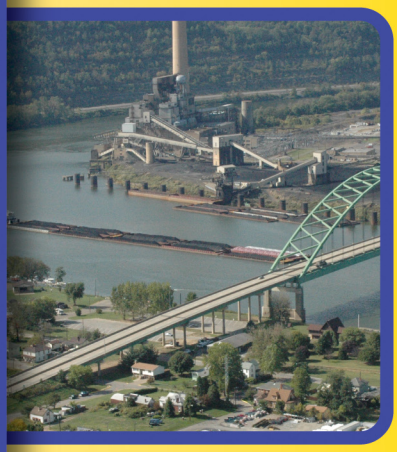
West Virginia

Multi-Modal Statewide Transportation Plan



STATE OF WEST VIRGINIA
DEPARTMENT OF TRANSPORTATION

ENGINEERS
PLANNERS
ECONOMISTS

WilburSmith
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June 2010
Final Report

Acknowledgements

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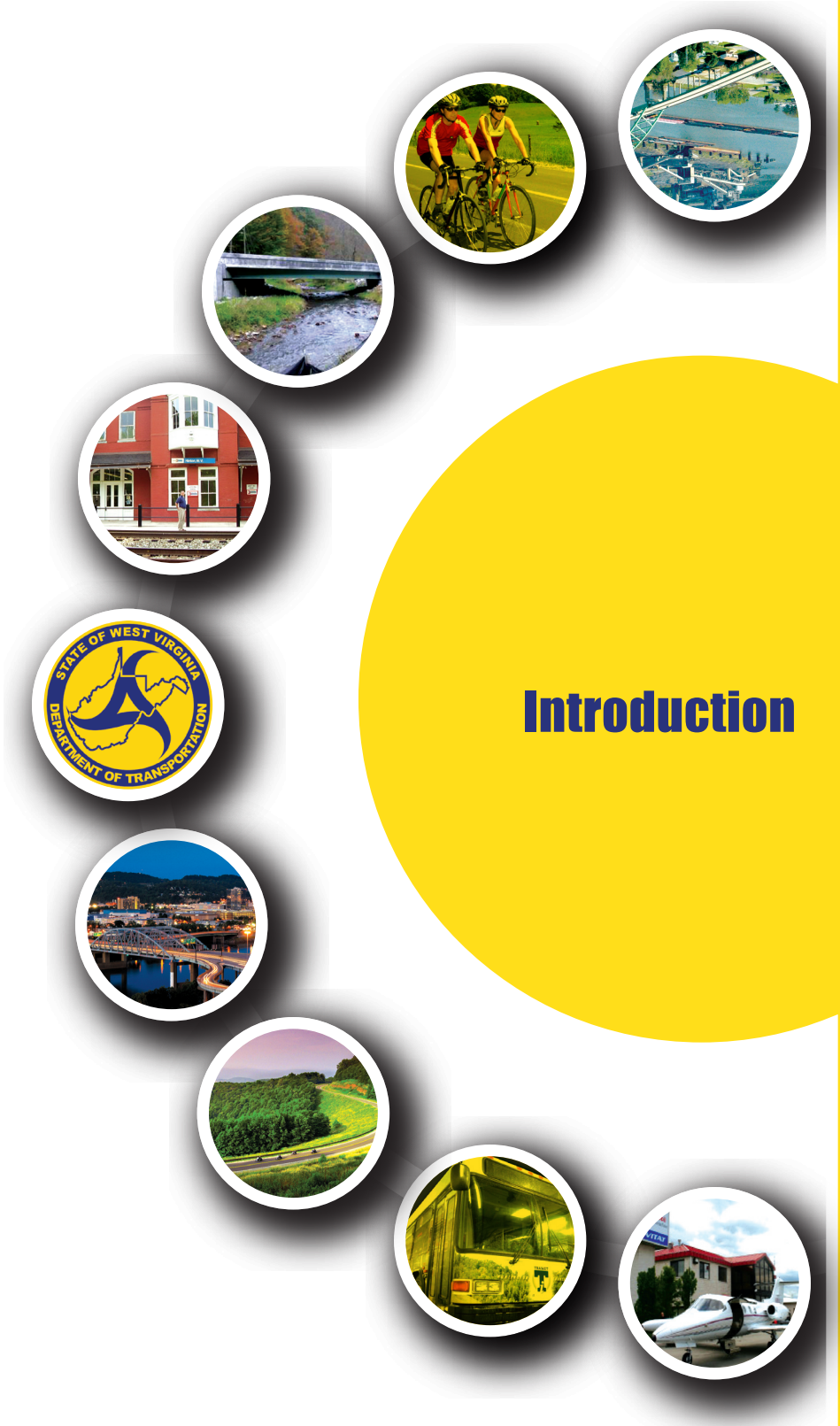

Introduction

Section 1. Introduction

West Virginia's Department of Transportation (WVDOT) began an effort in the Fall of 2008 to develop a new Statewide Transportation Plan. The department's leadership decided that the time was right to take a hard look at its current needs, revenue, and expenditures across all modes.

The need for safe, efficient, and effective transportation choices is undisputed, but prioritizing transportation investment options is an enormous challenge. Travel growth across all modes has created additional infrastructure needs and is increasing the burden of maintaining existing facilities. At the same time, planning and implementing transportation improvements has become more complex and costly due to the increased importance placed on environmental, land use, and social equity concerns. The bottom line is that WVDOT's currently available resources simply cannot address all of the state's transportation investment needs.

In light of the hard choices it faces, WVDOT recognized the need to understand overall system needs when it makes transportation investment decisions. This Statewide Transportation Plan is an important first step in charting a direction for WVDOT and the State.

1.1 Background

This Statewide Transportation Plan is an update of West Virginia's prior Statewide Transportation Plan, a policy plan that was completed in January 2002. This Statewide Transportation Plan required a large, 2-year, multifaceted initiative that incorporated the following critical requirements, building blocks, and considerations:

Legal and Regulatory Requirements — Federal law mandates that each state maintain an up-to-date, 20-year plus transportation plan that is fiscally constrained, considers eight key planning factors (see chart at right), and serves as the primary mechanism for cooperative transportation decision-making.

Strategic Direction — A critical first step in the Statewide Transportation Plan update process was to establish goals and objectives that articulated WVDOT's desired long-range direction.

Existing System Review — A comprehensive inventory of a state transportation system components (all modes) provided a starting point for consideration of investment needs.

Needs Analysis — 25-year investment needs were determined through technical

SAFETEA-LU Mandated Planning Factors

- *Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency*
- *Increase the safety of the transportation system for motorized and non-motorized users*
- *Increase the security of the transportation system for motorized and non-motorized users*
- *Increase the accessibility and mobility of people and for freight*
- *Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns*
- *Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight*
- *Promote efficient system management and operation*
- *Emphasize the preservation of the existing transportation*

analysis of system deficiencies, which assessed maintenance, preservation, modernization, and expansion for highways and bridges.

Public and Partner Outreach — To ensure the Statewide Transportation Plan reflects public sentiment, WVDOT conducted a public involvement program incorporating input from relevant agencies, key stakeholders, and the general public into development of the Plan.

Resource Forecasting — A comprehensive, yet conservative, 25-year estimate of West Virginia's transportation revenues (based on existing sources) provided planners with a means to infuse "financial realities" into the planning process.

Recommendation Development — To inform the decision-making process, WVDOT created a series of investment scenarios based on revenue forecasts for the 25-year Statewide Transportation Plan horizon and varying allocations of resources between need categories (e.g., expansion vs. system preservation).

1.2 Stakeholder and Public Participation

WVDOT has strived to include public input at every opportunity during the development to the Statewide Transportation Plan. There were several mechanisms by which WVDOT sought and received this input:

- Core team meetings
- Policy committee meetings
- 17 Regional public meetings
- Project website

1.2.1 Core Team

The core team is a small group of predominantly West Virginia Department of Transportation (DOT) staff who review materials and provide policy direction for the project. There were two formal meetings with the core team during the development of the Statewide Transportation Plan. The team members are listed in the table below.

Table 1-1: DOH Core Team

Name	Title/Role	Address
Paul Mattox	Secretary of State	WV Department of Transportation, DOH, Bldg 5, Room A-109, 1900 Kanawha Boulevard East, Charleston, WV 25305
Marvin Murphy	State Highway Engineer	WV Department of Transportation, DOH, Bldg 5, Room A-109, 1900 Kanawha Boulevard East, Charleston, WV 25305
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Rob Pennington	Director, Program Planning & Administration	WV Department of Transportation DOH, Bldg 5, Room A-109, 1900 Kanawha Boulevard East, Charleston, WV 25305

1.2.2 Plan Policy Committee

The policy committee was made up of a representation of agencies and organizations with a major invested interest in transportation (chambers of commerce, MPOs, regional planning and development councils, etc). The WVDOT met with the policy committee two times, September 30, 2008 and December 15, 2009 during the development of the plan to develop goals and objectives, review findings, and seek policy direction. Table 1-2 below lists the Policy Committee members.

Table 1-2: Policy Committee Members

Name	Organization	Name	Organization
Paul Mattox	WV Department of Transportation DOH, Bldg 5, Room A-109 1900 Kanawha Boulevard East Charleston, WV 25305	***Greg Bailey***	WV Department of Transportation DOH, Bldg 5, Room A-317 1900 Kanawha Boulevard East Charleston, WV 25305
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Name	Organization	Name	Organization
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1.2.3 Public Meetings

WVDOT held two rounds of public meetings throughout the State on the Statewide Transportation Plan. Both sets of workshop meetings afforded participants the opportunity to ask questions and provide their input on how transportation fiscal resources from the State of West Virginia and the federal government should be spent in future years for all modes of transportation. The first round public workshop meetings were held between 4:00 p.m. and 7:00 p.m. on the following dates at the following locations, with the exception of the April 1st meeting held from 10:00 a.m. to 2:00 p.m.

March 23, 2009	Triadelphia Middle School, 1636 National Road, Wheeling, WV
March 24, 2009	Berkeley County Commission, 400 W. Stephen St., Ste. 201, Martinsburg, WV
March 26, 2009	TTA Center, 401 13th Street, Huntington, WV
March 31, 2009	Elkins High School, 100 Kennedy Drive, Elkins, WV
April 1, 2009	Capitol Rotunda, Charleston, WV (10:00 a.m. to 2:00 p.m.)
April 2, 2009	G. Smith Theater, Williamson High School, 801 Alderson St., Williamson WV
April 6, 2009	Chambers, 1 Government Square, Parkersburg, WV
April 7, 2009	Morgantown Municipal Airport, Greater Morgantown MPO, 108 Hart Field Road, Morgantown, WV
April 13, 2009	Wood Education & Resource Center, 301 Hardwood Lane, Princeton, WV

Another workshop scheduled from 10:00 a.m. to 2:00 p.m. on April 1, 2009 was held in the rotunda area of the capitol in Charleston.

The second of two rounds of workshop public meetings were conducted to ensure public input into the draft plan's recommendations and strategies. The second round of workshop meetings were scheduled from 4:00 p.m. to 7:00 p.m. on the following dates in the following locations, with the exception of the March 10th meeting held from 10:00 a.m. to 2:00 p.m.

March 2, 2010	Logan High School, One Wildcat Way, Logan, WV
March 4, 2010	City Building, 1 Government Square, Parkersburg, WV
March 9, 2010	TTA Center, 1301 4th Avenue, Huntington, WV
March 10, 2010	Capitol Rotunda, Charleston, WV (10:00 a.m. to 2:00 p.m.)
March 11, 2010	Woodrow Wilson High School, 400 Stanaford Road, Beckley, WV
March 16, 2010	Room 201, City Building, Weirton, WV
March 17, 2010	Liberty High School Auditorium, One Mountaineer Drive, Clarksburg, WV
March 18, 2010	Berkeley County Commission, 400 W. Stephen St, Suite 201, Martinsburg, WV

For each round of meetings display boards of key project findings and recommendations were available for review by meeting attendees and facilitated by one-on-one discussions with the study team. Additionally, a factsheet hand-out included highlights of findings and recommendations for each mode of transportation. All information was also available on the project website.

The first round of meetings gave participants the opportunity to see the department's projected available revenue by each mode and to set their own spending priorities by using "transportation money" $500 million for highways and $40 million for other modes. The results are shown below. Participation was relatively low and does not represent a scientific representation of the general public.

Figure 1-1: Roadway Summary

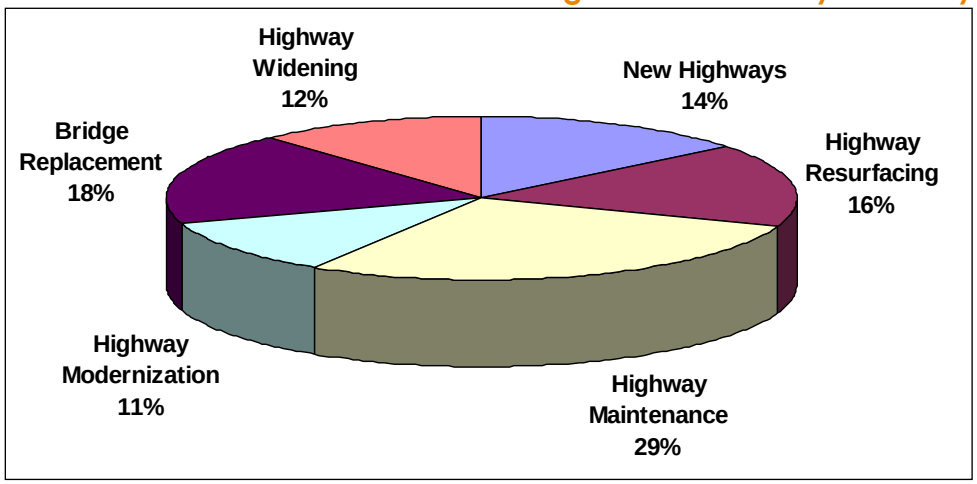
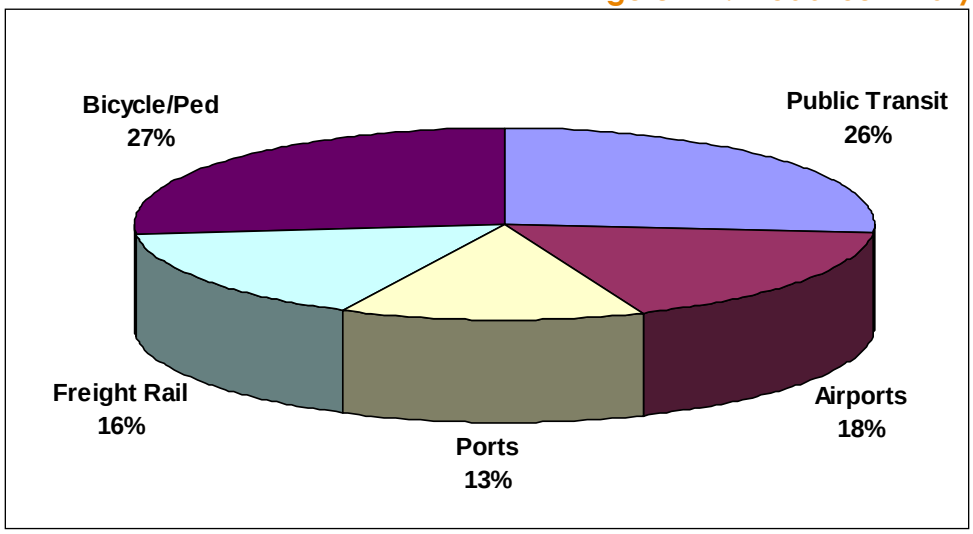


Figure 1-2: Modal Summary



The second round of meetings focused on the projected transportation funding gap. Participants were shown several funding scenarios to raise additional revenue and asked how the gap should be closed or if it should be closed and to what level of funding. However, the policy committee felt that the majority of new revenue should be used to enhance the WVDOT's expansion efforts. Options included maintaining existing funding levels or increase funding by $100 million, $300 million, or $400 million a year, or another level that they proposed. Additionally participants were given other options for funding sources (VMT tax, soft drink tax, property tax, etc.) and asked to rank the funding sources to be used to raise the desired amounts and identify how the new revenue should be spent. Responses to the survey questions were:

What other options would you suggest to raise revenue? The top three results were:

- Increase fuel tax
- Coal severance tax
- Vehicle miles traveled (VMT) tax

Once revenue is raised how should it be spent? The top three results were:

- Highway resurfacing
- Routine maintenance
- Bridge replacement

The responses to revenue scenarios were fairly evenly split among the options proposed with no one option standing out. Out of the limited number of responses received (15) only two suggested that current funding levels were adequate. The remainder of respondents suggested increases from $100 Billion to $400 Billion.

A total of 228 individuals attended the two rounds of public meetings. Meeting attendees included elected officials, WVDOT staff, representatives of local and regional governments, chambers of commerce and local organizations, citizens, and other transportation stakeholders. A summary of the meetings can be found in Appendix B.

1.2.4 Project Website

In the fall of 2008, a project website fully documenting the development of the Statewide Transportation Plan was established at www.wvtransplan.com. The website provides a "one-stop shop" to information related to the plan, including links to a calendar of events, comment forms, technical reports, meeting notices, and outreach event summaries.

1.3 Plan Visions and Goals

The visions and goals for the Statewide Transportation Plan were developed based upon feedback received during the first meeting with the policy committee. The committee was divided into two groups to respond to six specific questions, as well as identify the top three responses to each question. The questions presented to the committee members included:

- What are the most important issues facing West Virginia citizens and businesses?
- What role can transportation play in addressing those issues?
- What critical transportation issues are facing West Virginia?
- What changes in the future could significantly impact West Virginia's transportation needs?
- What should be the prominent features of West Virginia's future transportation system?
- What should be the main criteria for prioritizing needs?

Each group indicated that they did not necessarily address the specific question asked, but gave responses that they thought appropriate at the time. In fact, this was the intent of having six similar questions – to make sure that all relevant perspectives were presented.

Table 1-3 is a synopsis of the results of the top three responses to each question: In general, some consistent themes emerged:

- Need to protect investment that has already occurred - this translates into making maintenance a priority
- Need for a modern transportation system that supports economic development goals and serves the needs of West Virginia citizens, especially the aging population and others desiring more transportation choices
- Concern about lack of funds due to decrease in driving, which leads to less motor fuel tax revenue and potentially less federal revenue with reauthorization
- Need for efficient use of funds due to increasing needs and decreasing revenues

Table 1-3: Top Three Responses To Breakout Questions

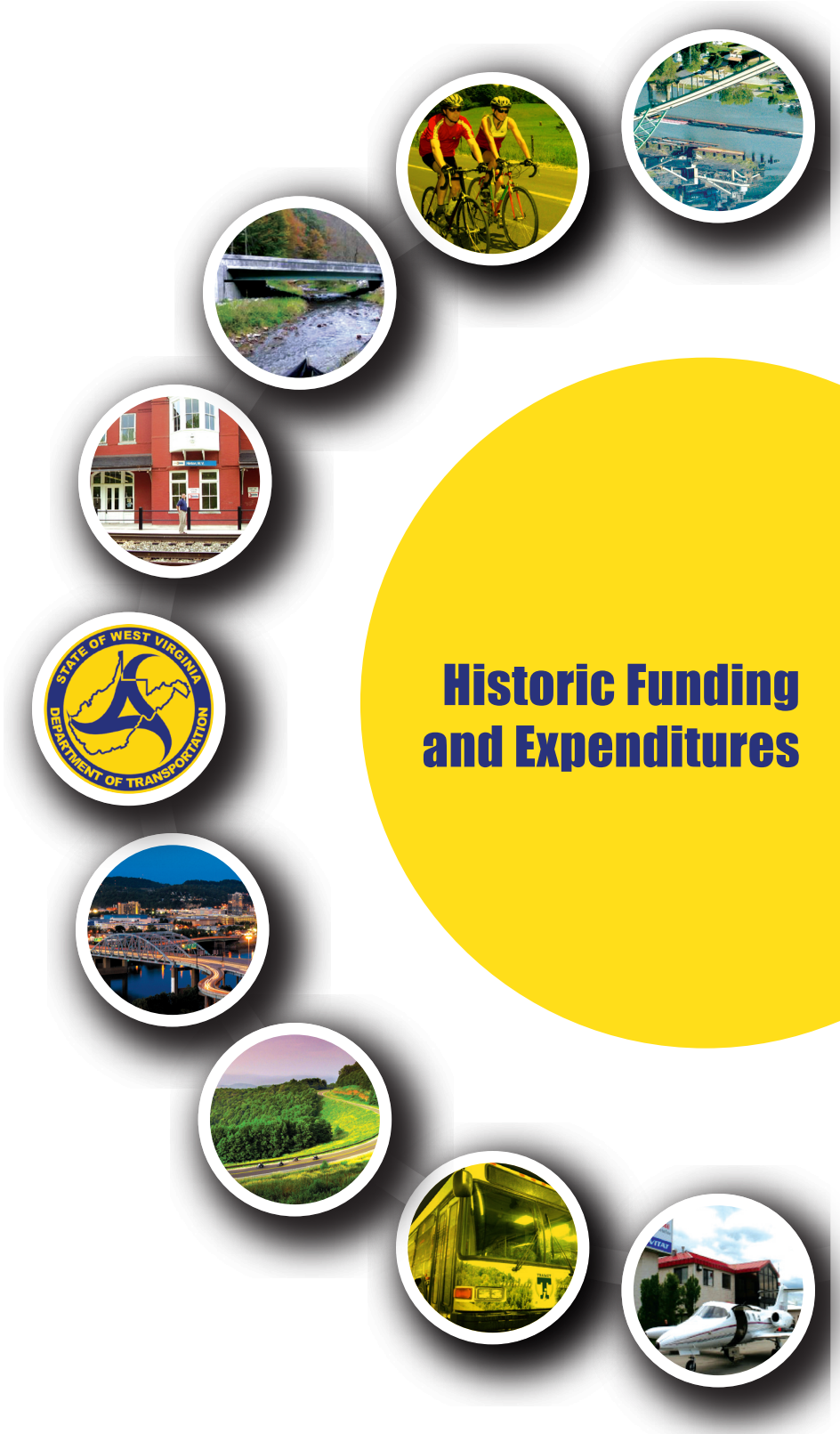
Question	Group 1	Group 2
What are the most important issues facing West Virginia citizens and businesses?	Need for a modern transportation system	Need for good infrastructure not only in transportation
	Maintain the existing transportation system	Business investments
	Funding	Political and grassroots leadership
What role can transportation play in addressing those issues?	Health/wellness – more bicycling and transit	Provide well-maintained infrastructure transportation system
	Maintenance for roads	Integrate land use and transportation planning
	Access to markets	Access to move goods in and out of state by all modes
What critical transportation issues are facing West Virginia?	Funding shortfall	Not enough money
	Providing incentives for locals areas to do more	Ability/legal mechanism to be flexible in how we fund small projects
	Cost of fuel	Need for new local funding sources
What changes in the future could significantly impact WV's transportation needs?	Cost of fuel and more demand for public transportation	Reauthorization
	Federal reauthorization	Rising fuel cost
	Aging infrastructure	$700 billion (economic crisis)
What should be the prominent features of WV's future transportation system?	Well maintained existing system	More efficient use of funds
	Complete streets – accommodate all users	Safe and well maintained system
	Rapid response to changing needs and growth	Land use works to support transportation system (access management/zoning)
What should be the main criteria for prioritizing needs?	Safety	Economic development
	Economic development	Return on investment
	Demand/usage	(all the rest were ties with just one vote)

These goals directly address many of the planning factors required to be addressed in a statewide transportation plan, specifically economic vitality, accessibility and mobility options, environment, efficient management, and operation and preservation. The remaining factors of safety, security, modal integration, and connectivity are no less important. In fact, they should be intrinsic features of a well-maintained and modern system.

The vision as it pertains to transportation in West Virginia is for:
A well-maintained and modern multi-modal transportation system

Specific goals are to:

- *Preserve past investments by maintaining the existing system*
- *Support West Virginia's economic development goals with multi-modal access to markets in West Virginia, the United States, and overseas*
- *Support the health and well-being of West Virginians, as well as the environment and overall quality of life, with a range of mobility options*
- *Promote efficient use of resources, especially in light of diminishing revenues*



Historic Funding and Expenditures

Section 2. Historic Funding and Expenditures

2.1 Introduction

The purpose of this section of the report is to document historical revenue trends and expenditures by the WVDOH. Historical trends are provided for the past 10 years – Fiscal Year 1999 (FY1999) to Fiscal Year 2008 (FY2008) – and establish the historical baseline trends. Forecast revenues and a comparison of revenue forecasts to an estimate of needs are provided in subsequent sections.

Information is presented in the following sequence:

- Funds used to finance programs
- Programs WVDOT provides
- Historical revenue trends
- Historical expenditure trends
- Impact of inflation

- *Total revenue available in FY2008 was 30 percent less than what was available 10 years ago*
- *In FY2008 DOH spent in real terms 16 percent less than it spent in FY1999 on capital improvements and 14 percent less on operations and maintenance.*
- *In constant 2007 dollars, FY2008 state fuel tax revenues were 10 percent less than in FY1999.*
- *Registration fees and Privilege Tax revenues were 28 percent and 22 percent less in FY2008 than in FY1999, respectively.*

2.2 Funds Used to Finance Programs

WVDOT receives revenue from various sources, both appropriated through legislation and obtained through non-appropriated special funds. The revenues are deposited in one or more of several funds identified below.

- The **General Revenue Fund** (GRF) is the primary operating fund of the state and all money is appropriated into this fund by the legislature.
- The **State Road Fund** (SRF) receives its revenue from dedicated taxes and fees, federal reimbursements, and miscellaneous income such as interest on investment. Taxes and fees include:
  - Motor Fuel Excise Tax
  - Motor Carrier Road Tax
  - Registration Fees
  - Privilege Tax
  - Highway Litter Control Fee
- **Federal funds** are handled by two methods within WVDOT:
  - Federal funds received by the DOH as reimbursements for construction and reconstruction projects are deposited directly into either the State Road Fund or the Coal Resource Transportation System Fund
  - All other federal funds received by other DOT agencies are placed in legislatively appropriated federal accounts
- There are many **Special Revenue funds.** They are divided between appropriated and non-appropriated categories. The following are the revenue sources, the agency receiving the funds, and the designated category (non-appropriated or appropriated):
  - Motorcycle Safety – miscellaneous fees to Division of Motor Vehicles (DMV), non-appropriated
  - Motor Vehicle Fees Fund – miscellaneous fees to DMV, appropriated
  - Dealer Recovery – annual automobile dealership license fee to DMV, appropriated
  - Aircraft Fuel Tax – tax on wholesale aviation fuel to Aeronautics Commission, non-appropriated
  - A. James Manchin Fund – title fee to DOH, appropriated

- Coal Resource Transportation System (CRTS) Fund – permit tonnage fees to DOH, non-appropriated
- Industrial Access Road (IAR) Fund – transfer of funds from SRF to DOH, non-appropriated
- Enterprise Fund – revenue from freight-related operations and a percentage of passenger excursion train revenues to State Rail Authority, non-appropriated

2.3 WVDOT Transportation Programs

WVDOT leads and directs all transportation programs and initiatives within its jurisdiction. The following provides a brief description of the agencies that comprise the WVDOT.

2.3.1 Division of Motor Vehicles

The Division of Motor Vehicles (DMV) provides licensing, titling, and vehicle registration services; promotes highway safety; and collects revenue for transportation programs. The DMV primarily operates from the State Road Fund, but it also receives revenue from the collection of fines and fees.[1]

2.3.2 Division of Highways

DOH has statutory authority for the construction, rehabilitation, and maintenance of all federal-aid highways, as well as all state roadways and most local roads in the state. DOH is responsible for maintaining a safe and efficient highway transportation system that meets the needs of citizens and individuals traveling through and within the state.[2] The roadways maintained by DOH include the following:[3]

- 37,284 miles of public roads (94% of States Public Mileage)
- 34,524 miles of state highway (6th Largest State Maintained Network in the Nation)
- 461 miles of Interstate highway
- 1,736 miles of the National Highway System (NHS)
- 6,631 bridges, of which 32 percent are more than 100 feet in length
- Two national and eight state scenic byways

The values shown do not include the 86 miles of interstate highway and 99 bridges located on the West Virginia Turnpike, since it has its own revenue source and does not rely on DOH funds.

DOH derives its funding almost exclusively from the State Road Fund. However there are some non-appropriated Restricted Funds that can only be used for specific purposes, such as the Industrial Access Road (IAR) Fund, CRTS Fund, flood disaster funds, Safe Roads Bond revenue, and the GARVEE Notes fund.[4]

2.3.3 State Rail Authority

The State Rail Authority (SRA) is responsible for facilitating rail transportation and providing assistance to local and state officials on a variety of rail issues. SRA provides freight service to three counties on the South Branch Valley Railroad (SBVR); owns and oversees the operation of the West Virginia Central Railroad (WVCR); contests rail abandonments that may be detrimental to the economy; and evaluates alternative options for rail lines targeted for abandonment. The SRA operates primarily from funding from the GRF and freight revenue from SBVR operations, which goes into the Enterprise Fund.[5]

[1] *FY 2009 Budget Presentation. West Virginia Department of Transportation*
[2] *FY 2009 Budget Presentation. West Virginia Department of Transportation*
[3] *West Virginia Department of Transportation*
[4] *FY 2009 Budget Presentation. West Virginia Department of Transportation*
[5] *FY 2009 Budget Presentation. West Virginia Department of Transportation*

2.3.4 Division of Public Transit

The WVDOT Division of Public Transit (DPT) fosters the development of public transportation services in the State and administers all federal and State transit programs. The division does not operate buses and vans, but assists public transportation providers by providing financial support, technical assistance, and administrative assistance, as well as marketing and training to ensure local systems are safe, efficient, and effective. In addition to support from the GFR, the Division of Public Transit receives annual funding from the following five federal grants:

- Section 5311 Public Transportation for Non-Urbanized Areas
- Section 5310 Capital Assistance Program for Elderly Persons and Persons with Disabilities
- Section 5313 State Planning and Research Grants
- Section 5316 Job Access and Reverse Commute
- Section 5317 New Freedom Program

Historically, the Division of Public Transit has not received Section 5309 Capital Grant money. However, in FY 2005 a Section 5309 grant ($8.7 million) was awarded to the division. Under SAFETEA-LU, approximately $5 million has been provided to the Division to support capital transit needs.[6]

2.3.5 Public Port Authority

The West Virginia Public Port Authority (WVPPA) is responsible for developing intermodal public river ports to increase the business and industrial competitiveness in the State. Funding to the WVPPA is typically provided by general revenue, appropriated special revenue, and federal revenue.[7]

2.3.6 Aeronautics Commission

The West Virginia Aeronautics Commission (WVAC) supports 34 public-use airports statewide, which include seven airports that provide regularly scheduled air service.[8] WVAC administers a grant program to encourage and support needed capital improvements to the State's public airports. Airports meeting the criteria for Federal Aviation Administration (FAA) Airport Improvement Program (AIP) funds also qualify for funding from the state program.[9]

The WVAC provides matching funds to airports for FAA AIP improvement projects and other federal aviation grants. Most FAA funds go directly to the airport authorities and do not come through WVAC. Under current federal legislation, West Virginia airports receive approximately $33.5 million annually, which triggers approximately $1.8 million state or local match.[10] The State revenue sources include the Aviation Fuel Tax and GRF.

WVAC also provides administrative guidance and support to the Civil Air Patrol. General Revenue Fund appropriations are made to support this effort.

2.3.7 West Virginia Turnpike

The West Virginia Parkways Authority operates and maintains the 86-mile-long West Virginia Turnpike. The primary source of funds is toll revenue.

2.3.8 Budget Summary

Table 2-1 indicates the total budgets for the various programs for the last 10 years (FY1999 through FY2008). A budget represents neither actual revenues nor actual expenditures, but an estimate of intended

[6] *FY 2009 Budget Presentation. West Virginia Department of Transportation*
[7] *FY 2009 Budget Presentation. West Virginia Department of Transportation*
[8] *FY 2009 Budget Presentation. West Virginia Department of Transportation*
[9] *West Virginia Department of Transportation*
[10] *FY 2009 Budget Presentation. West Virginia Department of Transportation*

annual use of projected revenue. Budget information is readily available and provides insight into the main programs WVDOT provides. The table shows the different modal agencies in WVDOT (except WV Parkways) and the funds they use. The WV Turnpike, DMV, and Civil Air Patrol are important transportation functions, however they are not the focus of this Statewide Transportation Plan. Therefore, **subsequent** historical trend analysis will focus on the key modal agencies, specifically the Division of Highways, State Rail Authority, Division of Public Transit, Public Port Authority, and the Aeronautics Commission. The remainder of this section focuses on answering the following questions:

- What is the actual source of revenue (i.e., fuel taxes, fees, etc)?
- What is it being spent on (i.e., administration, maintenance, capital improvements, etc.)?
- What has happened over time?

Table 2-1: WVDOT Budgets By Division (Nominal $)

Fund Distribution to DOT in Last Ten Years ($ Millions)							
Divison, Authority or Commission	**General Revenue Fund**	**Special Revenue Fund**	**Federal Revenue Fund**	**State Road Fund**	**Subtotal Appropriated**	**Other Special Revenue - Non-appropriated**	**Total**
Division of Motor Vehicles	$ -	$ 30.4	$ 83.6	$ 350.5	$ 464.4	$ 47.7	**$ 512.1**
Division of Highways	$ -	$ 28.2	$ -	$ 10,233.4	$ 10,261.6	$ 1,415.5	**$ 11,677.1**
State Rail Authority	$ 26.4	$ -	$ 5.7	$ -	$ 32.1	$ 23.0	**$ 55.1**
Division of Public Transit	$ 22.4	$ -	$ 127.0	$ -	$ 149.4	$ 12.9	**$ 162.3**
Public Port Authority	$ 5.9	$ -	$ 17.1	$ -	$ 23.0	$ 2.3	**$ 25.3**
Aeronautics Commission	$ 12.7	$ -	$ 4.1	$ -	$ 16.8	$ 6.3	**$ 23.1**
Civil Air Patrol	$ 1.1	$ -	$ -	$ -	$ 1.1	$ -	**$ 1.1**
TOTAL BUDGETS	**$ 68.5**	**$ 58.6**	**$ 237.5**	**$ 10,583.9**	**$ 10,948.4**	**$ 1,507.5**	**$ 12,456.0**
Source of Funds in Last Ten Years							
Divison, Authority or Commission	**General Revenue Fund**	**Special Revenue Fund**	**Federal Revenue Fund**	**State Road Fund**	**Subtotal Appropriated**	**Other Special Revenue - Non-appropriated**	**Total**
Division of Motor Vehicles	0%	6%	16%	68%	91%	9%	**100%**
Division of Highways	0%	0%	0%	88%	88%	12%	**100%**
State Rail Authority	48%	0%	10%	0%	58%	42%	**100%**
Division of Public Transit	14%	0%	78%	0%	92%	8%	**100%**
Public Port Authority	23%	0%	68%	0%	91%	9%	**100%**
Aeronautics Commission	55%	0%	18%	0%	73%	27%	**100%**
Civil Air Patrol	100%	0%	0%	0%	100%	0%	**100%**
TOTAL BUDGETS	**1%**	**0%**	**2%**	**85%**	**88%**	**12%**	**100%**

2.4 Historical Revenue Trends

2.4.1 Source of Information

The information presented in this section represents the actual annual revenue received by the various divisions. Information was provided by WVDOT staff and gleaned from the annual budget reports. It is noted that the actual fiscal year revenues (not the budgeted revenue) is being analyzed.

2.4.2 Revenue Sources

Section 2.2 described the various funds that the WVDOT divisions use to finance programs. Table 2-2 presents information by division, fund, and actual revenue source for fiscal years 1999, 2008, and the total for the period of 1999 to 2008. Data for all years from 1999 to 2008 is provided in this study's Technical Memorandum, Historical Revenue and Expenditures. DOH is the predominant WVDOT program, with more than $1 billion of annual revenue. The SRF, which contains both state and federal revenue, is the largest source of DOH revenue, averaging 94 percent between 1999 and 2008 and representing 99 percent in 2008.

The remaining modal agencies rely primarily on GRF appropriations and federal revenue allocations. Notable exceptions are the SRA that has dedicated revenues from rail operations that are deposited in the Enterprise Fund and the WVAC that receives Aviation Fuel Tax revenues.

An analysis of revenues by actual source provides more reliable information than analyzing funds into which revenue is deposited. Table 2-3 summarizes FY1999 and FY2008 revenue by source, grouped into state and federal sources. Figure 2-1 shows the trends over time for the 1999 to 2008 revenue stream (in nominal dollars) and Figure 2-2 shows revenue trends by three categories:

- Dedicated State sources – From taxes, fees, etc.
- Non-dedicated State sources – Mainly appropriations from GRF, local match from transit agencies, and bond revenue
- Federal sources – All federal revenue regardless of where deposited

Almost two thirds of annual revenue is derived from state sources, and the vast majority of that comes from dedicated revenue sources. Non-dedicated sources represent more than 10 percent of annual revenue in years when bond revenue is used (such as FY1999 through FY2002).

Table 2-2: Historical Revenue by Division and Fund (Millions of Nominal $)

Division	Fund	Revenue Source	FY1999	FY2008	Total
Division of Highways	Special Revenue (Appropriated)		$ -	$ 3.3	$ 26.4
	A. James Manchin Fund	Title Fees	$ -	$ 3.3	$ 26.4
	State Road Fund		$ 793.9	$ 1,054.2	$ 9,455.4
	State Sources	Gasoline & Motor Fuel (Excise) Tax	$ 227.1	$ 404.2	$ 2,785.4
		Wholesale Fuel Tax	$ 68.8	$ -	$ 387.7
		Subtotal Fuel Taxes	$ 295.9	$ 404.2	$ 3,173.1
		Registration Fees	$ 79.8	$ 86.4	$ 848.5
		Privilege Tax	$ 143.5	$ 169.5	$ 1,661.1
		Highway Litter Control Fee	$ 1.6	$ 1.9	$ 16.5
		Miscellaneous Income	$ 10.8	$ 38.4	$ 141.8
		Less Industrial Access Road Fund	($0.2)	($3.4)	$ (26.7)
		Total State Sources	$ 531.3	$ 697.0	$ 5,814.3
	Federal Sources	Interstate	$ 55.4	$ 74.9	$ 575.4
		Other Federal Aid	$ 152.6	$ 206.9	$ 1,966.7
		Appalachian	$ 54.6	$ 75.4	$ 1.099.0
		Total Federal Sources	$ 262.6	$ 357.2	$ 3,641.1
	Other Special Revenue (Non-appropriated)		$ 220.2	$ 3.4	$ 576.7
	Industrial Access Road Fund	Transfer from SRF	$ 0.2	$ 3.4	$ 26.7
	Bonds		$ 220.0	$ -	$ 550.0
	Total Annual Revenue-DOH		$ 1,014.1	$ 1,060.9	$ 10,058.6
State Rail Authority	General Revenue Fund	General Appropriation	$ 0.7	$ 2.9	$ 27.1
	Federal Revenues	FRA	$ 1.0	$ -	$ 5.3
	Other Special Revenue (Non-appropriated)		$ 2.1	$ 2.6	$ 20.7
	Enterprise Fund	SBVR	$ 2.1	$ 2.5	$ 20.2
		WVCR	$ -	$ 0.1	$ 0.6
	Total Annual Revenue - SRA		$ 3.8	5.5	$ 53.2

Division	Fund	Revenue Source	FY1999	FY2008	Total
Division of Public Transit	General Revenue Fund	General Appropriation	$ 1.6	$ 3.0	$ 22.1
	Federal Revenues	FTA	$ 4.4	$ 11.1	$ 84.4
	Other Special Revenue (Non-appropriated)		$ 0.4	$ 0.4	$ 4.3
	Local Matching Funds	Local Transit Agencies	$ 0.4	$ 0.4	$ 4.3
	Total Annual Revenue – DPT		$ 6.4	$ 14.5	$ 110.8
Public Port Authority	General Revenue Fund	General Appropriation	$ 0.5	$ 0.4	$ 5.8
	Federal Revenues	Other	$ 0.4	$ 0.1	$ 16.2
	Other Special Revenue (Non-appropriated)		$ -	$ 0.1	$ 1.1
		Gifts and interest	$ -	$ 0.1	$ 1.1
	Total Annual Revenue – WVPPA		$ 0.9	$ 0.6	$ 23.1
Aeronautics Commission	General Revenue Fund	General Appropriation	$ 0.5	$ 1.3	$ 12.6
	Federal Revenues	FAA	$ -	$ -	$ 3.7
	Other Special Revenue (Non-appropriated)		$ 0.4	$ 1.4	$ 6.5
	Aviation Fuel Tax	Fuel Tax and Interest	$ 0.4	$ 1.4	$ 6.5
	Total Annual Revenue - WVAC		$ 0.9	$ 2.7	$ 22.8

Table 2-3: Historical Revenue by Source and Type

Annual Revenue (Millions of Nominal $)				
Type	Revenue Source	FY1999	FY2008	Total
State Sources	Motor Fuel Taxes	$ 295.9	$ 404.2	$ 3,173.1
	Registration Fees	$ 79.8	$ 86.4	$ 848.5
	Privilege Tax	$ 143.5	$ 169.5	$ 1,661.1
	Other Fees	$ 1.6	$ 5.2	$ 43.0
	Miscellaneous Income	$ 10.8	$ 38.4	$ 141.8
	Aviation Fuel Tax	$ 0.4	$ 1.4	$ 6.5
	Enterprise Fund Freight Revenue	$ 2.1	$ 2.6	$ 20.7
	Total Dedicated State	$ 534.0	$ 707.7	$ 5,894.7
	General Revenue Fund Appropriations	$ 3.2	$ 7.6	$ 67.6
	Local Match From Transit Agencies	$ 0.4	$ 0.4	$ 4.3
	Other	$ -	$ 0.1	$ 1.1
	Bonds	$ 220.0	$ -	$ 550.0
	Total Non-Dedicated State	$ 223.6	$ 8.1	$ 623.0
	Total State Sources	$ 757.6	$ 715.8	$ 6,517.8
Federal Sources	FHWA – Interstate	$ 55.4	$ 74.9	$ 575.4
	FHWA – Other Federal Aid	$ 152.6	$ 206.9	$ 1,966.7
	FHWA – Appalachian	$ 54.6	$ 75.4	$ 1,099.0
	Total FHWA	$ 262.6	$ 357.2	$ 3,641.1
	FTA	$ 4.4	$ 11.1	$ 84.4
	FRA	$ 1.0	$ -	$ 5.3
	FAA	$ -	$ -	$ 3.7
	Other Federal	$ 0.4	$ 0.1	$ 16.2
	Total Federal Sources	$ 268.5	$ 368.4	$ 3,750.6
Total Annual Revenues		$ 1,026.0	$ 1,084.2	$ 10, 268.4

Figure 2-1: Annual Revenue Trends (in nominal dollars)

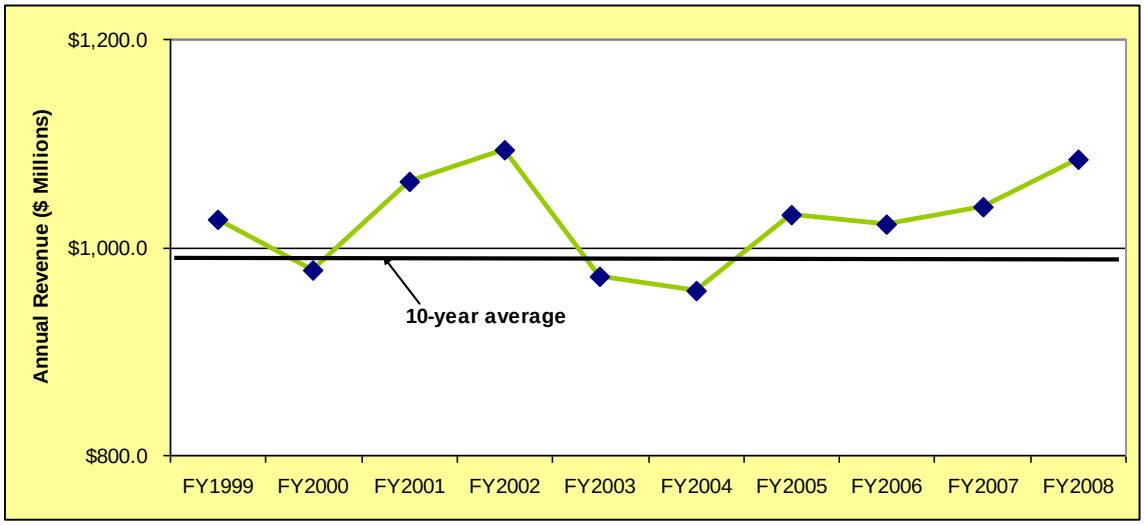
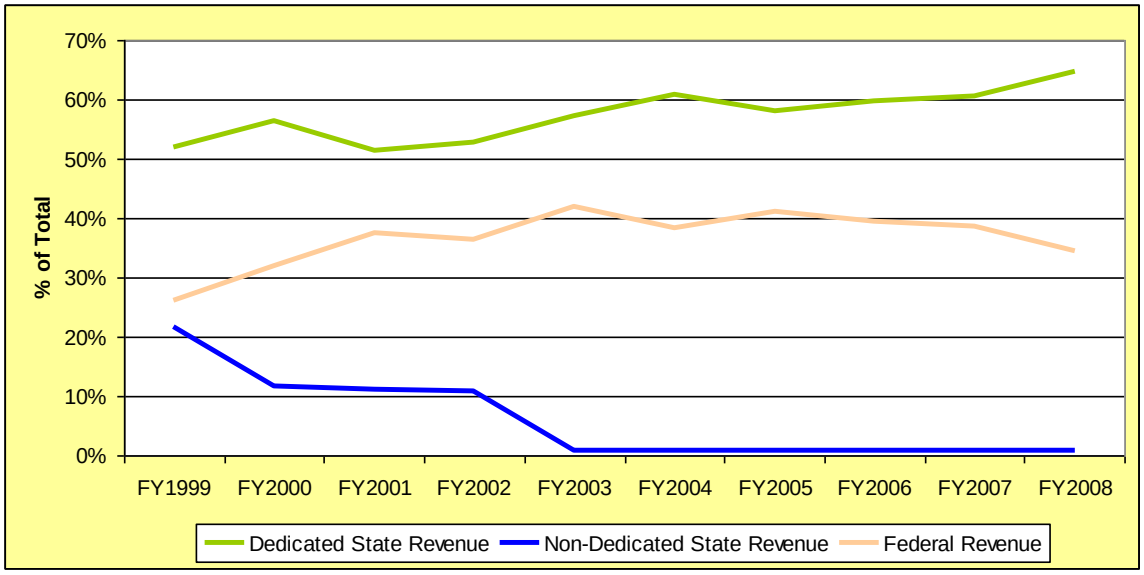


Figure 2-2: WVDOT Annual Revenue Sources (in nominal dollars)



Division of Highways revenues represent almost 98 percent of total WVDOT revenues. Figure 2-3 depicts trends over time for all DOH revenues and Figure 2-4 provides the information by source.

Figure 2-3: DOH Revenue Trends (in nominal dollars)

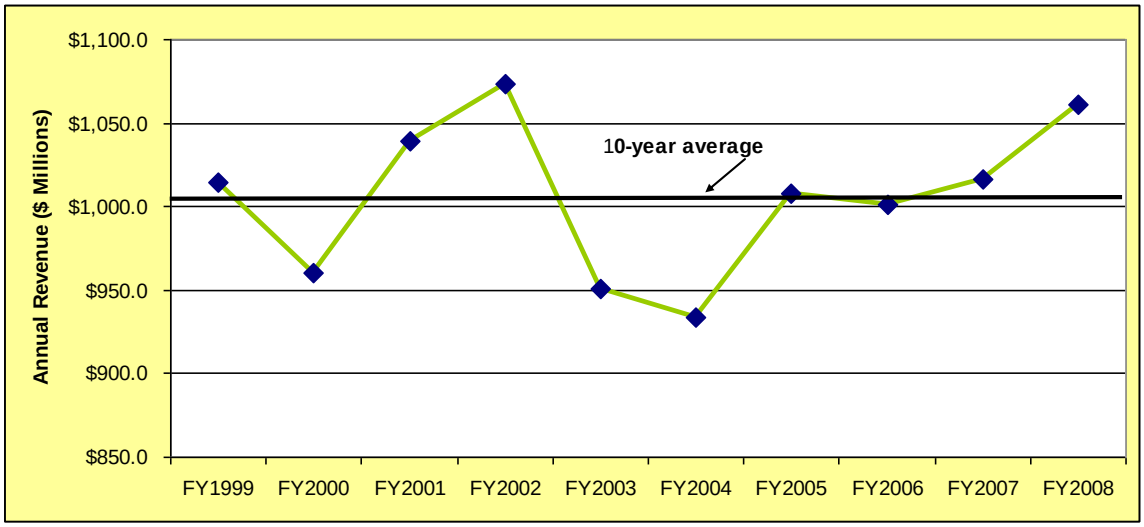
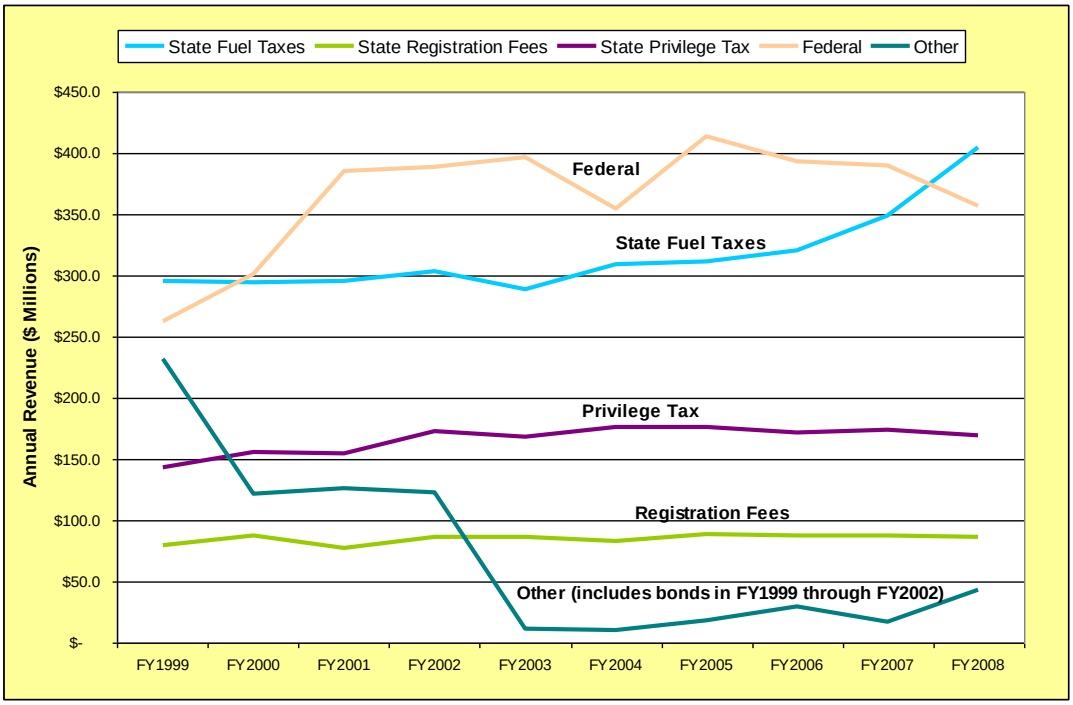


Figure 2-4: DOH Revenues by Source (in nominal dollars)



2.4.3 Key Observations

There are three key observations with regards to WVDOT transportation revenues and the trends illustrated in Figure 2-4.

- **There are fluctuations in revenue over time**. The graph illustrates principal causes such as the infusion of bond revenue (FY1999- FY2002) or increases in gas tax revenues due to the increase in fuel prices (FY2008). As of FY2008, total revenues are only slightly greater than the 10-year average, shown by the horizontal line in Figure 2-1. It is noted that this is in nominal dollars (unadjusted for inflation). The important implications of inflation are discussed later.

- **Motor fuel tax revenues have increased significantly** in the past few years with the increase in vehicle miles of travel and the increased cost of gasoline. West Virginia's Motor Fuel Tax has both a flat rate and variable rate component. For the past 10 years the flat rate portion has been 20.5¢ per gallon. The variable rate portion, which is set at five percent of the wholesale price of fuel, has ranged from 4.85¢ to 11¢ during the last 10 years. The impact of fuel costs, more energy-efficient vehicles, and alternative energy will be considered when forecasting future fuel tax revenue.
- **In the last three years federal revenue has declined**. Even so, federal revenue represents approximately one-third of the transportation revenues. The impact of reauthorization and the possible change of status (currently West Virginia is a donee state – receiving more than it gives) are issues that must be considered when forecasting future federal revenues.

The impact of inflation on both revenues and spending is another significant factor.

2.5 Historical Expenditure Trends

The source of information presented in this section comes from WVDOT staff and/or information contained in annual budgets regarding actual expenditures in nominal terms.

2.5.1 Expenditure Types

Table 2-4 presents information on FY1999 and FY2008 expenditures by division and expenditure type, as well as the total expenditures over the last 10 years. Table 2-5 presents the same information organized first by expenditure type and then by division. A consistent description of expenditure categories has been used across WVDOT divisions, namely:

- **Capital improvements** – Construction projects; capital equipment; track improvements (note that track repairs due to flood damage paid by federal funds are in the maintenance category); purchase of transit vehicles; port and airport projects, etc.
- **Operations and maintenance** – Operating subsidies, maintenance projects, etc.
- **Administration** – Staff costs and general expenses to run the divisions as well as contractual costs, including study costs
- **Debt service** – Cost to repay debt financing
- **Transfers of funds** from one division to another

Table 2-4: Historical Expenditures by Division by Type (Millions of Nominal $)

Division	Expenditure Type	FY1999	FY2008	Total
Division of Highways	Capital Improvements	$ 396.1	$ 506.2	$ 5,068.8
	Operations and Maintenance	$ 302.3	$ 395.2	$ 3,206.5
	Administration	$ 30.8	$ 36.4	$ 366.8
	Debt Service	$ 46.2	$ 49.3	$ 464.3
	Transfer to Others	$ 23.5	$ 35.2	$ 317.1
	Total Expenditures – DOH	$ 799.0	$ 1,022.3	$ 9,423.5
State Rail Authority	Capital Improvements	$ -	$ 1.7	$ 17.4
	Operations and Maintenance	$ 2.2	$ 2.0	$ 17.0
	Administration	$ 1.1	$ 1.3	$ 11.6
	Debt Service	$ 0.5	$ 0.4	$ 4.5
	Transfer to Others	$ -	$ -	$ -
	Total Expenditures - SRA	$ 3.7	$ 5.4	$ 50.5

Division	Expenditure Type	FY1999	FY2008	Total
Division of Public Transit	Capital Improvements	$ 5.2	$ 15.1	$ 124.1
	Operations and Maintenance	$ 4.0	$ 10.1	$ 66.0
	Administration	$ 1.1	$ 2.3	$ 20.9
	Debt Service	$ -	$ -	$ -
	Transfer to Others	$ -	$ -	$ -
	Total Expenditures - DPT	$ 10.3	$ 27.6	$ 211.0
Public Port Authority	Capital Improvements	$ 0.1	$ 0.1	$ 1.8
	Operations and Maintenance	$ -	$ -	$ -
	Administration	$ 0.7	$ 0.3	$ 5.9
	Debt Service	$ -	$ -	$ -
	Transfer to Others	$ -	$ -	$ -
	Total Expenditures - WVPPA	$ 0.8	$0.4	$ 7.6
Aeronautics Commission	Capital Improvements	$ 0.3	$ 0.6	$ 8.9
	Operations and Maintenance	$ -	$ -	$ -
	Administration	$ 0.2	$ 0.6	$ 6.6
	Debt Service	$ -	$ -	$ -
	Transfer to Others	$ -	$ -	$ -
	Total Expenditures - WVAC	$ 0.5	$ 1.2	$ 15.4
Total	Capital Improvements	$ 402.8	$ 523.7	$ 5,224.6
	Operations and Maintenance	$ 307.4	$ 407.3	$ 3,285.9
	Administration	$ 33.9	$ 41.0	$ 411.8
	Debt Service	$ 46.7	$ 49.7	$ 468.8
	Transfer to Others	$23.5	$ 35.2	$ 317.1
	Total Expenditures	$ 814.2	$ 1,056.9	$ 9,708.0

Table 2-5: Historical Expenditures by Type (Millions of Nominal $)

Type	Modal Agency	FY1999	FY2008	Total
Capital Improvements	Division of Highways	$ 396.1	$ 506.2	$ 5,068.8
	State Rail Authority	$ -	$ 1.7	$ 17.4
	Division of Public Transit	$ 5.2	$ 15.1	$ 124.1
	Public Port Authority	$ 0.1	$ 0.1	$ 1.8
	Aeronautics Commission	$ 0.3	$ 0.6	$ 8.9
	Total Capital Improvements	$ 401.8	$ 523.7	$ 5,220.9
Operations and Maintenance	Division of Highways	$ 302.3	$ 395.2	$ 3,206.5
	State Rail Authority	$ 2.2	$ 2.0	$ 17.0
	Division of Public Transit	$ 4.0	$10.1	$ 66.0
	Public Port Authority	$ -	$ -	$ -
	Aeronautics Commission	$ -	$ -	$ -
	Total O & M	$ 308.5	$ 407.3	$ 3,289.6
Administration	Division of Highways	$ 30.8	$ 36.4	$ 366.8
	State Rail Authority	$ 1.1	$ 1.3	$ 11.6
	Division of Public Transit	$ 1.1	$ 2.3	$ 20.9
	Public Port Authority	$ 0.7	$ 0.3	$ 5.9
	Aeronautics Commission	$ 0.2	$ 0.6	$ 6.6

Type	Modal Agency	FY1999	FY2008	Total
	Total Administration	$ 33.9	$ 41.0	$ 411.8
Debt Service	Division of Highways	$ 46.2	$ 49.3	$ 464.3
	State Rail Authority	$ 0.5	$ 0.4	$ 4.5
	Division of Public Transit	$ -	$ -	$ -
	Public Port Authority	$ -	$ -	$ -
	Aeronautics Commission	$ -	$ -	$ -
	Total Debt Service	$ 46.7	$ 49.7	$ 468.8
Transfers to Other Purposes	Division of Highways	$ 23.5	$ 35.2	$ 317.1
	State Rail Authority	$ -	$ -	$ -
	Division of Public Transit	$ -	$ -	$ -
	Public Port Authority	$ -	$ -	$ -
	Aeronautics Commission	$ -	$ -	$ -
	Total Transfers	$ 23.5	$ 35.2	$ 317.1
Total	Division of Highways	$ 799.0	$ 1,022.3	$ 9,423.5
	State Rail Authority	$ 3.7	$ 5.4	$ 50.5
	Division of Public Transit	$10.3	$ 27.6	$ 211.0
	Public Port Authority	$ 0.8	$ 0.4	$ 7.6
	Aeronautics Commission	$ 0.5	$ 1.2	$ 15.4
	Total Expenditures	$ 814.2	$ 1,056.9	$ 9,708.0

The transfer of funds applies to the SRF transfers to the DMV. A main function of the DMV is to collect the revenue for the SRF so this transfer is considered a reasonable use of funds.

Figure 2-5 shows that the annual expenditure trends over time have been fairly consistent for administration, debt service, and transfers. FY2008 showed a significant change in expenditure patterns between capital improvements and maintenance, with operating and maintenance expenditures increasing and capital improvement investments decreasing. Figure 2-6 shows similar information but just for DOH and in terms of percentages instead of nominal dollars.

Information on historical expenditure trends indicates that:

- Division of Highways:
  - In the last 10 years approximately 54 percent of funds were used for capital improvements
  - On average, operations and maintenance represents 34 percent of total expenditures. In FY2008, this category represented almost 39 percent of expenditures
- State Rail Authority:
  - On average, 42 percent of expenditures are used for capital improvements and 26 percent for operations and maintenance
- Division of Public Transit:
  - Capital improvements, including purchase of equipment, represented 59 percent of expenditures over the last 10 years
  - Operations and maintenance represented on average 31 percent of expenditures
- Public Ports Authority:

- Capital improvements represented 23 percent of the past 10 years of expenditures. The remaining was for administration, which is slightly misleading since this represents payments of contracts that might be used to maintain the system.

- WV Aeronautics Commission:
  - Capital improvements represented approximately 58 percent of expenditures in the last 10 years
- **For all the expenditures in the last 10 years**, the distribution by type of expenditure was:
  - Capital improvements 54 percent
  - Operations and maintenance 34 percent
  - Administration 4 percent
  - Debt service 5 percent
  - Transfers 3 percent

2.5.2 Key Observations

It must be noted that expenditures and needs are different. Expenditures represent how available funds are spent. Needs by transportation mode are discussed in other sections of this report. Even so, there are some key observations regarding historical expenditures:

- The trend toward spending a larger share of revenue on operations and maintenance, particularly for the DOH, is likely to continue into the future. More infrastructure has been added to the system over the years, and existing infrastructure is aging. Putting maintenance and preservation needs first, without a significant increase in revenue, will decrease expenditures on capital improvements.
- The increased cost in construction materials and asphalt based products will continue to increase the cost for both construction and maintenance needs. Although the expenditure tables alone do not show this trend, discussions with transportation officials indicate that every year less progress is actually being made due to rising costs, even if more money is being spent.

