needs identified by the study included:

Service for the "average working person." A number of grant programs are currently targeted to provide transit to groups who are typically considered to be in greatest need. This includes seniors and disabled persons, as well as people who are clients of Headstart, Temporary Assistance to Families in Need (TANF), and other human services programs. The group who may be falling through the cracks are those who are currently employed and licensed to drive, but for various reasons are not able to drive a personal vehicle for their transportation needs. This could be a household that has multiple workers but only one car. It could also be a single person who is employed full-time whose paycheck is already stretched to cover the costs of housing, food, medical needs and perhaps enrollment in continuing education.

Evening and weekend service. A majority of jobs being added to the economy are in the service sector, which includes major retail stores that are open in the late evening as well as 24-hour establishments such as hotels. Public transit service that ends at 5 p.m., or does not run on Saturdays and Sundays, does not match the schedule of the fastest-growing part of the workforce. Raleigh County has been providing Jobs Access transportation in the evenings and weekends through the use of specially targeted federal grant funds. However, demand for the services currently outstrips supply, and even maintaining the current level of service will require increased financial commitment from the region's local governments and employers.

Enhanced marketing efforts. Regular outreach and distribution of informational materials is vital to ensure that citizens (and major employers) are aware of the service and how to use it. Public websites are a valuable communications method, but the public needs to receive information in more than one format. The transit study recommended that the MPO's staff and TAC members assist with regular distribution and placement of hard copy transit marketing materials in public offices, community centers, stores and other heavily visited sites.

Increased partnerships between public transit and human services agencies. The study recommended holding a regional-level meeting similar to the state's Transportation Coordinating Council, which convenes public and non-profit organization who receive federal funds used for providing transportation, whether it be funds received through the U.S. DOT, the Veterans Administration, Health and Human Services, or another agency. Instead of each organization spending its funds to provide a separate transportation service, some funds could be pooled to create a cost-efficient program that serves all. Either the MPO or New River Transit Authority, or both, could host this meeting.

Increased partnerships with the region's employers. Economic success means a workforce that has reliable transportation to work. The NRTA needs the support of the business community to help meet the increasing demand for the Jobs Access program. This does not necessarily mean that employers will be asked to make direct financial contributions to public transit operations, although there are communities in which that occurs. There are other key roles employers can play. For example, they can distribute information about existing public transit services to their workers; encourage and facilitate the formation of carpools or vanpools; and explore the potential for payroll tax deduction by providing commute benefits to employees.

Expanded services for Fayette County. Although there is deviated fixed-route service along the main Fayetteville – Oak Hill – Mount Hope corridor, there is no "dial-a-ride" service for more remote areas of the county. The 2013 transit study notes that it may be difficult to serve greater portions of Fayette County without significant cost, and recommends further evaluation after the implementation of the state's non-emergency medical transportation brokerage.

Visitor-oriented transit service. Particularly in Fayette County, there are a growing number of businesses who recognize the potential benefits of transit for regional visitors. Groups traveling to the national park or the new Boy Scout reserve could be transported in fewer vehicles than if they drove individually, lessening the burden on constrained roads and helping to protect the region's natural resources. Depending on the nature and frequency of demand, it might be possible for some of the services to be provided on a contract basis by existing transit operators such as RCCAA.

Recommendations

Tables 4-25 through **4-27** show the proposed transit investments for the region during the period of the 2040 Plan. It includes needs for ongoing and expanded transit operations, preventive maintenance and capital projects, including regular vehicle replacements and the addition of more shelters and other amenities at bus stops.

This list is based on current needs and the early goal-setting discussions held by stakeholders during and immediately after the 2013 transit needs study. As the MPO continues to work on transit planning activities with NRTA and local governments, the region's goals for transit service may evolve and this will be reflected in future Plan updates.

