August 28, 2017

The Honorable Terence McAuliffe
Governor
Commonwealth of Virginia
P.O. Box 1475
Richmond, Virginia 23218

The Honorable Stephen D. Newman
President Pro Tempore
Senate of Virginia
General Assembly Building, Room 621
Richmond, Virginia 23219

The Honorable William J. Howell
Speaker of the House
Virginia House of Delegates
General Assembly Building, Room 635
Richmond, Virginia 23219

Dear Governor McAuliffe, Senator Newman, and Mr. Speaker:

Pursuant to HB 1359 and Appropriations Act Item 448.E.1-3 enacted by the 2016 Virginia General Assembly, please find attached an executive summary of the activity and final report of the recommendations of the Transit Capital Project Revenue Advisory Board (RAB).

The Transit Capital Project Revenue Advisory Board (RAB) was formally appointed by Secretary of Transportation Aubrey Layne, following the recommendations of key transit industry stakeholder groups including: the Department of Rail and Public Transportation (DRPT), the Virginia Transit Association (VTA), the Virginia Association of Counties (VACO), the Virginia Municipal League (VML), and the Community Transportation Association of Virginia (CTAV).

The RAB held its first organizational meeting on June 16, 2016, and held another seven public meetings throughout 2016 and 2017. The report enclosed herein represents consensus findings by all seven members of the Revenue Advisory Board, thus meeting the following mandates prescribed by the General Assembly under HB1359:

1. Examine the impacts of the loss of state transit capital funds;

2. Identify additional sources of revenue to recover the capital losses;

3. Develop a proposal for a statewide prioritization process for the use of additional sources of revenues identified by the Advisory Board as well as certain existing funds allocated to mass transit; and

4. Develop a proposal to foster project-specific prioritization within the asset tiers of the tiered approach established by the Commonwealth Transportation Board.

The RAB identified a clear and timely need to address the loss of annual Capital Project Revenue (CPR) bond revenues currently allocated to the statewide transit capital program, but which will begin to phase out in 2019. The report finds that the loss of these bond revenues, which

represent 44% of statewide transit capital revenues, will have a detrimental impact to local transit providers and local governments' ability to fund transit capital projects that ensure critical assets are maintained in a state of good repair.

The RAB also identified an average annual funding gap of approximately $130 million between available revenues and projected future statewide transit capital needs. This comes at a time when Virginia's population and demand for public transportation services continue to grow. It is estimated that the inability to replace these lost revenues will create an estimated impact of over $400 million annually in economic impacts, lost productivity, and opportunity costs to the Commonwealth.

At its July 19, 2017 meeting, the Commonwealth Transportation Board (CTB) fully endorsed the policy principles the RAB utilized to guide its work throughout this process. The CTB further noted that the estimated $130 million a year funding gap was likely conservative and may not address the full breadth of transit capital needs facing Virginia in the years ahead.

Additionally, while the Advisory Board was not charged by the legislature to include the significant shortfalls predicted for the Washington Metropolitan Area Transit Authority (WMATA), the CTB noted that this estimate is not fully inclusive of their identified needs. WMATA is critical for the Washington, D.C. region, and the Commonwealth, moving more than one million people a day. It provides key connectivity between Maryland, the District and Virginia, and removes hundreds of thousands of vehicles a day from the region's congested roadways. In order for WMATA to be returned to a state of good repair, there is a significant need for additional funding beyond the revenue needs the RAB documented in this report. Without additional funding dedicated for WMATA, the revenue impacts outlined in this report would be significantly greater across the Commonwealth.

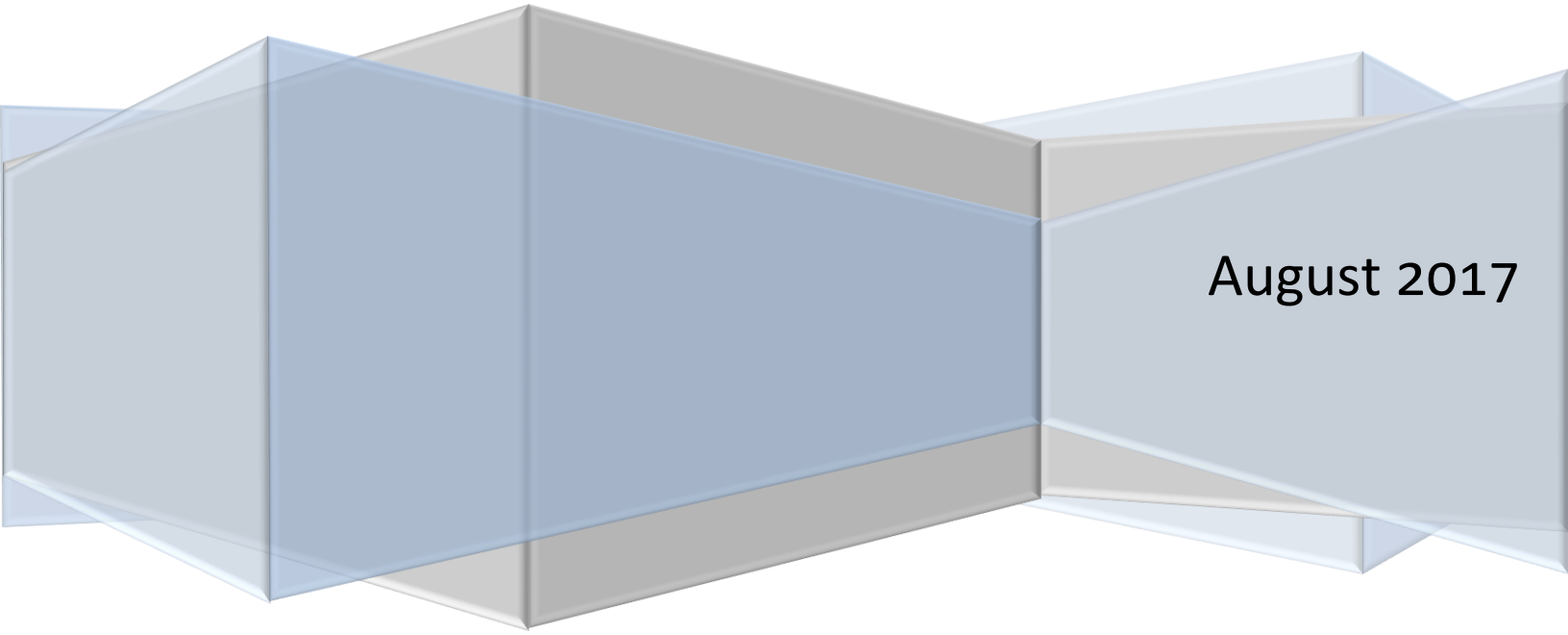
In closing, the CTB, DRPT, and the RAB commend the work and dedication of the members of the RAB, the Transit Service Delivery Advisory Committee (TSDAC), and the entire Virginia public transportation community in their efforts to provide the General Assembly with the information it will need to address what is perhaps the most critical transportation funding issue facing Virginia.

Sincerely,

Marty Williams
Chair
Transit Capital Project Revenue Advisory Board

HB 1359 – Transit Capital Projects Revenue Advisory Board

FINAL REPORT TO THE VIRGINIA GENERAL ASSEMBLY



August 2017

Virginia Department of Rail and Public Transportation

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EXECUTIVE SUMMARY

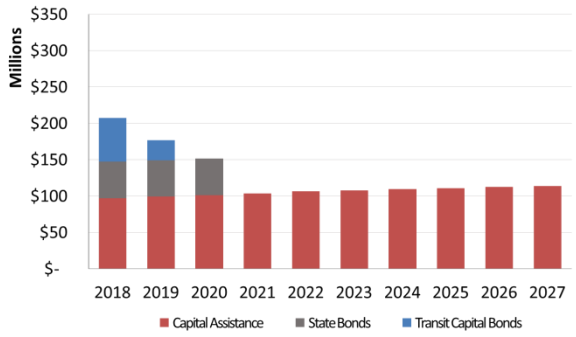
A long-term, sustainable investment in transit capital is critical for Virginia's economic vitality. Public transportation plays a key role in congestion mitigation, economic development, and environmental stewardship in the Commonwealth. In addition, it provides mobility to many of Virginia's citizens who have no other means of transportation. In 2015, DRPT commissioned the Southeastern Institute of Research to conduct a Statewide Mobility Survey to gather perspectives on personal mobility:[1]

- **82** percent of those surveyed said the availability of alternative transportation options is important to Virginia's economy.
- **83 percent** said investment in alternative transportation is important to provide workers with affordable travel to commute to work.
- **Over 80 percent** of those surveyed that drive alone or telework believe the availability of alternative modes of travel is important to Virginia's economy.

Over the past four years, the Commonwealth has provided matching funds to local transit agencies, averaging 45 percent of total statewide public transportation capital investments. The remainder of capital funding has come from federal, as well as, substantial local and regional investments.

The ability for the Commonwealth and its local governments to continue providing critically needed funding to sustain these investments and keep our transit systems in a state of good repair is at risk due to the expiration of the Capital Project Revenue bond proceeds. In 2019, $110 million in dedicated revenues – 44 percent of all program funding – will begin to phase out as the ten-year life of these bonds comes to a close. These funds are critical in enabling local transit systems to invest in replacement buses, rail cars, infrastructure, facilities, technology, and other capital needs. Figure 1 illustrates the impact of the bond proceeds on Transit Capital Revenues

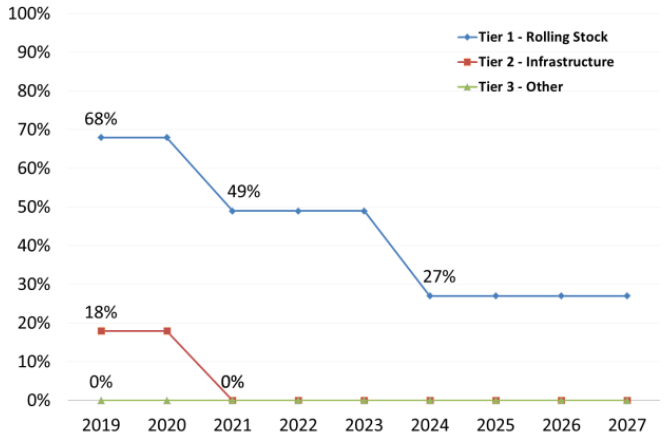
Figure 1 – Transit Capital Revenues



[1] 2015 Statewide Mobility Survey (http://www.drpt.virginia.gov/media/1854/2015-state-of-travel-study-highlights-as-presented-by-sir-at-vta-conference-05-24-16.pdf)

A failure by the Commonwealth to provide replacement capital funding will have a cascading effect on the ability of these systems to operate safe and reliable service and will result in the loss of federal funds if transit systems are unable to provide matching funds for capital assistance from the Federal Transit Administration. The Commonwealth will only be able to support rolling stock replacement, at a match rate of approximately 28 percent, as compared to the historical level of 68 percent participation. The projected impact on matching rates is shown in Figure 2.

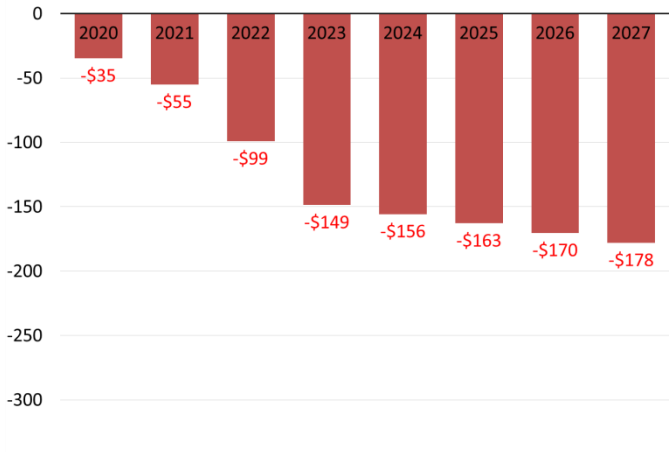
Figure 2 – Projected Transit Capital Matching Rates



Transit agencies are funded primarily by a local governments or regional bodies. Any reduction in state funding, along with increasing uncertainty in federal funding, will result in an increased burden on local governments to meet increased funding needs. Increased financial burdens on localities will stress local budgets, leading local boards and councils to make difficult decisions about maintaining a state of good repair or implement significant reductions in or elimination of critical transit services. If the Commonwealth maintains current matching rates, the projected reduction in funding will result in an estimated 320 fewer transit vehicles being replaced or rehabbed annually, a reduction of nearly 50 percent. The projected impact of the loss in state transit capital funding to Virginia's economy includes the estimated loss of $200 million in economic activity annually. It is critical that solutions are identified and implemented to close this gap.

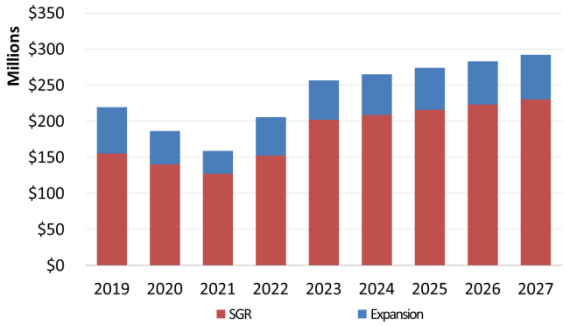
An evaluation of the Commonwealth's documented funding needs and projected revenues has conservatively identified an average revenue gap of $130 million annually over the next ten years, representing a drop of over 40 percent from existing funding levels. In 2020, the estimated gap will be $35 million, and it will grow to an estimate gap of $178 million by 2027.

Figure 3 – Annual Transit Capital Funding Gap



It is important to recognize that the vast majority (approximately 80 percent) of transit capital funds are currently dedicated to the replacement of existing assets such as buses, maintenance facilities, or technology in order to maintain them in a state of good repair. The needs assessment outlined in this report provides a snapshot of program needs and is summarized in Figure 4. The transit capital environment is constantly changing as asset conditions are assessed and documented by transit providers statewide in response to recently imposed federal requirements.

Figure 4 – Transit Capital Funding Needs



One notable example is the recent capital plan update from the Washington Metropolitan Area Transit Authority (WMATA) which reflects a substantial increase in capital funding needs over the next five years. WMATA's capital needs inventory was released after this study's analysis was conducted, which reflects an increase in the overall statewide transit funding gap that will need to be addressed through further analysis. There are other significant efforts underway within that region that are expected to make recommendations on governance, operations,

and long term funding for WMATA. These efforts, including the work being conducted by former USDOT Secretary Ray LaHood, are expected to be complete by the end of 2017. Due to the statewide significance and impact of WMATA's service on Virginia's economy, these additional needs should be considered when contemplating transit funding solutions.

The Virginia General Assembly passed legislation to establish the Transit Capital Projects Revenue Advisory Board (Revenue Advisory Board) in the 2016 Session, as recognition of the need to identify new funding sources for transit capital investments.[2] This legislation further required that a prioritization process for funding transit capital investments be explored. Over the past year, the Revenue Advisory Board worked to quantify the gap between transit capital needs and available funding, evaluate potential revenue options, identify a possible process for prioritization of transit capital projects, and outline recommended changes to the structure of the transit capital program. This analysis has been performed in cooperation with the Transit Service Delivery Advisory Committee and the Commonwealth Transportation Board.

The key recommendations of the Revenue Advisory Board are:

- **The Commonwealth needs a steady and reliable stream of dedicated revenues for its transit capital program to meet state of good repair needs and support much needed transit expansion to keep up with population growth.**
    - **The Commonwealth should consider a funding approach that utilizes a combination of revenue sources to spread the impact or a single statewide source that is predictable and sustainable.**
    - **Revenue sources that ramp up gradually to address future gaps and needs.**
    - **A combination of statewide and regional sources, with the majority of support coming from statewide sources.**
    - **An approach for regional funds directed to prioritized needs within that region.**
    - **A floor on regional gas taxes.**
    - **Excess Priority Transportation Fund revenues (after debt service) dedicated to transit capital as this source becomes available.**

In addition to identifying potential revenue sources to replace the loss of transit capital funds, the General Assembly also charged the Revenue Advisory Board to develop a prioritization framework for the transit capital program. In 2016, the Commonwealth successfully implemented a new prioritization process called SMART SCALE for funding transportation expansion needs across the state. The Commonwealth Transportation Board uses objective SMART SCALE criteria to evaluate candidate projects, and consequently, the Board provides funding at a higher level to support implementation of the most critically needed projects. In an era of growing needs and constrained resources, the Revenue Advisory Board has developed a project-based prioritization process for the transit capital program for consideration. It is

[2] HB 1359. (http://lis.virginia.gov/cgi-bin/legp604.exe?ses=161&typ=bil&val=hb1359)

important to note that this prioritization process would be less effective without new funding to support full implementation.

In developing a transit capital prioritization model, the Revenue Advisory Board has determined that:

- All Transit Capital Funding should be separated into two programs – one for State of Good Repair/Minor Enhancement and one for Major Expansion.
- A minimum of 80 percent of the transit capital program should be directed to State of Good Repair and Minor Enhancement.
- The Commonwealth Transportation Board should have the discretion to move funding from the Major Expansion program into the State of Good Repair program, based on funding needs.
- A single consistent match rate should be applied across asset types in order to provide greater predictability in funding, with State of Good Repair/Minor Enhancement projects matched at a higher rate than Major Expansion projects. This would shift away from the existing tiered match rates that vary by year or by asset. The maximum match rate should be high enough to ensure that selected projects are fully funded, e.g. 80 percent for all State of Good Repair projects.
- Local matching requirements (minimum of four percent[3]) should remain part of the program structure.

After careful study and analysis of the Commonwealth's transit capital funding needs and with the SMART SCALE model in mind, the Revenue Advisory Board, in collaboration with the Transit Service Delivery Advisory Committee, has developed a proposed approach to transit capital prioritization. The approach includes initial recommendations for criteria and measures based on an understanding of the transit capital needs that exist across the Commonwealth. However, should the General Assembly or the Commonwealth Transportation Board adopt a prioritization process, a more thorough analysis of these criteria and measures is required to finalize specific recommendations prior to implementation, with opportunities for additional input from the transit stakeholders. It is also recommended that the policy and specific provisions of the prioritization process should be developed by the Commonwealth Transportation Board, as is the case with the SMART SCALE process.

The following report summarizes the extensive research and analysis conducted by the Revenue Advisory Board and presents recommendations. During this effort, the Revenue Advisory Board focused on identifying the answers to four key questions:

- How much funding is needed?
- What are potential funding sources?
- Which projects should be funded?
- How should funds be allocated to capital projects?

[3] *Va. Code* 58.1-638 requires a local match, and the Transit Service Delivery Advisory Committee set a local match rate of four percent.

Additional technical details are provided in a series of appendices to this report and all proceedings of the Revenue Advisory Board are documented on the Department of Rail and Public Transportation's webpage at: http://www.drpt.virginia.gov/transit/major-initiatives/transit-capital-project-revenue-advisory-board-hb-1359/

INTRODUCTION AND BACKGROUND

Over the last decade, Virginia witnessed a nearly eight percent population growth, and with it, a 33 percent increase in the demand for public transportation services. Across the Commonwealth, 44 public transit agencies provide over 200 million transit trips each year.[4]

Through its transit capital program, the Virginia Department of Rail and Public Transportation (DRPT) will invest over $236 million in 2018 to ensure that transit agencies across Virginia can continue to adequately maintain and expand the buses, rolling stock, and physical infrastructure they utilize to meet the increasing demand for access to public transportation.[5]

The Virginia General Assembly's modest funding increases for transit capital over the last two decades have been unable to meet this growing demand. Consequently, the state transit capital program faces a pending budget crisis. In 2019, $110 million in dedicated revenues – 44 percent of all program funding – will begin to phase out as the ten-year life of the Capital Project Revenue bonds comes to a close.

Recognizing the subsequent impact of this anticipated loss of revenue, the 2016 General Assembly enacted HB 1359, establishing the Transit Capital Project Revenue Advisory Board.[6]

This report examines the impacts of the upcoming reduction in revenues as a result of the Capital Project Revenue bonds beginning to phase out in 2019. It also identifies possible sources of replacement revenues the General Assembly may consider to not only replace the loss of these bonds but also to meet the growing demand for transit services in the decade ahead.

Additionally, the report provides suggested methodologies for prioritization of the transit capital program, for State of Good Repair, Minor Enhancement, and Major Expansion projects. These methodologies are designed to support the Commonwealth Transportation Board in its efforts to fully fund the highest priority transit capital projects across the Commonwealth.