Figure 2-5: WVDOT Annual Expenditure Trends (in nominal dollars)

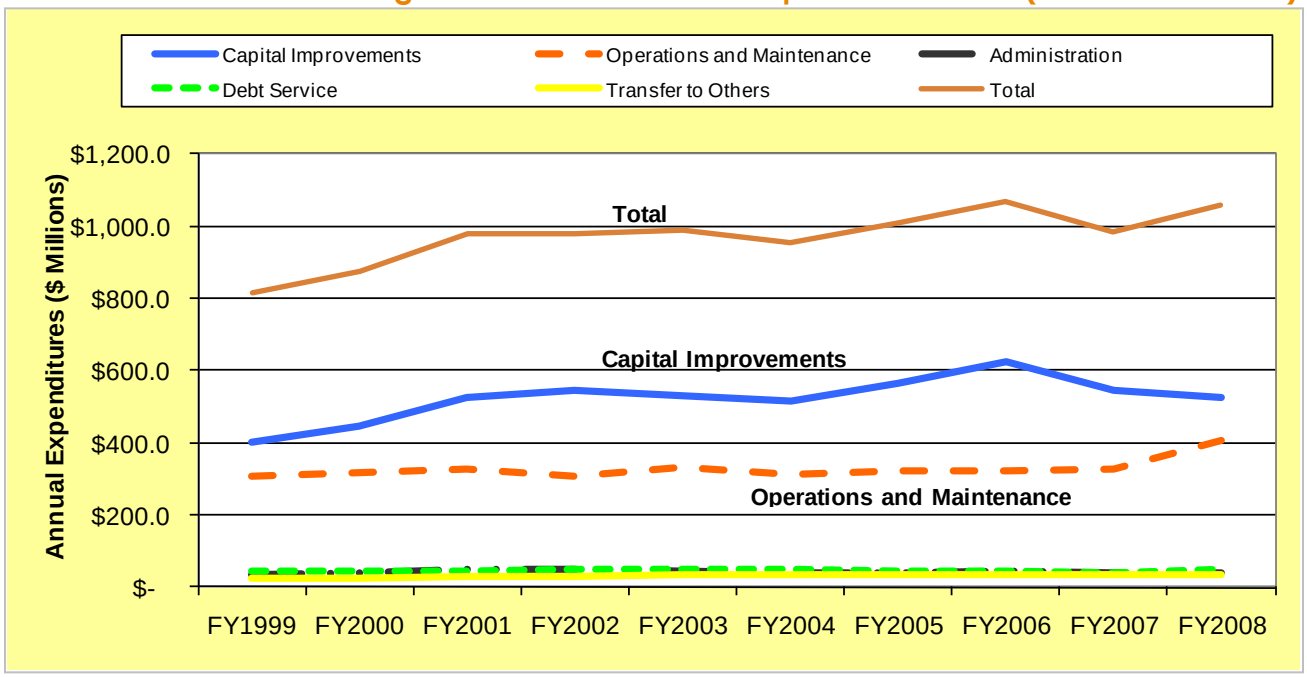
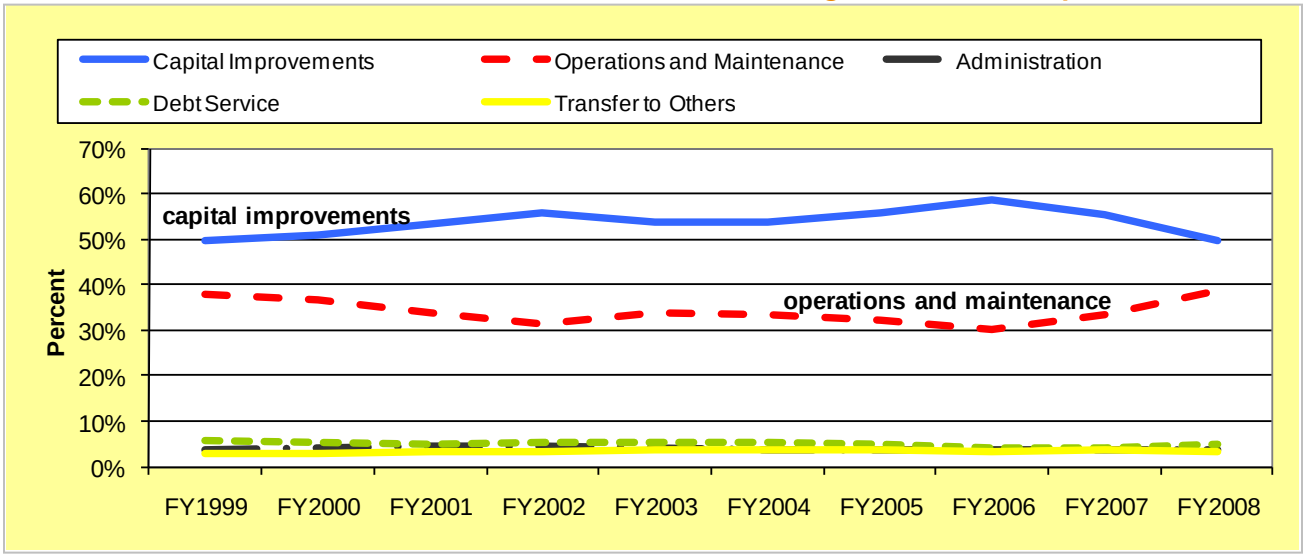


Figure 2-6: DOH Expenditure Trends



2.6 Impact of Inflation

One of the observations made on expenditures was that even though more money may be expended, the service received (e.g. miles of new construction or miles of maintenance, number of new vehicles, etc.) has decreased due to increasing costs. The DOT's ability to fund construction projects has been hard-hit by increasing costs. This is reflected in the analysis of the amount of funds spent in constant 2007 dollars. The historical revenue and expenditures in constant 2007 dollars is illustrated in a series of charts in order that a true comparison can be made. Figure 2-7 shows WVDOT's total revenue and expenditures, Figure 2-8 shows DOH revenue sources, and Figure 2-9 shows DOH expenditure types. In simple terms, they present the 2007 value of the past years. For example, in FY1999 nominal revenue was $1.03 billion for the WVDOT, but that amount would be $1.66 billion in 2007 dollars, due to inflation. Table 2-6 shows revenue and expenditures in Constant 2007 Dollars for 1999, 2008, and the total 10-year period.

2.6.1 Inflation Factors

Two factors were used to convert revenues and expenditures to constant 2007 dollars. The Consumer Price Index (CPI) for the South Urban Region for all expenditures was one factor considered. This is an overall index of the change in buying power. When calculating trends in construction spending, however, a different index is more appropriate due to the dramatic changes in construction costs in the past. FHWA's Highway CPI tracked national trends in the cost of highway construction. The federal government ceased producing the index in FY2006. In order to continue to track the cost of highway construction, WVDOH developed a CPI that tracks highway construction cost trends in West Virginia. The result is a modified index that uses information from FHWA prior to FY2006 and DOH after FY 2006. From 1999 to 2007 overall consumer prices rose about 24 percent according to the CPI. Using DOH/FHWA construction price index, construction prices rose 70 percent during that same period.

Neither index alone yields an appropriate factor. A review of expenditures by type suggests that approximately 82 percent of expenditures are tied directly to construction costs and the remaining 18 percent are more aligned with wages. The respective split was applied to each factor to develop a blended factor that was used for this analysis, as shown in Table 2-7.

Figure 2-7: WVDOT's Total Revenue and Expenditures in Constant 2007 Dollars

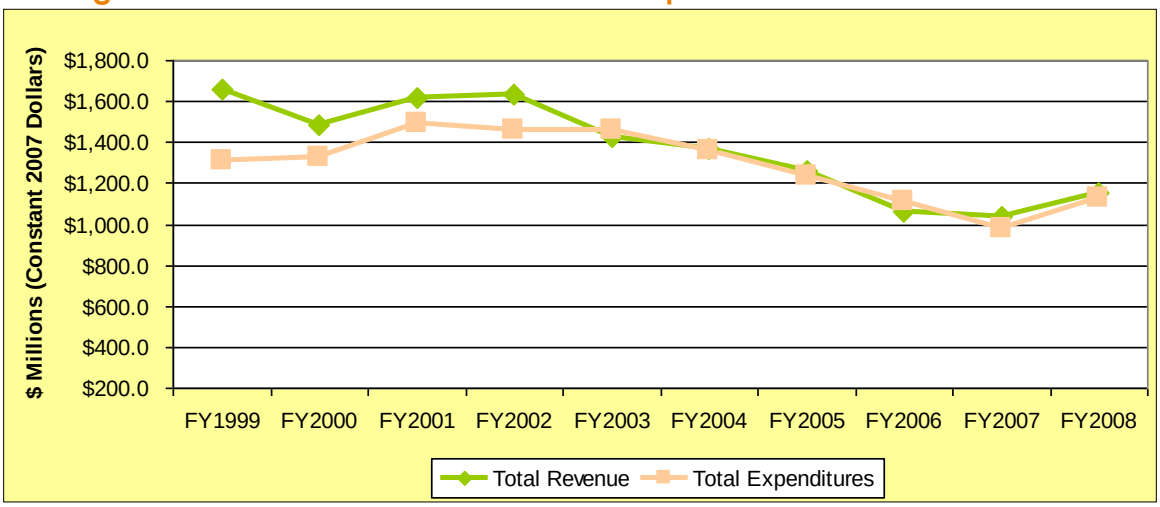


Figure 2-8: DOH Revenue Trends in Constant 2007 Dollars

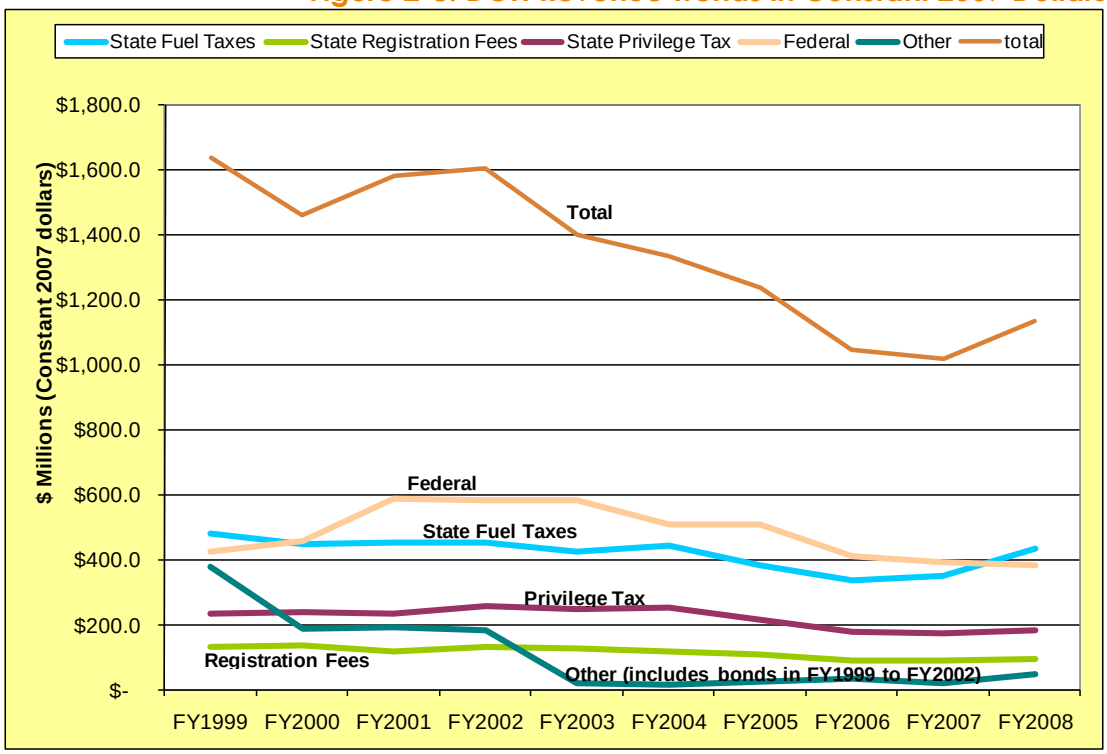


Figure 2-9: DOH Expenditure Trends in Constant 2007 Dollars

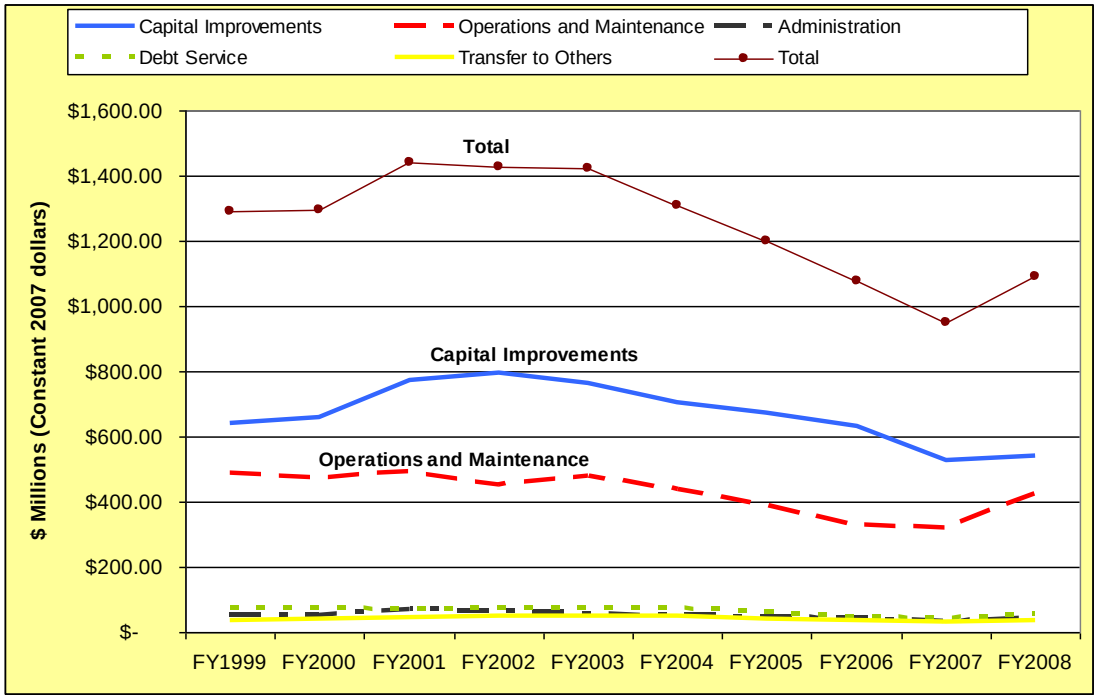


Table 2-6: WVDOT Historical Revenue and Expenditures in Constant 2007 Dollars ($ Millions)

Type	Revenue Source	FY1999	FY2008	Total
State Sources	Motor Fuel Taxes	$ 477.5	$ 431.2	$ 4,190.6
	Registration Fees	$ 128.8	$ 92.2	$ 1,131.2
	Privilege Tax	$ 231.6	$ 180.8	$ 2,208.6
	Other Fees	$ 2.5	$ 5.5	$ 55.9
	Miscellaneous Income	$ 17.4	$ 41.0	$ 175.8
	Aviation Fuel Tax	$ 0.7	$ 1.5	$ 8.2
	Enterprise Fund Freight Revenue	$ 3.3	$ 2.8	$ 27.4
	Subtotal Dedicated State	$ 861.7	$ 754.9	$ 7,797.7
	General Revenue Fund Appropriations	$ 5.2	$ 8.1	$ 88.6
	Local Match From Transit Agencies	$ 0.6	$ 0.4	$ 5.7
	Other	$ -	$ 0.1	$ 1.1
	Bonds	$ 355.0	$ -	$ 853.8
	Subtotal Non-Dedicated State	$ 360.9	$ 8.6	$ 949.3
	Total State Revenue Sources	$ 1,222.6	$ 763.5	$ 8,747.0
Federal Sources	FHWA – Interstate	$ 89.5	$ 79.9	$ 766.6
	FHWA – Other Federal Aid	$ 246.3	$ 220.7	$ 2,566.8
	FHWA – Appalachian	$ 88.1	$ 80.4	$ 1,489.9
	Subtotal FHWA	$ 423.9	$ 380.9	$ 4,823.2
	FTA	$ 7.1	$ 11.9	$ 109.1
	FRA	$ 1.6	$ -	$ 8.1
	FAA	$ -	$ -	$ 5.5
	Other Federal	$ 0.6	$ 0.1	$ 23.2
	Total Federal Revenue Sources	$ 433.2	$ 392.9	$ 4,969.2

Type	Revenue Source	FY1999	FY2008	Total
Total Revenue	State Sources	$ 1,222.6	$ 763.5	$ 8,747.0
	Federal Sources	$ 433.2	$ 392.9	$ 4,969.2
	Total Revenue	$ 1,655.8	$ 1,156.4	$ 13,716.1
	Category	FY1999	FY2008	Total
Expenditures by Type	Capital Improvements	$ 648.4	$ 558.6	$ 6,901.3
	Operations and Maintenance	$ 497.8	$ 434.4	$ 4,371.6
	Administration	$ 54.7	$ 43.7	$ 551.3
	Debt Service	$ 75.3	$ 53.0	$ 630.9
	Transfer to Others	$ 37.9	$ 37.5	$ 418.8
	Total Expenditures by Type	$ 1,314.1	$ 1,127.3	$ 12,873.9
Expenditures by Division	Division of Highways	$ 1,289.4	$ 1,090.4	$ 12,501.8
	State Rail Authority	$ 6.0	$ 5.8	$ 67.3
	Division of Public Transit	$ 16.6	$ 29.4	$ 273.6
	Public Port Authority	$ 1.2	$ 0.4	$ 10.6
	Aeronautics Commission	$ 0.8	$ 1.3	$ 20.5
	Total Expenditures by Division	$ 1,314.1	$ 1,127.3	$ 12,873.9

Table 2-7: Inflation Factors

Year	CPI (Indexed to 2007)	WVDOH Construction Index (Indexed to 2007)	Blended Factor For This Analysis
1999	1.24	1.70	1.61
2000	1.20	1.59	1.52
2001	1.17	1.60	1.52
2002	1.16	1.57	1.49
2003	1.13	1.55	1.47
2004	1.10	1.50	1.43
2005	1.06	1.26	1.23
2006	1.02	1.05	1.04
2007	1.00	1.00	1.00
2008	0.96	1.09	1.07

2.6.2 Revenues

In real terms, revenues have decreased over time due to inflation. Nominally, the revenue available in FY2008 was six percent greater than that available in FY1999 (see Table 2-3). However, when adjusted for inflation and presented in constant 2007 dollars, **total revenue available in FY2008 was 30 percent less than what was available 10 years ago** (Figure 2-7). It is noted that there was bond revenue included in FY1999 through FY2002. Figure 2-10 and Figure 2-11 show WVDOT Revenue Expenditures in Nominal and Constant 2007 Dollars.

Figure 2-10: Revenue Trends

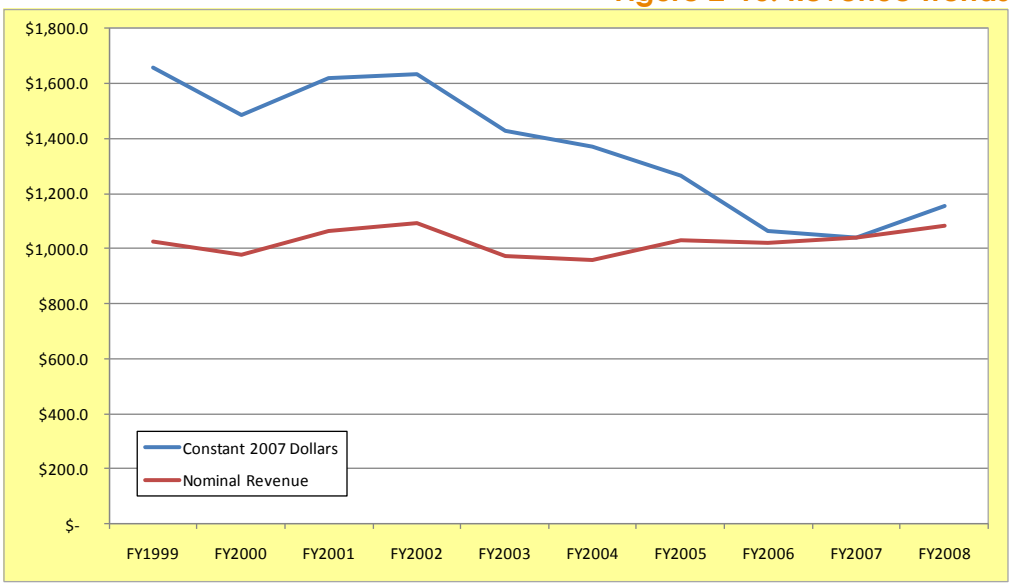


Figure 2-11: Expenditure Trends

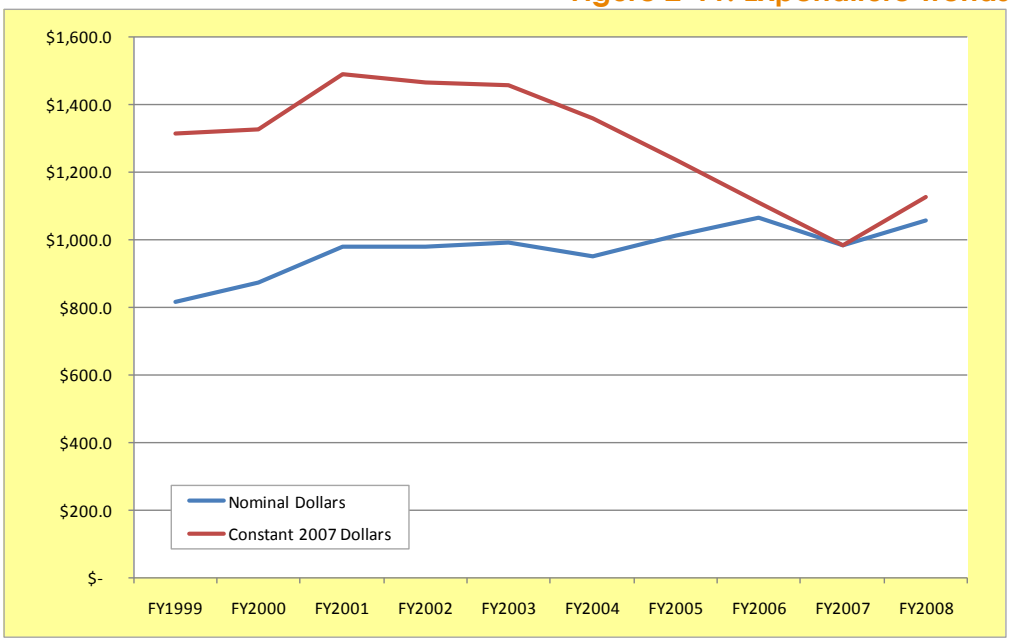


Figure 2-8 shows the decline in DOH state revenue sources tend to be fixed rate revenues (i.e., flat per cent gallon gas tax, fixed rates for licenses and registrations, etc.) as opposed to revenues from percentage taxes. All other things being equal, as costs rise, a percentage tax produces additional revenue, but a flat, fixed-rate tax does not. It has only been in recent years with the significant increase in fuel prices that the wholesale component of the Motor Fuel Tax, which is percentage based, has helped to offset the flat-rate portion of the fuel tax. In constant 2007 dollars, FY2008 state fuel tax revenues were 10 percent less than in FY1999. Registration fee and privilege tax revenues were 28 percent and 22 percent less in FY2008 than in FY1999, respectively.

Federal revenue has decreased in real terms 9 percent over the analysis period. In constant 2007 dollars, the value of federal revenue was $433 million in FY1999 compared to $393 million in FY2008 (see Table 2-6). Current economic conditions suggest that future federal revenue may not be as much as it has in the past.

2.6.3 Expenditures

Even though more money generally has been expended each year, the impact of rising construction costs dramatically reduces buying power. Overall, WVDOT's **expenditures in FY2008 in constant 2007 dollars were 14 percent less than what was spent in FY1999,** driven by the rise in construction costs. The decrease is not as dramatic as the year before because of the recent decrease in construction prices. FY2007 expenditures in constant 2007 dollars were 25 percent less than in FY1999.

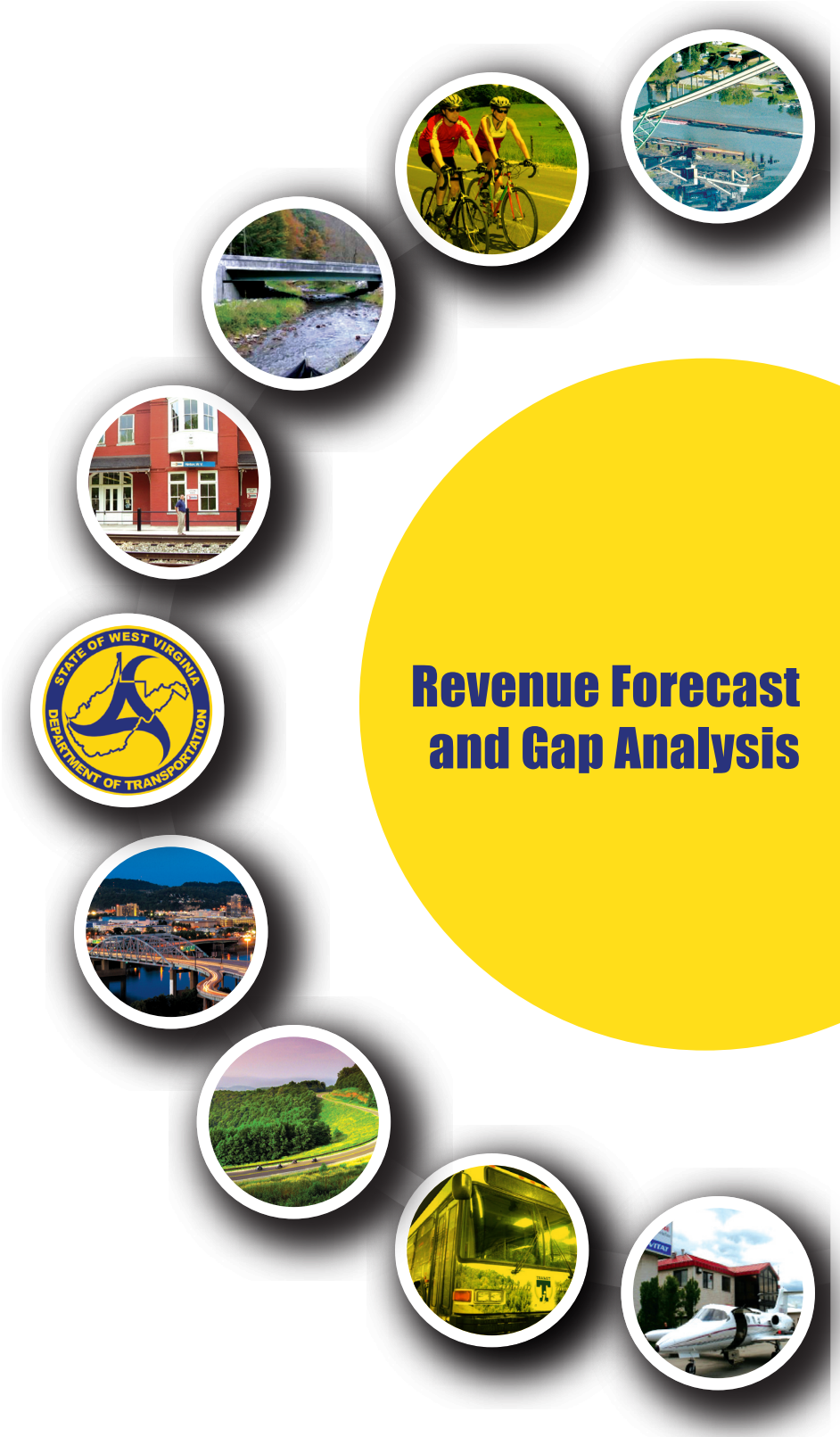
Figure 2-9 indicates the value in 2007 constant dollars of DOH expenditures by type. In real terms, spending has decreased over the last 10 years. **In FY2008, DOH spent in real terms 16 percent less than it spent in FY1999 on capital improvements and 14 percent less on operations and maintenance.** This is coming at a time when demand for transportation infrastructure is increasing.

When revenue comes from basically fixed rate taxes that do not yield more revenue as prices rise and there are considerable increases in construction costs, the result is a widening gap between needs and actual expenditures due to insufficient funds.

2.7 Summary

WVDOT is facing the same issues that most state DOTs across the nation are facing – having to do more with less. Revenues have not kept pace with costs. Transportation needs continue to increase as vehicle miles of travel increase and there is a greater demand for more alternative transportation. Over time, WV's Transportation System has grown and been improved. As such, the cost to operate and maintain as costs to maintain this system continue to increase but revenues stay the same or decline, leaving less money available for new capital improvements.

The next step will be to forecast future revenues and compare that estimate to future needs. This analysis will also include a prioritization process to determine how WVDOT should invest its transportation revenue.



Revenue Forecast and Gap Analysis

Section 3. Revenue Forecast and Gap Analysis

Section 3 of this report establishes the financial baseline for forecasting future transportation revenues to support West Virginia's transportation system. Section 2 of this report examined historic trends in federal and state revenues and expenditures in West Virginia, using nominal dollars and constant 2007 dollars. The constant 2007 dollars are used to correspond with the needs analysis, which uses 2007 data. This section also provides a baseline revenue projection to the year 2034 and discusses alternative sources to address future needs and potential revenue shortfalls. All revenues shown in this report are based on state or federal fiscal years. No assumptions are made about locally-generated transportation revenues.

West Virginia's State Road Fund is the primary mechanism through which dollars for highway needs are collected and distributed. Over the past 10 years, the SRF has accounted for 88 percent of the total revenues to pay for the activities carried out by the Division of Highways.

The SRF draws from motor fuel taxes, vehicle license and registration fees, a privilege tax on vehicle purchases and to a lesser extent, various fees. The state is responsible for the construction and maintenance of roads that are eligible for federal assistance as well as for roads that are not eligible – the local road system.

This discussion focuses on revenue generation for roadway construction, operation and maintenance of West Virginia's highway system, funding for these activities accounts for 94 percent of the state's entire transportation budget.

3.1 Transportation Funding Sources

West Virginia's State Road Fund is the primary mechanism through which dollars for highway needs are collected and distributed. Over the past 10 years, the SRF has accounted for 88 percent of the total revenues to pay for the activities carried out by the Division of Highways. The SRF draws from motor fuel taxes, vehicle license and registration fees, a privilege tax on vehicle purchases and to a lesser extent, various fees. The state is responsible for the construction and maintenance of 93-94% of the public highway mileage (36,312 miles) of which only (10,368 miles) 28.6% are eligible for federal aid. WVDOH is responsible for the 6th largest state maintained network in the nation.

3.1.1 Historic Trends in Highway Funding

Table 3-1 presents a 10-year summary of West Virginia's highway revenue levels, in constant 2007 dollars. Between FY1999 and FY2008, Department of Highway's revenue averaged $1.1 billion annually. A significant decrease within the 10 year period occurred in 2003 however, when a period of bond issuances came to an end. Between FY1999 and FY2002, revenues averaged $1.2 billion, while during the subsequent six years, revenues averaged $1.0 billion. The nationwide and State recessions are likely to reduce revenues from sources within the State in the short term; whether federal stimulus spending will make up the difference is unclear.

Federal Reimbursements to the West Virginia DOT under the 2005 Safe, Accountable, Flexible Efficient Transportation Equity Act (SAFETEA-LU) and its predecessor, the Transportation Equity Act for the 21st Century (TEA-21) accounted for 38.5 percent of total SRF revenues over the 10-year period. Annual revenues rose to a peak of $451 million in FY2001 and remained above $400 million before

Table 3-1: Summary of Historic Funding Levels in Highway Program (Millions, $2007)

Fund	Source	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	Total
Special Revenue (Appropriated)		**$ -**	**$ -**	**$ 3.3**	**$ 3.3**	**$ 3.3**	**$ 3.3**	**$ 3.3**	**$ 3.3**	**$ 3.3**	**$ 3.3**	**$ 26.4**
A. James Manchin Fund	Title Fees	**$ -**	**$ -**	**$ 3.3**	**$ 3.3**	**$ 3.3**	**$ 3.3**	**$ 3.3**	**$ 3.3**	**$ 3.3**	**$ 3.3**	**$ 26.4**
State Road Fund		**$ 981.6**	**$ 1,015.6**	**$ 1,079.9**	**$ 1,106.6**	**$ 1,068.5**	**$ 1,021.3**	**$ 1,063.6**	**$ 1,015.2**	**$ 1,010.3**	**$ 1,012.2**	**$ 10,374.8**
State Sources	Gasoline & Motor Fuel Tax (Excise) Tax	$ 280.8	$ 268.4	$ 263.1	$ 266.2	$ 250.1	$ 299.9	$ 330.8	$ 327.2	$ 349.2	$ 388.1	$ 3,023.7
	Wholesale Fuel Tax	$ 85.0	$ 83.4	$ 83.5	$ 84.7	$ 76.7	$ 40.6	$ -	$ -	$ -	$ -	$ 454.0
	Subtotal Fuel Taxes	$ 365.8	$ 351.7	$ 346.6	$ 350.9	$ 326.8	$ 340.6	$ 330.8	$ 327.2	$ 349.2	$ 388.1	$ 3,477.7
	Registration Fees	$ 98.7	$ 104.7	$ 90.8	$ 99.4	$ 97.5	$ 91.5	$ 93.5	$ 88.7	$ 87.1	$ 83.0	$ 934.7
	Privilege Tax	$ 177.4	$ 186.2	$ 181.0	$ 199.5	$ 189.5	$ 194.5	$ 187.3	$ 174.9	$ 173.3	$ 162.7	$ 1,826.4
	Control Fee	$ 1.9	$ 1.9	$ 1.7	$ 2.0	$ 1.8	$ 1.7	$ 2.0	$ 1.7	$ 1.5	$ 1.8	$ 18.2
	Miscellaneous Income	$ 13.3	$ 12.4	$ 13.8	$ 9.0	$ 7.3	$ 6.3	$ 14.0	$ 25.1	$ 12.6	$ 36.9	$ 150.8
	Less Industrial Access Road Fund	$ (0.3)	$ (1.9)	$ (5.1)	$ (4.1)	$ (2.6)	$ (3.2)	$ (2.6)	$ (3.1)	$ (3.0)	$ (3.2)	$ (29.0)
	Total State Sources	**$ 656.9**	**$ 655.1**	**$ 628.8**	**$ 656.8**	**$ 620.3**	**$ 631.4**	**$ 625.0**	**$ 614.5**	**$ 620.7**	**$ 669.2**	**$ 6,378.8**
Federal Sources	Interstate	$ 68.5	$ 89.8	$ 58.8	$ 64.1	$ 52.4	$ 56.7	$ 62.7	$ 59.6	$ 49.0	$ 71.9	$ 633.6
	Other Federal Aid	$ 188.7	$ 176.7	$ 239.5	$ 194.8	$ 201.8	$ 197.7	$ 260.5	$ 241.7	$ 246.4	$ 198.7	$ 2,146.3
	Appalachian	$ 67.5	$ 94.1	$ 152.9	$ 190.8	$ 193.9	$ 135.5	$ 115.5	$ 99.3	$ 94.3	$ 72.4	$ 1,216.1
	Total Federal Sources	**$ 324.7**	**$ 360.6**	**$ 451.1**	**$ 449.8**	**$ 448.2**	**$ 389.8**	**$ 438.6**	**$ 400.7**	**$ 389.6**	**$ 342.9**	**$ 3,996.0**
Other Special Revenue (Non-appropriated)		**$272.3**	**$133.5**	**$134.0**	**$131.3**	**$2.6**	**$3.2**	**$2.6**	**$3.1**	**$3.0**	**$3.2**	**$688.9**
Road Fund	Transfer from SRF	$ 0.3	$ 1.9	$ 5.1	$ 4.1	$ 2.6	$ 3.2	$ 2.6	$ 3.1	$ 3.0	$ 3.2	$29.0
Bonds		$ 272.0	$ 131.6	$ 128.9	$ 127.2	$ -	$ -	$ -	$ -	$ -	$ -	$ 659.8
REVENUE - DOH		**$ 1,253.9**	**$ 1,149.1**	**$ 1,217.2**	**$ 1,241.2**	**$ 1,074.4**	**$ 1,027.8**	**$ 1,069.5**	**$ 1,021.6**	**$ 1,016.7**	**$ 1,018.7**	**$ 11,090.1**

dropping below FY1999 levels in FY2008, at $324 million. All states receive federal funds pooled from motor fuel taxes collected nationally.

West Virginia's **Motor Fuel Excise Tax (MFET)** is the largest source of State transportation revenue and accounted for 29 percent of all SRF revenue over the 10-year period. The effective composite rate of 32.2 cents per gallon as of January 1, 2010 is made up of a component that is levied at the gas pump that does not change with inflation (20.5 cents per gallon) and a component that is based on wholesale prices and does rise with inflation (11.7 cents per gallon). Before the recession, State motor fuel tax revenues increased at roughly three percent per year over the 10-year period from FY 1999 - 2008.

The **Privilege Tax** is a sales tax levied on the sale and use of motor vehicles and is currently set at 5.0 percent of the purchase price of a vehicle. Over the 10-year period between FY1999 to FY2008, tax receipts have declined steadily from a peak of $194.5 million in FY2004 to $162.7 million in FY2008. Although outside the scope of this study, more recent information indicates that sales tax receipts dropped even further due to the recession - below $150 million in FY2009.

The DMV levies **license and registration fees** as well as other fees such as litter control fees. The registration fee is set at $30 per vehicle. Vehicles heavier than 8,000 pounds are subject to incrementally higher fees and "special vehicles" such as taxis are subject to different fees. West Virginia charges $2.60 annual for license renewal. FY2008 marked the low point in license and registration fee receipts over the 10-year period, at $83.0 million.

3.2 Transportation Revenue Forecast

The highway needs analysis presented in Section 4 of this report estimated the transportation impacts and consequences of a 25-year highway funding program of $23.5 billion. The average of $941 million per year is roughly 15.1 percent lower than the historic 10-year average discussed in Section 2. The factors contributing to a funding estimate lower than historic averages include the impacts of the recession which will slow general demand for goods and services and employment growth; inflation, which will continue to erode the value of the SRF and the assumption of no bonds issued and counted as revenue in the forecasts. Other assumptions to note are: 1) current tax rates will remain constant; 2) that prices will rise at an average annual inflation rate of 2.0 percent per year; and 3) from the economic forecasting services of Woods and Poole, population and employment will increase by less than one percent each year.

This forecast was developed in consultation with WVDOT, after considering alternative rates of growth and the factors that are likely to impact the State's revenue picture over the long term.

3.2.1 Forecast Revenue from Motor Fuels Tax

The 25-year forecast indicates $10.5 billion (not adjusted for inflation) in fuel tax receipts over the 25-year period, assuming no increase in tax rates (i.e. the flat rate portion of the tax would remain at 20.5¢ per gallon and the variable rate portion would continue to increase based on the yearly wholesale rate.

This estimate also assumes that VMT will increase on average by roughly 2.0 percent per year (derived from WVDOT data submitted to the FHWA) and that average fuel efficiency (miles per gallon) will increase at a rate slightly higher than one percent per year.

3.2.2 Forecast Revenue from Federal Sources

Compound annual growth rates for federal highway apportionments (ISTEA, TEA-21, and SAFETEA-LU) grew by 3.5 percent in constant dollars, between FY1991 to FY2009. The revenue forecast assumes that

federal support for the SRF will grow by 2.5 percent per year, a more conservative estimate than a continuation of past long-term trends. Still, federal apportionments account for over $12 billion (unadjusted for inflation) of total revenue and remain the single largest source of revenue to support the highway program.

3.2.3 Forecast Revenue from Privilege Tax

Revenues from the Privilege Tax are estimated to total $4.9 billion (unadjusted for inflation) over the 25-year period (year to year). This forecast reflects an average growth of 1.3 percent per year and assumes that vehicle prices will be consistent with general inflation trends.

3.2.4 Forecast Revenue from Registration, License Taxes and Other Sources

Registration and license fees are forecast to generate nearly $2.3 billion (unadjusted for inflation) in revenue over the 25-year period. Low rates of forecast population growth and vehicle ownership levels drive the registration and license fee forecasts.

The State of West Virginia imposes other fees which support the SRF. A litter control fee, for example, is levied by the Department of Motor Vehicles. This fee add an estimated $230 million (unadjusted for inflation) to the forecast revenue total.

3.2.5 Impacts of Inflation

The $23.5 billion includes the impacts of inflation on the motor fuel tax, registration fees and the Privilege Tax. In nominal terms (without accounting for inflation), the revenue forecast is $30.1 billion. In other words, indexing these fees and taxes to inflation would generate an additional 22 percent in revenue for the State's highway program. Figure 3-1 and Table 3-3 present the 25-year revenue forecast for the West Virginia highway needs analysis. As adjusted for inflation (2007$) total revenues follow a slight, but steady decline from 2015 onward and as shown in the chart, federal funds provide the largest source of funds and the highest increase from the initial year over the 25-year period. Table 3-3 shows the 25-year revenue forecast in nominal dollars.

Figure 3-1: West Virginia Highway Revenue Forecast

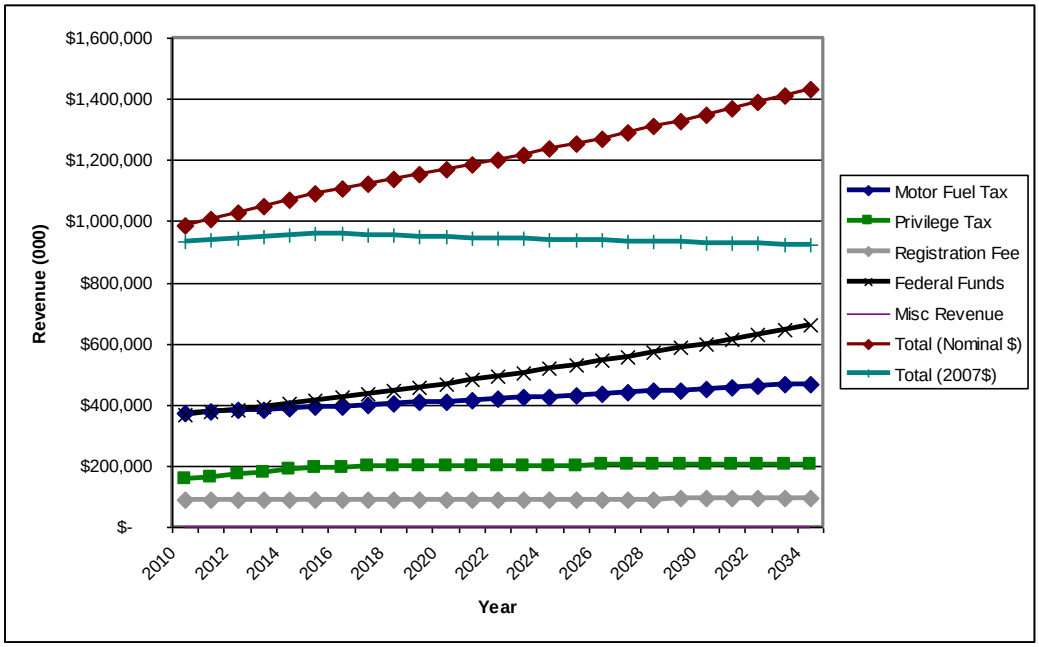


Table 3-2: Forecast Highway Revenues (Constant $2007)

Year	Motor Fuel Tax	Privilege Tax	Registration Fee	Federal Funds	Misc Revenue	Total ($2007)
2010	$356,065	$147,308	$84,674	$348,335	$9.20	$936,390
2011	$353,690	$152,600	$83,321	$351,339	$9.20	$940,959
2012	$351,417	$157,763	$81,550	$354,455	$9.20	$945,195
2013	$349,240	$162,802	$79,832	$357,684	$9.20	$949,567
2014	$347,150	$167,720	$78,816	$361,017	$9.20	$954,712
2015	$345,146	$172,523	$77,830	$364,459	$9.20	$959,966
2016	$342,848	$170,213	$76,788	$367,608	$9.20	$957,465
2017	$340,559	$167,931	$75,759	$370,775	$9.20	$955,032
2018	$338,278	$165,676	$74,741	$373,962	$9.20	$952,665
2019	$336,005	$163,448	$73,737	$377,168	$9.20	$950,365
2020	$333,739	$161,246	$72,743	$380,393	$9.20	$948,130
2021	$331,486	$159,124	$71,785	$383,643	$9.20	$946,046
2022	$329,242	$157,026	$70,839	$386,912	$9.20	$944,025
2023	$327,005	$154,951	$69,903	$390,200	$9.20	$942,067
2024	$324,776	$152,902	$68,979	$393,508	$9.20	$940,172
2025	$322,556	$150,876	$68,065	$396,835	$9.20	$938,339
2026	$320,344	$148,874	$67,161	$400,181	$9.20	$936,567
2027	$318,139	$146,895	$66,269	$403,547	$9.20	$934,856
2028	$315,943	$144,938	$65,386	$406,931	$9.20	$933,205
2029	$313,754	$143,005	$64,514	$410,335	$9.20	$931,614
2030	$311,573	$141,094	$63,652	$413,756	$9.20	$930,081
2031	$309,400	$139,205	$62,799	$417,196	$9.20	$928,607
2032	$307,235	$137,338	$61,957	$420,655	$9.20	$927,191
2033	$305,077	$135,493	$61,125	$424,132	$9.20	$925,833
2034	$302,927	$133,669	$60,302	$427,627	$9.20	$924,531
Total	$8,233,596	$3,834,620	$1,782,528	$9,682,652	$230	$23,533,580

Table 3-3: Forecast Nominal Highway Revenues

Year	Motor Fuel Tax	Privilege Tax	Registration Fee	Federal Funds	Misc Revenue	Total (Nominal $)
2010	$374,255	$154,833	$89,000	$366,130	$9.20	$984,227
2011	$377,795	$163,000	$89,000	$375,283	$9.20	$1,005,087
2012	$381,368	$171,209	$88,500	$384,665	$9.20	$1,025,752
2013	$384,974	$179,460	$88,000	$394,282	$9.20	$1,046,726
2014	$388,615	$187,753	$88,230	$404,139	$9.20	$1,068,747

Year	Motor Fuel Tax	Privilege Tax	Registration Fee	Federal Funds	Misc Revenue	Total (Nominal $)
2015	$392,291	$196,089	$88,461	$414,242	$9.20	$1,091,092
2016	$396,001	$196,602	$88,693	$424,599	$9.20	$1,105,904
2017	$399,746	$197,117	$88,925	$435,214	$9.20	$1,121,011
2018	$403,527	$197,633	$89,158	$446,094	$9.20	$1,136,421
2019	$407,343	$198,150	$89,392	$457,246	$9.20	$1,152,140
2020	$411,195	$198,669	$89,626	$468,677	$9.20	$1,168,177
2021	$415,084	$199,253	$89,889	$480,394	$9.20	$1,184,630
2022	$419,010	$199,839	$90,153	$492,404	$9.20	$1,201,415
2023	$422,973	$200,426	$90,418	$504,714	$9.20	$1,218,541
2024	$426,973	$201,015	$90,684	$517,332	$9.20	$1,236,014
2025	$431,011	$201,606	$90,951	$530,265	$9.20	$1,253,842
2026	$435,088	$202,199	$91,218	$543,522	$9.20	$1,272,035
2027	$439,202	$202,793	$91,486	$557,110	$9.20	$1,290,601
2028	$443,356	$203,389	$91,755	$571,038	$9.20	$1,309,547
2029	$447,549	$203,987	$92,025	$585,314	$9.20	$1,328,883
2030	$451,782	$204,586	$92,295	$599,947	$9.20	$1,348,619
2031	$456,055	$205,187	$92,566	$614,945	$9.20	$1,368,763
2032	$460,368	$205,791	$92,838	$630,319	$9.20	$1,389,325
2033	$464,722	$206,395	$93,111	$646,077	$9.20	$1,410,315
2034	$469,117	$207,002	$93,385	$662,229	$9.20	$1,431,742
Total	$10,499,399	$4,883,984	$2,259,760	$12,506,182	$230	$30,149,556

3.3 Alternative Funding Levels

In consultation with WVDOT staff, alternative funding scenarios were developed to understand the trade-offs between highway preservation needs, expansion needs and funding requirements. These scenarios are discussed in more detail in Section 4. Table 3-4 shows the relative magnitude of the respective costs (or investment levels) of each scenario:

The Full Needs scenario – defined as the total cost to complete surface transportation system improvements to significantly improve conditions over the next 25 years – requires the largest investment among the four scenarios analyzed. At more than $53.1 billion, this scenario includes construction of many of the State's top expansion projects as well as enhancements to bring a significant percent of state-owned pavements to "good" or better conditions.

While Full Needs improvements provide an important aspiration for the State, West Virginia is currently struggling to maintain current system conditions. Increases in vehicle fuel efficiency and the combustion efficiency of the fuels themselves, combined with a funding mechanism which is currently not entirely indexed to inflation, have significantly reduced the purchasing power of the gas tax. The 2009 National

Infrastructure Financing Commission noted that real highway spending per mile traveled in the nation has fallen nearly 50 percent since the highway trust fund was established. The result is an ever-expanding backlog of investment needs, for which the costs continue to grow.

Table 3-4: Alternative Funding Scenarios (2007$, Millions)

	Constrained Funding	Maintain Current Conditions	FY1999 Revenue	Full Needs
	$23,534	$33,525	$30,449	$53,130
Federal-Aid Highway	$9,585	$18,288	$12,398	$32,518
State Highway	$1,417	$2,706	$1,834	$4,232
Bridge	$2,481	$2,481	$2,481	$2,481
Major Capacity	$1,535	$1,830	$3,289	$3,289
Routine Maintenance	$7,059	$7,059	$9,135	$9,135
Debt	$1,177	$1,116	$1,116	$1,177
Other	$280	$46	$195	$298

For these reasons, significant investment in the transportation system is needed to simply maintain current conditions:

- The Constrained Funding scenario of approximately $23.5 billion, based on maintaining revenue trends that erode current levels of buying power, focuses transportation spending on maintenance and preservation and is insufficient to maintain the current conditions of the transportation network. This funding scenario accommodates $1.5 billion in spending that could be used for additional maintenance needs and infrastructure preservation or used for major project completion, but at the expense of degrading pavement conditions. It should be noted that Constrained Funding scenario provides investments at less than one-half of the State's Full Needs.
- To Maintain Current Conditions of highways and bridges and to continue highway expansion at current levels, an investment of nearly $10 billion above the Constrained Funding scenario is needed for a total of more than $33.5 billion. This funding scenario accommodates $1.8 billion in spending that could be used for additional maintenance needs and infrastructure preservation or used for major project completion.
- If West Virginia's surface transportation funding is restored to FY1999 levels of approximately $30.4 billion, current system conditions on major components of the system could be maintained; and a larger share $3.3 billion that could be used for additional maintenance needs and infrastructure preservation or used for major project completion in the State. The next section discusses revenue options for the FY1999 scenario.

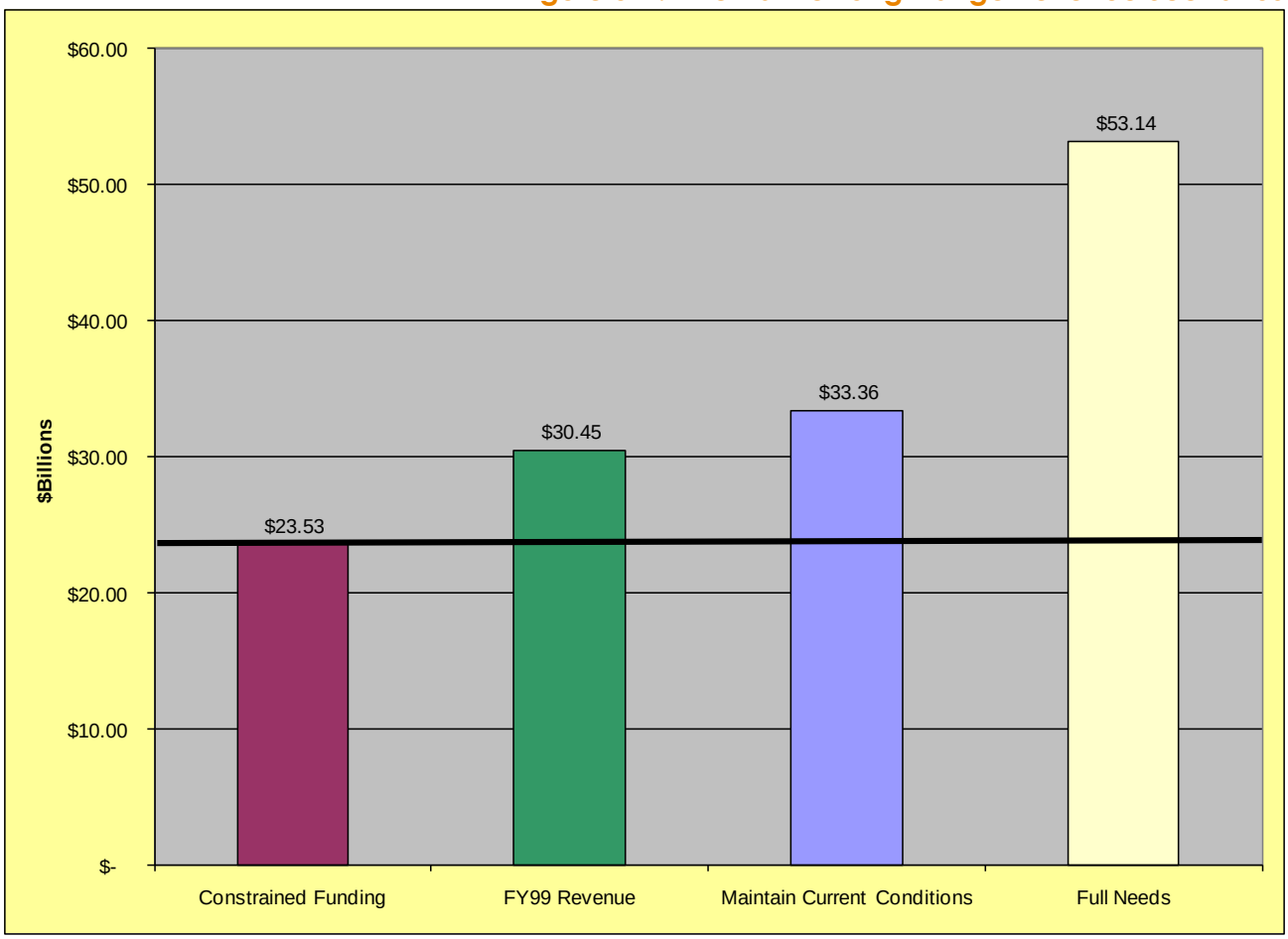
3.4 Revenues to Achieve FY1999 Funding Levels

West Virginia's FY1999 highway revenues, the highest since the enactment of the Intermodal Surface Transportation Efficiency federal legislation in 1996, represent the nearest the Department has come to funding levels that achieve a "state of good repair" for its highway system. Current funding mechanisms were

reviewed to understand what package of revenue enhancements using existing sources might be needed to attain that level of funding over a 25-year period.

The funding gap between the Constrained Funding scenario and the FY1999 Revenue Scenario amounts to $9.9 billion or nearly $400 million annually. Existing revenue sources could bridge this "gap" only with significant increases. As an example, the analysis indicates that the following revenue increases could raise enough additional revenue to attain FY1999 levels:

Figure 3-2: Alternative Long-Range Revenue Scenarios



- Increase fuel tax eight cents, from 32 to 40 cents per gallon
- Increase registration fees by $10, from $30 to $40
- Increase license fees by $2.40, from $2.60 to $5.00
- Increase privilege tax from 5 percent to 9.45 percent per vehicle titled

As an alternative example, indexing the State's non-percentage-based transportation fees (including the flat rate portion of the motor fuel tax) and, the license fee, up to the inflation rate would raise a significant amount of revenue ($30.1 billion, or $1.26 billion per year) - nearly enough revenue to achieve FY1999 funding levels. However, it is unlikely that either of these approaches to raising revenue at the State level would gather the political support needed, because of current economic conditions and the historic resistance to tax increases in the State.

3.5 Policy Committee Revenue Scenario

In December of 2009, the Plan's Policy Committee met to consider appropriate funding levels for the Statewide Transportation Plan. Their discussions centered on their belief that funding levels above those projected to be available were needed, achievable funding levels beyond the Constrained Funding scenario, and how these funds could fund roadway expansion programs, meet additional preservation needs and, potentially, expand transit, pedestrian and bikeway programs. The committee recommended that the Plan review mechanisms to raise an additional $100 million annually, or $2.5 billion over the life of the Plan.

The committee focused on:

- Their belief that funding above projected levels (constrained funding were needed)
- Achievable funding levels, which ranged from $100 to $400 million
- Mechanisms for generating the desired funding
- What type of work should be funded with the additional revenue (expansion, preservation, etc,.)

As shown in the discussion above, spreading fee increases among existing mechanisms for revenue generation could raise the $100 million annually. One combination that may be acceptable is:

- Increase fuel tax from by two cents, from 32 to 34 cents per gallon
- Increase registration fees by $10, from $30 to $40
- Increase license fees by $2.40, from $2.60 to $5.00
- Increase sales tax from 5 percent to 6.4 percent per vehicle titled

This plan does not recommend additional new funding sources be instituted, but does recognize that among states and at the national level, transportation funding is a very important issue. A few examples include: Federal policy-makers are considering additional sources of revenue to bolster the nation's highway trust fund to meet transportation preservation and expansion needs, and to raise enough funds to cover future expenses. Raising the Federal Excise Tax is one option under discussion, as is taxing vehicle use based on miles traveled, rather than by gallons of fuel consumed. The 6-year transportation reauthorization legislation, which is expected to be considered by the Congress in 2010 or 2011, will contain provisions spelling out how its programs will be funded, and many observers anticipate that higher fees will be proposed.
Local and regional organizations around the US have sought and obtained legislative authority to fund their own transportation projects through sales taxes or other taxes. In Georgia, the one percent Special Purpose Local Sales Tax can be used to help match transportation federal funds, while in Phoenix and Tucson Arizona, a ½ cent sales tax is also used to match federal funds and to provide local funding for roadway and transit projects.

3.6 Potential Role of Toll Roads to Fund Select Corridors

The potential role of toll roads and possible financial strategies to address the disparity between needs and projected revenues are discussion this section. Two recent studies on toll roads provided the basis for this discussion.

3.6.1 Overview of Prior Studies

Two studies were performed for WVDOT/DOH, to provide a high level assessment of revenues and costs associated with tolling and maintaining several corridors within West Virginia.

The first study, *West Virginia Eastern Panhandle Corridors Traffic and Revenue Report*, was submitted in December 2007. This study examined three corridors:

- U.S. 340 from Charles Town Bypass to the Virginia border

- WV 9 between Martinsburg and the Virginia State line
- U.S. 522 between the Virginia border in the South and Maryland border in the North

The second study, *West Virginia U.S. Route 35 Corridor Traffic and Revenue Report*, was submitted in June 2008. This study examined a section of U.S. 35 between the Buffalo Connector and C.R. 40.

Both studies are "sketch planning" studies, which although still using robust methodologies, rely heavily on existing travel data and a less complex analytical framework to produce an assessment of the projected traffic and revenue expectations. In addition, to deal with the uncertainties associated with the assumptions, both studies use a risk analysis that employs a distribution of possible revenue forecasts. This analysis method allowed the presentation of three scenarios of toll revenue forecasts:

- P90 case – a forecast that has a 90 percent certainty of being exceeded (a "low", or more conservative case")
- P50 case – a forecast that has a 50 percent certainty of being exceeded
- P10 case – a forecast that has a 10 percent certainty of being exceeded (a "high", or less conservative case)

3.6.2 West Virginia Eastern Panhandle Corridors Traffic and Revenue Report

The purpose of the study was to assess the revenue and costs associated with tolling and maintaining three corridors in West Virginia's Eastern Panhandle over a period of 20 years from 2011 to 2031. The three corridors analyzed were:

- U.S. 340 – a 5-mile section of U.S. 340 between the Virginia Border and the Charles Town Bypass would be upgraded from two to four lanes over a new alignment
- WV 9 – a 4.7-mile section between Martinsburg and the Virginia State line would be upgraded to a four lane facility
- U.S. 522 – a 19-mile, 2-lane section between the Virginia border in the south and the Maryland border in the north would be upgraded to four lanes. With the proposed upgrade, U.S. 522 would become a completely 4-lane facility linking Winchester, Virginia and Hancock, MD

All tolls were specified in 2007 dollars, with car tolls indexed to grow in line with the national Consumer Price Index (CPI) and truck tolls indexed to grow in line with real growth in Gross Domestic Product (GDP). Truck toll rates were chosen to be in line with those currently used on the West Virginia Turnpike. The analysis was carried out using existing data sources and reports only. No network model was available for the studies. The findings for each of the corridors are summarized below.

3.6.2.1 U.S. 340

The upgraded U.S. 340 would provide about a 10-minute time savings compared to the nearest free alternative for short trips, and five minutes for through trips. Cars would be tolled at $0.75 and trucks would be tolled at an average of $2.25.

The engineering, right-of-way, and construction costs for the new 4-lane roadway facility would be approximately $25 million. The same elements for the toll plaza would be approximately $17.5 million. Operation and maintenance (O&M) costs for the plaza and roadway combined are estimated to be $1.9 million per year.

The local trip generators consist of several small towns and some local tourism destinations. Regional trip generators are communities located along U.S. 340, as well as several tourist destinations. The corridor has shown strong growth since 1992, about six percent annually on average, going from approximately 7,000 vehicles per day in 1992 to approximately 13,000 in 2005. A recent study shows that approximately 33

percent of the trips on U.S. 340 are passing through the State of West Virginia. In 2005, the vehicle split was found to be 84 percent private vehicles and 16 percent heavy vehicles.

3.6.2.2 WV 9

The existing WV 9 would continue to serve traffic. The upgraded WV9 would provide five to six minutes of time savings. Cars would be tolled at $1.50, and trucks would be tolled at an average of $3.00. Growth on this corridor would be constrained by Virginia 9, which has two lanes, almost at capacity during peak periods, and there are no plans to upgrade the roadway.

The engineering, right-of-way, and construction costs for the roadway facility would be approximately $114 million. The same efforts for the toll plaza would be approximately $17.5 million. Operation and maintenance (O&M) costs for the plaza and roadway combined are estimated to be $1.9 million per year.

The major local trip generator for the corridor is Charles Town. No other local communities contribute significant traffic to the WV 9 corridor. Regional trip generators include Berkeley Springs, Martinsburg, Charles Town, and the Washington, DC metropolitan area. According to the 2000 census Transportation Planning package, more than 12,000 daily commuters travelled from Berkeley and Jefferson Counties to the DC area, many of them using WV 9. The traffic has increased moderately from 1992 to 2005, at an average rate of between two percent and five percent, depending on where the data is collected in the corridor. The highest count in 2005 was about 13,400 vehicles; the lowest, about 9,700 vehicles. Traffic split by vehicle type is 95 percent private vehicles, five percent heavy vehicles, clearly reflecting the commuting profile of the route.

3.6.2.3 U.S. 522

The existing facility would probably be taken out of service if a new U.S. 522 were built, removing a local free alternative to the toll facility. For travelers on through trips, I-81 and I-70 offer a viable free alternative. The upgraded U.S. 522 would provide 10-12 minutes time savings to this alternative. Tolls would be $1.50 for private vehicles and an average of $4.50 for heavy vehicles.

The engineering, right-of-way, and construction costs for the roadway facility would be approximately $190 million. The same elements for the toll plaza would be approximately $17.5 million. O&M costs for the plaza and roadway combined are estimated to be $3.6 million per year.

Local trip generators include the Town of Berkeley Springs and the tourist destinations in that area, as well as a large silica plant. Regional trip generators are the major cities surrounding this segment of the corridor: Morgantown, Frederick, and Pittsburgh. Due to differences in the traffic counts by Maryland, West Virginia and Virginia, only very approximate traffic volume estimates are available, and these were used conservatively. Growth has been very low to moderate since 1992, ranging from 0.7 percent to 6.4 percent. In 2005, roughly 6,000 vehicles passed the VA/WV state line, and roughly 14,000 crossed the MD/WV line. The split between private and heavy vehicles at the Virginia state line in 2005 was 71 percent/29 percent, respectively, while the split at the Maryland line was 82 percent/18 percent.

3.6.3 West Virginia U.S. Route 35 Corridor Traffic and Revenue Report

The purpose of this study was to assess the revenue and costs associated with tolling and maintaining the section of the proposed new U.S. Route 35 highway between the Buffalo Connector and C.R. 40. Four different options for this section of highway were assessed, all assuming a single mainline toll plaza.

The purpose of upgrading this corridor is to provide a high standard four-lane highway that addresses current safety issues and caters to future private vehicle and truck growth in the region. U.S. 35 is a 434-mile-long

highway that runs from Northern Indiana to Charleston, West Virginia. The route provides good connections to the West Virginia Turnpike and caters well to longer distance movements. For much of the route, it is a high standard highway.

All tolls were specified in 2007 dollars, with car tolls indexed to grow in line with the national Consumer Price Index (CPI) and truck tolls indexed to grow in line with real growth in Gross Domestic Product (GDP). Truck toll rates were chosen to be in line with those currently used on the West Virginia Turnpike. The analysis was carried out using existing data sources and reports only. No network model was available for the study. The four options are as follows:

- **Option 1** – A new alignment option with limited access points to existing county roads: this option would generate low travel time savings over a toll-free alternative.
- **Option 1B** – A new alignment option with limited access points to existing county roads; includes closing the existing U.S. 35 parallel to the new alignment: travel time savings for this alternative would be approximately five minutes over the U.S. 35 free alternative, and 15 minutes over a SR 62 free alternative.
- **Option 2** – new land bridge option with no local access points: this option would generate low travel time savings over a toll-free alternative.
- **Option 3** – Upgrade of the existing U.S. 35 alignment to a 4-lane dual highway facility: travel time savings for this alternative would be approximately 15 minutes over a S.R. 62 free alternative, and no other easily accessible free alternative would remain.

