

Chapter 5: Cost/Revenue Analysis

This chapter explains the methodology for developing project cost estimates and revenue projections. Since the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, MPOs have been required to demonstrate that estimated project costs do not exceed projected revenues. This federal requirement is complicated first by the lack of a multi-year federal transportation funding program, and second by Virginia's shift from the traditional formula-based approach to allocating federal transportation funds to a performance-based evaluation through House Bill 2. Despite these challenges, the LRTP is required to include a financial plan that estimates revenues for identified transportation improvements.

The SAWMPO region has transportation needs that exceed revenue projections. If additional funding becomes available during the life of the LRTP, projects included on the Vision (unfunded) List would be eligible to receive funding. The Vision List is shown in **Appendix 1**.

This chapter addresses:

- 5-1 Project Cost Estimates
- 5-2 Funding Sources
- 5-3 Anticipated Revenues

5 – 1 Project Cost Estimates

Planning level cost estimates were developed for projects identified in the SAWMPO Committed and Vision Lists. Draft estimates were derived from the following sources:

- VDOT's Six Year Improvement Program (SYIP)
- Augusta County Comprehensive Plan
- VDOT's Statewide Planning Level Cost Estimating System

Project cost estimates in the SYIP or the Augusta County Comprehensive Plan were not revised. In some cases, funding has been previously allocated to established projects through the SYIP. In these instances, only the outstanding balance is included in the project cost for future budgeting purposes.

For projects that did not have a cost estimate developed in any public planning document, the project team used VDOT's Statewide Planning Level Cost Estimating System to develop estimates. The program has year 2009 project costs that are inflated annually by 3% based upon the corresponding year of expenditure (YOE). This tool provides a high level estimate based on the type of facility being constructed/reconstructed, and includes an overall percentage for Preliminary Engineering (PE) costs. Right of way (RW) costs are also included based upon an overall percentage of project cost.

December 2, 2015

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The Technical Advisory Committee (TAC) assigned projects to Year of Expenditure (YOE) brackets: short-term, mid-term, or long-term priorities. The short term was defined as the period of time in the current SYIP (2015-2021). Mid-term projects were defined as those coming online between 2022 and 2030 and long-term projects are anticipated for completion between 2031 and 2040.

Project costs were projected in the short term based upon anticipated YOE. For the mid-term projects, the YOE utilized was year 2025 and for long-term projects, the YOE utilized was 2035. For those projects that have established costs, planned expenditures were grown by 30% for mid-term projects (3% annual growth for 10 years), and 60% for long-term projects (3% annual growth for 20 years). This growth rate assumes a 3% annual inflation rate and assumes that project costs are current based upon the latest version of the SYIP.

For the universe of projects in the SAWMPO, the total cost is \$598 million.

5 – 2 Funding Sources

Transportation funding is available through federal, state, and local government entities for roadway, bike and pedestrian, and transit projects. The Commonwealth administers federal funds for roadway construction, bicycle/pedestrian facilities, transit operations and facilities, and major planning and/or environmental studies through a variety of programs. MAP-21 funds the following four major core programs for surface transportation projects pertinent to the SAWMPO:

Surface Transportation: Federal Funds

National Highway Performance Program (NHPP)

MAP-21 expanded the National Highway System (NHS) to include principal arterial roadways that were not originally part of the NHS. The Enhanced National Highway System is now comprised of the interstate system, all principal arterials, and bridges on the NHS. The NHPP provides funding for construction, reconstruction, or operational improvement of portions of the highway; inspection costs for NHS infrastructure including bridges; bicycle and pedestrian infrastructure; safety improvements on the NHS; environmental restoration within NHS corridors; intelligent transportation system (ITS) improvements; and the construction of bus terminals servicing the NHS.

Surface Transportation Program (STP)

Projects eligible for funding include construction, reconstruction, or operational improvement for highways and local access roads; bridge projects on public roads and construction of bridges on federal-aid highways; highway and transit safety infrastructure improvements; bicycle and pedestrian infrastructure including recreational trails; and environmental restoration.



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Highway Safety Improvement Program (HSIP)

The HSIP allocates funds to reduce traffic fatalities and injuries on public roads. Eligible projects for this funding include public surface transportation projects or projects that align with the State Strategic Highway Safety Plan (SHSP) to mitigate hazardous roads or resolve safety highway challenges.

Transportation Alternatives (TAP) Program

MAP-21 created the Transportation Alternatives Program to encompass preceding programs including Transportation Enhancements, Safe Routes to School, and Recreational Trails. Projects eligible for this funding include, but are not limited to, the planning, design, and construction of on- and off-road trails for non-motorized transportation; converting abandoned railroad corridors for non-motorized trails; and environmental mitigation activities.