Table 4-25: Proposed Transit Investments for 2015-2020

PROJ NO	PROJECT	TYPE OF IMPROVEMENT	COUNTY	DESCRIPTION
TR-1	Operate deviated fixed route transit service	Operations	Fayette, Raleigh	Weekday service for Raleigh Express (city) and former MTA routes; Raleigh County routes twice per week
TR-2	Vehicle replacements	Capital	-	Replace transit vehicles that have reached the end of their useful life
TR-3	Building/facility maintenance and equipment	Prev. Maint.	-	Routine maintenance, repairs to equipment, operating facilities and passenger facilities.
TR-4	Bus stop amenities (benches, shelters, signage)	Capital	Fayette, Raleigh	Add or replace passenger amenities along regular transit routes
TR-5	Dispatching software and Automatic Vehicle Location system	Capital	-	Acquire technology to assist in scheduling and real-time routing

Table 4-26: Proposed Transit Investments for 2021-2030

PROJ NO	PROJECT	TYPE OF IMPROVEMENT	COUNTY	DESCRIPTION
TR-6	Operate deviated fixed route transit service	Operations	Fayette, Raleigh	Weekday service for Raleigh Express (city) and former MTA routes; Raleigh County routes twice per week
TR-7	Building/facility maintenance and equipment	Prev. Maint.	-	Routine maintenance, repairs to equipment, operating facilities and passenger facilities.
TR-8	Bus stop amenities (benches, shelters, signage, etc.)	Capital	Fayette, Raleigh	Add or replace passenger amenities along regular transit routes
TR-9	Upgrade communications / dispatching software	Capital	-	
TR-10	Vehicle replacements	Capital	-	Replace transit vehicles that have reached the end of their useful life
TR-11	Enhance service for Raleigh Express city routes	Operations	Raleigh	Add evening and weekend service.
TR-12	Enhance Fayette County deviated fixed-route service	Operations	Fayette	Improve headways (frequency). Consider weekend service.
TR-13	Vehicle fleet expansion	Capital	-	Add vehicles as needed to provide planned new service, including evening and weekend service
TR-14	Mini-hub / transfer point on N Eisenhower Drive	Capital	Raleigh	Consider Beckley Crossings area
TR-15	Transit hub in Oak Hill	Capital	Fayette	Co-locate with public facility / parking

Table 4-27: Proposed Transit Investments for 2031-2040

PROJ NO	PROJECT	TYPE OF IMPROVEMENT	COUNTY	DESCRIPTION
TR-16	Operate deviated fixed route transit service	Operations	Fayette, Raleigh	Daily daytime and evening service for Raleigh Express (city) and former MTA routes; Raleigh County routes twice per week
TR-17	Building/facility maintenance and equipment	Prev. Maint.	-	Routine maintenance, repairs to equipment, operating facilities and passenger facilities.
TR-18	Bus stop amenities (benches, shelters, signage)	Capital	Fayette, Raleigh	Add or replace passenger amenities along regular transit routes
TR-19	Rehabilitation of transit center / administrative facilities	Capital	Raleigh	
TR-20	Vehicle replacements	Capital	-	Replace transit vehicles that have reached the end of their useful life
TR-21	Vehicle fleet expansion	Capital	-	Add vehicles as needed to provide planned new service
TR-22	Mini-hubs in Mount Hope and Fayetteville	Capital	Fayette	Co-locate with public facility / parking
TR-23	Connecting service to KAT (Charleston)	Operations	Fayette	Provide service to a stop in northwest Fayette County where passengers can transfer between NRTA and KAT

Bicycle & Pedestrian System

The past few years have seen growing interest nationally in "Complete Streets," the philosophy that a transportation corridor should provide safe travel for non-motorized users as well as cars, motorcycles and trucks. In many cases the facilities may physically share a route, while in some circumstances the non-motorized users may be better accommodated through a parallel facility. By making it safer and more convenient to walk and bicycle, the region can expand the transportation choices available to citizens and visitors while also promoting improved health.

