Introduction

A regional transportation plan begins with a comprehensive understanding of regional characteristics and trends. Population and employment dynamics influence existing and future transportation needs, such as freight movement, public transportation demand, and commuting patterns. Chapter 2 includes an assessment of socioeconomic trends and characteristics and discusses the importance of environmental justice as it relates to the development of the Kanawha-Putnam 2045 Regional Transportation Plan (RTP).

Kanawha Valley – A Brief History

Transportation has shaped the history of the Kanawha Valley since Native Americans fished, hunted, and farmed the area. The earliest inhabitants of the Kanawha Valley took advantage of the area’s network of rivers, fertile farmland, and natural resources. These Native Americans settled in the area at the confluence of what today we call the Kanawha and Elk Rivers. As recently as the early 1700s, Native Americans still hunted the area. The first European explorers arrived in the late 17th century, followed by decades of unrest between the natives and Europeans as settlers attempted to establish communities in the valley.

Much of the valley’s history has centered on what today is West Charleston, WV - Kanawha River
Virginia’s most populous city. Charleston was established in the late 1700s but remained a rural outpost until the salt industry took hold in the early 19th century. The same rivers that attracted Native Americans to the area allowed a shipping center to serve the new industry. As the availability of British salt supplies diminished, the region’s new industry flourished. And as wealth flowed into the valley, stately homes were built, banks were established, and businesses opened to serve a growing population.

In 1873, the completion of the Chesapeake and Ohio (C&O) Railway through Charleston connected Richmond, Virginia to Huntington, West Virginia. The new railroad was the force behind a period of economic development in the city and surrounding region. The C&O paralleled the Kanawha River to the south with a depot opposite the city’s central business district. The completion of the railroad and construction of spur lines also allowed coal to be transported to markets.

The Kanawha River—which separated the city and the railroad—remained a major obstacle to development in Charleston. Prior to the construction of the South Side Bridge, a system of ferries was necessary to transfer goods from railcars to the city. Though the arrival of the railroad and construction of the South Side Bridge allowed most supplies and goods to arrive in the Kanawha Valley via rail, the Charleston levee continued to be a major shipping destination until the region’s roads were improved in the 1920s.

The second major railroad, the Ohio Central Railroad, arrived in the region in 1883 and linked Charleston with Toledo, Ohio. In 1893, the Kanawha and Michigan Railroad took over the rail line and a series of extensions eventually connected the coalfields of West Virginia with the Great Lakes. Today, Norfolk Southern manages the railroad.

As railroads gained popularity and shifted focus from the ships on the river, the urban areas began to construct roads to transport horses and buggies. The city gained notoriety in 1873
when Summers Street became the first brick-paved road in the world. The statewide referendum in 1885 that made Charleston the permanent state capitol ushered in a new era of public infrastructure construction.
Population Trends

Between 1880 and 1920, the population of Charleston ballooned from 4,192 to 39,608. The population of Kanawha County grew just as fast, increasing from 32,466 to 199,650. Growth of urban jobs, population, and traffic continued at a brisk pace throughout the Great Depression and World War II.

In 1956, the National Interstate and Defense Highways Act brought to the area increased mobility and a newfound emphasis on the automobile. Postwar road building began in 1954 with the completion of the West Virginia Turnpike between Princeton and Charleston.

Eventually, three major interstates—I-64, I-77, and I-79—would converge in the heart of Charleston and provide access to the Midwest, Northeast, and South. Today, the Kanawha Valley is within a day’s drive of 60% of the U.S. population.

Post-World War II regional growth patterns underwent an inverse shift from the previous era of urban-centric living to suburban-oriented development. After more than a hundred years of continuous growth, culminating in a 1960 population of more than 250,000, Kanawha County entered a 50-year era of population decline. Dramatic drops occurred in the 1960s and again in the 1980s, when the county’s population shrank by more than 2,300 people per year. After 1990, the rate of decline slowed considerably; the average annual loss between 2000 and 2010 was about 700 people. Almost all of this population drain was from the central city of Charleston, which declined by 11.0% (a reduction of 5,887 people).

While Kanawha County experienced dramatic ebbs and flows, Putnam County continued to grow. The only county in West Virginia to have grown continuously for the past 50 years, Putnam’s population doubled from 27,625 people in 1960 to 55,486 in 2010—an average of 560 additional people every year. In other words, Putnam has added, on average, two new residents every single day for the past half century, while Kanawha lost four
people every day between 1960 and 1990, after which the rate dropped to a loss of about two people per day.