Surface Transportation: State Funding

Virginia matches federally funded programs with state gas tax revenues along with maintenance programs received by urban localities by means of a formula-based system. The Commonwealth also supports a Revenue Sharing program where local funds are matched dollar for dollar with state funds. Eligible projects must be identified in local Capital Improvement Programs (CIPs) or adopted Comprehensive Plans to be eligible to receive Revenue Share funds.

Surface Transportation: Local Funding

Localities fund transportation projects primarily through general obligation bonds and general funds. Bond funds dedicate funding for long-term capital roadway projects. Local funding is also used to match federal and state funding sources. Local funding commitments are not accounted for in the fiscally-constrained LTRP.

Public Transportation: Federal Funding

As a result of the establishment of the SAW Urbanized Area, public transportation funding through the Federal Transit Administration (FTA) can only be distributed to public entities in a formula-based approach. The Central Shenandoah Planning District Commission assumed this responsibility to act as fiscal agent and administer federal and state funds related to the development and oversight of public transportation service provision in the SAWMPO area.

Designation as a UZA allows the SAWMPO region to receive federal funding sources that were previously unavailable. These federal funds allow for construction, maintenance and operation of public transportation systems and projects in the UZA.



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Urbanized Area Formula Program (Section 5307)

This is a formula-based grant program allocated to urbanized areas for transit capital improvements, operating, and planning assistance for mass transit services. Funding is made available to designated recipients that must be public bodies with the legal authority to receive and dispense federal funds. Governors, responsible local officials, and publicly owned operators of transit services are to designate a recipient to apply for, receive, and dispense funds for transportation management areas pursuant to 49USCA5307(a)(2). The Governor or Governor's designee is the designated recipient for urbanized areas between 50,000 and 200,000.

Eligible activities include planning, engineering design and evaluation of transit projects and other technical transportation-related studies; capital investments in bus and bus-related activities such as replacement of buses, overhaul of buses, rebuilding of buses, crime prevention and security equipment and construction of maintenance and passenger facilities; and capital investments in new and existing fixed guideway systems including rolling stock, overhaul and rebuilding of vehicles, track, signals, communications, and computer hardware and software. All preventive maintenance and some Americans with Disabilities Act complementary paratransit service costs are considered capital costs.

For urbanized areas with populations less than 200,000, operating assistance is an eligible expense. In these areas, at least one percent of the funding apportioned to each area must be used for transit enhancement activities such as historic preservation, landscaping, public art, pedestrian access, bicycle access, and enhanced access for persons with disabilities.

Transportation for Elderly Persons and Persons with Disabilities (Section 5310)

This program provides formula funding to States and other eligible recipients including non-profit organization and governmental authorities for the purpose of assisting private nonprofit groups in meeting the transportation needs of the elderly and persons with disabilities when the transportation service provided is unavailable, insufficient, or inappropriate to meeting these needs. Funds are apportioned based on each State's share of population for these groups of people. Funds are obligated based on the annual program of projects included in a statewide grant application. The State agency ensures that local applicants and project activities are eligible and in compliance with Federal requirements, that private not-for-profit transportation providers have an opportunity to participate as feasible, and that the program provides for coordination of federally assisted transportation services assisted by other Federal sources. Once FTA approves the application, funds are available for state administration of its program and for allocation to individual sub-recipients within the state. Funding is apportioned by formula based upon the number of elderly persons and persons with disabilities in each State according to the latest U.S. Census data.

Local Transit Funds

Local government entities contribute financially to the transit system. A unique regional partnership has developed among private service entities that recognize the value of public transportation for their client base. The following agencies/entities have chosen to contribute financially to the public transportation system which significantly decreases the impact to local government budgets:



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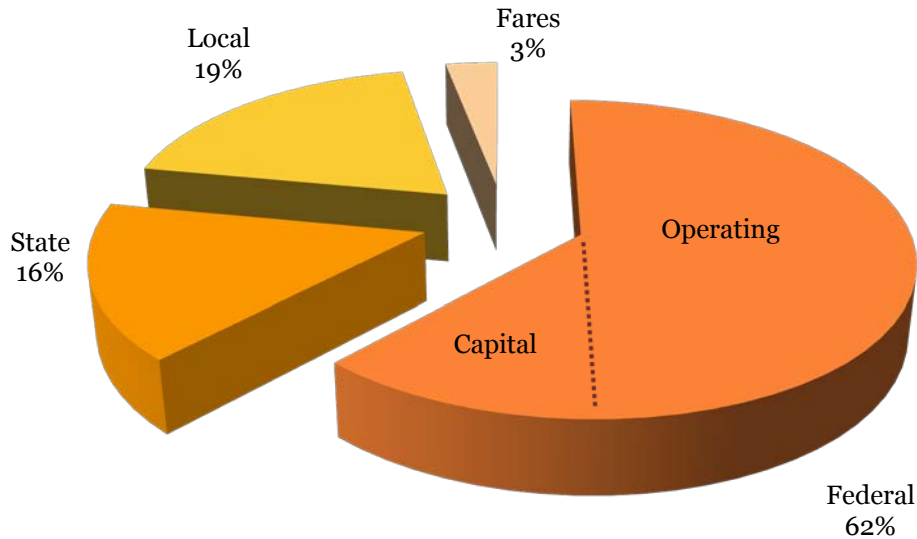
December 2, 2015

