Executive Summary

Background

The Southeastern Pennsylvania Transportation Authority (SEPTA) and the Berks Area Reading Transportation Authority (BARTA) conducted feasibility studies and a major investment study and draft environmental impact statement (MIS/DEIS) of the Schuylkill Valley Metro (SVM) concept linking Reading to Philadelphia via the King of Prussia area. SEPTA submitted a New Starts application to the Federal Transit Administration (FTA) in 2002 for this service; however, FTA gave the project an overall ranking of “Not Recommended” due to the high cost of the proposed service. Over the past several years, local officials have been investigating ways to keep the project alive. As a consequence, the Montgomery County Planning Commission recently initiated the R6 Norristown Line Service Extension Study to determine the viability of lower cost commuter rail service to communities along the US 422 corridor.

The purpose of the R6 Norristown Line Service Extension Study was to identify new rail alternatives and sources of capital and operating funding for commuter rail service. The study analyzed various rail service alternatives utilizing the present Norfolk Southern line between Norristown and Wyomissing and the existing R6 Norristown Line to access Center City Philadelphia. To analyze these rail alternatives, existing studies and technical information were used and ridership and capital and operating costs were updated using current available data. Early and ongoing coordination with Norfolk Southern occurred throughout the study. In addition to traditional funding sources, the project explored innovative financing techniques, such as public-private partnerships, that could support the implementation of rail service.

The study includes the Norfolk Southern rail corridor located between the Norristown Transportation Center in Norristown, Montgomery County and Wyomissing in Berks County. Spanning Montgomery, Chester and Berks counties, the corridor is approximately 44 miles long and runs through Amity and Upper Merion townships, the boroughs of Phoenixville, Pottstown, Royersford and Wyomissing and the cities of Norristown and Reading. Figure 1 illustrates the Norfolk Southern rail line and general station locations.

The objectives of the project are as follows:

1. **Provide another transportation option in the congested US 422 corridor.** Commuter rail service would provide another transportation option for residents commuting to Philadelphia and help reduce traffic in this rapidly developing region in Pennsylvania.

2. **Contribute to downtown revitalization efforts in the corridor.** Towns along the US 422 corridor wish to use the reinstitution of commuter rail service to act as a catalyst for development and redevelopment.

3. **Explore funding mechanisms to improve local transportation infrastructure.** Innovative funding sources and financing techniques should be identified that could pay for rail service and perhaps other needed transportation projects in the US 422 corridor.

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Study Process & Alternatives

A Study Technical Advisory Committee (STAC) for the project was formed that was comprised of representatives from the Delaware Valley Regional Planning Commission (DVRPC), Berks County Planning Commission, Chester County Planning Commission, Montgomery County Planning Commission, Office of US Senator Arlen Specter, Office of Congressman Jim Gerlach, Norfolk Southern Railroad (NS), Southeastern Pennsylvania Transportation Authority (SEPTA), Pennsylvania Department of Transportation (PennDOT) District 6-0, Berks Area Reading Transportation Authority (BARTA), Greater Valley Forge Transportation Management Association, and Select Greater Philadelphia/CEO Council for Growth. Early public involvement activities were undertaken in the feasibility study including meetings with the STAC, elected officials, township managers and planners, the Federal Transit Administration (FTA), and NS. Preliminary information was distributed to the general public via a project website at www.r6extension.com and news releases.

With extensive input from the Montgomery County Planning Commission and the STAC, seven rail Alternatives were identified and analyzed during this study as described below. All alternatives assume that passenger rail service would run on existing NS tracks per assumptions in the Schuylkill Valley Rail Assessment Study.
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- **Alternative 1.** Extension of existing R6 electrified service from Norristown to Valley Forge (at a site in Port Kennedy). Alternative 1 would involve the extension of electrified service from the Norristown Transportation Center to a station to be called Valley Forge.

- **Alternative 2.** Diesel service west of Norristown utilizing stations at Valley Forge, Phoenixville, Royersford, Pottstown, Monocacy, Reading and Wyomissing with a transfer at the Norristown Transportation Center, combined with an extension of R6 Norristown line electrified service (Alternative 1, extension of electrified service to Valley Forge). Alternative 2 would involve diesel service between Wyomissing and Norristown. Service between Norristown and Center City Philadelphia would be via existing SEPTA R6 service.

- **Alternative 3.** Diesel service west of Norristown utilizing stations at Valley Forge, Phoenixville, Royersford, Pottstown, Monocacy, Reading and Wyomissing with a transfer at the Norristown Transportation Center, without an extension of R6 Norristown line electrified service. Alternative 3 would involve diesel service between Wyomissing and Norristown. Service between Norristown and Center City Philadelphia would be via existing SEPTA R6 service.