EXISTING BICYCLE/PEDESTRIAN FACILITIES

Considerable progress has been made on plans for a regional network that combines on-road and off-road facilities to link various communities and public lands in Fayette, Raleigh, and adjoining counties. These initiatives are driven partly by the region's economic strategy, which centers on its popularity for outdoor recreation. In fact, most of the local governments in the two-county area specifically support particular trails in their adopted comprehensive plans that would link their own communities into the larger network.

Figures 4-31 and **4-32** show existing trails in Raleigh and Fayette counties as mapped by the National Coal Heritage Area's *Trail Plan for Greenways and Blueways* (2010). **Tables 4-28** and **4-29** correspond to each map, listing the trails represented on each map and the area in which they are located. A large percentage of the region's trail mileage lies within publicly owned lands, including the New River Gorge National River, Little Beaver State Park, Babcock State Park, and Hawks Nest State Park.

Figure 4-33 shows the concept outlined in the *New River Gorge General Management Plan* (GMP) for the linkages among the region's public lands and its neighboring communities. These links would primarily consist of off-road facilities, but could include some on-road segments in certain communities.

Trail partner organizations in the MPO region include:

- New River Gorge National River
- Gauley River National Recreational Area
- Little Beaver State Park
- Raleigh County Memorial Airport
- Raleigh County Cycle Club
- Babcock State Park
- Fayette and Raleigh counties
- White Oak Rail-Trail Commission
- Fayette County Green Advisory Team
- Fayette County Improvement Board
- Ansted Improvement Motivators
- Piney Creek Watershed Association
- Cities of Ansted, Beckley, Mount Hope, Oak Hill and Fayetteville

The Boy Scouts of America has also been a major partner, and has provided critical volunteer labor to begin construction of some of the proposed trails.