2040 Long Range Transportation Plan

- Augusta Health
- Wilson Workforce and Rehabilitation Center
- Blue Ridge Community College
- Shenandoah Valley Social Services
- Staunton Downtown Development Association

The annual budget for FY2016 is \$1.3 million. Rider fares account for 3-5% of the overall cost of transit service. Federal and state funding accounts for 78% of the annual transit budget. Local funding accounts for 19% of transit revenues.

Figure 5 – Transit Revenues By Source



5 – 3 Projected Revenues

Highway Revenue

VDOT receives revenues from state and federal sources. State sources of funding are derived from four primary sources: sales tax on motor fuels, motor vehicles sales and use tax, motor vehicle license fee, and state sales and use tax. In FY 2016, VDOT’s annual revenues totaled \$4.8 billion, when excluding the Northern Virginia Transportation Authority (NVTa) and Hampton Roads Trust Fund (HRTF). A large portion of the state’s annual budget is dedicated to the Highway Maintenance and Operating Fund (HMOF) which comprises approximately 38% of the annual budget. Approximately 37% of the annual operating fund is dedicated to the state’s construction program.

December 2, 2015

2040 Long Range Transportation Plan

Transportation projects are sometimes financed using a combination of public and private funds. Financing from private entities is generally received through proffers, or as part of a Public Private Partnership (P3). Due to the uncertainty of how and where development might occur, the LRTP projections do not include private funding as a revenue source; however, the ultimate funding package for a project could include a combination of public and private funds. The MPO defers to the respective jurisdictions to work with the development community, and VDOT, to determine the rational nexus of need proportional to mitigate the impact of any specific development.

Projected revenues are a requirement of the federal transportation planning process to ensure that investments are based on realistically anticipated revenues. Surface transportation revenues historically have been formula-based, and tied to network facility type (e.g., Interstate, Primary, Secondary, and Urban). Virginia's House Bill 2 program replaces formula-based project funding with a competitive, project performance and outcome-based analysis to encourage objective transportation decision making by the Commonwealth Transportation Board (CTB). As a result, it is difficult to assume that dedicated transportation funding will reach the SAWMPO by formula in the future.

Yet projected revenues by facility type are a federal requirement of the long range planning process. Based on revenue trends from similarly sized MPOs in the Commonwealth of Virginia, it is projected that the SAWMPO region will receive \$64.3 million for surface transportation projects between 2016 and 2040. An additional \$8.2 million is anticipated to be dedicated to eligible projects through the TAP. Prior SYIP allocations on active projects (referred to in the LRTP as "Previously Committed Projects") are also included in **Table 13** below to reflect the total value of investments being made in the SAWMPO during the planning period.

Table 13 – Total Anticipated Revenues 2016-2040

Anticipated Revenues Category	Prior SYIP Allocations	Projected Revenues	Totals
Interstate Funding	\$ 0	\$17,867,923	\$17,867,923
Primary Funding*	\$7,903,477	\$19,241,560	\$27,145,037
Secondary Funding*	\$5,264,562	\$1,854,196	\$7,118,758
Urban Funding	\$16,806,000	\$27,218,697	\$44,024,697
Surface Funding Subtotals	\$29,974,039	\$66,182,376	\$96,156,415
Transportation Alternatives (TAP) Funding	\$341,000	\$8,200,000	\$8,541,000
		Grand Total	\$104,697,415

* Primary and Secondary Program funding is flexible and can be used to balance other programs.



December 2, 2015

2040 Long Range Transportation Plan

Transit Revenue

Based on the six-year projections in the CSPDC's Transit Development Plan (TDP), it is estimated that the SAWMPO region will receive \$74 million in funding for transit operations and \$367,500 for non-vehicle capital expenses over the life of the LRTP.

Table 14 – Anticipated Transit Revenues 2016-2040

Funding Category	Revenues
Federal Funding (Section 5307, 5311)	\$ 42,392,391
State Funding	\$ 13,124,877
Local Funding	\$ 18,584,732
Non-Vehicle Capital Revenue	\$ 367,500
Total Anticipated Transit Revenues	\$74,469,500

The combined \$181,021,111 in highway, TAP, and transit anticipated revenues represents a nearly \$418 million shortfall for the region over the next 25 years.

Fitting anticipated revenues to project cost estimates to create a CLRP is addressed in Chapter 7, Constrained Long Range Plan.

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