

10. ISSUES FOR FUTURE CONSIDERATION

Several issues that warrant further review were raised during the course of this study. Many of these issues arose as the concepts for transit within the corridor began to crystallize. Assumptions were made in this study on issues like transit fares and transfer policy that should be considered in greater detail. With the knowledge gained from testing one set of conditions it might be beneficial to study variations in the future.

10.1 TRANSIT FARES

This study assumed the current WMATA fare structure and projected that structure into the future. The current fare for rail transit is \$1.10 in the peak and off-peak periods for the first three miles with incremental increases beyond that based on distance. The MWCOG also assumes that transit fares will rise at one-half the rate of the consumer price index resulting in a relative decrease in the cost of transit.

Alternative fares are possible and would affect the attractiveness of transit. Discounted fares or even free fares might be considered as a means of further boosting transit ridership in the corridor. Transfer fares should also be reviewed.

10.2 VEHICLE PREFERENCE

This study examined a “generic” BRT and LRT vehicle. Alternatives should be considered based on the various models available today. Vehicle size, seating capacity and configuration, and other physical features could affect operating performance and passenger-carrying capacity. Passenger might also show a greater preference for certain types of vehicles and this could affect ridership.

10.3 TRAFFIC CAPACITY STUDY

This study did not do a full analysis of the effects of the transitway on future traffic patterns. A more thorough analysis would be required to determine how much signal priority and pre-emption would be needed to effectively implement a surface transitway. Such a study could also determine if and how roadways need to be modified to accommodate the transitway.

10.4 FEEDER BUS RATIONALIZATION PLAN

The feeder bus network assumed for this study represents an approximation of 15-minute service throughout the study area throughout the day. Additional service was superimposed on the existing network of WMATA, DASH, ART, and Fairfax Connector buses to ensure coverage of the entire study. Consequently, overlapping routes may produce service more frequent than every 15 minutes, inefficient use of transit vehicles, and less than optimal route plans.

Subsequent studies should look at all the bus service passing through the study area and determine a revised route structure that offers the appropriate level of service in a more rational manner.

Ridership along the various bus routes should also be examined more carefully. Travelers in certain portions of the study area may not be using either the feeder bus service or the proposed new transit operation, and service in those areas may not be cost effective. Conversely, extension of the proposed feeder bus network to other areas not currently included in the study area may be warranted based on potential demand.

10.5. EXPANSIONS AND MODIFICATIONS TO THE TRANSITWAY ALIGNMENT

The termini of the alternatives in this study were specified in the scope of work issued by the Department of Rail and Public Transportation. While both the Braddock Road and Pentagon Metrorail Stations are logical termini, other end points are possible. Over the course of this study several suggestions for alternate termini and routing were noted and the following should be investigated further:

- Extend and/or terminate the alignment to the Pentagon City Metrorail Station.
- Use Clark Place rather than Clark Street.
- Run transit either along the median of Route 1 in Alexandria or on the west side of the street.
- Extend transit through the North Tract.

In particular, the suggestion to run transit to Pentagon City Metrorail Station is salient. The Department of Defense, in the future, may reconsider having a surface transitway terminating within 600 feet of the Pentagon building due to security concerns. Therefore, Pentagon City may have to be considered as a terminus for the alignment.

Notably, an alignment that would run through Arlington's North Tract was part of the initial evaluation for the study, but it was not carried forward due to the lack of transit oriented development currently proposed for the area. However, the development for this area is currently being planned and thus this tract should be reconsidered in future studies.

10.6 ENHANCEMENTS TO TRANSITWAY PLANNING/DESIGN

This list illustrates design elements to be considered to improve traffic flow and improve throughput for all modes (including automotive and bicycle traffic).

- Refine the alignment of the parallel transit bridge at Monroe Avenue to avoid physical and visual impacts east of Route 1. Alternatively, set the transit alignment to the west of Route 1, crossing to the east side north of the realigned Monroe Avenue bridge.
- Include bike lanes running in both directions throughout the project limits.
- Increase the length of the southbound left turn lane from Route 1 into the Retail Center entrance to avoid conflicts between transit and turning vehicles.
- Consider alternative alignments assuming the Monroe Avenue Bridge is not straightened.
- Develop a plan for the East Glebe Road/Potomac Yard Metrorail Station interface.
- Consider running transit operations on East Glebe Road rather than Hume Street. East Glebe Road has more right-of-way available, 110 feet compared to 64 feet, for transit operation and both streets have access to the town center and the proposed Metrorail station.