Five appendices provide additional detail on the analyses developed to support this investigation:

- Appendix A: Transit Resource Allocation Plan
- Appendix B: Detailed Summary of Revenue Options
- Appendix C: Detailed Funding Packages
- Appendix D: Illustrative Scoring Process
- Appendix E: Prioritized Funding Approach

[4] 2015 State of Mobility Study. (http://www.drpt.virginia.gov/media/1854/2015-state-of-travel-study-highlights-as-presented-by-sir-at-vta-conference-05-24-16.pdf)
[5] 2018 DRPT Six-Year Improvement Program (http://www.drpt.virginia.gov/media/2146/fy18-final-syip-june-with-page.pdf)
[6] HB 1359 (https://lis.virginia.gov/cgi-bin/legp604.exe?161+sum+HB1359)

IMPACT TO TRANSIT AGENCIES AND LOCAL GOVERNMENTS IN VIRGINIA

HB 1359 charged the Revenue Advisory Board to identify replacement funding sources for transit capital investments and to explore a prioritization process for funding transit capital investments. The reduction in transit capital investment is anticipated to have a significant impact on transit service and personal mobility in the Commonwealth. Transit agencies will likely have to keep vehicles longer and delay replacing or upgrading infrastructure, resulting in higher maintenance costs, reduced reliability, and an overall negative impact on the delivery of service.

The Potomac Rappahannock Transportation Commission provides bus services in Northern Virginia as well as operates the Virginia Railway Express in conjunction with the Northern Virginia Transportation Commission. It has noted that based on their fleet plan between Fiscal Year 2019 and Fiscal Year 2024 it will need to replace 56 buses that have reached the end of their useful lives (12 to 16 years, depending on vehicle type), and 20 buses will require a mid-life overhaul. Under current matching rates, these replacements and mid-life overhauls would require a local match of $8.3 million. If replacement funding is not identified, the local match would increase to over $15 million.[7] If these vehicles are not replaced resulting in a reduction in service, an additional 5,000 person trips per day will be added to the congested I-95 and I-66 corridors.

During this same period of time, Hampton Roads Transit's capital improvement program identified the need to rebuild, replace, or overhaul more than 218 buses for state of good repair. Localities would need to identify more than $12 million in new funding annually in order to make up for a loss of state funding, if the state's current matching rate becomes unavailable.[8]

Blacksburg Transit noted the following:

> "The vast majority of Blacksburg Transit's local funding is provided by Virginia Tech through student activity fees. There would be significant uncertainty associated with raising student fees to compensate for the loss of state transit funds. Regarding local government participation, seeking funding for public transportation is always very competitive given the needs for other essential services, so a request to increase (local) funding could be problematic. Last year, one local government considered cutting service by up to 50 percent when the loss of state funds became a possibility."[9]

[7] Virginia Transit Association Transit Capital Needs Survey- May 2017
[8] HRT Capital Improvement Plan, FY2017-FY2023" https://gohrt.com/wp-content/uploads/2009/11/HRT-CIP-TDP-FY17-FY23-Final.pdf
[9] Virginia Transit Association Transit Capital Needs Survey- May 2017

Additionally, DRPT has identified case studies that highlight the fiscal challenges local governments that operate transit would expect to face if state transit capital funding is reduced.

Town of Blacksburg

The Town of Blacksburg received a transit capital grant to provide funding assistance for a $40 million multimodal transfer facility. Under the current program structure, the state provided a 26 percent state match for this Tier II project, and was also able to leverage nearly 64% of the project costs through the pass-through of federal funds. The Town's required match was $4 million.

If sufficient replacement revenues are not found by 2020, the state would not be able to provide state match for this Tier II project. The state would also be severely limited in its ability to provide the same level of federal pass-through funds, as federal resources would need to be spread across broader statewide needs. The result for the Town of Blacksburg would be a local required funding effort closer to 80 percent of total project costs, or approximately $32 million, in order to deliver this critical project.

City of Alexandria

The City of Alexandria received a transit capital grant for the purchase of six replacement buses with a total project cost of $3.9 million. Under the current program structure, the state was able to provide the full 68 percent state match for this Tier I project, or $2.65 million. The City of Alexandria provided a required local match of 32 percent to fund the balance of the project.

If sufficient replacement revenues are not found by 2020, the state would only be able to provide up to a 28 percent state match for this Tier I project. The result for the City of Alexandria would be a local required funding effort of 72 percent of total project costs, approximately $2.8 million.

In conclusion, local governments will be faced with difficult choices: identify additional local funding to support transit or eliminate vital transit services. With reductions in service, the public would experience longer headways between buses, elimination of transit routes, and an overall reduction in mobility choices. These impacts are not only significant to local governments and transit agencies, but they have economic implications to communities across Virginia as well.

STATEWIDE ECONOMIC ANALYSIS

DRPT secured the consultant services of KPMG to estimate the impacts associated with the sunset of the Capital Project Revenue bonds in 2019. The study found that without replacement of these funds there would be a significant impact on the Virginia economy and on the productivity of the transportation network in various regions of the Commonwealth,

especially in Northern Virginia. This analysis assumes that local and federal investment remains at current levels. As there are significant federal and local government contributions to transit capital, any reduction in those funds for transit would serve to increase the negative impact to Virginia's economy.

KPMG's economic impact analysis focuses on determining the impact on Virginia's economy as measured by jobs and economic output of an average $130 million annual funding gap between available transit capital revenues and statewide transit capital needs. The KPMG modeling conservatively estimates a loss of 1,000 jobs each year within the Commonwealth for the duration of the capital investment funding reduction.[10] These include "direct" jobs supporting construction and manufacturing of public transportation equipment and facilities (e.g. rolling stock manufacturing, escalator replacement, construction of rail related facilities etc.). It is also includes "indirect" (or "induced") jobs that are created due to economic activity stimulated by the initial investment. "Indirect" jobs include those that are due to sales made by suppliers as well as industries that are directly performing activities in support of the direct capital spending. Additional "indirect" jobs are businesses that provide services or sales directly to the employees who spend income received from these direct or indirect jobs.[11] The job loss is split almost evenly across the "direct" and "indirect" categories.

Based on information supplied by the American Public Transportation Association, there is a significant amount of employment in the Commonwealth that is related to the transit industry.

Figure 1- Transit Related Companies and Industries in Virginia

Company	**Industry**	**Location**
Big R Bridge	Station Equipment	Abingdon
Mayville Engineering	Fabrication	Atkins, Wytheville
Consolidated Glass	Windows	Galax
Imperial Group	Fabrication	Dublin
CVG Trim Systems	Seating, Wiring	Dublin
Koppers Inc	Station Equipment, Ties	Salem
Progress Rail Services	Wheels, axles, traction motors	Roanoke
Cardinal Rubber	Gaskets, hoses	Roanoke, Richmond
Metalsa	Frames, fuel tanks, side rails	Roanoke
Goodyear Tires	Tires	Danville
Schrader International	Valves, air/fluid control	Altavista
Parker Hannifin Integrated	Seals, gaskets, fasteners	Lynchburg
Cableform	Motor controls	Troy
Tri-Dim Filter	Filters	Louisa
Oran Safety Glass	Glass	Emporia

[10] The effect on type of spending due to reduced capital investment was determined by WSP. These are the spending categories (types) used by KPMG in its analysis of the effect of that reduced spending on jobs and output.
[11] The jobs attributable to the spending of income received by employees are known as "induced" jobs.

Sealeaze	Door seals, track heating	Chesterfield
Deuta America	Data loggers, sensors	Richmond
Continental Automotive	Engine, fuel, chassis systems	Newport News
American Turbocharger	Remanufacturing	Newport News
TE Connectivity	Sensors	Hampton
Cooper Bearings	Bearings	Norfolk
East Coast Brake Rebuilders	Brake remanufacture	Norfolk
Dedicated Micros	CCTV Security Systems	Chantilly
CelPlan Technologies	Communications & Wireless	Reston
Sonny Merryman	Bus manufacturer	Lynchburg

Currently, labor income due to continued transit capital investment is estimated to be an average of $560 million each year. With the loss of transit funding, approximately $80 million of this amount of labor income would be lost each year.

The job loss estimate does not capture the following additional types of job impacts associated with reduced transit capital investment and their corresponding "indirect" effects, which can also impact the economy.[12] While not as readily measurable as direct capital spending reduction impacts, these additional impacts are significant and include the following additional factors leading to job losses and effects on the economy:

- Job losses due to reduced capital investment in public transportation that will ultimately result in reduced transit services and, thereby, create public transportation operational job loss (e.g. jobs involving operations and maintenance of facilities and vehicles).[13] KPMG's economic impact analysis is limited to transit capital spending investment and does not account for the impact of operational expenditures or activities.

- Job losses as a result of a decline in productivity due to increased cost of travel and travel time as well as a reduced access to jobs. A reduced cost savings for households as a result of a decrease in transit services translates into lower household disposable income. This potentially leads to lower consumer spending, which will have an additional negative multiplier effect on the Virginia economy.

- Reduction in transportation services also leads to lower business productivity culminating in access to a smaller and less diverse labor market and a narrower customer base. Reduced productivity also leads to an efficiency loss associated with a decline in transit-access driven "economic agglomeration." A significant body of literature exists linking transportation costs to these broader benefits of improved transportation options (such as agglomeration, output increases, and tax revenues).[14] Lower business productivity possibly could lead to

[12] See American Public Transportation Association, "Economic Impact of Public Transportation Investment," 2014 Update, May 2015 for a discussion of these additional impacts.
[13] The capital spending reduction of $130 Million was not allocated by Parsons Brinkerhoff to operational spending, and therefore the influence of the spending reduction is only felt through categories of spending related to capital expenditures.
[14] UK Department of Transport *TAG Unit A2.1* Wider Impacts January 2014

contraction of current businesses. In addition, several studies suggest the reduced attractiveness of a location to businesses caused by a reduction in transit services. For example, according to a 2015 study by Conveyal, companies are reassessing their corporate location decisions in support of the trend toward moving to locations with greater access to public transit.[15]

- Public transit connects employers with a workforce that rely on transit as a way to commute to work. In the event of reduced availability of public transit service, some workers may not have a viable alternative mode of transportation to get to work. In addition, economic activity generated due to multiplier effects associated with these jobs and consumer spending effects by those who take public transit to get to work would be impacted negatively.

- Investments related to transit lead to transit oriented development and reduced transportation costs are capitalized into property prices leading to higher property taxes. While the range of property price premium varies greatly by distance and type of mode, a significant literature exists supporting the associated positive property price premium.[16] A recent study conducted by WMATA[17] finds that Metrorail adds 6.8 percent more value to residential, 9.4 percent to multi-family, and 8.9 percent to commercial office properties within a half-mile of a Metrorail Station, adding $133 million in additional property taxes. The WMATA study also finds that approximately $4.7 billion in additional road infrastructure would be required to accommodate transportation users (if there was no transit) and finally, transit access to 2.0 million jobs would be impacted (within ½ mile of transit service).

- According to the Virginia Transit Association, availability of public transit enhances Virginia tourism as visitors can avoid traffic congestion and parking issues.[18] A reduction in transit capital funding would lead to reduced public transit services, thereby negatively impacting tourism and related industries.

From a public finance perspective, there is approximately $4 million of annual state tax revenue that is directly attributable to sales and use taxes, individual income taxes, corporate income, and other taxes derived from transit operations and manufacturing that would be lost in the event that capital spending were not replaced.

Perhaps even more significant than these economic impacts are the resulting costs to the transportation system, such as travel times for commuters and on the quality of life for those using Virginia roads and transit. These can impact the attractiveness of Virginia as a business,

[15] Conveyal. *"How transport analysis helps businesses find and retain employees".* May 2015. (http://conveyal.com/blog/2015/05/11/marriott-workforce)
[16] TCRP Report 35: *Economic Impact Analysis of Transit Investments: Guidebook for Practitioners* 1998
[17] WMATA: *Making the Case for Transit* 2011.
[18] Virginia Transit Association: Benefits for Transit (http://vatransit.com/Benefits_for_Tourism)

tourism, and residential location, increasing the impact of the reduction in transit investment on Virginia's economy.

The KPMG study included an impact analysis on the use of public transit and roadway usage as a result of reductions in capital funding. Models of the Northern Virginia, Richmond, Fredericksburg, and Hampton Roads areas were used to simulate the effect of reduced capital spending and ultimately reduced transit service levels on ridership and traffic in these areas. As expected, reductions in transit ridership result in additional automobile usage, resulting in additional congestion during peak periods. Not surprisingly, impacts in Northern Virginia were most notable due to the already congested traffic conditions, which are further exacerbated in the event of a reduction of investment in mass transit. Because of the high capital costs of highway construction, dense urban development patterns, and impacts on private property, it is unlikely that the Commonwealth could construct enough roadway capacity to mitigate the congestion impacts of this additional automobile usage.

Across all four regions studied, KPMG estimated that a reduction in capital spending on transit would lead to an increase in the time traveled, vehicle operating costs, and accident costs experienced by transportation system users. KPMG determined that the annual value of additional time incurred by transportation system users from extending travel times is $78.7 million in the year 2020. An additional cost of $41.8 million in the year 2020 would be incurred in additional vehicle operating costs due to the extra miles driven as a result of reduced capital funding and the increase in automotive trips. Similarly, there is an additional annual cost of $5.6 million that would be incurred in the form of costs of reduced safety. In total, these impacts on productivity are approximately $126 million annually in 2020 and rising to $208 million by the year 2040.

Transit investment also has a positive impact on property values and land use patterns that are not quantified in this analysis. It is reasonable to anticipate that significant, long-term reductions in transit capital funding would negatively impact local government revenues from transit accessible properties and would change land development densities that are supported by high capacity transit investment.

The combined annual impacts in terms of both economic and productivity impacts are sizable resulting in the loss of over $284 million in economic output, $126 million in productivity impacts, and 1,000 jobs. The resulting total annual economic and productivity impact exceeds $410 million, as represented in Figure 2.

Figure 2 – Summary of Annual Impacts (Year 2020)

Economic Impacts	Loss of Jobs	1,000
	Reduced State Output	$200 Million
	Reduced Labor Income	$80 Million
	Reduced State Taxes	$4 Million
Productivity Impacts	Increased Time Cost of Traveling	$78.7 Million
	Increased Vehicle Operating Costs	$41.8 Million
	Increased Safety Costs	$5.6 Million
Total Annual Economic and Productivity Impact		**$410.1 Million**

REGIONAL ECONOMIC IMPACT ANALYSES

In addition to the high-level statewide economic impact analysis commissioned by DRPT, economic impacts have also been evaluated by regional transit entities at a much greater level of detail in recent years. Regional providers and planning organizations can utilize travel demand models and other tools to produce much more detailed analysis targeted to their local areas. Two recent examples were studies completed by the Northern Virginia Transportation Commission and Hampton Roads Transit.

The Northern Virginia Transportation Commission (NVTC), which serves as the steward for Virginia's share of WMATA funding and is a co-owner of the Virginia Railway Express, is currently preparing a Regional High Capacity Transit Economic Impact Study.[19] The objective of NVTC's study is to quantify the value and worth that high capacity transit modes (Metrorail and VRE) operating in Northern Virginia bring to the Commonwealth. The effort focuses on quantifying the contribution of the state income tax and state retail sales and use tax to the state General Fund, as these two sources represent the vast majority of General Fund revenues. This study differs from previous and current work as it evaluates the level of land use and development that the transportation system can support. It also looks beyond property tax revenues to local governments and focuses on those types of revenue that would be assessed at the state level and impact the Commonwealth's General Fund. Based on preliminary analysis presented to their Commission in June, NVTC has found that the General Fund of the Commonwealth receives over $600 million per year in revenue from the households and jobs supported by the high capacity rail network in Northern Virginia. This represents nearly four percent of the General Fund revenues generated by the income tax and retail sales and use sales tax in Virginia.

[19] Northern Virginia Transportation Commission June 2017 Monthly Commission Materials (http://www.novatransit.org/uploads/meetings/2017/June2017kit.pdf)

Hampton Roads Transit (HRT) commissioned a regional econometric study which was completed in 2016.[20] This detailed regional analysis found that HRT services support over 20,000 jobs and $548 million in annual employment income across Hampton Roads. These numbers were derived from data representing not only industry employment but also commuters who use HRT services and the relationship to industries that depend on transit to provide access to jobs for their workforce. According to 2016 system-wide survey data, approximately 50 percent of trips each weekday are riders traveling to and from work[21].

TRANSIT, LAND DEVELOPMENT, AND STATEWIDE MOBILITY

Recent research demonstrates that transit service is an essential part of the new economic development model and a community feature needed to attract and retain young professionals. Today, a key priority of corporate relocation decisions is the proximity to talented, educated labor pools. As such, most corporate relocations are following young people and the millennial workforce. National survey data from the Rockefeller Foundation shows that two-thirds of millennials place high-quality transportation in their top three concerns when evaluating a new place to live, and 75 percent of millennials believe they will live in a place that does not require a car.

In 2015, DRPT commissioned the Southeastern Institute of Research to conduct a Statewide Mobility Survey to gather perspectives on personal mobility.[22] Over 4,500 Virginians were surveyed, representing communities around the Commonwealth. Overall, 82 percent of those surveyed said the availability of alternative transportation options is important to Virginia's economy, and 83 percent said investment in alternative transportation is important to provide workers with affordable travel for their work commutes. Interestingly, over 80 percent of those surveyed that drive alone or telework believe the availability of alternative modes of travel is important to Virginia's economy. The responses to these key survey points were also validated geographically. Additionally, the data shows that respondents in areas that are unserved by public transportation are over 70 percent in favor of investment in transportation options.

[20] Transit Means Business: Study of Economic Impacts and Benefits of Public Transportation in Hampton Roads (http://www.connecthamptonroads.com/pdf/Summary%20of%20Findings_Transit%20Means%20Business_Impact%20and%20Benefits%20of%20Public%20Transportation%20in%20Hampton%20Roads%20June%202016.pdf)
[21] HRT 2016 Origin and Destination Study
[22] 2015 Statewide Mobility Survey (http://www.drpt.virginia.gov/media/1854/2015-state-of-travel-study-highlights-as-presented-by-sir-at-vta-conference-05-24-16.pdf)

REVENUE ADVISORY BOARD MEMBERSHIP

Consistent with HB 1359, the Secretary of Transportation appointed seven members to the Revenue Advisory Board upon the nomination of key public transportation stakeholders in Virginia, including: DRPT, the Virginia Transit Association (VTA), the Virginia Municipal League (VML), the Virginia Association of Counties (VACO), and the Community Transportation Association of Virginia (CTAV).

Representing geographic diversity as well as providing leadership in the transportation industry and local governments, Revenue Advisory Board membership includes:

- Chair: The Honorable Marty Williams (DRPT nomination), At-Large Urban member of the Commonwealth Transportation Board and former state senator and chairman of the Senate Transportation Committee
- Vice-Chair: The Honorable Jeff McKay (VACO nomination), member of the Fairfax County Board of Supervisors and 2017 Chair of the Northern Virginia Transportation Commission
- The Honorable Tom Rust (VTA nomination), former state delegate, chairman of the House Transportation Committee, member of the Northern Virginia Transportation Commission, and founding member of the Northern Virginia Transportation Authority
- The Honorable Mary Katherine Greenlaw (VML nomination), Mayor of the City of Fredericksburg and a former member of the Fredericksburg Area Metropolitan Planning Organization
- Jim Spore (DRPT nomination), former Virginia Beach City Manager and President and CEO of ReInvent Hampton Roads
- Dr. James Toscano (VTA nomination), Vice President for Institutional Advancement at Tidewater Community College and former chair of the Transportation District Commission of Hampton Roads
- Josh Baker (CTAV nomination), CTAV President, current general manager of the Alexandria Transit Company, DASH, and former general manager of the Greater Lynchburg Transit Company

In preparing this report, the Revenue Advisory Board attempted to answer the following questions:

1) How much funding is needed?
2) What are potential funding sources?
3) Which projects should be funded?
4) How should funds be allocated to capital projects?

HOW MUCH FUNDING?

FINDINGS

Existing state transit capital grants cannot be maintained without sustainable and dedicated funding streams. In its analysis, the consulting team, WSP, determined that over $1 billion is needed over the next decade to close the state transit capital funding gap and to maintain the status quo. In response to releasing its draft report to the public for comment, the Revenue Advisory Board received comments from interested parties that an additional $2 billion is needed over the next decade. On an annual basis, the gap begins in Fiscal Year 2019 and grows to approximately $178 million by 2027.