The 2014 American Community Survey showed a Kanawha County population of 191,765 people, which keeps with the trend of declining population in Kanawha County. Putnam County’s 2014 population of 56,356 shows a gain of 870 residents since 2010. Although still increasing, the Putnam County population growth rate has slowed. Figure 2-1 shows the density of population in Kanawha and Putnam counties.
Population Density

Figure 2-1

Population Density (persons per square mile)
- Less than 500
- Between 500 - 1,000
- Between 1,000 - 2,000
- Between 2,000 - 4,000
- Between 4,000 - 8,000

U.S. Census Bureau; 2014 American Community Survey 5-Year Estimates, Table B01003
Housing and Household Characteristics

According to the 2014 American Community Survey 5-year estimates, there are 103,984 households within Kanawha and Putnam counties. Similarly distributed to the regional population, nearly 80% (82,531) of the households are in Kanawha County. Putnam County contains about 20% (21,453) of the region’s households.

Regionally, the average household size is 2.35 persons and the median household income is $50,187. Approximately 73% of households are owner-occupied, while 27% are renter-occupied. While Putnam County has a quarter of the number of households as Kanawha County, Putnam County had the highest average household size, median household income, and percent owner-occupied households. Table 2-1 summarizes the household characteristics of the counties and the region.

Table 2-1: Household Characteristics

<table>
<thead>
<tr>
<th>COUNTY</th>
<th>NUMBER OF HOUSEHOLDS</th>
<th>AVERAGE HOUSEHOLD SIZE</th>
<th>MEDIAN HOUSEHOLD INCOME</th>
<th>PERCENT OWNER-OCCUPIED</th>
<th>PERCENT RENTER-OCCUPIED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kanawha</td>
<td>82,531</td>
<td>2.29</td>
<td>$48,222</td>
<td>70.4%</td>
<td>29.6%</td>
</tr>
<tr>
<td>Putnam</td>
<td>21,453</td>
<td>2.61</td>
<td>$57,746</td>
<td>83.0%</td>
<td>17.0%</td>
</tr>
<tr>
<td>Region</td>
<td>103,984</td>
<td>2.35</td>
<td>$50,187</td>
<td>73.0%</td>
<td>27.0%</td>
</tr>
</tbody>
</table>

U.S. Census Bureau; 2014 American Community Survey 5-Year Estimates, Tables S1101 & B19013
Employment

Kanawha County composes 10.3% of the state’s population and 14.8% of the state’s total employment. Putnam County composes 3.0% of the state’s population and 2.8% of the state’s total employment.

In 2014, approximately 43.2% (35,227) of Kanawha County’s employees commuted into the City of Charleston for work (U.S. Census, LED). However, since 2004, the number and share of employees both living and working in the City of Charleston has decreased nearly 26.0% (Figure 2-2) from 15,912 in 2004 to 12,557 in 2014. Major employers in Kanawha County include the Charleston Area Medical Center (CAMC), the Kanawha County Board of Education, and Herbert J Thomas Memorial Hospital.

*Figure 2-2: Population both Living and Working in Charleston*

While Charleston is the employment core of Kanawha County, Teays Valley is the principal job center in Putnam County. Teays Valley accounts for over one-quarter (6,333) of Putnam County’s total employment. Major employers in Putnam County include the Putnam County Board of Education, Toyota Motor Manufacturing, and Charleston Area Medical Center (CAMC) Teays Valley Hospital in Hurricane. Although many Teays Valley residents work locally, approximately 35% commute to work in the Charleston, South Charleston, and Nitro areas. Another 6.5% commute to Huntington.
Unemployment

The Bureau of Labor Statistics indicates that unemployment rates have fallen at the regional, state, and national levels since the Great Recession. The Great Recession that lasted from December 2007 to June 2009 had significant impacts on Kanawha and Putnam counties, as well as on West Virginia as a whole. The recession resulted in severe job loss and the region’s economy has been slow to recover. However, the economy is steadily growing and unemployment rates are decreasing, as shown in Figure 2-3. As of May 2016, the unemployment rates for Kanawha County and Putnam County, 5.6% and 4.9% respectively, were below the state unemployment rate of 5.8%, yet above the national unemployment rate of 4.7%.

Figure 2-3: Unemployment Rates, January 2005 to December 2015

Economic Development Initiatives

The Charleston Civic Center’s renovation and expansion project is in progress, with an anticipated completion in 2017. Renovations include electrical, mechanical, structural, and aesthetic updates that will enhance the beauty and functionality of the center. The renovations are expected to have significant economic impacts on the region.

Thomas Health System has partnered with Stonerise Healthcare to develop a $17 million post-acute care facility. The 71,000-square-foot facility will be in South Charleston and could create as many as 100 new jobs. Construction of the facility is anticipated for 2016.