10.7 HEADWAY SENSITIVITY ANALYSIS

More detailed analysis of headways should be performed. The current assumption of six-minute headways could yield a ridership at peak points along the route during peak times of the day in excess of the capacity of any transit bus now on the market. Increased frequency, to perhaps every four minutes, would likely meet the demand. Reducing the headway would also tend to increase ridership. The ideal balance between headway and ridership therefore, should be closely examined. Another impact of increasing frequencies and ridership would be changes in the costs and revenues produced by a BRT operation.

10.8 BRT CONVERSION TO LRT

A BRT to LRT conversion would bring relatively low-cost, high quality service to the corridor in the short term with the ability to expand to meet demand in the future. The practicality of making this conversion in this corridor should be investigated.

BRT is frequently viewed as a first step toward a fixed-guideway transit system with LRT to follow. This concept was proposed within the Dulles Corridor where BRT was to precede the construction of Metrorail. Subsequently, that concept has fallen upon disfavor as impractical. The disruption caused to transit operations while track and associated systems are installed is assumed to preclude this possibility. However, while the specifics of the system may preclude such a transition, a more detailed investigation would be appropriate.

Alternatively, parts of the LRT infrastructure could be constructed when the BRT is installed leaving less modification necessary at the time of conversion from BRT to LRT.

11. DEVELOPMENT OF AN INVESTMENT STRATEGY FOR THE LOCALLY PREFERRED ALTERNATIVE (BRT)

For initial planning purposes, consideration should be given to the funding and financing of additional transit in the Crystal City/Potomac Yard Corridor. This chapter describes the anticipated costs, both one time capital costs and recurring operating and maintenance costs that will be required to support the preferred BRT system. This chapter also discusses the means by which funds could be secured in order to pay for the proposed system.

Given the substantial cost of any transportation improvement, funding typically comes from a variety of sources. Federal, state, local, and even private funding sources may be used to pay for this project. “Innovative” funding techniques and vehicles are available and may be used, at least in part, to cover the cost of this project.

Transit in the Metropolitan Washington DC region has generally been governed by the funding formula established for the services operated by the Washington Metropolitan Area Transit Authority (WMATA). Since the completion of the 103-mile Metrorail system, a new formula is developing that would likely guide transit funding in the Crystal City/Potomac Yard Corridor. Just as the Dulles Rail Extension, Largo Extension, and New York Avenue Station projects have been funded in a manner different from the rest of the system, so too would Crystal City/Potomac Yard transit be a “special case.”

The funding strategy, discussed in this chapter, also assumes that federal New Starts Funding will be available from the Federal Transit Administration (FTA). Again, although far from a certainty, it is not likely that this project will be advanced without federal support. For initial planning purposes, a share equal to one-half the capital cost is assumed to come from the federal government. No federal support is anticipated for operating and maintenance costs.

The end of this section offers alternative approaches for generating the funds for the local share of this project, that is, the funds not anticipated from the federal government or other regional transit partners. Alternative approaches for generating funds from public, private, and joint public-private sources are discussed.

11.1 COSTS AND REVENUES FOR LOCALLY PREFERRED ALTERNATIVE (BRT)

As summarized in Section 8 and detailed in Appendix I, the costs for constructing and operating the locally preferred alternative (BRT) are shown in Table 11-1 below.

**Table 11-1
Estimated Costs for Preferred Alternative (BRT)**

Category	Amount	Occurrence
Capital Costs	\$50.4 million	One-time initial cost
Operating & Maintenance Costs	\$ 9.3 million	Annual cost

Revenues for the preferred BRT alternative would be generated primarily from fares. The fare structure assumed for this analysis would be comparable to WMATA's system. Fares would use the same distance-based pricing structure and rates that vary by time of day. The fare for the proposed system would be the same as for the Metrorail system. The projected annual revenue generated from fares in the year 2025, based on that year's projected ridership, is \$12.8 million. Additional revenues from advertising, which have typically amounted to approximately 5 percent of revenues, would produce an additional \$600,000 annually.