- **Alternative 4.** Diesel service between Wyomissing and Conshohocken with service terminating in Conshohocken with a required transfer at Conshohocken. Alternative 4 would involve diesel service between Wyomissing and Conshohocken with service terminating in Conshohocken. Service between Conshohocken and Center City would be via existing R6 service.

- **Alternative 5.** Potential dual power locomotive service from stations west of Norristown to Center City using the existing R6 Norristown Line. Alternative 5 would involve service powered by dual power locomotives between Wyomissing and Philadelphia 30th Street Station. Dual power service would run as diesel service into Norristown and then would run via overhead catenary into Center City.

- **Alternative 6.** Electrified service between Wyomissing and Philadelphia 30th Street Station. Alternative 6 would involve electrified service between Wyomissing and Philadelphia 30th Street Station. Service would run express east of Norristown except for station stops at Conshohocken and Temple University.

- **Build Alternative 7.** Optimized service on the existing R6 Norristown Line. Alternative 7 would include changes to existing R6 service or the addition of at least one train to provide an express overlay on existing all-stop service.

Each of these seven Alternatives was analyzed with regard to a standard evaluation framework that is used to compare transportation alternatives. The Alternatives were evaluated only to the extent that the differences in alternatives could be identified for comparison purposes. This is the convention in the feasibility phase of project development. Financial and economic criteria were employed to determine the cost of building and operating each alternative. Alternatives were also analyzed in the context of existing natural and built environment features that are present along the rail line. Finally, the alternatives were assessed on the basis of impacts to transportation and mobility in the region. Each of the alternatives has strengths and weaknesses with regard to the criteria and some alternatives meet the project goals better than others.

Upon completion of this evaluation, the STAC decided that only three of the alternatives listed above should be advanced for financial planning and analysis purposes. Alternative 1 (extension of R6 electrified service), Alternative 3 (diesel service west of Norristown with a transfer to the R6) and Alternative 6 (electrified service from Wyomissing to Philadelphia) were carried forward. Although this study carried forward the three alternatives that appear to be most feasible, a future Alternatives Analysis (AA) is likely to analyze all these options plus non-rail modes in far greater detail to meet the required rigor of the AA process. It is important to note that the AA process is focused on identifying the best methods for addressing transportation issues in the corridor.
Financial Plan & Financing Options

Tolling Options
The feasibility report examines several funding and financing options available to implement the R6 Norristown Line service extension project. It is intended to serve as a point of departure for more detailed examination of funding and financing as planning for the project evolves. An analysis of three options that would toll US 422 to raise funds for the rail extension project and highway improvements in the region is presented. The three options include: building tolled express lanes in the existing median of US 422, tolling the Schuylkill River Bridge, and a general tolling of US 422 between the US 202 interchange in Valley Forge and the Pottstown Bypass/ Pottstown Expressway.

US 422 will undergo major reconstruction of the Schuylkill River Bridge and adjacent interchanges in the next few years, and major rehabilitation and reconstruction of the portions of the highway near Pottstown are programmed for 2010 - 2015. The bridge/interchange project, called the River Crossing Project has an estimated budget of $125 million, but PennDOT projects that there is a $51 million funding shortfall. The reconstruction of highways around Pottstown is proposed and likewise is expected to have at least a $50 million shortfall. Using locally-generated tolls for funding both highway improvements on US 422 and the rail extension project offers an integrated, multi-modal strategy for enhancing mobility along the Schuylkill River corridor.

Future years’ anticipated toll revenues can be monetized, converted into immediately available resources, through the issuance of tax-exempt toll revenue bonds. After annual operating costs and debt service have been paid, these annual residuals can be used to fund additional costs related to the rail project, or can be applied for other purposes. Alternatively, residual toll revenues could be monetized as well. Although a formal determination would be necessary from the Federal Highway Administration (FHWA), it appears that toll revenue bonds could finance both improvements to US 422 and the rail service extension project capital costs.

The first option that was analyzed was the construction of tolled Express Lanes in the existing median of US 422.

- **Option 1: Express Toll Lanes.** Preliminary analysis shows this option is physically and economically unsuitable for the selected portion of US 422. The estimated cost of the Express Lanes west of the Schuylkill River was $174.5 million, consuming most of the potential debt capacity. In addition, constructing lanes east of the Schuylkill River is infeasible from an engineering perspective without acquiring additional right-of-way, due to the narrow median. Thus, this option was dismissed from further consideration in this feasibility study.

After it was determined that new express toll lanes was not a viable strategy to raise revenues for US 422 and the proposed rail project, two other options were analyzed, tolling the Schuylkill River Bridge and general tolling of US 422.

