

Date: October 7, 2013  
To: Transit Service Delivery Advisory Committee  
From: Department of Rail and Public Transportation and Parsons Brinckerhoff  
Subject: Capital Budget Analysis Assumptions and Methodology

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The purpose of this memorandum is to summarize the assumptions and methodologies underlying the Capital Budget Analyses prepared for the Transit Service Delivery Advisory Committee (TSDAC).

## 1. Overview

The Transit Service Delivery Advisory Committee (TSDAC), along with the Director of the Department of Rail and Public Transportation (DRPT), has been charged with evaluating a tiered approach to distributing funds for capital purposes based on asset needs and available revenues. The purpose of the tiered approach is to incentivize investment in categories of assets that the Commonwealth Transportation Board views as the most important to transit in Virginia.

At its meeting on Monday, July 29, 2013, TSDAC approved three tiers which comprise categories of capital needs. Capital funds would be allocated to each tier based on a matching percentage that reflects the priorities of the Commonwealth Transportation Board (CTB). Briefly, the tiers are defined as follows:

- Tier 1: Replacement and Expansion Vehicles (Rolling Stock)
- Tier 2: Infrastructure Facilities
- Tier 3: Other

DRPT, with support from Parsons Brinckerhoff, conducted a preliminary analysis on the tiered approach, and presented a draft proposal to TSDAC.<sup>1</sup> This Memorandum summarizes the assumptions and methodologies applied in the Capital Budget Analysis (spreadsheets and tables) presented to TSDAC on September 9, 2013. The spreadsheets and tables are provided as Appendix A.

The spreadsheet analysis and consequently this Memorandum are organized in two parts:

- The first part is a hypothetical analysis of capital allocations in prior years—FY2012 to FY2014—under the proposed tiered approach. This analysis compares how grant funds distributed under several proposed approaches compares to the actual capital grants awarded by DRPT in these years.
- The second part is a forward-looking analysis of projected future year allocations FY2015 to FY2019, assuming that the proposed tiered approach is applied to the projected funding anticipated in those years.

The assumptions and methodologies are explained in the following sections.

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<sup>1</sup> Details of the tier categories and definitions are presented in the August 21, 2013 memorandum from DRPT staff to TSDAC members titled "*Capital Asset Tier Categories and Definitions*"

## 2. Capital Budget Analysis FY2012 -2014

The hypothetical analysis of prior-year contributions is an illustrative exercise to compare and contrast actual grant disbursements with projected state contributions if awarded under the proposed tiered approach.

Four scenarios were developed to allocate funds on a tier-based percentage match basis:

- A. **Gross Project Cost**, in which the percentage match is applied to the total cost of the project
- B. **Non-Federal Project Cost**, in which the percentage match is applied to the non-federal share of the project cost
- C. **Non-Federal (Except Section 5307) Project Cost**, in which the percentage match is applied to the non-federal share of the project cost excluding Section 5307 Urbanized Area Formula Program grant funds received directly by transit agencies
- D. **Gross Project Cost with Additional Funding**, in which the percentage match is applied to the total cost of the project and which allocates approximately \$16 million in additional funding approved by SB 1140 in each year.

The project descriptions, costs, and federal grant types and amounts applied in this analysis were based on actual grant applications and funding disbursed by DRPT FY2012 through FY2014.

The assumptions and the results of the analysis are summarized in this section.

### 2.2 Computation of Grant Amounts

DRPT staff assigned tiers to each project funded by DRPT FY2012 through FY2014 based on the detailed project descriptions contained in the grant applications.

The total state funding available in each year was known based on historical information. Hence, the proposed state match percentages were arrived at by testing various funding levels for each tier in each year until all funds were completely (or nearly completely) applied to projects. Tier 1 was valued highest, with the highest proposed state match contribution.

The computation of state funding allocations varies for each scenario as follows:

- **Scenario A – Gross Project Cost:** Proposed state match percentages were applied to the total (gross) project cost. However, grants to projects funded by two federal programs for which allocation is managed by DRPT—Flexible Surface Transportation Program (STP) and Section 5311 Formula Grants for Other than Urbanized Areas—were permitted to receive a combined state and federal match of no greater than 99%. The relevant Code language requires a local match on all projects funded by Mass Transit Trust funds, and as a result the remaining 1% of project costs must be covered with local funds. For example, a Tier 2 project eligible for a 50% state match that received 80% federal funding through Flexible STP would only receive a state contribution of 19%, so that combined state and federal funding for the project is no greater than 99% (80% federal and 19% state). This constraint prevented over-funding of these capital projects through DRPT-managed funding channels.
- **Scenario B – Non-Federal Project Cost:** As a first step, the non-federal portion of project cost was calculated for each project by subtracting federal funds from total project costs. Proposed state match percentages were then applied to the non-federal project cost to calculate the state match contribution for each project.
- **Scenario C – Non-Federal (except Section 5307) Project Cost:** This computation applied a similar procedure as Scenario B. The non-federal portion of project cost was calculated for each project in the

plan by subtracting expected federal funds—except for Section 5307 funds—from total project costs. An exception was made for projects funded by Section 5307 funds since DRPT does not have any control over these funds, which are awarded directly to transit operators. For Section 5307 funded projects, the total project cost (instead of non-federal project cost) was applied. The proposed state match percentages were then applied to the appropriate project cost (non-federal share except for Section 5307) to calculate the state match contribution for each project.