Appendix I projects the costs and revenues associated with this project between 2000 and 2032, the planning horizon for this project.

11.2 COST AND FINANCING FOR LOCALLY PREFERRED ALTERNATIVE (BRT)

Funding the locally preferred alternative (BRT) is a complex matter. The new bus rapid transit system would operate within the metropolitan Washington D.C. area and therefore could be funded under an agreed upon formula between the constituent jurisdictions within the compact established for the Washington Metropolitan Area Transit Authority. In the past, the formula for the current system divided responsibility and cost among the local governments in the District, Maryland, and Virginia. With the completion of the 103-mile Metrorail system, a new formula would likely be developed and may vary from project to project.

At this early stage in the project development process, it would be premature to assume a funding plan for transit in the proposed Crystal City/Potomac Yard Corridor. The ultimate funding plan will be developed only through

extensive discussion and coordination between the federal, state, and local governments involved in the project.

For purposes of this analysis, it was assumed that the state would contribute one-half of the local cost-share and that the remaining 25 percent be borne by the jurisdictions in which the service operations: Arlington County and the City of Alexandria.

11.2.a. Funding Assumptions

Using the WMATA compact as a guide, the capital and operating costs of regional transit in the compact area are assigned to the various jurisdictions separately. For the purposes of this financial analysis, the Study Team makes the following assumptions:

- The Federal Government will fund 50 percent of the project construction costs. Although eligible for up to 60 percent federal funding, recent guidance indicates that projects are not typically funded through the New Starts process for more than 50 percent. Until such time as noticeable changes in FTA practice occur, this is a reasonable basis on which to assume federal support.
- BRT system costs and associated feeder bus costs would be shared by the jurisdictions through which the system operates: The City of Alexandria and Arlington County.
- The state would contribute up to 50 percent of the local share of the capital costs or 25 percent of the total capital costs (assuming the Federal Government contributes one-half of the total). Operating and maintenance costs would be subsidized by the state consistent with practices in other Virginia cities.
- The existing Metro Compact formula would not apply to new construction beyond the 103-mile system.

11.2.b. Financing BRT

The proposed transit system would be funded as four separate components:

- System (BRT) capital costs – construction of the guideway, station, and purchase of vehicles
- System (BRT) operating & maintenance costs – the annual costs, above farebox revenues, to operate and maintain the vehicles, guideway, stations, including payment of drivers and other staff salaries

- Feeder bus capital costs – purchase of buses and expansion of maintenance facilities for their upkeep
- Feeder bus operating & maintenance costs – the annual costs, above farebox revenues, to operate and maintain the feeder bus system.

Assuming that the Federal Government contributes one half of all capital costs and the state one-quarter, for both the BRT system and associated feeder bus service, and that remaining costs are shared between Arlington County and the City of Alexandria, Table 11-2 shows the costs that would be borne by each.

Table 11-2
Allocation System Costs
between Arlington, Alexandria, Virginia and the Federal Government

Cost Component	Cost (\$s)	Arlington County Share (\$s)	Alexandria City Share (\$s)	State of Virginia Share (\$s)	Federal Government Share (\$s)
Capital Costs					
System Capital Costs	46,550,000	5,818,750.00	5,818,750	11,637,500	23,275,000
Feeder Bus Capital Costs	3,850,000	481,250.00	481,250	962,500	1,925,000
TOTAL	50,400,000	6,300,000	6,300,000	12,600,000	25,200,000
Annual Operating & Maintenance Costs*					
System Operating & Maintenance Costs	5,200,000	2,600,000	2,600,000	-	-
Feeder Bus Operating & Maintenance Costs	4,110,000	2,055,000	2,055,000	-	-
TOTAL	9,310,000	4,655,000	4,655,000	-	-

* Note – Assumes 50/50 split between Arlington and Alexandria for operating & maintenance costs. No federal or state contribution.