- **Option 2: Schuylkill River Bridge Toll.** Proceeds from 40-year toll revenue bonds secured by a single toll at the River crossing could provide the $51 million needed to fully fund the capital costs of the River Crossing Project and contribute to the capital costs of the rail project. Assuming an average toll of $2.00 on all westbound vehicles utilizing the improved River Crossing Project, with five percent diversion (tolled AADT of 33,250); the bonding capacity is estimated to be approximately $407 million.
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- **Option 3: General Tolling.** General tolling at two locations offers greater potential for revenue generation and geographical equity. However, a substantial portion of revenues likely will be required to fund reconstruction projects along the tolled western portion of the highway in the Pottstown area in addition to the River Crossing Project. The preliminary analysis assumes an average toll of $1.00 in the west end of US 422 near the Berks-Montgomery County line, assuming 20 percent diversion, resulting in approximately 24,000 AADT tolled, and in the east end at the US 202 interchange, assuming five percent diversion, resulting in approximately 66,500 AADT tolled. An average vehicle traveling the full length of this portion of the highway, in either direction, would be charged $2.00. The bonding capacity of the General Tolling scenario is approximately $474 million.

Traffic growth is projected at two percent per year for the first 20 years and 0 percent thereafter. Tolls are assumed to be increased annually by the assumed rate of inflation of two percent per year. Furthermore, the options assumed the use of Open Road Tolling (ORT), which allows the collection of tolls at highway speeds, without toll plazas, using electronic (EZ-Pass) transponders supplemented by license plate photography. ORT eliminates the additional right-of-way requirements, increased congestion, and environmental impacts associated with toll plazas. It also avoids labor costs and security issues associated with cash collections, and it provides greater flexibility in modifying toll rates.

**Preliminary analysis suggests that tolling existing highway capacity on US 422 is a feasible strategy for generating the funds necessary to advance the rail project, as well as providing $51 million to complete the funding sources needed for the River Crossing Project and an additional $50 million for improvements along US 422, particularly in the Pottstown area.** Both of the options analyzed have the potential to provide substantial funding support for the rail extension project. Additional analysis will be required to determine which option is the most economically-feasible and politically acceptable. A formal traffic and revenue study is required as is guidance from FWHA regarding the portion of General Tolling revenues that would need to be allocated to major reconstruction projects on the tolled portion of US 422.

**Financial Plan**

Four financial plan scenarios were developed for the three Build Alternatives: R6 Extension (Build Alternative 1), Wyomissing to Norristown - Diesel (Build Alternative 3), and Wyomissing to Center City Philadelphia (Build Alternative 6). Financial scenarios consist of the following:

- Scenario 1 consists of 0 percent FTA Section 5309 New Starts/Small Starts funding combined with tolling Option 1, a toll on the Schuylkill River Bridge
- Scenario 2 consists of 0 percent FTA Section 5309 New Starts/Small Starts funding combined with tolling Option 2, General Tolling of US 422
- Scenario 3 consists of 50 percent FTA Section 5309 New Starts/Small Starts funding combined with tolling Option 1
- Scenario 4 consists of 50 percent FTA Section 5309 New Starts/Small Starts funding combined with tolling Option 2

A capital funding and an operating funding analysis are presented for each scenario. While the analysis examines some potential future sources of funding, no specific recommendations are made in this analysis and none of the potential new sources of funding have been reviewed, endorsed, or approved by SEPTA, the Commonwealth of Pennsylvania or the governments of Montgomery, Chester, or Berks counties.
New Starts/Small Starts Funding

One source of public funding for which the R6 extension project could be eligible is the Federal Transit Administration’s Section 5309 New Starts and the larger Small Starts grants programs. The FTA evaluates the proposed project at each step of the project development process throughout Alternatives Analysis (AA), Preliminary Engineering (PE) and Final Design. To complete this evaluation, the FTA uses a framework that is based upon a set of criteria that are used to determine the likely success and overall cost-effectiveness of the project. Cost-effectiveness, as measured by the Cost Effectiveness Index (CEI), is a vitally important criterion, which is measured by the sum of annual operations cost and annualized capital costs divided by incremental hour of user benefit (increment is between a theoretical baseline that represents all that can be done to address transportation issues short of a major capital project and the Build project). Because of the importance of this criterion, it was used in the R6 extension study as an initial screen to determine if federal New Starts/Small Starts funding should be pursued. Preliminary ridership forecasts and a user benefits estimate was prepared for an extension of R6 service from the Norristown Transportation Center to Valley Forge, defined as the Alternative 1 for this study. Additional analyses must be conducted; however, the initial forecast shows that the R6 extension to Valley Forge is potentially eligible to participate in the New Starts/Small Starts program.