Lower state capital grant contributions will result in a reduction in transit capital investments by Virginia transit agencies or will require additional funding from local, regional, or federal funding sources to make up the gap created by reductions in state funding. Further, while the Capital Project Revenue bonds have financed transit capital needs to date, such debt financing is not a sustainable long-term solution especially as transit capital needs continue to increase. This section outlines current state transit capital funding and provides projections over the upcoming decade for needs and funding sources.

BACKGROUND AND HISTORY

The January 1, 2017 Revenue Advisory Board interim report[23] to the General Assembly contains a detailed history of transit capital funding over the last two decades, including the allocation of 14.7 percent of the Transportation Trust Fund revenues to transit capital, a share that has remained stagnant since 1999.

In 2007, the General Assembly enacted HB 3202 authorizing the Commonwealth Transportation Board to issue $3 billion in CPR bonds with a minimum of 20 percent, or $600 million in total, dedicated to transit annually over a ten-year period ending in 2018.

In 2008, Congress passed the Passenger Rail Investment and Improvement Act (PRIIA), which included a $1.5 billion, ten-year federal authorization dedicated to WMATA to ensure its capital assets remained in a state of good repair. To receive this funding, Congress required a $1.5 billion, ten-year match commitment from Virginia, Maryland, and the District of Columbia. In 2011, the Commonwealth Transportation Board dedicated an additional $50 million annually to fulfill the PRIIA match requirement. This action increased the overall Capital Project Revenue bond revenues dedicated to the transit capital program to $110 million annually, 44 percent of the entire transit capital program in Fiscal Year 2018.

[23] The full report may be viewed at http://www.drpt.virginia.gov/media/1994/2017-rab-report.pdf.

In 2013, the General Assembly enacted HB 2313 generating new transportation revenues. However, a portion of those increased revenues to public transportation were contingent upon Congressional enactment of the Marketplace Fairness Act, which, to date, has not occurred. The 2015 General Assembly addressed this lack of congressional action through the enactment of HB 1887. It redirected approximately $40 million annually in dedicated transportation revenues to the transit capital program beginning in 2017. Nonetheless, the long-term transit capital shortfall over the next decade remains a critical problem.

The remainder of funding for transit capital needs is covered by federal and local funding. Northern Virginia is the only region in the state that utilizes funding sources authorized by state code to help meet these needs through their annual capital budgets, including general fund revenues, general obligation bonds, regional gas taxes, or property taxes. For example, a 2.1 percent increment on gasoline sold is used to fund transit needs in Northern Virginia, including WMATA, Virginia Railway Express, and the Potomac and Rappahannock Transportation Commission.

STATE TRANSIT CAPITAL REVENUE PROJECTIONS

State transit capital funding sources for the period of 2018-2027 total approximately $1.1 billion (in year-of-expenditure dollars) and include the following:

- **State Capital Assistance:** Dedicated transportation trust funds provide approximately $100 million annually.
- **CPR Bonds:** $110 million is provided annually to the statewide transit capital program, backed by the Priority Transportation Fund, $60 million for statewide capital needs as well as $50 million annually to WMATA to meet the federally mandated PRIIA match. The annual bond fund proceeds begin to diminish in Fiscal Year 2019 and are exhausted in Fiscal Year 2020.

ESTIMATION OF STATE TRANSIT CAPITAL ASSISTANCE NEEDS

The consultant team developed an estimation of transit capital needs by public transportation agencies, as well as the projected state funding share required to meet those needs. The needs estimate reflects a conservative forecast based on the fiscally-constrained planning process established in federal and state statute.

The methodology to estimate transit capital needs over the period included the following:

- **Data Collection:** Classify Six Year Improvement Program and WMATA Capital Improvement Program projects by transit capital assistance tier and type.
- **Data Verification:** Analyze the funding needs for the ten largest transit agencies receiving state capital assistance in order to identify additional projects excluded from

the Six Year Improvement Program, for which funding has not yet been secured. These agencies constitute over 90 percent of all state transit capital funds allocated.

- **Cost Estimation**: Prepare estimation of capital costs for:
  - WMATA
  - Ten largest transit agencies
  - All other agencies by Transportation District

For the purposes of this study, the WMATA needs portion of the state transit funding gap analysis totaled $5.05 billion and was calculated in 2016 based on its Fiscal Years 2017-2022 Capital Improvement Plan. In March 2017, WMATA revised its 5-year capital needs to $6.15 billion, an increase of $1.1 billion. The case studies for this analysis do not assume this increased level of capital needs.

The consultant team developed three case studies to analyze potential transit capital funding needs in order to determine the funding gap over the next decade:

- **Baseline of Estimated Funding Needs:** Transit agencies seek funding consistent with the Commonwealth's six-year improvement program. Estimated needs total $5.6 billion, with a state funding contribution, under the current tier-based allocation approach and match rates of $2.1 billion. This base line case study results in a **$1.0 billion gap** between estimated state transit capital funding needs and estimated funding sources.
- **Baseline Minus Expansion Needs:** The state transit capital program would only be able to fund projects addressing state of good repair needs. Additionally, transit agencies would have to rely solely on limited and highly competitive local, regional, and federal sources, if available to fund expansion projects. The inability to rely on state dollars for expansion projects would lead to a decrease in transit availability. In turn, this would result in an increase in single occupant vehicles and longer commute times causing significant economic distress on the Commonwealth. Estimated state of good repair needs over a ten year period total $4.1 billion, with a state funding contribution, under current allocation approaches and matching rates, of $1.6 billion. This case study results in a **funding gap of $0.5 billion**.
- **Baseline Plus Additional Growth:** Building on the baseline estimated funding needs, agencies seek funding for additional expansion projects to meet the continuing growing demand for public transit. In addition, this case includes a five percent contingency on project capital costs in order to account for potential cost overruns or underestimations. Estimated needs in this scenario total $7.6 billion, with a state funding contribution, under the current tier-based allocation approach and match rates, of $3.0 billion. This case study results in a **funding gap of $1.9 billion**.

For each case, Figure 3 summarizes estimated state transit capital needs, the estimated state contribution, available state funding, and the estimated funding gap over the estimation period.

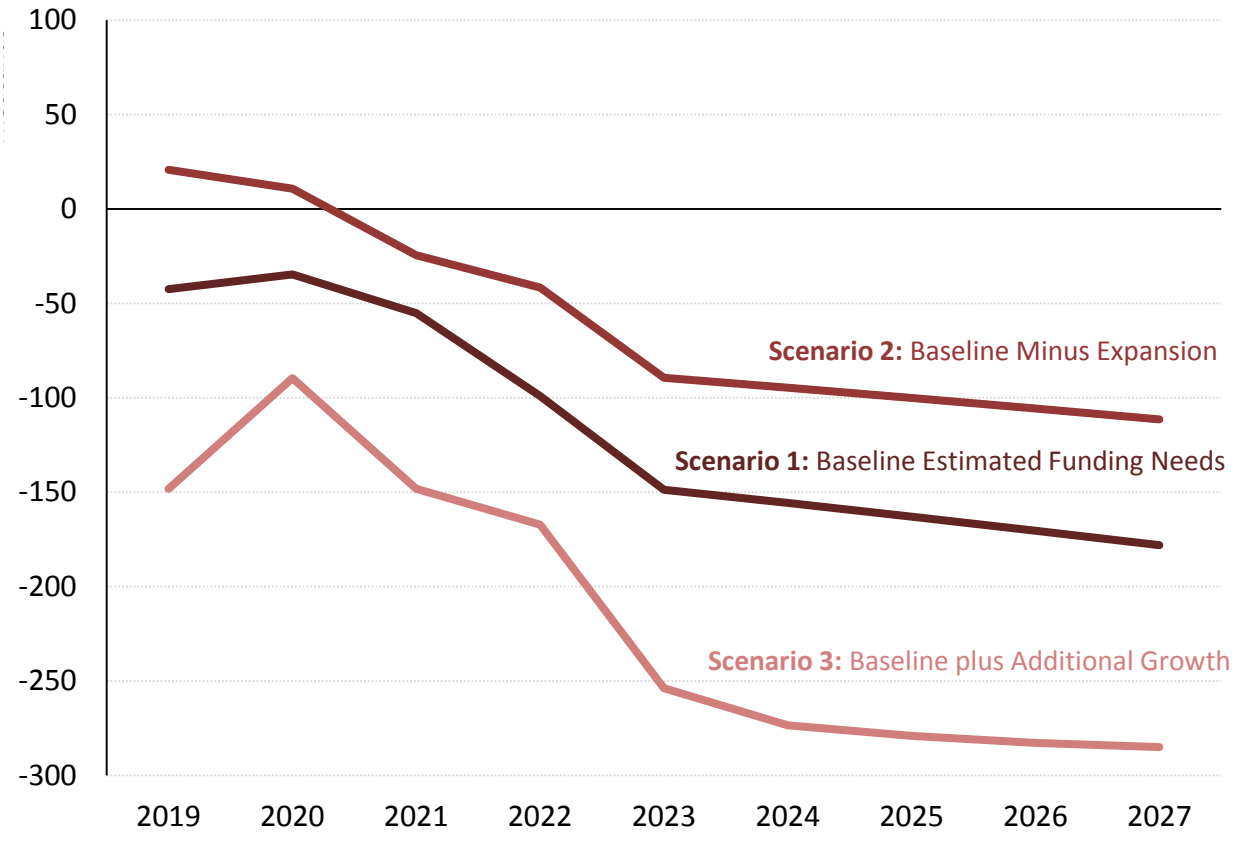
Figure 3- Estimated Spending, State Contribution, and Funding Gap (Fiscal Year 19-Fiscal Year 27)

Case Study:	Estimated Needs	State Contribution	Funding Gap
Baseline of Estimated Funding Needs	$5.6B	$2.1B	$1.0B
Baseline Minus Expansion Needs	$4.1B	$1.6B	$0.5B
Baseline Plus Additional Growth	$7.6B	$3.0B	$1.9B

Source: WSP

Figure 4 summarizes the annual estimated state transit capital funding gap for the three case studies which increases over time in each case as bond funds expire and estimated capital needs grow.

Figure 4- Annual Estimated State Transit Capital Funding Gap (Fiscal Year 19 – Fiscal Year 27) (Millions of Year-of-Expenditure Dollars)



Source: WSP

WHAT FUNDING SOURCES?

FINDINGS

The Revenue Advisory Board reviewed four scenarios but chose not to recommend one specific package to the General Assembly to address the transit capital funding gap. The packages include a mix of statewide and regional sources rather than using a single source or relying upon statewide sources only. Several regional options are available to generate funds commensurate with the transit needs of the two regions of Northern Virginia and Hampton Roads. This decision reflects the Revenue Advisory Board's principles for additional funding listed below.

PRINCIPLES FOR ADDITIONAL FUNDING

The Revenue Advisory Board's principles for additional funding are:

- Focus on transit capital funding;
- A combination of revenue sources to spread the impact or a single statewide source that is predictable and sustainable;
- Revenue sources that increase gradually to address future gaps and needs;
- A combination of statewide and regional sources with the majority of funding generated by statewide sources;
- Regionally derived funds shall be directed to prioritized transit needs within the region;
- Implement revenue sources/approaches that ramp up gradually to address future gaps and needs based on the phase out of the CPR bond funding;
- Implement a floor on regional taxes; and
- Dedicate excess Priority Transportation Fund revenues after debt service dedicated to transit capital as this source becomes available (approximately Fiscal Year 2025).

EVALUATION OF FUNDING OPTIONS

The evaluation of funding options included the review of a long list of potential revenue sources including taxes and fees enacted in Virginia for transportation and non-transportation purposes. Further, the consultant team considered revenue options used to fund transit and transportation in other states and regions of the U.S., as described in Figure 5.

Figure 5: Long list of Revenue Options

- Access rights fee
- Airport use excise tax
- Alcohol tax
- Amusement taxes
- Bicycle registration fee
- Building permit tax
- Cap and Trade
- Car registration fees
- Car tax (personal property)
- Commercial and industrial property tax
- Connection fee
- Construction fee
- Container truck surcharge
- Dedicate portion of commercial and/or residential real estate taxes or impose a separate special tax district
- Dedicated value added taxes
- Development of public-private partnerships
- Disposal tax surcharge
- Driver license fee
- Energy & utilities taxes
- Fees for trucks servicing the port
- Fertilizer/pesticide taxes (agricultural chemicals)
- Franchise fee
- Fuel Tax
- Head tax (based on # of employees)
- Hospitality tax
- HOT Lanes
- Hotel excise tax
- Impact fees / proffers / contributions for new development
- Impact fees / proffers for new development
- Improvement district tax
- Income tax for localities with the proceeds dedicated to transit
- Increase sales tax base to include more services - dedicate extra revenue to transportation
- Inspection/monitoring/testing fee
- Insurance premium taxes
- Joint Development
- Leasing of air space and right-of-way
- Licensing and recreational fee
- Litter control tax
- Local aquifer protection fee
- Local water/wastewater utility user fee
- Lottery and/or casino revenue / dedicated lottery
- Marine facilities tax
- Mortgage transaction fee
- Naming rights
- Occupational license tax
- Off and/or on-street parking space fee
- Payroll Tax
- Petroleum Business Tax
- Project investment fee
- Property tax
- Real estate transfer tax
- Recordation Taxes
- Rental car taxes
- Restaurant/prepared food tax
- Road branding / providing advertising space on public facilities
- Sales and use tax
- Septic system impact fee
- Solid waste disposal fee (tipping fees, septage/sludge fees)
- Special permitting fees
- Special regional transportation taxing districts
- State public water supply withdrawal fee
- Tax on marine vessels
- Tax on personal watercraft (personal property)
- Taxes on Certain Transportation and Transmission Companies
- Tire Tax
- Tobacco tax
- Toll increase/implementation
- Tourist tolls on roadways as part of toll system
- Traffic violation revenues - percentage
- Transportation/Infrastructure fee for non-profits/governmental organizations whose property is not subject to property taxes
- Utility rights application fee
- Vehicle registration fee for public colleges/universities
- Vehicle titling tax
- Vehicle use fees based on mileage (payable w/ state inspection)
- Voluntary "check off" designating a portion of state income taxes to go towards identified item
- Well permit/pumping fee

Source: WSP

In determining which revenue options to select for further investigation, the Revenue Advisory Board focused on potential revenues that i) presented a nexus to transportation; ii) were viable options for consideration by the General Assembly; and iii) were under the purview of the state including regionally generated revenue streams. This list excluded any locally-controlled funding streams, such as real estate and personal property taxes, with the majority of revenues being generated statewide. The list of revenue sources at the evaluated at the statewide level are summarized in Figure 8.

For purposes of considering the appropriate balance of regional and statewide sources, additional regional revenue sources are authorized to fund transportation in Northern Virginia and Hampton Roads.[24] These sources are detailed in Figures 6 and 7 below which specify the legal status and uses of these revenue sources.

While these sources generate transportation revenue, they also represent a significant regional financial commitment and sacrifice by residents as well. This does not include the existing property tax districts in Tysons Corner, Reston, Herndon, and Loudoun County that are funding the Dulles Corridor Metrorail Project; the tax financing district in the City of Alexandria funding the Potomac Yard Metrorail station; as well as, numerous special districts for funding highway and multimodal improvements in other areas, such as the Route 28 Transportation Improvement District.

Figure 6- Existing Regional Revenue Sources Authorized for Transportation in Northern Virginia

Revenue Source	Status	Authorized Uses	Rate
Fuel Sales Tax	Enabled and enacted; no floor to the tax, contrary to statewide fuel sales tax	Transit Funding: NVTC (primarily WMATA) and PRTC[25]	2.1%
Retail Sales Tax	Enabled and enacted	NVTA – Transportation Funding including Transit	0.7%
Transient Occupancy Tax	Enabled and enacted	NVTA – Transportation Funding including Transit	2%
Real Estate Transfer Tax – "Congestion Relief Tax"	Enabled and enacted	NVTA – Transportation Funding including Transit	$0.15 per $100 of deed value
Commercial and Industrial Property Tax[26]	Enabled; enacted in some counties, identical amount raised through other taxes for transportation in other localities.	Transportation Funding within each city/county, including Transit	$0.125 per $100 of property value

[24] Legislation authorizing regional revenue sources: § 58.1-2295 describes the Planning District criteria for regional fuel sales tax (2.1 percent):
- Population between 1.5 and 2 million in the most recent United States Census
- Motor vehicles registered between 1.2 and 1.7 million
- Total transit ridership between 15 and 50 million riders per year across all transit systems

[25] NVTC jurisdictions include: Arlington, Fairfax, and Loudoun Counties, Cities of Alexandria, Fairfax, and Falls Church. PRTC jurisdictions include: Prince William, Stafford, and Spotsylvania Counties and the Cities of Fredericksburg, Manassas, and Manassas Park

[26] Legislation authorizing commercial and industrial property tax: § 58.1-3221.3. Classification of certain commercial and industrial real property and taxation of such property by certain localities

Figure 7- Existing Regional Revenue Sources Authorized for Transportation in Hampton Roads

Revenue Source	Status	Authorized Uses	Rate
Fuel Sales Tax	Enabled and enacted; no floor to the tax, contrary to statewide fuel sales tax	HRTAC – Highway Only	2.1%
Retail Sales Tax	Enabled and enacted	HRTAC – Highway Only	0.7%
Commercial and Industrial Property Tax	Enabled, not enacted by any city	N/A	Up to $0.10 per $100 of property value

Figure 8- List of Revenue Sources Evaluated

Revenue Source	Statewide	Regional
Retail Sales and Use	✓	✓
Motor Vehicle Sales and Use	✓	
Motor Vehicle License Fee	✓	
Motor Vehicle Rental Tax	✓	✓
Sales Tax On Motor Fuels	✓	✓
Driver's License Fees	✓	
Toll Implementation	✓	✓
Tax on Auto-Repair Labor	✓	
General Property Tax		✓
C&I Property Tax		✓
Deed/Mortgage Recordation Tax	✓	✓
Real Estate Transfer Tax	✓	✓
Hospitality Tax		✓
Personal Income Tax	✓	
Insurance Premium Tax	✓	
Communication Sales Tax	✓	
Utility Bill Fee		✓
Tobacco/Cigarette Tax	✓	

Source: WSP

These revenue sources were evaluated according to the criteria summarized in Figure 9. The criteria assess each source relative to ease of implementation, economic, political, and administrative conditions. The scoring criteria are summarized below, with full circles representing high (positive) scores, empty circles representing low (negative) scores, and half-filled circles representing medium scores.

Figure 9- Revenue Evaluation Criteria

Factor	Description	Rating
Revenue potential	Amount funding source may yield for transit programs	● High ◐ Medium ○ Low
Keep pace with inflation	Source keeps pace or is correlated with general price inflation	● Indexed and/or keeping pace with inflation ◐ Sometimes keeping pace with inflation ○ Not indexed/not keeping pace with inflation
Equity	Proportionate impact across income levels	● Progressive (consistent with incomes) ◐ Neutral ○ Regressive (higher burden on lower incomes)
Nexus with beneficiaries	Correlation with beneficiaries of transit programs	● Directly related to the beneficiaries ◐ Some relation ○ No relation
Stability/ predictability	Annual stability and predictability	● Generally stable/predictable ◐ Varies but generally predicable ○ Relatively unpredictable/volatile
Administration	Administrative, collection and enforcement costs	● Already collected at some level/low cost ◐ Moderate administration and collection costs ○ Costly new administration and collection mechanisms required

Source: WSP

● = High ◑ = Medium ○ = Low

The outcome of this screening is a matrix presented in Figure 10 that describes each source and highlights its advantages and disadvantages relative to the funding objectives. More detail on the evaluation of each potential revenue source is provided in Appendix B.

Figure 10- Evaluation of Potential Revenue Sources

Source	Revenue potential	Keeps pace with inflation	Equity	Nexus with beneficiaries	Stability/ Predictability	Administration
Retail Sales and Use	●	●	○	◐	◐	●
Communication Sales Tax	●	○	◐	◐	●	●
Motor Vehicle Sales and use	◐	●	◐	◐	◐	●
Motor Vehicle License Fee	●	◐	○	◐	●	●
Motor Vehicle Rental Tax	○	○	◐	○	○	●
Sales Tax On Motor Fuels	●	○	○	◐	○	●
Drivers License Fees	◐	○	○	◐	●	●
Toll Implementation	◐	◐	○	○	◐	◐
Tax on Auto-Repair Labor	●	●	◐	◐	◐	◐
Property Tax	●	◐	◐	◐	◐	◐
C&I Property Tax	●	◐	◐	◐	○	●
Deed/Mortgage Recordation Tax	○	◐	◐	◐	○	●
Real Estate Transfer Tax	○	◐	◐	○	○	●
Hospitality Tax	◐	●	●	○	○	◐
Personal Income Tax	●	●	●	○	○	●
Insurance Premium Tax	●	●	◐	○	◐	●
Utility Bill Fee	◐	◐	○	○	●	◐
Tobacco/Cigarette Tax	●	○	◐	○	◐	●

Source: WSP

● = High ◑ = Medium ○ = Low

Based on these results, the Revenue Advisory Board selected a shorter list of potential revenue sources for further evaluation. This includes existing taxes with large bases that contribute to funding transit capital, such as the Retail Sales and Use Tax and the Motor Vehicle Sales and Use Tax.