11.2.c Alternative Funding Formula Considerations

Many formulas are available for funding the proposed Crystal City/Potomac Yard Corridor Transit improvement. The existing Metrorail system was funded using a complex formula that allocated costs based on several factors and could be used as a model for funding expansions to the system. The 103-mile Metrorail system was funded using five components, each weighted differently as shown in Table 11-3.

Table 11-3
Allocation Factors for Rail System Capital Costs
Based Upon the Metro Compact

Allocation Factors	Factor
Population (2000)	15%
Ridership	15%
Construction Cost	40%
Guideway Miles	15%
Stations	15%

Capital costs for the bus system did not follow this formula. In fact, bus capital costs were negotiated on a case by case basis. Rail system operating and maintenance costs operated on yet another basis with different factors as shown in Table 11-4.

Table 11-4
Allocation Factors for System Operating & Maintenance
Based Upon the Metro Compact*

Allocation Factors	Factor
Land area	33.3%
Ridership	33.3%
Stations	33.3%

* Based upon rail system formula

The bus operating and maintenance costs were previously allocated under yet another formula as shown in Table 11-5.

Table 11-5
Allocation of Feeder Bus Operating and Maintenance Costs
Based Upon the Metro Compact*

Allocation Factors	Factor Weight
Land Area (sq.mi.)	25%
Population	25%
Service VMT	25%
Service VHT	25%

* Based upon bus system formula

The most recent proposed allocation formula for regional bus operations, buses that cross jurisdictional boundaries, is shown on Table 11-6.

Table 11-6
Allocation Factors for Regional Bus System
Operating & Maintenance Costs Based Upon
Fiscal 2004 Proposed Budget Subsidy Allocation Formula

Allocation Factors	Factor
Density weighted population	25%
Revenue hours	25%
Revenue miles	35%
Average weekday ridership	15%

Clearly, there are many considerations in allocating the cost of building and operating a new transit system in the Crystal City/Potomac Yard Corridor. Arrangements for covering operating and maintenance costs could distribute costs other than evenly between the two local jurisdictions. Similarly, contributions for capital costs could come from parties other than those shown in Table 11-1. With all having some validity, the affected jurisdictions will need to negotiate a formula that fairly assigns the costs to all who benefit. Any are valid and the ones presented above are illustrative only.

11.3 FINANCING STRATEGY

The Bus Rapid Transit option (Eads Street variation) was selected as the preferred alternative. The Study Team created a cash flow spreadsheet for the option from present day to 20 years after an assumed first year of revenue service. Under the scenario presented in this spreadsheet, local jurisdictions would make an annual contribution to a fund starting in 2004. 2004 is the earliest date that funding could be incorporated into local budgets. Depending upon the speed with which this project is approved by the participating jurisdictions, this date could be further delayed.

From 2010 through 2012, the system would be constructed using the invested money and a bond issue. This conforms to the initial expectation that a system could be in place within ten years. This study was initiated in 2002 suggesting an opening day of 2012. It is estimated that the BRT system could be constructed in two years. The bond issue would be repaid by the annual contributions over a period of the twenty subsequent years.

The spreadsheet and underlining assumptions are detailed in Appendix J and are summarized in Tables 11-6 and 11-7.