Figure 4-31: Existing Trails in Raleigh County

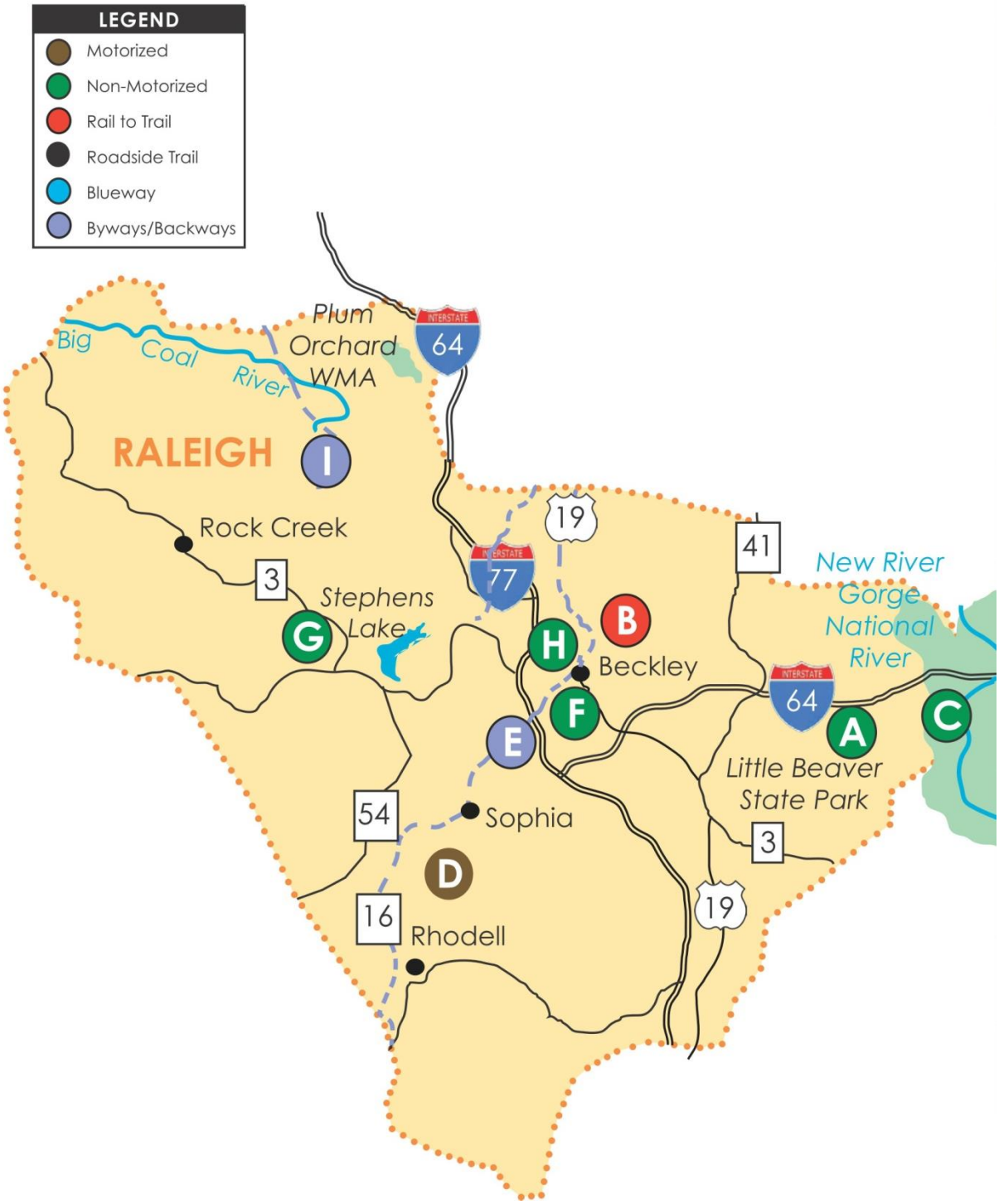


Table 4-28: Existing Trails in Raleigh County

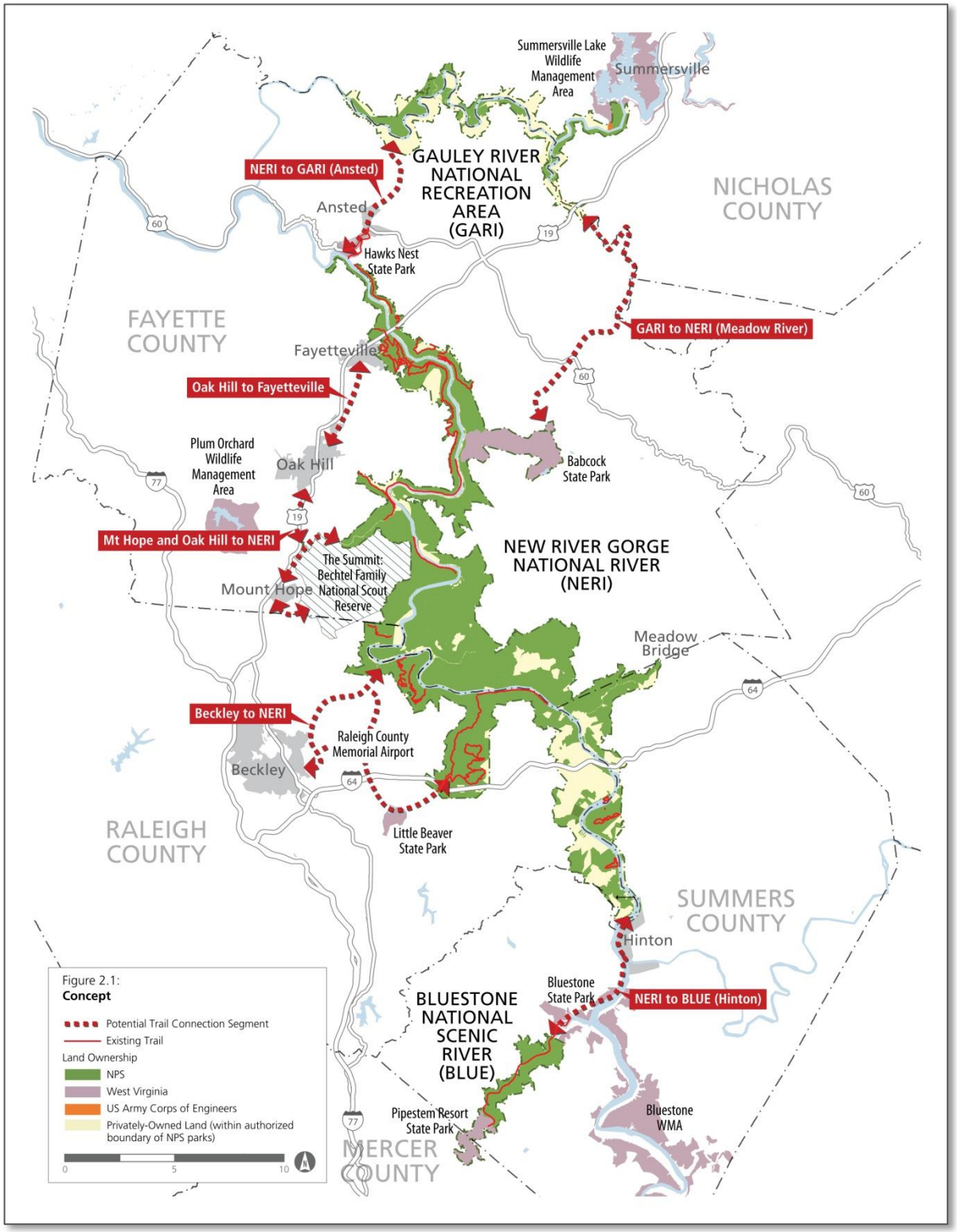
A	**Little Beaver State Park**	Beaver Creek Trail Billy Goat's Gruff Trail Creek Bed Deer Loop Deer Trail Laurel Creek Crossing Nature Ridge Trail Railroad Grade Rhododendron Run Trail Topper's Ridge	0.5 miles 0.6 miles 0.4 miles 0.4 miles 0.8 miles 1.8 miles 0.8 miles 1.95 miles 2.5 miles 0.6 miles
B	**Beckley**	Beckley Rail Trail	4 miles
C	**New River Gorge National River**	Big Buck Trail Canyon Rim Trail Castle Rock Trail Grandview Rim Trail Island Loop Trail Park Loop Trail Royal Trail Terry Top Trail Tunnel Trail Turkey Spur Woodland Loop	0.8 miles 1.6 miles 0.5 miles 1.5 miles 0.6 miles 1 mile 2.6 miles 1.6 miles 0.3 miles 2 miles 0.6 miles
D	**Burning Rock Off-Road Park**	Off-Road trail system for ATVs and dirt bikes	100 miles
E	**Driving tour through Fayette, Raleigh, McDowell, Mercer, and Wyoming counties**	Coal Heritage Trail National Scenic Byway	157 miles
F	**Beckley area**	Fitzpatrick Trail Soccer fields trail	1.3 miles 1.5 miles
G	**Lake Stephens**	Mountain bike and hiking trail	4.6 miles
H	**New River Park**	New River Park Trail	0.6 miles
I	**Driving tour through Raleigh, Fayette and Kanawha counties**	Paint Creek State Scenic Byway	42 miles