Traffic on the new facility for all four options will be dominated by trucks with more than 50 percent of traffic and 75 percent of revenue forecast from this vehicle class. Car traffic is projected to grow at a low rate of approximately 0.5 percent per year, whereas truck traffic is forecast to grow at a faster rate of approximately 2.9 percent per year.

Local trip generators are mostly small communities and regional tourist destinations, but regional trip generators include larger cities such as Charleston, Hurricane and St. Albans. Traffic peaked in 2001 and has declined since then, ranging from 7,400 vehicles per day to 12,500 vehicles per day in 2005. The split between cars and heavy vehicles ranges from 62 percent/38 percent, respectively, to 73 percent/27 percent.

3.6.4 Applicability of Prior Studies

As previously stated, both studies are "sketch planning" studies. As such, they are limited in accuracy and rigor, but provide value by helping screen preliminary alternatives and determining project feasibility. Limitations of sketch planning studies include:

- Reliance on existing travel data
- Simplified analytical framework for assessing traffic and revenue expectations
- Simplified assumptions regarding administrative costs
- Minimal sensitivity analysis to determine drivers' willingness to pay tolls
- No diversion analysis for competing alternatives
- No legislative analysis
- No bonding analysis
- No examination of net present value of costs or revenues in order to determine coverage ratios, and therefore, ability to use bonds

All the elements listed above are critical in order to make a more informed fiscal decision on whether or not to initiate a toll-based project. Nonetheless, the sketch planning performed provide valuable "order of magnitude" information so that policy decisions can be made with regard to the potential use of toll roads within the broader state's long range transportation plan.

3.6.5 Analysis of Prior Studies

3.6.5.1 General Characteristics

There are general characteristics that can help assess the feasibility of a toll road. The decision is ultimately fiscal in nature, but a number of other factors contribute to the ease with which a toll road can be implemented. The most important factors include:

- Legislative capability to enact additional roads and/or authorities
- Debt capacity available

These factors are broader state-level policy issues addressed in other sections of the Plan. In addition to those above, factors that contribute strongly to the strength of the revenue generation itself are:

- How well do toll collections cover operations and maintenance costs?
- Financial strength of the potential road in terms of coverage ratios (not examined here)
- Existence of competing or potential competing facilities
- Efficiency with which the potential road can be maintained
- Practicality of proposed toll rates.
- Existing capacity remaining on existing routes
- Projected growth of traffic
- Amount of traffic that is heavy vehicles
- Robustness of trip purposes along the routes

Table 3-5 presents a summary of how the potential toll roads studied fare against these factors. The mid-level (50 percent) toll scenarios are used for evaluating these factors. Due to the nature of sketch level analysis, a simplified evaluation scoring is used:

Table 3-5: Assessment Factors

	U.S. 340	WV 9	U.S. 522	U.S. 35
Coverage of O&M	-	-	+	+
Competing roads	+	0	+	0
Maintenance efficiency	-	-	-	+
Toll rate practicality	-	-	-	-
Available existing capacity	-	0	0	0
Traffic growth	+	0	-	-
Heavy vehicles	0	+	+	++
Robustness of trip purpose	+	+	0	+

"-" Poor, "0" Neutral, "+" Good, "++" Very good

3.6.6 Potential Contribution of Toll Studies to the Plan

3.6.6.1 Quality of Candidates Facilities

The ratings shown are not scientific, but are provided to give a generalized assessment of the facilities' suitableness as a stand-alone toll facility based on standard measures for evaluation of toll roads. Although none of the toll roads examined are ideal candidates, there is some measure of viability in one or more of the projects studied.

3.6.6.2 Choice of the use of Toll Roads

The roads studied in the two Traffic and Revenue Reports appear to have been chosen for study for their progress in the project development process. This basis of choice is valid, and can be used when there is

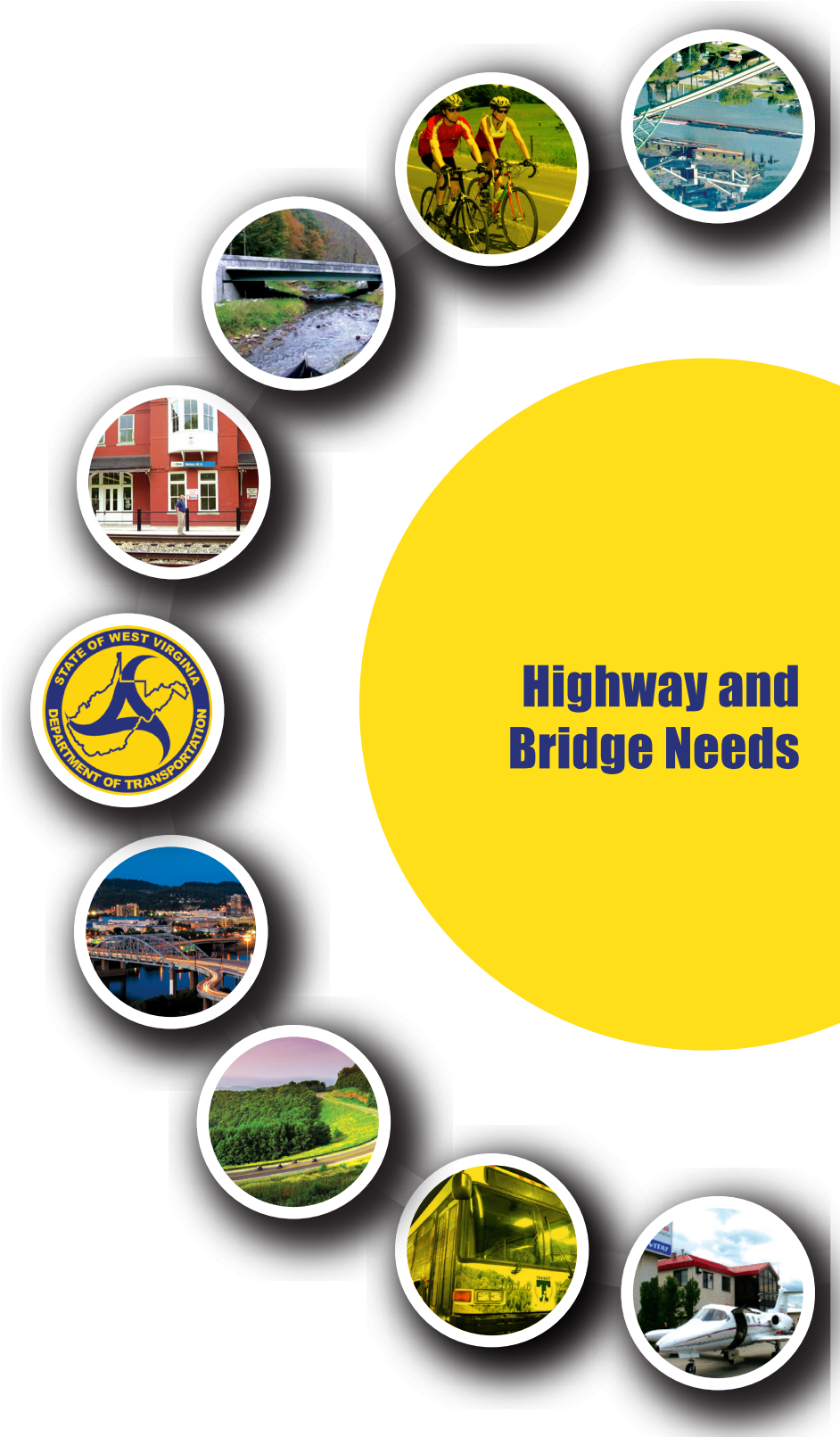
adequate support to carry a project through to completion. Support required would include, among other things, legislative ability, general public support, and political will.

In the context of this long-range plan, criteria that may also apply when choosing candidate projects to examine further include:

- Desire to establish tolling as a larger revenue-generating portion of State transportation funding
- The ability to defend candidate projects as long-term toll roads (e.g., local legislators may petition the State to remove tolls before the facility is fully paid off)
- Incorporation of new facilities into already existing toll authorities
- System efficiencies (e.g., low operations and maintenance costs, longer facilities, ability to incorporate electronic tolling, lane addition versus stand-alone new facilities, ability to incorporate other modes)

Perhaps the most relevant criteria is the degree to which a toll facility can impact the overall funding of the transportation program in West Virginia. Using U.S. 35 as an example, if the mid-level (P50) case is adopted for the best option proposed in the Traffic and Revenue Report (Option 3), in 2015, the $15.4 million in revenue generated in excess of the $3 million estimated operations and maintenance costs would equate to approximately 1.5 percent of total average appropriated funds for the DOH from 1999-2008, or approximately three percent of average capital spending.

Real factor is even if tolling were a desirable means of closing the revenue gap, very few facilities in the state would generate enough revenue to offset their cost.



Highway and Bridge Needs

Section 4. Highway and Bridge Needs

As part of the long-range Plan update, WSA conducted a 25-year highway and bridge needs analysis for the State of West Virginia. In this analysis, WSA conducted two highway and bridge scenarios to fully assess statewide needs – an unconstrained scenario (without budgets targets) and a constrained scenario (with budget limitations). The unconstrained scenario identified all deficiencies within a given study period, selecting the most economically efficient method of improving/ maintaining a roadway system, without any budgetary limits. The constrained scenario identified deficiencies, ranked them according to the benefits to users, and selected the set of improvements that provided the maximum benefit for the available funds.

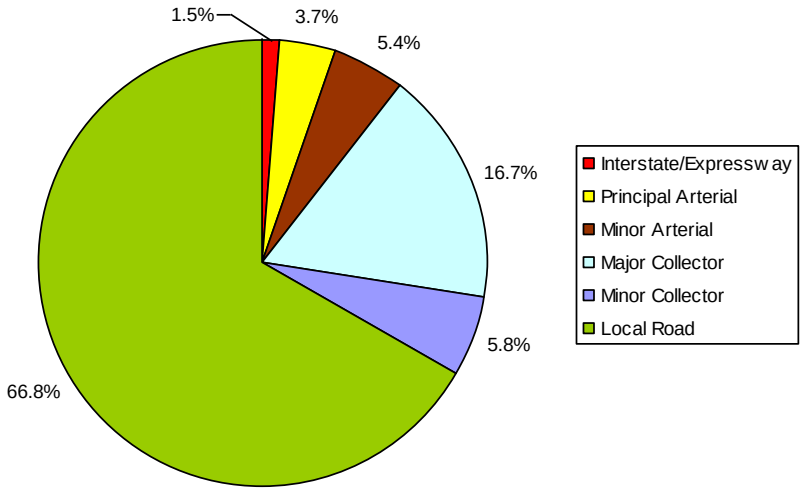
There are roughly 39,000 total centerline miles of public roadway in West Virginia and the Department of Highways (DOH) is responsible for maintaining over 36,000 miles, or 92 percent of the total

The public roadway system includes federal aid and non-federal aid roadways that are maintained entirely by the DOH. The non-federal aid system, which comprises rural collector and local roadways, is larger than the federal aid system by a 2 to 1 ratio (25,944 to 10,368 miles respectively).

4.1 Highway Assets

There are roughly 39,000 total centerline miles of public roadway in West Virginia and the DOH is responsible for maintaining more than 36,000 miles, or 92 percent of the total. The remaining public roadway miles are maintained by local municipalities, the WV Turnpike and the federal government. The public roadway system includes federal aid and non-federal aid roadways that are maintained almost entirely by the DOH. The non-federal aid system, which comprises rural and urban collector and local roadways, is larger than the federal aid system by a 2 to 1 ratio (25,944 to 10,368 miles respectively). Overall, the majority of roadways in West Virginia (92 percent) are classified as rural. Figure 4-1 presents the distribution of roadway classes (functional classifications) in West Virginia. Local Roads (non-federal aid roads) make up the majority of centerline miles (66.8 percent) for both rural and urban areas.

Figure 4-1: Percent Breakdown of Statewide Mileage by Roadway Class



4.2 Highway Needs

4.2.1 Highway Needs Methodology

The Highway Economic Requirements System - State Version (HERS-ST) model, developed by FHWA, was used to determine the future highway needs in West Virginia. HERS-ST is a highway investment/performance model that considers engineering principles when identifying deficiencies and economic criteria to determine improvements for implementation on a statewide level. HERS-ST allocates public highway investments to minimize user costs. User costs include travel time costs, safety costs, and vehicle operating costs.

In this analysis, the model estimated future needs using West Virginia Highway Performance Monitoring System (HPMS) data for 2007. WVDOT staff helped establish the values for key HERS-ST input parameters, including design standards, minimum tolerable conditions, and improvement costs, as well as others that are customized to reflect the DOT's business practices.

Results from the HERS-ST model analysis are grouped by the following three improvement categories for reporting purposes:

- Preservation
- Modernization
- Capacity

Preservation is simply the regular maintenance and resurfacing of a roadway. When a roadway pavement deteriorates to unacceptable levels (below minimum tolerable conditions), HERS-ST determines whether resurfacing is the optimal improvement choice to maintain the integrity of the roadway. Preservation is the most common improvement type and typically accounts for the most lane miles improved.

Modernization improvements address geometric roadway deficiencies. Improvements such as widening lanes and shoulders and complete roadway reconstructions are examples of modernization. Roadways identified for reconstruction cannot be repaired by resurfacing alone, and must be rebuilt.

Capacity improvements add roadway lanes to address capacity deficiency needs. When traffic volumes create congestion in excess of the minimum tolerable conditions, the HERS-ST model considers adding new lanes. Capacity is the most costly improvement type, and it produces the highest user benefits in HERS-ST. HERS-ST is programmed to add lanes only if it is economically justified and feasible. Widening feasibility is coded into the HPMS dataset by roadway segment or defined by functional classification. HERS-ST does not consider new location facilities in its analysis just expansion (widening) to the existing roadway system.

4.2.2 Projected Unconstrained Highway Needs

The unconstrained highway scenario analysis identified a total of 51,089 lane miles (22,525 centerline miles) for improvements across West Virginia during the 25-year study period (2007 to 2031). The majority of the identified miles addressed preservation needs, with 37,687 lane miles (17,036 centerline miles) requiring resurfacing. Modernization improvements totaled 10,006 lane miles (4,811 centerline miles). As noted earlier, modernization efforts include lane widening, road reconstruction, and shoulder improvements.

In the unconstrained scenario, HERS-ST selected capacity adding projects for 3,396 lane miles (678 centerline miles), which added 1,525 lane miles of roadway to the system. Figure 4-2 illustrates the breakdown of the statewide highway improvement needs, while Figure 4-3 shows the distribution of lane miles by category according to functional classification.

The improvements result in a total 25-year needs estimate of $36.7 billion ($2007) for highways. This total averages to approximately $1.5 billion per year for improvements, according to the unconstrained needs scenario analysis. Breaking this down by improvement categories reveals that preservation needs totaled $13.8 billion (37.6 percent), modernization needs totaled $14.9 billion (40.7 percent), and expansion needs accounted for $7.9 billion (21.6 percent) of total needs during the 25-year analysis period.

Figure 4-4 illustrates the improvement cost ($2007) for each of the three improvement categories, while Figure 4-5 shows the improvement cost ($2007) distribution by functional classification.

Figure 4-2: 25-Year Total of Lane Miles by Improvement Category

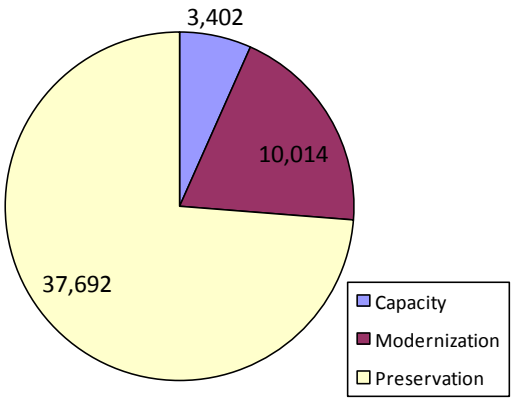
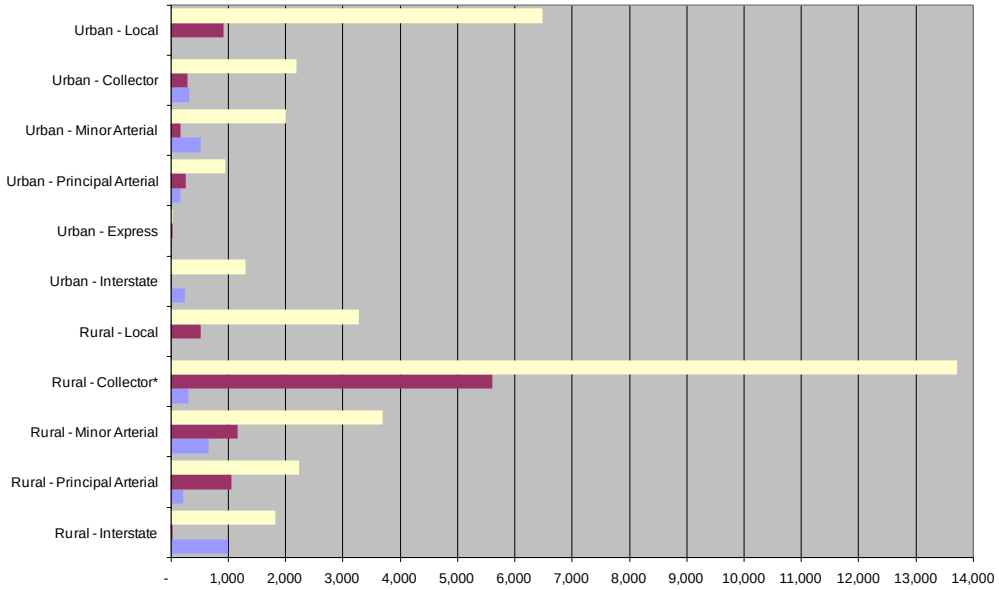


Figure 4-3: Lane Miles by Improvement Category per Roadway Functional Classification



* Includes Rural Minor Collectors

Figure 4-4: 25-Year Total of Cost by Improvement Category ($ Millions)

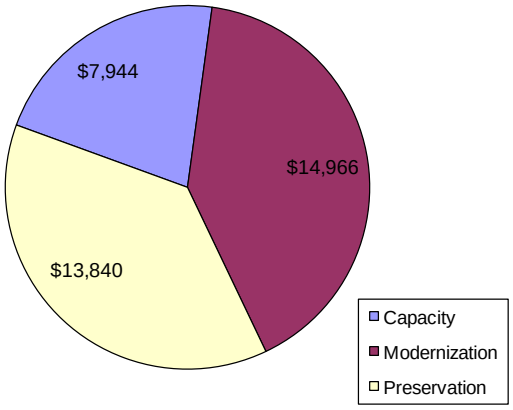
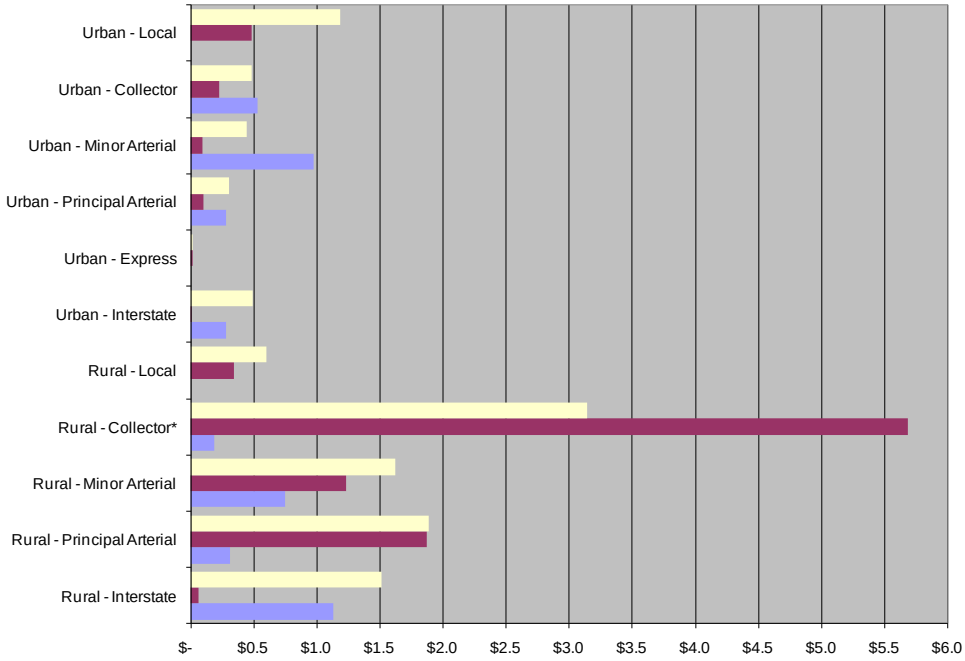


Figure 4-5: Total Cost ($B) by Improvement Category per Roadway Functional Classification



* Includes Rural Minor Collectors

In dollar terms, Rural Major Collectors accounted for a relatively large proportion of statewide needs and expenditures. Rural Major Collectors, which include minor collectors in this analysis, accounted for roughly 24.5 percent of total needs, at $9 billion. Rural Collectors, major and minor combined, totaled 7,864 miles, or 20.6 percent of the total state system.

The reason for the high level of investment on the Rural Collector system is that existing segments have below standard (deficient) lane widths. The HERS-ST model identified deficient lane widths for more than 34 percent of the Rural Collector system mileage in its initial evaluation, during the first 5-year funding period. HERS-ST addressed these deficiencies when pavement needs occurred, the optimal approach from an economic standpoint.

The total cost of the federal-aid roadway needs was $32.5 billion, which produced 39,911 lane miles of improvements (16,950 centerline miles) and 1,525 lane miles added (capacity) in West Virginia. The highway analysis also examined non-federal aid road needs in West Virginia, using additional condition and performance data provided by the DOH. This analysis indicates that non-federal aid roads, while making up the majority of statewide mileage, required far lower investment levels than federal-aid roads because of the lower unit costs, design standards, and lower traffic volumes that increase the life expectancy of the pavement. The non-federal aid roads needs analysis totaled $4.2 billion, which resulted in 11,197 improved lane miles (5,600 centerline miles). As shown in Table 4-1, preservation needs accounted for more than half of the local roadway cost total, which is estimated to be $2.3 billion for 9,766 lane miles of improvements over the 25-year planning period.

Table 4-1: Improvement Cost ($2007) and Lane Miles

	Improvement Cost ($M)			Lane Miles Improved		
	Federal Aid	Local	State Total	Federal Aid	Local	State Total
Expansion	$ 7,944	$ -	$ 7,944	3,402	-	3,402
Modernization	$ 13,010	$ 1,956	$ 14,966	8,583	1,431	10,014
Preservation	$ 11,565	$ 2,276	$ 13,840	27,926	9,766	37,692
	$ 32,518	$ 4,232	$ 36,750	39,911	11,197	51,108

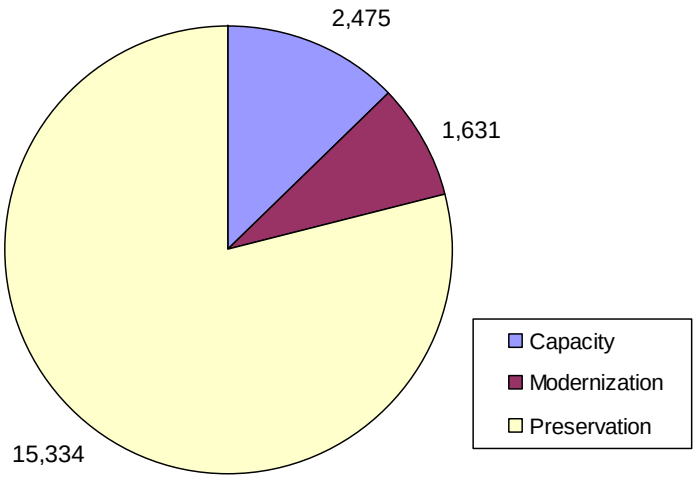
4.2.3 Highway Needs Scenarios

4.2.3.1 Constrained Scenario

This forecast, which is discussed in Section 3, considered and accounted for past funding trends, assumptions about future growth and WVDOT's short-term funding projections to determine a constrained budget for the 25-year planning period. Highway performance was based on a 25-year budget forecast of $11.0 billion. In this funding scenario, HERS-ST selected the capacity, alignment, and pavement improvements that provided the greatest benefit to transportation system users relative to the cost, within the available budget.

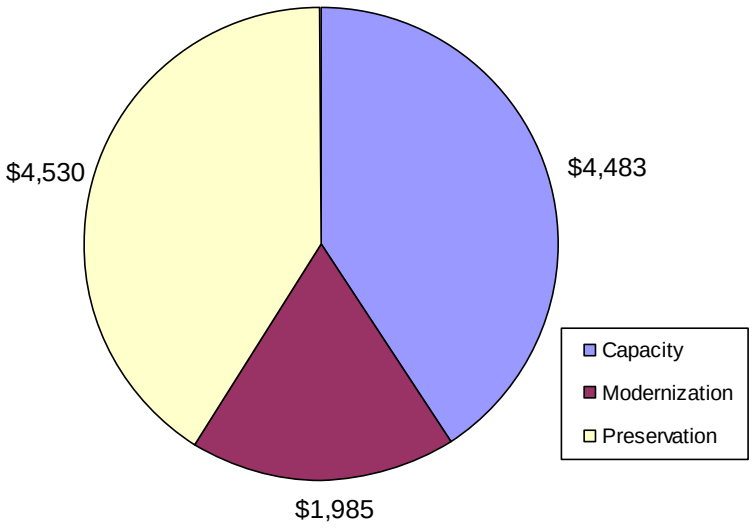
The constrained highway scenario analysis identified a total of 19,429 lane miles (11,052 centerline miles) for improvements across West Virginia during the 25-year study period. Preservation (resurfacing) investments accounted for nearly 79 percent (15,331 lane miles) of the total roadway mileage improved. Modernization and capacity projects, respectively, accounted for 13 and 8 percent of the remaining improved roadway mileage. Figure 4-6 illustrates the breakdown of the statewide highway improvement needs, while Figure 4-7 shows the distribution of lane miles by category according to functional classification.

Figure 4-6: 25-Year Total of Lane Miles by Improvement Category



The improvements result in a total 25-year needs estimate of $10.99 billion ($2007). This total averages to approximately $440 million per year for improvements in the constrained funding scenario. Consistent with the breakdown of improvements by lane mileage, preservation improvements accounted for the largest share of investments, with 41.2 percent, or $4.53 billion of the total. Capacity projects, which are more costly on a per lane-mile basis than preservation projects, account for 40.8 percent ($4.48 billion) of the total, and modernization projects accounted for the remaining 18.1 percent ($1.99 billion). Figure 4-7 illustrates the improvement cost for each of the three improvement categories, while Figure 4-6 shows the improvement cost distribution by the three improvement categories.

Figure 4-7: 25-Year Total of Costs by Improvement Category



4.2.3.2 Maintain Current Conditions Scenario

This highway analysis scenario assumed that current roadway performance levels could be maintained over the next 25 years in West Virginia and estimated the level of funding that would be needed to accomplish that. This funding estimate could also be compared against current funding levels and forecast future revenues to determine whether a gap in funding and needs would be likely over the lifetime of the plan. The total estimated cost to maintain West Virginia's existing system at current levels of pavement and operational performance totals $21.0 billion over the 25-year study period.

Table 4-2: Improvement Cost ($2007) and Lane Miles

	Improvement Cost ($M)			Lane Miles Improved		
	Federal Aid	Local	State Total	Federal Aid	Local	State Total
Expansion	$ 6,369	$ -	$ 6,369	3,334	-	3,334
Modernization	$ 4,379	$ 1,259	$ 5,637	2,596	920	3,516
Preservation	$ 7,541	$ 1,472	$ 9,012	14,905	6,285	21,190
	$ 18,288	$ 2,730	$ 21,018	20,835	7,205	28,040

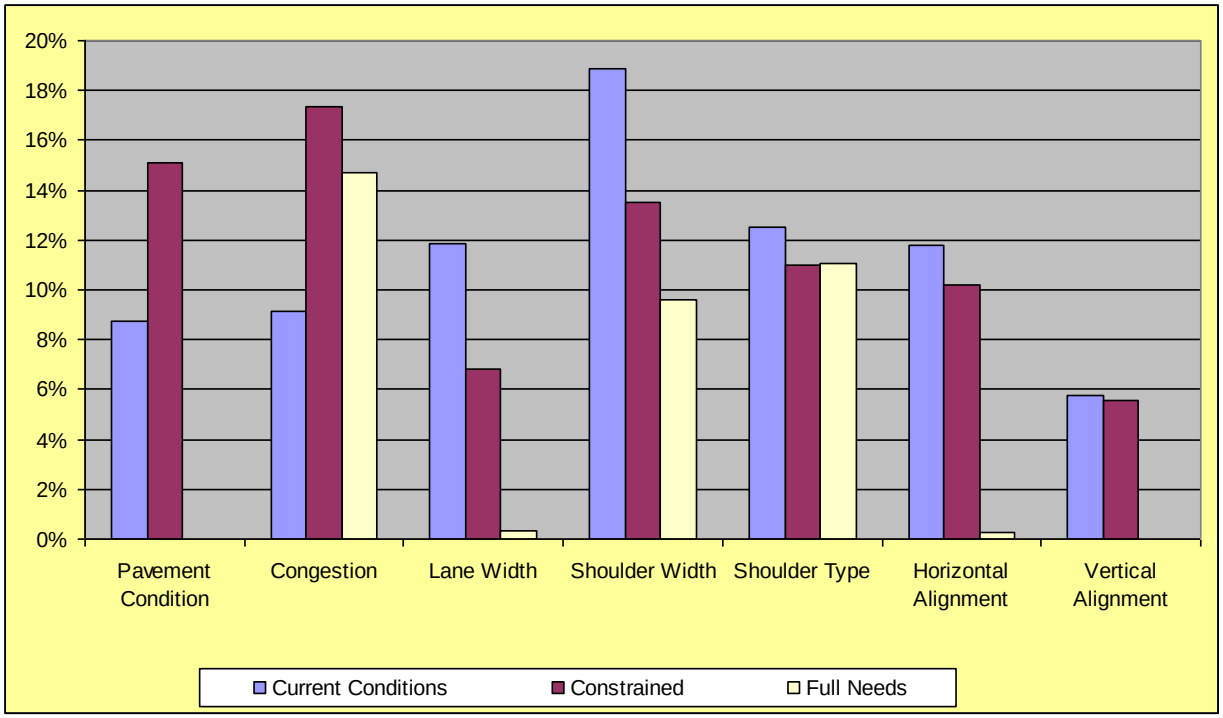
As shown in Table 4-2, preservation improvements account for the largest share of investments as measured by both improvement costs and lane miles improved. Forty-nine percent of all improvements as measured by dollars are allocated to preservation projects, with modernization and capacity accounting for 24 and 35 percent, respectively. In terms of lane miles improved, preservation projects accounted for 76 percent of all improvements with modernization and capacity accounting for 13 and 12 percent respectively.

4.2.4 Summary of Highway Scenario Results

Figure 4-8 below summarizes the results of the highway investment scenarios in terms of the ability to address various types of deficiencies. Deficiencies define the level of performance in the areas of capacity, alignment, and pavement condition that are below West Virginia's minimum thresholds as a percentage of the entire State roadway system. A summary of the results follows:

- The Full Needs (Unconstrained) scenario ($36.8 billion) eliminates all deficiencies in terms of pavement condition and vertical alignment (roads with extreme climbing grades) and nearly eliminates all lane width and horizontal alignment (roads with extreme curves) deficiencies. The Full Needs scenario performs best of the three scenarios in all respects except in terms of congestion. The likely explanation for this is that several relatively low volume roads become congested over the 25-year analysis period, and other types of improvements – that the unconstrained funding scenario has resources for – impact greater numbers of travelers on higher-volume roads.
- The Maintain Current Conditions scenario ($21.0 billion) performs best in terms of congestion and worst in terms of lane width, shoulder width, shoulder type, horizontal alignment, and vertical alignment deficiencies. With the available budget, the Maintain Current Conditions scenario provides benefits to transportation system users by investing relatively more on pavement condition and congestion deficiencies.
- The Constrained Funding scenario ($10.9 billion) does not outperform the other two scenarios in any category and performs worst in terms of pavement condition and congestion. Its level of performance in shoulder type, horizontal, and vertical alignment is near that of the Maintain Current Conditions scenario.

Figure 4-8: Level of Roadway Deficiency by Highway Investment Scenario



4.3 Bridge Assets

There are 6,243 bridges in West Virginia, according the NBI datasets supplied by the DOH. These bridges are toll-free and maintained/owned by the DOH, or by other entities, including private entities (other than railroad), railroad companies, or the U.S. Forest Service.

Table 4-3 shows the distribution of bridges by roadway functional classification. Approximately 12 percent (740) of the total number of State bridges are located in urban areas. Most structures are located in rural areas of West Virginia and carry traffic on local roads (43 percent) and major collectors (23 percent) across the State.

Table 4-3: Current Number of Bridges per Roadway Functional Classification

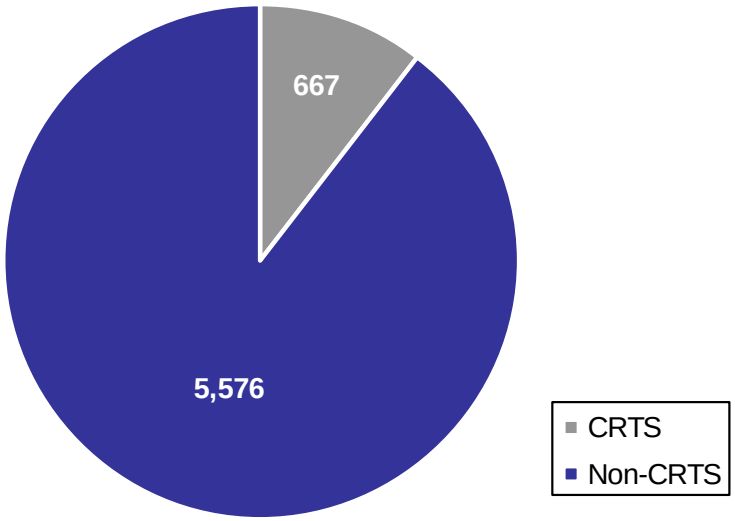
Functional Classification of Roadway Carried		Bridge Count	Sub-total	Total
Rural	Interstate	275	5,503	6,243
Rural	Principal	315		
Rural	Minor Arterial	304		
Rural	Major Collector	1,425		
Rural	Minor Collector	474		
Rural	Local	2,710		
Urban	Interstate	211	740	
Urban	Expressway	50		
Urban	Principal	114		
Urban	Minor Arterial	138		
Urban	Major Collector	95		
Urban	Local	132		

Note: Total bridge number excludes culverts

Bridges within West Virginia may also be divided into two additional categories: those that conform to standard AASHTO design standards, and those that conform to Coal Resource Transportation System (CRTS) road standards, which exceed AASHTO design standards for load capacity. CRTS bridges are structures along designated coal routes, which require a heavier load capability. There are 667 CRTS bridges (10.7 percent) among the State's 6,243 structures (excluding culverts).

Figure 4-9 shows the distribution of bridge types between CRTS and non-CRTS bridges. Bridges will be referenced as "Non-CRTS" or "CRTS bridges" within this report.

Figure 4-9: CRTS vs. Non-CRTS Bridges within West Virginia



4.4 Bridge Needs

4.4.1 Bridge Needs Methodology

Bridge needs are analyzed by using the National Bridge Investment Analysis System (NBIAS) model. NBIAS is an analysis tool developed by the FHWA to predict bridge maintenance, improvement, and replacement needs. Much like HERS-ST, the NBIAS model forecasts bridge performance and identifies improvements based on economic concepts. The National Bridge Inventory (NBI) database is used as an input, along with various other policy and cost variables specific to West Virginia, to identify structurally deficient and/or functionally obsolete bridges. The NBI database is a collection of information covering the nation's bridges located on public roads, including Interstates, U.S. highways, state and county roads, as well as publicly-accessible bridges on Federal lands. Each state inventories and appraises the condition of its structures, then incorporates this information into the national NBI database.

According to the FHWA, a bridge is *structurally deficient* if the load-carrying elements are in diminished condition due to deterioration and/or damage. A bridge may also be structurally deficient if the structure could create an obstruction to the free flow of water underneath. Bridges identified as structurally deficient are not unsafe but could require traffic restrictions. *Functionally obsolete* bridges have geometric deficiencies (lane width, clearances, etc.) when compared to current design standards and traffic levels. A bridge that is both structurally deficient and functionally obsolete is classified as structurally deficient.

NBIAS reports the number of bridges improved and the cost of the improvements by four categories: replacement, raising, widening, and strengthening. NBIAS also reports maintenance costs, which include preservation and rehabilitation costs. NBIAS selects functional improvements (such as widening existing bridge lanes, raising bridges to increase vertical clearances, and strengthening bridges to increase load-carrying capacity) to minimize user costs and maximize user benefits, similar to HERS-ST modernization actions. Bridges that are structurally deficient and functionally obsolete, and that require repair beyond a simple rehabilitation, fall into the replacement category. All categories of improvements are considered in the model scenario for optimal benefits relative to costs.

4.4.2 Projected Unconstrained Bridge Needs

This study only considered an unconstrained bridge needs analysis. This approach was used to identify the full needs for bridges over the 25-year analysis period and to use the full needs amount for future budget planning. Based on the statewide bridge analysis, West Virginia bridge needs totaled $2.5 billion over the 25-year planning period. The estimated expenditures include improvements to maintain bridges in their current condition or to improve bridges that are structurally deficient and/or functionally obsolete. As shown in Table 4-4, CRTS bridge needs totaled $169 million with improvements identified for 142 bridges. This total includes 87 bridge replacements and 55 bridge widenings, which cost $155 and $14 million respectively.

Of the 1,258 Non-CRTS bridges identified for improvement, 727 bridges were identified to be replaced, 522 were identified to be widened, eight bridges were identified to be strengthened, and one was identified to be raised. Non-CRTS bridge replacement costs totaled $1.2 billion, widening costs totaled $116 million, strengthening costs totaled $6.7 million, and raising costs totaled $1.1 million. Costs on the Non-CRTS system totaled $1.4 billion.

Non-CRTS and CRTS bridge needs combined totaled $1.5 billion over 25 years, or $61 million per year. When maintenance costs are added, the total increases to the $2.5 billion mark during the planning period or, $100 million annually.

Table 4-4: Improvement Costs and Bridges Improved

	Improvement Cost ($ M)			Bridges Improved		
	Non-CRTS	CRTS	State Total	Non-CRTS	CRTS	State Total
Replacement	$ 1,240.9	$ 155.0	$ 1,395.9	727	87	814
Raising	$ 1.1	$ -	$ 1.1	1	-	1
Widening	$ 116.5	$ 14.2	$ 130.7	522	55	577
Strengthening	$ 6.7	$ -	$ 6.7	8	-	8
	$ 1,365.2	$ 169.2	$ 1,534.4	1,258	142	1,400
Maintenance	$ 812.8	$ 133.9	$ 946.7			
	$ 2,220.3	$ 260.8	$ 2,481.1			

To understand how these improvements will benefit the transportation system in West Virginia, a comparison was made between the initial 2007 bridge sufficiency rating and bridge sufficiency rating at the end of year 2031.

The sufficiency rating is a computed value that determines a bridge's eligibility for federal funding. The rating's values range between 0 and 100. A bridge with a sufficiency rating of 80 or less is eligible for federal bridge rehabilitation funding, while a bridge with a sufficiency rating of 50 or less is eligible for federal bridge replacement funding. The sufficiency rating doesn't necessarily indicate a bridge's ability to accommodate certain loads or traffic volumes, but it does help determine which bridges may need repair or replacement. For this analysis, any bridge with a sufficiency rating below 40 that is also identified as structurally deficient is automatically marked for replacement. Since this is an unconstrained analysis, the rule ensures that smaller bridges are not overlooked because their benefit often is less than the improvement cost.

Figure 4-10 shows the initial bridge sufficiency ratings in the year 2007 and the projected bridge sufficiency ratings in the year 2031. Initial bridge conditions are classified as "sufficient" with 1,832 bridges in the 80 to 90 percent sufficiency range and 1,685 in the 90 to 100 percent range – together they account for over half the total number of bridges in West Virginia. As shown, of the remaining bridges (2,726) only a few are in the lowest sufficiency rating categories. Only 495 bridges, 8 percent of all bridges studied, fall below the sufficiency rating of 40.

In the year 2013 the results indicate a moderate drop in bridges within the 80 to 100 sufficiency range compared to the 2007 base year. However, the number of bridges in the 60 to 80 sufficiency rating category increases significantly. It is estimated that 3,218 bridges will have a sufficiency rating between 60 and 80, an increase of 1,765 bridges from the base year, while only 26 bridges are estimated to fall below the sufficiency rating of 40 by 2031. The bridge analysis is designed to expend resources to address the worst deficiencies and to use available resources to maintain all bridges within acceptably high sufficiency ratings.

Figure 4-11 show the same total values**,** but separate Non-CRTS bridges from CRTS bridges in the distribution totals. Interestingly, the bridge scenario results show that no CRTS bridges will fall below a sufficiency rating of 40 by 2031. In the final year distribution chart, around 50 percent of the CRTS and

Non-CRTS bridges fall in the 60 to 80 sufficiency range and fewer than 40 percent of each fall in the 80 to 100 range.

Figure 4-10: Initial Sufficiency Rating (Year 2007 & 2031) – All Bridges

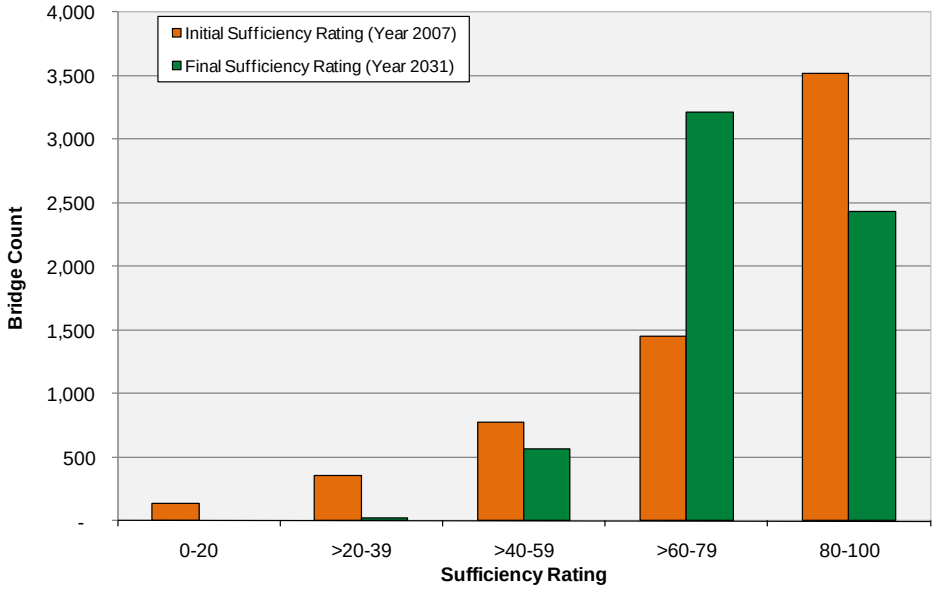
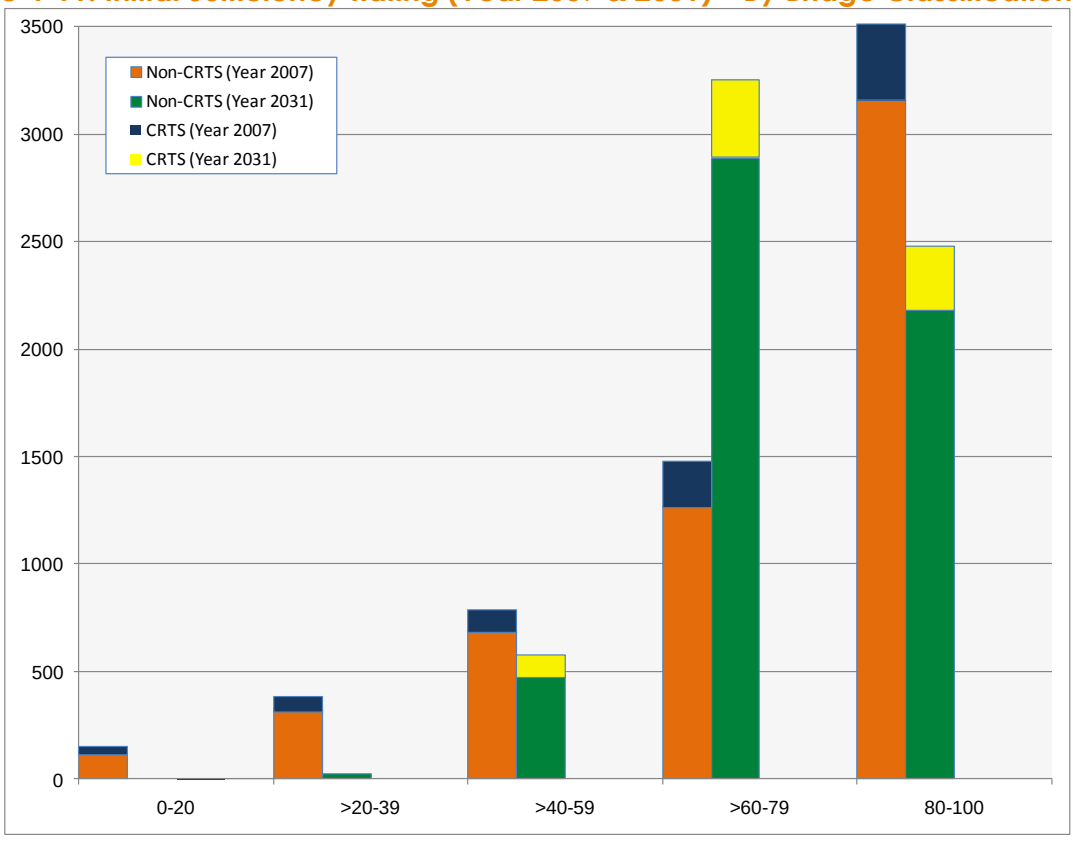


Figure 4-11: Initial Sufficiency Rating (Year 2007 & 2031) – By Bridge Classification



4.5 Project Prioritization Methodologies

As a public agency, WVDOT is responsible for selecting transportation projects to fund and advance. They must also justify their decisions based on a selection process and methodology that is reasonable and defensible to both elected officials and to the citizens of WV. As part of the Statewide Transportation Plan, a methodology was developed to help prioritize large transportation projects throughout the state. This section presents the recommended prioritization methodology and its justification. It also presents a process for the implementing the methodology.

The recommended project prioritization methodology is a 2-phased approach. Phase one uses a qualitative approach to screen projects before moving to phase two, which quantitatively compares projects based on a benefit-cost ratio. The methodology produces a rational and technically realistic comparison in which to fund and advance projects as monies become available. The recommended quantitative prioritization methodology applies a spreadsheet ranking approach based on a set of defined criteria.

Finally, once projects are ranked and before projects are selected for funding, the recommended process addresses organizing projects in a manner that identifies which project is best to fund and advance first so that it compliments or integrates with other related or interconnected projects.

4.5.1 Phase I Quantitative Prioritization Process

For project selection and funding decisions to be supported by West Virginia elected officials, the citizens of West Virginia, and WVDOT leadership, the approach used to select and prioritize them must incorporate a transparent decision making process and a rational, easy to understand methodology that makes common sense and is consistent with the general goals of these groups. The following process is recommended for screening proposed projects:

- WVDOT should evaluate each proposed project and confirm it is "eligible" to be on the list of potential projects. This includes determining if a project is needed, defining its general purpose, identifying whether it has local support or a sponsor, and checking for duplication of another project
- WVDOT should determine if the proposed project is part of a corridor or overarching major project and if so, group it with related/companion projects
- WVDOT should then group eligible projects by type and funding source
- Eligible projects should then be ranked using the prioritization methodology recommended in Section 4.5.2
- After eligible projects are prioritized, they may be grouped by congressional district and funding decisions made to ensure that there is a balanced program of project types and funding is equitably distributed statewide

4.5.1.1 Screen Projects for Eligibility

It is recommended that prior to ranking a project or set of projects should be screened to verify that it has a realistic purpose and need and can stand on its merits. This is not intended to imply that a purpose and need analysis similar to that required for NEPA be completed prior to ranking, just that the project makes common sense to a reasonable person. Only projects that meet the following screening tests should be eligible to advance for prioritization.

Screen for Purpose and Need — In general, the purpose and need to make a project eligible for prioritization should include a general justification that the project:

- Addresses a transportation problem – for example, it improves safety, congestion, mobility, accessibility, or modal connectivity

- Addresses a goal or need of a local government, regional or state government agency, or it is mentioned in a planning document adopted by a government agency–for example, it supports economic development, opens areas for development as part of a water and sewer development project, provides access to tourism or recreation site, etc.)
- Promotes advanced technology or operational improvements

Screen for Independence — Each project proposed for prioritization should be able to advance as a stand-alone project and meet the purpose and need test described above. Projects such as a "bridge to nowhere" or an arbitrary construction or widening of a roadway segment to four lanes without reason or connectivity to other similar segments should not be advanced. Basically this screening test means that the project, if advanced, could stand alone to achieve its purpose or need and is not dependent on another project advancing.

Screen for Duplication — All projects being advanced should be screened to verify they are not simply another approach or version of a separate eligible project. This screening process is not intended to select which of the two or more duplicate projects propose the best approach. That evaluation should be done as part of the planning and environmental, and preliminary design process. It is recommended that duplicate projects be combined and advanced as a single project.

Screen for Project Sponsor — In most cases, the source for projects brought before the WVDOT or DOH are supported or sponsored by a local or regional government agency or State of West Virginia department. It is recommended that support for each project be confirmed or verified prior to it being eligible to advance.

4.5.1.2 Group Sets of Projects and Corridor Projects

Some projects presented for funding may actually be part of a set of projects that create single large project or are segments of a corridor project. Applying the recommended methodology to these projects individually may not result in the same benefit-cost ratio as grouping them into one larger project and then applying the methodology. Also, while smaller, individual projects may be able to advance on their own merit, there may also be a logical order or phasing that should be followed.

In these cases, it is recommended that:

- The set of projects be grouped and advance through the recommended prioritization methodology as a single project to produce a ranking
- After this is completed, the projects should be ungrouped and advanced through the recommended prioritization methodology as individual projects to produce individual rankings
- The ranking or prioritization of the ungrouped projects should be reviewed by DOH planning and engineering staff and, using engineering judgment; staff should determine the technically correct order for staging or phasing the individual projects
- This process would allow corridors to be ranked and produce a program of projects that focuses on connectivity and linkages; this would draw attention to projects that are dependent on other projects whose improvement value is less effective if constructed as single projects

4.5.1.3 Sort Projects into Modal and Funding Groupings

- At this point in the prioritization process, there will be numerous eligible projects that include a diverse assortment of:
- Urban and rural projects
- National Highway System/Strategic Highway Network (NHS/STRAHNET) and lower functional class projects

- Short and long project lengths
- Project types
- Projects in varying stages of development
- Projects of widely varying costs
- Projects supporting different modes
- Projects in all sections of the State

It is recommended that all eligible projects be grouped by mode and funding eligibility to produce a balanced program of projects. WVDOT receives and expends funding based on mode and program type. For example, WVDOT receives FTA funds for transit projects, FAA funds for aviation, Motor Fuel Taxes for highway projects, and Appalachian Development Highway System (ADHS) and ARC monies for specific roadways. Each modal pot and each program funding type have specific eligibility requirements limiting the type of projects for which the monies can be spent. Grouping eligible projects before ranking them will ensure that as funding becomes available in each pot, the top priority projects eligible for those funds can advance.

One issue with this type grouping is that projects that impact or connect to more than one mode will need to include a "mark-up" factor in the prioritization methodology to account for their benefit to more than one mode.

4.5.1.4 Apply Prioritization Methodology

After grouping the eligible projects and sets of projects, WVDOT should apply the recommended prioritization methodology referenced in Section 4.5.2.

4.5.1.5 Refine Groupings and Select Projects for Funding

Following quantitative prioritization, projects should not simply be selected and funded based on their rank order. There are several reasons to avoid this. Selection based on simple rank order may not produce a geographical balance of projects funded across the State nor may it address the most urgent transportation needs. For example, highway funding may need to be further subdivided into pots for safety, maintenance, rehabilitation, new capacity, etc.

Geographic Grouping — WVDOT and DOH want to fund a geographically balanced set of projects throughout the State. However, different parts of the State may have different priorities and needs. It is therefore recommended that the geographic balance be based on an equitable distribution of funding rather than an equal distribution of project type throughout the State. To achieve this equitable funding distribution, the following process is recommended:

- After projects have been prioritized they should be grouped by Congressional District. By performing this grouping after the prioritization/ranking, WVDOT will see both how projects rank in relation to other similar projects in each district across the State as well as how they rank within the Congressional District
- Next, WVDOT should estimate (annually or prior to applying the prioritization methodology) how much money is available in all funding pots for all projects prioritized in the entire State
- WVDOT should divide that total amount by the three congressional districts and estimate what is an equitable amount of total funds to allocate for projects in each district

Because there may be differences in what is the most urgent need and top priority in different parts of the State, WVDOT can select projects while still assuring each geographic region of the state received a share of the funds.

Subdividing Funding Pots — WVDOT may want to further subdivide highway and other funding pots into program areas such as preservation, safety, maintenance, new capacity, and operational improvements to meet their goals and objectives. For example, the amount of funding dedicated to safety and maintenance may be a larger portion of the total available funds than for new capacity. WVDOT, as part of the analysis performed for the Statewide Transportation Plan, has recommended how highway money should be allocated by program area.

4.5.1.6 Select Projects for Funding

Based on the amount of funds available, and applying the process described, WVDOT and DOH should select projects to advance and fund.

4.5.1.7 Other Issues Considered

In developing the prioritization process described above, several other issues were identified but not considered critical to project selection and the funding decision making process and not included in it.

Project Development Status — Major transportation projects can take 5-15 years to go from identification, through planning, NEPA, design, and into construction. Even if a project is a top priority, if there are environmental problems, it can take years to get through the process and have it eligible for construction funding. This issue was not included in the prioritization process because even if a project is ready to go to construction, it may not mean it is the most needed project or have the highest benefit cost ratio in the State. The process gives WVDOT and DOH the discretion to select ready to go projects ahead of others.

Project Cost — Proposed projects can range from hundreds of millions to a couple of million dollars. The process gives WVDOT and DOH the flexibility, if incremental funding is available, to select and fund these projects based on funds available.

4.5.2 Phase II Quantitative Prioritization Methodology

To determine the benefits-cost ratio (B/C) of a project for comparison purposes, a quantitative prioritization methodology utilizing an Excel workbook was developed as part of the Statewide Transportation Plan. The B/C tool is a first step towards incorporating objective, data-driven factors into the project evaluation process. The approach can be refined in future phases of development to incorporate the recommendations outlined in Section 4.5.1 above. Additional factors may be considered as well, but the tool developed is straightforward to use and can be used to test and refine assumptions quickly. The workbook:

- Includes analytical procedures for estimating travel time, vehicle operating cost, and safety-related benefits of proposed projects
- Has the flexibility to incorporate estimates of other benefits and costs
- Has minimal input data requirements with default values where appropriate
- Is applicable to projects with different levels of specificity (ranging from conceptual to post-NEPA)
- Accounts for economic development benefits (but does not assume they will occur automatically) through the use of a mark-up factor
- Accounts for willingness of other public agencies or private groups to provide funding for specific projects
- Supports a screening process that focuses study resources on the most promising projects

Additional information on the B/C methodology is provided in Appendix A. The results of the tool allowed WVDOT to conduct a planning level B/C analysis and rank projects by their ratios. The inputs, assumptions, and constraints are discussed in Section 4.6.

4.6 Benefit – Cost Ranking of Highway and Bridge Projects

The projects evaluated with the B/C tool have been generated from a number of sources, including MPOs, DOH district engineers and constituents, and are in various stages of development. Several have been studied as part of environmental impact statements and have received the necessary approvals for construction, but have lacked construction funding. Others have not been studied extensively or are only in the initial stages of study. This list does not include every project proposed in the State of West Virginia and was derived from an existing list developed in 2005. From the original 170 projects identified some projects were eliminated that where completed, under construction or in the current STIP. Duplicate projects were consolidated, and where necessary for analysis purposes projects were subdivided. Several planning level B/C Analysis were conducted on 149 remaining projects with a projected capital cost of $25 billion.

Due to the preliminary nature of the analysis and the data used, the B/C Ratings were divided into four rating bands (excellent, good, fair, and poor) with the assumption that the B/C Values of each rating band are essentially equal. The excellent = projects with B/C ratios ≥ 1.5, good <1.5 -1.0, fair <1.0 – 0.5 and, poor <0.5.

The prioritization procedure uses benefit-cost ratios based on transportation user costs as well as other factors to compare highway projects. User costs include travel times, vehicle operating costs, and safety benefits associated with highway improvements. The procedure also allows estimates of other benefits to be incorporated into the prioritization process. In additional to conventional user benefits for time, vehicle operating cost, and safety savings, the procedure accounts for economic development benefits associated with job creation. It also accounts for the willingness of other public agencies and private groups to provide funding for specific projects.

These are not the final list for ranking the construction of projects. *This tool merely provides a means for the Department to evaluate projects against each other based on factors such as traffic volumes, capacity, level of service, etc. Before a final decision is made on a project's priority other items such as funding constraints, social, environmental and economic considerations, system linkage, stage of project development, and federal financial plan requirements will need to be considered.*

Estimates of project benefits in different years are converted to net present values and summed. Project construction costs are also converted to net present values. Projects are then ranked based on their benefit-cost ratios. Specific data inputs into the B/C spreadsheet included:

- Rural or Urban
- Existing & Proposed Facility Type (i.e. Freeway/Non-Freeway)
- Existing & Proposed Number of Lanes
- Existing & Proposed Length
- Existing & Proposed Speeds
- Existing & Proposed Traffic Volumes
- Existing & Proposed Accident Rates
- Existing & Proposed percent Trucks
- Existing & Proposed Capacity
- Estimated Opening Year

- Estimated Capital Cost
- Estimated Value of Earmarks or Local/Private Funding
- Estimated Number of Jobs Created
- Estimated Value of "Other" Benefits

An economic benefit equivalent to 32 percent of the capital cost was applied to all proposed 4-lane corridor facilities, which is in line with the finding that ADHS corridors have yielded $1.32 in economic benefits for every $1 invested.
Other Parameters (Discount Rate, Fuel Cost, Value of Travel Time, Cost of Crashes, etc)

The assumptions used when develop the data is as follows:

- Where more refined project data was identified it was used (i.e. TIGER Grants)
- ADT and accident data for assumed existing traveled ways was collected
- In general, the accident rate of improved facilities was assumed equal to the statewide average for similar facilities unless the current accident rate was lower, in which case no change was assumed
- Existing capital cost estimates were reviewed and compared to establish per mile costs and similar project cost, i.e. $20.5 million per mile for new 4-lane roadways with assumed design speeds of 65 mph
- No formal traffic projections were developed for proposed projects. Forecasted traffic was generally assumed to be a flat rate percent increase of existing traffic (5 percent, 10 percent, etc)
- Differences in existing and proposed lengths were generally limited to flat rate percent adjustments unless alignment data was available
- Existing free flow speeds were established by reviewing video logs of existing traveled ways where available

The benefits-cost tool calculates benefits from information about pre- and post-construction traffic volumes, speeds, lanes, accident rates, traffic mix, and other factors. Default parameters ease the data burden for many of these factors.

The top 20 B/C rated projects ranked several ways are listed in the following tables, Table 4-5 (All Projects Combined), Table 4-6 (Top 24 Corridors), Table 4-7 (Projects < $50Mil) and Table 4-8 (Projects > %50 Mil). A full list of projects by category that were evaluated as part of this plan and their B/C ratios are shown in Appendix B.