- **Scenario D – Gross Project Cost with Additional Funding Available:** Proposed state match percentages were applied to the total (gross) project cost in a method identical to Scenario A. The only difference was that additional grant funding of approximately \$16 million was awarded in each year, consistent with the approximate funding increase approved by SB 1140. This was accomplished by increasing the state match percentage for each tier.

[Link to working excel file for FY 2012 - FY 2014](#)

### 2.3 Summary Tables

Variance tables for each year were prepared to summarize the results for each scenario, as well the variance between proposed and actual grants, by project and by district.

## 3. Capital Budget Analysis FY2015 -2019

The forward-looking analysis of projected contributions was conducted as a bottom-up analysis of prospective state funding, by project, by agency, each year FY2015 through FY2019. Two scenarios were developed to allocate funds on a tier-based percentage match basis:

- A. **Gross Project Cost**, in which the percentage match is applied to the total cost of the project
- B. **Non-Federal (Except Section 5307) Project Cost**, in which the percentage match is applied to the non-federal share of the project cost excluding Section 5307 Urbanized Area Formula Program grant funds received directly by transit agencies

The assumptions and the results of the analysis are summarized in this section.

### 3.1 Project List and Assignment of Federal Grants

The projects included in this analysis were obtained from DRPT's FY2014 Six-Year Improvement Plan (SYIP), which includes all anticipated public transportation projects throughout Virginia over the next five years as provided by the transit systems. While the SYIP includes project cost, it does not include fund source detail. The SYIP indicates whether a project is anticipated to apply federal funds, but does not specify which federal funding source will be applied. DRPT staff therefore made assumptions regarding project fund sources based on each agency's historical pattern of applying federal grants to projects, as detailed below:

- Federal grants for projects sponsored by the following agencies were assumed to be from funds managed by DRPT, typically Flexible STP. These include: Blacksburg Transit, Charlottesville Area Transit, City of Bristol Virginia, City of Harrisonburg Department of Public Transportation, City of Radford, City of Winchester, Fredericksburg Regional Transit, Greater Lynchburg Transit Company, and Williamsburg Area Transit Authority. NVTC's track lease payments are also assumed to be funded by Flexible STP funds. These agencies are highlighted in yellow in the spreadsheet.

- Federal funds for projects sponsored by the following agencies were assumed to be utilized on preventive maintenance – not the capital line item in the five year plan. These include: Greater Richmond Transit Company, Greater Roanoke Transit Company, and Hampton Roads Transit. These agencies are highlighted in green in the spreadsheet
- Anticipated expenditures for some projects were adjusted or eliminated by DRPT staff to reflect delayed delivery of projects, projects ineligible for capital grant funding, or projects for which only a portion of expenditures are for transit purposes. These projects are highlighted in red in the spreadsheet.

### 3.2 Computation of Grant Amounts

DRPT staff assigned tiers to each project contained in the SYIP based on its project label and description.

Proposed state match percentages by tier were determined by testing various funding levels for each tier until the total amount of state transit capital funding projected FY15 through FY19 was substantially consumed.

Consistent with the legislated policy, percentages are held constant from year to year. Tier 1 was valued highest, with the highest proposed state match contribution. The Tier 2 contribution was set to equal 50% of the Tier 1 contribution, and the Tier 3 contribution was set to equal approximately 55% to 60% of the Tier 2 contribution.

Proposed state match percentages by tier for each scenario are summarized in Table 1 below.

**Table 1: Proposed State Match by Tier by Scenario**

Tier	Tier Description	Proposed State Match %	
		Scenario A Gross Project Cost	Scenario B Non-Federal Project Cost
1	Rolling Stock	50%	80%
2	Infrastructure Facilities	25%	40%
3	Other	15%	22%

The computation of state funding contributions varies for each scenario as follows:

- **Scenario A – Gross Project Cost:** Proposed state match percentages were applied to the total (gross) project cost. However, grants to projects funded by two federal programs for which allocation is managed by DRPT—Flexible Surface Transportation Program (STP) and Section 5311 Formula Grants for Other than Urbanized Areas—were permitted to receive a combined state and federal match of no greater than 99%. The relevant Code language requires a local match on all projects funded by Mass Transit Trust funds, and as a result the remaining 1% of project costs must be covered with local funds. For example, a Tier 2 project eligible for a 50% state match that received 80% federal funding through Flexible STP would only receive a state contribution of 19%, so that combined state and federal funding for the project is no greater than 99% (80% federal and 19% state). This constraint prevented over-funding of these capital projects through DRPT-managed funding channels.
- **Scenario B – Non-Federal (except Section 5307) Project Cost:** The non-federal portion of project cost was calculated for each project in the plan by subtracting expected federal funds—except for Section 5307 funds—from total project costs. An exception was made for projects funded by Section 5307 funds since DRPT does not have any control over these funds, which are awarded directly to transit operators. For Section 5307 funded projects, the total project cost (instead of non-federal project cost) was applied.

The proposed state match percentages were then applied to the appropriate project cost (non-federal share except for Section 5307) to calculate the state match contribution for each project.

[Link to working excel file for FY 2015 - FY 2019](#)

### **3.3 Summary Tables**

The tables “Summary of Capital Grants by Applicant” and “Summary of Capital Grants by District” summarize the results of this bottom-up analysis by applicant and by district, respectively. While there is some variance in the distribution of funds between Applicants and Districts under each scenario, the overall difference in total state allocations from FY2015 to 2019 between the two Scenarios is fairly small, a little over \$2,000 over a period of five years.