Subsequently, order-of-magnitude revenue estimates were prepared for the selected statewide and regional funding sources. For illustrative purposes, the additional revenue generated from modest increases to current rates was calculated. The estimated revenue potential for

statewide sources is summarized in Figure 11, for Northern Virginia in Figure 12, and for Hampton Roads in Figure 13.

Figure 11- Estimated Revenue Potential – Statewide Revenues

State Sources	Existing State Tax Rate	Increased Tax Rate	Growth Rate	Average Annual Revenue Estimated*
Retail Sales Tax	4.3%[27]	0.10%	1.03%	$135.2m
Motor Vehicle Sales and Use Tax	4.15%	0.50%	1.05%	$119.3m
Gas and Diesel Fuel Sales Tax	5.1%/6%[28]	0.50%	0.89%[29]	$85.7m
Deed & Mortgage Recordation Tax	$0.25/$100[30]	$0.05/$100	0.50%[31]	$73.2m
Insurance Premium Tax	2.25%	0.25%	5.53%	$70.0m
Priority Transportation Fund	-	Up to 100% of surplus revenues	-	$67.4 m[32]
Motor Vehicle License Fee	$40.75	$5.00	0.00%	$36.7m
Internet Sales Tax	-	0.25%	6.07%[33]	$24.1m
Real Estate Transfer Tax	$0.05/$100[34]	$0.01/$100	0.50%[5]	$6.8m

*FY18-FY27 Estimates: WSP

[27] 4.3 percent is the state rate, effective total rate is 5.3 percent statewide, and 6 percent in Northern Virginia and Hampton Roads; tax rate is 2.5 percent statewide for food
[28] 5.1 percent for gasoline; 6 percent for diesel state rate. Effective total rate 7.2 percent/8.1 percent in Northern Virginia and Hampton Roads.
[29] Growth rate from the state forecast on the gas tax. Base price from EIA.
[30] Effective rate is $0.33/$100 of deed and mortgage value for most jurisdictions (option of 1/3 additional local rate)
[31] Conservative 0.5 percent growth used to replace negative observed CAGRs
[32] Average for PTF is from FY25-FY27. Surplus revenues, revenues after debt service, are not available until FY 25.
[33] Only 2014-2018 data available, CAGR based on that time series
[34] Effective rate is $0.10/$100 of deed value (5 cents state rate, 5 cents local rate). Additional $0.15/$100 congestion relief fee in Northern Virginia.

Figure 12- Estimated Revenue Potential – Northern Virginia Regional Revenues

Northern Virginia Sources	Existing Regional Tax Rate	Increased Tax Rate	Growth Rate	Average Annual Revenue Estimated*
Retail Sales and Use Tax – NoVA	0.7%[35]	0.25%	2.64%	$102.1m
Retail Sales and Use Tax – WMATA Jurisdictions[36]	0.7%	0.50%	2.62%	$155.7m
Fuel Sales Tax Floor Implementation	2.1%	1.2%	EIA Forecast	$30.6m
Fuel Sales Tax Increase after Floor Implementation	2.1%	Floor	EIA Forecast	$25.1m
Utility Bill Fees	-	$12/year	1.32%/1.66%[37]	$12.0m
Real Estate Transfer Tax	$0.15/$100[38]	$0.02/$100	0.83%	$6.1m

*FY18-FY27 Estimates: WSP

Figure 13- Estimated Revenue Potential – Hampton Roads Regional Revenues

Hampton Roads Sources	Existing Regional Tax Rate	Increased Tax Rate	Growth Rate	Average Annual Revenue Estimated*
Retail Sales and Use Tax	0.7%[39]	0.15%	1.03%	$23.6m
Fuel Sales Tax Floor Implementation	2.1%	Floor	EIA Forecast	$17.3m
Fuel Sales Tax Increase after Floor Implementation	2.1%	1.2%	EIA Forecast	$21.1m
Utility Bill Fees	-	$12/year	0.5%/0.5%	$6.5m
Real Estate Transfer Tax	-	$0.02/$100	1.00%	$1.4m

*Hampton Roads Transit provided revenue estimates for Retail Sales and Use Tax and Real Estate Transfer Tax.
Other FY18-FY27 Estimates: WSP

[35] 4.3 percent is the state rate, effective total rate is 5.3 percent statewide, and six percent in Northern Virginia and Hampton Roads; tax rate is 2.5 percent statewide for food
[36] Rate increase for WMATA jurisdictions only. Loudoun County is included starting 2022. Growth rate for WMATA jurisdictions is slightly lower than for Northern Virginia as a whole.
[37] Residential Growth Rate/Commercial Growth rate
[38] $0.15/$100 is Northern Virginia Congestion Relief Fee, coupled with the statewide rate of $0.10/$100, the effective rate is $0.25/$100 in NoVA
[39] 4.3 percent is the state rate, effective total rate is 5.3 percent statewide, and six percent in Northern Virginia and Hampton Roads; tax rate is 2.5 percent statewide for food

PROSPECTIVE FUNDING PACKAGES

Based on the principles outlined in Section 3.2, the Revenue Advisory Board reviewed multiple packages to fund transit capital needs that provide an average of $130 million to $140 million in annual revenue to replace revenues and maintain the status quo.

It should be noted that the Revenue Advisory Board received comments from the public highlighting a need for more than $130 million to $140 million annually in funding. Several individuals and interest groups provided statements that the Commonwealth needs upwards of $200 million annually to meet the increased growth of transit. However, as tasked by the General Assembly in HB 1359, the Revenue Advisory Board focused solely on revenue packages that will replace lost revenues and allow for some modest system growth. These packages are:

- **Package 1 – Adjust existing statewide sources**
  - Deed and Mortgage Recordation Tax
  - Priority Transportation Fund
  - Real Estate Transfer Tax
- **Package 2 – Adjust single statewide funding source**
  - Package 2a: Statewide Retail Sales and Use Tax
  - Package 2b: Statewide Fuel Sales Tax
- **Package 3 – Adjust existing state and regional revenues**
  - Statewide
    - Deed and Mortgage Recordation Tax
    - Priority Transportation Fund
    - Real Estate Transfer Tax
  - Northern Virginia and Hampton Roads
    - Fuel Sales Tax Floor
    - Increase of the regional Fuel Sales Tax after implementation of a floor
    - Retail Sales and Use Tax
- **Package 4 – Adjust state and regional revenues with a floor on the fuel sales tax in Northern Virginia and Hampton Roads**
  - Deed and Mortgage Recordation Tax
  - Priority Transportation Fund
  - Real Estate Transfer Tax

Each funding package is described more in detail in Appendix C. The Revenue Advisory Board chose not to endorse one specific package to the General Assembly to address the transit capital funding gap, but chose instead to provide principles that should be considered by the General Assembly in identifying a revenue package.

WHICH PROJECTS?

A project prioritization process for capital needs will allow the Commonwealth to allocate and assign limited resources into those investments that are most critical and that achieve policy objectives of maintaining a state of good repair of existing assets. It also provides a methodology to prioritize funding for new investments that meet performance criteria and achieve benefits related to congestion mitigation, economic development, accessibility, safety, environmental quality, and land use. The General Assembly and the Commonwealth Transportation Board should consider the additional need for revenues before implementing a new prioritization process.

PROJECT PRIORITIZATION POLICY PRINCIPLES

The Revenue Advisory Board established the following policy principles for project prioritization:

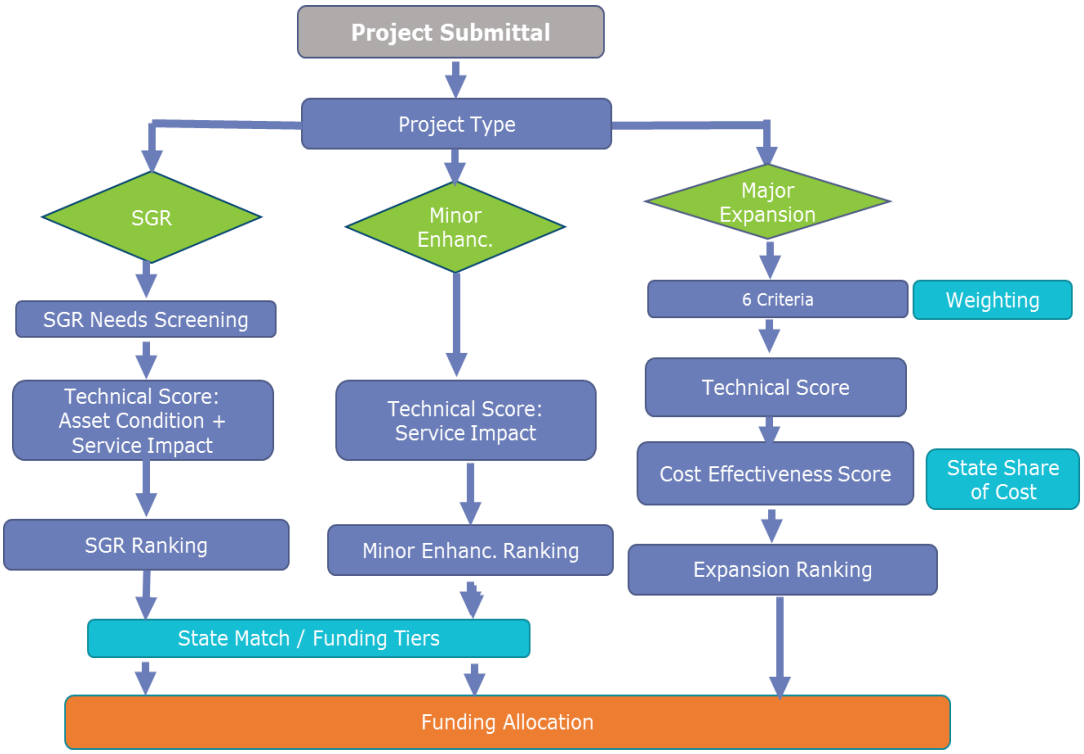
- It is possible to prioritize transit capital projects using technical scoring/ranking based on quantitative and qualitative measures.
- The policy and provisions of such a prioritization process should be developed by the Commonwealth Transportation Board, in a manner similar to the development of the SMART SCALE process, via Board policy to allow for ongoing process improvement.
- The Revenue Advisory Board has identified an illustrative approach to prioritization and provides the following recommendations for work moving forward:
    - For the purpose of scoring and ranking, projects should be grouped into three categories:
        - State of Good Repair
        - Minor Enhancement
        - Major Expansion
    - Scoring criteria for State of Good Repair should be based on a combination of asset condition (from existing federal and state asset management processes) and service impact.
    - Scoring criteria for Minor Enhancement should be based on service impact.
    - Scoring criteria for Major Expansion should be based conceptually on the SMART SCALE factor areas and transit focused measures to allow for portability of project applications between programs. Cost effectiveness should be considered as a measure.
    - The statewide prioritization process should only apply to capital funds collected and allocated statewide.
- While this analysis has recommended criteria and measures for the prioritization, the detailed measures and data sources required to implement this process should be finalized by the Commonwealth Transportation Board after a more thorough analysis of

the implications on individual capital projects in the Six Year Improvement Program. This review should be conducted with the Transit Service Delivery Advisory Committee and through outreach to transit partners across the Commonwealth.

PROJECT PRIORITIZATION PROCESS

For the purpose of prioritization, the Revenue Advisory Board recommends three separate prioritization processes with different criteria and scoring processes by project type.

Figure 14- Project Prioritization Process[40]



Transit capital projects can be classified into three types for the purpose of assigning measures and prioritization:

1. *State of Good Repair:* refers to projects or programs to replace or rehabilitate an existing asset with technical score and ranking based on federal transit asset management requirements
2. *Minor Enhancement:* refers to a streamlined process for minor projects or programs adding limited capacity or new technology, or improvements to existing facilities (illustrative threshold of $2 million)

[40] Funding is separated into two categories: State of Good Repair/Minor Enhancement and Major Expansion. In terms of prioritizing these projects, projects are separated into three categories: State of Good Repair, Minor Enhancement, and Major Expansion.

3. *Major Expansion:* refers to new projects or programs that add, expand, or improve service, with a project cost exceeding $2 million (illustrative), intended to follow a process similar to SMART SCALE

Examples of capital assets included in each project type are identified in Figure 15.

Figure 15- Examples of Transit Capital Assets

State of Good Repair

• Vehicle Replacement
  – Replacement buses
  – Replacement Vans
• Administrative/Maintenance Facilities
  – Rehabilitation/Renovation of bus maintenance facility
• Customer Facilities
  – Bus shelters
  – Bus stop accessibility
  – Bus Route signage
• Maintenance equipment and parts
  – Spare parts
  – Hybrid bus batteries
  – Shop equipment
• Technology/systems/communications
  – Fare payment systems and hardware
  – Safety/surveillance/security equipment and systems
  – Software and hardware to support AVL, payroll and administration, planning and scheduling, real-time passenger information and reporting
• Other
  – Debt service
  – Capital cost of contracting

Minor Enhancement
• Vehicles – minor fleet expansion • New bus shelters • Route signage (bus stop sign) • Purchase digital bus stop signage • New fare collection equipment • New software, hardware, systems • Minor real estate acquisition • Capital project development (engineering and design, construction management)
Major Expansion
• Construction of administrative/maintenance facility • Construction of a transit/transfer center • Vehicle – major fleet expansion • New station entrance • BRT/LRT[41] corridor

[41] Fixed rail projects must be evaluated/scored through SMART SCALE

State of Good Repair projects can be screened initially using asset condition and age data to determine whether there is a legitimate need for asset replacement/rehabilitation and based upon Federal Transit Administration (FTA) requirements for Transit Asset Management.

Once an asset is deemed eligible for State of Good Repair, the funding request can be scored based on asset condition and service impact criteria. Once all projects are scored, the projects can be prioritized from highest to lowest score.

Minor Enhancement projects can be scored and prioritized based on service impact criteria. After scoring, similar to the State of Good Repair process, the Minor Enhancement applications can be prioritized from highest to lowest score.

The process to score Major Expansion projects can take into account the six criteria, similar to SMART SCALE, required under HB 1359: congestion mitigation, economic development, accessibility, safety, environmental quality, and land use. The objectives of each criterion are listed in Figure 16. Scoring can be assigned by criterion and a total score calculated by applying the desired weighting factors (i.e. all factors have the same weight, or variable weight that provide more or less importance to certain criteria). The share of state costs can be applied to calculate cost-effectiveness which will then be used to prioritize projects.

Appendix D provides additional information on the illustrative scoring process considered by the Revenue Advisory Board.

Figure 16- Major Expansion Criteria

Criterion	Objective
Congestion Mitigation	Reduce delay, improve transportation system reliability, and encourage transit use
Economic Development	Support existing economies, and enhance opportunity for economic development
Accessibility	Enhance worker and overall household access to jobs and other opportunities, and provide multiple and connected modal choices
Safety	Address multimodal safety concerns and improve transit safety and security
Environmental Quality	Reduce emissions and energy consumption by providing modal choices, and minimize natural resources impacts
Land Use	Improve consistency of the connection between local comprehensive plans and land use policies with transit investments

USE OF TRANSIT ASSET MANAGEMENT (TAM) FOR STATE OF GOOD REPAIR

Transit agencies receiving federal financial assistance under 49 U.S.C. Chapter 53 are now required to develop transit asset management (TAM) plans. Agencies operating rail and/or those with more than 100 vehicles on fixed or non-fixed routes (Tier I agencies) are required to develop their own TAM plans. Smaller operators (less than 100 vehicles operating on fixed or non-fixed routes), sub-recipients of Section 5311 funds, and American Indian Tribes are

considered Tier II agencies. Tier II agencies may develop their own plans or participate in a group TAM plan. DRPT is sponsoring a group plan for Tier II agencies, of which, nearly all Tier II agencies in the Commonwealth are participating in. TAM reporting will be mandatory starting in 2018 (with optional reporting starting in 2017).

At a minimum[42] TAM plans shall include the following information:

- An inventory of assets
- A condition assessment of inventoried assets
- Description of a decision support tool
- A prioritized list of investments

As transit operators will be required to provide data to meet the condition assessment requirements for TAM plans, this data will further support the proposed State of Good Repair scoring and prioritization process developed in response to HB 1359. Transit operators that receive state funding, regardless of whether or not they receive federal funds, provide asset data directly to DRPT through an online asset management system known as "TransAM." Transit agencies' use of TAM plans and TransAM will support implementation for the State of Good Repair portion of the proposed prioritization process.

[42] Required from Tier I and Tier II agencies. Tier I agencies must comply with five additional elements in their TAM plans.

HOW SHOULD FUNDS BE ALLOCATED TO CAPITAL PROJECTS?

PRINCIPLES FOR TRANSIT CAPITAL PROGRAM STRUCTURE

The Revenue Advisory Board developed the following principles to guide its work in developing a prioritized funding allocation program:

- Funding should be separated into two programs – one for State of Good Repair/Minor Enhancement (combining scoring for these two project types as outlined in Figure 12) and one for Major Expansion.
- A floor (minimum percentage) should be established for the percentage of total funds that will be directed to State of Good Repair, e.g. 80 percent of available funding. This amount will be split into State of Good Repair and Minor Enhancement with no more than 5 percent of these funds going to Minor Enhancement.
- The remaining percentage of the total funds (e.g. percent of available funds) would be provided for Major Expansion projects.
- The Commonwealth Transportation Board should have the discretion to move funding from Major Expansion and Minor Enhancement into State of Good Repair based on funding needs.
- Minor Enhancement projects would be defined as a relatively minor addition to an existing fleet, expansion to an existing facility, or a smaller project in dollar value. Exact thresholds and definitions will be determined at a later date following additional industry input.
- A single consistent match rate should be applied across asset types within each program in order to provide greater predictability in funding. This would shift away from the existing tiered match rates that vary by year or by asset. The match rate should be high enough to ensure that selected projects are fully funded, e.g. percent for all projects. The exact match rate can be set at a later date following additional industry input; however, the Revenue Advisory Board examined rates up to 80 percent.
- State of Good Repair and Minor Enhancement projects should be matched at a higher rate than Major Expansion projects.
- Local matching requirements (minimum of four percent) should remain part of the program structure.

Using this approach, priority will be placed on state of good repair projects, and projects would be funded in order of priority until all funds are exhausted. Consequently, the number of projects receiving state funding will be dependent upon the selected state participation rate. As with the SMART SCALE prioritization process, the Commonwealth Transportation Board would

retain the flexibility to fund projects with a lower rating if warranted by other considerations or local priorities.