Table 4-5: Top 20 B/C Projects

Project Name	Description	Capitol Cost	B/C Rating
WV 25 Spur, WV 25 in Nitro-6TH Ave in St. Albans (Bridge)	Replace Richard Henderson Bridge (3 lanes)	$40,500	15.8
Wellsburg Bridge (OH River Crossing)	Construct new OH River Bridge in Brooke County South of Wellsburg	$75,000	10.7
US 340 VA line -Charles Town	4-Lane Upgrade	$34,439	6.3
Beechurt Ave, Walnut St - Eighth St (Monongalia Co)	Upgrade Beechurst Ave in Morgantown between Walnut St & 8th St	$40,000	3.6
East Beckley Bypass-Stanaford to Ragland	Construct New 5-lane bypass	$28,400	2.4
*King Coal Hwy-Montcalm to WV 123 Airport Rd (Mercer Co.)	Construct 7.5 miles of 4-lane Rd	$153,750	2.2

Project Name	Description	Capitol Cost	B/C Rating
I-81 Widening-S. Martinsburg I/C to Falling Waters	Construct 10.12 miles of additional lane in both directions	$83,720	2.1
US 19 – Summersville (Widening)	Widen US 19 to 6 lanes at Summersville from Nicholas County 19/11 to WV 41; approx 1 mile	$15,000	2.1
WV 20 (I-77 TO Athens)	Widen to 24' pavement from I-77 east to Athens	$13,890	2
* King Coal Hwy-Johnny Cake (US 52) to Davy (McDowell CR 4)	Construct 11.1 miles of 4 lane Rd	$227,550	1.9
I-64 White Sulphur Springs Interchange	Add a westbound on-ramp & an eastbound off-ramp at the Interchange in Greenbrier County	$10,000	1.9
West Run Expressway	Construct new 4-lane hwy north of Morgantown area to connect I-68 & I-79	$175,000	1.8
East Beckley Bypass-Cranberry Creek to CR 8	Construct 1.61 miles 4 lane Rd	$33,000	*1.8*
* Coalfields Expressway-Mullens to Pineville	Construct 5.08 miles 4 lane Rd	$104,140	1.8
US 11, Tabler Station to WV45/WV9	Widen US 11 to 3, 4, & 5 lanes in Berkeley County between Tabler Station & WV45/WV 9	$24,590	1.8
WV 705 Connector & Link From WV 705 Connector to WVU Downtown Campus Gateway Connector	Construct new divided 4-lane Rdwy from WV 705/Stewartstown Rd (Monongalia CR 67) intersection to CR 857; construct/reconstruct linking Rdwy between WV 705 Connector & WVU Downtown Campus Gateway Connector	$75,000	1.7
US 30 Upgrade (Hancock Co)	Upgrade existing Rdwy to 4 lanes between Chester & the PA state line	$42,000	1.6
* New River Parkway-Hinton to Fall Branch Bridge	Construct 6.7 miles of 2 lane Rd	$36,030	1.6
WV 9 (I-81 to Berkeley CR 7)	Widen to 4 lanes from existing 4-lanes to CR1 (Grade Rd.) Construct 4-lane WV 9 on new alignment between Berkeley CR 1 & CR 7 (Back Creek Rd.)	$61,000	1.6
* King Coal Hwy-Taylorsville to Horse Pen Connector	Construct 9.6 miles of 4 lane Rd	$196,800	1.5
* Tolsia Hwy-Kermit to Parsley Big Branch	Construct 2.5 miles of 4 lane Rd	$65,000	1.5

**AN ECONOMIC BENEFIT EQUIVALENT TO 32% OF THE CAPITAL COST WAS APPLIED TO ALL PROPOSED FOUR LANE CORRIDOR FACILITES, WHICH IS IN LINE WITH THE FINDING THAT ADHS CORRIDORS HAVE YIELDED $1.32 IN ECONOMIC BENEFITS FOR EVERY $1 INVESTED*

Table 4-6: Top 24 Corridor B/C Projects

Project Name	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
US 340	$34,439	6.33
WEST RUN EXPRESSWAY	$175,000	1.81
East Beckley Bypass	$153,650	1.64
Corridor H	$1,025,821	1.45
I-68	$1,107,000	1.40
US 220	$867,150	1.32
WV 9	$358,250	1.23
LITTLE KANAWHA RIVER PARKWAY	$753,000	1.11
King Coal Highway	$2,154,825	1.05
Coalfields Expressway	$1,020,990	1.05
Elkins Bypass	$199,600	1.04
Shawnee Parkway	$586,000	0.99
WV 2	$2,611,400	0.98
LITTLE KANAWHA RIVER PARKWAY	$240,000	0.94
Tolsia Highway	$1,115,720	0.86
US 522	$400,000	0.81
US 50	$2,398,000	0.79
BLUE-GRAY INTERMODAL HIGHWAY	$1,455,500	0.77
WV 10	$1,222,400	0.76
US 250	$164,000	0.76
MOOREFIELD BYPASS	$120,000	0.76
US 219	$265,000	0.70
I-66	$120,000	0.54
I-73/74	$90,000	0.42

Table 4-7: Top 20 Projects Less than $50M

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
WV 25 SPUR, WV 25 IN NITRO-6TH AVE. IN ST. ALBANS (BRIDGE)	Replace Richard Henderson Bridge (3 lanes)	$40,500	15.76
US 340	VA line Taylorsville to Horse Pen Connector 4-Lane upgrade	$34,439	6.33
WV 20, ATHENS (UPGRADE INCLUDING NEW I/C I-77)	Widen to 24' pavement from I-77 east to Athens	$13,890	4.76

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
BEECHURST AVE, WALNUT STREET-EIGHTH STREET (MONONGALIA CO)	Upgrade Beechurst Avenue (US 19, WV 7) in Morgantown to four and five lanes between Walnut Street and 8th Street CPr WVDOH August 2003 report	$40,000	3.62
East Beckley Bypass	Construct new 5-ln bypass-Stanaford to Ragland	$28,400	2.43
US 19 – SUMMERSVILLE (WIDENING)	Widen US 19 to six lanes at Summersville from Nicholas County19/11 to WV 41; approximately 1 mile	$15,000	2.1
East Beckley Bypass Cranberry Creek	Cranberry Creek to CR 8 Construct 1.61 miles four lane road	$33,000	1.79
US 11, TABLER STATION TO WV 45/WV9	Widen US 11 to three, four, and five lanes in Berkeley County between Tabler Station and WV45/WV 9, Per HEP MPO 2030 plan report	$24,590	1.76
US 30 UPGRADE (HANCOCK CO)	Upgrade existing roadway to four lanes between Chester and the Pennsylvania state line	$42,000	1.59
New River Parkway-Hinton to Fall Branch Bridge	Construct 6.7 miles of two lane road	$36,030	1.56
US 19 TO CR 707 (SHINNSTON CONNECTOR)	New 2-lane road from US 19 near Shinnston to I-79 at WV 279 in Harrison County, a total of 5 miles	$50,000	1.45
I-81 Widening-Falling Waters to MD Line	Construct 4.26 miles of additional lane in both directions	$48,900	1.21
WV 622, I-64 TO N OF WV 62	Widen existing roadway from three to five lanes, I-64/Cross Lanes interchange to WV 62, Kanawha County- 0.8 mile	$19,200	1.19
WV 14 (BLIZZARD DRIVE TO PARKERSBURG CITY LIMITS)	Widen Pike Street (WV 14) to standard width lanes and provide Operational/signal improvements from Blizzard Drive (WV 14) south to the Parkersburg city limits.	$8,100	1.18
SCOTT MILLER HILL – US 33 RELOCATION	Relocate US 33 to a new two-lane road from CR 3 to CR 5/12 in Roane County	$40,800	0.98
WV 51, INWOOD BYPASS (I-81-US 11 & NEW WV 51)	Widen WV 51 to five lanes from I-81 to US 11. Construct new roadway to eliminate existing offset WV 51/US 11 intersections, US 11 to vicinity of Tarico Heights in Berkeley County	$19,454	0.94
US 250, MEADOWLANE AVE TO MARY LOU RETTON DR IN FAIRMONT	Widen US 250 to three lanes from Meadow lane Avenue to Mary Lou Retton Drive in Fairmont.	$8,450	0.92

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
RHL BOULEVARD TO WV 601 (TRACE FORK CONNECTOR)	Construct new two-lane connector from RHL Boulevard (at the Shops at Trace Fork) to Jefferson Road (WV 601) in Kanawha County	$13,750	0.87
New River Parkway-Fall Branch Bridge to WV 20 near I-64	Construct 3.3 miles of two lane road	$33,800	0.82
WV 16 – ST. MARYS	New two-lane road from WV 16 east of St. Marys to the intersection of WV 2 and WV 807 in Pleasants County	$21,970	0.75

Table 4-8: Top 20 Projects Greater than $50M

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
WELLSBURG BRIDGE (OHIO RIVER CROSSING)	Construct new Ohio River bridge in Brooke County south of Wellsburg to Ohio Route 7 in the vicinity of Brilliant	$75,000	10.73
Corridor H-Bismark to Foreman	Construct 13.78 miles four lane road	$194,000	4.45
King Coal Highway-Montcalm to WV 123 Airport Road(Mercer Co.)	Construct 7.5 miles of four lane road	$153,750	2.20
I-81 Widening-S. Martinsburg I/C to Falling Waters	Construct 10.12 miles of additional lane in both directions	$83,720	2.13
King Coal Highway-Johnny Cake (US 52) to Davy (McDowell CR 4)	Construct 11.1 miles of four lane road	$227,550	1.91
WEST RUN EXPRESSWAY	Construct new four-lane highway north of Morgantown area to connect I-68 and I-79 Per Morgantown/Monongalia County 2020 Plan	$175,000	1.81
Coalfields Expressway-Mullens to Pineville	Construct 5.08 miles four lane road	$104,140	1.77
WV 705 CONNECTOR AND LINK FROM WV 705 CONNECTOR TO WVU DOWNTOWN CAMPUS GATEWAY CONNECTOR	North of Morgantown; construct new divided four-lane roadway from WV 705/Stewartstown Road (Monongalia CR 67) intersection to CR 857 at bottom of Easton Hill; construct / reconstruct linking roadway between WV 705 Connector and WVU Downtown Campus Gateway Connector	$75,000	1.69

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
WV 9 (I-81 TO BERKELEY CR 7)	Widen to 4 lanes from existing 4-lanes to CR1 (Grade Rd.). Construct four-lane WV 9 on new alignment between Berkeley CR 1 and CR 7 (Back Creek Rd.)	$61,000	1.56
King Coal Highway-Taylorsville to Horse Pen Connector	Construct 9.6 miles of four lane road	$196,800	1.55
Tolsia Highway--Kermit to Parsley Big Branch	Construct 2.5 miles of four lane road	$65,000	1.55
I-64 Widening-Barboursville to WV/KY State Line	Construct 18 miles of additional lane in both directions	$168,000	1.44
Tolsia Highway-Naugatuck to Miller Creek	Construct 3.74 miles of four lane road	$76,670	1.42
I-68 EXTENSION	Construct new four-lane roadway from I-79 at Morgantown to WV 2 at or near Moundsville	$1,107,000	1.40
Coalfields Expressway--Pineville to Welch	Construct 10.5 miles four lane road	$215,250	1.39
Elkins Bypass-Aggregates to Sullivan Junction	Construct 6.2 miles of four lane road	$127,100	1.38
King Coal Highway-Davy(McDowell CR 4) to Coalfields I/C Welch	Construct 6.7 miles of four lane road	$137,350	1.34
King Coal Highway-WV 123 Airport Road(Mercer Co.) to John Nash Blvd	Construct 3.8 miles of four lane road	$66,900	1.31
East Beckley Bypass-CR 8 to Corridor L	Construct 4.5 miles four lane road	$92,250	1.31
I-81 Widening-VA Line to S. Martinsburg	Construct 11.6 miles of additional lane in both directions	$81,620	1.29

It is important to note when reviewing Table 4-5 that ***this is not the final list for ranking the construction of projects***. This tool merely provides a means for the Department to evaluate projects against each other based on factors such as traffic volumes, capacity, level of service, etc. Before a final decision is made on a projects priority other items such as funding constraints, social, environmental & economic considerations, system linkage, stage of project development, and federal financial plan requirements will need to be considered.

4.7 Performance Measures

This section provides an introduction to the concept of performances measures and discusses national trends in performance measurement. It reviews and evaluates existing performance measures established between DOH and FHWA as well as those used by DOH in budgetary documents.

4.7.1 Background

Performance measurement is a way of evaluating progress toward desired goals or objectives and provides a framework for gathering and analyzing information to make well-informed decisions. Transportation agencies have used performance measures for years to track and forecast the impacts of system investments, gauge the quality of services delivered by the agency, and report the information to stakeholders and the public in a meaningful way.[1]

The purpose for measuring is not just to know how a transportation agency or system is performing, but to enable it to perform better. Specifically, performance measures can help a transportation agency detect and correct problems, improve processes, justify budget proposals, and demonstrate that it is accountable by confirming the efficient use of resources. By adopting and applying performance measures, a transportation agency can provide better direction for the organization and keep agency staff, and even partners and stakeholders more focused on priorities. For example, measures help managers make confident choices that their decisions are linked to desired effects and impacts.

It must also be noted that the importance and influence of performance measures is gaining ground. The two congressionally-appointed commissions that recently reported out on the future of transportation in the U.S. both endorsed a more performance-based approach to federal surface transportation programs. Several interest groups including AASHTO have discussed the potential for requiring all state DOTs to adopt performance measures as part of the next surface transportation reauthorization bill. Additionally, FHWA began an initiative to develop a national set of performance measures that all DOTs will need to report, and which may be the precursor to a performance-based federal program.

Without a yardstick, there is no measurement; without measurement, there is no control.

4.7.1.1 Performance Measures vs. Prioritization Criteria

Before discussing the development of performance measures in conjunction with long range transportation planning, it is important to note the difference between "measures" and "prioritization criteria." In short, the two may share similar characteristics, but have different applications. To be of value, both are best if they are:

- Linked to an agency's goal and objectives
- Incorporated into decision-making processes
- Based on quantitative considerations
- Supported by leadership
- Communicated throughout an agency
- Easily understandable and meaningful to elected officials and citizens/stakeholders

The primary difference between performance measures and prioritization factors is that measures monitor how system performance changes or output levels evolve over time in response to one or more

[1] *NCHRP Report 551, Performance Measures and Targets for Transportation Asset Management, Transportation Research Board, Washington, DC 2006 page iii.*

projects/programs. Prioritization factors are used to forecast the benefits a project will provide in comparison to other investment options, but do not necessarily represent ultimate outputs or outcomes.

There is not necessarily a direct link between performance measures and prioritization. In some cases it would be a strategic error to prioritize based on the worst performance first. For example, fixing the worst road in the State may not necessarily result in fixing the road with the greatest need or benefit to the most users. The cost to fix the worst first may be higher than the cost to improve roadways that are just beginning to deteriorate. In other words, the State can get more for their money by not focusing on the worst first. This is of course a policy decision.

4.7.1.2 Characteristics / Consideration for Performance Measures

Over the last 10 to 20 years, the use of performance measures by state DOTs has evolved to the point where there are fairly well developed guidelines for developing "good" performance measurement approaches. To begin with, the focus of a measurement system should be to identify where anticipated progress is being made and to provide an "early warning system" in areas where performance problems persist. In the case of the latter, the point is not to identify responsible staff for punishment, but to indicate the need for further investigation to determine barriers to achieving performance targets. While there is no set rule with respect to the number of performance measures an agency should have – some agencies have as few as five or 10 measures while some have more than 120 – the amount of measures should be kept manageable. If there are too many measures, so much time can be focused on collecting data to support them that the measures themselves become an impediment to performance. Lastly, the measurement approach should remain flexible. Measurement cycles vary from monthly to annually or biannually and data collection cycles should be long enough to give program changes a chance to work. Again, collecting data too often can distract staff and only provide small changes in results.

In terms of selecting specific measures, there is a great deal of latitude an organization can take. Some DOTs focus on internal, administrative-oriented measures, evaluating project delivery, and timely completion of contracts. Other agencies measure system conditions such as pavement quality. Still others measure externally, looking to customer satisfaction with the agency, often through the use of customer surveys. Other characteristics that should be considered in developing and evaluating performance measures include the following:

- **Goal and Objective Consistency** – The ability to align measures with specific goals and objectives in the long range plan
- **Budgetary Link** – The strength of the relationship between agency investment decisions and the performance result being measured
- **Meaningfulness to Management** – The degree to which measures can be embraced by management and used to support decision-making
- **Ability to Quantify** – Ideally, measures should lend themselves to easy quantification based on hard data rather than subjective analysis
- **Data/Analysis Burden** – The extent to which measures can be supported by existing data collection and analysis activities and/or the level of effort that will be required to develop new data and analysis capabilities
- **External Mandates** – The degree to which measures are consistent or conflict with outside requirements, such as national measurement standards

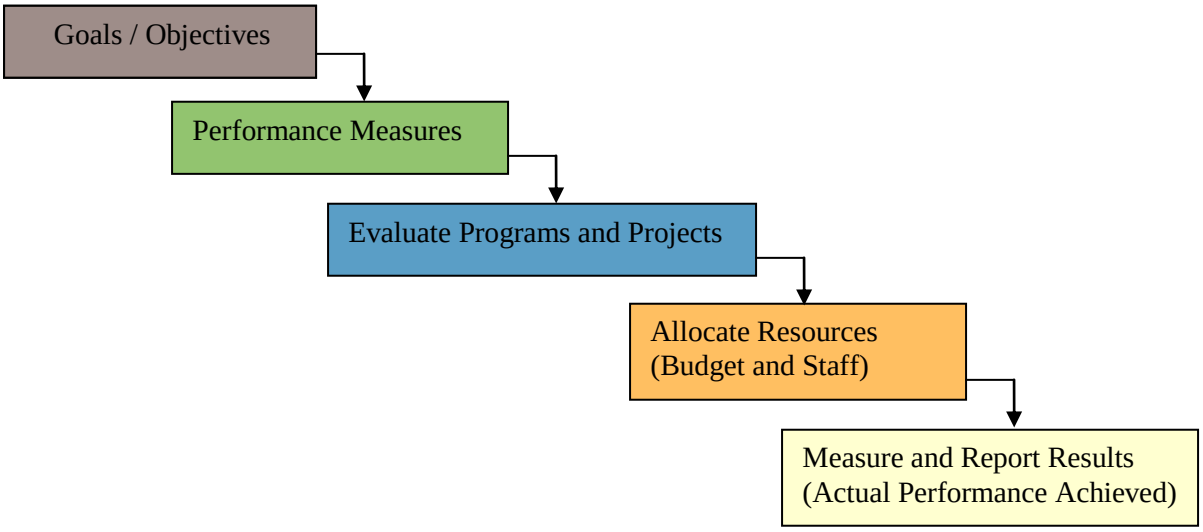
4.7.1.3 Benchmarking vs. Setting Targets

Another consideration in developing and using performance measures is how or what to set as their measurement criteria. Measurements can be set in a number of ways. They can be set as a benchmark and used to measure or compare the WVDOT/DOH system to other systems. Or they can be set to provide a

starting point defining existing conditions and benchmark future changes or improvements to the existing system. Measures can also be defined to establish or set targets to achieve for example: completing a certain number of miles of resurfacing per year.

There are pros and cons for each of these approaches. In terms of benchmarking, if beginning conditions are already bad, then success can easily be shown. However, if current conditions are good, benchmarking against them will not give the agency demonstrative changes that show improvements. If funding is tied to how much something is improving, the category may miss out on additional funding because it is already in good condition. Setting targets can be good in that it gives staff a focus on meeting targets. But this may be bad in that they are working to achieve the targets rather than exceeding them or striving for improvements. Figure 4-12 presents the linkages of performance measures to goals and objectives, resources, and results.

Figure 4-12: Linking Goals and Results



4.7.2 Other State DOT's Use of Performance Measures

Performance measures have been used by state and regional transportation agencies for several years to guide planning, inform investment decision making, and facilitate benchmarking/assessment of system and organizational performance. In fact, virtually all state DOTs now use performance measures in some form. Typical measurement areas include the following:

- System Preservation and Maintenance
  - Pavement condition
  - Ride or roughness index
  - Bridge condition
  - Bus fleet condition
  - Runway conditions
  - Routine maintenance
- Mobility
  - Level of service
  - Travel time (congestion and length of delay)
  - NHS intermodal connectors
  - Highway capacity improvements

- Incident management (speed in removing crashed vehicles)
- Change in VMT (as a measure of more people using public transit)
- Miles of bicycle trails
- Miles of walking trails

- Safety and Security
  - Crash rates and trends (fatal and injury)
- Administration and Program Delivery
  - Change orders and increases to construction cost
  - Commitment of federal funds
  - Management of administrative costs
- Other
  - Consistency with transportation plans
  - Change in Gross State Product
  - Customer satisfaction

4.7.3 Federal Requirements for Performance Measures

As noted earlier, there is now growing momentum toward the establishment of a national set of performance measures that would be applied to all state DOTs. In particular, the two surface transportation commissions established by SAFETEA-LU both identified the need for any significant increases in federal funding to be coupled with stronger federal accountability by creating a performance-based federal aid program.

AASHTO agrees with the need for strengthened accountability in the use of federal funds and, as part of its efforts to develop reauthorization positions for the state DOT community, has conducted work to identify a potential structure for national level performance measures. Similarly, FHWA has begun an initiative to develop a set of measures that would be used in conjunction with a performance-based approach to implement the Federal-aid Highway program. The following is a summary of what is currently being considered and should serve as an important input as WVDOT develops its own set of measurements, largely based on what has been discussed by AASHTO officials at public meetings.

AASHTO has emphasized that the most effective way to develop and deliver a performance-based Federal aid program will be through a state-based approach that recognizes the need for state DOTs to determine how to best manage their own programs. They therefore suggest that a national performance management process should have common key elements and six primary measurement areas that each state would need to adopt, but each state would determine its own performance targets and the appropriate strategies to meet those targets. The following is a description of the six proposed areas.

- **Safety** – Measures crashes or incidents that are harmful to people and damaging to freight, vehicles, and transportation infrastructure. Measures may also consider vehicle and driver issues, as well as work zone safety issues. Potential measures include the following:
  - Number of fatalities
  - Fatality rate (using VMT)
  - Number of serious injuries
  - Rate of serious injuries (using VMT)
- **Preservation** – Measures the condition of system elements and the effectiveness of preservation activities. Potential measures include the following:
  - Pavement – Remaining service life and ride quality (IRI)
  - Bridge – Functional and structural condition indices
  - Transit – Remaining useful life of the fleet (buses and rail cars)

- **Congestion (Mobility and Accessibility)** – Mobility measures include the time and cost of making a trip and the relative ease and predictability with which a trip is made. Accessibility is the ability of people and goods to reach desired activities or destinations. Potential measures include the following:
  - Hours of delay (vehicle hours and person hours) on the Interstate and National Highway Systems
  - Hours of delay per 1000 VMT on the Interstate and National Highway System
  - Travel Time Index on the Interstate and National Highway System
  - Transit usage and load factors (pending response from APTA)
- **System Operations** – Measures the operational efficiency and reliability provided by the existing system. While this area is related to the congestion area, the focus is on improving system operations and capacity. Potential measures include the following:
  - Travel Trip Reliability – Planning Time Index (PTI)
  - Incident Management – total clearance time
  - Lane Closures – lane-hours-lost due to work zones and weather events (track separately)
- **Freight/Economic Development** – Measures direct and indirect impacts of transportation on the economy (e.g., the cost of transportation experienced by users and shippers). Potential measures include the following:
  - Average speed on Interstate and National Highway System corridors
  - Average time to cross borders
  - Number and percent of bridges allowing clearance for double stack containers
  - Freight volume by mode including TEU throughput at ports
- **Environment** – Measures transportation program and project effects on the environment including air quality, stormwater, and agency operations. Potential measures include the following:
  - Transportation-related air quality emissions, including green house gases
  - State DOT use of stormwater best management practices
  - Agency operations related to energy usage, recycled products, and agency "carbon footprint"

4.7.4 Performance Measurement in West Virginia

4.7.4.1 Current Performance Measures

The DOH does not currently employ a formal, stand alone performance measurement system with identified agency/system-level measures and a defined reporting cycle. However, the DOH does currently include and report on a number of performance measures as a part of its annual budget documents. These are reported as "Accomplishments" with respect to (or linked to) specific goals and objectives that have been defined over the years by WVDOT and DOH. Also, the FHWA West Virginia Division Office maintains performance measures that monitor the performance of the FHWA Division office and (in some areas) assess the performance of West Virginia's Transportation System. These measures technically are not WVDOT's or DOH's and are not directly linked to WVDOT goals, budgeting, leadership, or decision making. Performance measures from these two sources that may be applicable to West Virginia's long-range planning efforts and to subsequent plan implementation monitoring activities are identified in Table 4-9.

Table 4-9: Current Goals and Performance Measures

Performance Area	Measurement
Current Goals and Measures in DOH Budget Documents	
Take advantage of all federal-aid highway programs	Match and expend all available federal funds
Complete Appalachian Corridor System within 10 years (or fewer)	Specific roadway status
Complete Environmental Impact Statements on other major corridors and start construction	Status
Road and bridge construction program	Rehab and replacement projects and number of bridge postings
Preserve existing road and bridge infrastructure	Qualitative
Construct other major corridors	Specific corridor status
Reduce travel delay on three specific routes	Status of corridor completion
Improve traffic flow	Completion of Appalachian System, specific projects, number of posted bridges
Driver satisfaction	Maintenance and resurfacing
FHWA – WV Division Office Performance Measures	
Environment	Projects delayed (EA/EIS)
Planning	Percent of STIP projects advanced
Pavements	IRI
Bridges	Percent deficient
Safety	Number of highway–related fatalities
Inactive Obligations	Percent obligated but unexpended

4.7.4.2 Review of Existing WV Performance Measurement Activities

Table 4-10summarizes an assessment of existing WVDOT/DOH and applicable FHWA WV Division performance measures based on a review of available materials as well as discussions with WVDOT/DOH staff personnel.

Table 4-10: Current Measures Assessment

Criteria/ Consideration	WVDOT/DOH	FHWA WV Division
Goal and Objective Consistency	In general the performance measures are consistent with the agency's mission values, and goals. However, there are some goals that are not addressed in the current performance measures, e.g., modal system performance is not assessed.	The FHWA performance measures are generally consistent with DOH's mission values, and goals, but do not cover all key performance areas e.g. economic development.
Budgetary Link	There appears to be no direct linkages between the existing performance measures and budget related decision making.	There appears to be no direct linkages between the existing performance measures and budget related decision making.
Meaningfulness to Management	The performance measures do influence leadership discussions related to decision making, but not through any formal process or procedure applied during budget development.	There is no indication that the FHWA performance measures are considered by DOT leadership in their decision making.
Ability to Quantify	Current performance measures are reported on as a mix of qualitative and quantitative accomplishments.	Current measures apply a mix of qualitative and quantitative criteria.

Criteria/ Consideration	WVDOT/DOH	FHWA WV Division
Data/Analysis Burden	The data/analysis burden to support existing measures does not appear to be significant.	The data/analysis burden to support existing measures does not appear to be significant.
External Mandates	The current measures do not match up well with potentially emerging national measurement areas.	The safety and preservation-related measures appear to be consistent with emerging national measurement areas.

4.7.5 Recommendations on Performance Measures

As has been stated, it is important that the performance measures be aligned with WVDOT/DOH's goals and objectives. One approach that many state DOT's use is to match a performance measure to each goal and objective. In the case of DOH, the goals and objectives have remained fairly consistent over the years. The new vision and goals have not been formalized or adopted but also remain generally consistent with the goals identified by WVDOT and DOH since 2004.

In summary the WVDOT and DOH goals and objectives focus on the following seven concepts:

- Maintaining the structural integrity of the highway system and the past investments
- Improving or modernizing the highway system both operationally and structurally
- Completing key corridors
- Maintaining a safe system
- Using financial resources wisely
- Supporting economic development in the state by providing access to sites and markets
- Supporting other modes of transportation through linkages / providing the public with modal options

Based on the seven concepts, the current WVDOT/DOH measures, and the considerations discussed earlier, it is recommended that the department somewhat modify and expand its performance measurement framework. WVDOT/DOH has formed a committee that is currently taking on this task; formal results are expected in the near future.

An informational meeting was held on December 9, 2009 to discuss upcoming DOH performance measures initiative. During the course of that meeting, DOH management further identified several practical areas that they wish to include for performance measures – Finance, Human Resources, Construction, EEO and DBE, and Public Relations.

The names of the individuals tasked by management to cover these various areas are:

1. Safety – Cindy Cramer
2. Preservation – Kyle Stollings/Aaron Gillispie/Ron Smith
3. System Operations – Kyle Stollings/Ron Smith
4. Congestion, Mobility & Accessibility – Perry McCutcheon
5. Freight & Economic Development – Rob Watson
6. Environment – Lovell Facemire
7. Financial – Alice Taylor
8. Human Resources – Jeff Black
9. Public Relations – Susie Watkins
10. Construction – Todd Rumbaugh
11. EEO & DBE – Drema Smith

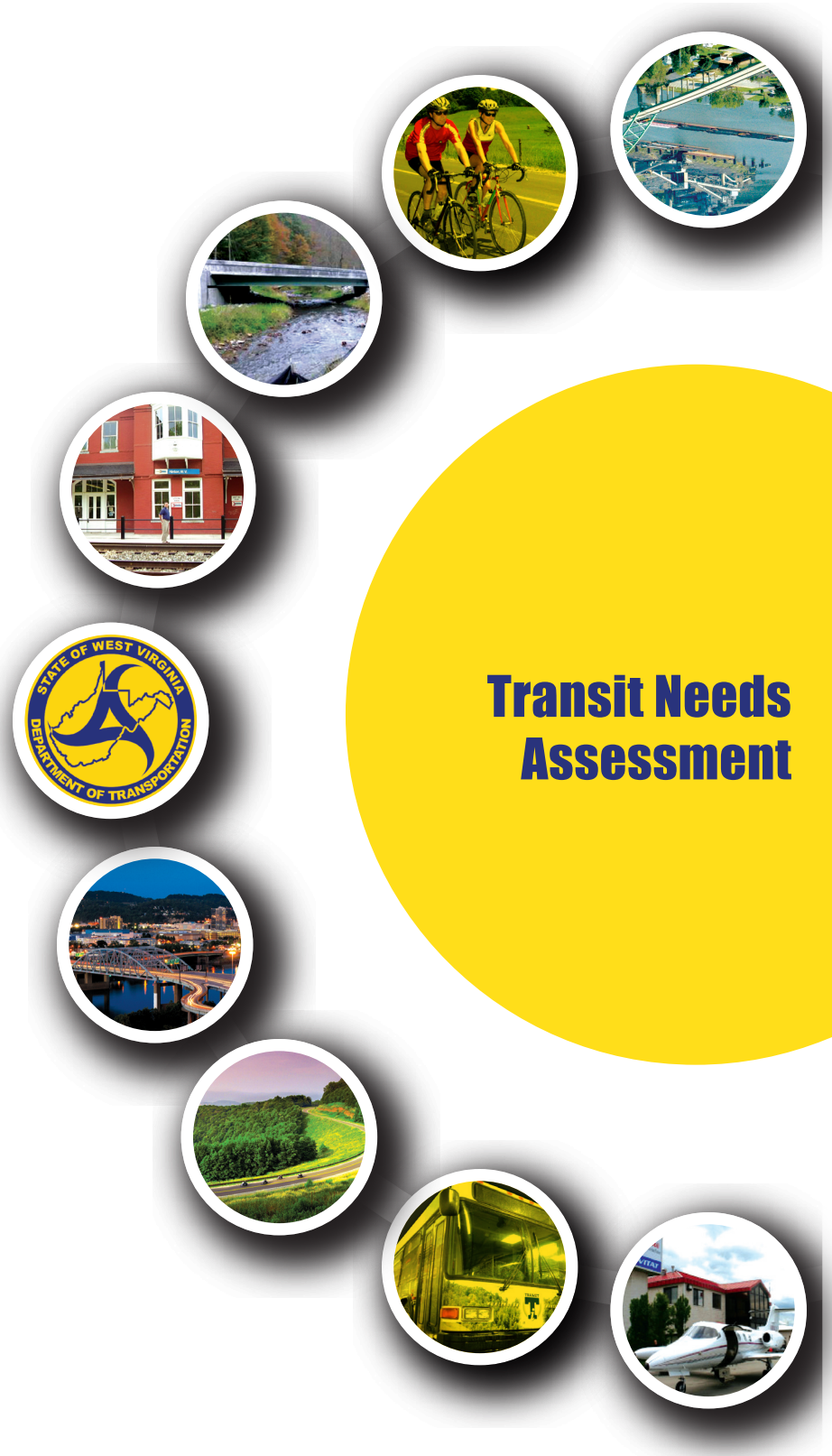
A follow-up meeting was conducted with the above named persons in February 2009 for the purpose of identifying those specific items which will be included in the Performance Measures program along with targets/goals for each of those items. Each of the team members discussed three to four potential core performance measures for their area. One of the key considerations they used when choosing a candidate performance measure was data availability. The data should be uniformly and systematically collected over a standard time period.

Currently the department has in place a Stewardship Agreement between WVDOT and FHWA where they provide the FHWA with the performance data on a semi-annual basis (March 31st and September 30th). The data included in this agreement is shown below. It is expected that the department will continue to monitor and report this information as part of their final performance measure program.

- **Planning** – STIP: percentage of projects (including grouped projects) listed in the STIP advanced.
- **Environment** – delayed projects: Number of projects (EIS and EA only) of significance to the DOH being delayed.
- **Right of Way** – clear right-of-way certifications: percentage of Federal-aid construction projects with clear R/W certification at time of construction authorization.
- **Design and Construction** – project cost growth: For all Federal-aid construction projects of more than $1 million closed during the FY, calculate the aggregate percent of project cost change by subtracting the project cost at time of letting (low bid amount) from the project contract cost at the time of final project closeout, and dividing that number by the project low bid amount.
  - Construction time: percentage of Federal-aid construction projects with work completed by contract completion date.
- **Safety and Operations** – roadway departure fatality rate: roadway departure fatalities per 100 million vehicle miles traveled.
  - Highway fatalities: number of highway related fatalities.
- **System Preservation** – 3R projects: percentage of IM Federal-aid Program dollars authorized for 3R projects on the interstate.
- **Finance** – inactive obligations: percentage of obligated but unexpended balance for all inactive projects compared to total annual apportionments.
- **Civil Rights** – DBE goal: percentage DBE goal met for all completed Federal-aid construction projects.
- **Stewardship/Oversight** – CPIS recommendations: number of CPIS recommendations agreed upon with implementation pending.

The final list of performance measures will be up to the department to determine. It is expected that the committee will, however, limit candidate measures to those areas that are deemed significant by upper WVDOT management and/or the FHWA for the purpose of tracking their progress toward achieving their predetermined goals.

Transit Needs Assessment



Section 5. Transit Needs Assessment

5.1 Introduction

Total estimated transit demand for West Virginia's 55 counties is 21.72 million trips. Currently, 5.76 million of these trips are provided by West Virginia transit providers funded federal transit programs.

Existing transit services satisfy approximately 26.5 percent of estimated demand; an estimated $57 million is needed to meet target levels of service for all counties in the state.

Mobility for West Virginia citizens is an issue of concern, as rural and urban populations shift; labor force needs transform to meet a growing service and technology market, and services such as health care become more specialized and regionalized. Mobility for West Virginia citizens is a significant concern because access to jobs and services is a precursor to a healthy economy.

The public transportation component of the Statewide Transportation Plan represents an update to the West Virginia Transit Needs Study of May 2001. Changes in population trends, economic conditions, and environmental developments make it important to see how or where these trends are impacting mobility needs. Additionally, the present economic climate and its effects on the transit industry require public transit providers and policymakers to optimally allocate their resources and efforts. Therefore, it is timely to provide such an update for use by transportation agencies, policy makers, and other interested and affected parties. The goals of this update are to:

- Assess the current market for public transportation services in West Virginia in terms of demand (both presently served and unserved)
- Update the data base with which to estimate capital and operating costs required to sustain existing public transportation services, to extend existing services into adjacent unserved areas, and to establish new operations in remaining unserved markets

The results of this update are summarized in this section of the Final Report. Full results are available in the report entitled WV Public Transportation Service Update. The results are based on analysis of current and projected demographic and economic conditions in the state and an inventory of existing West Virginia public transportation services. Demand projections for public and specialized public transportation in West Virginia assessed current providers and applied a mathematical model to predict demand.

5.1.1 Context of Public Transportation in West Virginia

The private automobile is the primary transportation mode for most West Virginia residents. However, for individuals without access to the automobile, public transit is the most important mode of transportation. Without public transportation options for West Virginia residents, such as specialized transportation services in Mingo County or fixed-route buses in Charleston, mobility limitations will result for individuals who are unable to drive and those who are unable to afford to own and operate a vehicle. Some households may be able to afford only one vehicle, which leaves limited options to other family members who may need services to school, medical appointments, or everyday services such as the post office or grocery store.

West Virginia communities with low population densities and long distances between regional service centers present a formidable challenge for public transportation planners who are working to ensure adequate mobility for West Virginia citizens. Planners are looking to provide public transit services that meet the needs of West Virginians who are going to/from work, medical appointments, and other necessary everyday essential services.

In the 2000 Census the U.S. Census Bureau reported that:

- Approximately 16.6 percent (299,709) of the 2000 total West Virginia population under age 65 years (1,808,344) was below poverty level
- Elderly residents of West Virginia represented 15.3 percent (276,895) of the total statewide population
- Residents with mobility limitations comprised 2.2 percent of the population (39,639)

These proportions are similar to those exhibited for 1990 census figures and are generally not projected to vary significantly into the near future. However, it is worth noting that the proportion of elderly residents is projected to increase significantly during the period 2005 – 2030, when the percentage of persons aged 65 and greater is expected to increase from 15.5 percent in 2005 to 22.9 percent in 2030.

5.1.2 Study Approach and Rationale

In today's social and economic climate, the challenges faced by transit planners and policymakers involve sustaining transit options that attempt to meet multiple objectives, all of which collectively are intended to promote economic development, increase the quality of life for all segments of the population, and maintain mobility and access to jobs and services. The act of trying to manage transit to meet these objectives often results in increased operating costs that is not matched by similar growth in revenue and funding sources. As a result, transit managers and policymakers must often place a priority of efficient management of resources. This is especially relevant in the West Virginia environment, where rural populations and long distances can challenge the objective of operational efficiency. Thus, the ultimate challenge is to balance the objective of cost and operational efficiency with the mobility, access, and quality of life objectives that transit is intended to sustain.

The *2001 West Virginia Transit Needs Study* reported that rural mobility continues to worsen due to the increasing number of elderly residents who are unable to drive, have limited driving ability, and the decline of rural passenger transportation. One positive element to rural public transportation is that funding for rural public transportation has continued to grow over the past decade, which continues to help meet the increasing needs.

This study used a baseline approach to establishing a minimum standard for transportation service in West Virginia. Operating costs were estimated along with a funding allocation plan. The objective was to provide transit planners and policymakers with broad guidelines regarding the relative amounts of transit demand and need that exist throughout various portions of the state. The study also aimed to provide a thorough assessment of existing transit throughout the state in relation to existing demand and need. Finally, this study provided general estimated costs and expenses that are characteristic of transit services that are operated throughout the various parts of the state. That information is intended to provide broad guidelines for the consideration of possible new or revised transit services in the various regions throughout the state.

This updated study was conducted under the direction of the West Virginia Division of Public Transit. The study process included:

- Demographic analysis
- Transit provider inventory
- Review of existing studies
- Review of existing funding sources
- Current transit performance evaluations

The demand modeling process of the study included complexities, such as defining transit demand. There is not one specific methodology to calculate demand, but several different methodologies, each with different outcomes. This study updated three methodologies from the previous study.

The term 'demand' for this updated report is used in its economic sense; that is, how much transit service will be consumed at a given price? According to the publication, *The Transportation of People in Rural Areas*, there is **demand** for transit service only when someone is willing to pay for it. The term 'need' refers to the social consequence of not having transit service. If lack of transit prevents residents from reaching essential shopping or medical attention, then there is a **need** for such service.

5.1.3 Public Transportation Challenges

A state's economic health and 'quality of life' includes access to adequate mobility as a key indicator. The special geographic, demographic, and social characteristics found in West Virginia present a challenge to ensuring adequate mobility to its citizens. Today's economic environment has created challenges for transit planners and policymakers that are somewhat unprecedented in the recent history of transit management. Specifically, the general escalation of costs for goods and services, and comparably slow growth in revenues and funding, has rapidly increased transit's operating costs. In addition, recent rapid increases in transit ridership, as well as increased general popularity of transit services, have not been enough to offset this situation.

This is an issue of special consideration for an area such as West Virginia, where rural environments often result in long distances and operating environments that suppress transit productivity. This study update provides a tool for West Virginia transit planners and policymakers to provide relative measures of transit demand and use throughout the state. The study also provides a broad overview of transit operating and capital cost considerations found throughout the state, specifically with respect to approximate amounts of funding that would be required to better match services with existing demand.

5.2 Demographic Analysis

A demographic analysis of West Virginia counties and cities established peer groups within which model transit services can be identified for each group of counties. The counties were generally grouped according to similarities in demographic characteristics and scale of municipal and countywide population. Within each county grouping, the county that provided service levels that met the greatest percentage of transit demand was established as the model for comparative purposes. The operating and capital costs to provide levels of service to each county to match the level of demand satisfaction as the model counties in each peer group were then determined.

The methods used in this study to calculate transit demand and required levels of service to adequately serve that demand utilized key demographic characteristics that included total population of the community, elderly population, and population density. The average population per county for each peer group ranged from 10,000 to 63,000, while the average population density per county for each peer group ranged from 23 persons per square mile to 270 persons per square mile. Those figures do not include Kanawha County, which was placed within its own peer group of counties due to wide differences in scale with the rest of the state's counties. Kanawha was ultimately grouped with similarly-sized counties from other states throughout the mid-Atlantic. Kanawha's population was forecast to be approximately 192,000 in 2005, with a population density of approximately 212 persons per square mile.

In general, the state's population as a whole is projected to increase negligibly in the near-term. Total population of the state was calculated at 1,808,344 persons in 2000 and was forecast to reach 1,810,337

persons by 2030 – an increase of 0.1 percent. The most remote rural counties in county Peer Group 1 are expected to grow by approximately seven percent during the period 2000 – 2030, while Kanawha County, presently the most populated within the state, is expected to experience a population decline of roughly 10 percent during that period.

5.3 West Virginia Transit Services

In West Virginia, the Division of Public Transit of WVDOT is responsible for administering federal and state programs relating to public transportation. West Virginia received approximately $14 million in FY2008 from the Federal Transit Administration, including Section 5307, 5310, and 5311 funds.

5.3.1 Section 5307 – Urbanized Area Program

The Section 5307 program is a funding program for public transportation in urbanized areas more than 50,000 in population. The program provides funds for capital, limited operating, and administrative expenses. In FY2008, local transportation providers in West Virginia had access to approximately $6.4 million for urbanized areas with the population between 50,000 and 200,000 persons.

5.3.2 Section 5310 – Elderly and Persons with Disabilities Program

Section 5310 makes funds available for the purchase of capital projects which meet the special transportation needs for elderly and persons with disabilities. The 5310 funds are primarily used to purchase vehicles and are apportioned to the states annually by a formula based on the number of elderly persons and persons with disabilities in each state. In FY2008, the state received approximately $1.07 million for the 5310 program. The West Virginia Division of Public Transit administers the program and specific funding decisions are made at the state level.

Capital assistance is provided on an 80 percent Federal, 20 percent local matching basis. Those eligible to receive Section 5310 funding include private nonprofit agencies, public bodies approved by the state to coordinate services for elderly and disabled persons, or public bodies which certify to the Governor that no nonprofit corporations or associations are readily available in an area to provide the service.
The period of availability for Section 5310 funds is one year. Any amount of a state's apportionment that is unobligated may be transferred to the Section 5311 or the Section 5307 program during the fourth quarter of the fiscal year.

5.3.3 Section 5311 – Non-urbanized Area Formula Program

Section 5311 funds, distributed from the FTA and administered by the West Virginia Division of Public Transit, provide capital and operating funds in support of public transportation in rural areas of West Virginia. The rural areas, as defined in the program, are areas with less than 50,000 in population. Eligible recipients of Section 5311 funds include public bodies, private non-profit organizations, and American Indian tribes. The state of West Virginia received an allocation of approximately $6.5 million in FY2008 for the rural transportation services.

5.3.4 Federal Transit Funding Levels

Table 5-1 provides a summary of FY2008 federal funding for West Virginia.

Table 5-1: Federal Transit Funding Trends ($)

STATE/URBANIZED AREA	FTA Section	PROGRAM	FY 2006	FY 2007	FY 2008
Charleston, WV	5307	Urban Formula	2,112,381	2,181,992	2,356,730
Cumberland, MD-WV-PA	5307	Urban Formula	21,621	22,703	37,277
Hagerstown, MD-WV-PA	5307	Urban Formula	282,977	297,138	322,419
Huntington, WV-KY-OH	5307	Urban Formula	940,347	987,340	1,071,431
Morgantown, WV	5307	Urban Formula	569,587	718,666	899,680
Parkersburg, WV-OH	5307	Urban Formula	638,678	670,607	727,707
Weirton, WV-Steubenville, OH-PA	5307	Urban Formula	291,763	306,355	332,431
Wheeling, WV-OH	5307	Urban Formula	580,338	609,342	661,236
Statewide 5310	5310	Elderly & PWD	939,108	988,942	1,068,122
Statewide 5311	5311	Rural Formula	5,718,540	6,024,870	6,485,836
Total for West Virginia			12,095,360	12,807,955	13,962,869

Source: WVDOT, January 2009.

Approximately $6.5 million was allocated for Section 5311 program funding general public transit systems in rural and small urban areas (under 50,000 populations) in FY2008. Capital projects require a 20 percent local match to the 80 percent federal funds, and a 50 percent local match of federal funds for operating expenses.

5.3.5 West Virginia Transit Providers

The West Virginia Division of Public Transit funds various cities, counties, and non-profit organizations that provide transit service, operated with approximately 432 vehicles. West Virginia had 18 general public systems providing service across the state in FY2009, as listed in Table 5-2. Approximately 6.3 million annual one-way trips are provided. A breakdown of trips by county is provided in Table 5-3.

The West Virginia Public Transportation Management System was reviewed to provide a report on the passenger transit vehicle inventory and condition. A total of 239 vehicles were identified by providers as requiring replacement by 2013. Fifteen of these vehicles were considered by providers to be ready for replacement in 2009 and 51 vehicles in 2010.

Table 5-2: Summary of WV General Public Transit Providers – FY2009

	Agency	Peer Group	Service Area	One-way Passenger Trips	Total Vehicles	Federal 5311/5307 Funding	State Funding	Local Revenue	Farebox Revenue	Total Revenue
1	Bluefied Area Transit	4	Mercer, McDowell	196,201	27	$ 355,428	$ 180,000	$ 175,428	$ 312,001	$ 1,022,857
2	Central WV Transit Authority (CENTRA)	4	Harrison, Doddridge	257,971	23	$ 513,784	$ 38,784	$ 1,229,468	$ 213,202	$ 1,995,249
3	Fairmont-Marion Co. Transit Authority (FMCTA)	4	Marion	176,722	24	$ 485,470	$ -	$ 912,675	$ 203,678	$ 1,574,824
4	Mountain Transit Authority (MTA)	3	Webster, Nicholas	42,234	15	$ 269,179	$ 245,896	$ 23,282	$ 60,899	$ 599,257
5	Potomac Valley Transit Authority (PVTA)	1	Grant, Hardy, Mineral, Pendleton, Hampshire	98,890	26	$ 434,515	$ 265,614	$ 168,901	$ 437,732	$ 1,342,763
6	Preston Co. (Buckwheat Express)	2	Preston	34,396	19	$ 291,784	$ 154,363	$ 137,422	$ 41,930	$ 625,500
7	Little Kanawha Transit Authority (Little Kanawha Bus)	1	Calhon, Jackson, Roane	36,024	13	$ 225,542	$ 177,500	$ 48,042	$ 38,851	$ 489,936
8	Wayne X-Press	3	Wayne, Cabell	40,437	23	$ 285,545	$ 27,500	$ 276,688	$ 51,762	$ 641,496
9	TriRiver Transit	3	Lincoln, Logan, Boone	55,352	19	$ 340,717	$ 163,643	$ 177,083	$ 79,006	$ 760,442
10	Here & There Transit	2	Barbour	18,290	10	$ 163,509	$ 27,500	$ 136,009	$ 43,979	$ 370,998
11	County Roads Transit	2	Randolph, Upsher	19,487	12	$ 213,581	$ 27,500	$ 186,081	$ 51,574	$ 478,736
12	Eastern Panhandle Transit Authority (Pan Tran)	5	Berkely, Jefferson	160,436	13	340,367	$ -	$ 1,126,515	$ 419,407	$ 876,289
13	Kanawha Valley Regional Transit Authority (KRT)	6	Kanawha	2,490,947	71	$ 2,090,621	$ 36,594	$ 6,411,853	$ 2,240,695	$ 10,779,763
14	Mid-Ohio Valley Transit Authority (Easy Rider)	5	Wood	293,512	17	$ 735,722	$ -	$ 1,041,652	$ 275,300	$ 2,052,674
15	Monongalia Co. Urban Mass Transit Authority (Mountain Line)	4	Monongalia	1,167,284	37	$ 1,180,556	$ -	$ 813,000	$ 2,086,675	$ 4,080,231
16	Ohio Valley Regional Transportation Authority (OVRTA)	5	Ohio, Marshall	327,008	18	$ 609,342	$ -	$ 1,147,916	$ 346,012	$ 2,103,270
17	The Transit Authority (TTA)	5	Cabell	823,712	45	$ 1,419,602	$ -	$ 3,588,692	$ 685,956	$ 5,694,250
18	Weirton Transit Corporation	5	Brooke, Hancock	40,952	4	$ 171,440	$ -	$ 178,601	$ 37,631	$ 387,672

Table 5-3: County Provider Summary

County	Peer Group	2005 Est. Pop.	Program Trips (Sec. 5310)	Non-Program Trips (Sec. 5307/5311)	Total Trips
Barbour	2	15,403		21,230	21,230
Berkeley	5	81,382	11,632	125,142	136,774
Boone	3	25,198	0	21,089	21,089
Braxton	1	15,106	np	0	0
Brooke	5	24,746	18,260	0	18,260
Cabell	5	94,504	21,427	832,547	853,974
Calhoun	1	7,426	13,000	4,745	17,745
Clay	1	10,018	6,000	0	6,000
Doddridge	1	7,637	2,600	0	2,600
Fayette	3	46,860	6,400	18,941	25,341
Gilmer	1	6,993	np	0	0
Grant	1	11,551	12,450	14,221	26,671
Greenbrier	2	33,942	8,033	13,771	21,804
Hampshire	2	21,126	2,087	25,956	28,043
Hancock	5	31,130	50,937	34,899	85,836
Hardy	1	13,162	6,142	16,210	22,352
Harrison	4	67,005	26,368	286,040	312,408
Jackson	3	28,422	9,245	18,130	27,375
Jefferson	5	44,092	np	14,214	0
Kanawha	6	192,360	30,202	2,393,325	2,423,527
Lewis	2	16,635	22,659	0	22,659
Lincoln	3	22,331	9,279	30,368	39,647
Logan	3	35,376	7,942	29,031	36,973
Marion	4	55,142	14,205	145,895	160,100
Marshall	5	34,257	np	46,186	0
Mason	3	25,911	875	0	875
McDowell	2	24,125	106	0	106
Mercer	4	61,535	np	122,321	186,632
Mineral	2	26,786	2,646	33,017	35,663
Mingo	3	26,282	5,154	0	5,154
Monongalia	5	82,361	29,220	828,731	857,951
Monroe	1	15,411	10,810	0	10,810
Morgan	2	15,773	6,500	0	6,500
Nicholas	2	25,997	500	10,528	11,028
Ohio	5	33,202	3,073	281,376	284,449
Pendleton	1	8,168	np	10,044	10,044
Pleasants	2	7,368	12,899	0	12,899
Pocahontas	1	9,086	1,134	0	1,134
Preston	2	28,459		35,239	35,239
Putnam	4	53,823	3,148	0	3,148
Raleigh	4	78,584	12,909	np	12,909
Randolph	2	28,313	3,234	9,480	12,714
Ritchie	1	10,181	7,856	0	7,856
Roane	1	15,419	12,906	9,850	22,756
Summers	2	12,560	5,233	0	5,233
Taylor	2	16,379	np	0	0
Tucker	1	7,055	940	0	940
Tyler	2	9,561	7,856	0	7,856
Upshur	2	22,796	np	9,479	9,479
Wayne	3	42,785	np	46,109	46,109
Webster	1	9,216	4,600	3,760	8,360
Wetzel	2	16,818	7,521	0	7,521
Wirt	1	5,807	8,886	0	8,886
Wood	5	85,751	20,441	265,090	285,531
Wyoming	3	24,128	16,095	0	16,095
Total		**1,771,444**	**463,410**	**5,756,964**	**6,224,285**
Average		**32,208**	**10,532**	**106,610**	**113,169**
Minimum		**5,807**	**0**	**0**	**0**
Maximum		**192,360**	**50,937**	**2,393,325**	**2,423,527**

np = data not provided by operators

5.4 Demand Estimates for West Virginia Counties

The term *demand* is used here in its economic sense; that is, how much transit service will be consumed at a given price? Transit need refers to the social consequence of not having transit service. If lack of transit prevents persons from reaching essential shopping or medical attention, then there is a need for such service. There is demand for transit service only when someone is willing to pay for it. Transit demand for each county in West Virginia was derived from three methodologies used to measure transit demand by county for the state. By reviewing multiple demand models, indicated below, a range of *demand* was calibrated, which then generated a transit demand estimate.

- Estimating Demand for Rural Passenger Transportation, Transit Cooperative Research Project, B-3, 1995
- Arkansas Public Transportation Needs Assessment (APTNA)
- Peterson and Smith Trip Generation Rate Model

Each of the methodologies relies heavily upon demographic and economic characteristics to calculate the demand. Previous transit demand research has linked age, disability, household income, and automobile ownership to transit usage. Census data from 1990 and 2000 was extracted for each county in West Virginia and used in the demand models.

5.4.1 County Peer Groups

Each of West Virginia's 55 counties was assigned to one of six peer groups, with a representative county identified for each of the peer groups. Once demand was identified for each county, the percentage of demand met by existing transit services was calculated. Each county with the highest percentage of demand met was used as the representative standard from which to calculate financial need to support estimated demand.

Forty counties in West Virginia, grouped in one of three peer groups considered as non-urbanized counties, generated a total estimated trip demand of 4.85 million trips per year. The current estimated service in these counties is 585,565 trips per year, satisfying approximately 12.1 percent of total demand. Table 5-4 provides a list of each of these 40 counties, the current estimated demand, and estimated unmet demand.

The remaining 15 counties were assigned to Peer Groups 4, 5, or 6, as more urbanized communities of West Virginia. The calculations for all counties except Kanawha County (Peer Group 6) resulted in an estimated total demand of 12.53 million trips. Based on current reported service (FY07) of 2.98 million trips by West Virginia providers within Peer Groups 4 and 5, service providers met approximately 23.8 percent of the total demand. Table 5-5 provides the results of the calculations for each of the 14 counties.

5.4.2 Kanawha County

Because there are no counties within West Virginia with demographic characteristics similar to Kanawha County, four metropolitan areas with characteristics similar to Kanawha County were selected to form a peer group. The demographic and transit service performance characteristics of Kanawha County were compared to Dauphin and Lackawanna Counties, PA; Roanoke County, VA; and Fayette County, KY. Operating data for these systems were available for Fiscal Year 2007, with the exception of Dauphin County, for which data from FY 2001 was used. The operating characteristics of the four out-of-state peer systems were compared to FY 2007 operating statistics for Kanawha County. Table 5-6 presents the demographic characteristics of Kanawha County and the four out-of-state peer counties for Year 2000, with projections to Year 2030. Additionally, Table 5-7 presents the transit system service characteristics for Kanawha County and the four out-of-state peer counties.

Table 5-4: Summary Estimate of Transit Demand in Non-urbanized Counties

			Demand Model				Unmet Demand		
County	Peer Group	2005 Est. Pop	TCRP	APTNA	Peterson/Smith	Tot. Est. Demand	Current Service	Unmet Trips	% of Demand Met
Braxton	1	15,106	123,907	69,626	111,248	101,594	0	101,594	0.0%
Calhoun	1	7,426	66,337	40,106	65,516	57,320	17,745	39,575	31.0%
Clay	1	10,018	87,872	62,731	104,038	84,880	6,000	78,880	7.1%
Doddridge	1	7,637	64,482	32,563	52,453	49,832	2,600	47,232	5.2%
Gilmer	1	6,993	60,184	36,207	59,290	51,894	0	51,894	0.0%
Grant	**1**	**11,551**	**93,233**	**38,137**	**60,378**	**63,916**	**26,671**	**37,245**	**41.7%**
Hardy	1	13,162	104,547	38,196	60,386	67,710	22,352	45,358	33.0%
Monroe	1	15,411	126,012	61,737	96,344	94,698	10,810	83,888	11.4%
Pendleton	1	8,168	65,113	28,356	46,289	46,586	10,044	36,542	21.6%
Pocahontas	1	9,086	72,184	36,666	59,943	56,264	1,134	55,130	2.0%
Ritchie	1	10,181	84,487	46,916	77,241	69,548	7,856	61,692	11.3%
Roane	1	15,419	128,020	76,357	123,050	109,142	22,756	86,386	20.8%
Tucker	1	7,055	58,192	25,590	42,981	42,254	940	41,314	2.2%
Webster	1	9,216	77,174	53,718	90,630	73,841	8,360	65,481	11.3%
Wirt	1	5,807	50,577	23,204	37,704	37,162	8,886	28,276	23.9%
Barbour	2	15,403	130,171	76,743	125,023	110,645	21,230	89,415	19.2%
Greenbrier	2	33,942	236,439	127,008	209,318	190,922	21,804	169,118	11.4%
Hampshire	2	21,126	150,166	77,312	119,328	115,602	28,043	87,559	24.3%
Lewis	2	16,635	144,550	71,947	120,106	112,201	22,659	89,542	20.2%
McDowell	2	25,911	187,682	142,064	255,928	195,225	106	195,119	0.1%
Mineral	2	26,786	202,549	86,499	140,530	143,193	35,663	107,530	24.9%
Morgan	2	15,773	140,676	45,189	71,299	85,721	6,500	79,221	7.6%
Nicholas	2	25,997	188,755	118,207	195,440	167,467	11,028	156,439	6.6%
Pleasants	**2**	**7,368**	**76,061**	**27,519**	**45,587**	**49,722**	**12,899**	**36,823**	**25.9%**
Preston	2	28,459	198,600	105,703	174,972	159,758	35,239	124,519	22.1%
Randolph	2	28,313	197,287	116,952	187,776	167,338	12,714	154,624	7.6%
Summers	2	12,560	111,931	57,774	96,258	88,654	5,233	83,421	5.9%
Taylor	2	16,379	162,906	71,804	115,708	116,806	0	116,806	0.0%
Tyler	2	9,561	86,676	36,225	59,284	60,728	7,856	52,872	12.9%
Upshur	2	22,796	159,132	90,397	148,798	132,776	9,479	123,297	7.1%
Wetzel	2	16,818	146,928	65,642	111,090	107,887	7,521	100,366	7.0%
Boone	3	25,198	188,749	121,494	198,618	169,620	21,089	148,531	12.4%
Fayette	3	46,860	339,106	208,751	345,390	297,749	25,341	272,408	8.5%
Jackson	3	28,422	209,536	113,464	185,280	169,427	27,375	142,052	16.2%
Lincoln	**3**	**22,331**	**173,784**	**130,663**	**209,183**	**171,210**	**30,368**	**140,842**	**17.7%**
Logan	3	35,376	269,568	169,301	291,016	243,295	29,031	214,264	11.9%
Mason	3	34,257	194,373	111,269	182,128	162,590	875	161,715	0.5%
Mingo	3	26,282	203,857	134,970	230,630	189,819	5,154	184,665	2.7%
Wayne	3	42,785	316,109	181,672	293,404	263,729	46,109	217,620	17.5%
Wyoming	3	24,128	182,814	119,351	203,413	168,526	16,095	152,431	9.6%
TOTAL		**761,702**	**5,860,726**	**3,278,032**	**5,402,996**	**4,847,251**	**585,565**	**4,261,686**	**12.1%**
AVERAGE		**19,043**	**146,518**	**81,951**	**135,075**	**121,181**	**14,639**	**106,542**	**13.1%**
MINIMUM		**5,807**	**50,577**	**23,204**	**37,704**	**37,162**	**0**	**28,276**	**0.0%**
MAXIMUM		**46,860**	**339,106**	**208,751**	**345,390**	**297,749**	**46,109**	**272,408**	**41.7%**

Table 5-5: Summary Estimate of Transit Demand in Urbanized Counties

County and Urbanized Area/City	Non-urbanized Area	Land Area	Peer	Est. Population 2005	Actual trips FY 07-08	Urban Demand	Nonurban Demand	Total Demand	Unmet Demand	% of Demand Met
Harrison County		**418.5**	**4**	**67,005**	**286,040**			**892,804**	**606,764**	**32.0%**
Harrison-Clarksburg				15,711	246,058	548,882			302,824	44.8%
	Harrison Nonurban			51,294	39,982		343,921			
Marion County		**310.4**	**4**	**55,142**	**145,895**			**925,745**	**779,850**	**15.8%**
Marion-Fairmont				18,455	145,294	644,751			499,457	22.5%
	Marion-Nonurban			36,687	601		280,994			
Mercer County		**418.7**	**4**	**61,535**	**122,321**			**969,131**	**846,810**	**12.6%**
Mercer-Bluefield				11,640	77,581	406,655			329,074	19.1%
Mercer-Princeton				6,712	44,740	234,510			189,771	19.1%
	Mercer Nonurban			43,183	20,797		327,965			
Putnam County	**Putnam-Nonurban**	**349.5**	**4**	**53,823**			**267,828**	**267,828**	**267,828**	**0.0%**
Raleigh County		**610.1**	**4**	**78,584**						
Raleigh-Beckley				17,475						
	Raleigh Nonurban			61,109			411,700			
Berkeley County		**321.7**	**5**	**81,382**	**125,142**			**942,413**	**817,271**	**13.3%**
Berkeley-Martinsburg				16,763	104,265	585,633			481,369	17.8%
	Berkeley Nonurban			64,619	20,877		356,780			
Brooke County	**Brooke Nonurban**	**92.3**	**5**	**24,746**			**212,580**	**212,580**	**212,580**	**0.0%**
Cabell County		**288.2**	**5**	**94,504**	**832,547**			**2,387,130**	**1,554,583**	**34.9%**
Cabell-Huntington				52,461	814,473	1,974,333			1,159,859	41.3%
	Cabell Nonurban			42,043	18,074		412,798			
Hancock County		**88.6**	**5**	**31,130**	**34,899**			**962,604**	**927,704**	**3.6%**
Hancock-Weirton				19,397	26,084	677,686			651,602	3.8%
	Hancock Nonurban			11,733	8,815		284,917			
Jefferson County	**Jefferson Nonurba**	**211.4**	**5**	**44,092**	**14,214**		**216,943**	**216,943**	**202,729**	**6.6%**
Marshall County	**Marshall Nonurbar**	**313**	**5**	**34,257**	**46,186**		**198,712**	**198,712**	**152,526**	**23.2%**
Monongalia County		**364.3**	**5**	**82,361**	**828,731**			**1,365,308**	**536,577**	**60.7%**
Monongalia-Morgantown				28,403	786,400	992,333			205,932	79.2%
	Monongalia Nonurban			53,958	42,331		372,975			
Ohio County		**108.9**	**5**	**45,715**	**281,376**			**1,357,351**	**1,075,975**	**20.7%**
Ohio-Wheeling				30,618	255,694	1,069,707			814,013	23.9%
	Ohio Nonurban			15,097	25,682		287,644			
Wood County		**376.6**	**5**	**85,751**	**265,090**			**1,831,370**	**1,566,279**	**14.5%**
Wood-Parkersburg				30,658	179,001	1,071,109			892,109	16.7%
Wood-Vienna				11,191	65,337	390,969			325,631	16.7%
	Wood Nonurban			43,902	20,752		369,292			
TOTAL				**840,027**	**2,982,441**	**8,596,569**	**3,933,350**	**12,529,918**	**9,547,477**	**23.8%**
Average				**60,002**	**271,131**	**781,506**	**310,361**	**963,840**	**734,421**	**18.3%**
Minimum				**24,746**	**14,214**	**234,510**	**198,712**	**198,712**	**152,526**	**0.0%**
Maximum				**94,504**	**832,547**	**1,974,333**	**412,798**	**2,387,130**	**1,566,279**	**60.7%**

Note: Brooke and Putnam counties do not have transit services. The transit operator for Raleigh Co. (Community Action Lines) did not provide annual trip statistics as of this writing.