Marshall University Health has purchased the old Patriot Coal headquarters and intends to expand medical services in Putnam County. Renovations to the three-story building were set to begin in the summer of 2016. All existing Hurricane offices of Marshall Health will be relocating to the new building.
Travel Characteristics

Regional Linkages

Regional access in the Kanawha Valley is provided by three major Interstate facilities and three major US facilities: I-64, I-77, I-79, US 35, US 60, and US 119. These routes serve to connect Kanawha and Putnam counties to Huntington, Morgantown, Parkersburg, and Beckley in West Virginia; Dayton, Columbus, and Cleveland in Ohio; Lexington, Kentucky; Roanoke and Richmond, Virginia; and Winston-Salem, North Carolina.

Interstate 64 is an east-west Interstate freeway with current termini in Lake Wentzville, Missouri in the west and Chesapeake, Virginia in the east. There are 184 miles of Interstate 64 within the state of West Virginia, connecting Huntington, Charleston, Beckley, and Lewisburg.

Interstates 64 and 77 follow the same alignment between Charleston and Beckley. Between the easternmost crossing of the Kanawha River and their split, the facility is operated as part of the West Virginia Turnpike, and vehicular movements are tolled.

Interstate 77 is a north-south Interstate freeway with current termini in Columbia, South Carolina in the south and Cleveland, Ohio in the north. The facility is a toll road for 88 miles of its 186 miles within the state of West Virginia, and shares its alignment with Interstate 64 between Beckley and Charleston. I-77 connects Beckley, Charleston, Princeton, Bluefield, and Parkersburg.

Interstate 79 is a north-south Interstate freeway with current termini in Charleston, West Virginia to the south and Erie, Pennsylvania to the north. Approximately 160 miles of this facility traverse West Virginia, and it connects Charleston to Clarksburg, Fairmont, and Morgantown and Pittsburgh, Pennsylvania outside the state.

US 35 is a north-south US highway connecting Charleston and Michigan City, Indiana. The route is being relocated in Putnam and Mason counties to a new four-lane facility, which should provide congestion relief for motorists traveling between Scott Depot, Teays Valley, Fraziers Bottom, and Pliny.

US 60 is a major east-west US highway, stretching over 2,600 miles between Quartzsite, Arizona and Virginia Beach, Virginia. Within the state of West Virginia, the route connects Huntington, Charleston, and Lewisburg.

US 119 is a spur of US Highway 19, connecting Pikeville, Kentucky to Sandy Township, Pennsylvania. Within the Kanawha-Putnam planning area, the facility is known primarily as Corridor G and serves as a major connection between the residential suburbs south of Charleston and the downtown
area. Appalachian Corridor G begins in Williamson, on the Kentucky State line, and ends at MacCorkle Avenue.
Commuting Patterns

U.S. Census data estimates that in 2014, Kanawha and Putnam counties had 133,660 primary jobs, along with 105,216 working residents. This means that Kanawha and Putnam counties have more jobs than available workers. An estimated 81,506 residents both live and work in the two-county region, while 23,710 leave the area for work. Those leaving are primarily traveling west to Huntington and southeast to Beckley.

U.S. Census data indicates that employees are traveling from greater distances to work in the City of Charleston. Approximately 16% (10,025) of all Charleston employees travel over 50 miles to work in the city. In Putnam County, the mean travel time to work in 2014 was 26 minutes. Figure 2-4 shows the distribution of commute times for the two-county region.

From Teays Valley, a major population center in Putnam County, most commuters travel eastbound rather than westbound. For example, 27.0% (1,683) of workers who live in Teays Valley commute daily to Charleston; only 6.5% (406) commute west to Huntington. Meanwhile, 8.5% (536) commute east to Nitro or South Charleston.

As population growth transitions to low density residential and commercial development areas, the dependence on motor vehicles increases, accompanied by increased traffic congestion. The suburban population growth accounts for greater and lengthier vehicle trips to Teays Valley and the Charleston metro area for jobs and shopping. In addition, more cars and school buses make twice-daily rounds to fast-growing rural and suburban schools. On average, workers in Teays Valley and throughout Putnam County spend nearly an hour a day driving to and from work (25 minutes median one-way travel time).

Figure 2-5 to the right summarizes the inflow and outflow of commutes in Kanawha and Putnam counties. Figure 2-6 and Figure 2-7 further display commute patterns.
Chapter 2: Regional Profile

U.S. Census Bureau; OnTheMap Application and LEHD Origin-Destination Employment Statistics
Where Kanawha and Putnam Residents Work

Figure 2-6: Where Kanawha and Putnam Residents Work

This map shows the distribution of places around the region where Kanawha and Putnam residents traveled to work in 2014. Kanawha and Putnam residents who both live and work in the two-county region have the highest concentration of employment opportunities along I-64, US 35, and US 119. Residents leaving Kanawha and Putnam counties are most likely to travel west toward Huntington and southwest toward Beckley.
Where Kanawha and Putnam Workers Live

Figure 2-7: Where Kanawha and Putnam Residents Live

This map shows the distribution of where people who worked in Kanawha and Putnam counties lived in 2014. People travel from across the region to work in Kanawha and Putnam counties.