**Table 11-6
BRT System Associated Income and Expenditure
Yearly Balance**

			2005	2010	2015	2020	2025	2030
Annual Ridership	Bus Rapid Transit	BRT System	0	0	8210000	8590000	9020000	9450000
		Maximum Load Point	0	0	1900	1900	1900	1900
		Number of displaced users	0	0	5710000	5970000	6270000	6570000
	Feeder Bus	Feeder Bus w/BRT Syst	0	0	1820000	1910000	2000000	2100000
		Number of displaced users	0	0	1110000	1170000	1220000	1290000
Income and Expenditure in 2002 Dollars	BRT System Fares		\$0	\$0	\$7,140,000	\$7,470,000	\$7,840,000	\$8,210,000
	BRT non new transit fares		\$0	\$0	(\$4,960,000)	(\$5,190,000)	(\$5,450,000)	(\$5,710,000)
	Feeder Fares		\$0	\$0	\$1,140,000	\$1,190,000	\$1,250,000	\$1,310,000
	Feeder System non new bus fares		\$0	\$0	(\$420,000)	(\$440,000)	(\$460,000)	(\$480,000)
	Advertising		\$0	\$0	\$100,000	\$100,000	\$110,000	\$110,000
	Local Gov. Contrib.		\$6,580,000	\$6,580,000	\$6,580,000	\$6,580,000	\$6,580,000	\$6,580,000
	BRT O & M Expense		\$0	\$0	\$5,300,000	\$5,300,000	\$5,830,000	\$5,830,000
	Feeder O & M Expense		\$0	\$0	\$4,110,000	\$4,110,000	\$4,700,000	\$4,700,000
BRT Yard Expansion		\$0	\$1,250,000	\$0	\$0	\$0	\$0	
Income in Future Dollars	System Generated	BRT System Fares	\$0	\$0	\$8,650,000	\$9,750,000	\$11,020,000	\$12,420,000
		BRT non new transit fares	\$0	\$0	(\$6,010,000)	(\$6,770,000)	(\$7,660,000)	(\$8,640,000)
		Feeder Fares	\$0	\$0	\$1,380,000	\$1,550,000	\$1,760,000	\$1,980,000
		Feeder System non new bus fares	\$0	\$0	(\$510,000)	(\$570,000)	(\$650,000)	(\$730,000)
		Advertising	\$0	\$0	\$150,000	\$170,000	\$220,000	\$250,000
	FTA Contribution	Capital	\$0	\$16,710,000	\$0	\$0	\$0	\$0
		Local Gov. Contrib.	\$7,190,000	\$8,320,000	\$9,640,000	\$11,160,000	\$12,930,000	\$14,970,000
		Interest Earned	\$280,000	\$1,750,000	\$1,950,000	\$2,010,000	\$1,700,000	\$950,000
		Bond Sales	\$0	\$15,000,000	\$0	\$0	\$0	\$0
		Total	\$7,470,000	\$41,780,000	\$15,250,000	\$17,300,000	\$19,320,000	\$21,200,000
Expenditure in Future Dollars	O & M Cost	BRT System	\$0	\$0	\$7,760,000	\$8,990,000	\$11,450,000	\$13,270,000
		Feeder Buses	\$0	\$0	\$6,020,000	\$6,970,000	\$9,230,000	\$10,690,000
	Capital Costs	BRT and Feeders	\$0	\$31,840,000	\$0	\$0	\$0	\$0
		Add'l BRT Yard Expansion	\$0	\$1,580,000	\$0	\$0	\$0	\$0
		Cost of Selling Bonds	\$0	\$1,500,000	\$0	\$0	\$0	\$0
		Debt Service	\$0	\$1,090,000	\$1,090,000	\$1,090,000	\$1,090,000	\$1,090,000
Total	\$0	\$36,010,000	\$14,870,000	\$17,050,000	\$21,770,000	\$25,050,000		
Fund Balance	Starting	\$6,980,000	\$50,340,000	\$49,900,000	\$51,580,000	\$45,030,000	\$23,360,000	
	Change for Year	\$7,470,000	\$5,770,000	\$380,000	\$250,000	(\$2,450,000)	(\$3,850,000)	
	Ending	\$14,450,000	\$56,110,000	\$50,280,000	\$51,830,000	\$42,580,000	\$19,510,000	

Table 11-7
BRT System Associated Income and Expenditure
Cumulative Totals from 2004