Table 5-6: Kanawha County and Peer Counties

			Estimated Population					Elderly (65+)						Mobility Limited & Mobility & Self Care Limitation Population							Below Poverty (0-64 yrs)				
County	Land Area	Pop Dens.	2000	2005	2010	2020	2030	2000	2005	2010	2020	2030	2000 Elderly %	2000	2005	2010	2020	2030	2000 mob limited	2000 Low Income	2000	2005	2010	2020	2030
Kanawha	908.5	220.2	200,073	192,360	187,104	181,525	179,742	33,036	31,397	30,631	36,296	40,911	0	3,881	3,731	3,629	3,521	3,486	3,881	25,493	26,686	25,657	24,956	24,212	23,974
Peer Counties																									
Dauphin, PA	525	468.0	251,798	253,995	256,070	262,550	269,855	35,363	36,575	36,874	37,807	38,859									23,330	24,130	24,327	24,942	25,636
Fayette, KY	285	857.0	243,785	269,333	281,613	310,262	331,212	25,354	28,011	29,288	32,267	34,446									28,035	30,973	32,385	35,680	38,089
Lackawanna, PA	459	450.0	213,295	209,525	204,673	199,310	194,835	40,891	41,486	40,525	39,463	38,577									22,511	22,838	22,309	21,725	21,237
Roanoke, VA	251	324.0	81,163	88,172	89,800	94,515	99,477	10,957	11,903	12,123	12,759	13,429									4,464	4,849	4,939	5,198	5,471
Minimum	251	220.2	81,163	88,172	89,800	94,515	99,477	10,957	11,903	12,123	12,759	13,429									4,464	4,849	4,939	5,198	5,471
Maximum	908.5	857.0	251,798	269,333	281,613	310,262	331,212	40,891	41,486	40,525	39,463	40,911									28,035	30,973	32,385	35,680	38,089
Average	485.7	463.8	198,023	202,677	203,852	209,632	215,024	29,120	29,874	29,888	31,719	33,245									21,005	21,689	21,783	22,351	22,882

Table 5-7: Kanawha County and Peer Counties Transit Service Characteristics

Transit System	Service Area Sq. Mi.	Total Vehicles	Total Unlinked Trips	Revenue Miles	Total Revenue Hours	Total Operating Exp.	Op Exp/ Rev Mile	Op Exp/ Rev Hour
Kanawha Valley Regional Transportation Authority (KRT) FY 07	909	71	2,277,121	2,743,982	164,213	$9,681,743	$3.53	$58.96
Capital Area Transit (CAT) Harrisburg, PA FY 01	150	116	2,120,990	2,729,905	205,082	$8,429,419	$3.09	$41.10
County of Lackawanna Transit system (COLTS) - Scranton, PA FY 07	159	44	1,857,900	1,047,745	86,680	$5,844,637	$5.58	$67.43
Greater Roanoke Transit Company (Valley Metro) Roanoke, VA FY 07	112	91	2,189,121	2,041,714	150,162	$7,077,078	$3.47	$47.13
Lexington Transit Authority (LexTran) Lexington, KY FY 07	70	72	5,551,450	2,970,466	234,754	$15,275,278	$5.14	$65.07
Average	**280**	**79**	**2,799,316**	**2,306,762**	**168,178**	**$ 9,261,631**	**$ 4.16**	**$ 55.94**
Minimum	**70**	**44**	**1,857,900**	**1,047,745**	**86,680**	**$ 5,844,637**	**$ 3.09**	**$ 41.10**
Maximum	**909**	**116**	**5,551,450**	**2,970,466**	**234,754**	**$ 15,275,278**	**$ 5.58**	**$ 67.43**

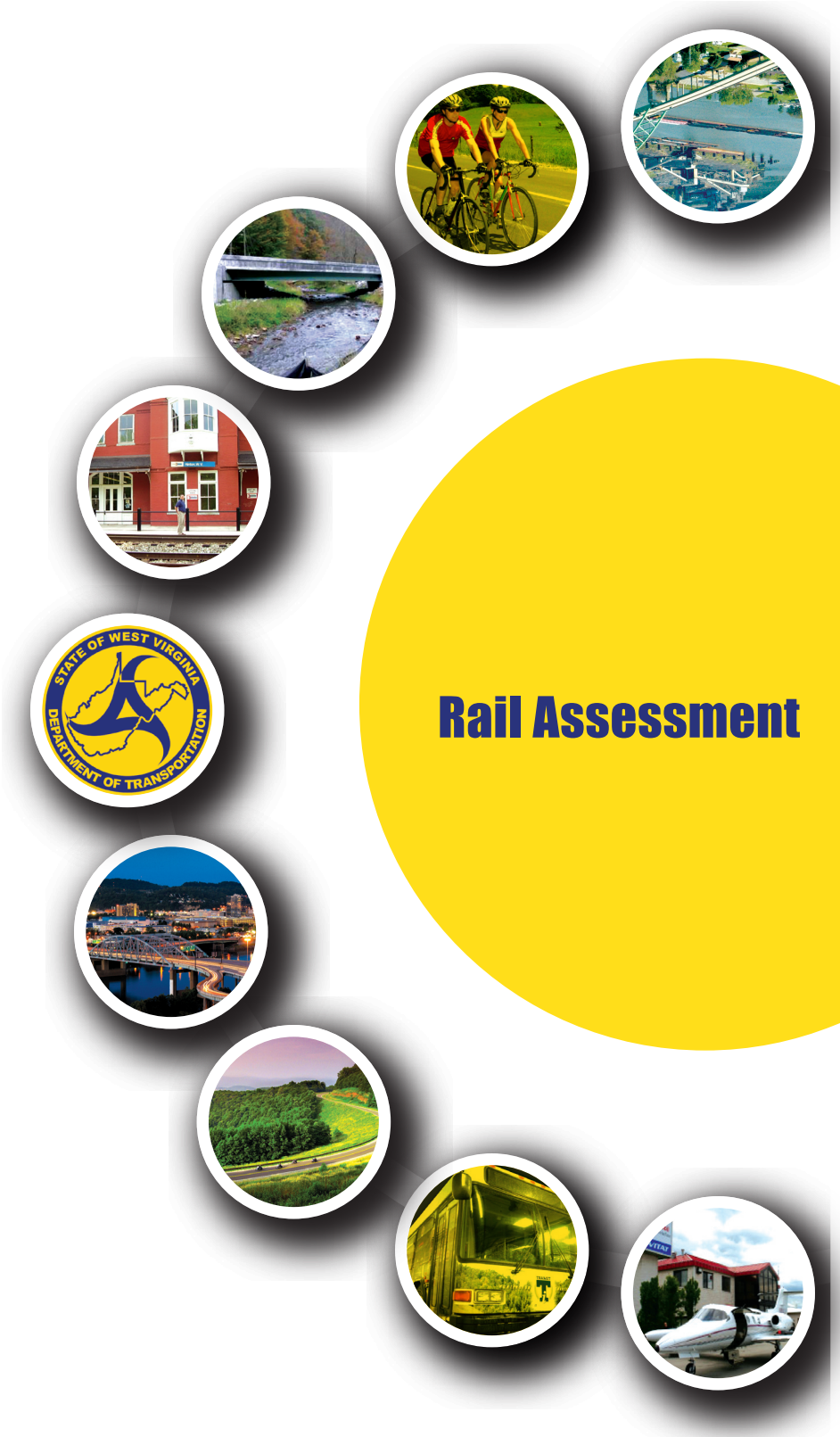
Source: National Transit Database, 2007, for all systems except Capital Area Transit (FY 2001 most recent data available from NTD)

5.5 Cost Estimates

For each group, one county was selected to be the target county whose transit provider met the greatest percentage of demand. The FY 2007 operating and capital costs of the target county's provider were used to establish costs in counties without transit service to meet the target county's level of service and also to establish additional costs to expand service by the peer group's transit providers to meet the target county's level of service. The six target county providers' operating costs were estimated at $13,886,584 with capital costs estimated at $32,220,000. Costs to establish transit to meet target levels of service in unserved counties would be estimated at $3,210,621 operating and $9,681,527 capital. To expand service to meet target levels in counties with current service would require estimated costs of $14,341,017 operating and $30,050,241 capital. To meet target levels for unserved counties and served counties would require estimated costs of $17,551,639 operating and $39,731,768 for a total cost of $57,283,407.

5.6 Summary of Transit Needs

Total estimated demand for West Virginia's 55 counties is 21.72 million trips. Currently 6.22 million of these trips are provided by West Virginia transit providers funded by the Section 5307, 5310, or 5311 programs. Existing transit services satisfy approximately 26.5 percent of estimated demand, resulting in a deficit of approximately 16 million trips.



Rail Assessment

Section 6. Rail Assessment

This section outlines the various rail passenger services currently in operation in West Virginia, including intercity rail, commuter rail, and various tourist railroads. The routes, levels of service, stations, ridership parking, and transit connections of these rail services are described. The future demand analysis and proposed expansion of these rail services are also discussed.

Amtrak and MARC currently provide passenger rail services within West Virginia. Tourist rail lines are also available for scenic excursions.

No service expansions or new rail services are planned through the 2031 horizon. Aside from parking expansions at Harpers Ferry and Martinsburg, existing stations are adequate to meet the needs of increasing ridership.

6.1 Rail Passenger Services

6.1.1 Amtrak

Amtrak, also known as the National Railroad Passenger Corporation, is a government-owned corporation that operates passenger rail service throughout the country serving 46 states, the District of Columbia, and three Canadian provinces traversing about 21,000 route miles. It is an intercity passenger rail service, carrying more than 70,000 people on up to 315 trains each day. Amtrak services that cater to the State of West Virginia are the Capitol Limited and the Cardinal. These services are not supported by West Virginia state funding.

6.1.1.1 Capitol Limited

The Capitol Limited is considered part of Amtrak's long-distance service. To be categorized as long-distance service by Amtrak, a route needs to be more than 750 miles long, and each train on the route has to have sleeper cars and a dining car. The Capitol Limited meets all of the qualifications for a long-distance service. It is one of the two routes connecting Washington, DC to Chicago, and runs 764 miles via Cleveland, OH.

The route crosses into West Virginia in the very northwest corner of the state, known as the "northern panhandle." There are two stations in West Virginia served by the Capitol Limited – Harpers Ferry and Martinsburg. The City of Martinsburg owns the Martinsburg station, and the United States National Park Service owns the Harpers Ferry station. Figure 6-1 shows the route of the Amtrak Capitol Limited.

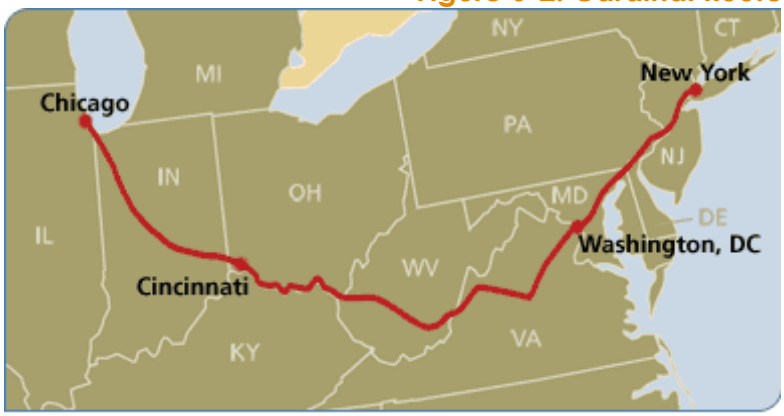
Figure 6-1: Capitol Limited Route

Source: Amtrak

6.1.1.2 Cardinal

The Cardinal is also part of Amtrak's long-distance service. The route runs between New York City and Chicago via Washington, DC and Cincinnati, OH. The route is 1,147–miles-long and travels across the lower southern third of West Virginia. The Cardinal serves eight stations within the state – White Sulphur Springs, Alderson, Hinton, Prince, Thurmond, Montgomery, Charleston, and Huntington. Figure 6-2 below shows the route of Amtrak's *Cardinal* service.

Figure 6-2: Cardinal Route



Source: Amtrak

A detailed ownership picture for the eight Amtrak stations, including station structure, parking facilities, and platforms on the *Cardinal* route is provided in Table 6-1.

Table 6-1: Station Ownership on the Amtrak Cardinal Route

Station Name	Station Structure Owner	Parking Owner	Platform Owner
Alderson, WV	City of Alderson (1)	City of Alderson (1)	CSX
Charleston, WV	Susan Lee Haddad	Susan Lee Haddad	CSX
Harpers Ferry, WV	National Park Service	National Park Service	CSX (4)
Hinton, WV	CSX	CSX	CSX
Huntington, WV	CSX	CSX	CSX
Montgomery, WV	N/A (2)	Montgomery Parking Authority	CSX
Martinsburg, WV	City of Martinsburg	City of Martinsburg	CSX
Prince, WV	CSX	CSX	CSX
Thurmond, WV	National Park Service	National Park Service	CSX
White Sulphur Springs, WV	Old White Development Company/CSX (3)	Old White Development Company/CSX (3)	CSX

Source: Amtrak

Notes:
(1) Pursuant to information provided by CSX this station was sold to the City in December 2004.
(2) There is no structure; station consists of a platform only.
(3) Ownership information could not be confirmed with the Office of the Tax Assessor for Greenbrier County, WV absent parcel ID#.
(4) West Virginia State Rail Authority maintains CSX owned platforms and tracks under contract with CSX.

6.1.1.3 Level of Service

Capitol Limited: Trains run once daily seven days per week in both directions. Westbound trains leave Washington, DC's Union Station at 4:05 p.m. (Eastern) every day with stops at Harpers Ferry at 5:16 p.m. (Eastern) and Martinsburg at 5:45 p.m. (Eastern). Eastbound trains leave Chicago's Union Station at 7:05 p.m. (Central) and arrive the following day at Martinsburg at 11:20 a.m. (Eastern) and Harpers Ferry at 11:45 a.m. (Eastern).

Cardinal: Three trains per week run on this route. Westbound departures from New York City's Penn Station are in the morning on Wednesdays, Fridays, and Sundays with all eight West Virginia stations served in the evening (5 p.m. through 9:35 p.m. Eastern) on the same day as departure. Eastbound departures from Chicago's Union Station are in the evening on Tuesdays, Thursdays, and Saturdays with all eight West Virginia stations served in the morning the next day (Wednesdays, Fridays, and Sundays from 7:09 a.m. through 11:25 a.m. Eastern).

6.1.1.4 Stations: Parking, Transit Connections and Ridership by Station

The following tables describe the 10 Amtrak stations in West Virginia:

- Parking capacity per station - Table 6-2
- Transit connections to stations - Table 6-3
- Ridership/station boardings - Table 6-4 and Table 6-5

Table 6-2: Stations – Parking Capacity

Code	Station Name	Staffed	Parking	Parking Attendant	Parking Short-Term Spaces	Parking Long-Term Spaces	Parking Location	Parking Rate	Additional Parking Rate
ALD	Alderson	N	Y	N	10	10	Adjacent to Station in open lot	Short-term and Long-term parking is free for passengers	
CHW	Charleston	Y	Y	N	3	5	Adjacent to the station	Short-term and Long-term parking free to Amtrak passengers	Limited Long-term parking spaces at Station
HFY	Harpers Ferry	N	Y	N	5	120	Adjacent to station in open lot	Short-term and Long-term parking free for Amtrak passengers	
HIN	Hinton	N	Y	N	5	5	Adjacent to Station in open lot	Short-term and Long-term parking is free for passengers	
HUN	Huntington	Y	Y	N	31	5	Adjacent to station in well-lighted lot	Short-term and Long-term parking free to Amtrak passengers	
MNG	Montgomery	N	Y	N	50	50	Adjacent to train boarding platform	Short-term and Long-term parking free for Amtrak passengers	
MRB	Martinsburg	N	Y	N	5	40	Adjacent to station	Short-term parking free for passenger pick-up/drop-off	Long-term parking permit $1 a day, $12 for a calendar month
PRC	Prince	Y	Y	N	30	30	Adjacent to station in open lot	Short-term and Long-term parking is free for passengers	
THN	Thurmond	N	Y	N	5	5	Adjacent to station in open lot	Short-term and Long-term parking free for Amtrak passengers	
WSS	White Sulphur Springs	N	Y	N	20	200	Adjacent to Station in open lot	Short-term and Long-term parking is free for passengers	

Source: Amtrak

Table 6-3: Stations – Transit Connections

Code	Station Name	Bus Name	Airport Name	Public Transit Name	Commuter Rail Name	Taxi Name_1	Taxi Name_2	Taxi Name_3	Taxi Name_4
ALD	Alderson	Bus Service Not Available	Greenbrier Valley Airport	None		No local cab service	Jones Taxi Service		
CHW	Charleston	Greyhound Bus Company	Yeager Airport	Kanawha Regional Transit		C and H Taxi Company	Kanawha Valley Cab Company	Mountaineer Limo Service	Hickory Limousine
HFY	Harpers Ferry		Martinsburg Municipal Airport		Maryland Area Regional Commuter (MARC) rail	Community Taxi Company	Cam's Taxi Service	Luxury Transport of Charles Town	
HIN	Hinton	No service available	Raleigh Memorial			Hinton Cab Company	AAA Taxi, Inc	City Cab Company	
HUN	Huntington	Greyhound	Tri-State Airport	Tri-State Transit Authority		Yellow Cab Company	Express Cab Company		
MNG	Montgomery	Greyhound	Kanawha Airport	Kanawha Regional Transit		City Cab Company			
MRB	Martinsburg		Martinsburg Municipal Airport		Maryland Area Regional Commuter (MARC) rail	Harley McCain Taxi Service	E. G. Limo Service		
PRC	Prince	Greyhound	Raleigh Memorial			AAA Taxi, Inc	City Cab Company	Ambassador Auto & Taxi	
THN	Thurmond	Greyhound	Raleigh Memorial			Checker Cab Company	Oak Hill Taxi Company		
WSS	White Sulphur Springs	Greyhound	Greenbrier Valley Airport			Greenbrier Valley Limousine	Greenbrier Valley Limo	Jones Taxi Service	

Source: Amtrak

Table 6-4: Ridership per Station Boardings by Financial Year

CODE	Station	Train Service	Total FY07 Ridership (Ons-Offs)	Total FY08 Ridership (Ons-Offs)	2030 Growth Ridership* (Ons-Offs)
ALD	Alderson	Flag	475	550	831
CHW	Charleston	Regular	8,608	9,178	15,067
HFY	Harpers Ferry	Regular	3,315	3,967	5,802
HIN	Hinton	Regular	705	0,162	15,236
HUN	Huntington	Regular	11,080	12,610	19,393
MRB	Martinsburg	Regular	5,910	7,068	10,344
MNG	Montgomery	Regular	733	886	1,283
PRC	Prince	Regular	3,247	3,495	5,683
THN	Thurmond	Flag	372	405	651
WSS	White Sulphur Springs	Regular	3,762	4,896	6,585

*2.7 percent annual growth assumed
Source: Amtrak

Anderson and Thurmond are flag stops, which means that there are trains stop at these stations only if there are passengers waiting at the platforms. All other stops are regular stops - the trains always stop regardless of the presence of waiting passengers.

Table 6-5: Riders per Station Boardings by Calendar Year

CODE	Station	2003	2004	2005	2006	2007	2008
		Riders On and Off	Riders On and Off	Riders On and Off	Riders On and Off	Riders On and Off	Riders On and Off
ALD	Alderson	1	51	564	504	408	570
CHW	Charleston	8,780	8,284	7,514	8,399	8,857	8,314
HFY	Harpers Ferry*	3,170	2,902	2,907	3,396	3,476	3,897
HIN	Hinton	10,479	10,971	2,915	8,476	10,090	10,159
HUN	Huntington	13,567	13,690	13,138	10,718	12,357	12,145
MRB	Martinsburg*	5,269	5,397	5,706	6,310	5,932	6,514
MNG	Montgomery	769	817	768	728	779	753
PRC	Prince	3,259	3,496	3,280	2,990	3,327	3,329
THN	Thurmond	251	223	247	237	358	382
WSS	White Sulphur Springs	6,163	4,098	4,231	4,210	3,896	4,420

*On and off boardings at Harpers Ferry and Martinsburg listed above is for Amtrak only, no MARC rail ridership is included. Source: Amtrak

6.1.1.5 Amtrak Thruway Bus Routes

There are currently no Amtrak Thruway bus routes serving any Amtrak station in West Virginia. At other locations, Amtrak Thruway buses connect with Amtrak trains and take passengers to off-line destinations.

6.1.2 MARC

MARC (Maryland Area Regional Commuter train) is a regional rail system comprising of three lines in the Baltimore-Washington Metropolitan Area serving Washington, DC, various northern Virginia

suburbs, Baltimore and Maryland suburbs, and West Virginia suburbs. MARC is administered by the Maryland Transit Administration (MTA).

MARC is a commuter rail system that operates trains on weekdays, with no weekend or holiday service. Generally, commuter rail passenger trips are typically 20 miles long or more. Typical commuter rail station spacing is about every five to seven miles. Commuter trains link city centers and outer suburbs and towns or other locations/activity centers that draw large numbers of commuters. For the most part in the United States, commuter rail services operate in part or entirely on tracks owned by freight railroads. The MARC line that serves West Virginia, the Brunswick Line, runs between Washington, DC and Martinsburg. The Brunswick Line is part of a CSX rail line. Train service on this line is offered during morning and evening rush hours only. MARC operations on the Brunswick Line are not supported by West Virginia state funding.

6.1.2.1 Brunswick Line

The Brunswick Line is the second most ridden MARC line, having an average daily ridership of approximately 7,000 commuters. The Brunswick Line is operated under contract with CSX. Brunswick Line trains travel over the CSX Metropolitan, Old Main Line, and Cumberland Subdivision tracks. Brunswick Line stops in West Virginia are at Martinsburg (terminus), Duffields (no station building), and Harpers Ferry. Duffields is a standalone MARC stop, while the Martinsburg and Harpers Ferry stations are jointly served by MARC and Amtrak. Figure 6-3 shows the stations in West Virginia and Maryland served by MARC.

Figure 6-3: Stations in West Virginia Served by MARC

Source: Department of Transportation Maryland Transit Administration

The Martinsburg station is owned by the City of Martinsburg, and the Harpers Ferry station structure is owned by the United States National Park Service. The Duffields property is owned by the State of West Virginia.

6.1.2.2 Level of Service

MARC service operates on weekdays, with no weekend or holiday service. There are two daily trains inbound every weekday morning leaving Martinsburg at 5:25 a.m. and 6:30 a.m. and arriving at Washington, DC's Union Station at 7:28 a.m. and 8:30 a.m., respectively.

There are three daily outbound trains leaving Washington, DC's Union Station bound for Martinsburg. These trains depart Union Station at 4:55 p.m., 5:35 p.m., and 7:15 p.m. and arrive in Martinsburg at 6:50 p.m., 7:41 p.m., and 9:14 p.m., respectively.

6.1.2.3 Stations – Parking

Amtrak estimates of available parking at Martinsburg and Harpers Ferry, appearing on Table 6-2, differ slightly from MARC estimates. MARC's Director of Transit Operations Initiatives lists Harpers Ferry with 98 parking spots and Martinsburg with 81 official parking spaces in two lots. The MARC figure for Martinsburg was confirmed as accurate by Bill Hill of the West Virginia State Rail Authority, but the number of parking spaces he cited for Harpers Ferry was 88. As do Amtrak passengers, MARC riders must pay for parking at Martinsburg. Harpers Ferry parking is free. Even though MARC lists Duffields with 295 spaces, according to Mr. Hill, the station only has a total of 199 parking spots, which are free. For reference, the Maryland Transit Administration provides station parking information (parking space numbers differ for Duffields and Harpers Ferry with the numbers the State of West Virginia has for the two stations) on its web site under the MARC link. The details are shown in Table 6-6.

Table 6-6: MARC Brunswick Line Stations in West Virginia

MARC Station	Location	Lot Owner	Parking Spaces	Cost	Connecting Services
Martinsburg, WV	226 E. Martin Street Martinsburg, WV 25401	City of Martinsburg	81	$12 for monthly permit/metered	Amtrak, EPTA Blue & Red
Duffields, WV	5057 Flowing Springs Road, Duffields, WV 25414	CSX/WV	295	Free	none
Harpers Ferry, WV	120 Potomac Street Harper's Ferry WV 25425	WV Rail	98	Free	Amtrak, EPTA Orange

Source: Maryland Transit Administration

6.1.2.4 Stations – Transit Connections

Transit connections for Martinsburg and Harpers Ferry were listed previously in the Amtrak section. In addition to the data provided by Amtrak, the MTA's web site has additional information on connecting services as shown in Table 6-6. The Martinsburg and Harpers Ferry stations are served by the Eastern Panhandle Transit Authority (EPTA). PanTran, the ground transportation arm of the EPTA, provides service to the Eastern Panhandle of West Virginia serving the two stations. The PanTran Blue and Red route buses stop at the Martinsburg station, and PanTran Orange buses pick and drop-off passengers at Harpers Ferry. A search of the City of Duffields' web site did not indicate any transit connections at the Duffields MARC stop.

6.1.2.5 Ridership per Station Boardings

According to MARC's Director of Transit Operations Initiatives, for the 12-month period between November 2007 and October 2008, MARC counted 225 average weekday boardings at Martinsburg, 183 at Duffields, and 138 at Harpers Ferry.

6.1.3 Tourist Railroads

A typical tourist railroad operation consists of a short train ride through a scenic or historic part of the country. Tourist railways operate on tracks of all gauges, sometimes using rolling stock dating from the 19th century. Track lengths carry steam locomotives, diesel engines, coaches, railcars, gang cars, etc. Tourist railroads typically are either a for-profit business or are operated as non-profits for historical preservation purposes. The different tourist railroads operational in West Virginia are:

- Cass Scenic Railroad
- Durbin & Greenbrier Valley Railroad
- Mountain State New River Gorge Mystery Train
- New River Train
- Potomac Eagle Scenic Railroad

The summaries below discuss level of service, service characteristics, and other relevant information for the tourist railroads. Basic information for all these railroads was gathered from various sources. Ridership information and other detail were requested from the railroads. As of January 2009, only Cass Scenic Railroad has responded. In some cases information is missing and there is more detail for some railroads and less detail for others, depending on what can be found on railroad web sites. Thus, there is a significant variance of information presented for the tourist railroads.

6.1.3.1 Cass Scenic Railroad

Three scenic routes originate in Cass and head to destinations in Whittaker, Bald Knob, and Spruce, all of which are in Pochahontas County. Trips to Whittaker generally operate t twice on weekdays at noon and at 2:30 p.m. On weekends they operate thrice starting at 9:30 a.m. Trips to Bald Knob are generally available five to six times a week at 11:30 a.m. Trips to Spruce run every Friday at 11:30 a.m. These trains run approximately from Memorial Day weekend in May through the end of October and average about three trips everyday – two trips to Whittaker and one trip to either Bald Knob or Spruce. For the year 2008, the annual ridership for all the three routes including weekends and special events amounted to more than 50,000 passengers.

6.1.3.2 Durbin & Greenbrier Valley Railroad

The Durbin & Greenbrier Valley Railroad, also in Pocahontas County, operates four trains departing from different towns and small cities along their routes. The New Tygart Flyer trips culminate at the High Falls of Cheat waterfalls. There are 4-hour or 7-hour trips from Elkins Station or from Belington Station to High Falls of Cheat for an all day trip. The schedule varies per season and runs mostly during weekends.

The Durbin Rocket leaves from Durbin and travels through the Monongahela National Forest along the Greenbrier River. Trips run from Thursday through Sunday or on weekends depending on the season. The Cheat Mountain Salamander train travels through the Cheat Mountains. Trips run on Friday and Saturday from May to November. The Mountain Explorer includes a 4-course meal and travels through the Monongahela National Forest to the High Falls of Cheat. The train departs at 5:00 p.m. from the Elkins Depot every Friday and Saturday during the traditional (summer and early fall) tourist season.

6.1.3.3 Mountain State New River Gorge Mystery Train

This railroad serves West Virginia's New River Gorge National River Recreation Area and Virginia's Shenandoah National Park. This scenic train route originates passenger service in Huntington, Charleston, or Beckley and operates all year round. There are three different year-round trips that travel to/from West Virginia. The Mountain State Mystery Train originates in Huntington, Charleston, or Beckley and services various scenic destinations or major festivals in West Virginia for day trips, overnighters, or weekends. The Ohio River Mystery Train and the Blue Ridge-Shenandoah Mystery Train originate in

Cincinnati, OH and Washington, DC respectively and travel through West Virginia for day trips, overnighters, and/or weekends.

6.1.3.4 New River Train

New River Train travels through the New River Gorge in southern West Virginia. Rail trips occur during peak autumn foliage time when the train traverses the former Chesapeake & Ohio (C&O) mainline from Huntington to Hinton. Trips depart at 8:30 a.m. from the Huntington C&O Depot with stops in St. Albans and Montgomery, giving passengers the option of three boarding locations.

6.1.3.5 Potomac Eagle Scenic Railroad

The South Branch Valley Railroad (SBVR) comprises a 52.4-mile route from Petersburg to Green Spring where it links to the CSX (freight) mainline connecting Cumberland, MD to Martinsburg. The SBVR generally parallels the South Branch of the Potomac River, from which the railroad takes its name. The railroad covers the West Virginia landscape along the South Branch of the Potomac River. Crossing Hampshire, Hardy, and Grant counties, the SBVR serves the Towns of Romney, Moorefield, and Petersburg. The railroad is headquartered in Moorefield and is owned and operated by the West Virginia State Rail Authority. All-day trains depart from Romney at 9:00 a.m., travel south to Moorefield and Petersburg, and return to Romney at approximately 5:00 p.m.

6.2 Future Demand

6.2.1 Amtrak

No specific ridership growth particular to West Virginia boardings was singled out by Mr. Galloway of Amtrak. He did say that on average, growth for the Amtrak system on the whole is about two percent per year. Amtrak growth projections shown in Table 6-4 assumed an optimistic annual growth rate of 2.7 percent per year for West Virginia boardings. Amtrak did not provide any detail on how future demand may be affected by the recession or the elasticity of energy prices.

6.2.2 MARC

No future ridership projections have been made specifically for West Virginia stations other than the 3 percent annual ridership growth assumed for MARC service on the whole. MARC did not provide any detail on how future demand may be affected by the recession or the elasticity of energy prices.

No new service to West Virginia stations is planned for the short- or long-term future. MARC has a $60 million budget deficit that must be cut out of the $200 million long-term capital budget. This massive budget deficit means that no new rail equipment will be bought until FY 2014, and even then West Virginia service will be a low priority. Because the state of West Virginia does not contribute any funding to MARC or subsidize MARC financially in any way, service to West Virginia is a lower priority. The primary obligation for MARC is to the tax-payers of the state of Maryland and, thus, West Virginia is not in a good position to get increased service unless it has funds to contribute.

MARC was seriously looking at cutting the third and last evening train from Washington, DC to Martinsville (train #P833 leaving DC at 7:15 p.m.) due to a lack of funding. However, in a deal brokered between MARC and the West Virginia State Rail Authority, it was agreed that fares from all three MARC stations located within West Virginia would go up $2 per one-way fare to Washington, DC beginning in February 2009. This fare increase will raise operating revenue for MARC and allow the agency to continue running the third night train from Washington, DC to Martinsburg for the time being. No

timetable was set between MARC and the West Virginia State Rail Authority as to how long the $2 fare increase will allow MARC to continue to run the third and last evening train from Washington, DC to Martinsville.

6.3 Service Expansion

6.3.1 Amtrak

Amtrak's FY2008 Comprehensive Business Plan does not specifically mention service improvements to the routes serving West Virginia. The report mentions implementing a strategy to enhance connectivity and improve ridership and revenue to the long distance operations that the *Capitol Limited* and *Cardinal* are part of. Some of the operating initiatives improvements mentioned are to help increase ridership on existing routes but mentions nothing specific regarding the routes that serve West Virginia.

6.3.1.1 National Amtrak Service Improvements

Some of the general expenditures in terms of service improvements mentioned in the report are:

- Fleet investments to focus on improving availability and reliability. This will eventually support maintenance as well as improve customer satisfaction.
- Upgrade of the service's information systems. The priority is to focus on Amtrak's Strategic Asset Management (SAM) project integrating financial, supply chain, material, and asset management (linear, fixed, and rolling stock) business processes and information.

These investments are planned by Amtrak nationwide, and therefore it can be inferred that the service lines through West Virginia will also see some improvements.

6.3.1.2 Amtrak Station and Parking Needs

Research gathered on existing parking facilities and station infrastructure at the Amtrak stations serving West Virginia has not indicated any need for immediate improvements, apart from Martinsburg and Harpers Ferry (see discussion of MARC parking needs). Any substantial increase in ridership on both the services would require revisiting parking needs in the long-term future. Even so, as mentioned earlier, the estimated annual growth of West Virginia patronage on Amtrak is 2.7 percent, and thus it is not likely that there will be a major need for additional parking in the near term.

6.3.2 MARC

6.3.2.1 MARC Station and Parking Needs

Table 6-7 details capital expenditures for the three MARC stations and related parking lots in the past few years. No new additional funding is slated for further capital improvements at this time.

Table 6-7: State Rail Authority Expenditures for MARC Stations in Past Years

EXPENSE DESCRIPTION	AMOUNT
Lease For Commons Area & Ticket Agent Room at Martinsburg	$ 11,250.00
Land Lease Paid To CSX For All Locations	$ 3,400.00
Duffields Snow Removal & Utilities	$ 18,000.00
Harpers Ferry Snow Removal & Utilities	$ 12,000.00
Total Yearly Expenses	$ 44,650.00

EXPENSE DESCRIPTION	AMOUNT
DUFFIELDS PARKING LOT EXPANSION	
2004 - Purchased Additional 2 Acres at Duffields	$ 45,000.00
2006 - Excavation To Expand Parking at Duffields	$ 25,384.00
2007 - Paving And Striping Of Additional Parking	$ 26,544.00
2008 - Final Paving Costs	$ 5,214.00
Total Spent To Double Parking Capacity Of Duffields	$ 102,142.00
HARPERS FERRY -UPGRADES – PHASE I	
2007- Tunnel Renovation/Rewiring/New Light Fixtures	$ 83,328.00
2008 - Platform Lights Installed	$ 15,506.00
Total Phase I Upgrades	$ 98,834.00

The next planned phase for Harpers Ferry is to use a Transportation Enhancement Grant that the SRA was awarded to renovate the underpass shelters and platforms. The shelters will be renovated to match the historical appearance of the depot. The platforms will be ADA compliant when complete. The grant is an 80/20 match in the amount of $289,700 making the total of the project estimated at $362,125.
The final phase of renovations at the Harpers Ferry Station will consist of making the entire location ADA compliant. This will involve redesign of the underground passage. At this time no final decision has been made on what is the most logical and economical way to proceed. Department of Highway engineers are working with MARC, Amtrak, and CSXT to come up with designs that will be suitable for all parties. Numerous ideas have been discussed including ramps, elevators, and chair lifts. Since no decision has been made on how to proceed, no cost estimate is available for this phase at this time.

Surveillance cameras will be installed at Duffields. Approximate cost for installation is $50,000 with a monthly expense of $1,500.

Duffields station has adequate parking for years to come, but Martinsburg and Harpers Ferry have constrained parking currently and will need additional parking as ridership slowly grows throughout future years.

6.3.2.2 Other Needs

No funding has been identified for upgraded passenger service within West Virginia. Similarly, no proposed projects related to passenger rail in West Virginia are on the drawing board for the federal economic stimulus infrastructure package.

If funding becomes available, the West Virginia State Rail Authority would like to see the Martinsburg layover facility expanded to hold more than two trains and possibly relocate the current facility to a location outside of Martinsburg to rectify the noise problems associated with idling trains. In the original Intermodal Surface Transportation Efficiency Act (ISTEA) federal transportation bill, Federal West Virginia Senator Robert Byrd successfully earmarked $15 million for an extensive upgrade of the CSX signaling system serving the MARC Brunswick Line and for the capital construction of the original Martinsburg layover facility.

6.3.3 Other Potential Rail Service Expansion

6.3.3.1 High-Speed Rail Initiatives

High-speed rail is a type of passenger rail transport that operates significantly faster than the normal speed of rail traffic. According to the United States Federal Railroad Administration (FRA), high-speed is defined as any speed above 90 mph (145 km/h) but there is no single standard, and lower speeds can be required by local constraints. Amtrak's *Acela* in the northeastern portion of the U.S. travels from 125 to 150 mph and is considered the only legitimate high-speed rail in the nation. Research indicated that there are no high-speed rail initiatives currently planned for the short-term or long-term future (10 to 25 years out) that would serve the state of West Virginia.

Magnetic Levitation (Maglev) trains fall under the category of high-speed rail. Maglev is a system of transportation that suspends, guides, and (usually) propels vehicles (predominantly trains) using magnetic forces. This method has the potential to be faster, quieter, and smoother than wheeled transportation systems. Research indicated that there are no Maglev initiatives currently planned that would serve the State of West Virginia. There are two Maglev initiatives in neighboring jurisdictions (Pennsylvania, Maryland, and Washington, DC) that are in the planning stages. However, according to the web sites for the Pennsylvania High Speed Maglev Project and the Baltimore-Washington Maglev Project, neither project has any current or future plans to serve the State of West Virginia.

6.3.3.2 Commuter Rail Initiatives

As explained earlier, commuter rail service is a passenger rail transport service linking suburban communities to employment and other activity centers on a daily basis. Research indicated that there are no commuter rail initiatives (other than MARC service described in the previous section) for the short-term or long-term future (10 to 25 years out) that would serve the State of West Virginia.

6.3.3.3 Light Rail Transit Initiatives

Light rail transit (LRT**)** is a form of urban rail public transportation that generally has higher capacity and higher speed than street-running tram systems, but lower capacity and lower speed than either heavy rail subway systems or commuter rail systems. LRT systems can share right of way with motor vehicles as well as operate in separate guideways. They typically exist along urban corridors with dense residential and commercial land uses. The systems are normally electrified, but at least two diesel powered light rail system exists in the U.S. (New Jersey Transit's River Line and North County Transit District's Sprinter in suburban San Diego County). Train lengths are typically two or three cars long. A typical LRT stopping pattern is every few blocks in dense downtown urban areas to every few miles in more suburban settings.

Research indicated that there are no light rail transit initiatives for the short-term or long-term future (10-25 years out) that would serve the State of West Virginia. The Port Authority of Alleghany County in Pittsburgh, PA has a light rail system (known as the "T") that serves Pittsburgh's downtown core and some of the suburbs within Pennsylvania. However, according to the Port Authority Planning Department, there are no plans in the short-term or long-term to extend any of the current five T lines into West Virginia. In fact, the five T lines span a total of 25 miles combined within the Pittsburgh metro area, while the closest West Virginia suburbs to Pittsburgh are to the west a great distance away. For example, Weirton, WV is 36.4 miles from downtown Pittsburgh, and Wheeling, WV is 59.2 miles from downtown Pittsburg. In very general terms, a representative construction cost for a new LRT line could be around $50-$100 million per mile. Given such potential costs, it appears unlikely financially that the Port Authority would extend the T light rail service to West Virginia.

6.4 Future Needs Assessment

As mentioned earlier commuter rail and light rail service originates/terminates in large downtown areas. Commuter rail connects these large downtown areas with suburban communities. On the other hand, light rail is an urban transit system best deployed on corridors dense with residential and commercial land uses. Both commuter rail and light rail services work well for big cities with congested roadways.

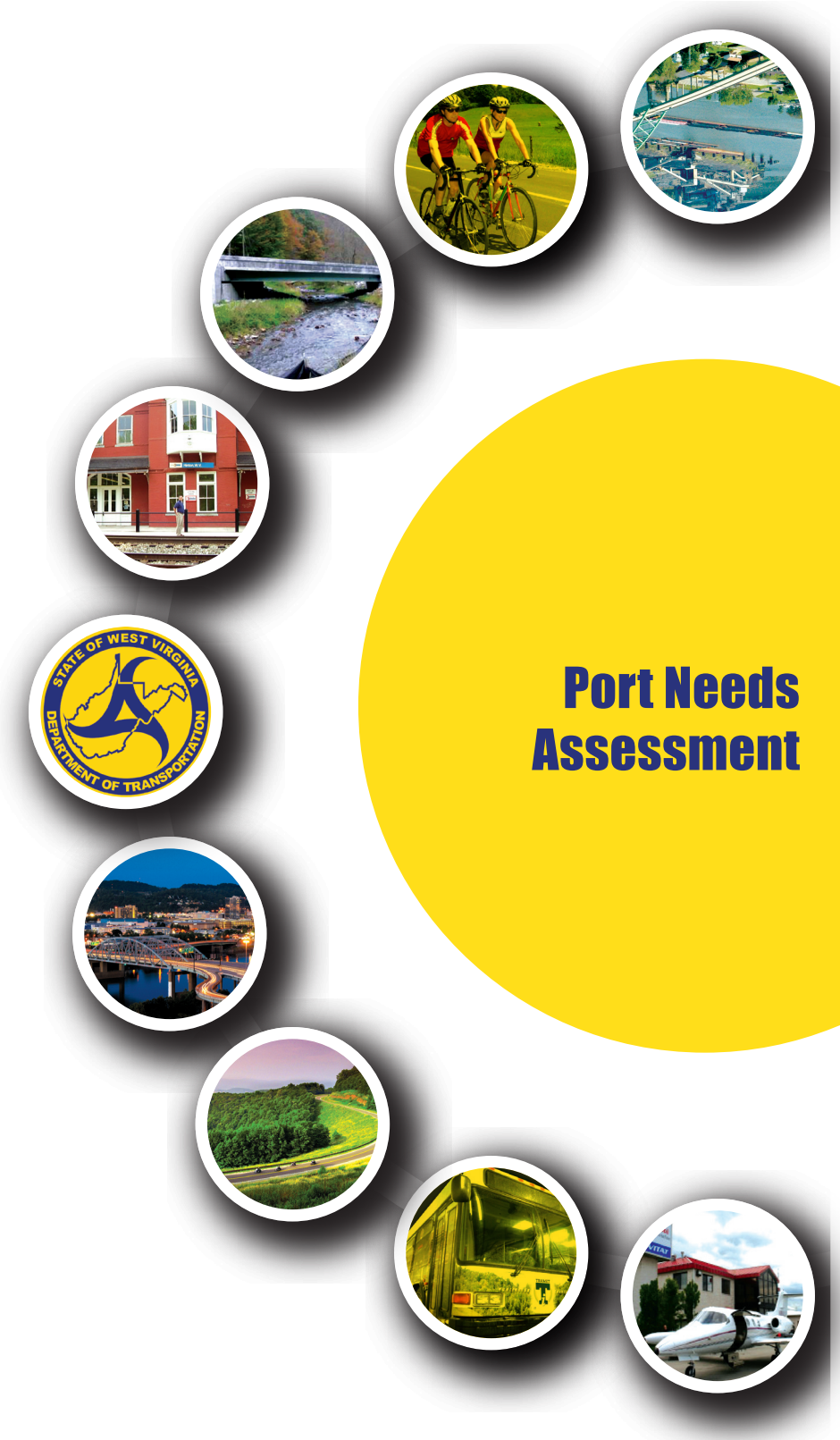
The U.S. Census indicates that the total population in some of the bigger cities in West Virginia has been declining the past 15 years, especially in Charleston and Huntington as shown in Table 6-8. While Martinsburg's population has risen, it is still comparatively light. Accordingly, there appears to be no likely or practical candidate region for commuter or light right investments in West Virginia for the foreseeable future.

Table 6-8: West Virginia Cities Population

Name	Status	1990	2000	2007
Charleston	City	57,287	53,484	50,478
Huntington	City	54,844	51,560	48,982
Martinsburg	City	14,073	14,915	16,450

Source: U.S. Census Bureau

West Virginia received a share of the $8 billion in national rail funds included in the $787 billion stimulus program approved by Congress in February of 2009. The state will receive a portion of $6 million dollars designated for high-speed and intercity passenger rail planning studies in Alabama, Colorado, Delaware, Georgia, Iowa, Kansas, New Mexico, Vermont, and West Virginia.



Port Needs Assessment

Section 7. Port Needs Assessment

7.1 Multi-Modal Transportation

The stated mission of the West Virginia Public Port Authority (WVPPA) is as follows,

"….to develop the potential of intermodalism by combining highway, rail, and water transportation infrastructure to maximize overall economic advantages to business, industry, and the citizens of West Virginia."

Intermodalism is an important element of the WVPPA mission statements. The agency's projects help to facilitate the transfer of freight between highway, rail, and water transportation. Existing multi-modal facilities in West Virginia are discussed in this Section, along with trade and West Virginia logistics, as are overall trends across the nation and region.

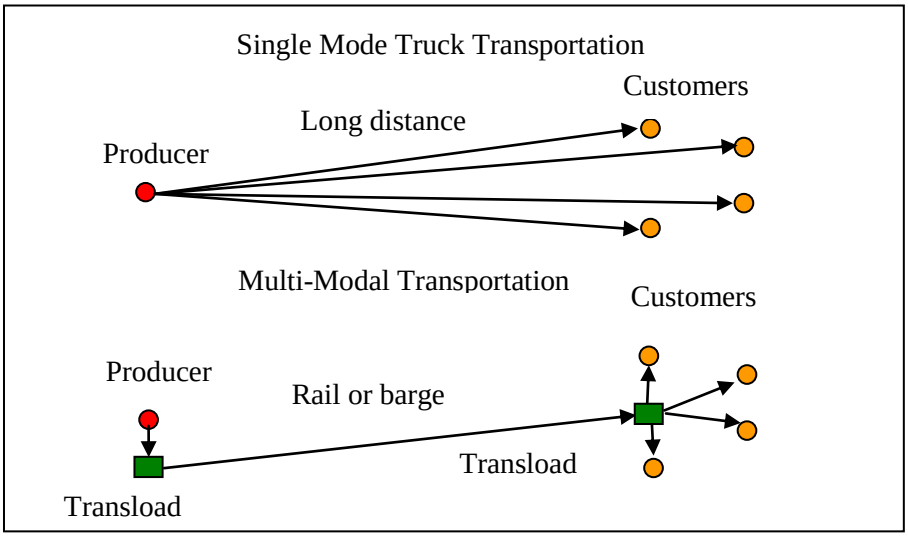
Multi-modal facilities provide a number of benefits to West Virginians. Among these are the following:

1. *Reduced shipper costs. Shippers can use less costly transportation alternatives without receiving direct service.*
2. *Economic development. Companies often locate in close proximity to multi-modal facilities in order to take advantage of the transportation savings they provide, thus bringing jobs to local economies.*
3. *Congestion reduction/fuel savings. Because multimodal facilities make alternatives to trucking viable, they help to reduce highway congestion.*

7.1.1 Single Mode versus Multi-Modal Moves

Generally, multi-modal moves involve a hub and spoke system, where truck transportation provides local pick-up and delivery with a more efficient long haul mode providing the long distance intercity service. Rail and barge are both less costly than trucking, with barge providing the least costly alternative. Figure 7-1 illustrates the single mode transportation and multi-modal transportation operating models. WVPPA facilities provide the hub, where the transfer to lower cost transportation modes takes place. A multi-modal facility will have a catchment area where local shippers bring freight to the facility to ship longer distances. Multi-modal facilities sometimes include areas where shippers can consolidate or store freight.

Figure 7-1: Comparison of Single Mode to Multi-Modal Transportation Moves



Multi-modal moves are generally categorized as non-containerized and containerized. For the purposes of this study, the term "intermodal" will refer to containerized transportation. The term "transload facility" will refer to locations where non-containerized commodities are transferred between modes.

7.1.2 Benefits of Multi-Modal Transportation

Multi-modal facilities provide a number of benefits to West Virginians. Among these are the following:

1. **Reduced shipper costs.** Shippers can use less costly transportation alternatives without receiving direct service. For example a shipper that is not directly on the water or directly rail-served can still use less expensive rail and barge transportation through the multi-modal facility. The shipper will want to balance the line haul cost savings against the additional cost of transferring freight between modes, as well as the cost of bringing freight to and from the transload facilities. The added time required to use the multi-modal facility will also be a factor. The transportation savings will help West Virginia shippers to compete on national and global markets.
2. **Economic development.** Companies often locate in close proximity to multi-modal facilities in order to take advantage of the transportation savings they provide, thus bringing jobs to local economies. Multi-modal facilities are often accompanied by distribution and warehousing developments. One frequently cited example is the Virginia Inland Port container terminal, which was constructed in a relatively remote location in Front Royal, VA. A number of companies have located near Front Royal to take advantage of the facility. For example, Home Depot, Family Dollar, Ford Motor Company, H.D. Hood, and a subsidiary of SYSCO moved into the area. The terminal has provided economic benefits to the area far in excess of the 17 employees that the terminal employs.
3. **Congestion reduction/fuel savings.** Because multimodal facilities make alternatives to trucking viable, they help to reduce highway congestion. Barge and rail modes are also more fuel efficient than trucking, so fuel savings and environmental benefits accrue.

7.2 Overall WVPPA Facility Needs

It is impossible to calculate an overall demand for WVPPA facilities, since each facility provides a unique value proposition. Generally, the demand for facilities is a function of the following:

- Freight flows into and out of the area
- Services that the facility provides
- Presence of competing facilities
- Transportation service to and from the facility
- Highway access

Containerized transportation will continue to be and will become more important to West Virginia shippers. West Virginia currently lacks rail intermodal terminals.

7.2.1 Operating Model

For most WVPPA facilities, it is assumed that the agency would own the property, leasing the facility to an operator who would manage the facility on a day-to-day basis. Potential operating models will be discussed in greater detail along with the needs assessments for individual terminals.

7.2.2 Criteria for Assessing Specific Facilities

This section of the report assesses the need for WVPPA proposed facilities based upon the following criteria.

- **Potential benefit to West Virginia shippers/substitutability.** Does the proposed facility offer West Virginia potential users benefits that could not be otherwise obtained from existing or potential private facilities?
- **Potential demand for the site.** Do previous reports, data gathered for this report, interviews with stakeholders suggest significant demand for the facility?
- **Suitability of location.** Is the physical location of the proposed facility appropriate for its intended functions? Would an alternate site offer a less expensive or more effective alternative? What investment and modifications would be required to prepare the site for its intended usage? Does the site integrate well with West Virginia's transportation networks? Would potential users find access to the site to be easy?

It is beyond the scope of this report to present a complete feasibility study for each location. However, preliminary evaluations are presented. In particular, this study addresses three proposed facilities:

- Prichard intermodal terminal
- Point Pleasant Depot
- Logistics facilities on land owned by Weirton Steel in Weirton, WV

7.3 Prichard Intermodal Terminal

The proposed Prichard intermodal terminal is a component of the Heartland Corridor project. The Heartland Corridor project is a public/private initiative that will provide Norfolk Southern (NS) with a direct route to operate double stack intermodal trains between Norfolk, VA and Chicago, IL through Roanoke, VA, southern West Virginia, and Columbus, OH. The Heartland Corridor project also includes plans to provide additional intermodal terminal capacity at Roanoke, and Columbus, as well as Prichard, WV. The Prichard location was initially identified in the *Central Corridor Double-Stack Initiative Feasibility Analysis* performed by the Nick J. Rahall, II, Appalachian Transportation Institute.[1]

Subsequently, the West Virginia legislature passed Senate Bill 659 requiring the West Virginia Public Port Authority to conduct a study relating to the feasibility of the proposed Prichard intermodal terminal. DMJM Harris prepared this report in September 2007.[2]

The Prichard intermodal facility would provide a location for the transferring of containers between truck and NS intermodal trains. Intermodal train service would be provided on the NS to Norfolk and to Chicago. Once at Chicago, containers could be transferred to western rail carriers for delivery to West Coast ports.

7.3.1 Benefits to West Virginia Shippers

Of the proposed WVPPA facilities, the Prichard facility offers the greatest potential benefits to West Virginia shippers. It represents a unique opportunity as access to the intermodal rail network is more limited than other rail services. Unlike rail carload operations where shippers receive service right at their facilities or at numerous common terminals, intermodal container terminals are limited in number. By limiting the number of terminals and operating over a limited designated network, railroads can control

[1] *Nick J. Rahall, II, Appalachian Transportation Institute, Central Corridor Double-Stack Initiative Final Report, February 2003.*
[2] *DMJM Harris/AECOM, Final Report: Economic and Market Analysis for an Inland Intermodal Port, September 2007.*

the cost and provide better service. NS and CSX operate intermodal terminals in 54 metropolitan areas across the eastern United States. Currently, there are no intermodal terminals in West Virginia, but there are at least seven carload transfer facilities, with NS planning another transload operation near Nitro. Figure 7-2 and Figure 7-3 show the intermodal networks of both NS and CSX, respectively.

Figure 7-2: NS Intermodal Network

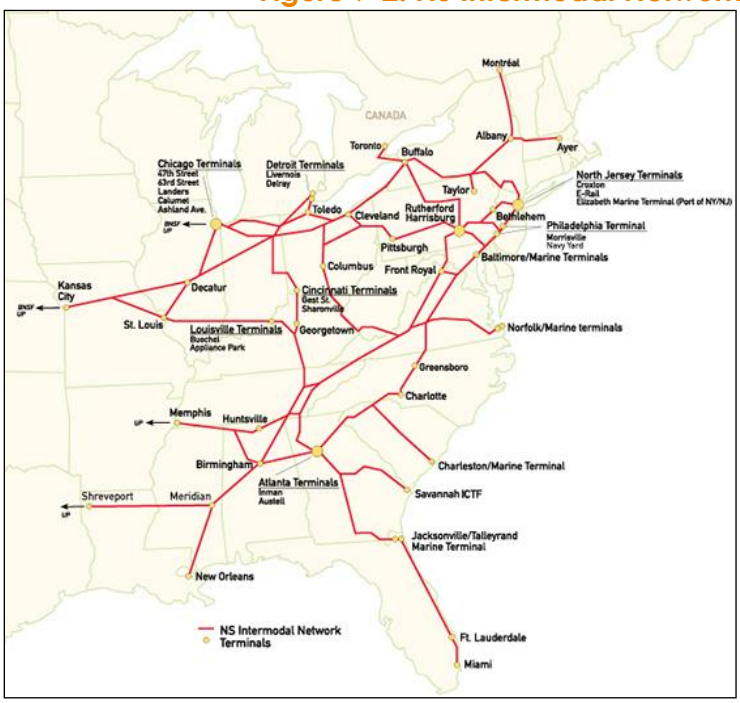
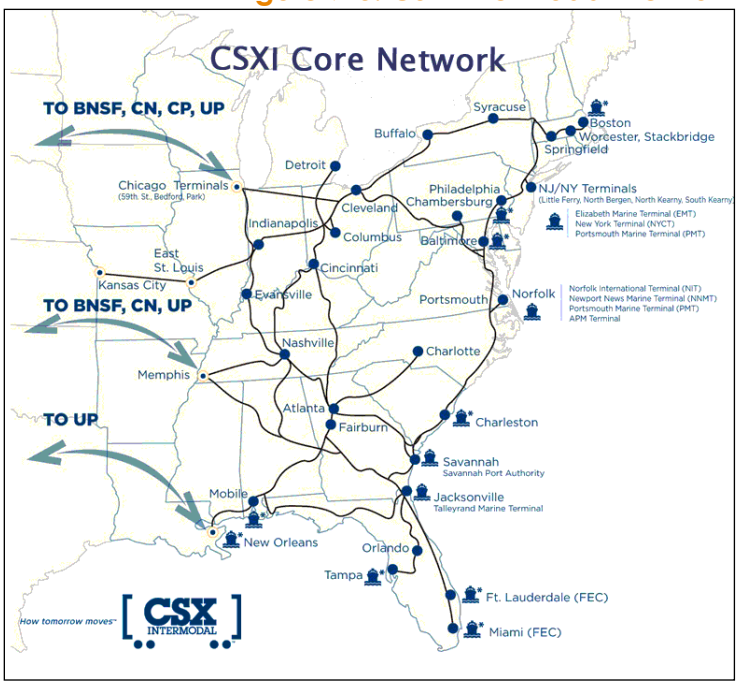


Figure 7-3: CSX Intermodal Network



Prichard is well situated to support transportation markets within southwestern West Virginia, southeastern Ohio, and northeastern Kentucky. Cabell, Putnam, Kanawha, and Jackson counties have some of the highest manufacturing employment in the state, and the Prichard terminal is conveniently located to serve the needs of these counties. In terms of inbound consumer goods, many of the counties with the highest population and retail/wholesale employment are roughly along the I-64 corridor as it passes through southern West Virginia. Prichard would be readily accessible to these markets.

Interviews with shippers suggest significant demand for the proposed intermodal facility in Prichard. An NS representative indicated that Prichard will primarily support international trade. This would include, not only international shipments arriving in Norfolk, but also international shipments that originate on the West Coast and are interchanged with NS in Chicago. Prichard could offer shippers significant cost savings of between $500 and $900 per container. These savings could have a significant impact on the competitiveness of West Virginia shippers. Absent the Prichard intermodal terminal, a shipper in Huntington would need to find some other way to eliminate the cost differential to maintain the same delivered cost.[3]

Norfolk Southern also indicated that the company is committed to the Prichard terminal and will definitely serve it were the facility eventually built. NS agrees to serve the terminal with three trains per week in each direction, i.e. three to Chicago and three to Norfolk. Once the terminal generates over 30,000 lifts, NS will serve the terminal with five trains per week in each direction.

7.3.2 Potential Demand for the Facility

The primary focus of the Prichard terminal would be international trade, either through the Port of Norfolk or a West Coast port and being interchanged to the NS at Chicago. The local market area of the Prichard would be bounded by competing intermodal terminals. Discussions with NS suggested that a traffic volume of 15,000 – 30,000 containers in the first several years of operation would be a reasonable estimate of the terminal activity.[4] Once the area is established as an intermodal center, it is likely that businesses would relocate to the area, and traffic volumes would be higher.

The WVPPA has also developed a database of 109 West Virginia shippers that currently export or import products through Norfolk. These companies would likely use the Prichard facility if service and rates met their requirements. The industries that appeared most frequently in the database are listed in Table 7-1.

Table 7-1: Most Frequent Industries of West Virginia Shippers that Use Port of Norfolk

Industries	Companies
Chemicals/Plastics	17
Metal Products	12
Machinery	10
Mineral Products	10
Wholesale	8
Retail	6
Lumber and Wood Products	5
Instruments	3
Transportation Equipment	3

[3] *If the Roanoke intermodal terminal is built, some shippers may also lower costs by using the Roanoke terminal instead of draying containers to Norfolk.*

[4] *A "lift" refers to a lift onto or off of a railcar. Lifts include not only transfers of containers in revenue service, but also empty containers.*

Several previous studies have estimated the likely usage of the Prichard facility. Economists with the Nick J. Rahall Appalachian Institute in 2003 prepared the *Central Corridor Double-Stack Initiative* report. The study predicted first year Prichard traffic volume of 11,626 containers.

The *Economic and Market Analysis for an Inland Intermodal Port* prepared by DMJM Harris in September 2007 first defined Prichard's catchment area as those counties within a 100 mile radius of Wayne County, WV. The study estimated that the expected volume of traffic into and out of the Prichard terminal would be 45,000 lifts per year.

The terminal would be expected to handle between 15,000 and 45,000 lifts per year.

7.3.3 Suitability of the Prichard Location

Prichard was selected after an evaluation of numerous competing locations conducted by the Appalachian Regional Commission, the Federal Highway Administration, the Ohio Rail Development Commission, the Commonwealths of Kentucky and Virginia, and the State of West Virginia, as well as Norfolk Southern Corporation. The *Central Corridor Double-Stack Initiative* study prepared by the Nick J. Rahall Appalachian Transportation Institute in February 2003 cited several benefits of the Prichard site, including:

- Current NS ownership of much of the property, which NS has agreed to donate
- Easy roll-through access to mainline trackage of the NS Pocahontas Division
- Close proximity to Interstate 64 and U.S. 52
- Limited number of proximate residential structures

Later, the 2007 DMJM Harris report evaluated Prichard against six alternate sites along the Heartland Corridor. While DMJM described the analysis as "cursory," the Prichard site was found to be more desirable than the other sites evaluated, which included sites in Kenova, Catlettsburg, Hammonds Bottom, Mingo County, McDowell County, and Bluefield.

The Prichard facility would be located 13 miles south of I-64 and is accessed by U.S. 52, currently a 2-lane road. U.S. 52 is a coal truck route with no bridge restrictions. It is planned that U.S. 52 will be upgraded to four lanes through Prichard. The construction of the additional lanes is currently unfunded. U.S. 23, a 4-lane road, is across the Big Sandy River from Prichard in Kentucky. The Prichard terminal will be built with a roadway ramp that could potentially be extended over the river to connect with U.S. 23 in the future.

Originally estimating the construction cost of the Prichard facility to be $18 million, NS currently estimates the cost of constructing Prichard to be in the neighborhood of $22.3 million.[5] The 2007 DMJM Harris report presented a much higher estimate of $42.6 million for the original NS-proposed concept and $30.4 million for a facility with an alternative design. According to the DMJM Harris report, areas of the site will need to be filled with approximately 8-20 feet of material to raise it above the 100-year floodplain. This will require moving 500,000 cubic yards of fill, based upon the NS plan. Fortunately, a source of fill dirt is located nearby from the realignment of U.S. Route 52.

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[5] *Norfolk Southern at Association of State Highway and Transportation Officials, Standing Committee on Water Transportation, 30th Annual Meeting, Norfolk, VA, April 11, 2006.*
Jeff Heller of Norfolk Southern Corporation "East Meets West" at HRMA Maritime Symposium, May 12, 2005.
Robert E. Martinez of Norfolk Southern Corporation, "NS and Public Private Partnerships: The Heartland Corridor & the Crescent Corridor," Northwestern University, October 2007.

7.3.4 Operating Model for the Prichard Facility

NS and the WVPPA have not established a formal business relationship yet. In a letter, NS has indicated that it would deed the land for the Prichard facility to the State of West Virginia, and provide a $9 million construction loan to be paid over five years. NS has also indicated that it would pay for signaling into and out of the facility. In terms of how the facility would operate on a day-to-day basis, multiple alternatives are possible. Most likely, WVPPA would own and operate the Prichard facility through a third-party operator.

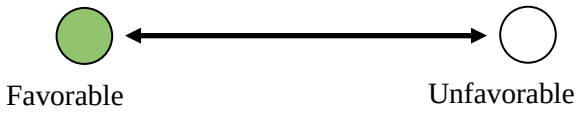
On a strategic and tactical level, NS and the WVPPA will need to establish a system by which capital improvements to the terminal would be planned, approved, and funded. As owner of the facility, the WVPPA would ensure and maintain liability for the facility.

7.3.5 Prichard Facility Conclusions

Prichard represents a unique opportunity to improve West Virginia's connection to national and international markets. Currently, no intermodal terminals are located within West Virginia. Interviews with shippers reveal that import and export containers must often be trucked to Norfolk or Chicago. The ability to substitute rail would benefit West Virginia shippers. Without public participation, it is unlikely that the terminal would be built. Evaluation criteria for the Prichard facility are summarized in Table 7-2.

Table 7-2: Prichard Facility Evaluation

Criteria	Rating	Comments
Benefits/Availability of Private Substitutes	●	Currently no access to rail intermodal network within West Virginia. Public/private partnership is necessary. Private shipper could not replicate. Interviews with shippers suggest a compelling business case.
Size of Potential Market	●	Prichard would be a relatively small intermodal terminal, but projected volumes would render the site feasible. NS has expressed a commitment to serve and support the site, and Class 1 railroad support is crucial.
Suitability of Site	●	Located on the Heartland Corridor. Site has been vetted and compared to other sites. Site has reasonable highway access, few residential structures in the area, close to West Virginia manufacturing and population centers.



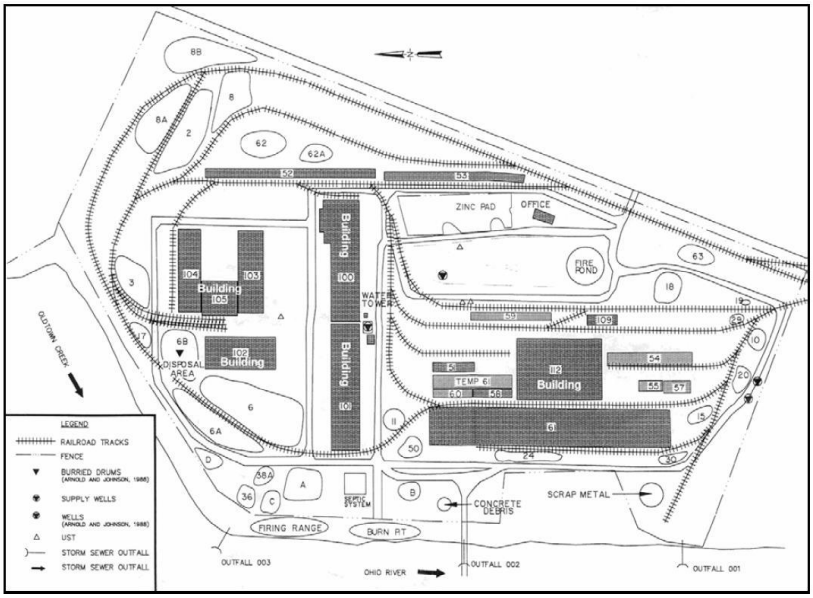
7.4 Point Pleasant Facility

The U.S. General Services Administration (GSA) announced a "notice of surplus determination" for the Point Pleasant facility on April 24, 2008. The WVPPA would like to convert the Depot to a civilian logistics facility. The depot is located north of the town of Point Pleasant, WV in Mason County on the east bank of the Ohio River.

7.4.1 Layout of Point Pleasant

The Depot occupies about 85 acres. It has about 183,000 square feet of outside storage space and 171,000 square feet of warehousing space. A portion of the outside storage space is still being used by the U.S. Department of Defense (DOD), and piles of materials will not be removed until about 2012. The Depot contains 29 buildings, including eight storage warehouses. As shown in Figure 7-4 the site includes direct access to the CSX line, which is part of CSX's Ohio Subdivision. It is equipped with well water and private septic system. The Depot is secure, with fencing along the perimeter and a single gatehouse at the entrance. The DOD has performed a Site Investigation of the Depot as part of the Defense National Stockpile Center's Installation Restoration Program. The Site Investigation found that there are "no immediate threats to human health or the environment."