TRANSIT CAPITAL ASSISTANCE PROGRAM STRUCTURE

For the purpose of this analysis, the Revenue Advisory Board examined several options for program structure. To ensure the primary focus is on State of Good Repair, the Revenue Advisory Board determined the program structure should be:

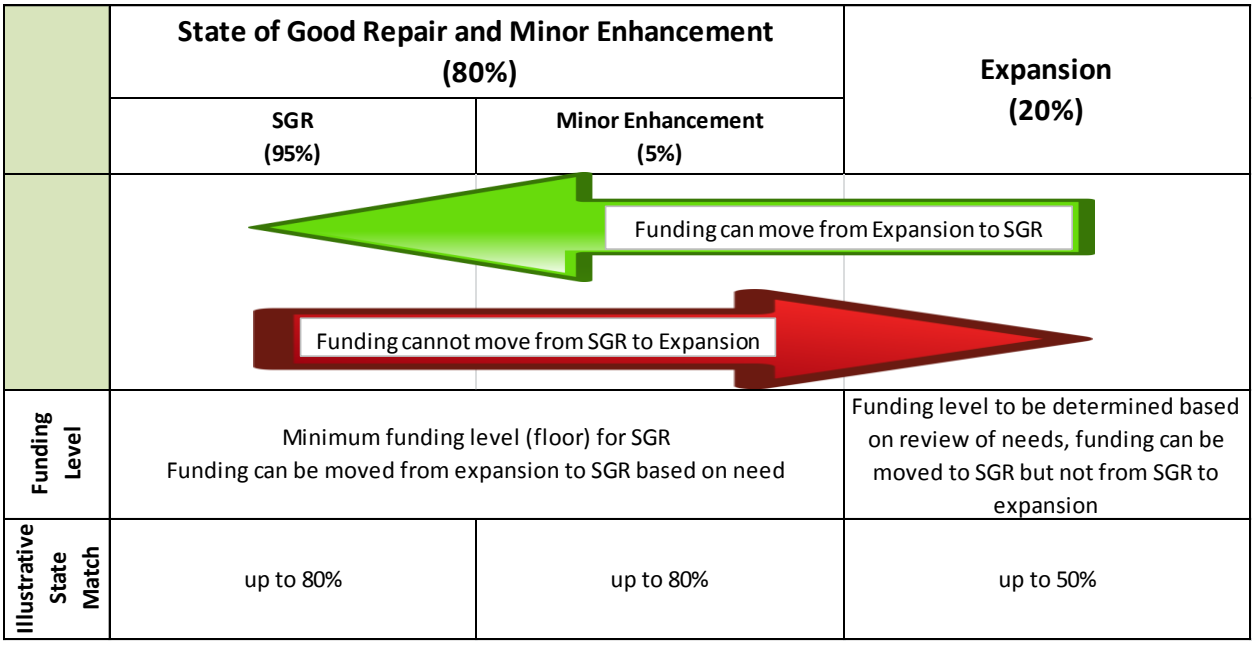
- 80 percent of available funding: State of Good Repair and Minor Enhancements, as the primary focus of the transit capital program; and
- 20 percent of available funding: Major Expansion

A minimum of 80 percent of available funding should be allocated to State of Good Repair and Minor Enhancements establishing a floor or minimum threshold focused on State of Good Repair. This amount can be split into State of Good Repair and Minor Enhancement, at the discretion of the Commonwealth Transportation Board, with no more than five percent of these funds going to Minor Enhancements. If there are excess funds available in the State of Good Repair program, these should be rolled forward for use in future fiscal years and not allocated to additional expansion needs.

The remaining percentage of the total funds (e.g. 20 percent of available funds if 80 percent is allocated to State of Good Repair and Minor Enhancements) would be allocated to Major Expansion projects. The Commonwealth Transportation Board should have the discretion to move funding from Major Expansion and Minor Enhancement into State of Good Repair, based on funding needs; the opposite transfer, from State of Good Repair to Major Expansion, should not be allowed.

Minor Enhancement projects would be defined as a relatively minor addition to an existing fleet, expansion to an existing facility, or a small project in dollar value. Exact thresholds and definitions will be determined at a later date, following additional industry input.

Figure 16- Transit Capital Program Structure



STATE PARTICIPATION RATE

In order to provide transit agencies with greater funding predictability, a single consistent state participation rate should be applied across asset types within each project type (e.g. State of Good Repair, Minor Enhancement, and Major Expansion). This would mark a shift away from the existing tiered state participation rates which vary by year by asset type regardless of whether it is a state of good repair replacement or expansion asset. The state participation rate should be high enough to ensure that selected projects are fully funded.

The state participation rates set for State of Good Repair and Minor Enhancement projects should be higher than the rate set for Major Expansion projects. The exact state participation rate will be set at a later date following additional industry input. Local matching requirements (minimum of four percent) should remain part of the program structure.

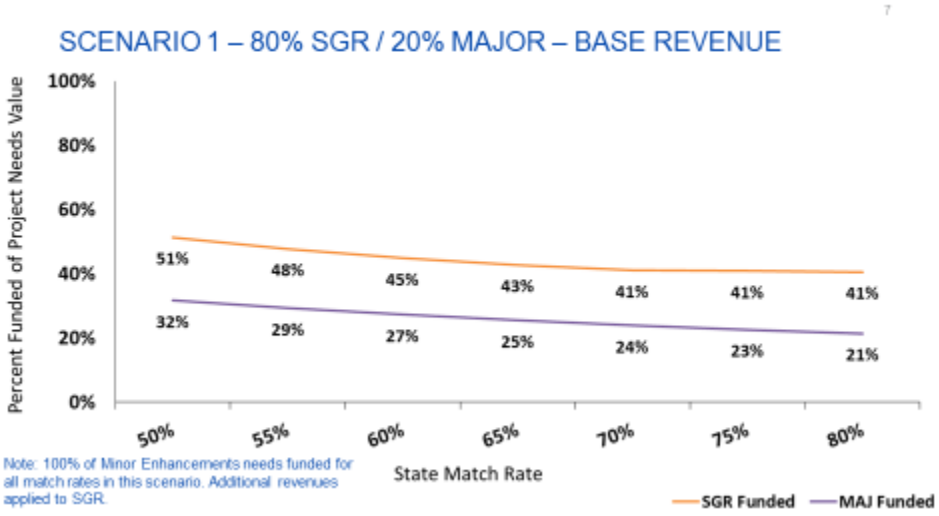
The Revenue Advisory Board reviewed a range of state participation, rates up to 80 percent, as illustrated in Figures 17 and 18.

ILLUSTRATIVE SCENARIOS

The prioritization and program structure approach was applied to test the methodology. Projects received funding in rank order by score until funding was exhausted by project type (e.g. State of Good Repair, Minor Enhancement, and Major Expansion). The graphs below show the range of match rates between 50 percent and 80 percent and demonstrate that the variation in the percentage of projects funded in that range is negligible – less than ten percent.

Therefore, the state participation rates should be established high enough to enable transit agencies to support the completion of their projects, similar to SMART SCALE. As noted in Section 5.2, the Commonwealth Transportation Board should retain the ability to move funding from Major Expansion to State of Good Repair to meet priorities.

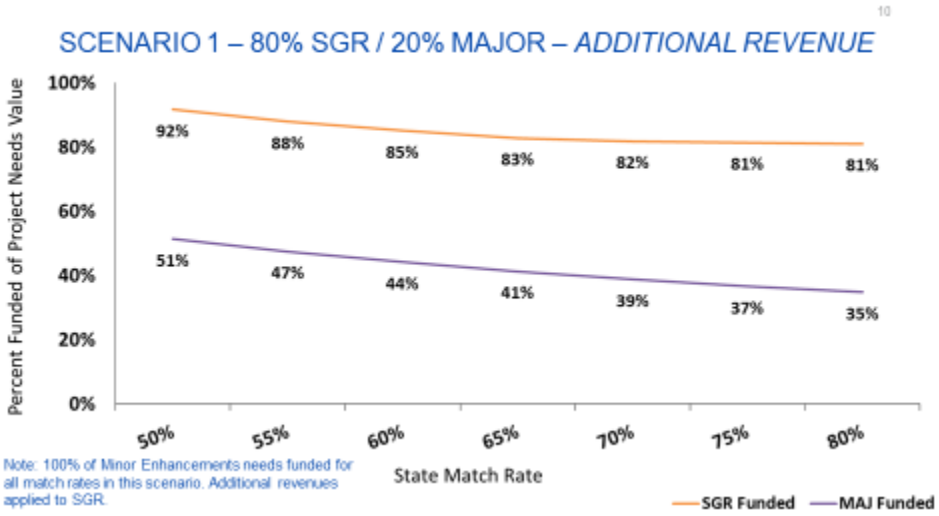
Figure 17- Project Funding in Allocation Scenario 1, with Base Revenue



Source: WSP

Figure 18 presents the same scenario but assumes the state transit capital program receives additional revenue as described in section 3.4.

Figure 18- Project Funding in Allocation Scenario 1, with Additional Revenue



Source: WSP

Graphs presenting other scenarios are included in Appendix E.

RECOMMENDATIONS

The Revenue Advisory Board makes the following recommendations regarding revenues, transit capital program structure, and allocation of funds:

1. In order to meet the transit capital funding needs of the Commonwealth, replacement funding must be identified. Without replacement revenue, the transit capital program will be unable to maintain a state of good repair for existing transit capital assets.

2. As the General Assembly considers replacement funding for the transit capital program, the needs and economic impacts of WMATA should be considered. Ongoing studies related to the governance, operations, and financial management of WMATA should be contemplated in drafting potential legislative solutions for transit capital.

3. A combination of sustainable and dedicated revenue sources, including both state and regional sources, should be considered. It is critical that the majority of these funds should be generated by statewide sources, recognizing the statewide impact of transit services. Regional funds should be dedicated to transit needs and prioritized within the region of collection, with consideration of the additional impact that new revenue sources would have in addition to existing regional revenue sources.

4. Scarce transit capital resources may be prioritized by project, based on quantifiable measures. The Revenue Advisory Board has developed an illustrative prioritization process that may be considered with further input from the Commonwealth Transportation Board and the Transit Service Delivery Advisory Committee.

5. To support prioritization, the transit capital program should be split into two programs: i) State of Good Repair and Minor Enhancement; and ii) Major Expansion. A minimum of 80 percent of program funding should be allocated to State of Good Repair, with the Commonwealth Transportation Board having the discretion to move additional funding into State of Good Repair.

6. A new allocation process should provide a fair distribution of funding across the Commonwealth, with an understanding that certain areas of the state have greater transit capital funding needs than others. Transit agencies and local governments need to have a dependable and objective methodology. A single consistent match rate should be applied across asset types in order to provide greater predictability in funding, with State of Good Repair/Minor Enhancement projects matched at a higher rate than Major Expansion projects.

CONCLUSION

Without question, a long-term and sustainable investment in transit capital is critical for Virginia's economic vitality since public transportation plays a key role in i) congestion mitigation, ii) economic development, iii) environmental stewardship; and iv) mobility.

Without revenues to replace the proceeds from the expiring capital project revenue bonds, the Commonwealth will be unable to maintain the status quo by preserving a state of good repair for existing transit capital assets. Replacement sources should be specifically dedicated to transit capital to meet state of good repair needs but also to aid minor enhancement and major expansion needs. Selected sources should include a combination of statewide and regional sources that provide steady and reliable streams of revenue.

To ensure a primary focus on State of Good Repair, 80 percent of all funding should be directed to State of Good Repair and Minor Enhancement, with no more than five percent of these funds going to minor enhancements. The remaining percentage of the total funds would be allocated to Major Expansion projects. The Commonwealth Transportation Board should have the discretion to move funding from Major Expansion and Minor Enhancement into State of Good Repair based on funding needs. In order to determine what transit capital projects will receive funding according to this structure, the Revenue Advisory Board has reviewed and presented a prioritization structure for consideration. However, it must be reiterated that this prioritization structure will be more successful with replacement funds.

The Revenue Advisory Board strongly feels that the future success of transit agencies throughout the Commonwealth is dependent upon action by the General Assembly to resolve the loss of the Capital Project Revenue bond revenues. Millions of individuals yearly rely upon public transportation as the preferred or sole mode of transportation. Without strong and reliable transit agencies, the Commonwealth's citizens, tourism industry, and economy will suffer tremendously.

APPENDIX A - TRANSIT RESOURCE ALLOCATION PLAN – CAPITAL ESTIMATION APPROACH

EXECUTIVE SUMMARY

Statewide capital needs are based on capital expenditures anticipated in the FY17 statewide Six-Year Improvement Program (SYIP, published in 2016), transit agency Capital Improvement Programs (CIPs), Transit Development Plans (TDPs), and interviews with top transit agencies. WSP developed four scenarios, which demonstrate the possible gap in funding that the state may face, depending on transit needs and availability of state revenue. The model also indicates how much the state would need to reduce allocations in each scenario, by lowering the state match percentages, in order to compensate for the estimated gap. The scenarios simulate the impact of the following variables:

Transit Capital Revenue

- The base scenario assumes that all current revenue sources are assumed to expire if legislated as such. Specifically, state transit capital bonds are assumed to sunset in FY19 and PRIIA authorized state/federal WMATA funding is assumed to sunset in FY 2020
- An alternate scenario assumes instead that PRIIA WMATA funding from state and federal sources is reauthorized.

Transit Capital Spending

- The base scenario assumes that transit allocations proceed as delineated in the statewide SYIP and WMATA's CIP[43]
- A second scenario assumes that transit allocations includes capital projects in addition to those listed in the SYIP and WMATA's CIP
- A third scenario assumes that transit allocations are limited to state of good repair, and excludes expansion projects beyond multi-year projects for which funds have already been committed.

The base case scenario indicates that if capital needs by Commonwealth transit agencies occurs as planned and new funding does not materialize, the cumulative gap will amount to $1.1 billion by FY2027. State transit capital grant matching rates would need to drop significantly from FY2022 through FY2027 in order to compensate for this gap.

This memorandum explains the methodology WSP applied to prepare the capital resource allocation plan. It includes a summary of the approach, a detailed description of the methodology, the impact the state transit capital funding shortfall has on local transit agencies

[43] This analysis utilized the WMATA FY 17 Approved Budget, Appendix A - Capital Improvement Plan Effective July 1, 2016.

and their capital improvement programs, and a summary of the results of the capital needs estimation.

The methodology included the following steps:

- Estimate transit capital costs in the Commonwealth over the period, Fiscal Year (FY) 2018 to Fiscal Year 2027 using the statewide SYIP, WMATA CIP, and growth rates.
- Apply an estimation of state transit capital revenues and state transit capital assistance over the same time period to each capital project, to identify funding shortfalls.
- Determine additional funding amounts required to close the gap, and alternatively how current FY2017 state match rates would need to be reduced to close the funding gap.
- Analyze the impact of different variables on the capital cost and revenue estimation in five different scenarios.
- Summarize the results of the capital estimation.

METHODOLOGY

To develop the estimation for FY 2018-2027, WSP classified each project in the statewide SYIP and WMATA CIP by tier and activity, estimated costs for the years beyond the statewide SYIP and WMATA CIP, and estimated federal, state, and local revenues. The methodology can be broken down into the following three steps, which are summarized here and described in detail in the subsections that follow:

1. **Data Collection**: Classify SYIP and WMATA CIP projects by transit capital assistance tier[44] and activity, and contact top 10 transit agencies by state capital assistance amount to identify additional projects excluded from the SYIP, for which funding has not been secured.
2. **Cost Estimation**: Prepare estimation of capital costs
    a. WMATA
    b. Other top spending agencies
    c. All other agencies
3. **Revenue Estimation**: Prepare estimation of federal, state, and local revenues
    a. WMATA
    b. All other agencies, including top spending agencies

The statewide SYIP provided an estimate of total capital costs by project, agency, and CTB district as well as multi-year project commitments for the first five years (FY2018-2022) of the estimation period. For WMATA, the six-year Capital Improvement Program (CIP) FY2017-2022 was used instead of the SYIP. Planned expenditures for all other agencies FY2018-2022 are based on the SYIP.

[44] Tier 1: Replacement and Expansion Vehicles, Tier 2: Infrastructure/Facilities, Tier 3: Other.

Three separate methods were employed to estimate needs and revenue: (1) WMATA, (2) Top 10 Agencies other than WMATA, and (3) all other agencies. Top agencies, measured by total estimated needs, accounted for 92 percent of total state transit capital assistance in FY2016 (including WMATA). For these top agencies, estimations of capital costs were developed at the agency-level. For all other transit agencies, costs were estimated at the Commonwealth Transportation Board district level. Costs were disaggregated and estimated for three asset categories (corresponding with the capital assistance tiers): vehicles, infrastructure/facilities, and other.

The financial model developed for this analysis can evaluate scenarios by modifying key estimation assumptions, including expenditure growth rates, state match rates, and revenue potential from new funding streams, and spending levels. The scenario assumptions are described in detail in Section D.

Step 1: Data Collection

Each project in the SYIP was classified into one of three asset tiers, and as one of two investment categories: expansion or state of good repair. DRPT classified projects by tier based on definitions recommended by the Transit Service Advisory Delivery Committee (TSDAC). These include: Tier 1 – Replacement and Expansion Vehicles; Tier 2 – Infrastructure/Facilities; and Tier 3 – Other. Projects were also classified as replacement (state of good repair) or expansion, based upon the following criteria:

- *State of Good Repair*: includes rehabilitation and replacement projects including purchase of replacement vehicles; infrastructure and amenities including guideway rehabilitation, shelters, fare payment, bike racks and signage; communication and technology improvements including purchase of computers; security investments; and track lease and debt service payments, among others.
- *Expansion*: included all projects requiring acquisition of expansion vehicles as well as infrastructure expansion projects such as construction of new parking garages and Metro station elevators and entrances.

In addition to the SYIP and WMATA CIP, top agencies participated in telephone interviews or in-person interviews, and provided information regarding how their planned transit spending differs from plans documented in the SYIP. This information included the cost and anticipated funding sources of transit investments not reflected in the SYIP, for which funding for has been budgeted or committed, as well as prospective projects that the agencies are pursuing but for which funding has not been identified.

Step 2: Cost Estimation

Three separate methods are applied to estimate capital costs for WMATA, other top spending agencies, and the rest of Virginia transit agencies.

Step 2a: WMATA

WMATA's six-year Capital Improvement Program (CIP) FY2017-2022 supersedes the estimation of WMATA projects documented in the statewide SYIP. The estimation model used the projects included in the WMATA CIP as the basis for the first six years of the estimation period. The following steps were completed to extrapolate the six-year CIP to a ten-year estimation period and estimate Virginia's share of the WMATA capital program:

- *Tier assignment and classification*: The Northern Virginia Transportation Authority (NVTA), which coordinates Virginia state, regional, and local funding to WMATA, provided WMATA project classifications by transit capital assistance tier. Projects were also classified as replacement (state of good repair) or expansion.
- Estimate out-year expenditures:
- FY2017-2022 expenditures for each tier were escalated to 2023 dollars.
- For each tier, the average of the escalated FY 2017-2022 expenditures was calculated.
- The FY 2023-2027 expenditures were estimated by inflating the average of the FY2017-2022 expenditures by 2.8 percent annually. This annual escalation rate is based on the RS Means historical Construction Cost Index (CCI) from 2006-2016 for Washington DC.

Step 2b: Other Top 10 Agencies

Agencies with the largest capital needs were identified based on the sum of FY2016 SYIP expenditures. These agencies include:

- WMATA (methods described in previous section)
- City of Alexandria
- Virginia Railway Express
- Fairfax County
- Arlington County
- Potomac and Rappahannock Transportation Commission (PRTC)
- Hampton Roads Transit
- Williamsburg Area Transit Authority
- Greater Lynchburg Transit Company
- Greater Richmond Transit Company

These agencies are estimated to account for more than 90 percent of the total statewide transit capital needs in the Commonwealth between FY2018 and FY2022.

The data for the last year of SYIP capital estimation, FY2022, was excluded from the analysis because agencies have limited ability to forecast spending beyond 3-4 years.

FY2022-2027 expenditures were estimated at the agency level for each tier.

1. FY2018–2021 expenditures were escalated to $2022.
2. The FY2022–2027 expenditures were estimated by inflating the average of the FY2018–2021 expenditures by 2.93 percent annually. This annual escalation rate is based on the composite RS Means historical CCI from 2006-2016 for the Washington DC, Alexandria, Newport News, Norfolk, Richmond, and Roanoke, VA metropolitan areas.

Step 2c: All Other Agencies

Agencies other than the top 10 agencies are estimated to constitute less than 9 percent of FY2018-2021 total statewide transit capital allocations. Expenditures by all agencies in this group were summarized by tier at the district level, instead of at the agency level. Consistent with the approach for top agencies documented in Step 2(b), the estimation model used SYIP projects as the basis for the first four years of the estimation period (FY2018–2021). FY2022–2027 expenditures were estimated for each agency by assuming that needs hold steady at the average FY2018–2021 expenditures by tier (i.e. no year-over-year growth in capital expenditures in the out years beyond inflation, i.e. RS Means historical CCI.)

Step 3: Revenue Estimation

To estimate state funding for each capital project, the amount of local and federal funds were estimated first, to ensure that minimum local funding shares are met and prevent state fund overmatch (in which total state + federal spending is greater than 100% of any project cost). As with the estimation of capital costs, separate methodologies were applied to estimate capital needs for WMATA and other Virginia transit agencies.

Step 3a: WMATA

- Estimate federal funding:
  - Federal formula contributions to the WMATA CIP are assumed to remain constant after FY2022 for the remainder of the estimation period. This assumption is consistent with the flat-line growth in federal formula funding assumed by WMATA over the last few budget cycles and during the final years of the six-year CIP estimation.
  - In the base case, federal PRIIA contributions—and the companion Virginia state match—are not assumed to be reauthorized when the current enabling legislation expires

(FY2020). This assumption is tested in other scenarios, as explained in section C, in which PRIIA contributions are assumed to continue at their current level of $150 million per year after the current enabling legislation expires.