		2005	2010	2015	2020	2025	2030
Income in Future Dollars	BRT New Transit Fares	\$0	\$0	\$10,270,000	\$24,490,000	\$40,470,000	\$58,540,000
	Feeder New Transit Fares	\$0	\$0	\$3,370,000	\$8,040,000	\$13,360,000	\$19,330,000
	Advertising	\$0	\$0	\$560,000	\$1,360,000	\$2,340,000	\$3,520,000
	Capital	\$0	\$16,710,000	\$33,920,000	\$33,920,000	\$36,720,000	\$43,270,000
	Local Gov. Contrib.	\$14,170,000	\$53,440,000	\$98,930,000	\$151,610,000	\$212,620,000	\$283,270,000
	Interest Earned	\$280,000	\$6,970,000	\$16,900,000	\$26,840,000	\$36,190,000	\$42,310,000
	Bond Sales	\$0	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000
	Total	\$14,450,000	\$92,120,000	\$178,950,000	\$261,260,000	\$356,700,000	\$465,240,000
	Expenditure in Future Dollars	System O & M Expense	\$0	\$0	\$29,730,000	\$72,150,000	\$124,320,000
Feeder O & M Expense		\$0	\$0	\$23,060,000	\$55,950,000	\$97,430,000	\$147,890,000
BRT and Feeders		\$0	\$31,840,000	\$64,630,000	\$64,630,000	\$65,890,000	\$78,980,000
BRT rebuilding		\$0	\$0	\$0	\$0	\$2,630,000	\$2,630,000
Add'l BRT Yard Expansion		\$0	\$1,580,000	\$3,210,000	\$3,210,000	\$3,650,000	\$3,650,000
Feeder rebuilding		\$0	\$0	\$0	\$0	\$1,260,000	\$1,260,000
Cost of Selling Bonds		\$0	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000
Debt Service		\$0	\$1,090,000	\$6,540,000	\$11,990,000	\$17,440,000	\$22,890,000
Total		\$0	\$36,010,000	\$128,670,000	\$209,430,000	\$314,120,000	\$445,730,000
Fund Balance Year Ending	\$14,450,000	\$56,110,000	\$50,280,000	\$51,830,000	\$42,580,000	\$19,510,000	

11.4 FEDERAL TRANSIT ADMINISTRATION NEW STARTS FUNDING

The Federal Transit Administration's (FTA) discretionary New Starts program is the Federal government's primary financial resource for supporting locally planned, implemented, and operated transit "guideway" capital investments. From heavy to light rail, from commuter rail to bus rapid transit systems, the New Starts program has helped to make possible nearly 100 of new or extended transit fixed guideway systems across the country. These rail and bus investments, in turn, have improved the mobility of millions of Americans; helped reduce congestion and improve air quality in the areas they serve; and fostered the development of economically viable, safer, and more livable communities.

The Transportation Equity Act for the 21st Century (TEA-21) has authorized \$8.44 billion in Section 5309 New Starts funding through fiscal year 2003. While the level of New Starts funding has never been higher, neither has the demand for these discretionary resources. TEA-21 authorizes over 190 projects nationwide to compete for New Starts funding.

TEA-21 directs FTA to evaluate and rate these projects as an input to Federal funding decisions, and to publish these ratings in the U.S. Department of Transportation's *Annual Report on New Starts*. TEA-21 also requires that FTA monitor, evaluate, and rate each project at specific planning and project development milestones.

FTA's evaluations and ratings help to identify those projects that are most worthy of Federal investment. FTA considers project ratings in the development of its annual budget, as does Congress in its annual appropriations deliberations. FTA's evaluation is based on a range of New Starts criteria, provided for by TEA-21 and its preceding legislation, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA).

Projects eligible for FTA Section 5309 New Starts funding include any fixed guideway system that utilizes and occupies a separate right-of-way, or rail line, for the exclusive use of mass transportation and other high occupancy vehicles, or uses a fixed catenary system and a right of way usable by other forms of transportation. This includes, but is not limited to, rapid rail, light rail, commuter rail, automated guideway transit, people movers, and exclusive facilities for buses (such as bus rapid transit) and other high occupancy vehicles.

The Virginia Department of Rail and Public Transportation intends to submit a New Starts Evaluation as part of this project. That submittal will be made directly to FTA subsequent to the completion of the technical studies associated with this alternatives analysis.

TEA-21 expires in September of 2003 and will presumably be replaced by new legislation. Early indications are that the next surface transportation funding legislation will look very much like the current legislation. Amounts may change but the concepts of flexibility between modes should be unchanged.