Figure 7-4: Layout of Point Pleasant Facility from Defense Logistics Agency Site Investigation



In addition, the owner of a 30-acre plot of land adjacent and to the south of the depot has indicated a willingness to donate the property to the WVPPA. It is currently owned by Amherst Industries of Charleston and Henderson, WV. This facility has a river pier that could be used to provide barge transload operations in conjunction with a logistics center next door at the former Point Pleasant Depot. The facility has been identified as an environmentally impacted site.[6] The current owner has conducted monitoring and remediation efforts, but the site is still considered a brownfield.

WVPPA proposes that the Point Pleasant site can be converted to a logistics center where private shippers can store and transfer product between truck and rail. The acquisition of the adjacent Point Pleasant Marine property will expand the capabilities to include transloading to barge as well. It is hoped that the

[6] *The U.S. Army Corps of Engineers (USACE) in 2006 was considering locations where the Corps could dispose of excavated material associated with the Marmet Lock Replacement. The Corps considered and rejected the Point Pleasant Marine site because, "the scope of work that would be necessary under the Comprehensive Response Compensation and Liability Act guidance to insure that the Corps would not incur liability would be so extensive as to make disposal at the site for this action infeasible." (USACE Draft Environmental Assessment, Marmet Lock Replacement Value Engineering Change Proposal #23, Off-Site Disposal)*

U.S. government will donate the Depot property to the State of West Virginia as a way to spur local economic development and help the area to replace the employment that is lost by the Depot's closing.

7.4.2 Benefits to West Virginia Shippers

The proposed Point Pleasant logistics facility would benefit West Virginia shippers. Shipper interviews revealed significant support for the proposed facility in Point Pleasant. Several nearby shippers indicated that they would be interested in a truck-rail transload capability at Point Pleasant. Independently, the WVPPA has also received significant interest in the site. Lowe's Home Improvement is exploring the possibility of establishing transload operations at the facility, the West Virginia Army National Guard is interested in using the facility, and the West Virginia Department of Highways is interested in the facility to store salt. The greatest virtue of the Point Pleasant Depot is that much of the infrastructure is already in place. As a former military depot, it would be relatively inexpensive to convert to civilian logistics usage. The Point Pleasant facility would benefit from WVPPA involvement. First, a public-private partnership with WVPPA involvement would reduce the risk to an operator, thus accelerating its development. With no other facility in the region, development in the near future would benefit the region. Second, it eliminates the possibility that Point Pleasant could be sold as a private facility eliminating open access to shippers.

7.4.3 Point Pleasant Facility Demand Considerations

To identify the potential market for the Point Pleasant facility, it is useful to first understand the transload marketplace. The experience of TRANSFLO, one of the largest rail/truck transload service providers in the country, is instructive to the likely marketing of a Point Pleasant facility. TRANSFLO specializes in transferring bulk commodities between truck and rail. TRANSFLO customers are shippers that would like to use rail transportation but do not have direct rail access.

According to a representative from TRANSFLO, the market radius for facilities tends to be about 50 miles, although customers occasionally truck product much farther. In targeting new locations for transload facilities, the company targets areas with a large concentration of potential customers. The average location loads or unloads about 1,200 railcars per year. Shipper commitments are required before new locations are developed.

The experience of TRANSFLO has several implications for the Point Pleasant facility. First, there should be reasonable demand for the service within a 50-mile radius of Point Pleasant. Second, Point Pleasant would need to provide value added services beyond truck-rail transloading. The additional cost to deliver and pick-up rail cars at Point Pleasant, as well as the ramifications for service could discourage use of Point Pleasant without other capabilities being offered.

The chemical shipper who would like to transfer product between truck and railcar might find it more convenient to use a transload service at a rail yard where rail service is better, such as the TRANSFLO operation in South Charleston. On the other hand, Point Pleasant would offer ground and warehouse storage and may be more desirable to shippers who need both storage, truck/trail, and potentially barge transload.

7.4.4 Point Pleasant Market Analysis

To determine the potential market for a Point Pleasant logistics center, a three step analysis was undertaken:

- Identification of the commodities that would likely be handled at the Point Pleasant facility
- Identification of the market area of the Point Pleasant facility
- Identification and quantification of relevant freight flows to and from the Point Pleasant market area

7.4.4.1 Commodity Identification

Point Pleasant would likely be dedicated to rail cargoes that are shipped in carload lot sizes (as opposed to unit trains of 80 plus cars) or other cargoes that are shipped by barge. As suggested above, shippers that would use Point Pleasant would want to take advantage of the site's storage capabilities, either for temporary outside storage or warehouse storage.

Table 7-3 displays data from the FHWA, Freight Analysis Framework Version 2 for commodities shipped by rail or rail/truck into and out of West Virginia.

Table 7-3: 2007 Tonnage Shipped Into and Out of West Virginia by Rail

Commodity	Tons	Percentage
Coal	147,740,269	88.3%
Gravel	8,910,820	5.3%
Petroleum/Coal Products	3,230,898	1.9%
Fertilizers	2,087,865	1.2%
Basic chemicals	2,057,619	1.2%
Plastics/rubber	1,050,083	0.6%
Base metals	968,352	0.6%
Natural sands	302,485	0.2%
Wood prods.	218,789	0.1%
Other foodstuffs	159,015	0.1%
Newsprint/paper	134,921	0.1%
Nonmetal min. prods.	103,525	0.1%
Other	353,319	0.2%
Grand Total	167,317,962	100.0%

Not all of these commodities would likely be shipped in carload quantities through Point Pleasant. Coal tends to be shipped in unit train quantities. Chemicals and petroleum products are stored in tanks, which are not available at Point Pleasant. Base metals tend to be shipped from large plants that already have rail access. Each of these product categories was excluded from the Point Pleasant market analysis.

In terms of barge traffic, data from the United States Army Corps of Engineers for the Port of Huntington – Tristate suggests that coal accounts for more than three quarters of river freight tonnage originated or terminated in the Port area, as shown in Table 7-4. Coal combined with petroleum products represents 90 percent of the traffic. Lesser volumes of other bulk commodities also move through the Port terminals.

Table 7-4: 2006 Waterborne Freight Traffic for Port of Huntington - Tristate

Commodity	Tonnage (000s)	% Total
Coal	58,375	76%
Petroleum, Petroleum Products	10,472	14%
Iron Ore	2,263	3%
Limestone	1,905	2%
Chemicals, Related Products	1,519	2%
Sand & Gravel	1,169	2%
Cement & Concrete	464	1%
Other	991	1%
Total	77,158	100%

Of these products, shippers of coal would probably have more convenient options in the Kenova/Huntington area, such as the Big Sandy Terminal in Cyrus, the Coal Network terminal in Kenova, or the Kanawha River Terminal in Ceredo. Furthermore, coal dust could create problems for handling other commodities at Point Pleasant. Petroleum shippers would need storage tanks that are not available at Point Pleasant. These commodities were again excluded from the Point Pleasant market analysis.

The products typically shipped by rail in carload quantities or by barge that are candidates for a Point Pleasant logistics center include:

- Non-metallic minerals
- Metallic ores
- Stone, clay, and glass products
- Lumber and wood products
- Pulp, paper, and allied products

7.4.4.2 Market Area

The local market area for Point Pleasant is assumed to be similar to that of TRANSFLO facilities, i.e. 50 miles. This catchment area would exclude locations that have closer options, such as the Allied Warehouse facilities in Kenova and Nitro, WV. The hinterland market area would therefore include the following counties:

- Jackson, WV
- Mason, WV
- Roane, WV
- Wirt, WV
- Wood, WV
- Athens, OH
- Gallia, OH
- Hocking, OH
- Jackson, OH
- Meigs, OH
- Vinton, OH
- Washington, OH

7.4.4.3 Freight Flow Analysis

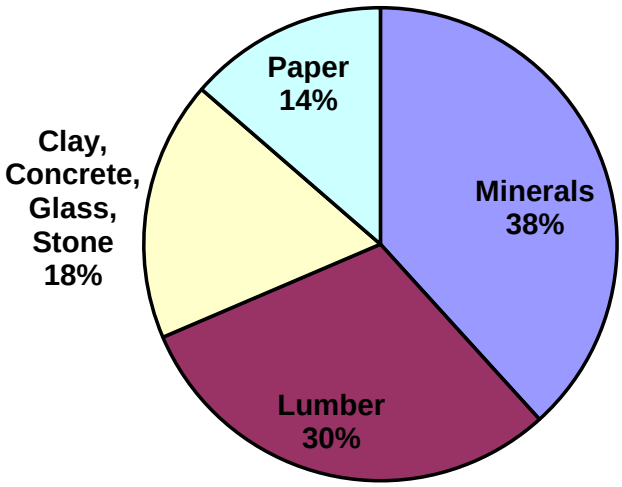
To identify freight flows in which Point Pleasant could participate, relevant freight flows from the Freight Analysis Framework (FAF) were examined. Because the FAF has freight flow information at a state or major metropolitan area level, a methodology was developed to assign traffic flows to counties based on employment data.[7] While the correlation between employment and freight volumes is not always perfect, the approach nevertheless provides valid approximations of county-level freight flows.

In identifying the freight flows, the analysis assumes a potential rail or barge movement greater than 200 miles. Because of the costs associated with transloading, most of the multi-modal moves that will pass through Point Pleasant will be to or from more distant markets.

The analysis sizes the addressable market for Point Pleasant as three million tons of freight to or from the 12 counties. If 10 percent of this volume diverted to Point Pleasant, the volume handled would be about 300,000 tons per year, and at five percent the volume would be about 150,000 tons per year. At about 80 tons per car, this would translate to 3,750 railcars with a 10 percent diversion and 1,875 railcars at a five percent diversion. This compares to about 1,200 carloads handled at the typical TRANSFLO facility. The commodity breakdown of the addressable market is shown in Figure 7-5.

[7] *Krishnan Viswanathan, Daniel Beagan, Vidya Mysore, Nanda Srinivsan, "Disaggregating Freight Analysis Framework Version 2 Data for Florida," Transportation Research Record: Journal of the Transportation Research Board, Washington, DC, 2008, pp. 167-175.*

Figure 7-5: Commodity Distribution, Point Pleasant Addressable Market



The truck traffic that could divert to truck/rail at Point Pleasant represents about 87 percent of the addressable market, while the potential barge market that could divert to Point Pleasant is the remaining 13 percent. The origins and destinations of traffic are relatively dispersed with the top five origin and destination states (and Canada) accounting for a little over half of the inbound and outbound traffic, as shown Figure 7-6 and Figure 7-7.

Figure 7-6: Origins of Inbound Traffic – Point Pleasant Addressable Market

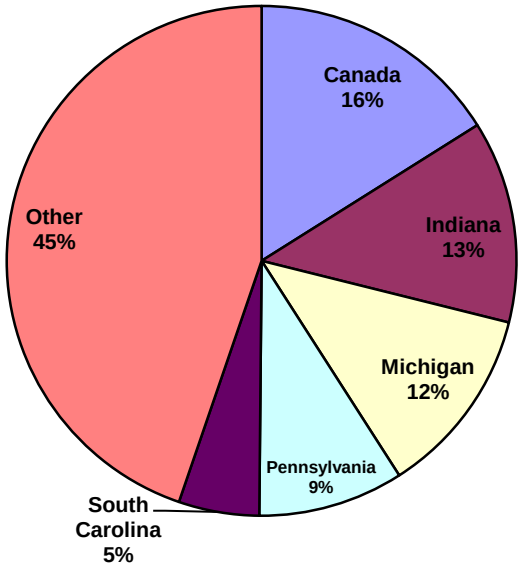
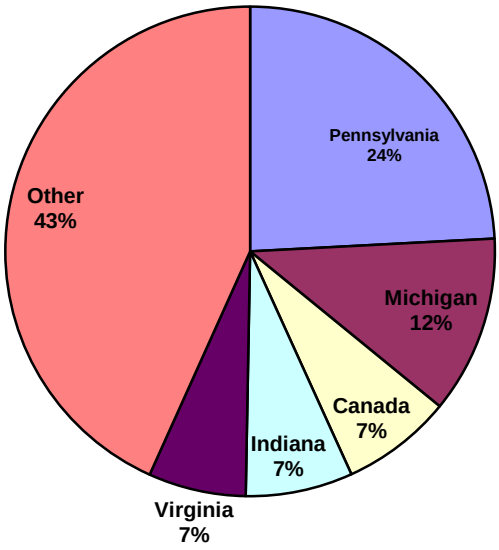


Figure 7-7: Destinations of Outbound Traffic – Point Pleasant Addressable Market



It would be reasonable to expect that the Point Pleasant market would maintain a comparable level of traffic to a TRANSFLO facility, about 1,200 cars or the equivalent of about three percent of the addressable market. Given the interest that the WVPPA has already garnered for the facility, it is very likely that the facility would have a reasonable amount of usage if the U.S. government were to deed the property to West Virginia.

7.4.5 Suitability of the Site

7.4.5.1 Site layout

The site could be used for logistics purposes almost immediately. Included within the site are warehouses, space to store product on cement or directly on the ground, as well as railroad tracks throughout. However, much of the site layout is suboptimal for commercial use. The site would benefit from fewer, bigger structures; fewer, longer, wider areas of railroad tracks; and fewer, larger ground storage areas. 29 buildings are located on the site. All but a few of these buildings would probably be too small to be useful as commercial logistics facilities. Public warehouses tend to be larger structures. Railroad tracks meander throughout the property and do not appear to offer large areas for transloading cars. If the facility were to be used for transload operations, it would be best to establish one or several large areas for the transloading to occur. Much of the existing trackage could probably be taken up. Likewise, the ground storage area could also be rationalized, so that the facility provides fewer, but larger areas.

The cost of modifying the site would, of course, depend upon the extent of transformation. It is estimated that approximately one-fifth of the building space would be inadequate for commercial warehousing. The cost of removing the structures and replacing them with paving is estimated to be about $0.9 million. The cost of constructing 1,000 feet of track and ripping up another 1,000 feet of track is estimated at roughly $190,000.

7.4.5.2 Highway Access

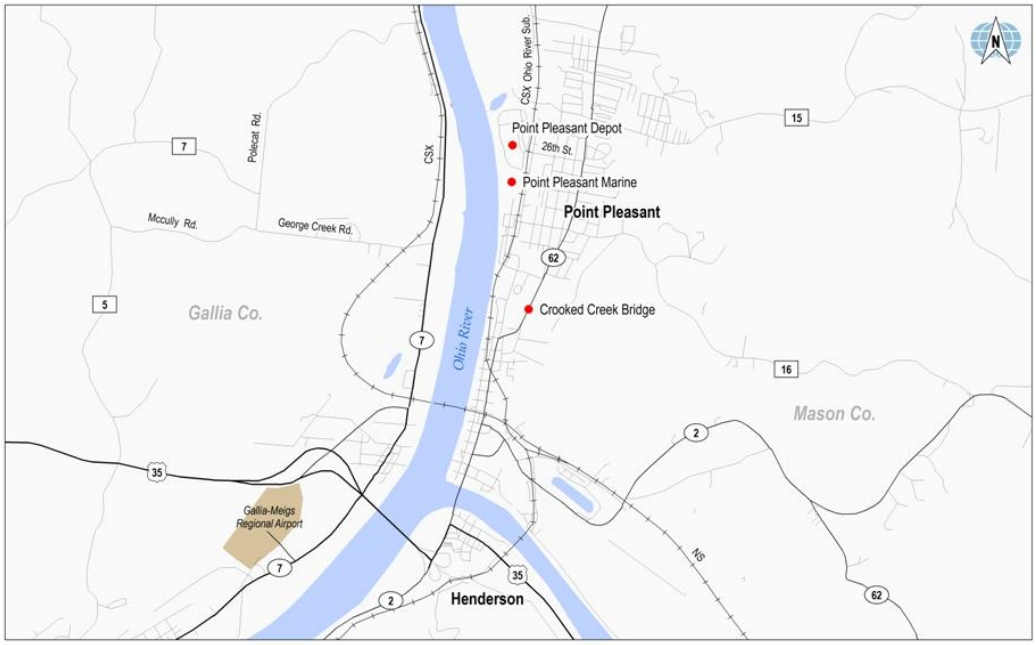
Inadequate highway access is a disadvantage of the Point Pleasant Depot. The facility is accessed by 26th Street, which a local road that passes through five blocks of a residential neighborhood between the Depot and the closest arterial. Twenty-Sixth Street then connects with West Virginia Route 62, a 2-lane road. As

shown in Figure 7-8, to access U.S. 35 to the south, one must travel about three miles on Route 62 through Point Pleasant's commercial district. Posted speed limits are 35 mph, and the road segment includes several traffic lights.

Currently, much of U.S. 35 is two lanes between Point Pleasant and I-64. U.S. 35 is a 4-lane divided highway for several miles east of Point Pleasant and then draws down to two lanes. The West Virginia Department of Transportation has embarked upon a program to reroute and widen U.S. 35 in Putnam and Mason counties. Construction is expected to be completed to a point about 22 miles south of Point Pleasant in 2009.

Route 62 south of the Point Pleasant Depot crosses a posted bridge over Crooked Creek. The weight limits vary by vehicle category, with the highest weight limit applying to tractor-trailers at 40 tons. This should not pose a problem for tractor-trailers accessing Point Pleasant, since 40 tons is the standard weight limit for most roads in the National Highway System. However, restrictions on this bridge could impact trucks with different configurations.

Figure 7-8: Point Pleasant, WV



7.4.5.3 Rail Access

Point Pleasant is located on CSX's Ohio River Subdivision. This rail line is not as heavily used as some other rail lines in the area with annual traffic density between 10 and 20 million gross ton-miles per mile (gross ton-mile refers to the weight of the train, including the cars and locomotive, moving one mile over a rail line). Trains on the Ohio River Subdivision are controlled by manual track warrant control (TWC), instead of the more automated centralized traffic control (CTC). Most of the line is single track, but passing sidings are located at reasonably close intervals permitting the frequent passing of oncoming trains. Through much of the subdivision, train speeds are limited to between 10 and 30 miles per hour. In general, train service along this line will probably not be as fast or as frequent as along the two NS and CSX mainlines that run east-west through West Virginia.

7.4.5.4 Environmental Constraints/Utility Infrastructure

The location is fully equipped with utilities, and environmental considerations should not be an issue.

7.4.5.5 Land Use Compatibility

Residential properties are located immediately across the railroad tracks from the depot. Residents of these properties have already endured the disruptions that might have been caused by the depot for years. However, if activity at the depot increases dramatically, it would have an adverse impact on the adjoining residential area. Land uses to the north and south of the property would not conflict. To the west is the Ohio River.

7.4.6 Operating Model for the Point Pleasant Facility

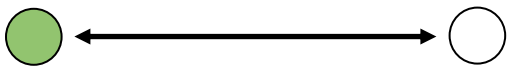
It is anticipated that the Point Pleasant facility would be managed through an intermediary providing the functions of a landlord. The WVPPA could allow multiple operators access to the facility or could allow a single operator to provide all services at the facility. A single operator would need to be able to market and perform a broad range of services, such as warehouse management, bulk storage and transload, and breakbulk storage and transload.

7.4.7 Point Pleasant Conclusions

Unlike the proposed Prichard facility, the Point Pleasant facility would not be unique within West Virginia. Private operators provide similar services in Nitro and Kenova, WV. However, it is unlikely that such a facility would otherwise be built and made available to the public within Mason County. Highway access at Point Pleasant is suboptimal, but the facility is otherwise quite suitable for use as a transportation/logistics center. The site would be inexpensive to adjust to civilian usage. Evaluation criteria for the Point Pleasant facility are summarized in Table 7-5.

Table 7-5: Point Pleasant Facility Evaluation

Criteria	Rating	Comments
Benefits/Availability of Private Substitutes		Overlaps with private facilities in Kenova and Nitro, WV. However, similar facility would probably not otherwise be available in Mason County.
Size of Potential Market		Relatively small market. However, WVPPA has received significant interest in facility, and shipper interviews suggest a role for the facility. Site would handle at least a moderate level of traffic.
Suitability of Site		While highway access to the site may be an issue, the preexisting warehousing and ground storage areas make the site relatively inexpensive to convert to civilian transportation and logistics operations.



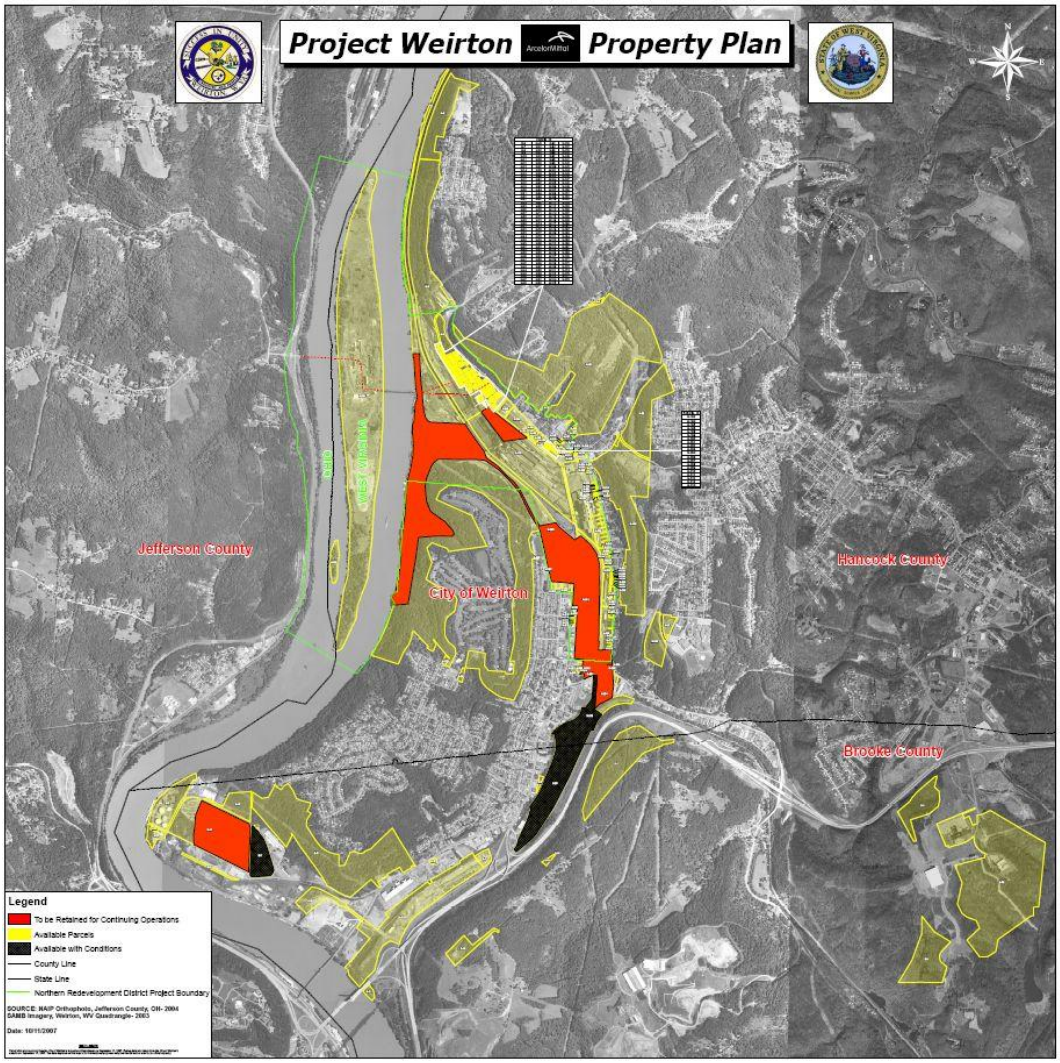
Favorable Unfavorable

7.5 Weirton Steel Property

Much of the operation of the former Weirton Steel plant has been shut down. The Weirton tin mill is the only aspect of the Weirton complex still in operation. The United Steel Workers of America has stipulated that several shuttered facilities be kept standing in the event they could be reopened at some point in the future. Many of the other buildings associated with Weirton Steel have been dismantled or are currently being dismantled. ArcelorMittal, the current owner of the mill, is selling unneeded property, a

total of about 1,600 acres. Figure 7-9 displays the ArcelorMittal property. The parcels in yellow are available for sale and those in black are also available for sale, however, with conditions. ArcelorMittal will retain the parcels in red.

Figure 7-9: ArcelorMittal Properties in Weirton, WV



The WVPPA has proposed that several parcels could be used for logistics and transportation facilities. The property maintains the rail connections that previously served the steel mill. Weirton's location in the northern panhandle of West Virginia puts it within close proximity to the I-70 corridor, one of the busiest freight corridors in the country. Weirton is only 35 miles from Pittsburgh, PA, connected by Route 22, a 4-lane highway.

The CSX National Gateways initiative could have implications for a WVPPA facility in Weirton. The initiative is a public/private partnership that calls for upgrading three existing rail corridors through Maryland, Virginia, North Carolina, Pennsylvania, Ohio, and West Virginia: the I-70/I-76 Corridor between Washington, DC and northwest Ohio through Pittsburgh; the I-95 Corridor between North Carolina and Baltimore via Washington, DC; and the Carolina Corridor between Wilmington and Charlotte. A component of the National Gateways initiative will be a new intermodal terminal just west of Pittsburgh, less than 35 miles from Weirton. Distribution facilities located in Weirton could be served by the new CSX terminal.

The specific functionality of the WVPPA facility to be built in Weirton has not yet been defined. If the WVPPA were to assist in the development of a public terminal, the facility would most likely provide the same services as the Point Pleasant facility. It would provide transload and storage services between truck-rail and barge. Unless the facility provided container on barge services, it would be oriented toward non-containerized cargoes.

7.5.1 Benefits to West Virginia Shippers

The Weirton Ice and Coal Supply Company, owned by Starvaggi Industries, operates logistics-related facilities at the Half Moon Terminal near the ArcelorMittal properties. The company owns a 70-acre barge terminal that can handle up to 72 barges for loading and unloading. The terminal also is served by NS railroad and can handle 20 to 30 cars per day. Starvaggi Industries provides warehousing space and ground storage at several locations within the Weirton area. Plans developed in the late 1990s envisioned a combined public/private usage of the Half Moon Terminal.[8]

It would be important that a WVPPA facility not overlap in functions with the Weirton Ice and Coal Supply Company terminal. Public involvement with freight transportation projects is warranted only when the investment would not otherwise be available from the private sector and the benefits justify the costs. If the WVPPA were to invest in a facility in Weirton, perhaps it could involve Starvaggi with the new facility.

7.5.2 Potential Demand for the Facility

The Weirton facility market analysis followed the same methodology as the Point Pleasant analysis:

- Identify the commodities that would likely be handled at the Weirton facility
- Identify the market area of the Weirton facility
- Quantify relevant freight flows to and from the Weirton market area

The analysis assumes that the public facility in Weirton would not compete with the Half Moon Terminal.

7.5.2.1 Commodity Identification

It is assumed that, like the Point Pleasant facility, a facility in Weirton would handle non-containerized commodities or commodities typically carried by barge. It is assumed that the building of storage tanks could be consistent with the overall level of investment required for the facilities. Therefore, chemical and petroleum products are included with the addressable market. Commodities examined as candidates for a Weirton logistics facility include the following:

- Non-metallic minerals
- Metallic ores
- Stone, clay, and glass products
- Lumber and wood products
- Pulp, paper, and allied products
- Petroleum products
- Chemical products
-

7.5.2.2 Market Area

It is assumed that the market area of a Weirton facility would include counties within a 50 mile radius. The proximity to Pittsburgh and its logistics terminals, however, limits the ability of a Weirton facility to penetrate the geographic area to the east. Due to the competition, the principal market for a Weirton facility would be under-served markets in Ohio and in the West Virginia northern panhandle. The assumed catchment area is as follows:

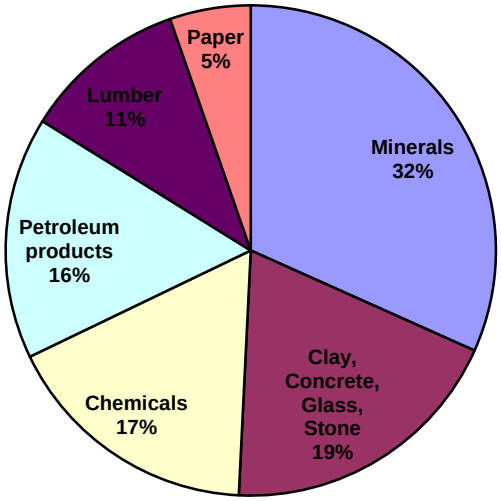
[8] *Jack Fawcett Associates, Master Plan for the Weirton Port and Industrial Centre District, 1997*

- Brooke, WV
- Hancock, WV
- Marshall, WV
- Ohio, WV
- Belmont, OH
- Columbiana, OH
- Guernsey, OH
- Harrison, OH
- Jefferson, OH
- Monroe, OH
- Tuscarawas, OH
- Mahoning, OH

7.5.2.3 Freight Flows

An inventory of the traffic flows of the selected commodities was developed using the FHWA FAF2 database. Flows of interest are those greater than 200 miles from the facility. The analysis revealed that the addressable market for a Weirton facility would be nearly 11.5 million tons of freight per year. Of this, approximately 15 percent is barge traffic that could divert to using the Weirton facility with the remaining 85 percent long-haul truck traffic that could divert to rail through a transload at the Weirton facility. The commodity breakdown of the addressable market is shown in Figure 7-10.

Figure 7-10: Commodity Distribution, Weirton Addressable Market



As shown in Figure 7-11, the largest source of inbound traffic to Weirton would be markets in Kentucky, followed by Michigan, while Figure 7-12 indicates that the largest destination for outbound traffic would be the Cincinnati, OH metropolitan area. This is a very large market. Less than a one percent diversion of the market would produce a traffic volume equivalent to a typical TRANSFLO terminal.

Figure 7-11: Origins of Inbound Traffic – Weirton Addressable Market

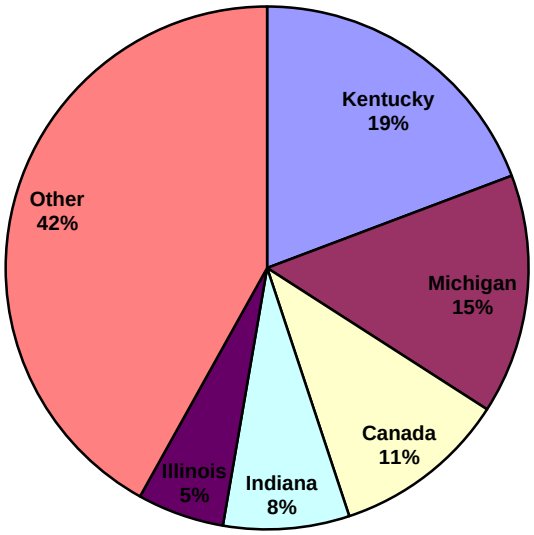
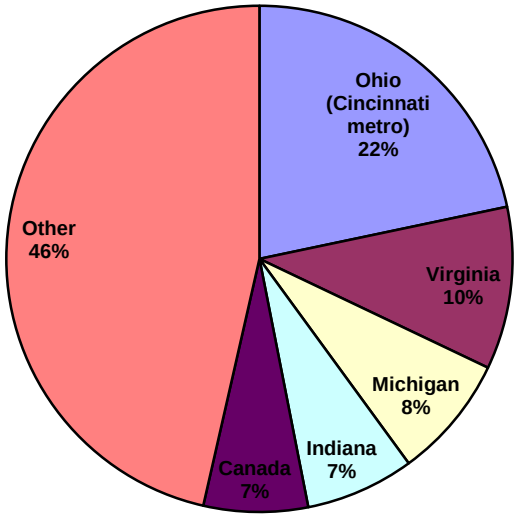


Figure 7-12: Destinations of Outbound Traffic – Weirton Addressable Market



7.5.3 Distribution Facilities

In addition to its role as a modal transfer center, Weirton could also attract distribution centers and public warehouses. Weirton would benefit from its close proximity to the new CSX intermodal container terminal, planned as part of the National Gateways corridor project. Weirton is close to the I-70 corridor, one of the heaviest freight corridors in the country.

If Weirton were to be further assessed for a transportation/distribution hub, it would be worthwhile to do a competitive analysis with nearby areas. For example, Ohio and Marshall Counties, WV and Washington County, PA are closer to I-70. The area around Washington, PA could be particularly promising in terms of highway access due to the intersection of I-79 and I-70. Locations in Beaver and Allegheny counties, PA would be closer to the CSX rail line on which the new intermodal terminal is to be built. On the other hand, suitable sites may not be available in these areas. It is beyond the scope of this study to provide a

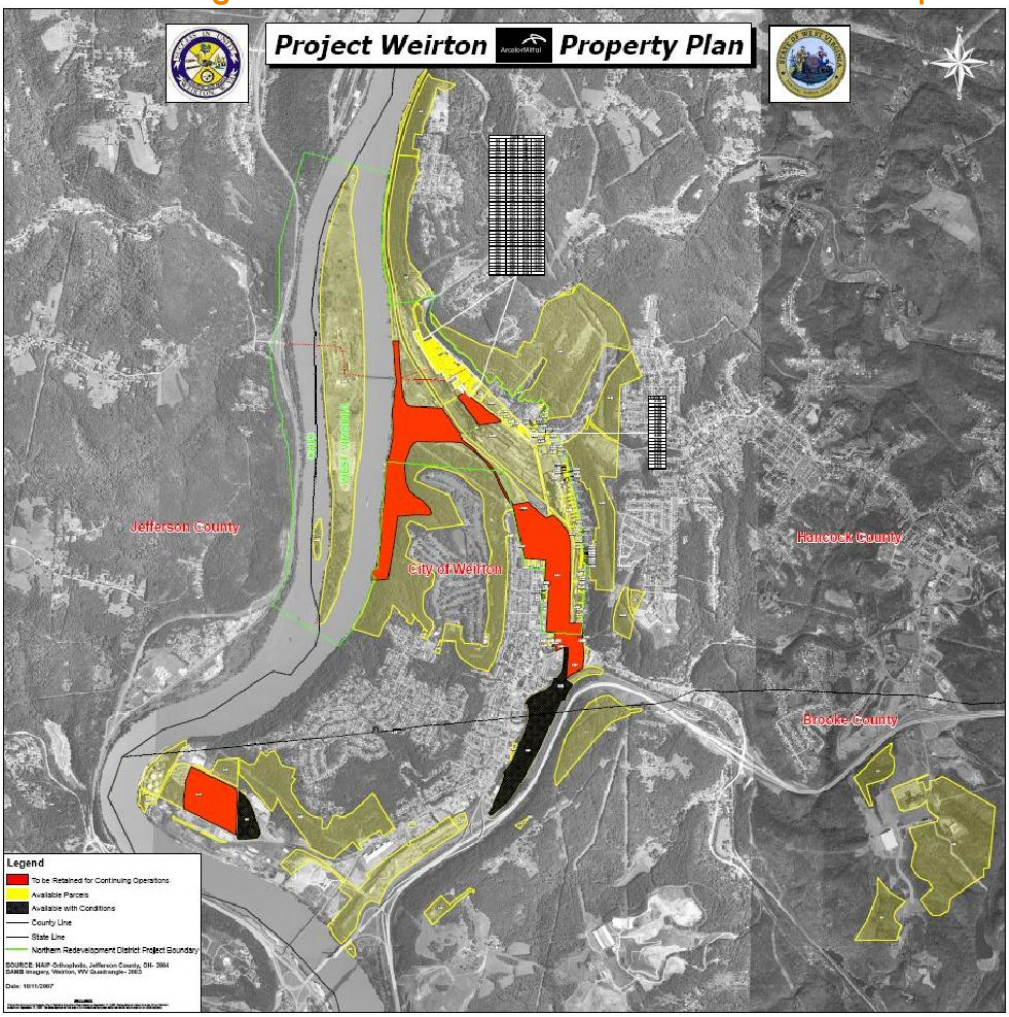
competitive assessment of Weirton against competing locations, but this type of analysis could be useful once a potential Weirton facility is more closely defined.

7.5.4 Suitability of the Site

The ArcelorMittal properties provide a unique opportunity due to the quantity of flat, developable land, much of which is above the base flood elevation (BFE). Much of the property is graded and is situated within close proximity to highway, rail, and water connections. As can be seen from Figure 7-13, the ArcelorMittal properties within Weirton represent not just a single site, but a series of locations. The four primary developable areas are:

- Brown's Island
- The site of the former ArcelorMittal steel mill, across from Brown's Island on the West Virginia side of the Ohio River
- The former rail yard, which is located along the northwest side of Route 22
- The former storage area, which is next to the Starvaggi Industries Half Moon Terminal

Figure 7-13: Buildable Areas within ArcelorMittal Properties



7.5.4.1 Site Layout

A report regarding Brown's Island in 2002 estimated that a total of 822,000 cubic yards of fill would be required to bring all developable tracts on the island above the Base Flood Elevation (BFE).[9] At $8 per cubic yard, this would translate to about $6.6 million in engineered fill, or about $10.4 million in today's prices.[10] A review of U.S. Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) suggests that the former steel mill is entirely above BFE. Much of the storage area is below BFE. The relation of the rail yard to BFE is uncertain, but some areas on the other side of Harmon Creek are below BFE.

7.5.4.2 Highway Access

Highway access could pose issues for building transportation/distribution facilities on some parcels of the ArcelorMittal properties. Route 7 is a 4-lane highway that could provide good connectivity to markets to the north and south, but the road passes on the opposite side of the Ohio River from the ArcelorMittal properties. Route 7 can be accessed across Brown's Island, but at least one of the bridges that connects Brown's Island would need to be replaced. Bridges on both the West Virginia and Ohio sides are owned and maintained by ArcelorMittal. The bridge on the Ohio side connects to Route 7 by a diamond interchange. This is a one lane bridge, which would be inadequate to support the constant traffic into and out of logistics and transportation facilities. According to WVDOT, the bridge is four feet below BFE.

The cost to construct a wider bridge above BFE was estimated to be $5.3 million in 2002 or about $8.4 million in today's prices.[11] The bridge that connects Brown's Island on the West Virginia side is a larger 2-lane structure. It connects to land that ArcelorMittal intends to retain on the West Virginia side of the Ohio River. For the bridge to be used, an arrangement would need to be negotiated with ArcelorMittal regarding ownership of the bridge and easement to cross the company's property.

The site of the former steel mill could also be accessed from Route 22, another 4-lane highway. However, this would involve trucks winding their way through the commercial district of Weirton and over property that ArcelorMittal intends to retain. While it would be feasible, this access would hardly be ideal for a logistics center.

ArcelorMittal is also selling the former Weirton rail yard, which is located along Route 22. Being next to the highway, this property has good road access, although interchanges may need to be improved. Road access to the Storage Area, while not ideal, appears to be better than to the Former Steel Mill or Brown's Island.

7.5.4.3 Rail Access

Brown's Island has no rail access. The site of the former steel mill has rail access, as do the rail yard and the storage area. These locations are served by NS on the Weirton Secondary District. The former Weirton rail yard could represent a good opportunity for a shipper with a need of on-site capability to move rail cars around. The yard is almost three quarters of a mile long and contains six tracks of several lengths. As a condition of the sale, a new owner would be required to grant NS trackage rights through the yard. The Weirton Secondary is a lightly used rail line connecting Weirton, WV to the NS River District, the Wheeling and Lake Erie and the Ohio Central Railroad near Mingo Junction, OH. The former owner of the line, Conrail, abandoned a portion of the line between Burgettstown, PA and Colliers, WV in the 1990s.

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[9] *W. R. Coles and Associates, Physical Facilities Plan for Development of Brown's Island for the Appalachian Transportation Institute, Marshall University, Huntington, West Virginia, March 8, 2002*

[10] *Ibid, prices inflated by Producer Price Index, Highway and Street Construction*

[11] *Ibid.*

7.5.4.4 Environmental Constraints and Utility Infrastructure

The ArcelorMittal site is a brownfield. In 1996, the U.S. Environmental Protection Agency (EPA) ordered Weirton Steel to proceed with a site investigation and cleanup activities under the Resource Conservation and Recovery Act (RCRA). The EPA has divided the area into 12 "Corrective Action Areas" (CAAs). Remedial actions have been taken in some of the CAAs, but actions for other CAAs are in the planning stages. The EPA is investigating some CAAs as structures at those locations are demolished. Browns Island is within a CAA, as are the rail yard and much of the former steel mill. The storage area is not within a CAA.

Because the ArcelorMittal property is already heavily impacted, environmental constraints, such as endangered species, or wetlands should not pose a significant barrier to developing transportation and logistics facilities on these locations.

Weirton Steel provides water and sewage utilities on Brown's Island and the former steel mill. Gas and electric are provided by Allegheny Power Company. Utilities to the rail yard and the storage area are uncertain, but it is assumed that they are readily available.

7.5.4.5 Land Use Compatibility

Because the ArcelorMittal properties have been used for heavy industry, the land use of the area is compatible with transportation/distribution activities.

7.5.5 Operating Model for the Weirton Steel Property

If a WVPPA facility were built at Weirton, the WVPPA would probably serve as a landlord to any number of operators who could use the various Weirton locations. As an alternative, WVPPA could also provide technical assistance to local economic development agencies to attract transportation and distribution facilities to the area. Once a specific user is identified, WVPPA could work with it to develop a specific plan for a public private partnership. Rather than adopt a "build it and they will come" strategy, the approach would be to obtain an anchor tenant and then determine its requirements. WVPPA could work with Starvaggi industries to find new shippers who would be interested in locating transportation and distribution facilities in the Weirton area.

7.5.6 Weirton Steel Property Conclusions

More work will be required to develop a business case for a WVPPA facility on the former Weirton Steel properties in Weirton as a number of questions need to be addressed:

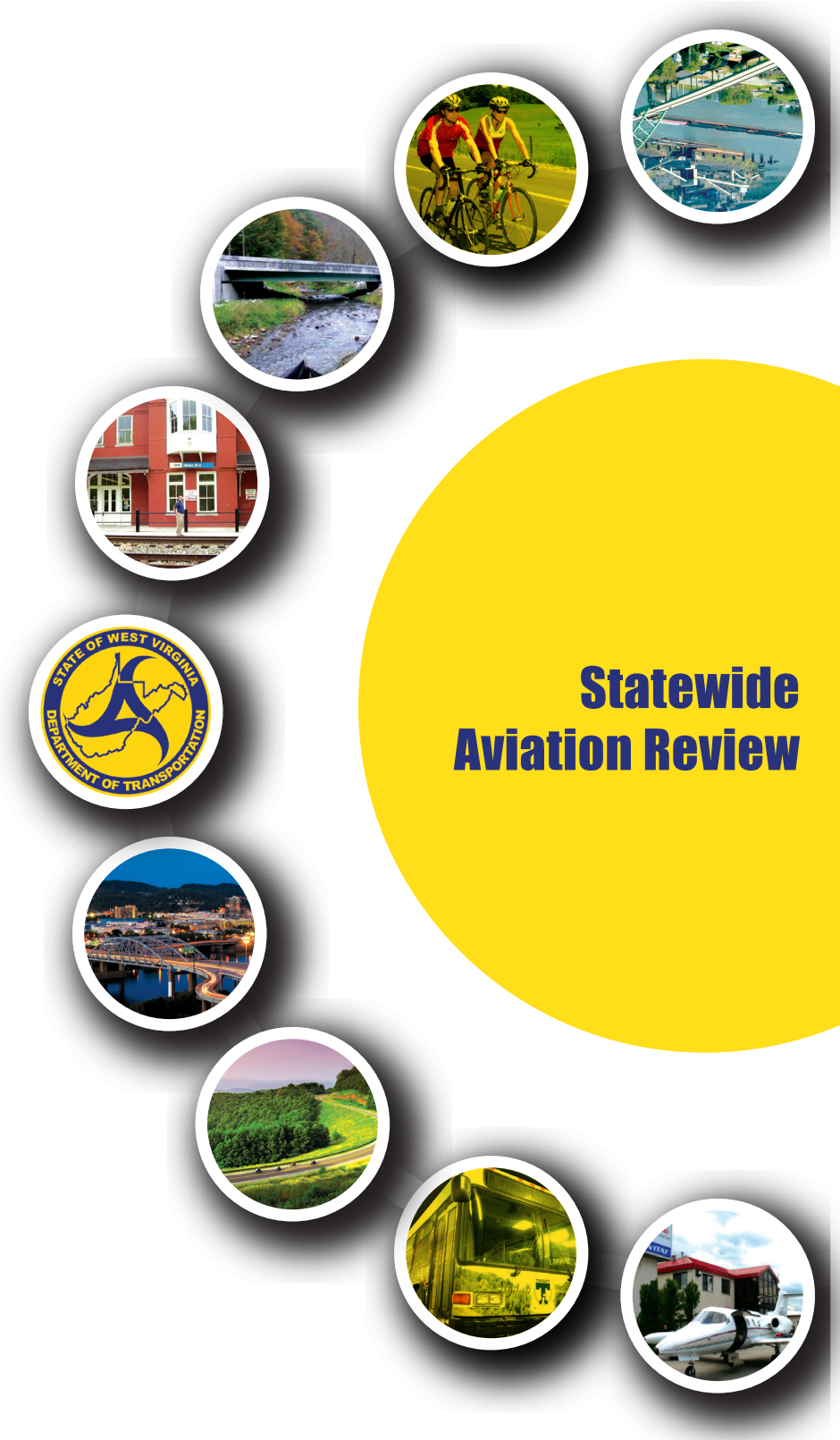
- What would be the relationship between a WVPPA facility and the Half Moon Terminal?
- While a Weirton terminal could serve the Pittsburgh area, a large market, how would the facility compete with other infrastructure already in place in Allegheny, Beaver, and Washington Counties in Pennsylvania?
- How would the facility compete with alternative sites that are either closer to I-70 or the planned Pittsburgh area CSX intermodal terminal?

Further investigation is warranted regarding a WVPPA site at Weirton, but first it will be important to better define the target market and the competitive advantages that a Weirton facility would provide. Evaluation criteria for the Weirton facility are summarized in Table 7-6.

Table 7-6: Weirton Steel Property Evaluation

Criteria	Rating	Comments
Benefits/Availability of Private Substitutes		It will be important to establish the relationship between a public facility and the Half Moon Terminal owned by Starvaggi Industries. It may be difficult to justify public involvement if these facilities overlap and compete.
Size of Potential Market		Weirton is located within a relatively industrialized area. Even when one excludes chemical and petroleum products, assumes that a terminal would do no business within Pennsylvania, the addressable market is still more than twice that of the Point Pleasant facility.
Suitability of Site		On the one hand, the quantity of flat, developable land available at the ArcelorMittal sites presents a unique opportunity. On the other hand, many of these locations would be costly to convert to transportation/logistics facilities. With the exception of the former Weirton rail yard, highway access is problematic, and flood elevation may be an issue. Environmental remediation would also need to be addressed.

Favorable Unfavorable



Statewide Aviation Review

Section 8. Statewide Aviation Review

8.1 Introduction

West Virginia is rich in history and natural beauty. The state offers a wide range of tourist and outdoor recreational opportunities, such as hunting, fishing, caving, rock climbing, whitewater rafting, and hiking. The strong tourism and recreation market along with its universities and businesses support commercial passenger and general aviation activity at the state's airports. Currently, the Aeronautics Commission of WVDOT oversees 34 public use airports. While these existing airports serve the current aviation demand generated in the state, this section of the report documents existing conditions and identifies the potential needs for these airports over the next 25 years.

As the state economy transforms toward a tourism, service, aerospace industry, and technology based economy, access to aviation facilities and services is one important factor that will help foster this growth.

The state's support of aviation and the economic benefits generated from these facilities will have positive impacts for the community many times greater than the state will expend.

8.1.1 Role of Public Use Airports

The role of an airport is classified by FAA's National Plan of Integrated Airport Systems (NPIAS) as follows:

- **Primary** – A commercial service airport with 10,000 passenger boardings per year
- **Commercial Service** – Commercial service airports offer scheduled service by major airlines, national airlines, and/or regional airlines. All commercial service airports provide access by business jets and commercial jet transport aircraft
- **Reliever** – Reliever airports relieve congestion at metropolitan commercial service airports by providing alternative facilities for general aviation use
- **General Aviation** – These general utility airports provide community access by single and light twin-engine aircraft and a limited number of business jets

A United flight departing at Charleston Yeager Airport
Source: Charleston Yeager Airport Photo Gallery

This study examines the 34 airports in West Virginia that are open for public use, whether they are owned by public or private entities. There are a number of privately owned airports in the state that are not open to public and not included in this analysis. The public-use airports that are included in the NPIAS along with their identified role are presented in Table 8-1.

Table 8-1: Public Airports with NPIAS Roles

ID	Airport	Airport Code	NPIAS ROLE
1	Beckley/Raleigh Memorial	BKW	Commercial Service
2	Bluefield/Mercer Co.	BLF	General Aviation
3	Braxton County	48I	General Aviation
4	Charleston/Yeager Airport	CRW	Primary
5	Elkins/Elkins-Randolph Co.	EKN	General Aviation
6	Fairmont Municipal Airport	4G7	General Aviation
7	Grant County Airport	W99	General Aviation
8	North Central West Virginia	CKB	Commercial Service
9	Huntington/Tri-State Airport	HTS	Primary
10	Jackson County Airport	l18	General Aviation
11	Lewisburg/Greenbrier Valley	LWB	Primary
12	Logan County Airport	6L4	General Aviation
13	Martinsburg/Eastern West Virginia	MRB	Commercial Service
14	Mid-Ohio Valley Regional Airport	PKB	Commercial Service
15	Morgantown Municipal Airport	MGW	Commercial Service
16	Philippi-Barbour County Regional	79D	General Aviation
17	Pineville/Kee Field/Wyoming	l16	General Aviation
18	Point Pleasant/Mason County	3I2	General Aviation
19	Summersville Gerald Rader Field	SXL	General Aviation
20	Upshur County Regional	W22	General Aviation
21	Wheeling/ Ohio County	HLG	General Aviation
22	Williamson/Mingo County	4I0	General Aviation
23	Spencer/Boggs Airfield	14P	General Aviation
24	Greater Cumberland Regional Airport	CBE	General Aviation
25	Marshall County Airport	MPG	General Aviation

Figure 8-1 shows the 2008 West Virginia airport system. A list of airports, including airport codes and location, is shown in Table 8-2. This list includes two airports that were recently closed, as discussed in Section 8.1.3.

Figure 8-1: West Virginia Public-Use Airports

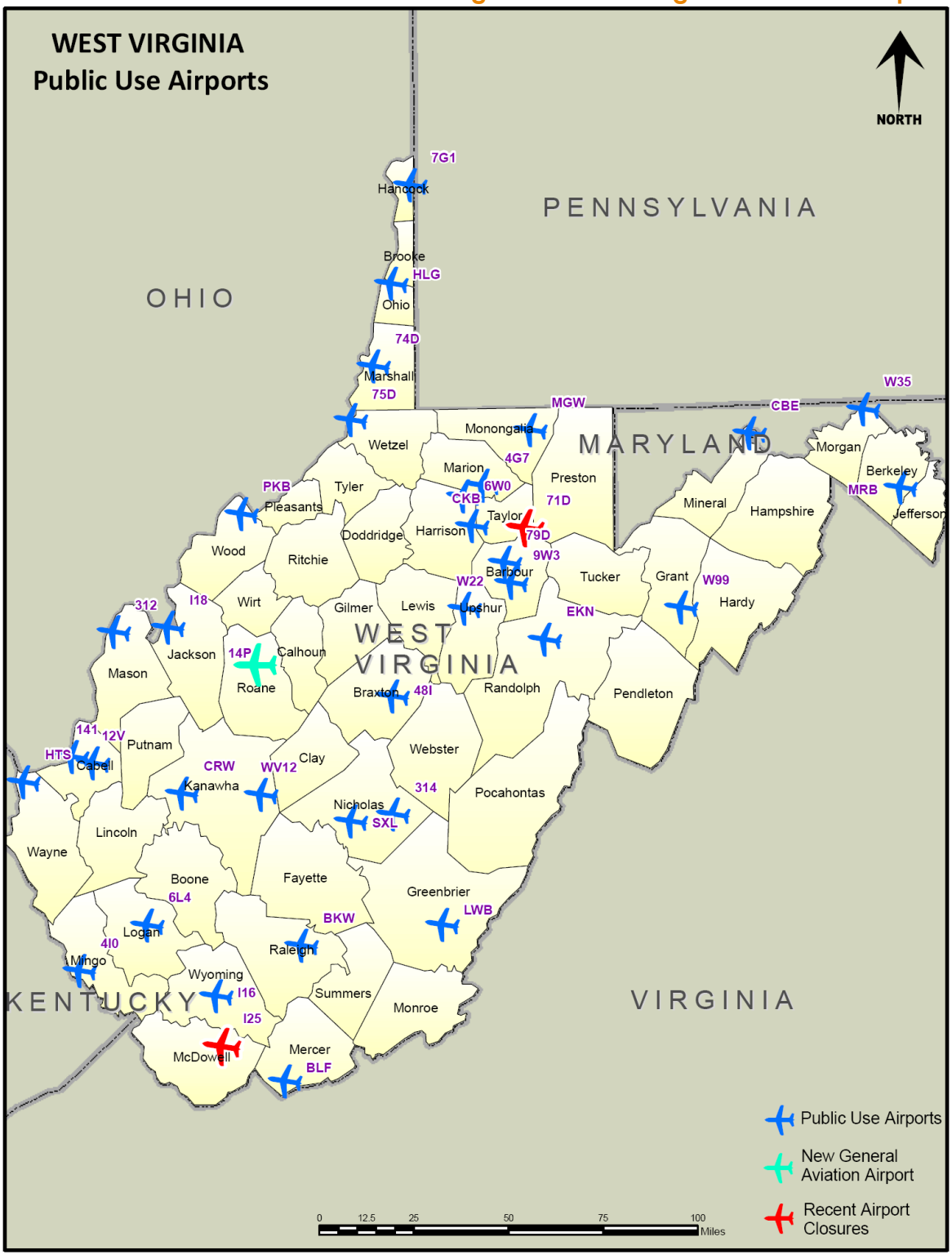


Table 8-2: 2008 West Virginia Public Use Airports

ID	Airport	Airport Code	City
1	Beckley/Raleigh Memorial	BKW	Beckley
2	Berkeley Springs/Potomac Airpark	W35	Berkeley Springs
3	Bluefield/Mercer Co.	BLF	Bluefield
4	Braxton County	48I	Sutton
5	Charleston/Yeager Airport	CRW	Charleston
6	Elkins/Elkins-Randolph Co.	EKN	Elkins
7	Fairmont Municipal Airport	4G7	Fairmount
8	Grant County Airport	W99	Petersburg
9	Greater Cumberland Regional Airport	CBE	Wiley Ford
10	North Central West Virginia	CKB	Clarksburg
11	Huntington/Robert Newlon Field	I41	Huntington
12	Huntington/Tri-State Airport	HTS	Huntington
13	Jackson County Airport	l18	Ravenswood
14	Lewisburg/Greenbrier Valley	LWB	Lewisburg
15	Logan County Airport	6L4	Logan
16	Mallory Airport	WV12	South Charleston
17	Martinsburg/Eastern West Virginia	MRB	Martinsburg
18	Mid-Ohio Valley Regional Airport	PKB	Parkersburg
19	Milton/Ona Airport	12V	Milton
20	Morgantown Municipal Airport	MGW	Morgantown
21	Moundsville/Marshall County	74D	Moundsville
22	New Cumberland-Herron Airport	7G1	New Cumberland
23	New Martinsville/P.W. Johnson Memorial	75D	New Martinsville
24	Philippi-Barbour County Regional	79D	Philippi
25	Pineville/Kee Field/Wyoming	l16	Pineville
26	Point Pleasant/Mason County	3I2	Point Pleasant
27	Richwood/Richwood Municipal	3I4	Richwood
28	Roy Airfield - CLOSED	71D	Grafton
29	Simpson Airport	9W3	Philippi
30	Summersville Gerald Rader Field	SXL	Summersville
31	Upshur County Regional	W22	Buckhannon
32	Wade F. Maley Field	6W0	Shinnston
33	Welch/Welch Municipal Airport - CLOSED	I25	Welch
34	Wheeling/ Ohio County	HLG	Wheeling
35	Williamson/Mingo County	4I0	Williamson
36	Boggs Field Airport – NEW REPLACEMENT	14P	Spencer

8.1.2 2004 West Virginia Airport System Study

The West Virginia Aeronautics Commission received the previous Airport System Study in 2004. The study was initiated in March 2001, and then was delayed due to the aviation impacts from the events of September 11, 2001. The study was completed and accepted by WVDOT in April 2004. The study analyzed West Virginia airports included in FAA's National Plan of Integrated Airport Systems (NPIAS) to identify and quantify potential aviation demand and to determine whether the existing infrastructure and operational facilities were sufficient to support the identified demand.

Key features of the 2004 study included the following:

- The goals of the study included improving accessibility for business and tourism, providing weather information, and providing instrument approaches, thereby satisfying convenient and reliable access to airport facilities. Another goal was to evaluate and recommend adequate airport infrastructure to support the forecasted demand in aircraft operations.
- The study included the 26 airports included in the NPIAS; nine commercial service airports and 17 public–use airports.
- The study developed based aircraft and aircraft operations forecasts.
- The study estimated construction costs for the recommendations in 2003 dollars.
- The study recommended a 20-year development plan in 5-year increments starting from 2005. The recommendations included runway extensions, installation of instrument approaches, aircraft hangars, and automated weather reporting.

Due to the impacts from the events of September 11, 2001, Air Midwest, a U.S. Airways Express affiliate carrier, discontinued operations to the Cumberland Regional Airport. Since then the airport lost its commercial passenger service and is no longer in the NPIAS. Also, Bluefield Mercer County Airport is now classified as a general aviation airport. This airport was previously served by one commercial airline that was subsidized by the Essential Air Service program until August 1, 2006.

8.1.3 Recent Airport Closures

Two general aviation airports, Roy Airfield and Welch Municipal Airport, were closed prior to 2008. Roy Airfield, located three miles SE of Grafton was a privately-owned facility that was open for public use. The airfield had a 60-foot-wide, 1600-foot-long turf runway without lighting or navigational aids. The airfield has now been developed as a new residential subdivision. The second airport, Welch Municipal Airport, located three miles east of Welch was owned by the City of Welch. The airport had an asphalt runway measuring 2,695 feet by 50 feet, with runway edge lighting. The cost to correct poor pavement conditions may have contributed to the airport closing in 2007. This study excludes these two closed airports from further analysis.

8.1.4 New Airports

The privately owned Boggs Airfield/Spencer Airport with its new and expanded runway reopened in 2008 for public use. The airport is included in the NPIAS as a new general aviation airport.

A new airport is being constructed in Mingo County. It should be open in the fall of 2010 and the existing airfield will be closed.

8.2 2008 Existing Conditions

The existing conditions at the 34 public-use airports currently operating in the state are discussed below. Data presented in the following sections were compiled from each airport's FAA 5010 Form and verified using the WVDOT 2007-2009 Airport Directory and other official sources.

8.2.1 Runways

Runways are defined rectangular surfaces on an airport prepared or suitable for the landing or takeoff of aircraft. Runways are marked with white edge lines and runway numbers. Each runway end is identified by a number designation corresponding to its magnetic position on the compass. Therefore, a runway number of seven corresponds to a compass position of about 70 degrees off of magnetic north, and a runway number of 25 indicates about a 250 degree compass position. Each runway at an airport is designated with two numbers separated by 18, which represents the two possible aircraft approaches that are 180 degrees apart.

Runway Safety Area under Construction at the Charleston Yeager Airport
Source: Charleston Yeager Airport Photo Gallery

The number and orientation of runways at an airport depends on the prevailing wind affecting the direction of aircraft traffic operating at an airport. The FAA recommends that an airport's runway configuration provide wind coverage at least 95 percent of the time. This requirement is computed based on the crosswind component not exceeding the thresholds established by FAA for different types of aircraft. If sufficient coverage is not provided, then an additional "crosswind" runway may be justified.

Runway length requirements are determined by analyzing the needs of the airport's design aircraft. The recommended length for the primary runway is determined by considering a specific airplane or group of aircraft that is forecast to use the runway on a regular basis. FAA defines "regular" as at least 500 operations per year. Table 8-3 summarizes the number of runways and their lengths listed in 2000 and compared to 2008 for West Virginia's 34 public-use airports.

Table 8-3: Runway Number and Length

ID	Airport	Airport Code	Number of Runways	2008 (Existing) Runway Length	Year 2000 Runway Length
1	Beckley/Raleigh Memorial	BKW	2	6,750	6,750
2	Berkeley Springs/Potomac Airpark	W35	1	4,985	NA
3	Bluefield/Mercer Co.	BLF	1	4,742	4,742
4	Braxton County	48I	1	4,000	4,000
5	Charleston/Yeager Airport	CRW	2	6,302	6,302
6	Elkins/Elkins-Randolph Co.	EKN	2	4,543	4,543
7	Fairmont Municipal Airport	4G7	1	2,859	2,859
8	Grant County Airport	W99	1	5,000	3,999
9	Greater Cumberland Regional Airport	CBE	2	5,048	5,048
10	North Central West Virginia	CKB	1	7,000	7,000
11	Huntington/Robert Newlon Field	I41	1	2,300	NA
12	Huntington/Tri-State Airport	HTS	1	6,517	6,517
13	Jackson County Airport	l18	1	4,001	4,001
14	Lewisburg/Greenbrier Valley	LWB	1	7,004	7,004
15	Logan County Airport	6L4	1	3,600	3,600
16	Mallory Airport	WV12	1	2,000	NA
17	Martinsburg/Eastern West Virginia	MRB	1	7,815	7,054
18	Mid-Ohio Valley Regional Airport	PKB	2	6,781	6,781
19	Milton/Ona Airport	12V	1	3,154	NA
20	Morgantown Municipal Airport	MGW	2	5,199	5,199
21	Moundsville/Marshall County	74D	1	3,302	3,302
22	New Cumberland-Herron Airport	7G1	2	2,030	NA
23	New Martinsville/P.W. Johnson Memorial	75D	1	2,100	NA
24	Philippi-Barbour County Regional	79D	1	3,275	3,200
25	Pineville/Kee Field/Wyoming	l16	1	3,701	3,701
26	Point Pleasant/Mason County	3I2	1	4,000	4,000
27	Richwood/Richwood Municipal	3I4	1	3,360	NA
28	Simpson Airport	9W3	1	1,500	NA
29	Summersville Gerald Rader Field	SXL	1	3,015	3,015
30	Upshur County Regional	W22	1	4,200	3,500
31	Wade F. Maley Field	6W0	1	2,265	NA
32	Wheeling/ Ohio County	HLG	2	5,001	4,500
33	Williamson/Mingo County	4I0	1	3,515	3,515
34	Spencer/Boggs Airfield	14P	1	4,553	2,800

Martinsburg/Eastern West Virginia Airport has the longest primary runway in the state with 7,815 feet. Ten other airports have primary runways of 5,000 feet or greater, namely: Beckley/Raleigh, Charleston Yeager, Grant County, Cumberland Regional, Harrison Marion, Huntington Tri-State, Lewisburg/ Greenbrier, Mid-Ohio Valley, Morgantown and Wheeling/Ohio County Airports. In most cases airports with runways measuring 5,000 feet or greater can accommodate operations by corporate jet aircraft, an important and growing component of the national general aviation fleet that provides significant economic benefits to the surrounding communities.

8.2.2 Taxiways

A taxiway is a link between a runway and different operational areas of the airport. Parallel taxiways provide aircraft access to the ends of runways independent of aircraft landing or departing from the adjacent runway. Taxiways enhance operational safety and provide additional airfield capacity. Taxiways are often marked with yellow lines.