U.S. Census Bureau; OnTheMap Application and LEHD Origin-Destination Employment Statistics
Mode Choice

In both counties, the majority of workers drive alone to work (see Figure 2-8). However, a greater portion of workers in Putnam County (86.7%) drive alone to work than those in Kanawha County (80.2%). Carpooling and working from home accounted for the next most common modes of commuting. Approximately 12% of workers in Kanawha County carpool, while only 9% of workers in Putnam County carpool. In both Kanawha and Putnam counties, 3% of commuters work from home. Public transportation, walking, and other (bicycle, taxi, etc.) accounts for 1.8%, 2.8%, and 0.8%, respectively, of commuters’ mode choice in Kanawha County. Meanwhile, in Putnam County, almost no commuters use public transportation or other modes, while 1% of commuters walk to work. This is likely due to limited public transportation services in Putnam County.

Figure 2-8: Means of Transportation to Work

U.S. Census Bureau; 2014 American Community Survey 5-Year Estimates, Table B08301
Environmental Justice

The Environmental Protection Agency (EPA) defines environmental justice as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.”

This effort is consistent with Title VI of the Civil Rights Act of 1964 and a 1994 Presidential Executive Order requiring all federal agencies to make environmental justice part of their missions. Environmental justice was enacted to avoid the use of federal funds for projects, programs, and activities that would have disproportionately high and adverse effects on low-income and minority populations; environmental justice helps to ensure an equitable distribution of benefits and burdens. The U.S. Department of Transportation (USDOT) promotes environmental justice as a vital part of the transportation planning process as well as individual project planning and design. The environmental justice assessment incorporated into the Kanawha-Putnam 2045 Regional Transportation Plan (RTP) is based on three fundamental principles derived from guidance issued by the USDOT:

- Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations
- Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process
- Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

As part of the Kanawha-Putnam RTP, the geographic distribution of minority and low-income populations was identified so that the positive and negative effects of various transportation investments could be evaluated. RIC also pursued a robust public involvement process, ensuring opportunities for public input in the decision-making process.

The environmental justice screening conducted for this plan is not intended to quantify specific impacts. The screening is intended to guide the development of a plan that is equitable in terms of both costs and benefits. A critical purpose of this screening is to provide a framework to gauge the relative impacts of these projects in the community. As individual projects progress to planning and programming, each project will require further and more detailed analyses to identify and minimize specific community impacts on a project-by-project basis.
The following thematic maps use 2014 American Community Survey 5-year estimates data to show the distribution of traditionally disadvantaged population groups by census tracts. Figure 2-8 highlights minority populations, Figure 2-9 shows populations living below the poverty line, Figure 2-10 identifies elderly populations, and Figure 2-11 looks at zero-car households. When overlaid with proposed roadway projects, the maps provide a useful tool for analyzing and communicating potential impacts. The results of the plan recommendations with respect to environmental justice and the identified transportation-disadvantaged groups are discussed in Chapter 10: Plan Performance.
In Kanawha and Putnam counties, 14% of the population identifies as a minority race and 1% identifies as Hispanic or Latino.
In Kanawha County, 15% of households were classified at or below the federal poverty line, while 10% of households in Putnam County were below the federal poverty line. The U.S. Census updates the federal poverty line each year, and in 2014, the lines by family size were as follows:

<table>
<thead>
<tr>
<th>Family Size</th>
<th>Poverty Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>$11,880</td>
</tr>
<tr>
<td>Family of 2</td>
<td>$16,020</td>
</tr>
<tr>
<td>Family of 3</td>
<td>$20,160</td>
</tr>
<tr>
<td>Family of 4</td>
<td>$24,300</td>
</tr>
</tbody>
</table>
The elderly population (age 65+) in Kanawha and Putnam counties is steadily increasing. Since 2010, the elderly population in Kanawha County has increased by 1.9%, while Putnam County has seen a greater increase of 2.6%. This trend is representative of a statewide increase of 2.1%.
Transportation options are limited for some Kanawha and Putnam County residents. Overall, 5% of households in Kanawha County and only 1.2% of households in Putnam County did not have a vehicle available for use in 2014. In the Charleston area, greater than a quarter (33%) of households had no personal vehicle to use on a regular basis.

U.S. Census Bureau; 2014 American Community Survey 5-Year Estimates, Table S0801