11.4.a. New Starts Criteria

TEA-21 identifies several specific New Starts criteria that the Federal Transit Administration must consider in its approval to advance transit fixed guideway projects through the New Starts project development process and enter into a long term financial commitment to implement proposed investments. The Act categorizes these criteria into three broad areas:

Alternatives Analysis and Preliminary Engineering - Along with the final design phase, these activities constitute the *New Starts Planning and Project Development Process*. All projects seeking discretionary New Starts funding

must follow this process and FTA must approve project entrance into all but the alternatives analysis phase of planning and development. The New Starts planning and project development process provides for the development and refinement of TEA-21's *Project Justification* and *Local Financial Commitment* criteria (see below), and for addressing other planning, environmental, engineering, and design issues and requirements.

Project Justification - TEA-21 requires that proposed New Starts projects be justified based on several project justification criteria, including the following:

- Mobility Improvements
- Environmental Benefits
- Operating Efficiencies
- Cost Effectiveness
- Transit Supportive Land Use and Future Patterns
- Other Factors (Including, the technical capability of the project sponsor to implement and operate the proposed investment.)

Local Financial Commitment - TEA-21 requires that New Starts project sponsors demonstrate adequate local support for the proposed project, as measured by:

- The proposed share of total project costs from sources other than from the Section 5309 New Starts program, including Federal formula and flexible funds, the local match required by Federal law, and any additional capital funding ("overmatch");
- The strength of the proposed project's capital financing plan;
- The ability of the sponsoring agency to fund operation and maintenance of the entire transit system as planned once the guideway project is built.

11.4.b. Alternatives Analysis and Preliminary Engineering

Projects seeking New Starts funding, like all federally funded transportation investments in metropolitan areas, must emerge from a locally driven, multimodal transportation planning process. There are three key steps in FTA's New Starts planning and project development process: the *Alternatives Analysis*, *Preliminary Engineering*, and *Final Design*, as shown in Figure 11-1.

Alternatives Analysis - To specifically qualify for Section 5309 New Starts funding, candidate projects must have resulted from an alternatives analysis study, which evaluates several modal and alignment options for addressing