For planning purposes, a full-length parallel taxiway system is typically recommended for an airport with at least 20,000 annual operations. An exit taxiway provides direct access to the terminal area, with a parallel taxiway typically providing multiple exit taxiways.

West Virginia has 17 airports with either a full parallel or a partial parallel taxiway. The remaining 17 airports have no parallel taxiways. Table 8-4 summarizes the parallel taxiway availability by airport.

Table 8-4: Taxiway Availability

ID	Airport	Airport Code	Taxiway Availability
1	Beckley/Raleigh Memorial	BKW	Full Parallel
2	Berkeley Springs/Potomac Airpark	W35	Full Parallel
3	Bluefield/Mercer Co.	BLF	Full Parallel
4	Charleston/Yeager Airport	CRW	Partial Parallel
5	Fairmont Municipal Airport	4G7	Partial Parallel
6	Grant County Airport	W99	Full Parallel
7	Greater Cumberland Regional Airport	CBE	Partial Parallel
8	North Central West Virginia	CKB	Full Parallel
9	Huntington/Tri-State Airport	HTS	Full Parallel
10	Jackson County Airport	L18	Full Parallel
11	Lewisburg/Greenbrier Valley	LWB	Full Parallel
12	Logan County Airport	6L4	Full Parallel
13	Martinsburg/Eastern West Virginia	MRB	Full Parallel
14	Mid-Ohio Valley Regional Airport	PKB	Partial Parallel
15	Morgantown Municipal Airport	MGW	Full Parallel
16	Wheeling/ Ohio County	HLG	Partial Parallel
17	Williamson/Mingo County	4I0	Partial Parallel

8.2.3 Runway Instrument Approaches

There are three types of approaches for landing at an airport: visual, non-precision, and precision. Visual approaches use visual navigational aids, such as Precision Approach Path Indicators (PAPI), to land on a runway. This type of approach is limited to visibility of at least three statute miles and when the pilot can maintain at least 500 feet clear from the clouds above.

Non-precision approaches allow pilots to land in weather conditions as adverse as an overcast ceiling of 400 feet and visibility as low as one-half mile. Certain precision approaches allow pilots with properly equipped aircraft and training to land with overcast ceiling (fog) of zero feet and visibility zero miles. Typically, the equipment necessary to accommodate this extreme condition approach is only present at major hub airports like Atlanta or Chicago. More details on non-precision and precision landings are described below.

Most West Virginia public use airports currently have an instrument approach to allow aircraft to land in various weather conditions, which increases the operational capacity of the airport. The nine airports without runway instrument approaches are also non-NPIAS airports. Table 8-5 lists the instrument approach types, published for each airport as of November 2008. Additional information on instrument approach types is provided in this study's Technical Memorandum, Aviation Plan.

8.2.4 Airport Weather Systems

Automated Weather Observing System (AWOS) is the original weather reporting system developed in the 1980s and provides weather observations including wind data, temperature, dew point, altimeter settings, density altitude, visibility, precipitation, and day/night information.

Automated Surface Observation System (ASOS) is the latest weather reporting system for airports. The improvements that ASOS provides include automation of cloud heights, coverage, weather, and visibility. The biggest difference between AWOS and ASOS is the capability to discriminate between types of precipitation.

The ASOS program is a joint effort of the National Weather Service (NWS), FAA, and the Department of Defense (DOD). The ASOS system serves as the nation's primary surface weather observing network. ASOS provides updated observations every minute, 24 hours a day, every day of the year.
ASOS basic weather elements include:

- Sky condition: cloud height and amount (clear, scattered, broken, overcast)
- Visibility (to at least 10 statute miles)
- Basic information: type and intensity for rain, snow, freezing rain, fog, haze
- Pressure: sea-level pressure, altimeter setting
- Ambient temperature, dew point temperature
- Wind: direction, speed and character (gusts, squalls)
- Precipitation accumulation

Table 8-5: Runway Instrument Approaches

ID	Airport	Airport Code	Approaches (1)
1	Beckley/Raleigh Memorial	BKW	ILS, RNAV, VOR
2	Berkeley Springs/Potomac Airpark	W35	GPS, VOR
3	Bluefield/Mercer Co.	BLF	ILS, VOR
4	Braxton County	48I	RNAV
5	Charleston/Yeager Airport	CRW	ILS, VOR
6	Elkins/Elkins-Randolph Co.	EKN	LDA, GPS
7	Fairmont Municipal Airport	4G7	RNAV, VOR
8	Grant County Airport	W99	GPS, LDA, VOR
9	Greater Cumberland Regional Airport	CBE	RNAV, LOC
10	North Central West Virginia	CKB	ILS, VOR
11	Huntington/Robert Newlon Field	I41	None
12	Huntington/Tri-State Airport	HTS	ILS, RNAV
13	Jackson County Airport	L18	GPS
14	Lewisburg/Greenbrier Valley	LWB	ILS, GPS, VOR
15	Logan County Airport	6L4	GPS
16	Mallory Airport	WV12	None
17	Martinsburg/Eastern West Virginia	MRB	ILS, RNAV, VOR
18	Mid-Ohio Valley Regional Airport	PKB	ILS, RNAV, VOR
19	Milton/Ona Airport	12V	GPS, VOR
20	Morgantown Municipal Airport	MGW	ILS, RNAV, VOR
21	Moundsville/Marshall County	74D	GPS, VOR
22	New Cumberland-Herron Airport	7G1	None
23	New Martinsville/P.W. Johnson Memorial	75D	None
24	Philippi-Barbour County Regional	79D	RNAV
25	Pineville/Kee Field/Wyoming	L16	GPS
26	Point Pleasant/Mason County	3I2	GPS
27	Richwood/Richwood Municipal	3I4	None
28	Simpson Airport	9W3	None
29	Summersville Gerald Rader Field	SXL	GPS
30	Upshur County Regional	W22	RNAV, VOR
31	Wade F. Maley Field	6W0	None
32	Wheeling/ Ohio County	HLG	ILS, RNAV, VOR
33	Williamson/Mingo County	4I0	None
34	Spencer/Boggs Airfield	14P	None

Note:
(1) ILS – Instrument Landing System
VOR – VHF Omni-directional Range navigation system
LDA – Localize - type Directional Array
GPS – Global Positioning System

Table 8-6 identifies the type of weather system installed at each airport as of November 2008. Logan County, Richwood Municipal, and Summersville Gerald Rader Field have yet to install a weather reporting device.

Table 8-6: Weather Reporting

ID	Airport	Airport Code	Weather Reporting
1	Beckley/Raleigh Memorial	BKW	ASOS
2	Berkeley Springs/Potomac Airpark	W35	ASOS
3	Bluefield/Mercer Co.	BLF	ASOS
4	Braxton County	48I	AWOS-IIIP
5	Charleston/Yeager Airport	CRW	ASOS
6	Elkins/Elkins-Randolph Co.	EKN	ASOS
7	Fairmont Municipal Airport	4G7	ASOS
8	Grant County Airport	W99	AWOS-IIIP/T
9	Greater Cumberland Regional Airport	CBE	AWOS
10	North Central West Virginia	CKB	ASOS
11	Huntington/Robert Newlon Field	I41	ASOS
12	Huntington/Tri-State Airport	HTS	ASOS
13	Jackson County Airport	l18	AWOS-IIIP/T
14	Lewisburg/Greenbrier Valley	LWB	AWOS-IIIP/T
15	Mallory Airport	WV12	ASOS
16	Martinsburg/Eastern West Virginia	MRB	ASOS
17	Mid-Ohio Valley Regional Airport	PKB	ASOS
18	Milton/Ona Airport	12V	ASOS
19	Morgantown Municipal Airport	MGW	ASOS-IIIP
20	Moundsville/Marshall County	74D	AWOS
21	New Cumberland-Herron Airport	7G1	NONE
22	New Martinsville/Johnson Memorial	75D	AWOS
23	Philippi-Barbour County Regional	79D	ASOS
24	Pineville/Kee Field/Wyoming	l16	AWOS-IIIP
25	Point Pleasant/Mason County	3I2	AWOS-IIIP
26	Simpson Airport	9W3	AWOS
27	Upshur County Regional	W22	AWOS-IIIP
28	Wade F. Maley Field	6W0	ASOS
29	Wheeling/Ohio County	HLG	ASOS
30	Williamson/Mingo County	4I0	AWOS
31	Boggs Airfield/Spencer	14P	AWOS

8.2.5 Runway Edge Lighting

Runway edge lights are used to identify the edges of the runway during periods of darkness or restricted visibility conditions. These lighting systems are classified according to the intensity or brightness they are capable of producing: they are the High Intensity Runway Lights (HIRL), Medium Intensity Runway Lights (MIRL), and the Low Intensity Runway Lights (LIRL). Some airports allow pilots to adjust

the lighting intensity automatically by clicking their radio transmitter on a specific frequency. This allows the airport to minimize energy costs when aircraft are not using the runway late at night.

Runways can have different types of runway edge lighting. Eight airports in West Virginia have two runways with separate edge lighting systems. High intensity lighting is typically installed on the longest runway. Table 8-7 summarizes the lighting systems at each airport in the West Virginia airport system. Six of the public use airports do not have runway edge lighting and of those, three are turf runways.

Table 8-7: Runway Lighting

ID	Airport	Airport Code	Primary Runway Lighting
1	Beckley/Raleigh Memorial	BKW	High Intensity
2	Berkeley Springs/Potomac Airpark	W35	Medium Intensity
3	Bluefield/Mercer Co.	BLF	High Intensity
4	Braxton County	48I	Medium Intensity
5	Charleston/Yeager Airport	CRW	High Intensity
6	Elkins/Elkins-Randolph Co.	EKN	Medium Intensity
7	Fairmont Municipal Airport	4G7	Non-Standard
8	Grant County Airport	W99	Medium Intensity
9	Greater Cumberland Regional Airport	CBE	Medium Intensity
10	North Central West Virginia	CKB	High Intensity
11	Huntington/Robert Newlon Field	I41	None
12	Huntington/Tri-State Airport	HTS	High Intensity
13	Jackson County Airport	l18	Medium Intensity
14	Lewisburg/Greenbrier Valley	LWB	High Intensity
15	Logan County Airport	6L4	Medium Intensity
16	Mallory Airport	WV12	None
17	Martinsburg/Eastern West Virginia	MRB	High Intensity
18	Mid-Ohio Valley Regional Airport	PKB	High Intensity
19	Milton/Ona Airport	12V	Non-Standard
20	Morgantown Municipal Airport	MGW	High Intensity
21	Moundsville/Marshall County	74D	Medium Intensity
22	New Cumberland-Herron Airport	7G1	Non-Standard
23	New Martinsville/P.W. Johnson Memorial	75D	Low Intensity
24	Philippi-Barbour County Regional	79D	Medium Intensity
25	Pineville/Kee Field/Wyoming	l16	Medium Intensity
26	Point Pleasant/Mason County	3I2	Medium Intensity
27	Richwood/Richwood Municipal	3I4	Low Intensity
28	Simpson Airport	9W3	None
29	Summersville Gerald Rader Field	SXL	Medium Intensity
30	Upshur County Regional	W22	Medium Intensity
31	Wade F. Maley Field	6W0	None
32	Wheeling/ Ohio County	HLG	High Intensity
33	Williamson/Mingo County	4I0	None
34	Spencer/Boggs Airfield	14P	Medium Intensity

8.2.6 Aircraft Operations

An aircraft operation is defined as either a takeoff or a landing. A standard touch-and-go procedure for instance, in which a pilot lands an aircraft and takes off without leaving the active runway, would count as two operations. Data presented in this section was compiled from each airport's most recent FAA 5010 Form. Table 8-8 summarizes the total operations for all aircraft types and compares 2001 totals with 2007 activity.

Table 8-8: Aircraft Operations

ID	Airport	Airport Code	2007 Aircraft Operations	2001 Aircraft Operations
1	Beckley/Raleigh Memorial	BKW	11,010	5,902
2	Berkeley Springs/Potomac Airpark	W35	750	NA
3	Bluefield/Mercer Co.	BLF	16,433	22,411
4	Braxton County	48I	6,100	6,000
5	Charleston/Yeager Airport	CRW	73,872	50,234
6	Elkins/Elkins-Randolph Co.	EKN	10,500	15,500
7	Fairmont Municipal Airport	4G7	12,500	15,009
8	Grant County Airport	W99	16,060	9,400
9	Greater Cumberland Regional Airport	CBE	NA	14,542
10	North Central West Virginia	CKB	55,903	52,455
11	Huntington/Robert Newlon Field	I41	2,300	NA
12	Huntington/Tri-State Airport	HTS	32,801	35,034
13	Jackson County Airport	l18	12,402	7,025
14	Lewisburg/Greenbrier Valley	LWB	21,224	27,825
15	Logan County Airport	6L4	2,425	2,600
16	Mallory Airport	WV12	NA	NA
17	Martinsburg/Eastern West Virginia	MRB	52,750	43,529
18	Mid-Ohio Valley Regional Airport	PKB	36,075	44,560
19	Milton/Ona Airport	12V	4,700	NA
20	Morgantown Municipal Airport	MGW	53,113	30,669
21	Moundsville/Marshall County	74D	19,300	18,950
22	New Cumberland-Herron Airport	7G1	3,010	NA
23	New Martinsville/P.W. Johnson Memorial	75D	3,200	NA
24	Philippi-Barbour County Regional	79D	8,010	8,000
25	Pineville/Kee Field/Wyoming	l16	2,510	2,800
26	Point Pleasant/Mason County	3I2	3,310	3,450
27	Richwood/Richwood Municipal	3I4	900	NA
28	Simpson Airport	9W3	60	NA
29	Summersville Gerald Rader Field	SXL	2,320	14,900
30	Upshur County Regional	W22	4,734	1,500
31	Wade F. Maley Field	6W0	1,500	NA
32	Wheeling/ Ohio County	HLG	45,554	42,376
33	Williamson/Mingo County	4I0	4,520	4,700
34	Spencer/Boggs Airfield	14P	3,100	2,400
	WV Airport System Total		402,697	480,271

Source: FAA 5010 Forms
Note: Data Not Available (NA)

8.2.7 Based Aircraft

Based aircraft data for each airport was obtained from the most recent FAA 5010 Forms and other sources. Based aircraft statistics at an airport tend to fluctuate over the years, however the data presented provides information regarding the number of aircraft based at each airport as of 2008 and represents a snapshot in time. Current based aircraft statistics for study airports are summarized in Table 8-9, which also provides a comparison with 2000 data.

Table 8-9: Based Aircraft

ID	Airport	Airport Code	2008 Based Aircraft	2000 Based Aircraft
1	Beckley/Raleigh Memorial	BKW	52	59
2	Berkeley Springs/Potomac Airpark	W35	6	NA
3	Bluefield/Mercer Co.	BLF	24	40
4	Braxton County	48I	11	5
5	Charleston/Yeager Airport	CRW	95	55
6	Elkins/Elkins-Randolph Co.	EKN	22	33
7	Fairmont Municipal Airport	4G7	38	39
8	Grant County Airport	W99	21	27
9	Greater Cumberland Regional Airport	CBE	NA	46
10	North Central West Virginia	CKB	78	86
11	Huntington/Robert Newlon Field	I41	4	NA
12	Huntington/Tri-State Airport	HTS	44	50
13	Jackson County Airport	l18	23	38
14	Lewisburg/Greenbrier Valley	LWB	28	27
15	Logan County Airport	6L4	13	10
16	Mallory Airport	WV12	NA	NA
17	Martinsburg/Eastern West Virginia	MRB	69	104
18	Mid-Ohio Valley Regional Airport	PKB	53	61
19	Milton/Ona Airport	12V	42	NA
20	Morgantown Municipal Airport	MGW	49	47
21	Moundsville/Marshall County	74D	9	17
22	New Cumberland-Herron Airport	7G1	35	NA
23	New Martinsville/P.W. Johnson Memorial	75D	7	NA
24	Philippi-Barbour County Regional	79D	5	14
25	Pineville/Kee Field/Wyoming	l16	7	13
26	Point Pleasant/Mason County	3I2	9	20
27	Richwood/Richwood Municipal	3I4	6	NA
28	Simpson Airport	9W3	0	NA
29	Summersville Gerald Rader Field	SXL	8	9
30	Upshur County Regional	W22	16	10
31	Wade F. Maley Field	6W0	2	NA
32	Wheeling/ Ohio County	HLG	50	54
33	Williamson/Mingo County	4I0	12	11
34	Spencer/Boggs Airfield	14P	10	9
	WV Airport System Total		833	884

Source: FAA 5010
Note: Data Not Available (NA)

8.2.8 Passenger Enplanements

An enplanement is defined as the number of passengers boarding an airplane. It does not include arriving passengers. West Virginia's commercial service airports and their passenger activity levels for 2000 and 2007 are shown in Table 8-10. The 2007 enplanement data indicate a decline in enplanements from 2001, except at the Charleston /Yeager Airport and Huntington Tri State Airport.

Table 8-10: Enplanements

ID	Airport	Airport Code	2007 Enplanements	2001 Enplanements
1	Beckley/Raleigh Memorial	BKW	3,232	4,204
2	Charleston/Yeager Airport	CRW	269,726	266,867
3	North Central West Virginia	CKB	4,813	15,998
4	Huntington/Tri-State Airport	HTS	62,364	59,248
5	Lewisburg/Greenbrier Valley	LWB	12,349	12,943
6	Mid-Ohio Valley Regional Airport	PKB	4,531	25,260
7	Morgantown Municipal Airport	MGW	4,740	18,177
	WV Airport System Total		361,755	402,697

8.2.9 Inventory Summary

Although two airports closed since the 2004 study was published, the Boggs Airfield/Spencer Airport reopened for public-use with a new and expanded runway in 2008. In addition, eleven of the system airports have runways longer than 5,000 feet, which help attract businesses to the local areas. However, only nine of the 17 system airports with taxiways have full parallel taxiways, which may be due to terrain difficulties.

Most airports in the West Virginia system have an existing weather reporting device; however, three airports do not. Nine of the 34 airports in the system do not provide an instrument approach, but with the advent of satellite-based runway approaches, these airports have the potential for a non-precision approach in the future.

Six of the public-use airports do not have runway edge lighting and three airports have non-standard lighting on their paved runways.

Finally, one aspect not covered in this study is the existing and future pavement conditions, which would identify the need for pavement rehabilitation or reconstruction and a more comprehensive evaluation of airport funding needs.

8.3 Airport Needs Assessment

The purpose of this section is to determine the future transportation needs for West Virginia's airport system. To accomplish this, the previous 2004 study recommendations were reviewed to determine if the identified projects have been implemented or not and whether the remaining projects are still needed in the future. The new recommendations developed as part of this study include some carry over projects previously identified in the 2004 study and some new projects currently identified for FAA funding over the next five years. Individual airports were not contacted nor were their master plans included as part of this analysis.

8.3.1 2004 West Virginia State System Study Recommendation Review

The 2004 West Virginia State System Study recommended the following types of improvements for the system airports in 5-year increments starting from 2005 through 2020.

Runway Extensions — Runway extensions were recommended at two air carrier and five general aviation airports. Based on the 2004 report, improvements were recommended for 2005 and 2010. Table 8-11 shows the summary of the previously recommended needs.

Table 8-11: 2004 Recommended Runway Extensions

ID	Airport	Code	2005 Period (Feet)	2010 Period (Feet)	Implemented
1	Bluefield/Mercer Co.	BLF	750	-	NO
2	Fairmont Municipal Airport	4G7	425	-	NO
3	Greater Cumberland Regional Airport	CBE	-	450	NO
4	Lewisburg/ Greenbrier Valley	LWB	300	-	NO
5	Phillipi-Barbour County Regional	79D	400	-	NO
6	Welch/Welch Municipal Airport(1)	I25	1125	-	NO
7	Wheeling/ Ohio County	HLG	1000	-	NO
8	Spencer/Boggs Airfield	14P	500	-	YES

Note: (1) Welch Municipal Airport was closed in 2007.

Instrument Approaches — Instrument Approaches were recommended for three general aviation airports. Logan County and Elkins-Randolph airports were to add a precision approach, and a non-precision approach was recommended for Braxton County. Table 8-12 summarizes the previous study's recommendations and timeline.

Table 8-12: 2004 Recommended Instrument Approaches

ID	Airport	Code	2005 Period	2015 Period	Implemented
1	Logan County	6L4	-	P	NO
2	Elkins-Randolph County	EKN	-	P	NO
3	Braxton County	48I	NP	-	YES

Note: P is for Precision approach and NP is for Non-Precision approach

Automated Weather Reporting Systems — The 2004 study called for installation of weather reporting systems at one air carrier and four general aviation airports. Table 8-13 shows the airport and recommended timeline.

Table 8-13: 2004 Recommended Weather Reporting

ID	Airport	Airport Code	2005 Period	Implemented
1	Fairmont Municipal Airport	4G7	AWOS	NO
2	Greater Cumberland Regional Airport	CBE	AWOS	YES
3	Phillipi-Barbour County Regional	79D	AWOS	NO
4	Summersville Gerald Rader Field	SXL	AWOS	NO
5	Braxton County	48I	AWOS	YES

Recent air travel patterns, airline mergers, aviation fuel costs, and economic recession caused changes to, or at least delayed, some of the previous recommendations. Although the 2004 study indicated that the recommendations were financially feasible, some recommendations were not pursued by the state.

The recommendations that were implemented or changes that occurred since the 2004 system study was completed are summarized as follows:

- In 2000, Boggs Airfield/Spencer Airport had a 2800-foot-long runway and the system study recommended an additional 500 feet of runway to be constructed by 2005. However, the airport constructed an additional 1,753 feet of pavement and currently has 4,553 feet of newly resurfaced asphalt runway. Also, an AWOS weather reporting system was installed at the airport in 2005 although it has yet to be commissioned. The Boggs Airfield/Spencer Airport is now included in FAA's NPIAS.
- Braxton County installed an AWOS system in 2005, but the airport has yet to obtain a non-precision approach.
- The 1,000-foot runway extension recommended at Wheeling /Ohio County Airport by 2005 was constructed at only 500 feet as of 2008. Similarly, 75 feet of the recommended 400-foot extension was constructed at Phillip-Barbour County Regional Airport. These differences may be related to possible runway safety area improvements instead of actual runway length improvements.
- The remaining runway extension projects recommended in the 2004 system study have not been constructed to date.

8.3.2 2008 Airport Improvement Recommendations

The projects that are recommended by this study cover the next 25 years and are limited to runway rehabilitation/reconstruction and extensions, taxiway improvements and weather reporting equipment. The source of these recommendations is based on review of current airport activity and discussions with FAA's Airport District Office. These projects represent some of the larger capital outlay improvements eligible for FAA and state funding. The estimated costs shown in the report represent planning level estimates and are intended to provide order of magnitude estimates.

Federal, State, and local governments all play an important role in managing and funding airport facility development. In addition, private businesses and individuals may contribute to the construction and maintenance of airport facilities in support of their own activities at the airport. Primary funding sources available to support eligible airport development projects comes from FAA. Usually FAA provides funding for 95 percent of the cost of the development with the remaining five percent being split equally between state and local agencies. The cost estimates shown in the tables below represent the cost estimate broken down into Federal, State, local and total categories.

8.3.2.1 Runway Projects

Runway Rehabilitation — The identified runway rehabilitation projects at West Virginia's NPIAS airports are summarized in Table 8-14. Runway rehabilitation projects for the next five years amount to about $10 million, with about $240,000 coming from the state.

Table 8-14: Runway Rehabilitation Projects

ID	Airport	Code	Design and/or Construction	95% Federal	2.5% State	2.5% Local	Total
1	Harrison-Marion Regional Airport	CKB	2009	$1,700,000	$44,737	$44,737	$1,789,474
2	Mid-Ohio Valley Regional Airport	PKB	2009	$125,000	$3,289	$3,289	$131,578
3	Lewisburg/Greenbrier Valley	LWB	2010	$3,300,000	$86,842	$86,842	$3,473,684
4	Elkins/Elkins-Randolph Co.	EKN	2011	$1,200,000	$31,579	$31,579	$1,263,158
5	Bluefield/Mercer Co.	BLF	2012	$1,200,000	$31,579	$31,579	$1,263,158

Runway Extensions — The recommended runway extension projects at West Virginia's NPIAS airports are summarized in Table 8-15. The runway extension costs for the next 10 years amount to about $9 million, with almost $235,000 coming from the state.

Table 8-15: Runway Extension Projects

ID	Airport	Code	Design and/or Construction	95% Federal	2.5% State	2.5% Local	Total
1	Elkins/Elkins-Randolph Co.	EKN	2013	$1,300,000	$34,211	$34,211	$1,368,421
2	Upshur County Regional	W22	2013	$2,500,000	$65,789	$65,789	$2,631,579
3	Bluefield/Mercer Co.	BLF	2013	$1,386,000	$36,474	$36,474	$1,458,947
4	Fairmont Municipal Airport	4G7	2013	$785,000	$20,658	$20,658	$826,316
5	Lewisburg/Greenbrier Valley	LWB	2013	$832,000	$21,895	$21,895	$875,789
6	Phillipi-Barbour County Regional	79D	2013	$555,000	$14,605	$14,605	$584,211
7	Wheeling/ Ohio County	HLG	2013	$647,000	$17,026	$17,026	$681,053
8	Greater Cumberland Regional Airport	CBE	2018	$924,000	$24,316	$24,316	$972,632

8.3.2.2 Taxiway Projects

Identified taxiway improvements for West Virginia airports are summarized in Table 8-16. Total taxiway project costs for the next five years are about $12 million, with almost $300,000 coming from the state.

Table 8-16: Taxiway Projects

ID	Airport	Code	Design and/or Construction	95 % Federal	2.5 % State	2.5 % Local	Total
1	Fairmont Municipal Airport	4G7	2013	$1,925,000	$50,658	$50,658	$2,026,316
2	Beckley/Raleigh Memorial	BKW	2013	$389,500	$10,250	$10,250	$410,000
3	Bluefield/Mercer Co.	BLF	2013	$332,500	$8,750	$8,750	$350,000
4	Charleston/Yeager Airport	CRW	2013	$2,404,000	$63,263	$63,263	$2,530,526
5	Wheeling/ Ohio County	HLG	2013	$1,282,500	$33,750	$33,750	$1,350,000
6	Huntington/Tri-State Airport	HTS	2013	$418,000	$11,000	$11,000	$440,000
7	Lewisburg/Greenbrier Valley	LWB	2013	$1,425,000	$37,500	$37,500	$1,500,000
8	Martinsburg/Eastern West Virginia	MRB	2013	$1,683,000	$44,289	$44,289	$1,771,579
9	Mid-Ohio Valley Regional Airport	PKB	2013	$1,235,000	$32,500	$32,500	$1,300,000

8.3.2.3 Weather Reporting Projects

It is recommended that an ASOS automated weather reporting device be installed at Logan Airport for an estimated cost of $200,000, with the state share totaling $5,000. In addition, the new AWOS at Boggs Airfield/Spencer Airport needs to be commissioned.

8.4 Conclusions on Airport Needs

As the state transforms from a coal mining economy into a tourism, service, aerospace industry, and technology based economy, access to aviation facilities and services is one important factor that will help foster this growth. The recommended needs that satisfy future aviation demand are essential to support the growing needs of the aviation industry in the state. The recent closures of two airports, Roy Airfield and Welch Municipal Airports may have a local effect on general aviation access. However, the recent expansion of Boggs Airfield in Spencer is expected to improve the aviation access in that area of the state. The state's support of aviation and the economic benefits generated from these facilities will have positive impacts for the community many times greater than the state will expend.

8.4.1 Total Project Costs

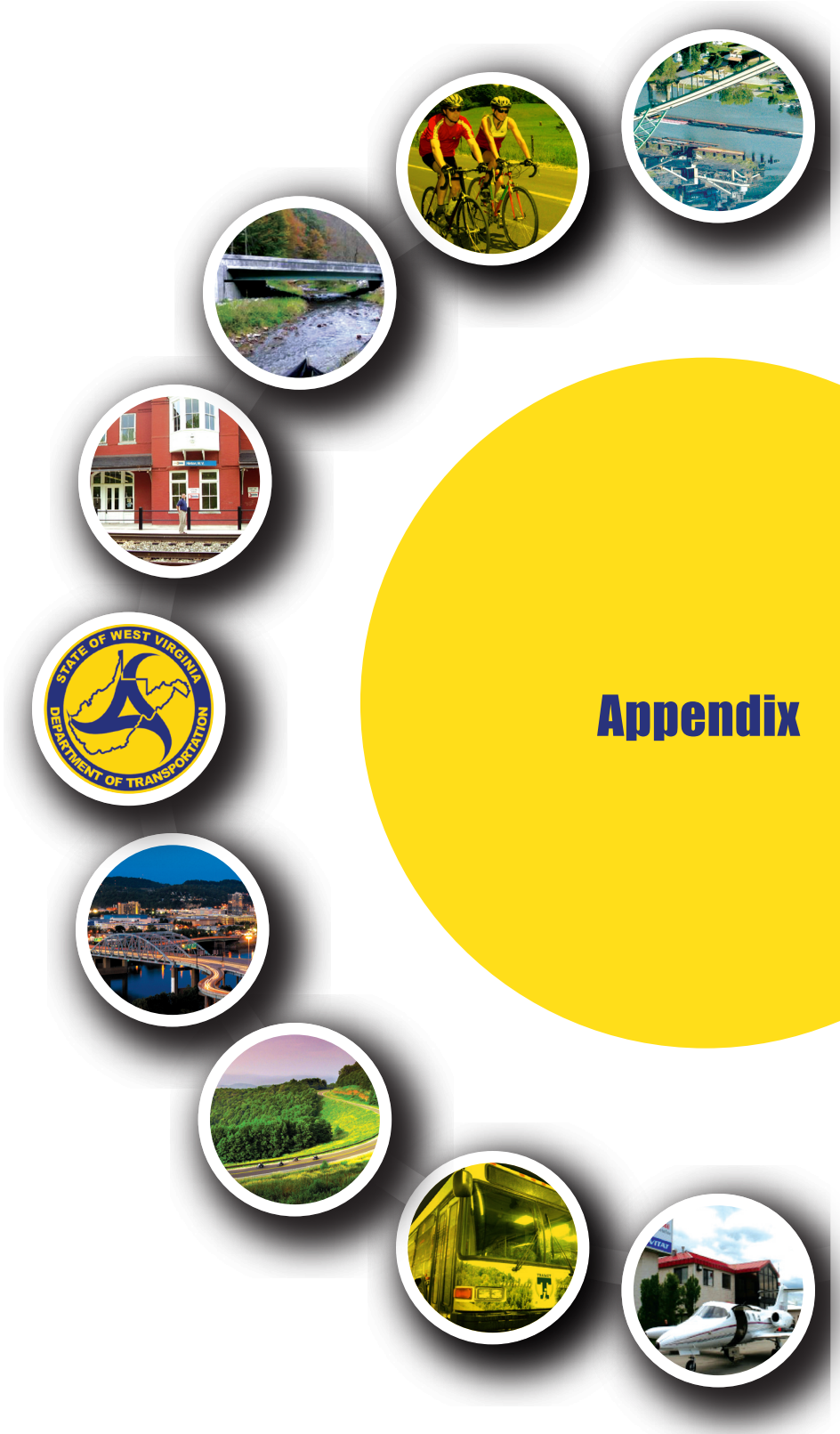
The total projected cost for runway, taxiway, and weather equipment for West Virginia's airports over the next 10 years is summarized in Table 8-17. No additional projects have been identified beyond 2018 as part of this study.

Table 8-17: Total Airport Project Costs

Type of Project	State	Total
Runway Rehabilitation	$240,132	$9,605,263
Runway Extensions	$234,974	$9,398,947
Taxiway Improvements	$291,961	$11,678,421
ASOS	$5,000	$200,000
Total	$772,066	$30,882,632

8.4.2 Potential Future Analysis

This study was not carried out to determine the individual, specific needs of each airport. However, maintaining runways and airport pavement is important. In addition, it is less expensive to maintain pavement on a regular basis versus paying for full depth reconstruction, just like roadway pavement. It is recommended that an airport pavement management study be conducted for all public-use airports in West Virginia. Other states periodically conduct such studies, which allow them to target funding to those airports that indicate when future "poor" pavement conditions could occur, before they deteriorate, thus saving money in the long run. The state may also choose to focus on the most important airports initially, such as commercial service airports, if these airports already do not have such a program, and/or runways more than 5,000 feet.



Appendix

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
WV 25 SPUR, WV 25 IN NITRO-6TH AVE. IN ST. ALBANS (BRIDGE)	Replace Richard Henderson Bridge (3 lanes)	$40,500	15.8
WELLSBURG BRIDGE (OHIO RIVER CROSSING)	Construct new Ohio River bridge in Brooke County south of Wellsburg to Ohio Route 7 in the vicinity of Brilliant	$75,000	10.7
US 340 VA line - Charles Town	4-Lane upgrade	$34,439	6.3
BEECHURST AVE, WALNUT STREET-EIGHTH STREET (MONONGALIA CO)	Upgrade Beechurst Avenue (US 19, WV 7) in Morgantown to four and five lanes between Walnut Street and 8th Street CPr WVDOH August 2003 report	$40,000	3.6
East Beckley Bypass-Stanaford to Ragland	Construct new 5-ln bypass	$28,400	2.4
King Coal Highway-Montcalm to WV 123 Airport Road(Mercer Co.)	Construct 7.5 miles of four lane road	$153,750	2.2
I-81 Widening-S. Martinsburg I/C to Falling Waters	Construct 10.12 miles of additional lane in both directions	$83,720	2.1
US 19 – SUMMERSVILLE (WIDENING)	Widen US 19 to six lanes at Summersville from Nicholas County19/11 to WV 41; approximately 1 mile	$15,000	2.1
WV 20 (I-77 TO ATHENS)	Widen to 24' pavement from I-77 east to Athens	$13,890	2.0
King Coal Highway-Johnny Cake (US 52) to Davy (McDowell CR 4)	Construct 11.1 miles of four lane road	$227,550	1.9
I-64 WHITE SULPHUR SPRINGS INTERCHANGE	Add a westbound on-ramp and an eastbound off-ramp at the White Sulphur Springs Interchange in Greenbrier County	$10,000	1.9
WEST RUN EXPRESSWAY	Construct new four-lane highway north of Morgantown area to connect I-68 and I-79 Per Morgantown/Monongalia County 2020 Plan	$175,000	1.8
East Beckley Bypass-Cranberry Creek to CR 8	Construct 1.61 miles four lane road	$33,000	1.8
Coalfields Expressway-Mullens to Pineville	Construct 5.08 miles four lane road	$104,140	1.8
US 11, TABLER STATION TO WV 45/WV9	Widen US 11 to three, four, and five lanes in Berkeley County between Tabler Station and WV45/WV 9, Per HEP MPO 2030 plan report	$24,590	1.8

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
WV 705 CONNECTOR AND LINK FROM WV 705 CONNECTOR TO WVU DOWNTOWN CAMPUS GATEWAY CONNECTOR	North of Morgantown; construct new divided four-lane roadway from WV 705/Stewartstown Road (Monongalia CR 67) intersection to CR 857 at bottom of Easton Hill; construct / reconstruct linking roadway between WV 705 Connector and WVU Downtown Campus Gateway Connector	$75,000	1.7
US 30 UPGRADE (HANCOCK CO)	Upgrade existing roadway to four lanes between Chester and the Pennsylvania state line	$42,000	1.6
New River Parkway-Hinton to Fall Branch Bridge	Construct 6.7 miles of two lane road	$36,030	1.6
WV 9 (I-81 TO BERKELEY CR 7)	Widen to 4 lanes from existing 4-lanes to CR1 (Grade Rd.). Construct four-lane WV 9 on new alignment between Berkeley CR 1 and CR 7 (Back Creek Rd.)	$61,000	1.6
King Coal Highway-Taylorsville to Horse Pen Connector	Construct 9.6 miles of four lane road	$196,800	1.5
Tolsia Highway--Kermit to Parsley Big Branch	Construct 2.5 miles of four lane road	$65,000	1.5
US 19 TO CR 707 (SHINNSTON CONNECTOR)	New 2-lane road from US 19 near Shinnston to I-79 at WV 279 in Harrison County, a total of 5 miles	$50,000	1.5
I-64 Widening-Barboursville to WV/KY State Line	Construct 18 miles of additional lane in both directions	$168,000	1.4
Tolsia Highway-Naugatuck to Miller Creek	Construct 3.74 miles of four lane road	$76,670	1.4
I-68 EXTENSION	Construct new four-lane roadway from I-79 at Morgantown to WV 2 at or near Moundsville	$1,107,000	1.4
Coalfields Expressway--Pineville to Welch	Construct 10.5 miles four lane road	$215,250	1.4
King Coal Highway-Davy(McDowell CR 4) to Coalfields I/C Welch	Construct 6.7 miles of four lane road	$137,350	1.3
US 220 (MD - PETERSBURG)	New four-lane road from Maryland to Petersburg (does not include Moorefield bypass)	$867,150	1.3
King Coal Highway-WV 123 Airport Road(Mercer Co.) to John Nash Blvd	Construct 3.8 miles of four lane road	$66,900	1.3
East Beckley Bypass-CR 8 to Corridor L	Construct 4.5 miles four lane road	$92,250	1.3
I-81 Widening-VA Line to S. Martinsburg	Construct 11.6 miles of additional lane in both directions	$81,620	1.3

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
WV 2 (HUNTINGTON TO POINT PLEASANT)	Upgrade to four lanes from Huntington to Point Pleasant	$389,000	1.2
RIVESVILLE CONNECTOR	Construct new four-lane connector from the Pricketts Fort (Marion CR 33)/I-79 interchange to US 19 at Rivesville	$153,000	1.2
LITTLE KANAWHA RIVER PARKWAY (GLENVILLE TO BURNSVILLE)	New four-lane highway from Glenville (US 33/US 119) to I-79 near Burnsville (appr. 11 miles)	$168,000	1.2
I-81 Widening-Falling Waters to MD Line	Construct 4.26 miles of additonal lane in both directions	$48,900	1.2
US 219 – BEVERLY TO DAILY	Relocating US 219 to a new four-lane road from Beverly to Daily in Randolph County	$70,000	1.2
Corridor H-Wardensville to Virginia Line (APD FUNDING)	Construct 6.53 miles four lane road	$55,221	1.2
WV 622, I-64 TO N OF WV 62	Widen existing roadway from three to five lanes, I-64/Cross Lanes interchange to WV 62, Kanawha County- 0.8 mile	$19,200	1.2
WV 14 (BLIZZARD DRIVE TO PARKERSBURG CITY LIMITS)	Widen Pike Street (WV 14) to standard width lanes and provide Operational/signal improvements from Blizzard Drive (WV 14) south to the Parkersburg city limits.	$8,100	1.2
WV 10 - MAN TO US 19	Operational improvements to approximately 69 miles of existing facility in Logan, Wyoming and Mercer Counties	$69,000	1.2
WV 9 (BERKELEY CR 7 TO BERKELEY SPRINGS)	Construct four-lane highway on new alignment, Berkeley and Morgan Counties	$297,250	1.2
Shawnee Parkway-Egeria to Lamar	Construct 8.5 miles two lane road	$124,525	1.2
Shawnee Parkway-Lamar to Crumpler, WV	Construct 5.5 miles two lane road	$80,575	1.1
US 50 (US 220 TO WV/VA STATE LINE)	New four-lane highway from US 220 to WV/Virginia State Line (appr. 45 miles)	$900,000	1.1
WV 2 (PARKERSBURG TO MCKEEFREY)	Upgrade to four and five lanes from Parkersburg to McKeefrey	$971,100	1.1
Elkins Bypass-Aggregates to Sullivan Junction	Construct 6.2 miles of four lane road	$127,100	1.1
LITTLE KANAWHA RIVER PARKWAY (ELIZABETH TO GLENVILLE)	New four-lane highway from Elizabeth to Glenville (US 33/US 119) (appr. 39 miles)	$585,000	1.1
BECKLEY CROSS TOWN CONNECTOR	Construct a new four-lane highway from WV 3 west of I-77/WV 3 interchange to the East Beckley Bypass.	$120,950	1.1

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
Corridor H-Parsons to Davis (APD FUNDING)	Construct 10.0 miles four lane road	$177,600	1.1
US 35---Buffalo Bridge to CR 42	Construct 11 miles of four lane road	$250,000	1.0
WV 10	Construct 8-mile Rich Creek-to-Stollings section of Man-to-Logan four-lane highway	$197,400	1.0
Tolsia Highway-Tabors Creek to Fort Gay	Construct 4.05 miles of four lane road	$83,025	1.0
SCOTT MILLER HILL – US 33 RELOCATION	Relocate US 33 to a new two-lane road from CR 3 to CR 5/12 in Roane County	$40,800	1.0
US 50 SOUTH BYPASS (I-79, Anmore–I/S WV 279 & US 50)	US 50 south bypass at Bridgeport, Harrison County; I-79 Anmore interchange to US 50/WV 279 intersection. Combination four-lane improvements along existing alignments, and four-lane construction on new alignment	$68,500	1.0
Tolsia Highway--Kenova-Sharps Branch(Cyrus)	Construct 4.50 miles of four lane road	$92,250	1.0
Elkins Bypass- Sullivan Junction to US 219	Construct 2.5 miles four lane road	$72,500	1.0
SOUTH VIENNA CONNECTOR	Construct new two- and three-lane highway from Murdoch/Grand Central Avenue (WV 14) to I-77 at Old St. Marys Pike (Wood CR 16).	$90,000	0.9
US 50 (Bridgeport to Grafton)	New four-lane highway from Bridgeport (WV 279) to US 119 in Grafton (appr. 13 miles)	$260,000	0.9
WV 51, INWOOD BYPASS (I-81-US 11 & NEW WV 51)	Widen WV 51 to five lanes from I-81 to US 11. Construct new roadway to eliminate existing offset WV 51/US 11 intersections, US 11 to vicinity of Tarico Heights in Berkeley County	$19,454	0.9
LITTLE KANAWHA RIVER PARKWAY (MINERAL WELLS TO ELIZABETH)	New four-lane highway from I-77 at Mineral Wells to Elizabeth (appr. 17 miles)	$240,000	0.9
SHAWNEE PARKWAY EXTENSION	New two-lane road from US 19 at Flat Top to WV 20 south of Hinton, a total of approximately 20 miles	$293,000	0.9
US 250, MEADOWLANE AVE TO MARY LOU RETTON DR IN FAIRMONT	Widen US 250 to three lanes from Meadow lane Avenue to Mary Lou Retton Drive in Fairmont.	$8,450	0.9
RHL BOULEVARD TO WV 601 (TRACE FORK CONNECTOR)	Construct new two-lane connector from RHL Boulevard (at the Shops at Trace Fork) to Jefferson Road (WV 601) in Kanawha County	$13,750	0.9

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
Tolsia Highway--Kermit Bypass--Stepptown to Lower Burning Creek	Construct 2.76 miles of four lane road	$58,300	0.9
Coalfields Expressway--Welch to Bradshaw	Construct 16 miles four lane road	$328,000	0.9
Coalfields Expressway--Slab Fork to Mullens	Construct 7.79 miles four lane road	$226,000	0.8
WV 2 (WHEELING TO FOLLANSBEE)	Upgrade to four lanes from Wheeling to Follansbee	$489,500	0.8
Tolsia Highway-Drag Creek to Crum (Jennie Crk. Rd)	Construct 5.73 miles of four lane road	$117,465	0.8
New River Parkway-Fall Branch Bridge to WV 20 near I-64	Construct 3.3 miles of two lane road	$33,800	0.8
BLUE-GRAY INTERMODAL HIGHWAY (I-77 TO SPENCER)	Construct new four-lane highway from I-77 at Ripley to US 33/US 119 I/S in Spencer (appr. 24 miles)	$492,000	0.8
US 522 (BYPASS $40 M, REMAINDER $360 M)	Reconstruct US 522 in Morgan County to four-lane highway between Virginia and Maryland state boundaries. Includes new construction of Berkeley Springs bypass; approximately 19 miles total	$400,000	0.8
King Coal Highway-Naugatuck to Belo	Construct 8.8 miles of four lane road	$180,400	0.8
WV 2 (POINT PLEASANT TO I-77)	Upgrade to four lanes from Point Pleasant to I-77 near Ravenswood	$297,900	0.8
King Coal Highway-Crumpler to Montcalm	Construct 10.7 miles of four lane road	$219,350	0.8
Tolsia Highway--Sharps Branch(Cyrus) to Prichard	Construct 5.51 miles of four lane road	$104,550	0.8
Shawnee Parkway-Raleigh/Mercer Co. Line to Egeria	Construct 6.0 miles two lane road	$87,900	0.8
Coalfields Expressway--Bradshaw to VA line near Grundy	Construct four lane road	$147,600	0.8
US 250 – NORTH CENTRAL CONNECTOR	New four-lane road from the intersection of US 33 and US 250 near Harding to Belington in Barbour County, a total of 8 miles	$164,000	0.8
MOOREFIELD BYPASS	Construct new four-lane bypass from Hardy County 13 to US 220; approximately four miles	$120,000	0.8
WV 16 – ST. MARYS	New two-lane road from WV 16 east of St. Marys to the intersection of WV 2 and WV 807 in Pleasants County	$21,970	0.8

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
Tolsia Highway-Fort Gay to SaltPeter Road	Construct 3.3 miles of four lane road	$67,650	0.7
I-77 Widening-Mineral Wells to Vienna	Construct 9 miles of additonal lane in both directions	$63,000	0.7
BLUE-GRAY INTERMODAL HIGHWAY (SPENCER TO I-79)	Construct new four-lane highway from US 33/US 119 I/S in Spencer to I-79 at Burnsville (appr. 47 miles)	$963,500	0.7
Tolsia Highway-- Crum (Jennie Crk. Rd) to Stepptown	Construct 5.04 miles of four lane road	$103,320	0.7
US 19 FROM CORR D TO MARION CO. LINE	Upgrade US 19 to four lanes in Harrison County between US 50 at Clarksburg to the Marion County line	$163,500	0.7
Tolsia Highway-Parsley Big Branch to Naugatuck	Construct 2.46 miles of four lane road	$65,000	0.7
King Coal Highway-Delbarton to Taylorsville	Construct 5.9 miles of four lane road	$120,950	0.7
WV 10 – CHAPMANVILLE TO HUNTINGTON	Four lane upgrade of WV 10 corridor	$1,025,000	0.7
WV 2 (FOLLANSBEE TO CHESTER)	Upgrade to four lanes from Follansbee to Chester	$463,900	0.7
King Coal Highway-Coalfields I/C Welch to Crumpler	Construct 17 miles of four lane road	$348,500	0.7
Tosia Highway--SaltPeter Road to Glenhayes	Construct 5.16 miles of four lane road	$105,780	0.7
I-64 Widening Hurricane to Barboursville	Construct 16 miles of additional lane in both directions	$149,000	0.7
CLEAR CREEK TO PAX (FAYETTE & RALEIGH)	Upgrade Raleigh CR 5 and Fayette CR 23/82 from Raleigh CR 1 to I-77, a total of 6 miles	$87,900	0.7
I-79 Widening-Anmore to US 250 South Fairmont	Construct 15 miles of additional lane in both directions	$104,720	0.6
Corridor H-Davis to Bismark	Construct 16.11 miles four lane road	$241,650	0.6
Tolsia Highway-- Hubbardstown to Tabors Creek	Construct 3.62 miles of four lane road	$74,210	0.6
WV 68, EMERSON AVENUE	Reconstruct Emerson Avenue (WV 68) in Wood County to five lanes from North Hills to I-77.	$24,300	0.6
Corridor H-Kerens to Parsons (APD FUNDING)	Construct 15.47 miles four lane road	$357,350	0.6
US 19 SOUTH BECKLEY	Widen existing US 19 to three lanes from US 19 Connector at Beckley to WV 3 at Shady Spring	$25,200	0.6

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
Tolsia Highway--Glenhayes to Drag Creek	Construct 5 miles of four lane road	$102,500	0.6
JEFFERSON ROAD (WV 601 UPGRADE)	Widen to five lanes and provide grade separation with Kanawha Turnpike and rail line; ADHS Corridor G (US 119) Davis Creek interchange to MacCorkle Avenue (US 60) - 1.8 miles	$56,000	0.6
WV 307/BEAVER BYPASS	New two-lane road from Beaver to I-64 in Raleigh County including bypass around Beaver, a total of 1 mile	$10,000	0.6
COVE ROAD BRIDGE, CR 507	Reconstruct Cove Road in Weirton to provide grade-separated rail crossing as functional replacement for Lee Avenue Bridge	$11,320	0.6
US 19 TO US 50 (TO HOSPITAL)	From US 19/US 50 - United Hospital Connector	$25,300	0.6
I-66 TUG RIVER TO KING COAL HIGHWAY	New four-lane highway from Pikeville, Kentucky to the King Coal Highway in the vicinity of Matewan	$120,000	0.5
King Coal Highway-HorsePen Connector to Johnny Cake (US 52)	Construct 17.35 miles of four lane road	$355,675	0.5
WV 20, PPRINCETON TO I-77(UPGRADE INCLUDING NEW I/C)	Widen to three lanes from I-77 west to WV 104; construct new interchange with I-77	$44,000	0.5
King Coal Highway-Belo to Delbarton	Construct 7.2 miles of four lane road	$147,600	0.5
HARRISON CR 24 FBI TO US 19	New four-lane highway from I-79 to US 19 in Harrison County, roughly parallelling CR 24	$50,000	0.5
US 50 (WV/MD STATE LINE TO US 220)	New four-lane highway from WV/Maryland State Line to US 220 (appr. 25 miles)	$500,000	0.5
US 219, LEWISBURG BYPASS	Construct new four-lane highway from Greenbrier Valley Airport to Ronceverte; approximately 13 miles	$195,000	0.5
US 119, I-64 TO WV 601	Widen to six lanes or comparable improvement - 3.4 miles	$72,400	0.5
I-79 Widening -US 250 South Fairmont to Morgantown	Construct 16 miles of additional lane in both directions	$121,030	0.5
US 50 (GRAFTON TO WV/MD STATE LINE)	New four-lane highway from US 119 in Grafton to WV/Maryland State Line (appr. 36 miles)	$738,000	0.5
WVU DOWNTOWN CAMPUS GATEWAY CONNECTOR (BEECHURST AVE TO WV 705)	Morgantown; new highway extending from Beechurst Avenue (US 19/WV 7) through Square at Falling Run development area to WV 705 between Stewartstown Road (CR 67) and the Mileground (US 119)	$35,000	0.5

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
THREE FORKS TO BOLT (2-lane road between Three Forks in Logan Co, and Bolt in Raleigh Co)	New two-lane road from Three Forks in Logan County to the intersection of WV 85 and WV 99 in Raleigh County	$263,700	0.5
I-77 Widening-Vienna to WV/OH State Line	Construct 8 miles of additonal lane in both directions	$51,310	0.5
US ROUTE 60 (CHELYAN TO MONTGOMERY)	Upgrade/new construction to provide four lanes, Chelyan to Montgomery, Kanawha County; approximately 6.8 miles	$139,400	0.5
WV 45 FROM MARTINSBURG BYPASS TO SHEPHERDSTOWN CONNECTOR	Reconstruct WV 45 to four-lane divided highway from WV 9 Martinsburg Bypass in Berkeley County to CR 245 in Jefferson County	$150,000	0.5
I-73/74 BRIDGE OVER OHIO RIVER	Construct four-lane bridge over Ohio River in proposed I-73/74 (US 52) corridor	$90,000	0.4
WV 25 & WV 62, FROM I-64 THROUGH TOWN OF POCA	Construct center turn lane and sidewalks, I-64 interchange at Nitro through Poca, Putnam County; approx. 3.1 miles	$23,500	0.4
Shawnee Parkway- Ghent to Raleigh/Mercer Co. Line	Construct 2.14 miles two lane road	$31,351	0.4
I-79/US 50 INTERCHANGE	Construct split diamond interchange Per draft Harrison County 2025 Transportation Plan report	$30,000	0.4
NORTH CENTRAL CONNECTOR (US 250 AND WV 310)	Upgrade US 250 and WV 310 from Belington to I-79 at Fairmont	$278,020	0.4
WV 14 (City Limits of Parkersburg to Pettyville)	Reconstruct and widen WV 14 to four lanes from the Parkersburg city boundary at the Patriot Center (Wal-Mart) south to the newly relocated WV 14 four-lane highway.	$8,500	0.4
SPRING VALLEY CONNECTOR	Construct new two-lane connector in Cabell and Wayne Counties from I-64 I/C at 17th Street to Spring Valley Drive near Sherwood - 3.5 miles	$72,500	0.3
WV 47, I-77 TO WVU AT PARKERSBURG	Provide center turn-lane and construct shoulders for bicycle use from I-77 to West Virginia University at Parkersburg.	$9,200	0.3
ENTERPRISE/ELDORA CONNECTOR	Complete new two-lane connector from Enterprise in Harrison County to Eldora in Marion County	$36,000	0.3
OHIO RIVER BRIDGE/WV 2 AND CABELL CR 19 I/S	Construct new four-lane Ohio River bridge from the Merritts Creek (Cabell CR 19)/WV 2 intersection area to Ohio Route 7/Chesapeake Bypass	$100,000	0.3

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
WV 26 – KINGWOOD TO I-68	Widening or minor improvements to WV 26 from Kingwood to I-68 in Preston County	$37,000	0.3
PUTNAM CR 33, GREAT TEAYS BLVD. TO US 35	Construct center turn lane and sidewalks along Scott Depot Road (Putnam CR 33) between Great Teays Blvd. (at Teays Valley) and US 35	$27,900	0.3
KING COAL HIGHWAY CONNECTOR	New two-lane road from WV 10 near Man to the King Coal Highway near Gilbert in Mingo Co.	$139,200	0.2
WV TURNPIKE TO MONTGOMERY CONNECTOR	New two-lane road from I-77 at Paint Creek exit to WV 61 at Montgomery, Kanawha and Fayette Counties; approximately 6 miles	$87,900	0.2
KENNA TO AMMA CONNECTOR (2-lane Road between I-77 and I-79)	New two-lane highway from I-77 at Kenna to I-79 at Amma, a total of 25 miles	$250,000	0.2
8TH AVENUE, FROM 24TH ST-29TH STREET (HUNTINGTON.)	Upgrade to four lanes with center turn lane - 0.97 mile	$15,000	0.2
HANCOCK COUNTY ROUTE 208 IMPROVEMENT	Upgrade existing highway to four lanes between WV 8 (0.25 mile south of US 30) and WV 2	$90,000	0.2
US 35, WINFIELD HIGH SCHOOL TO WV 34	Construct center turn lane and sidewalks along existing US 35 at Winfield, Putnam County- 2.1 miles	$10,500	0.2
US 220 (PETERSBURG TO VA)	Reconstructed two-lane road from Petersburg to Virginia	$216,000	0.2
NEW RIVER PARKWAY EXTENSION	New two-lane scenic highway from Hinton in Summers County to US 460 in Mercer County, a total of 34 miles	$340,000	0.1
Sutton to Webster Springs--I-79 to Centralia	Construct 11 miles of two lane road	$161,150	0.1
OHIO RIVER BRIDGE – SISTERSVILLE	New two-lane bridge over the Ohio River from Fly, Ohio to Sistersville, West Virginia	$50,000	0.1
Sutton to Webster Springs--Centralia to Webster Springs	Construct 21 miles of two lane road	$307,650	0.1
WILLIAMSON CONNECTOR	Assumed new two-lane road from King Coal Highway to US 119 west of Williamson in Mingo County	$79,110	0.1
US 33 AND US 250 I/C	Construct new interchange at the intersection of US 33 and US 250 near Harding in Randolph County	$20,000	0.1
SOUTH FAIRMONT I/C	Major reconstruction of existing I-79/US 250 interchange at South Fairmont, Marion County, with direct access to adjacent business park	$70,000	0.1

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
US 50 TO EMILY DRIVE CONNECTOR	New connection from US 50 west of the I-79/US 50 interchange to the vicinity of Emily Drive and WV 58 southeast of the interchange	$34,428	0.1
RUPERT TO FENWICK (2-lane road between US 60 at Rupert, Greenbrier Co., and WV 20 at Fenwick, Nicholas Co.)	New two-lane road from US 60 at Rupert to WV 20 at Fenwick, a total of approximately 35 miles	$512,750	0.1
BARNETT RUN ROAD (HARRISON CO.)	New 2-lane road from CR 24 (Meadowbrook Rd.) to WV 131 (Saltwell Rd.) in Harrison Co.	$41,000	0.1
WV 51–2 LANE CONNECTOR (INWOOD-CHARLES TOWN)	East of Inwood (Berkeley County) to Charles Town area (Jefferson County); new two-lane roadway on four-lane right-of-way to supplement existing WV 51	$169,500	0.1

Project Name	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
US 340	$34,439	6.33
WEST RUN EXPRESSWAY	$175,000	1.81
East Beckley Bypass	$153,650	1.64
Corridor H	$1,025,821	1.45
I-68	$1,107,000	1.40
US 220	$867,150	1.32
WV 9	$358,250	1.23
LITTLE KANAWHA RIVER PARKWAY	$753,000	1.11
King Coal Highway	$2,154,825	1.05
Coalfields Expressway	$1,020,990	1.05
Elkins Bypass	$199,600	1.04
Shawnee Parkway	$586,000	0.99
WV 2	$2,611,400	0.98
LITTLE KANAWHA RIVER PARKWAY	$240,000	0.94
Tolsia Highway	$1,115,720	0.86
US 522	$400,000	0.81
US 50	$2,398,000	0.79
BLUE-GRAY INTERMODAL HIGHWAY	$1,455,500	0.77
WV 10	$1,222,400	0.76
US 250	$164,000	0.76
MOOREFIELD BYPASS	$120,000	0.76
US 219	$265,000	0.70
I-66	$120,000	0.54
I-73/74	$90,000	0.42

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
WV 25 SPUR, WV 25 IN NITRO-6TH AVE. IN ST. ALBANS (BRIDGE)	Replace Richard Henderson Bridge (3 lanes)	$40,500	15.76
US 340	VA line Taylorsville to Horse Pen Connector 4-Lane upgrade	$34,439	6.33
WV 20, ATHENS (UPGRADE INCLUDING NEW I/C I-77)	Widen to 24' pavement from I-77 east to Athens	$13,890	4.76
BEECHURST AVE, WALNUT STREET-EIGHTH STREET (MONONGALIA CO)	Upgrade Beechurst Avenue (US 19, WV 7) in Morgantown to four and five lanes between Walnut Street and 8th Street CPr WVDOH August 2003 report	$40,000	3.62
East Beckley Bypass	Construct new 5-ln bypass-Stanaford to Ragland	$28,400	2.43
US 19 – SUMMERSVILLE (WIDENING)	Widen US 19 to six lanes at Summersville from Nicholas County19/11 to WV 41; approximately 1 mile	$15,000	2.1
East Beckley Bypass Cranberry Creek	Cranberry Creek to CR 8 Construct 1.61 miles four lane road	$33,000	1.79
US 11, TABLER STATION TO WV 45/WV9	Widen US 11 to three, four, and five lanes in Berkeley County between Tabler Station and WV45/WV 9, Per HEP MPO 2030 plan report	$24,590	1.76
US 30 UPGRADE (HANCOCK CO)	Upgrade existing roadway to four lanes between Chester and the Pennsylvania state line	$42,000	1.59
New River Parkway-Hinton to Fall Branch Bridge	Construct 6.7 miles of two lane road	$36,030	1.56
US 19 TO CR 707 (SHINNSTON CONNECTOR)	New 2-lane road from US 19 near Shinnston to I-79 at WV 279 in Harrison County, a total of 5 miles	$50,000	1.45
I-81 Widening-Falling Waters to MD Line	Construct 4.26 miles of additonal lane in both directions	$48,900	1.21
WV 622, I-64 TO N OF WV 62	Widen existing roadway from three to five lanes, I-64/Cross Lanes interchange to WV 62, Kanawha County- 0.8 mile	$19,200	1.19
WV 14 (BLIZZARD DRIVE TO PARKERSBURG CITY LIMITS)	Widen Pike Street (WV 14) to standard width lanes and provide Operational/signal improvements from Blizzard Drive (WV 14) south to the Parkersburg city limits.	$8,100	1.18
SCOTT MILLER HILL – US 33 RELOCATION	Relocate US 33 to a new two-lane road from CR 3 to CR 5/12 in Roane County	$40,800	0.98
WV 51, INWOOD BYPASS (I-81-US 11 & NEW WV 51)	Widen WV 51 to five lanes from I-81 to US 11. Construct new roadway to eliminate existing offset WV 51/US 11 intersections, US 11 to vicinity of Tarico Heights in Berkeley County	$19,454	0.94
US 250, MEADOWLANE AVE TO MARY LOU RETTON DR IN FAIRMONT	Widen US 250 to three lanes from Meadow lane Avenue to Mary Lou Retton Drive in Fairmont.	$8,450	0.92

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
RHL BOULEVARD TO WV 601 (TRACE FORK CONNECTOR)	Construct new two-lane connector from RHL Boulevard (at the Shops at Trace Fork) to Jefferson Road (WV 601) in Kanawha County	$13,750	0.87
New River Parkway-Fall Branch Bridge to WV 20 near I-64	Construct 3.3 miles of two lane road	$33,800	0.82
WV 16 – ST. MARYS	New two-lane road from WV 16 east of St. Marys to the intersection of WV 2 and WV 807 in Pleasants County	$21,970	0.75
WV 68, EMERSON AVENUE	Reconstruct Emerson Avenue (WV 68) in Wood County to five lanes from North Hills to I-77.	$24,300	0.63
US 19 SOUTH BECKLEY	Widen existing US 19 to three lanes from US 19 Connector at Beckley to WV 3 at Shady Spring	$25,200	0.6
WV 307/BEAVER BYPASS	New two-lane road from Beaver to I-64 in Raleigh County including bypass around Beaver, a total of 1 mile	$10,000	0.58
COVE ROAD BRIDGE, CR 507	Reconstruct Cove Road in Weirton to provide grade-separated rail crossing as functional replacement for Lee Avenue Bridge	$11,320	0.58
US 19 TO US 50 (TO HOSPITAL)	From US 19/US 50 - United Hospital Connector	$25,300	0.58
WV 20, ATHENS (UPGRADE INCLUDING NEW I/C)	Widen to three lanes from I-77 west to WV 104; construct new interchange with I-77	$44,000	0.54
HARRISON CR 24 FBI TO US 19	New four-lane highway from I-79 to US 19 in Harrison County, roughly parallelling CR 24	$50,000	0.54
WVU DOWNTOWN CAMPUS GATEWAY CONNECTOR (BEECHURST AVE TO WV 705)	Morgantown; new highway extending from Beechurst Avenue (US 19/WV 7) through Square at Falling Run development area to WV 705 between Stewartstown Road (CR 67) and the Mileground (US 119)	$35,000	0.5
WV 25 & WV 62, FROM I-64 THROUGH TOWN OF POCA	Construct center turn lane and sidewalks, I-64 interchange at Nitro through Poca, Putnam County; approx. 3.1 miles	$23,500	0.41
Shawnee Parkway- Ghent to Raleigh/Mercer Co. Line	Construct 2.14 miles two lane road	$31,351	0.4
I-79/US 50 INTERCHANGE	Construct split diamond interchange Per draft Harrison County 2025 Transportation Plan report	$30,000	0.4
WV 14 (City Limits of Parkersburg to Pettyville)	Reconstruct and widen WV 14 to four lanes from the Parkersburg city boundary at the Patriot Center (Wal-Mart) south to the newly relocated WV 14 four-lane highway.	$8,500	0.35
WV 47, I-77 TO WVU AT PARKERSBURG	Provide center turn-lane and construct shoulders for bicycle use from I-77 to West Virginia University at Parkersburg.	$9,200	0.3
ENTERPRISE/ELDORA CONNECTOR	Complete new two-lane connector from Enterprise in Harrison County to Eldora in Marion County	$36,000	0.3