- Other federal sources beyond FY2022 are assumed to be held constant at the average of federal funds from 2018-2022. Data for the last budgeted year is not discarded because WMATA's CIP does not assume a drop in spending, contrary to the SYIP,
- The current CIP anticipates proceeds from debt financing revenues between FY2017 and 2022. Debt proceeds are not assumed in the estimation beyond FY2022[45].

- Estimate state and local funding: Jurisdictional contributions to WMATA's capital program are made primarily through three funding streams.
  - Federal Formula Match: all formula programs require 20 percent state and local match that is allocated between the District of Columbia (hereafter "the District"), Maryland and Virginia based on a formula prescribed in the 2010 Capital Funding Agreement (CFA) between the WMATA jurisdictions.
  - PRIIA Match: requires a 50 percent state match that is equally allocated between the District, Maryland and Virginia. Of the $300 million PRIIA program, $150 is provided by the federal government as long as Maryland, the District, and Virginia each contribute $50 million.
  - System Performance: a state and local contribution allocated between the District, Maryland, and Virginia based on a formula prescribed in the CFA.

The Virginia share of the Federal Formula Match and System Performance contributions was calculated using the CFA match formula. This formula uses density-weighted population, ridership, and number of stations by jurisdiction to allocate WMATA capital and operating costs.

The state share was estimated based on either historical tier match percentages or estimated state match rates by tier such that there is no overfunding.

- Estimate out-year funding: Of the state and local funding sources described above, formula match and PRIIA match amounts are linked to federal funding level assumptions and are hence considered "known" for the estimation period. The remainder of the costs (i.e. costs not covered by federal funds and match contributions) were assumed to be funded through System Performance funds (unmatched capital funds from Metro's funding jurisdictions).

[45] As a result, the estimation is conservative since it assumes that investments in out-years must be paid over the period and not over the longer term of a bond emission.

Step 3b: All other agencies, including top spending agencies

- Estimate federal funding: Estimated federal match rates from the SYIP (FY2018-2021) by tier at agency level (for the top 10 agencies) or at CTB district level (for all other agencies) were assumed to hold through the estimation years.
- State share: The state share was estimated based on historical (FY2016) state match rates by tier such that there is no overfunding after taking into account estimated federal funding and the requirement for 4 percent local funding.

SCENARIOS

The estimation model tests the following three scenarios. The variables tested by scenario are summarized in Figure A-1.

1. ***Baseline Estimated Funding Needs:***
   - *Revenue:* The base case assumes that funding includes State Transit Capital Assistance consistent with existing levels for the entire estimation period, Transit Capital Bonds will sunset after 2019 as legislated, and PRIIA bonds will sunset after 2020 as legislated.
   - *Transit Needs:* Agencies are estimated to seek funding for projects on the basis of the SYIP and WMATA CIP as described above.
2. ***Baseline Minus Expansion:***
   - *Revenue:* The revenue variable in scenario 2 is the same as the base case.
   - *Transit Needs:* The state only supports SGR projects.
3. ***Baseline plus Additional Growth:***
   - *Revenue:* The revenue variable in scenario 3 is the same as the base case.
   - *Transit Needs:* In addition to projects estimated on the basis of the SYIP and WMATA CIP, agencies will pursue other expansion projects. The cost of these projects is determined based on a list of projects which agencies have provided, as well as a calculation of 5 percent of current project costs, added as a contingency.

Figure A-1: Variables tested by Scenario

	PRIIA Funding Reauthorized	New State Transit Capital Bonds	Projects Beyond FY17 SYIP	Contingency	SGR and committed expansion projects only
1) Base Case	X	X	X	X	X
2) SGR Only	X	X	X	X	✓
3) Additional Expenditures	X	X	✓	✓	X

Each of these scenarios, and the resulting estimations for each, are detailed below.

1. Baseline Estimated Funding Needs:

Revenue

Revenue streams in the base case amount to a total of $1.3 billion over the period 2018-2027, and include:

(1) State Transit Capital Funding available over the duration of the estimation (includes Mass Transit Capital Fund revenues and 25 percent of the Mass Transit Trust Fund which is dedicated to capital),
(2) Transit Capital Bond Revenues, which currently expire after 2019, and
(3) PRIIA Bond revenues, which currently expire after 2020.

Capital Investment

Capital Investment in the Base Case is estimated on the basis of the SYIP for all transit agencies except for WMATA, which is estimated on the basis of the CIP. All projects included in these plans, except for those that had been cancelled as of mid-November 2016 such as the Virginia Beach Tide Light Rail project, are included. Projects that are not included in the statewide SYIP, or WMATA's CIP, are not included in this scenario. Total Capital Investment equals $6.3 billion, with an estimated state contribution of $2.4 billion. Approximately 73 percent of the needs represented in the analysis are for state of good repair.

Gap and State Match Rates by Tier

This estimation results in a cumulative gap of $1.1 billion over the period 2018-2027. This is based on TSDAC approved tier match rates (68 percent for Tier 1; 34 percent for Tier 2; and 17 percent for Tier 3 projects). Tier-wise state match ratios are adjusted every three years (per TSDAC directives) to minimize the annual and cumulative gap, while maintaining state match rates for Tier 1 projects at the highest priority. This prioritization method may change in the future.

In order to address the gap, the state would not be able to fund any Tier 3 projects in this scenario. The state would only be able to fund Tier 2 projects at a match of 18 percent instead of the planned 34 percent, for the period 2018-2020, after which the match would fall to zero. Additionally, the state would only be able to fund Tier 1 projects at the planned match rate of 68 percent from the period 2018-2020, after which match would fall to 49 percent for the period 2021-2023, and would then fall further to 27 percent until year 2027.

2. ***Baseline Minus Expansion:*** Assumes that state funding contributions will only support SGR projects. Expansion projects are excluded from this analysis.

Revenue

This scenario applies the same revenue estimation as the base case, for a total of $1.3 billion over the period 2018-2027.

Capital Investment

Capital Investment in this scenario is assumed to include only state of good repair projects and excludes expansion projects. Projects are estimated on the basis of state of good repair projects included the SYIP and WMATA CIP as described above. Although total Capital Investment is equal to $6.5 billion as with scenarios 1, 2, and 3, the state contribution would only amount to $1.8 billion in order to strictly support state of good repair needs. Any expansion projects not funded by the state transit capital would have to be advanced with local or competitive grant funding or not advance.

Gap and State Match Rates by Tier

Even if the state supports only state of good repair needs, there would still be a resulting cumulative gap of $483 Million over the period 2018-2027.

In order to address the gap, the state would not be able to fund any Tier 3 projects in this scenario. The state would be able to fund Tier 2 projects a rate of 18 percent for the period 2018-2020, but this would drop to 4 percent for the period 2021-2023, then to zero from 2024-2027. The state could fund Tier 1 projects at the full 68 percent for the period 2018-2023, but this would fall to approximately 60 percent from 2024-2026 and then 26 percent in year 2027.

3. ***Baseline plus Additional Growth:*** Assumes that needs will include projects which top 10 transit agencies have planned in addition to projects estimated on the basis of the SYIP and WMATA CIP, as well as additional projects which have been identified as necessary but for which funding has not been secured.

Revenue

This scenario includes the same revenue assumptions as base case, for a total of $1.3 billion over the period 2018-2027.

Capital Investment

Capital Investment in this scenario is assumed to include additional projects that agencies have not included in the constrained SYIP because funding has not been identified. Total Capital Investment in this scenario equals $8.4 billion, with a state contribution of $3.3 billion.

Gap and State Match Rates by Tier

This scenario projects a cumulative gap of $2.0 billion over the period 2018-2027.

In order to address the gap, the state would not be able to fund any Tier 3 projects. The state would only be able to fund Tier 2 projects a rate of 2 percent for the period 2018-2020, and then the state would have to drop the match rate to 0 percent from 2021-2027. The state would be able to fund Tier 1 projects at the full 68 percent for the period 2018-2020, 18 percent from 2021-2023, and then the match would have to drop to 15 percent for the period 2024-2027.

APPENDIX B - DETAILED SUMMARY OF REVENUE OPTIONS

RETAIL SALES TAX – STATEWIDE

CURRENT TAX RATE

Tax Base: Retail sales (food and non-food)
Current State Rate: 4.3%, 2.5% for food sales
Current Transit Capital Share: For both rates, 0.5% goes to TTF, 14.7% of TTF goes to MTTF, 25% of MTTF goes to transit capital; additional share of 0.075% to MTTF on non-food tax, of which 25% goes to transit capital

COMPARABLE STATE RATES

District of Columbia: 5.75%
Maryland: 6%
North Carolina: 6.75% to 7.5%
West Virginia: 6% to 7%

EVALUATION

Factor	Description and comments	Rating
Revenue potential	Very large tax base - could be expanded if exemptions were reduced	●
Keep pace with inflation	Strongly correlated with inflation	●
Equity	Regressive	○
Nexus with beneficiaries	Weak nexus outside of metro areas, where most residents benefit from transit	◐
Stability / predictability	Depends on economic activity	◐
Administration	Already exists	●

REVENUE POTENTIAL

Current FY18 Revenue: $44.1 million for transit capital
Other Uses: 0.225% for transportation (HMOF, IPROC), General Fund

State Source	Existing State Tax Rate	Increased Tax Rate	Growth Rate	Average Annual Revenue Estimated
Retail Sales Tax	4.3%[1]	0.25%	1.03%	$338.1m

1: 4.3% is the state rate, effective total rate is 5.3% statewide, and 6% in NoVA and Hampton Roads; tax rate is 2.5% statewide for food

MOTOR VEHICLE SALES AND USE TAX - STATEWIDE

CURRENT TAX RATE

Tax Base: Vehicle sales
Current State Rate: 4.15%, or $75 for vehicles below $1,807 in value
Current Transit Capital Share: 1% goes to TTF, 14.7% of TTF goes to MTTF, and 25% of MTTF goes to transit capital

COMPARABLE STATE RATES

District of Columbia: 6-8%
Maryland: 6%
North Carolina: 3%
West Virginia: 5%

EVALUATION

Factor	Description and comments	Rating
Revenue potential	Medium to moderate tax base	◐
Keep pace with inflation	Strongly correlated with inflation	●
Equity	Somewhat progressive, because it is based on a percentage of car value	●
Nexus with beneficiaries	Drivers benefit indirectly from transit through improved travel options, but mostly in metro areas	◐
Stability / predictability	Cyclical with the economy	◐
Administration	Already exists	●

REVENUE POTENTIAL

Current FY18 Revenue: $8.1 million for transit capital
Other Uses: 3.15% dedicated to HMOF

State Source	Existing State Tax Rate	Increased Tax Rate	Growth Rate	Average Annual Revenue Estimated
Motor Vehicle Sales and Use Tax	4.15%	0.50%	1.05%	$119.3m

GAS AND DIESEL FUEL SALES TAX - STATEWIDE

CURRENT TAX RATE

Tax Base: Gas and diesel sales
Current State Rate: 5.1% for gasoline, 6% for diesel
Current Transit Capital Share: 11.3% to TTF, 4% to PTF, 3.11% to Transit Capital. 0.35% to Transit Operating, 0.24% to Transit Special
Local Option Rate: 2.1% on fuel sales in Northern Virginia and Hampton Roads

COMPARABLE STATE RATES

District of Columbia: 23.5c/gallon
Maryland: 33.5c/gallon
North Carolina: 34c/gallon
West Virginia: 32.2c/gallon

EVALUATION

Factor	Description and comments	Rating
Revenue potential	Very large tax base	●
Keep pace with inflation	Gas prices not correlated with inflation	○
Equity	Regressive, because affects indiscriminately low-income and high-income drivers	○
Nexus with beneficiaries	Drivers benefit indirectly from transit through improved travel options, but mostly in metro areas	◐
Stability / predictability	High volatility of gas prices, lack of regional tax floor in NoVA/Hampton Roads	○
Administration	Already exists	●

REVENUE POTENTIAL

Current FY18 Revenue: $30.9m for transit capital
Other Uses: Highway Maintenance and Operating Fund (HMOF) and DMV

State Source	Existing State Tax Rate	Increased Tax Rate	Growth Rate	Average Annual Revenue Estimated
Gas and Diesel Fuel Sales Tax	5.1%/6%[1]	0.50%	0.89%[2]	$85.7m

1: 5.1% for gasoline; 6% for diesel state rate. Effective total rate 7.2%/8.1% in NoVA and Hampton Roads.
2: Growth rate from the state forecast on the gas tax. Base price from EIA.

DEED AND MORTGAGE RECORDATION TAX - STATEWIDE

CURRENT TAX RATE

Tax Base: Value of deed and mortgage recordations
Current State Rate: 25 cents per $100 of value ($0.25/$100), paid by the buyer
Current Transit Capital Share: 3 cents per $100 to transit, including 1 cent dedicated to transit capital and 2 cents to the MTTF
Local Option Rate: 1/3 state rate equaling $0.083/$100

COMPARABLE STATE RATES

District of Columbia: $1.10-1.45/$100 (recordation and transfers)
Maryland: County level recordation taxes of varying rates
North Carolina: $0.20-0.40 (recordation and transfers)
West Virginia: None

EVALUATION

Factor	Description and comments	Rating
Revenue potential	Limited tax base when real estate markets are not dynamic	○
Keep pace with inflation	Based on property/mortgage values that are somewhat correlated with inflation	◐
Equity	Somewhat progressive if based on percentage of property/mortgage value	◐
Nexus with beneficiaries	Weak nexus outside of metro areas, where most residents benefit from transit	◐
Stability / predictability	Depends on real estate sales, which are cyclical	○
Administration	Already exists	●

REVENUE POTENTIAL

Current FY18 Revenue: $15.1 million for transit capital
Other Uses: General Fund

State Source	Existing State Tax Rate	Increased Tax Rate	Growth Rate	Average Annual Revenue Estimated
Deed & Mortgage Recordation Tax	$0.25/$100[1]	$0.05/$100	0.50%[2]	$73.2m

1: Effective rate is $0.33 /$100 of deed and mortgage value for most jurisdictions (option of 1/3 additional local rate)
2: Conservative 0.5% growth used to replace negative observed CAGRs

INSURANCE PREMIUM TAX - STATEWIDE

CURRENT TAX RATE

Tax Base: Insurance Premium Revenues
Current State Rate: 1-2.25%
Current Transit Capital Share: 1/3 of revenues to Priority Transportation Fund

COMPARABLE STATE RATES

District of Columbia: 1.7% and 2%
Maryland: 2%
North Carolina: 0.50% and 2.5%
West Virginia: 2.1%-2.6%

EVALUATION

Factor	Description and comments	Rating
Revenue potential	Very large tax base	●
Keep pace with inflation	Strongly correlated with inflation	●
Equity	Somewhat regressive (depending on the type of insurance)	◐
Nexus with beneficiaries	Weak	○
Stability / predictability	Depends on economic activity	◐
Administration	Already exists	●

REVENUE POTENTIAL

Current FY18 Revenue: No direct revenue, transit capital bonds sun-setting in 2019
Other Uses: General Fund

State Source	Existing State Tax Rate	Increased Tax Rate	Growth Rate	Average Annual Revenue Estimated
Insurance Premium Tax	2.25%	0.25%	5.53%	$70.0m

MOTOR VEHICLE LICENSE FEE - STATEWIDE

CURRENT TAX RATE

Tax Base: License issue/renewals
Current State Rate: $40.75-$51.75
Current Transit Capital Share: Approximately $0.44 per registration from MTTF, via $3 carve out to TTF

COMPARABLE STATE RATES

District of Columbia: $72-$155 per year
Maryland: $135-$187 for two years ($67.50-$93.50 per year)
North Carolina: $36-$67 per year
West Virginia: $30 per year

EVALUATION

Factor	Description and comments	Rating
Revenue potential	Very large tax base	●
Keep pace with inflation	A flat fee would not keep pace with inflation without deliberate annual increases	◐
Equity	Regressive if flat fee	○
Nexus with beneficiaries	Drivers benefit indirectly from transit through improved travel options, but mostly in metro areas	◐
Stability / predictability	Depends on car ownership, which is relatively stable	●
Administration	Existing mechanism at state and local level	●

REVENUE POTENTIAL

Current FY18 Revenue: $0.8 million for transit capital
Other Uses: $26 to HMOF

State Source	Existing State Tax Rate	Increased Tax Rate	Growth Rate	Average Annual Revenue Estimated
Motor Vehicle License Fee	$40.75	$5.00	0.00%	$36.7m

INTERNET SALES TAX - STATEWIDE

CURRENT TAX RATE

Tax Base: Internet sales not currently captured by retail sales tax
Current rate: Internet sales tax does not currently exist, taxable online sales are taxed at the state rate of 4.3%
Current Transit Capital Share: Tax does not currently exist
Current FY18 revenue: $0 for transit capital

COMPARABLE STATE RATES

No neighboring state has enacted an internet sales tax.

EVALUATION

Factor	Description and comments	Rating
Revenue potential	Large tax base	●
Keep pace with inflation	Strongly correlated with inflation	●
Equity	Regressive	○
Nexus with beneficiaries	Weak	○
Stability / predictability	Depends on economic activity	◐
Administration	Already exists for some online retailers	◐

REVENUE POTENTIAL

Current FY18 Revenue: None
Other Uses: None

State Source	Existing State Tax Rate	Increased Tax Rate	Growth Rate	Average Annual Revenue Estimated
Internet Sales Tax	-	0.25%	6.07%[1]	$24.1m

1: Only 2014-2018 data available, CAGR based on that time series

REAL ESTATE TRANSFER TAX - STATEWIDE

CURRENT TAX RATE

Tax Base: Deed values for property transfers
Current State Rate: $0.05/$100
Current Transit Capital Share: $0 for Transit Capital
Local Option Rate: Northern Virginia has congestion fee, levied at $0.15/$100 of deed value

COMPARABLE STATE RATES

District of Columbia: $1.10-1.45 (recordation and transfer)
Maryland: $0.50
North Carolina: $0.20-$0.40 (recordation and transfer)
West Virginia: $0.33-$0.44

EVALUATION

Factor	Description and comments	Rating
Revenue potential	Limited tax base when real estate markets are not dynamic	○
Keep pace with inflation	Based on property values that are somewhat correlated with inflation	◐
Equity	Somewhat progressive if based on percentage of property value	◐
Nexus with beneficiaries	Weak nexus outside of metro areas, where most residents benefit from transit	○
Stability / predictability	Depends on real estate sales, which are cyclical	○
Administration	Already exists	●

REVENUE POTENTIAL

Other Uses: General Fund

State Source	Existing State Tax Rate	Increased Tax Rate	Growth Rate	Average Annual Revenue Estimated
Real Estate Transfer Tax	$0.05/$1001	$0.01/$100	0.50%2	$6.8m

1: Effective rate is $0.10/$100 of deed value (5 cents state rate, 5 cents local rate). Additional $0.15/$100 congestion relief fee in NoVA.
2: Conservative 0.5% growth used to replace negative observed CAGRs

RETAIL SALES AND USE TAX – REGIONAL

CURRENT TAX RATE

Tax Base: Retail Sales
Current Regional Rate: 0.7%

EVALUATION

Factor	Description and comments	Rating
Revenue potential	Very large tax base - could be expanded if exemptions were reduced	●
Keep pace with inflation	Strongly correlated with inflation	●
Equity	Regressive	○
Nexus with beneficiaries	In large metro areas, most residents benefit from transit	◐
Stability / predictability	Depends on economic activity	◐
Administration	Already exists	●

REVENUE POTENTIAL

Source	Existing Rate	Existing Transit Capital Share	Increase to Rate	Average Annual Revenue Estimated*
NoVA – WMATA Jurisdictions – Retail Sales and Use Tax	0.7%[1]	-	0.15%	$46.7m
Hampton Roads – Retail Sales and Use Tax	0.7%[1]	-	0.15%	$23.6m

1: 4.3% is the state rate, effective total rate is 5.3% statewide, and 6% in NoVA and Hampton Roads; tax rate is 2.5% statewide for food
*FY18-FY27 Estimates: WSP

FUEL SALES TAX INCREASE AND FLOOR – REGIONAL

CURRENT TAX RATE

Tax Base: Fuel Sales
Current Regional Rate: 2.1%

EVALUATION

Factor	Description and comments	Rating
Revenue potential	Very large tax base	●
Keep pace with inflation	Gas prices not correlated with inflation	○
Equity	Regressive, because affects indiscriminately low-income and high-income drivers	○
Nexus with beneficiaries	Drivers benefit indirectly from transit through improved travel options, but mostly in metro areas	◐
Stability / predictability	High volatility of gas prices, lack of regional tax floor in NoVA/Hampton Roads	○
Administration	Already exists	●