Figure 4-32: Existing Trails in Fayette County

Table 4-29: Existing Trails in Fayette County

A	**New River Gorge National River**	Arbuckle Connector Church Loop Trail South Side Junction Trail	0.2 miles 0.2 miles 5.2 miles
B	**New River Gorge National River**	New River Gorge National River Trail system	38 miles
C	**New River Gorge National River**	Brooklyn Mine Trail Kaymoor Trail New River Bridge	2.7 miles 8.3 miles 1.6 miles
D	**Hawks Nest State Park**	Cliffside Trail Fisherman's Trail GYSP Trail Lovers Leap Trail	2 miles 2 miles 1.5 miles 0.3 miles
E	**Driving tour through Fayette, Raleigh, McDowell, Mercer, and Wyoming counties**	Coal Heritage Trail National Scenic Byway	157 miles
F	**Babcock State Park**	Fisherman's Trail Lakeview Trail Manns Creek Gorge Mountain Health Trail Narrow Gauge Trail Rocky Trail Skyline Trail Wilderness Trail	2 miles 1 mile 2 miles 0.3 miles 3.5 miles 0.5 miles 2 miles 2.5 miles
G	**Town of Ansted**	Hawks Nest Rail Trail	1.8 miles
H	**Along US 60 (Midland Trail National Scenic Byway)**	Midland Trail Bikeway	1.7 miles
I	**US 60 in Fayette County, Kanawha, Cabell and other counties**	Midland Trail National Scenic Byway	138 miles
J	**Raleigh, Fayette and Kanawha counties**	Paint Creek State Scenic Trail	42 miles
K	**New River Gorge National River**	Stone Cliff Trail	2.8 miles
L	**Oak Hill**	White Oak Rail Trail	7 miles
M	**New River Gorge National River**	Thurmond-Minden Rail Trail	3.4 miles

Figure 4-33: New River Gorge GMP Concept for Linking Communities to Public Lands



BICYCLE DESIGNATIONS AND LAWS

Share the Road

The MPO area has a number of roads on which there are no marked, separate on-road bicycle facilities, but motorists are explicitly reminded that bicycles may be present and that they can legally use the roadway.

In Fayette County, "Share the Road" signs are posted in these areas:

- US 19 north of Fayetteville, near WV 5 where there are several outdoor recreation-oriented businesses;
- WV 41 along the Fayette/Greenbrier county line and at the route's junction with US 60 (Midland Trail National Scenic Byway); and
- WV 8 through the Town of Fayetteville.

Areas in Raleigh County where "Share the Road" signs are posted include:

- WV 9 (Grandview Road) near the edge of the New River Gorge National River lands;
- Airport Road;
- WV 307 (Scott Ridge Road) in the area of Grandview Country Club;
- WV 210 (S. Kanawha Street) through downtown Beckley; and
- Maxwell Hill Road, Pinewood Drive and Pikeview Drive.

The 3-foot Law

In 2014 West Virginia became one of 22 states that have put the "3-foot law" into effect, requiring drivers to maintain a minimum distance of three feet from cyclists when passing them on the road:

" The driver of a vehicle overtaking a bicycle traveling in the same direction shall pass to the left of the bicycle at a distance of not less than three feet at a careful and reduced speed, and may not again drive to the right side of the roadway until safely clear of the overtaken bicycle."

(West Virginia Code §17C-7-3)

State law also requires on-road cyclists who are not riding at the normal traffic speed to ride as far to the righthand curb or road edge as practicable. Exceptions include when passing another bicycle; when it is necessary to avoid striking an object, including roadway debris not swept off the shoulder; and when riding in a "substandard-width lane," defined as a lane that is too narrow for a bicyclist and motor

vehicle to ride safely side-by-side. Unfortunately, in many parts of Fayette and Raleigh counties, substandard-width lanes are common.

The challenges facing the MPO region for on-road bicycle use are similar to those that arise when identifying routes for Turnpike detours. A large proportion of roads do not have standard shoulder width (10 to 12 feet), or even the 4-foot minimum shoulder needed for motorists to be able to pass a cyclist and comply with the new 3-foot law. Opportunities for a motorist to pass by using the oncoming traffic lane are limited on many roads because of curves and grades that obstruct sight distance ahead. As a result, only very experienced cyclists are likely to feel comfortable riding in the travel lane, especially on more rural roads.

For these reasons, it is particularly important for the MPO region to incorporate new bicycle and pedestrian facilities as part of future projects to build new or widened roads. This has actually been a requirement for many years for roadway improvements which utilize federal funds. Many bicycle/pedestrian advocates have begun to urge that the same policy be followed for projects using state and local funds, a concept they call "Complete Streets."

The East Beckley Bypass is an excellent example of how a region can gradually expand its overall bicycle and pedestrian network by following a Complete Streets policy.