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
WV 26 – KINGWOOD TO I-68	Widening or minor improvements to WV 26 from Kingwood to I-68 in Preston County	$37,000	0.27
PUTNAM CR 33, GREAT TEAYS BLVD. TO US 35	Construct center turn lane and sidewalks along Scott Depot Road (Putnam CR 33) between Great Teays Blvd. (at Teays Valley) and US 35	$27,900	0.26
8TH AVENUE, FROM 24TH ST-29TH STREET (HUNTINGTON.)	Upgrade to four lanes with center turn lane - 0.97 mile	$15,000	0.21
US 35, WINFIELD HIGH SCHOOL TO WV 34	Construct center turn lane and sidewalks along existing US 35 at Winfield, Putnam County- 2.1 miles	$10,500	0.17
US 33 AND US 250 I/C	Construct new interchange at the intersection of US 33 and US 250 near Harding in Randolph County	$20,000	0.11
US 50 TO EMILY DRIVE CONNECTOR	New connection from US 50 west of the I-79/US 50 interchange to the vicinity of Emily Drive and WV 58 southeast of the interchange	$34,428	0.09
BARNETT RUN ROAD (HARRISON CO.)	New 2-lane road from CR 24 (Meadowbrook Rd.) to WV 131 (Saltwell Rd.) in Harrison Co.	$41,000	0.06

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
WELLSBURG BRIDGE (OHIO RIVER CROSSING)	Construct new Ohio River bridge in Brooke County south of Wellsburg to Ohio Route 7 in the vicinity of Brilliant	$75,000	10.73
Corridor H-Bismark to Foreman	Construct 13.78 miles four lane road	$194,000	4.45
King Coal Highway-Montcalm to WV 123 Airport Road(Mercer Co.)	Construct 7.5 miles of four lane road	$153,750	2.20
I-81 Widening-S. Martinsburg I/C to Falling Waters	Construct 10.12 miles of additional lane in both directions	$83,720	2.13
King Coal Highway-Johnny Cake (US 52) to Davy (McDowell CR 4)	Construct 11.1 miles of four lane road	$227,550	1.91
WEST RUN EXPRESSWAY	Construct new four-lane highway north of Morgantown area to connect I-68 and I-79 Per Morgantown/Monongalia County 2020 Plan	$175,000	1.81
Coalfields Expressway-Mullens to Pineville	Construct 5.08 miles four lane road	$104,140	1.77
WV 705 CONNECTOR AND LINK FROM WV 705 CONNECTOR TO WVU DOWNTOWN CAMPUS GATEWAY CONNECTOR	North of Morgantown; construct new divided four-lane roadway from WV 705/Stewartstown Road (Monongalia CR 67) intersection to CR 857 at bottom of Easton Hill; construct / reconstruct linking roadway between WV 705 Connector and WVU Downtown Campus Gateway Connector	$75,000	1.69
WV 9 (I-81 TO BERKELEY CR 7)	Widen to 4 lanes from existing 4-lanes to CR1 (Grade Rd.). Construct four-lane WV 9 on new alignment between Berkeley CR 1 and CR 7 (Back Creek Rd.)	$61,000	1.56
King Coal Highway-Taylorsville to Horse Pen Connector	Construct 9.6 miles of four lane road	$196,800	1.55
Tolsia Highway--Kermit to Parsley Big Branch	Construct 2.5 miles of four lane road	$65,000	1.55
I-64 Widening-Barboursville to WV/KY State Line	Construct 18 miles of additional lane in both directions	$168,000	1.44
Tolsia Highway-Naugatuck to Miller Creek	Construct 3.74 miles of four lane road	$76,670	1.42
I-68 EXTENSION	Construct new four-lane roadway from I-79 at Morgantown to WV 2 at or near Moundsville	$1,107,000	1.40
Coalfields Expressway--Pineville to Welch	Construct 10.5 miles four lane road	$215,250	1.39
Elkins Bypass-Aggregates to Sullivan Junction	Construct 6.2 miles of four lane road	$127,100	1.38
King Coal Highway-Davy(McDowell CR 4) to Coalfields I/C Welch	Construct 6.7 miles of four lane road	$137,350	1.34

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
King Coal Highway-WV 123 Airport Road(Mercer Co.) to John Nash Blvd	Construct 3.8 miles of four lane road	$66,900	1.31
East Beckley Bypass-CR 8 to Corridor L	Construct 4.5 miles four lane road	$92,250	1.31
I-81 Widening-VA Line to S. Martinsburg	Construct 11.6 miles of additional lane in both directions	$81,620	1.29
WV 2 (HUNTINGTON TO POINT PLEASANT)	Upgrade to four lanes from Huntington to Point Pleasant	$389,000	1.23
RIVESVILLE CONNECTOR	Construct new four-lane connector from the Pricketts Fort (Marion CR 33)/I-79 interchange to US 19 at Rivesville	$153,000	1.22
LITTLE KANAWHA RIVER PARKWAY (GLENVILLE TO BURNSVILLE)	New four-lane highway from Glenville (US 33/US 119) to I-79 near Burnsville (appr. 11 miles)	$168,000	1.22
US 219 – BEVERLY TO DAILY	Relocating US 219 to a new four-lane road from Beverly to Daily in Randolph County	$70,000	1.20
Corridor H-Wardensville to Virginia Line (APD FUNDING)	Construct 6.53 miles four lane road	$55,221	1.19
WV 10 - MAN TO US 19	Operational improvements to approximately 69 miles of existing facility in Logan, Wyoming and Mercer Counties	$69,000	1.17
WV 9 (BERKELEY CR 7 TO BERKELEY SPRINGS)	Construct four-lane highway on new alignment, Berkeley and Morgan Counties	$297,250	1.17
Shawnee Parkway-Egeria to Lamar	Construct 8.5 miles two lane road	$124,525	1.16
Shawnee Parkway-Lamar to Crumpler, WV	Construct 5.5 miles two lane road	$80,575	1.14
US 50 (US 220 TO WV/VA STATE LINE)	New four-lane highway from US 220 to WV/Virginia State Line (appr. 45 miles)	$900,000	1.14
WV 2 (PARKERSBURG TO MCKEEFREY)	Upgrade to four and five lanes from Parkersburg to McKeefrey	$971,100	1.13
US 220	Reconstructed two-lane road from Petersburg to Virginia	$1,083,150	1.09
LITTLE KANAWHA RIVER PARKWAY (ELIZABETH TO GLENVILLE)	New four-lane highway from Elizabeth to Glenville (US 33/US 119) (appr. 39 miles)	$585,000	1.07
BECKLEY CROSS TOWN CONNECTOR	Construct a new four-lane highway from WV 3 west of I-77/WV 3 interchange to the East Beckley Bypass.	$120,950	1.06
Corridor H-Parsons to Davis (APD FUNDING)	Construct 10.0 miles four lane road	$177,600	1.06
WV 10	Construct 8-mile Rich Creek-to-Stollings section of Man-to-Logan four-lane highway	$197,400	1.01
Tolsia Highway-Tabors Creek to Fort Gay	Construct 4.05 miles of four lane road	$83,025	0.98

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
US 50 SOUTH BYPASS (I-79, Anmore–I/S WV 279 & US 50)	US 50 south bypass at Bridgeport, Harrison County; I-79 Anmore interchange to US 50/WV 279 intersection. Combination four-lane improvements along existing alignments, and four-lane construction on new alignment	$68,500	0.97
Tolsia Highway--Kenova-Sharps Branch(Cyrus)	Construct 4.50 miles of four lane road	$92,250	0.97
SOUTH VIENNA CONNECTOR	Construct new two- and three-lane highway from Murdoch/Grand Central Avenue (WV 14) to I-77 at Old St. Marys Pike (Wood CR 16).	$90,000	0.95
US 50 (Bridgeport to Grafton)	New four-lane highway from Bridgeport (WV 279) to US 119 in Grafton (appr. 13 miles)	$260,000	0.95
LITTLE KANAWHA RIVER PARKWAY (MINERAL WELLS TO ELIZABETH)	New four-lane highway from I-77 at Mineral Wells to Elizabeth (appr. 17 miles)	$240,000	0.94
SHAWNEE PARKWAY EXTENSION	New two-lane road from US 19 at Flat Top to WV 20 south of Hinton, a total of approximately 20 miles	$293,000	0.93
Tolsia Highway--Kermit Bypass--Stepptown to Lower Burning Creek	Construct 2.76 miles of four lane road	$58,300	0.87
Coalfields Expressway--Welch to Bradshaw	Construct 16 miles four lane road	$328,000	0.85
Coalfields Expressway--Slab Fork to Mullens	Construct 7.79 miles four lane road	$226,000	0.85
WV 2 (WHEELING TO FOLLANSBEE)	Upgrade to four lanes from Wheeling to Follansbee	$489,500	0.84
Tolsia Highway-Drag Creek to Crum (Jennie Crk. Rd)	Construct 5.73 miles of four lane road	$117,465	0.82
BLUE-GRAY INTERMODAL HIGHWAY (I-77 TO SPENCER)	Construct new four-lane highway from I-77 at Ripley to US 33/US 119 I/S in Spencer (appr. 24 miles)	$492,000	0.82
US 522 (BYPASS $40 M, REMAINDER $360 M)	Reconstruct US 522 in Morgan County to four-lane highway between Virginia and Maryland state boundaries. Includes new construction of Berkeley Springs bypass; approximately 19 miles total	$400,000	0.81
King Coal Highway-Naugatuck to Belo	Construct 8.8 miles of four lane road	$180,400	0.79
WV 2 (POINT PLEASANT TO I-77)	Upgrade to four lanes from Point Pleasant to I-77 near Ravenswood	$297,900	0.79
King Coal Highway-Crumpler to Montcalm	Construct 10.7 miles of four lane road	$219,350	0.78
Tolsia Highway--Sharps Branch(Cyrus) to Prichard	Construct 5.51 miles of four lane road	$104,550	0.78
Shawnee Parkway-Raleigh/Mercer Co. Line to Egeria	Construct 6.0 miles two lane road	$87,900	0.78
Coalfields Expressway--Bradshaw to VA line near Grundy	Construct four lane road	$147,600	0.76

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
US 250 – NORTH CENTRAL CONNECTOR	New four-lane road from the intersection of US 33 and US 250 near Harding to Belington in Barbour County, a total of 8 miles	$164,000	0.76
MOOREFIELD BYPASS	Construct new four-lane bypass from Hardy County 13 to US 220; approximately four miles	$120,000	0.76
Tolsia Highway-Fort Gay to SaltPeter Road	Construct 3.3 miles of four lane road	$67,650	0.75
I-77 Widening-Mineral Wells to Vienna	Construct 9 miles of additonal lane in both directions	$63,000	0.75
BLUE-GRAY INTERMODAL HIGHWAY (SPENCER TO I-79)	Construct new four-lane highway from US 33/US 119 I/S in Spencer to I-79 at Burnsville (appr. 47 miles)	$963,500	0.74
Tolsia Highway-- Crum (Jennie Crk. Rd) to Stepptown	Construct 5.04 miles of four lane road	$103,320	0.74
US 19 FROM CORR D TO MARION CO. LINE	Upgrade US 19 to four lanes in Harrison County between US 50 at Clarksburg to the Marion County line	$163,500	0.73
Tolsia Highway-Parsley Big Branch to Naugatuck	Construct 2.46 miles of four lane road	$65,000	0.73
King Coal Highway-Delbarton to Taylorsville	Construct 5.9 miles of four lane road	$120,950	0.72
WV 10 – CHAPMANVILLE TO HUNTINGTON	Four lane upgrade of WV 10 corridor	$1,025,000	0.72
WV 2 (FOLLANSBEE TO CHESTER)	Upgrade to four lanes from Follansbee to Chester	$463,900	0.71
King Coal Highway-Coalfields I/C Welch to Crumpler	Construct 17 miles of four lane road	$348,500	0.70
Tosia Highway--SaltPeter Road to Glenhayes	Construct 5.16 miles of four lane road	$105,780	0.68
I-64 Widening Hurricane to Barboursville	Construct 16 miles of additional lane in both directions	$149,000	0.68
CLEAR CREEK TO PAX (FAYETTE & RALEIGH)	Upgrade Raleigh CR 5 and Fayette CR 23/82 from Raleigh CR 1 to I-77, a total of 6 miles	$87,900	0.67
I-79 Widening-Anmore to US 250 South Fairmont	Construct 15 miles of additional lane in both directions	$104,720	0.64
Corridor H-Davis to Bismark	Construct 16.11 miles four lane road	$241,650	0.64
Tolsia Highway--Hubbardstown to Tabors Creek	Construct 3.62 miles of four lane road	$74,210	0.63
Corridor H-Kerens to Parsons (APD FUNDING)	Construct 15.47 miles four lane road	$357,350	0.62
Tolsia Highway--Glenhayes to Drag Creek	Construct 5 miles of four lane road	$102,500	0.60
JEFFERSON ROAD (WV 601 UPGRADE)	Widen to five lanes and provide grade separation with Kanawha Turnpike and rail line; ADHS Corridor G (US 119) Davis Creek interchange to MacCorkle Avenue (US 60) - 1.8 miles	$56,000	0.60
US 35---Buffalo Bridge to CR 42	Construct 11 miles of four lane road	$131,000	0.56

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
I-66 TUG RIVER TO KING COAL HIGHWAY	New four-lane highway from Pikeville, Kentucky to the King Coal Highway in the vicinity of Matewan	$120,000	0.54
King Coal Highway-HorsePen Connector to Johnny Cake (US 52)	Construct 17.35 miles of four lane road	$355,675	0.54
King Coal Highway-Belo to Delbarton	Construct 7.2 miles of four lane road	$147,600	0.54
US 50 (WV/MD STATE LINE TO US 220)	New four-lane highway from WV/Maryland State Line to US 220 (appr. 25 miles)	$500,000	0.53
US 219, LEWISBURG BYPASS	Construct new four-lane highway from Greenbrier Valley Airport to Ronceverte; approximately 13 miles	$195,000	0.52
US 119, I-64 TO WV 601	Widen to six lanes or comparable improvement - 3.4 miles	$72,400	0.52
I-79 Widening -US 250 South Fairmont to Morgantown	Construct 16 miles of additional lane in both directions	$121,030	0.51
US 50 (GRAFTON TO WV/MD STATE LINE)	New four-lane highway from US 119 in Grafton to WV/Maryland State Line (appr. 36 miles)	$738,000	0.50
THREE FORKS TO BOLT (2-lane road between Three Forks in Logan Co, and Bolt in Raleigh Co)	New two-lane road from Three Forks in Logan County to the intersection of WV 85 and WV 99 in Raleigh County	$263,700	0.48
I-77 Widening-Vienna to WV/OH State Line	Construct 8 miles of additonal lane in both directions	$51,310	0.48
US ROUTE 60 (CHELYAN TO MONTGOMERY)	Upgrade/new construction to provide four lanes, Chelyan to Montgomery, Kanawha County; approximately 6.8 miles	$139,400	0.47
WV 45 FROM MARTINSBURG BYPASS TO SHEPHERDSTOWN CONNECTOR	Reconstruct WV 45 to four-lane divided highway from WV 9 Martinsburg Bypass in Berkeley County to CR 245 in Jefferson County	$150,000	0.45
Elkins Bypass- Sullivan Junction to US 219	Construct 2.5 miles four lane road	$72,500	0.44
I-73/74 BRIDGE OVER OHIO RIVER	Construct four-lane bridge over Ohio River in proposed I-73/74 (US 52) corridor	$90,000	0.42
NORTH CENTRAL CONNECTOR (US 250 AND WV 310)	Upgrade US 250 and WV 310 from US 33 near Harding to I-79 at Fairmont	$335,050	0.34
SPRING VALLEY CONNECTOR	Construct new two-lane connector in Cabell and Wayne Counties from I-64 I/C at 17th Street to Spring Valley Drive near Sherwood - 3.5 miles	$72,500	0.33
OHIO RIVER BRIDGE/WV 2 AND CABELL CR 19 I/S	Construct new four-lane Ohio River bridge from the Merritts Creek (Cabell CR 19)/WV 2 intersection area to Ohio Route 7/Chesapeake Bypass	$100,000	0.27
KING COAL HIGHWAY CONNECTOR	New two-lane road from WV 10 near Man to the King Coal Highway near Gilbert in Mingo Co.	$139,200	0.25

Project Name	Project Description	Project Capital Cost Less Earmarked Funds ($ 000)	Project B/C Ratio
WV TURNPIKE TO MONTGOMERY CONNECTOR	New two-lane road from I-77 at Paint Creek exit to WV 61 at Montgomery, Kanawha and Fayette Counties; approximately 6 miles	$87,900	0.21
KENNA TO AMMA CONNECTOR (2-lane Road between I-77 and I-79)	New two-lane highway from I-77 at Kenna to I-79 at Amma, a total of 25 miles	$250,000	0.21
HANCOCK COUNTY ROUTE 208 IMPROVEMENT	Upgrade existing highway to four lanes between WV 8 (0.25 mile south of US 30) and WV 2	$90,000	0.18
NEW RIVER PARKWAY EXTENSION	New two-lane scenic highway from Hinton in Summers County to US 460 in Mercer County, a total of 34 miles	$340,000	0.15
Sutton to Webster Springs--I-79 to Centralia	Construct 11 miles of two lane road	$161,150	0.14
Sutton to Webster Springs--Centralia to Webster Springs	Construct 21 miles of two lane road	$307,650	0.13
WILLIAMSON CONNECTOR	Assumed new two-lane road from King Coal Highway to US 119 west of Williamson in Mingo County	$79,110	0.12
SOUTH FAIRMONT I/C	Major reconstruction of existing I-79/US 250 interchange at South Fairmont, Marion County, with direct access to adjacent business park	$70,000	0.09
RUPERT TO FENWICK (2-lane road between US 60 at Rupert, Greenbrier Co., and WV 20 at Fenwick, Nicholas Co.)	New two-lane road from US 60 at Rupert to WV 20 at Fenwick, a total of approximately 35 miles	$512,750	0.09
WV 51–2 LANE CONNECTOR (INWOOD-CHARLES TOWN)	East of Inwood (Berkeley County) to Charles Town area (Jefferson County); new two-lane roadway on four-lane right-of-way to supplement existing WV 51	$169,500	0.05

The West Virginia Department of Transportation held two rounds of public meetings throughout the state on the Statewide Multi-modal Long-Range Transportation Plan. Both workshop meetings afforded participants the opportunity to ask questions and provide their input on how transportation fiscal resources from the State of West Virginia and the federal government should be spent in future years for all modes of transportation.

ROUND ONE

The WVDOT received a total of 28 comment forms/letters/emails during the first round of public meetings. Feedback is summarized below:

QUESTION 1	ROUND ONE RESPONSES
What are the most critical issues facing West Virginia that this transportation plan must address? (for example, lack of jobs so we need improved access/intermodal hubs to attract business) Please indicate the priority of your responses.	▪ Lack of transport hubs; Lack of access to transport hubs; Lack of access to external markets, lack of access between cities ▪ Additional sources of revenue need to be identified ▪ High volume corridors need to be identified ▪ Consider shovel ready projects for lane expansion and turn lanes ▪ Transportation infrastructure is critical to the future viability of WVs economy ▪ Jobs. The new King Coal Highway would help bring new jobs and give a safer and better way to travel ▪ County roads need improvements. This would improve tourism and the economy ▪ Jobs, Economic Development and Flat Land ▪ Improve highway safety and bring new jobs ▪ Maintain current road system better ▪ Intermodal projects at Prichard would help area by increasing rail traffic on the Norfolk Southern ▪ Parkersburg needs a bike trail ▪ We must increase the attractiveness of WV to younger people. Recreation is important to add visibility to WV Nationally. Bike & pedestrian lanes & trails are key ▪ Lack of proper signage and various other infrastructure regarding alternative forms of transportation ▪ Good river, rail and air service but poor roads ▪ Road maintenance. State must take responsibility for state roads and give cities and counties the ability to fund maintenance on their roads. ▪ Need to promote alternative modes of transportation, like transit, bike & pedestrian ▪ Local authorities need power to execute decisions regarding local problems. Funding issues should be reconsidered and shared ▪ Access improvement in Morgantown. ▪ Provide taking power to municipalities and counties so that they can raise resources for street and road improvements ▪ Provide control to municipalities for street maintenance ▪ Make roadways safe for bicyclists

QUESTION 2	ROUND ONE RESPONSES
What elements of West Virginia's overall transportation system do you think are performing the best and which need the most improvement? (For example, highways, aviation, transit, port, maintenance, safety, ITS, etc.)	▪ Highways (Best) Aviation (needs more modal orientation) ▪ Grant programs are performing well in terms of availability, however programs require a great deal of patience ▪ Aviation seems best. Highway maintenance & Construction of new roads is the most problematic ▪ The new airline service to the south has been a big improvement from the Huntington Area. We need new roads to open up areas for business ▪ The effectiveness and efficiency of the DOH is improving. Public transit from Montgomery through Charleston to Huntington is a big lost opportunity due to political implanting ▪ Need to focus on highway maintenance ▪ Highways are doing very well but over the last 3 or 4 years roads are starting to show neglect as maintenance has been declining ▪ Improvements on 119 (Williamson to Charleston) have made life easier ▪ Roads are in good shape for the most part ▪ Resurfacing needs attention. ▪ Need improved signage for businesses along corridors ▪ WVs population is unhealthy. Make up money for trails through improving health and welfare of our people ▪ Until WV starts showing a national presence for something besides coal, we are over-resourced in aviation. Pittsburgh and Columbus are too large to compete with and Charleston airport is adequate for the next 5 yrs at least. ▪ Highways are the best. Safety and infrastructure regarding alternative forms of transportation, worst. ▪ WV Rt 2 along the Otter River needs improvements. ▪ Interstate system is good. Local highway system in overwhelmed. Pedestrian safety is lacking. ▪ Highways for regional access must be enhanced. Aviation is urgently needed to provide both social and economic benefits ▪ Interstates – best. Transit needs more resources. More resources need to be re-allocated for road widening and pedestrian/ bicycle infrastructure ▪ Transit – best. Curb lanes on uphills should be widened to enable motorist to pass bicyclist safely. Enforce the law!

QUESTION 3	ROUND ONE RESPONSES
What other comments or suggestions do you have?	▪ Reorganize the transportation department. Highways should be a separate entity ▪ Survey home owners associations in the eastern panhandle to determine interest in being maintained by WVDOT and collect their HOA fees ▪ Remain ahead of the curve in production and availability of Bio-fuels ▪ New sources of funding must be identified to meet existing & growing needs ▪ Counties should be given authority to collect impact fees related to development projects which could provide the state with additional revenue to meet new highway needs ▪ State Rt 26 is rapidly deteriorating due to cut through traffic. Need traffic count ▪ Get roads open ▪ Open more flat land on top of mountains. This will give people a better way of getting up and out of the flood area and help clean up the water ways. ▪ Finish access roads to Mingo central; upgrade road for school bus travel on Buffalo Mountain (Mingo County) ▪ Fully fund the completion of King Coal Highway ▪ Construction of I73/I74 is critical to encourage growth ▪ In general, WVDOT does a good job statewide but could be better in the southern counties ▪ Need bike trails. Need green ways. WV was recently ranked worst place to ride by the League of American Bicyclists ▪ Bike/ped corridors should be considered when multi-lane highways are constructed ▪ Finish the North Bend Rail Trail ▪ WV Rt 2 through Sistersville needs improvements ▪ The state has to fund transportation. The condition and inadequate capacity of current roads is terrible. The state do not fund transit ▪ Getting more information to the general public is needed, explaining both good points and bad of specific issues ▪ Complete a northern beltway. ▪ Complete Mon-Fayette Expressway ▪ More ahead on I-68 from Morgantown to Moundsville ▪ There are serious omissions in the goals/visions relating to local capacity buildings ▪ The increase in construction cost since 1994 needs to be profiled ▪ Our transportation plan must look forward to when we can no longer afford petroleum and its environmental impact\ ▪ Transportation expenditures have discouraged bicycling for transportation ▪ A successful transportation plan includes education enforcement and evaluation in addition to engineering ▪ Motorist and bicyclist need to be educated ▪ Complete streets to accommodate all users ▪ Evaluate system impact on bicycle use and crashes ▪ Include bicycling in the plan

Example forms for Round One are included on the pages that follow.

Public Comment Form

West Virginia Department of Transportation's
Long Range Multi-modal Transportation Plan 2008 – 2032

Public Open House

March and April, 2009

Your opinion is important to us. Please give us your suggestions and thoughts on the following issues by completing this Public Comment Form. You may drop off this form in the box at a public open house, or you may go to the internet and submit your comments on line at www.wvtransplan.com or e-mail them to Mr. Perry Keller, (Perry.J.Keller@wv.gov). If you prefer to mail your comment, please fold and tape this form and mail it to the address listed on the back.

Comments are accepted through April 25, 2009.

1. What are the most critical issues facing West Virginia that this transportation plan must address? (for example, lack of jobs so we need improved access/intermodal hubs to attract business) Please indicate the priority of your responses.

2. What elements of West Virginia's overall transportation system do you think are performing the best and which need the most improvement? (For example, highways, aviation, transit, port, maintenance, safety, ITS, etc.)

3. What other comments or suggestions do you have?

Thank you for sharing your ideas and opinions with us. If you would like a response to your comments, please supply your contact information.

Name: _____ Address: _____

Telephone Number: _____ E-mail: _____

FACT SHEET

West Virginia Department of Transportation's Long Range Multi-modal Transportation Plan 2008 – 2032

WVDOT IS DEVELOPING A STATEWIDE LONG RANGE TRANSPORTATION PLAN TO:

- Gauge future revenues
- Assess transportation needs
- Set overall funding priorities and guide future expenditures for WV's transportation system

THE PURPOSE OF THIS MEETING IS TO:

- Present the project findings
- Asks you to share your vision and priorities for the future on
  - WV's transportation system
  - How transportation funding should be spent
- To hear your comments

PROJECT VISION AND GOALS:

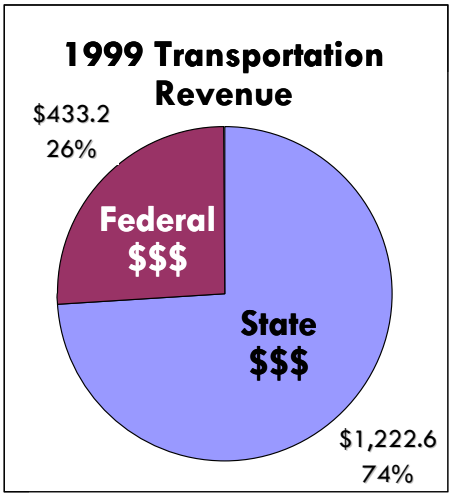
The vision as it pertains to transportation in West Virginia is for:

- A well-maintained and modern multi-modal transportation system

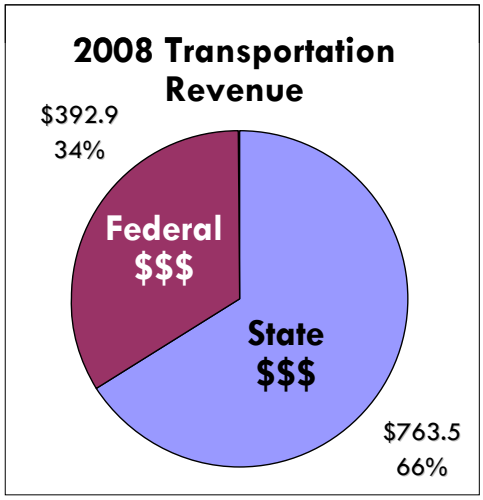
Specific goals are to:

- Preserve past investments by maintaining the existing system
- Support West Virginia's economic development goals with multi-modal access to markets in West Virginia, the United States and overseas;
- Support the health and well-being of West Virginians, as well as the environment and overall quality of life, with a range of mobility options; and
- Promote efficient use of resources, especially in light of diminishing revenues.

WHERE DOES WVDOT GET ITS MONEY?



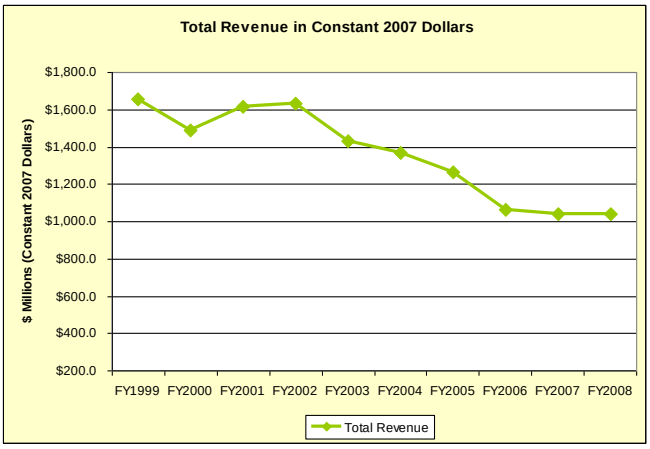
1999 Funds (in 2007$) - $1.66B



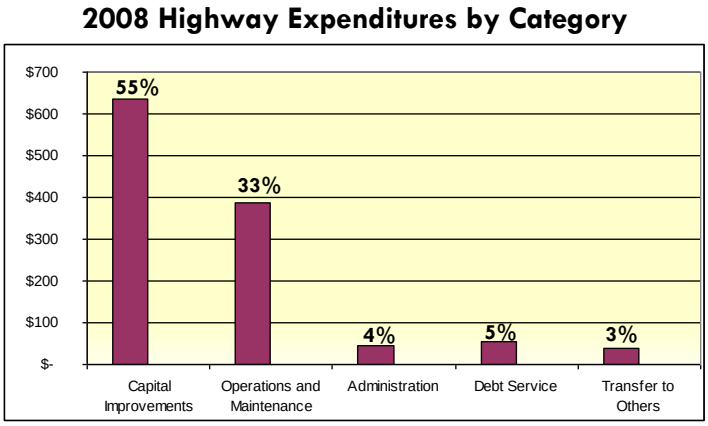
2008 Funds (in 2007$) - $1.16B

- The principal sources for transportation revenues are the Federal gas tax, the state gas tax, the WV privilege tax and WV vehicle registration fees.
- Today, less money is available from State Revenue Sources
- WVDOT can't count on future federal funding levels to remain constant

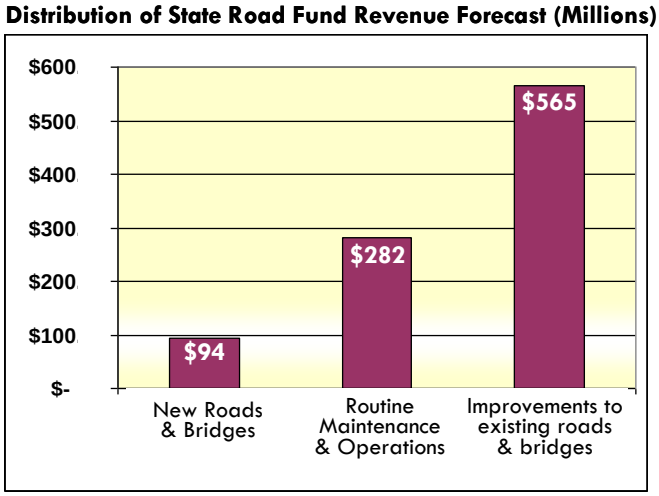
WVDOT HAS 30 % LESS MONEY TODAY TO SPEND AVAILABLE THAN 10 YEARS AGO



HOW ARE HIGHWAY $$$$ SPENT TODAY?



HOW WILL FUTURE REVENUES BE SPENT?



- 10% of WVDOH's Yearly Budget is Used for Expansion
- 30% of WVDOH's Yearly Budget is Spent on Routine Maintenance and Operations
- The Remaining 60% is Left to Resurface and Widen Existing Highways and Replace Existing Bridges ($565 Million)

WHAT ARE WV'S MODAL TRANSPORTATION NEEDS FOR THE NEXT 10 – 25 YEARS?

Aeronautics

	STATE	TOTAL
Runway Rehabilitation	$240,132	$9,605,263
Runway Extensions	$234,974	$9,398,947
Taxiway Improvements	$291,961	$11,678,421
Automatic Surface Observing System	$5,000	$200,000
Total	$772,066	$30,882,632

Rail

RAIL SERVICES	COMMENT	NEEDS
Amtrak	Amtrak's Business Plan Identified Strategic Improvements	Normal Fleet Investments to Focus on Improving Availability & Reliability
MARC	Currently No Money Slated for Improvements in the Near Future.	Identified Needs Include Upgrade Martinsburg Layover Facility, Martinsburg & Harpers Ferry Have Constrained Parking.
New High Speed Rail, Commuter Rail Initiatives, Light Rail Initiatives	No Needs were Identified in these Categories that Met Federal Participation Criteria	

Transit

COMMENT
To Expand Service to Meet Target Levels would Require an Additional one Time Cost of $14.3 Million Operating Cost & $30.0 Million in Capital Cost.
To Introduce New Service to Counties Without Service Would Require a one Time Cost of $3.2 Million in Operating and $9.6 Million in Capital Cost.

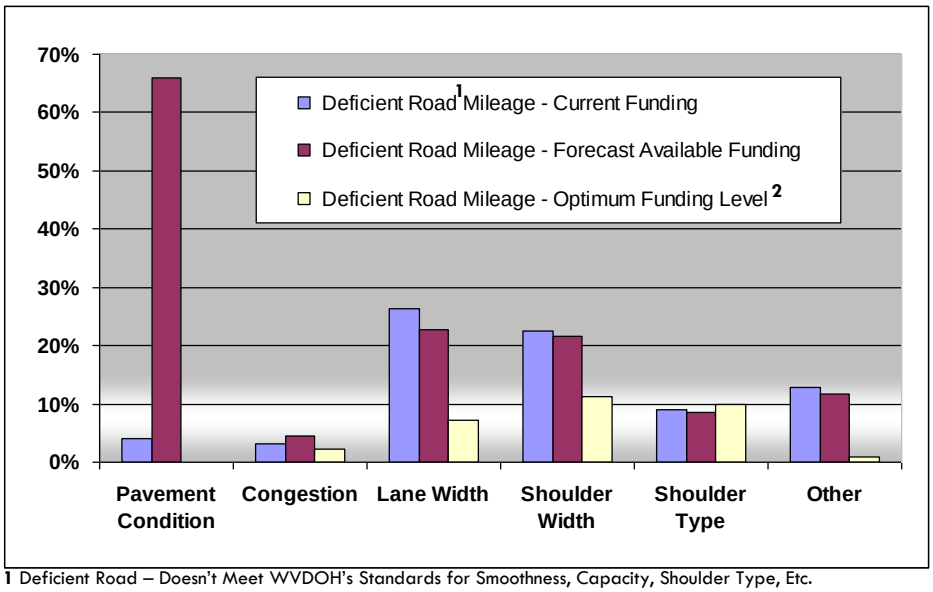
Ports

	RATING	COMMENT
Prichard	●	Located on the Heartland Corridor. Reasonable Highway Access, Few Residential Structures in the Area, Close to West Virginia Manufacturing & Population Centers.
Point Pleasant	◒	Overlaps with Private Facilities in Kenova & Nitro, WV. Similar Facility Would Probably Not Otherwise be Available in Mason County
Weirton Steel Property	◒	With the Exception of the Former Weirton Rail Yard, Highway Access is Problematic, and Flood Elevation May be an Issue. Environmental Remediation Would Also Need to be Addressed.

● Favorable ——— ○ Unfavorable

HIGHWAY NEEDS VS. REVENUE:

Forecast Available Funds and Roadways in "Excellent Working Order"



1 Deficient Road – Doesn't Meet WVDOH's Standards for Smoothness, Capacity, Shoulder Type, Etc.

2 Optimum Funding Level - Level of Funding Required to Minimize Travel Time Cost, Safety Cost, and Vehicle Operating Cost Without Revenue Constraints

	HIGHWAYS (MILLIONS)	BRIDGES (MILLIONS)	TOTAL (MILLIONS)
Forecast Available	$ 510.5	$ 54.2	564.7
Optimum Funding Level	$ 1,470.0	$ 71.5	1,541.5

- Forecast Revenues are Insufficient to Maintain all Roadways at Current Conditions
- However Conditions on Most Heavily Travelled Roads can be Maintained Near Current Conditions

POSSIBLE WV TRANSPORTATION PLAN GOALS AND PRIORITIES:

- Maintaining the Existing Transportation System
- Examples Include – Improve Safety, Improve Shoulders, Smoother Roads with Less Pot Holes
- Fund New Projects to Support WV's Economic Development and Improve Mobility
- Support Integration of other Modes of Transportation (Transit, Aviation, Ports, Rail)
- Promote Alternative Modes of Transportation (Bike/Pedestrian)
- Equitably Distribute Project Funding Across the State
- Other (Please Use Post-its)

WE CAN'T DO EVERYTHING, SO WHAT IS MOST IMPORTANT TO YOU?

Your opinion is important to us. Please give us your ideas by completing the Public Comment Form or going to the internet and submitting your comments on line at www.wvtransplan.com or e-mail to Perry.J.Keller@wv.gov. A second round of meetings to present the project findings will be held this summer.

Open House Dates (all 4:00 – 7:00 p.m.)

March 23: Triadelphia Middle School, 1636 National Road, Wheeling
March 24: Berkeley Co. Commission, 400 W Stephen Street, Suite 201, Martinsburg
March 26: The Transportation Authority Center, 401 13th Street, Huntington
March 31: Elkins High School, 100 Kennedy Drive, Elkins
April 2: Rose G. Smith Theater, Williamson High School, 801 Alderson Street, Williamson
April 6: City Council Chambers, 1 Government Square, Parkersburg
April 7: Morgantown Municipal Airport, Greater Morgantown MPO, 108 Hart Filed Rd, Morgantown
April 13: Wood Education & Resource Center, 301 Hardword Lane, Princeton

Input will be accepted through June 1, 2009

ROUND TWO

The WVDOT received a total of 10 comment forms/letters/emails during the second round of public meetings. Feedback is summarized below:

QUESTION 1	ROUND TWO RESPONSES
Through analyses, the first round of public meetings and various committee meetings, results indicate that the WVDOT has a revenue gap and needs additional funding. Beyond traditional highway taxes and fees, are there other options that you would suggest that might help the WVDOT improve the quality of the overall Transportation System?	▪ Increase state sales tax ▪ Allow counties to keep all severance monies for 3-5 years ▪ Remove used roads from books. ▪ Turn old roads over to locals ▪ Encourage more carpooling ▪ Public/Private partnerships ▪ Improve safer pick ups for IT's from Huntington to Charleston (lots of drug dealers & cruel teenagers) ▪ Need a light rail system running from Wheeling to Pittsburgh or a high speed ferry using the Ohio River instead ▪ The WVDOT should be given the authorization to determine the priorities. Leave the politicians out of it! ▪ Does WVDOT have an ombudsman?

QUESTION 2	ROUND TWO RESPONSES
Are there other programs besides the traditional maintenance and expansion of our highway system that you feel are important to the state that should either be funded at a higher level or new programs that should be started? (examples: bike and pedestrian program, access management, other)	▪ Resurface and widen projects that now are pending future funding ▪ Continue current programs: Trust and Alterative transportation projects ▪ The focus should be on maintaining the existing systems, especially bridges ▪ Increase bike and pedestrian programs. When roads are resurfaced/reconstructed, bike and pedestrian access should be included in plan ▪ Improve paving all over WV ▪ Counties need walk and bike trails ▪ Better shoulder maintenance, bike routing and signage

QUESTION 3	ROUND TWO RESPONSES
What other comments or suggestions do you have?	▪ Build Route 10 ▪ Monitor out of state tags living in WV, this could increase income to the state ▪ Parkersburg DOH staff do a great job with the resources they have. Some good people. ▪ Consider sustainable design, recycle old steel beams by replacing smaller bridges with them. Encourage innovation in rehabilitation of bridges ▪ I would be willing to pay the tax if it was for a promised road ▪ Private developments should bear the cost for new private housing/commercial/industrial sites, with state take-over if the development matures

Example forms for Round Two are included on the pages that follow.

Public Comment Form

West Virginia Department of Transportation's
Long Range Multi-modal Transportation Plan 2008 – 2032

Public Open House
March 2010

Your opinion is important to us. Please give us your suggestions and thoughts on the following issues by completing this Public Comment Form. You may drop off this form in the box at a public open house, or you may go to the internet and submit your comments on line at www.wvtransplan.com or e-mail them to Mr. Perry Keller, (Perry.J.Keller@wv.gov). If you prefer to mail your comment, please fold and tape this form and mail it to the address listed on the back.

Comments are accepted through May 15, 2010.

1. Through analyses, the first round of public meetings and various committee meetings, results indicate that the WVDOT has a revenue gap and needs additional funding. Beyond traditional highway taxes and fees, are there other options that you would suggest that might help the WVDOT improve the quality of the overall Transportation System?

2. Are there other programs besides the traditional maintenance and expansion of our highway system that you feel are important to the state that should either be funded at a higher level or new programs that should be started? (examples: bike and pedestrian program, access management, other)

3. What other comments or suggestions do you have?

Thank you for sharing your ideas and opinions with us. If you would like a response to your comments, please supply your contact information.

Name: _____ Address: _____

Telephone Number: _____ E-mail: _____

FACT SHEET

West Virginia Department of Transportation's Long Range Multi-modal Transportation Plan 2008 – 2032

WVDOT IS DEVELOPING A STATEWIDE LONG RANGE TRANSPORTATION PLAN TO:

- Gauge future revenues
- Assess transportation needs
- Set overall funding priorities and guide future expenditures for WV's transportation system

THE PURPOSE OF THIS MEETING IS TO:

- Present the project findings
- Ask you to share your thoughts on how WV can raise more revenue
  - Additional revenue is needed to meet keep up with transportation system needs
  - If new revenue is raised how should it be spent
- To hear your comments

PROJECT VISION AND GOALS:

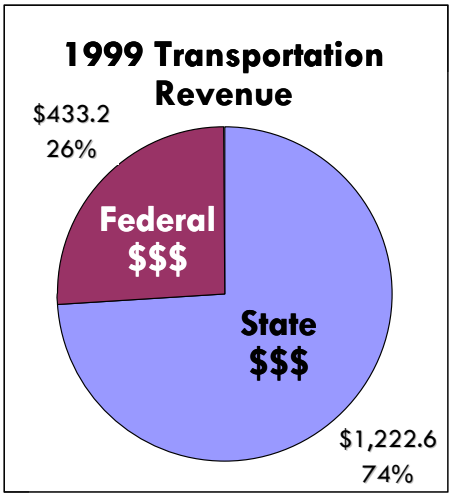
The vision as it pertains to transportation in West Virginia is for:

- A well-maintained and modern multi-modal transportation system

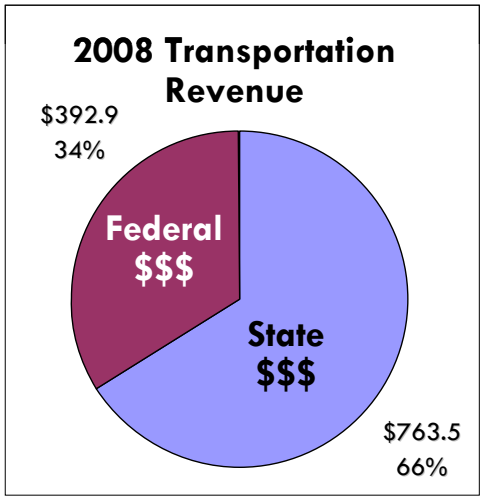
Specific goals are to:

- Preserve past investments by maintaining the existing system
- Support West Virginia's economic development goals with multi-modal access to markets in West Virginia, the United States and overseas;
- Support the health and well-being of West Virginians, as well as the environment and overall quality of life, with a range of mobility options; and
- Promote efficient use of resources, especially in light of diminishing revenues.

WVDOT HAS 30 % LESS MONEY TODAY TO SPEND AVAILABLE THAN 10 YEARS AGO?



1999 Funds (in 2007$) - $1.66B

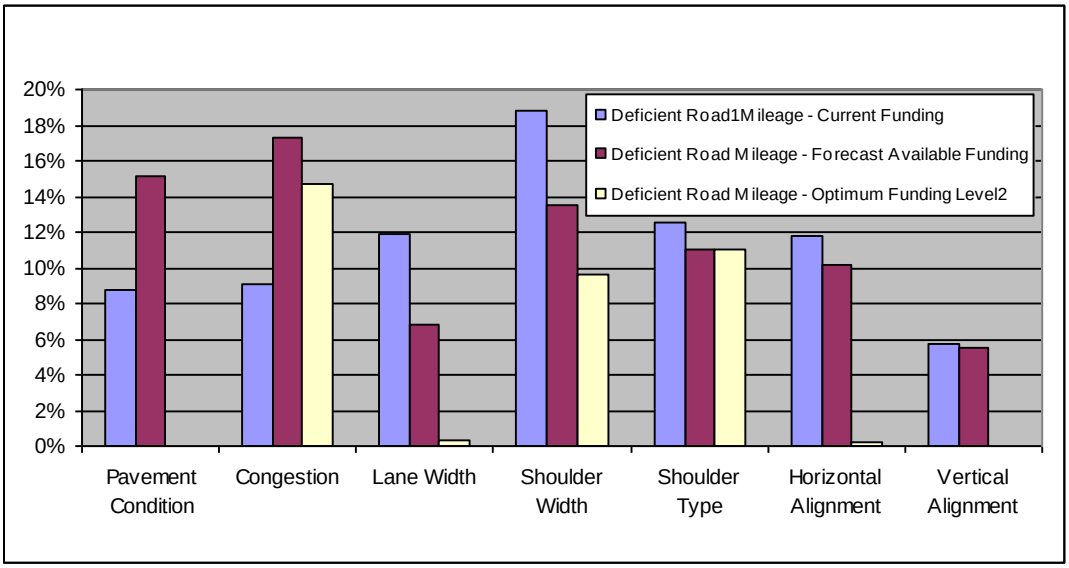


2008 Funds (in 2007$) - $1.16B

- The principal sources for transportation revenues are the Federal gas tax, the state gas tax, the WV privilege tax and WV vehicle registration fees.
- Today, less money is available from State Revenue Sources
- WVDOT can't count on future federal funding levels to remain constant

HIGHWAY NEEDS VS. REVENUE:

Forecast Available Funds and Roadways in "Excellent Working Order"



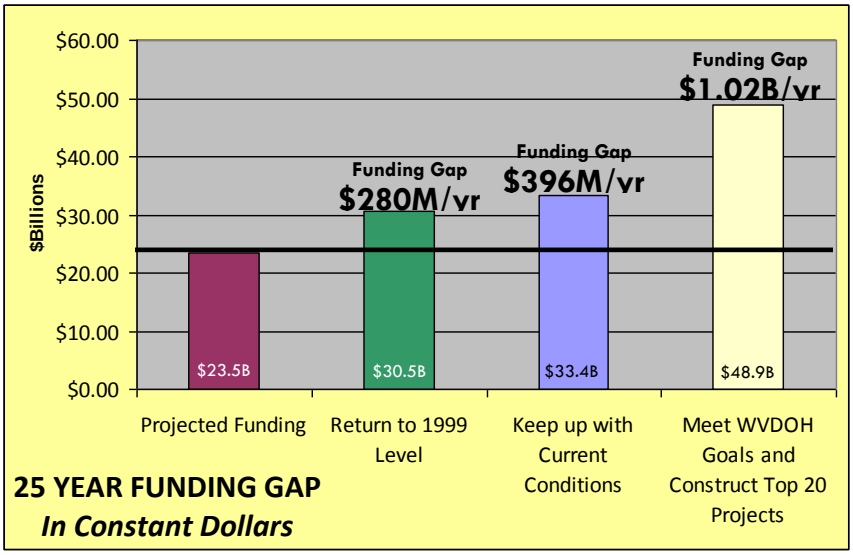
1 Deficient Road - Doesn't Meet WVDOH's Standards for Smoothness, Capacity , Shoulder Type, Etc.
2 Optimum Funding Level - Level of Funding Required to Minimize Travel Time Cost, Safety Cost, and Vehicle Operating Cost Without Revenue Constraints

	Highways (Millions)	Bridges (Millions)	Total (Millions)
Forecast Available	**$463.1**	**$101.6**	**$564.7**
Optimum Funding Level	**$1,470.0**	**$71.5**	**$1,541.5**

- Forecast Revenues are Insufficient to Maintain all Roadways at Current Conditions
- However Conditions on Most Heavily Travelled Roads can be Maintained Near Current Conditions

WVDOT HAS A FUNDING GAP:

- The state is not keeping up with resurfacing and capacity needs
- Full needs for the existing highway system over the next 25 years are estimated to be $36.7 Billion.
- Full needs for the existing bridge system over the next 25 years are estimated to be $2.4 Billion.
- This does not include new construction project.



TOTAL REVENUE (Admin, Debt Services, Routine Maintenance, etc)

HOW SHOULD THE WVDOT CLOSE THE GAP?

- Existing taxes and fees cost state residents an average of $413/yr
- The state needs more revenue
- This can only be done by raising fees and taxes related to transportation (WV does not allow local financing of highway construction and maintenance through income, sales and/or property tax)

SOME POTENTIAL SCENARIOS TO CLOSE THE GAP WOULD REQUIRE THE FOLLOWING CHANGES:

SCENARIO 1 – $100M, MODEST IMPROVEMENT TO SYSTEM

- Total cost to average citizen = $482.80 ($69/yr increase)
- Maintain system at somewhat tolerable level
- Fund additional limited system expansion
- Provide for new program, ex. Bike/Pedestrian

	CURRENT COST	NEW COST
State Fuel Tax (cents per gallon)	32	**34***
Registration Fee	$30.00	**$35.00**
License Fee	$2.60	**$5.00**
Privilege Tax	5.0%	**6.2%**

* 8 states have fuel tax higher than 34 cents/gallon

SCENARIO 2 – $300M, FUNDING LEVEL RETURNED TO 1999

- Total cost to average citizen = $557.40 ($143.8/yr increase)
- Exceeds current conditions on existing system
- Provide additional funds for expansion

	CURRENT COST	NEW COST
State Fuel Tax (cents per gallon)	32	**40***
Registration Fee	$30.00	**$40.00**
License Fee	$2.60	**$5.00**
Privilege Tax	5.0%	**7.1%**

* 4 states have fuel tax higher than 39 cents/gallon

SCENARIO 3 – $400M, EXCEED CURRENT CONDITIONS

- Total cost to average citizen = $620.00 ($207/yr increase)
- Maximizes conditions on existing system
- Provides maximum funds for expansion

	CURRENT COST	NEW COST
State Fuel Tax (cents per gallon)	32	**42***
Registration Fee	$30.00	**$50.00**
License Fee	$2.60	**$8.5**
Privilege Tax	5.0%	**8%**

* 3 states have fuel tax higher than 42 cents/gallon, HI (44.4), NY (44.8) and CA (47.4)

PROJECT BENEFITS-COST ANALYSIS:

- 149 Projects with a Projected Capital Cost of over $25B were Evaluated
- Results were Grouped as Excellent, Good, Fair and Poor

PROJECT NAME	DESCRIPTION	CAPITOL COST	B/C RATING
WV 25 Spur, WV 25 in Nitro-6TH Ave in St. Albans (Bridge)	Replace Richard Henderson Bridge (3 lanes)	$40,500	15.8
Wellsburg Bridge (OH River Crossing)	Construct new OH River Bridge in Brooke County South of Wellsburg	$75,000	10.7
US 340 VA line -Charles Town	4-Lane Upgrade	$34,439	6.3
Beechurt Ave, Walnut St -Eighth St (Monongalia Co)	Upgrade Beechurst Ave in Morgantown between Walnut St & 8th St	$40,000	3.6
East Beckley Bypass-Stanaford to Ragland	Construct New 5-lane bypass	$28,400	2.4
*King Coal Hwy-Montcalm to WV 123 Airport Rd (Mercer Co.)	Construct 7.5 miles of 4-lane Rd	$153,750	2.2
I-81 Widening-S. Martinsburg I/C to Falling Waters	Construct 10.12 miles of additional lane in both directions	$83,720	2.1
US 19 – Summersville (Widening)	Widen US 19 to 6 lanes at Summersville from Nicholas County 19/11 to WV 41; approx 1 mile	$15,000	2.1
WV 20 (I-77 TO Athens)	Widen to 24' pavement from I-77 east to Athens	$13,890	2.0
* King Coal Hwy-Johnny Cake (US 52) to Davy (McDowell CR 4)	Construct 11.1 miles of 4 lane Rd	$227,550	1.9
I-64 White Sulphur Springs Interchange	Add a westbound on-ramp & an eastbound off-ramp at the Interchange in Greenbrier County	$10,000	1.9
West Run Expressway	Construct new 4-lane hwy north of Morgantown area to connect I-68 & I-79	$175,000	1.8
East Beckley Bypass-Cranberry Creek to CR 8	Construct 1.61 miles 4 lane Rd	$33,000	1.8
* Coalfields Expressway-Mullens to Pineville	Construct 5.08 miles 4 lane Rd	$104,140	1.8
US 11, Tabler Station to WV45/WV9	Widen US 11 to 3, 4, & 5 lanes in Berkeley County between Tabler Station & WV45/WV 9	$24,590	1.8
WV 705 Connector & Link From WV 705 Connector to WVU Downtown Campus Gateway Connector	Construct new divided 4-lane Rdwy from WV 705/Stewartstown Rd (Monongalia CR 67) intersection to CR 857; construct/reconstruct linking Rdwy between WV 705 Connector & WVU Downtown Campus Gateway Connector	$75,000	1.7
US 30 Upgrade (Hancock Co)	Upgrade existing Rdwy to 4 lanes between Chester & the PA state line	$42,000	1.6
* New River Parkway-Hinton to Fall Branch Bridge	Construct 6.7 miles of 2 lane Rd	$36,030	1.6
WV 9 (I-81 to Berkeley CR 7)	Widen to 4 lanes from existing 4-lanes to CR1 (Grade Rd.) Construct 4-lane WV 9 on new alignment between Berkeley CR 1 & CR 7 (Back Creek Rd.)	$61,000	1.6
* King Coal Hwy-Taylorsville to Horse Pen Connector	Construct 9.6 miles of 4 lane Rd	$196,800	1.5
* Tolsia Hwy-Kermit to Parsley Big Branch	Construct 2.5 miles of 4 lane Rd	$65,000	1.5

* AN ECONOMIC BENEFIT EQUIVALENT TO 32% OF THE CAPITAL COST WAS APPLIED TO ALL PROPOSED FOUR LANE CORRIDOR FACILITIES, WHICH IS IN LINE WITH THE FINDING THAT ADHS CORRIDORS HAVE YIELDED $1.32 IN ECONOMIC BENEFITS FOR EVERY $1 INVESTED.

WE CAN'T DO EVERYTHING, SO WHAT IS MOST IMPORTANT TO YOU?

Your opinion is important to us. Please give us your ideas. Complete the Public Comment Form, submit your comments on line at www.wvtransplan.com or e-mail to Perry.J.Keller@wv.gov. Those wishing to provide written input may address submissions to Robert L. Pennington, P.E., Director, Program Planning and Administration Division, West Virginia Department of Transportation, Capitol Complex, Building 5, 1900 Kanawha Boulevard East, Charleston, West Virginia 25305. This is the final round of public meetings. The first round was held last spring so be sure to submit you comments.

Open House Dates (all 4:00 – 7:00 p.m.)

March 2, 2010	Logan High School, One Wildcat Way, Logan, WV
March 4, 2010	City Building, 1 Government Square, Parkersburg, WV
March 9, 2010	TTA Center, 1301 4th Avenue, Huntington, WV
March 10, 2010	Capitol Rotunda, Charleston, WV (10:00a.m. to 2:00 p.m.)
March 11, 2010	Woodrow Wilson High School, 400 Stanaford Road, Beckley, WV
March 16, 2010	Room 201, City Building, Weirton, WV
March 17, 2010	Liberty High School Auditorium, One Mountaineer Drive, Clarksburg, WV
March 18, 2010	Berkeley County Commission, 400 W Stephen Street, Suite 201, Martinsburg, WV

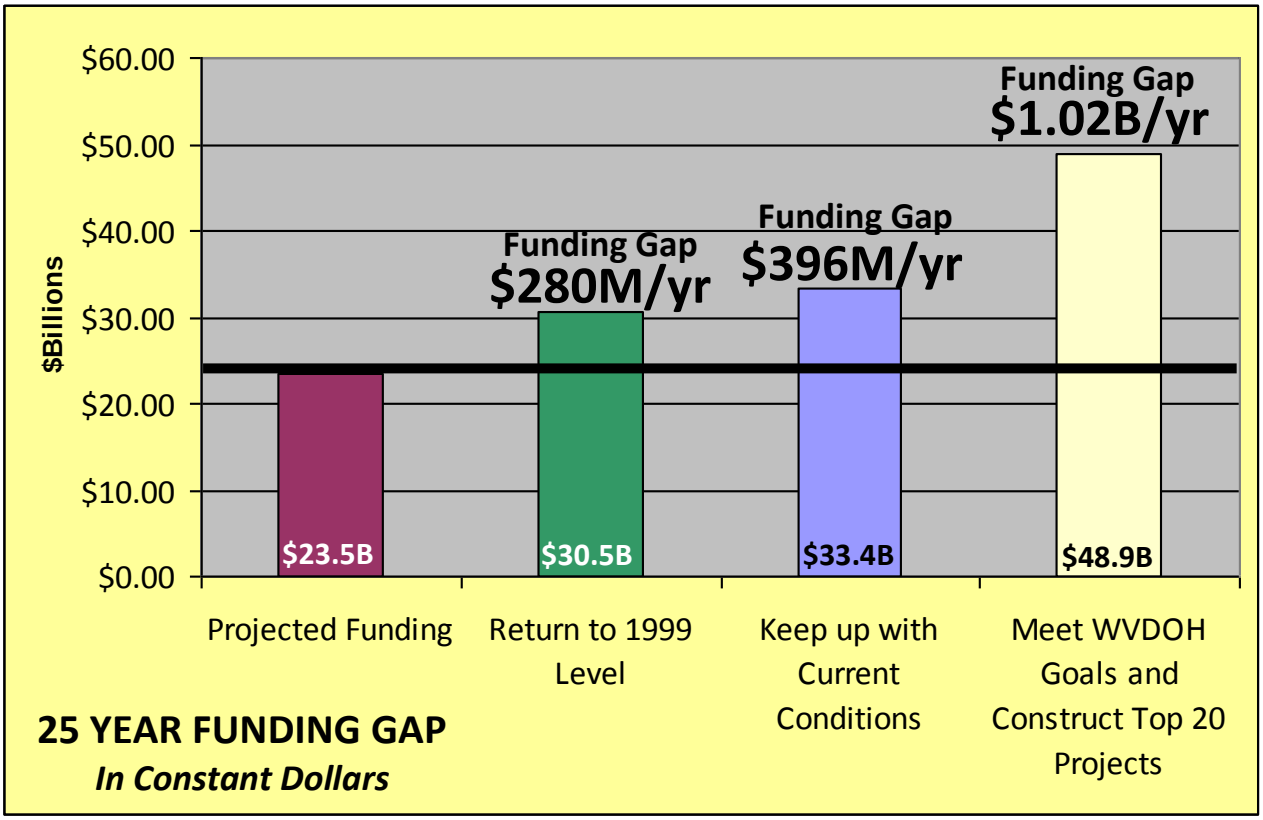
Input will be accepted through May 15, 2010.

CLOSE THE FUNDING GAP

West Virginia Department of Transportation's Long Range Multi-modal Transportation Plan 2008 – 2032

WVDOT HAS A FUNDING GAP:

- The state is not keeping up with resurfacing and capacity needs
- Inflation has eroded purchasing power (FY2008 revenue is 30% less then FY1999)



TOTAL REVENUE (Admin, Debt Services, Routine Maintenance, etc)

- Full needs for the existing highway system over the next 25 years are estimated to be $36.7 Billion.
- Full needs for the existing bridge system over the next 25 years are estimated to be $2.4 Billion.
- This does not include new expansion projects.

HOW SHOULD THE WVDOT CLOSE THE GAP?

- Average WV resident pays $413 per year in taxes and fees for Transportation Funding
- The state needs more revenue
- This can only be done by raising fees and taxes related to transportation (WV does not allow local financing of highway construction and maintenance through income, sales and/or property tax)
- We would like for you to make the hard decisions required by the Legislature to raise revenue

CHECK A FUNDING SCENARIO BELOW OR DEVELOP YOUR OWN:

SCENARIO 1 - $100 MILLION

Modest Improvement to System

- Total cost to average citizen = $482.80 ($69/yr increase)
- Maintain system at somewhat tolerable level
- Fund some facilities
- Provide for new program, ex. Bike/Pedestrian

	CURRENT COST	NEW COST
State Fuel Tax (cents per gallon)	32	**34***
Registration Fee	$30.00	**$35.00**
License Fee	$2.60	**$5.00**
Privilege Tax	5.0%	**6.2%**

* 8 states have fuel tax higher than 34 cents/gallon

SCENARIO 2 - $300 MILLION

Funding Level Returned to 1999

- Total cost to average citizen = $557.40 ($143.8/yr increase)
- Exceeds current conditions on existing system
- Provide additional funds for expansion

	CURRENT COST	NEW COST
State Fuel Tax (cents per gallon)	32	**40***
Registration Fee	$30.00	**$40.00**
License Fee	$2.60	**$5.00**
Privilege Tax	5.0%	**7.1%**

*4 states have fuel tax higher than 39 cents/gallon

SCENARIO 3 - $400 MILLION

Exceed Current Conditions

- Total Cost to Average Citizen = $620.00 ($207/yr increase)
- Maximizes conditions on existing system
- Provides maximum funds for expansion

	CURRENT	NEW COST
State Fuel Tax (cents per gallon)	32	42*
Registration Fee	$30.00	$50.00
License Fee	$2.60	$8.5
Privilege Tax	5.0%	8%

* 3 states have fuel tax higher than 42 cents/gallon, HI (44.4), NY (44.8) and CA (47.4)

SCENARIO 4 - $$$ _____YOUR SCENARIO

What Level of Funding Would You Propose?

	CURRENT	NEW COST
State Fuel Tax (cents per gallon)	32	
Registration Fee	$30.00	
License Fee	$2.60	
Privilege Tax	5.0%	

SCENARIO 5 – NO CHANGE

Maintain Current Funding Level

- Total Cost to Average Citizen = $413.60

WHAT OTHER OPTIONS WOULD YOU SUGGEST TO RAISE REVENUE/ MAXIMIZE USE OF REVENUE?

Please indicate the priority of your responses, 1 -12 (1 = Highest Priority)

	COAL SEVERANCE TAX
	PUBLIC PRIVATE PARTNERSHIP
	VEHICLE MILES TRAVELED TAX
	SOFT DRINK TAX
	INDEX DMV FEES
	IMPACT FEES

	INCREASE FUEL TAX
	FREEWAY TOLLS
	INCREASE PROPERTY TAX
	PRIVILEGE TAX
	BETTER ACCESS MANAGEMENT
	BETTER LAND USE PLANNING

Other: _____

_____

ONCE REVENUE IS RAISED, HOW SHOULD WVDOT SPEND IT?

Please indicate the priority of your responses.

	ROUTINE MAINTENANCE
	HIGHWAY RESURFACING
	HIGHWAY RENOVATIONS (WIDENING, MODERNIZATION)
	HIGHWAY/BRIDGE EXPANSION – BUILT ON NEW LOCATION
	BRIDGE REPLACEMENT – MONEY USED TO REPLACE OLD BRIDGES
	MODAL IMPROVEMENTS - AIRPORTS, PUBLIC TRANSIT BUS/RAIL, PORTS, FREIGHT RAIL, BICYCLE & PEDESTRIAN IMPROVEMENTS

Other: _____

_____

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