Station Planning

Rail station locations identified earlier in the study were assessed in this feasibility study. Station planning meetings were held with local officials in Upper Merion Township, Borough of Phoenixville, Borough of Royersford, Borough of Pottstown, Amity Township, City of Reading, and Borough of Wyomissing to update information and to verify or identify appropriate station locations. These meetings were also used to determine development and transportation opportunities and constraints within the immediate area that would influence its location and potential ridership. Many of these station sites contain opportunities for transit oriented development (TOD). Generally speaking, the station sites identified appear to be viable for rail extension service and the local municipal managers welcome the opportunity to host rail service. Investigations, however, regarding a station at Port Kennedy, revealed that a location on Mancill Mill Road east of US 422, near the Valley Forge Towers, is preferable to the location originally envisioned by the MIS/DEIS report.

Norfolk Southern Operations

The R6 Norristown Line Service Extension Study was undertaken to determine if there were alternatives that would provide passenger service capability from Norristown to Wyomissing without the addition of capital improvements between Norristown and Center City Philadelphia. Based on discussions during the project STAC meetings, it was decided among all parties, including Norfolk Southern, that the capital costs calculated for the extension of R6 service would reflect the operation of passenger rail service as described in the Schuylkill Valley Rail Assessment Study, which would use NS tracks for passenger rail service. Discussions with NS operating personnel assigned to Abrams Yard in Upper Merion Township indicated that rail operations within Abrams Yard currently are approaching capacity. Capacity improvements would likely be required within the immediate surrounding NS rail network to facilitate the proposed passenger service from Norristown to Wyomissing.

Norfolk Southern personnel indicated there would be three requirements necessary to be addressed in order to secure NS approval to operate passenger service on their freight line between Norristown and Wyomissing:

• Liability. Norfolk Southern would have to be protected from the increased exposure and liability that would be incurred by the railroad by the introduction of passenger service into their freight rail operations.
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- **Impacts to Norfolk Southern Rail Operations.** Norfolk Southern’s current level of rail service cannot be affected by the introduction of passenger service to the freight rail network.

- **Access Fees.** The *Schuylkill Valley Rail Assessment Study* report identified a range of proposed Access Fees that NS might charge in connection with the addition of passenger service to their freight rail network. Access fees would be required to mitigate potential impacts to NS operations.

The proposed capital improvements and associated costs that were included in the *Schuylkill Valley Rail Assessment Study* for the portion of the study area pertaining to the rail corridor between Norristown and Wyomissing were utilized. In order to maintain comparison capability, the capital cost estimates contained within the *Schuylkill Valley Rail Assessment Study* were used and escalated at five percent per year (15.76%) to 2008. The range of capital costs is $161.2 (2005) - $234.5 (2008) million which includes a 25% contingency, and $215.2 (2005) - $297.1 (2008) million with a 50% contingency. (The 2005 figures exclude rolling stock.) Capital costs do not include liability or access fees. These figures do include costs for infrastructure improvements to mitigate impacts to NS operations.

Additional improvements to the immediate NS rail network that would be considered include: a new rail bridge across the Schuylkill River at Bridgeport connecting the NS main line with the Morrisville line, a new passing siding on the Morrisville Line allowing freight trains to be held outside the Abrams yard, and a new passing siding at Falls on the NS main line. These freight rail operating improvements may be considered as offsets to the proposed access fee and may prove to be an asset to the proposed new passenger service.

**Immediate Next Steps**

The *R6 Norristown Line Service Extension Study* established that the extension of passenger rail service from Norristown to Wyomissing is feasible. The study has also identified order-of-magnitude costs and sources of revenue. Immediate steps include:

1. Obtain formal agreement from the Federal Transit Administration (FTA) that the federal earmarks in place are available and can be used for environmental clearance and related studies. Obtain PennDOT agreement to support the tolling concept. Submit Expression of Interest to FHWA for tolling program (officially from PennDOT).

2. Conduct a Revenue and Traffic Study concurrent with the Alternatives Analysis (AA) described below to analyze rail alternatives in detail, alternate locations and amounts of tolls, to develop revenue forecasts, to identify corridor transportation improvements and to prepare to support the bond issue.

3. Begin and complete an Alternatives Analysis (AA) process as a starting point to comply with National Environmental Policy Act (NEPA) requirements. Coordinate with FTA, PennDOT and other agencies during the development of the AA on alternatives, including non-rail alternatives. Conduct extensive public outreach to gauge opinion on the project, iterations, funding and tolling. Engage corridor business leadership to support the project and possibly host a “Mobility Forum” later in 2008 to promote the project.

4. Continue discussions with Norfolk Southern to resolve outstanding operating issues and complete a Memorandum of Understanding with the Railroad.

5. Prepare a Draft Environmental Impact Study (DEIS).