The design for the East Beckley Bypass included sidewalks and paved shoulders which now become part of the regional bicycle and pedestrian network.

As development occurs along the route, it will be important to consider how to maintain a safe environment for pedestrians and cyclists.

One example is to manage new access by keeping driveways and intersecting roads to a minimum. As discussed earlier, good access management improves safety and helps preserve efficient traffic flow. This is true not only for motorized traffic, but also for pedestrians and cyclists. Every location where a vehicle is turning onto and off the highway is a location where a pedestrian or cyclist is at risk of being struck. The safest design is to allow turns only at signalized or marked intersections, where motorists, pedestrians and cyclists have crosswalks and walk signals that clearly indicate who has right of way.

LOCAL BICYCLE/PEDESTRIAN FACILITIES

Both Beckley and Oak Hill have constructed major rail-trail facilities that citizens use not only for recreational walking/cycling, but also for traveling to and from work. Some neighborhoods already have the ability to walk directly to the trail, but there are opportunities to add sidewalks to provide additional neighborhoods with safe access to the rail trails.

As noted earlier, there are also proposals to connect the local rail-trails to the larger regional bicycle/pedestrian network. The stated goal is to attract visitors from national parklands into the downtown business districts, but the new connections would also expand local residents' ability to travel between communities such as Beckley and Oak Hill even if they do not have access to a personal vehicle.

Riding bicycles on the Beckley Rail Trail

(Photo by Chuck Holton, available at https://www.flickr.com/photos/rangerholton/144158

However, as with roads, expansion cannot always take priority over maintenance. In some communities there are portions of the local sidewalk network that are in such poor condition that residents are forced to walk in the street. The MPO can work with local governments to conduct sidewalk inventories and develop cost estimates and a prioritization system for repairs. Priority could be given to repairing sidewalks on roads that have a transit route, in areas around schools and other community facilities, or in neighborhoods that are known to have a high proportion of residents with limited access to a vehicle. For projects in low-income areas, there may be opportunities to fund sidewalk repairs with a combination of community development funds and transportation dollars.

FUTURE BICYCLE/PEDESTRIAN NETWORK DEVELOPMENT

Further development of the bicycle/pedestrian network in the MPO area should be guided by a standalone regional bicycle and pedestrian plan that focuses on these significant issues:

- **Completing, repairing and maintaining the sidewalk network that serves the area's transit routes.** Every transit rider is also a pedestrian at the beginning and ending of his/her trip. Major gaps on the current fixed route transit system include portions of the WV 3 (Harper Road) corridor between I-77 and Hylton Lane, as well as from Northwestern Avenue to the Kroger shopping center. Robert C. Byrd Drive also lacks sidewalk access for any points north of Ragland Road. There are other isolated gaps in the system. For example, at the entrance drive to Raleigh Memorial Hospital, there are no sidewalks to serve the crosswalk marked between the hospital and the medical building on the opposite side of Harper Road.

As the New River Transit Authority refines its routes, it should work in partnership with the MPO to identify additional, similar gaps and prioritize locations for maintenance and improvement.

- **Expanding the bicycle and pedestrian network to better link neighborhoods and commercial centers to existing major trails.** The Beckley Rail-Trail, White Oak Rail-Trail, and other planned facilities are popular recreational corridors where residents have the opportunity to enjoy physical activity and meet others who live in the area. They also provide important access to work, shopping and other community services for residents who don't drive or don't have access to a vehicle.

- **Continuing to build and improve bicycle and pedestrian connections from gateway communities to adjoining state and federal parklands.** Many of the adopted local comprehensive plans in the MPO area include particular trails that would link the communities to the larger network. The *Connecting Communities* regional trail plan also proposes on-street improvements ranging from the addition of marked crosswalks at trail intersections to the addition of pedestrian refuge islands as part of future highway widening projects, such as WV 61 in Mt. Hope. Many of these projects can be submitted for consideration as various grant opportunities arise, including the federal Transportation Alternatives Program (TAP) and Federal Lands Access Program (FLAP).