REVENUE POTENTIAL

Source	Existing Rate	Increase to Rate	Average Annual Revenue Estimated*
NoVA[1] – Fuel Sales Tax Increase after Floor Implementation	2.1%[2]	1.2%	$30.6m
NoVA[1] – Fuel Sales Tax Floor Implementation	2.1%[2]	Floor	$25.1m
NoVA[1] – Total			$55.7m
HR – Fuel Sales Tax Increase after Floor Implementation	2.1%[2]	1.2%	$21.1m
HR - Fuel Sales Tax Floor Implementation	2.1%[2]	Floor	$17.3m
HR – Total			$38.4m

1: NoVA: all Northern Virginia jurisdictions.
2: 5.1% for gasoline; 6% for diesel state rate. Effective total rate 7.2%/8.1% in NoVA and Hampton Roads.
*FY18-FY27 Estimates: WSP

UTILITY BILL FEES – REGIONAL

CURRENT TAX RATE

Tax Base: Tax applied per utility bill
Current Regional Rate: No current rate

EVALUATION

Factor	Description and comments	Rating
Revenue potential	Limited if low fee	◐
Keep pace with inflation	Can be correlated with inflation	◐
Equity	Can be regressive if all consumers pay equal fee, less regressive if percentage fee	◐
Nexus with beneficiaries	Weak nexus outside of metro areas, where most residents benefit from transit	○
Stability / predictability	Fairly stable over time (depends on utilities)	●
Administration	Fees already exist for other purposes	◐

REVENUE POTENTIAL

Source	Existing Rate	Increase to Rate	Average Annual Revenue Estimated*
Utility Bill Fee - NoVA	-	$12/year	$12.0m
Utility Bill Fee – Hampton Roads	-	$12/year	$6.5m

REAL ESTATE TRANSFER TAX – REGIONAL

CURRENT TAX RATE

Tax Base: Deed values for property transfers
Current Regional Rate: $0.15/$100 of deed value in NoVA, no regional tax in Hampton Roads

EVALUATION

Factor	Description and comments	Rating
Revenue potential	Limited tax base when real estate markets are not dynamic	○
Keep pace with inflation	Based on property values that are somewhat correlated with inflation	◐
Equity	Somewhat progressive if based on percentage of property value	◐
Nexus with beneficiaries	Weak nexus outside of metro areas, where most residents benefit from transit	○
Stability / predictability	Depends on real estate sales, which are cyclical	○
Administration	Mechanism already exists in VA	●

REVENUE POTENTIAL

Source	Existing Rate	Increase to Rate	Average Annual Revenue Estimated*
Real Estate Transfer Tax - NoVA	$0.15/$100[1]	$0.02/$100	$6.1m
Real Estate Transfer Tax – Hampton Roads	-	$0.02/$100	$1.4m

1: $0.15/$100 is NoVA Congestion Relief Fee, coupled with the statewide rate of $0.10/$100, the effective rate is $0.25/$100 in NoVA

APPENDIX C – DETAILED FUNDING PACKAGES

PACKAGE 1 – INCREASE EXISTING STATEWIDE REVENUES

The first package aims to address the transit capital funding gap exclusively using a mix of statewide sources as summarized in Figure C-1 and C-2.

Principles:

- Increase current statewide rates for selected revenues sources
- Ramp up share of Priority Transportation Fund starting 2025

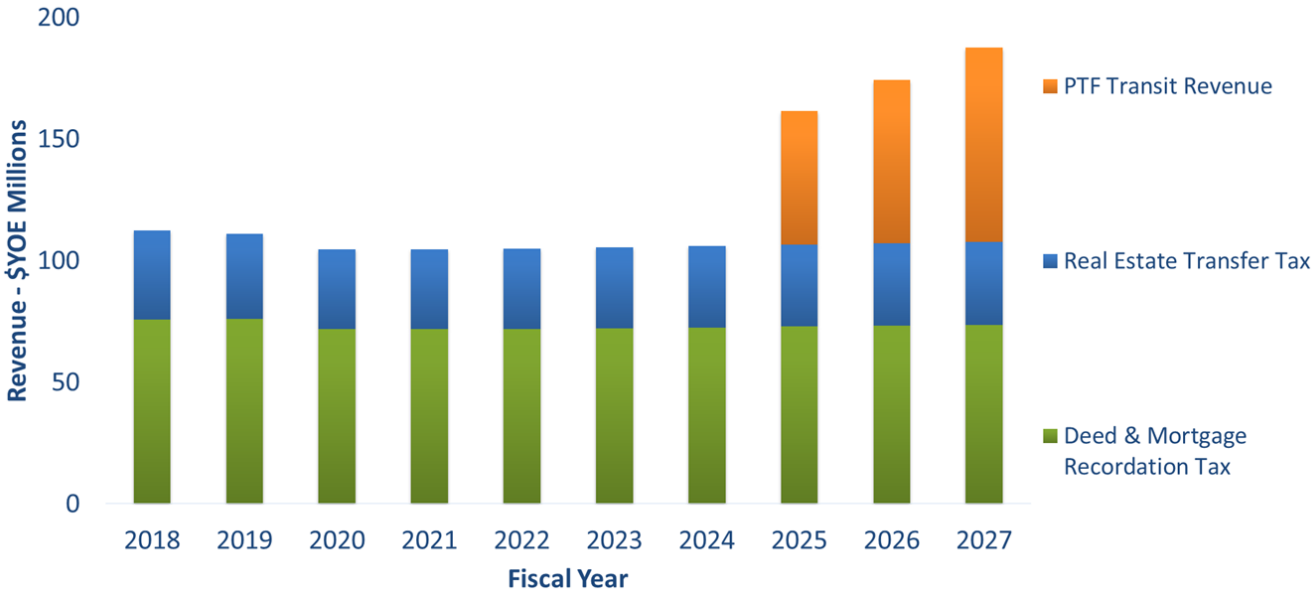
Figure C-1: Package 1 - Increase Existing Statewide Revenues Summary Table

Source	Existing State Rate	Existing Transit Capital Share	Increase to State Rate	New Transit Capital Share	Average Annual Revenue Estimated*
Deed & Mortgage Recordation Tax	$0.25/$100	$0.01/$100	$0.05/$100	$0.06/$100	$73.2m
Priority Transportation Fund	-	20-40% of 1/3 of revenues	-	Net Revenue after Debt Service	$67.4m[46]
Real Estate Transfer Tax	$0.05/$100	-	$0.05/$100	$0.05/$100	$33.8m
Average Annual Total Revenue Estimated					$127.2m[47]

*FY18-FY27 Estimates: WSP

[46] Average for PTF is from FY25-FY27
[47] Average Annual Total Revenue Estimated includes partial average from PTF (FY25-FY27)

Figure C-2: Package 1 - Increase Existing Statewide Revenues Summary Graph



PACKAGE 2 – INCREASE SINGLE STATEWIDE FUNDING SOURCE

The second set of packages separately consider two statewide revenue sources to address the funding gap.

- Package 2a: Increase Statewide Retail Sales and Use Tax (Figure C-3 and C-4)
- Package 2b: Increase Statewide Fuel Sales Tax (Figure C-5 and C-6)

Principles: Increase current rates for a single source

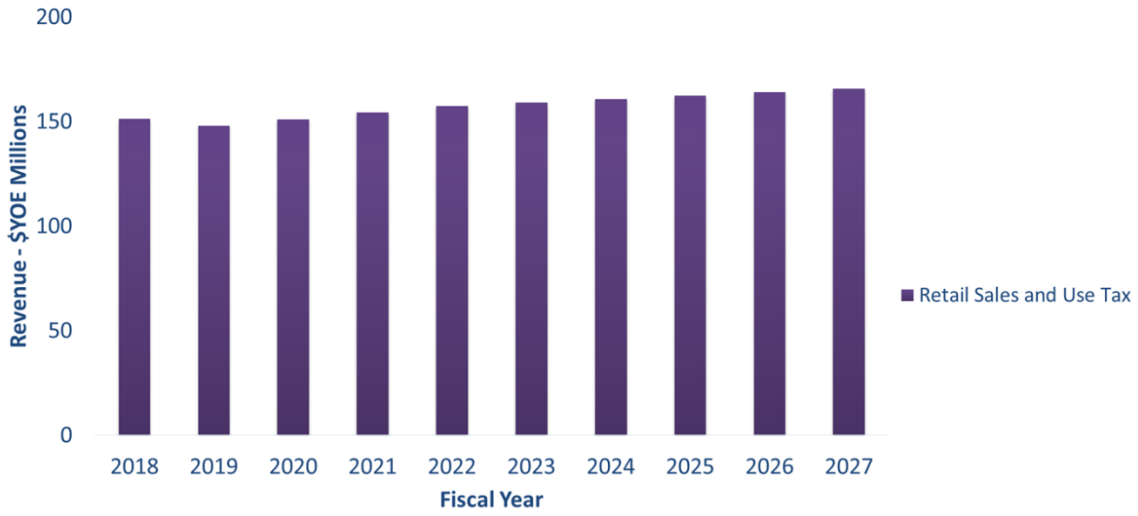
Package 2a: Increase Statewide Retail Sales and Use Tax

Figure C-3: Package 2a – Increase Statewide Retail Sales and Use Tax Detailed Description

Source	Existing Rate	Existing Transit Capital Share	Increase to Rate	Average Annual Revenue Estimated*
Retail Sales and Use Tax (non-food only)	4.3%	0.04%	0.14%	$157.3m

*FY18-FY27 Estimates: WSP

Figure C-4: Package 2a – Increase Statewide Retail Sales and Use Tax Summary Graph



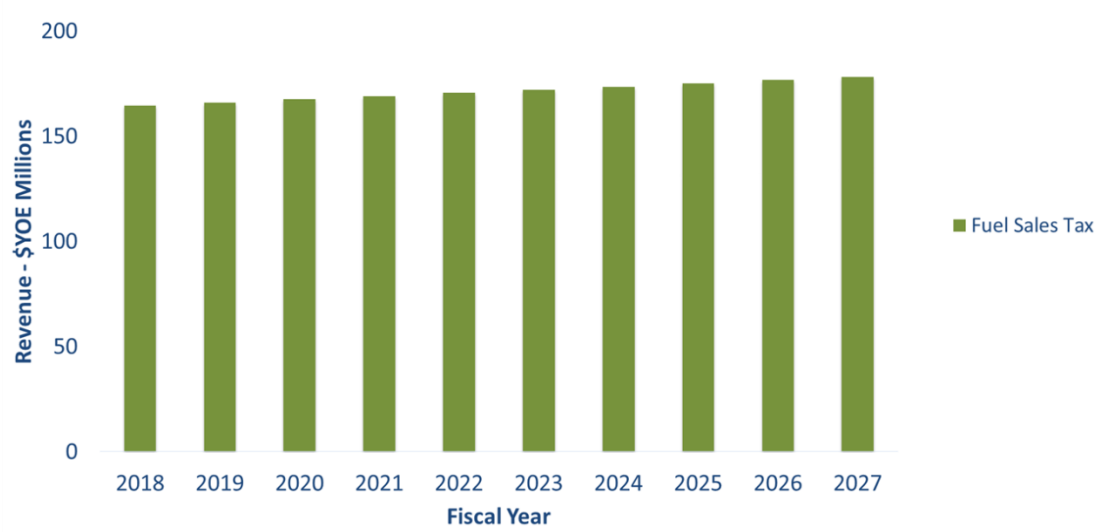
Package 2b: Increase Statewide Fuel Sales Tax

Figure C-5: Package 2b - Increase Statewide Fuel Sales Tax – Detailed Description

Source	Existing Rate	Existing Transit Capital Share	Increase to Rate	Average Annual Revenue Estimated*
Fuel Sales Tax	5.1%/6.0%	0.18%	0.9%	$154.2m

*FY18-FY27 Estimates: WSP

Figure C-6: Package 2b - Increase Statewide Fuel Sales Tax – Summary Graph – Fuel Sales Tax



PACKAGE 3 – INCREASE EXISTING STATE AND REGIONAL REVENUES

The third package applies a combination of state and regional revenue sources. Several regional revenue options are available: they are summarized in addition to package 3. This package is summarized in Figures C-7 and C-8.

Principles:

- Increase current rates for selected state and regional sources: Northern Virginia or Hampton Roads
- Ramp up share of Priority Transportation Fund starting 2025

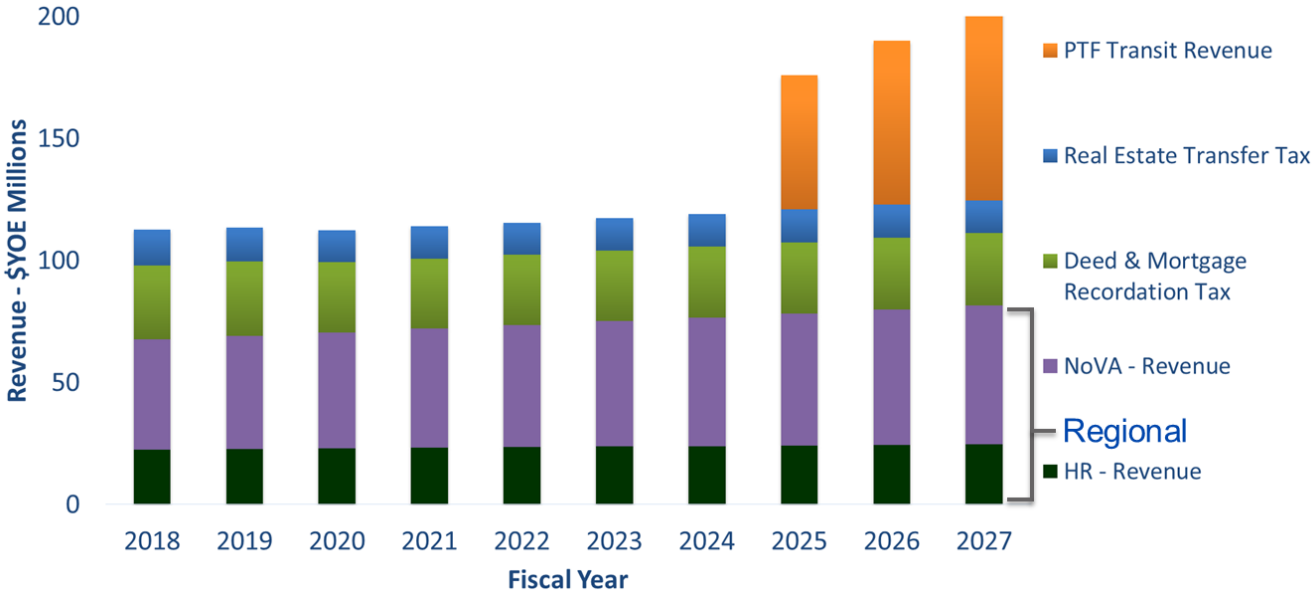
Figure C-7: Package 3 - Increase Existing State and Regional Revenues – Detailed Description

Source	Existing Rate	Existing Transit Capital Share	Increase to Rate	New Transit Capital Share	Average Annual Revenue Estimated*
Deed and Mortgage Recordation Tax	$0.25/$100	$0.01/$100	$0.02/$100	$0.03/$100	$29.3m
Real Estate Transfer Tax	$0.05/$100	-	$0.02/$100	$0.02/$100	$13.5m
Priority Transportation Fund	-	20-40% of 1/3 of revenues	-	Net Revenue after Debt Svc.	$67.4m[48]
State Subtotal					$63.0m[49]
NoVA	Multiple options: see next section				~$50m
HR	Multiple options (Fuel Sales Tax, Retail Sales and Use Tax…)				~$25m
Regional Subtotal					~$75m
Total					$138.0m[50]

*FY18-FY27 Estimates: WSP

[48] Average for PTF is from FY25-FY27
[49] Average Annual Total Revenue Estimated includes partial average from PTF (FY25-FY27)
[50] Average Annual Total Revenue Estimated includes partial average from PTF (FY25-FY27)

Figure C-8: Package 3 - Increase Existing State and Regional Revenues – Summary Graph



Regional Revenue Options

In Package 3, a share of the transit capital gap is funded by regional revenues raised in Northern Virginia and Hampton Roads. As defined in Package 3, regional revenues should total approximately $75 million, approximately $50 million in Northern Virginia and $25 million in Hampton Roads, commensurate with transit capital spending in each region. Tables 14 and 15 present the two regional revenue options that the RAB considered as illustrative examples, Fuel Sales Tax and Retail Sales and Use Tax.

For the Fuel Sales Tax, both a rate increase and the implementation of a floor on regional fuel sales tax revenues are proposed. House Bill 2313 of 2013 implemented a floor to the fuel sales tax at state level, but not in the regions that raise an additional 2.1% tax regionally, Hampton Roads and Northern Virginia. Implementing a floor would generate significant revenues in both regions, although the fuel sales tax in Hampton Roads is not currently authorized to fund transit.

Consistent with existing practice, funds raised in each region should be reserved for capital projects within that region.

Finally, population forecasts indicate that over the period of analysis other regions of the state, including Richmond, will not achieve the population threshold of 1.5 million required by Section 58.1-2295 of the Code of Virginia to raise revenues regionally to fund transportation needs. These options are summarized in Figure C-9 and C-10.

Figure C-9: Regional Revenue Options for Northern Virginia

Source	Existing Rate	Increase to Rate	Average Annual Revenue Estimated*
NoVA – Fuel Sales Tax Floor Implementation	2.1%	Floor	$25.1m
NoVA – Fuel Sales Tax Increase after Floor Implementation	2.1%	1.2%	$30.6m
NoVA – Fuel Sales Tax Floor and Increase Subtotal			$55.7m
NoVA – WMATA Jurisdictions – Retail Sales and Use Tax	0.7%[1]	0.15%	$46.7m

*FY18-FY27 Estimates: WSP

Figure C-10: Regional Revenue Options for Hampton Roads

Source	Existing Rate	Increase to Rate	Average Annual Revenue Estimated*
Hampton Roads – Fuel Sales Tax Floor Implementation	2.1%	Floor	$17.3m
Hampton Roads - Fuel Sales Tax Increase after Floor Implementation	2.1%	1.2%	$21.1m
Hampton Roads – Fuel Sales Tax Floor and Increase Subtotal			$38.4m
Hampton Roads – Retail Sales and Use Tax	0.7%[1]	0.15%	$23.6m

*FY18-FY27 Estimates: WSP

PACKAGE 4 – INCREASE STATE REVENUES AND IMPLEMENT A REGIONAL FUEL SALES TAX FLOOR

The fourth package considers a combination of state and regional revenue sources, focusing the regional revenue option on implementing a floor to the regional fuel sales tax, identical to the floor that exists for the state fuel sales tax. This package is summarized in Figures C-11 and C-12.

Principles:

- Increase current rates for selected state sources
- Implement a floor to the fuel sales tax in Northern Virginia and Hampton Roads
- Ramp up share of Priority Transportation Fund starting 2025

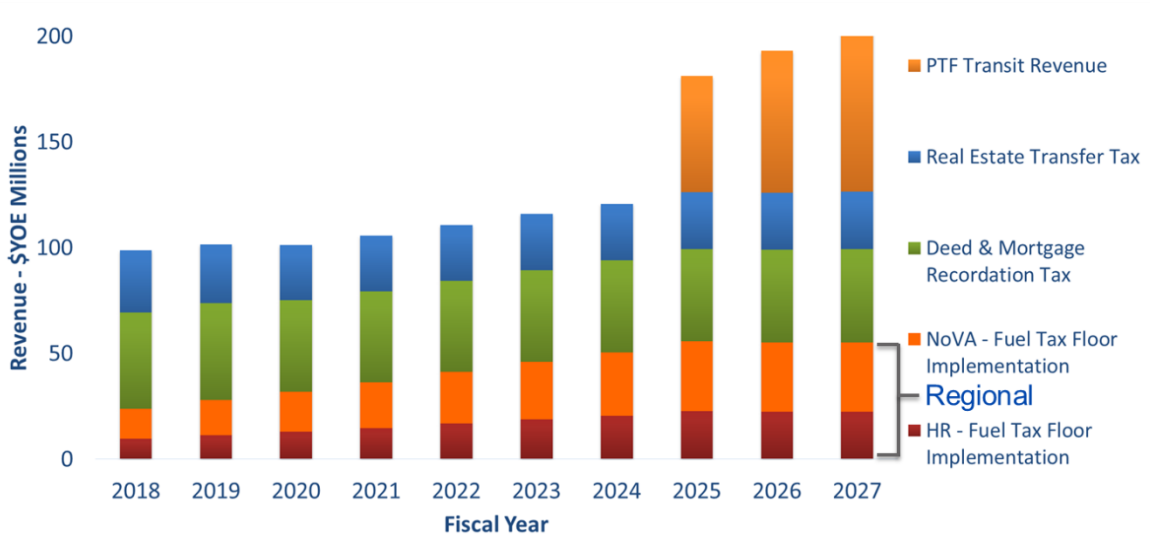
Figure C-11: Package 4 – Increase State Revenues and Implement a Regional Fuel Sales Tax Floor Detailed Description

Source	Existing Rate	Existing Transit Capital Share	Increase to Rate	New Transit Capital Share	Average Annual Revenue Estimated*
Deed and Mortgage Recordation Tax	$0.25/$100	$0.01/$100	$0.03/$100	$0.03/$100	$43.9m
Real Estate Transfer Tax	$0.05/$100	-	$0.04/$100	$0.02/$100	$27.0m
Priority Transportation Fund	-	20-40% of 1/3 of revenues	-	Net Revenue after Debt Svc.	$67.4m[51]
State Subtotal					$91.2m[52]
NoVA	2.1%	-	Floor	-	$25.1m
HR	2.1%	-	Floor	-	$17.3m
Regional Subtotal					$42.4m
Total					$133.6m[18]

*FY18-FY27 Estimates: WSP

[51] Average for PTF is from FY25-FY27
[52] Average Annual Total Revenue Estimated includes partial average from PTF (FY25-FY27)

Figure C-12: Package 4 – Increase State Revenues and Implement a Regional Fuel Sales Tax Floor Summary Graph



APPENDIX D - ILLUSTRATIVE SCORING METHODOLOGY

This appendix details the illustrative scoring methodology developed to evaluate project based prioritization of projects. The policy and provisions of such a prioritization process should be developed by the Commonwealth Transportation Board, in a manner similar to the development of the SMART SCALE process, via Board policy, to allow for ongoing process improvement.

The Figure D-1 describes illustrative evaluation criteria objectives used in the development of the illustrative methodology.

Figure D-1: Illustrative Evaluation Criteria Objectives

Criterion	Objective
Asset Condition	Maintain the state of good repair of transit assets
Service Quality	Improve impact on service (direct or indirect) and user experience
Congestion Mitigation	Reduce delay, improve transportation system reliability, and encourage transit use
Economic Development	Support existing economies and enhance opportunity for economic development
Accessibility	Enhance worker and overall household access to jobs and other opportunities, and provide multiple and connected modal choices
Safety	Address multimodal safety concerns and improve transit safety and security
Environmental Quality	Reduce emissions and energy consumption by providing modal choices, and minimize natural resources impacts
Land Use	Improve consistency of the connection between local comprehensive plans and land use policies with transit investments

The Figure D-2 provides examples of project subtypes. For the purpose of the funding needs analysis conducted in this study, project subtypes were further simplified to facilitate testing of the prioritization methodology.

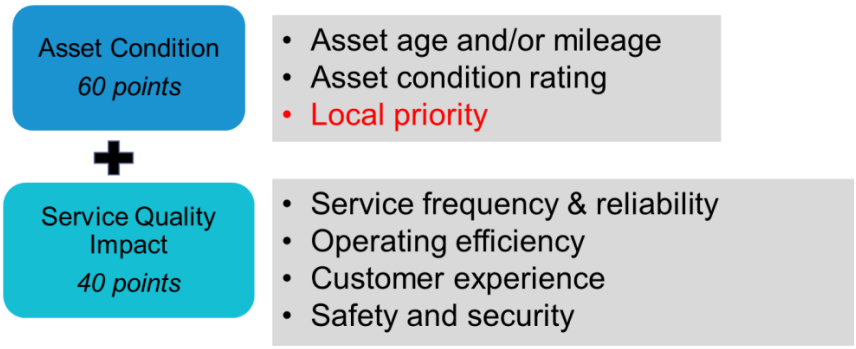
Figure D-2: Sample Project Subtypes for SGR, Minor Enhancement, and Major Expansion

SGR	Minor Enhancement	Major Expansion

• Vehicle Replacement
  – Replacement buses
  – Replacement Vans
• Administrative/Maintenance Facilities
  – Rehabilitation/Renovation of bus maintenance facility
• Customer Facilities
  – Bus shelters
  – Bus stop accessibility
  – Bus Route signage
• Maintenance equipment and parts
  – Spare parts
  – Hybrid bus batteries
  – Shop equipment
• Technology/systems/communications
  – Fare payment systems and hardware
  – Safety/surveillance/security equipment and systems
  – Software and hardware to support AVL, payroll and administration, planning and scheduling, real-time passenger information and reporting
• Other
  – Debt service
  – Capital cost of contracting
	• Vehicles – minor fleet expansion
	• New bus shelters
	• Route signage (bus stop sign)
	• Purchase digital bus stop signage
	• New fare collection equipment
	• New software, hardware, systems
	• Minor real estate acquisition
	• Capital project development (engineering and design, construction management)
		• Construction of administrative/maintenance facility
		• Construction of transit/transfer center
		• Vehicle – major fleet expansion
		• New station entrance
		• BRT/LRT corridor

As shown in Figure D-2, SGR projects would be evaluated considering asset condition (60 points) and service impact (40 points). The combined score from the two criteria adds up to 100 points. Local priority is also a potential factor to be included in the prioritization process. Minor enhancement projects would be prioritized solely on service impact considerations, with projects receiving up to 40 points.

Figure D-3: State of Good Repair Scoring Criteria



The objective of asset condition as a prioritization measure is to ensure that investments are targeted at maintaining a state of good repair. Asset age/mileage and condition rating are the proposed measures for asset condition. Asset age and mileage are collected by DRPT in its asset management system (TransAM), and a condition rating will be integrated in the future, which would allow project evaluation using both criteria. FTA has developed a condition rating from 1 (worn) to 5 (excellent) scale that can be applied to the prioritization process.

The first step in the prioritization process for state of good repair projects is to determine whether the project is eligible for funding. Using asset age data, projects are screened based on age and asset useful life. Assets that have not reached their useful life (condition rating >2) could be disqualified from further consideration and will not be eligible for replacement that year. DRPT may adjust the quantity of vehicle/assets to be replaced in a funding application based on confirmed age and/or need. After this initial screening, projects are then ranked between 0 and 60, based on the Asset Age-to-Useful Life ratio and/or the FTA condition rating. On the asset age-to-useful life ratio basis, projects with a high ratio receive higher asset condition scores. Transit agencies submitting state funding requests for multiple state of good repair needs could also identify their project priorities for consideration by DRPT in the scoring process.

Service impact considers the asset impact on service (direct or indirect), and to what extent an asset affects the rider experience. The approach to measure service impact applied for the purpose of the scenario analysis was qualitative, assigning points based on the level of impact to service quality by project subtype. It is expected that when implemented, there would be a more refined process, primarily qualitative, using checklists and/or taking into consideration specific project features and characteristics to assign scores by criterion. Points are assigned on the level of impact by each criterion: High = 10; Medium = 5; Low = 1; and No Impact = 0. There are four sub-criteria under service impact described as:

- *Service frequency & reliability*: measures the improvements to service frequency and/or to reliability (e.g., preventing breakdowns, removing vehicles from mixed traffic) of the proposed project.
- *Operating efficiency*: measures cost-effectiveness resulting from project implementation.
- *Customer experience*: measures improvements in a customer's ability to access the system or an improvement in the ease of use of the system.
- *Safety and Security*: measures improvements to safety or security.

Figure D-4 provides a representative list of assets/projects, and the likely scoring by criteria.

Figure D-4: Illustrative Service Quality Criteria – Asset Examples by Scoring

Criteria	High	Medium	Low/No Impact
Service frequency & reliability	Replacement buses, Minor Enhancement – Buses	Bus Garage Facility Repairs, Purchase shop equipment	Capital cost of contracting, Bike racks
Operating efficiency	Maintenance facilities, fare collection equipment	Fuel-efficient vehicles, Transfer center, new fare collection system	Bus shelters, bus cameras
Customer experience	Bus stop accessibility improvements, bike racks, parking garage, transfer center, elevator/escalator rehab	Bus stop amenities, parking garage rehab	Purchase shop equipment, admin building construction
Safety and security	Surveillance/Security Equipment, Police Emergency Management Equipment, Bus Camera Installation, Bus stop lighting	Elevator/escalator replacement	New fare payment system, digital bus stop signage

Use of TAM for State of Good Repair – Transit agencies receiving financial assistance under 49 U.S.C. Chapter 53 are now required to develop transit asset management (TAM) plans. Agencies operating rail or more than 100 vehicles on fixed or non-fixed routes (Tier I agencies) are required to develop their own TAM plans. Smaller operators (less than 100 vehicles operating

on fixed or non-fixed routes), sub-recipients of Section 5311 funds or American Indian Tribes are considered Tier II agencies and may develop their own plans or participate in a group TAM plan. Reporting will be mandatory starting in 2018 (with optional reporting starting in 2017).

At a minimum[53] TAM plans shall include the following information:

- An inventory of assets
- A condition assessment of inventoried assets
- Description of a decision support tool
- A prioritized list of investments

As transit operators will be required to provide data to meet the condition assessment requirement for TAM plans, these data will further support the proposed SGR scoring and prioritization process developed in response to HB 1359. Transit operators that receive state funding, regardless of whether or not they receive federal funds, provide asset data directly to DRPT through TransAM. This will also support ease of implementation for the SGR portion of prioritization.

MAJOR EXPANSION PROJECTS

Major Expansion projects would be evaluated using the factor areas specified in HB 1359. The factor areas in HB 1359 are the same factor areas used for the SMART SCALE prioritization process. A modified process is proposed for transit capital that considers data availability and the level of effort required from grantees to prepare grant applications. Figure D-4 illustrates the proposed factor areas with potential measures.

[53] Required from Tier I and Tier II agencies. Tier I agencies must comply with five additional elements in their TAM plans.

Figure D-5: Illustrative Prioritization Criteria and Measures for Major Expansion Projects

Factor Area	Measures
Congestion Mitigation	Total Ridership
Economic Development	Project Support for Economic Development
Accessibility	Access to Jobs Access to Jobs by Disadvantaged Persons Access to Multimodal Choices
Safety	Direct Safety Benefit (presence of safety features)
Environmental Quality	Air Quality and Environmental Effect (based on new ridership)
Land Use	Transportation-Efficient Land Use

Specifics of the methodology are highlighted below.

Measures –Many of these measures will be very similar to SMART SCALE, but will select an approach that better suits the prioritization of transit projects and simplifies the calculation process.

Scaling and Normalizing – All points are scaled by a factor representative of project size, magnitude of impact. In SMART SCALE the factor was usually VMT or another measure related to VMT. For transit, the scaling factor should be transit ridership related. Measure scores are normalized as are the total weighted scores within each factor.

Weighting – The SMART SCALE weighting approach can be simplified by merging area type C and D into a single small urban/rural weighting approach. Area type A remains the same, as the weight assigned to congestion is referenced in the code. Area type B also remains the same in order to show differences between large urban areas and the small urban/rural areas in area type C and D.

Benefit Score – The total benefit score represents the weighted score for each project across the six factors. These scores are ranked to determine overall project competitiveness prior to the consideration of cost.

Benefit Score / Cost – As with SMART SCALE, the total benefit score will be divided by both total project cost and the total state share of the cost. For the FY 2017 transit projects, in nearly every case, the division by cost improved the project ranking as the average transit project cost was lower than the average cost for all projects. This may not always be the case depending on the mix of transit projects in future application cycles.

APPENDIX E – TRANSIT CAPITAL ASSISTANCE PROGRAM STRUCTURE – ILLUSTRATIVE SCENARIOS

The Revenue Advisory Board considered a number of scenarios in testing a new transit capital program structure. Appendix E provides additional information on the scenarios and results. Figure E-1 summarizes the scenarios evaluated. Each scenario was evaluated using the base revenues (loss of bond revenues) and additional revenue (average $130M annual replacement funding).

Figure E-1: Illustrative Scenarios: Transit Capital Assistance Program Structure

Scenario 1	Scenario 2	Scenario 3
80% SGR/Minor Enhancements **20% Major Expansions**	**90% SGR/Minor Enhancements** **10% Major Expansions**	**100% SGR**

BASE REVENUE SCENARIOS

Figure E-2: Results of Scenario 1 with Base Revenue

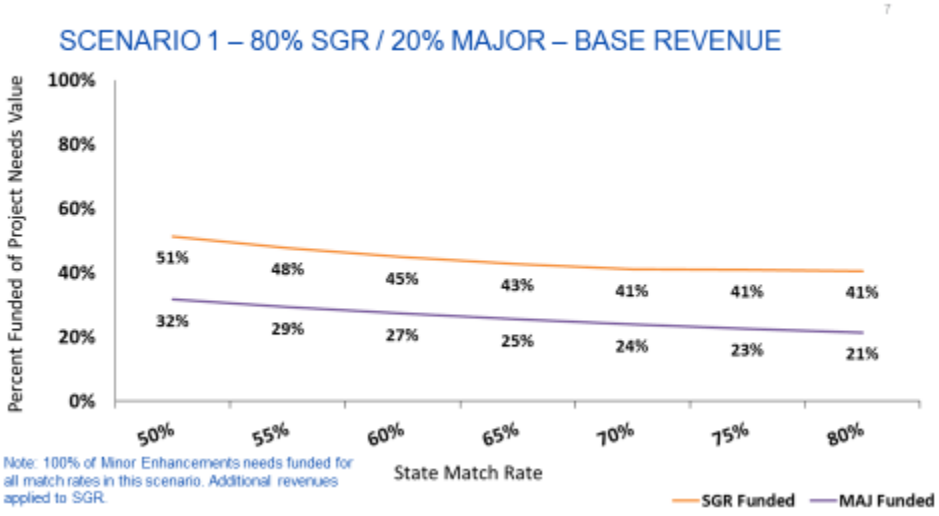


Figure E-3: Results of Scenario 2 with Base Revenue

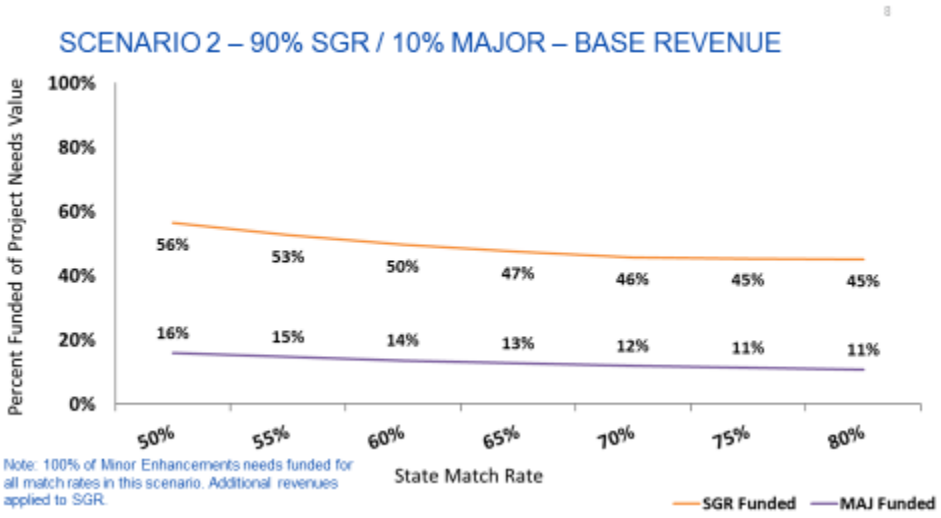


Figure E-4: Results of Scenario 3 with Base Revenue

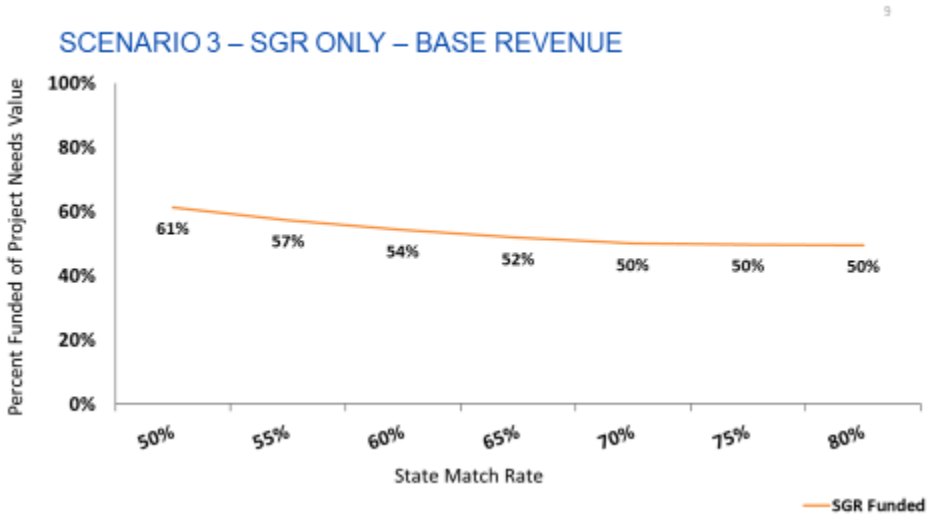


Figure E-5: Scenario 1 with Replacement Revenue

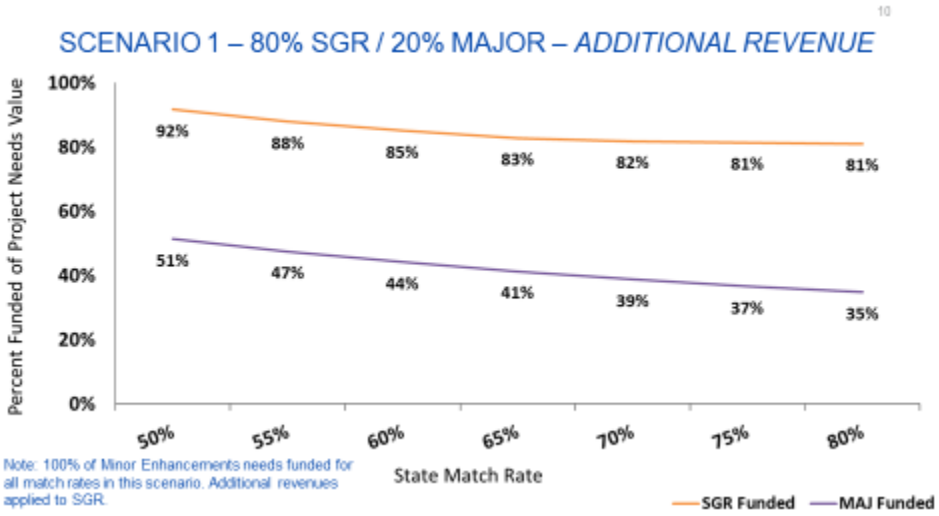


Figure E-6: Scenario 2 with Replacement Revenue

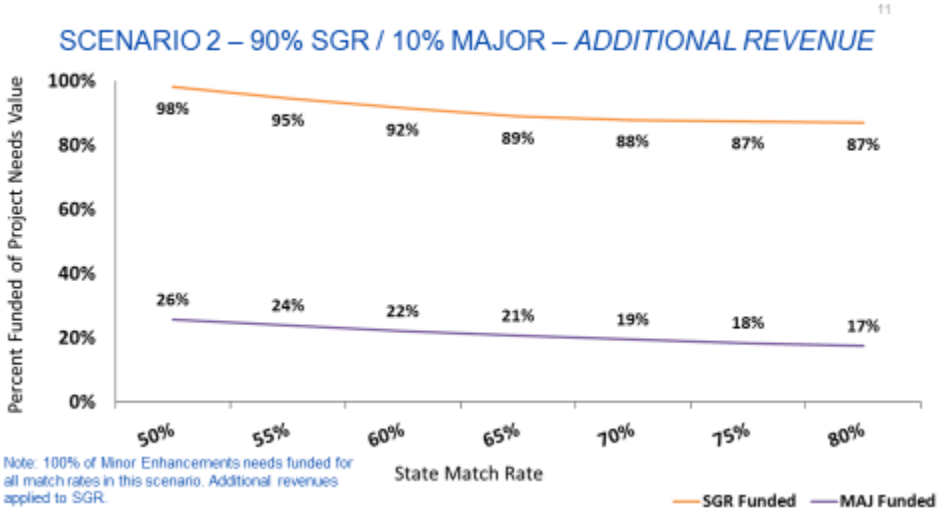


Figure E-7: Scenario 3 with Replacement Revenue