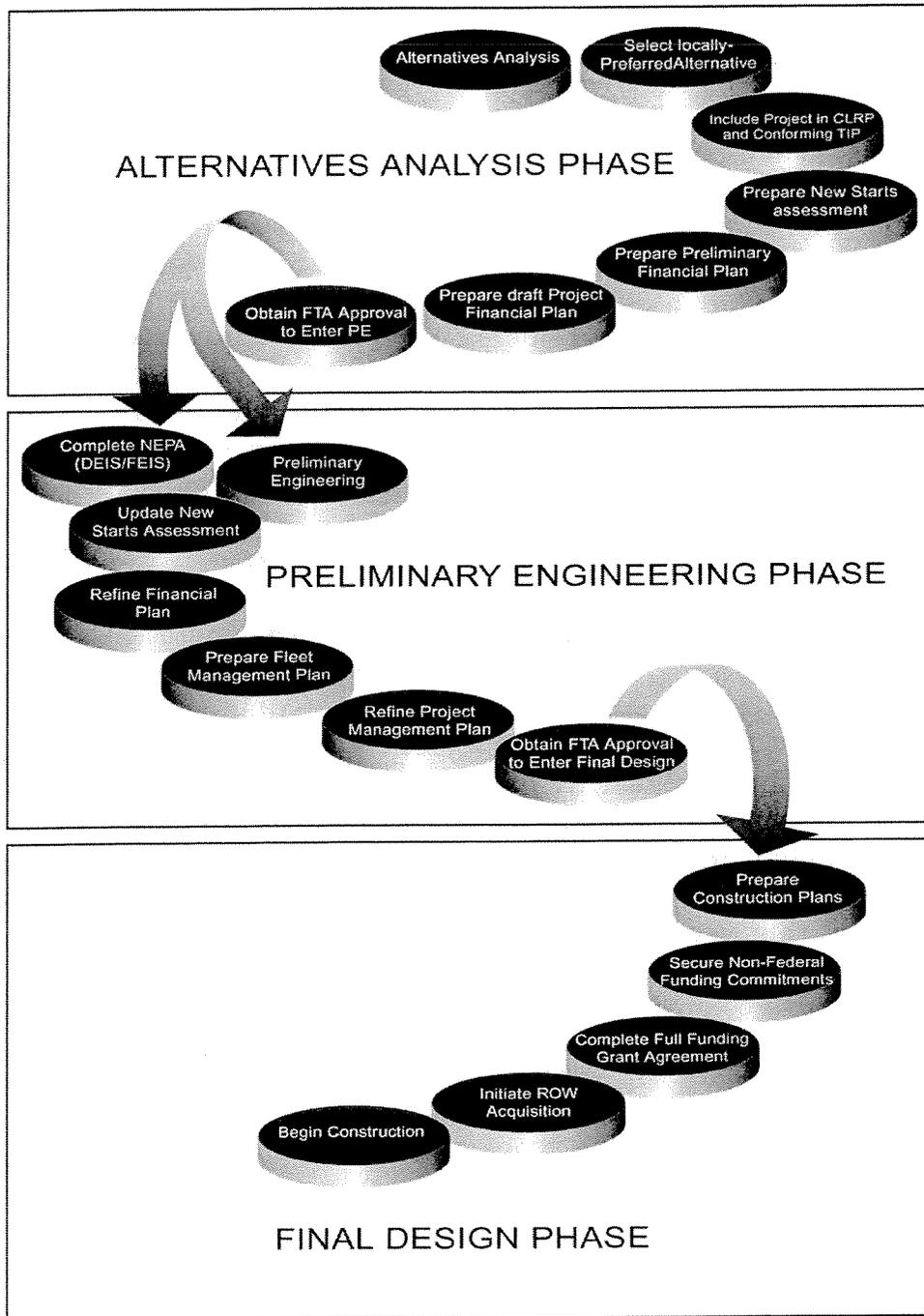


Figure 11-1
The Three Key Steps in FTA's New Starts Planning and Project Development Process

mobility needs in a given corridor. This alternative analysis is intended to provide information to local officials on the benefits, costs, and impacts of alternative transportation investments. Potential local funding sources for implementing and operating the investment are to be identified and New Starts criteria are to be developed. Involvement of a wide range of stakeholders, including the general public, in the alternative analysis study process is strongly encouraged. At local discretion, the alternatives analysis may include the undertaking of a Draft Environmental Impact Statement (DEIS).

An Alternatives analysis is considered complete when a locally preferred alternative (LPA) is selected by local and regional decision-makers and adopted by the metropolitan planning organization (MPO) in its financially constrained metropolitan transportation plan. At this point, the local project sponsor may submit to FTA the LPA's New Starts project justification and local financial commitment criteria and request FTA's approval to enter into the preliminary engineering phase of project development

Preliminary Engineering - During the preliminary engineering phase of project development, local project sponsors refine the design of the proposal, taking into consideration all reasonable design alternatives. Preliminary engineering results in estimates of project costs, benefits, and impacts for which there is a much higher degree of confidence. The proposed project's New Starts criteria are similarly refined in the preliminary engineering phase of development. In addition, requirements of the *National Environmental Policy Act of 1969* (NEPA) must be met (in the case of New Starts projects this usually includes completion of a Final Environmental Impact Statement); project management plans (PMP) are finalized; and local funding sources are committed to the project (if not previously committed).

Preliminary engineering for a New Starts project is considered complete when FTA has issued a Record of Decision (ROD) or Finding of No Significant Impact (FONSI), as required by NEPA, and when the local project sponsor has demonstrated to FTA its technical capability to advance the project into the next stage of development.

Final Design - Projects that have completed preliminary engineering must request FTA approval to enter the final design stage of project development. Like the approval to enter into preliminary engineering, FTA's approval to enter final design is based upon a review and evaluation of the project's New Starts criteria. Final design is the last phase of project development, and includes right-of-way acquisition, utility relocation, and the preparation of final construction plans (including construction management plans), detailed specifications, construction cost estimates, and bid documents.

11.4.c. Local Financial Commitment

The local financial commitment criterion is intended to reflect the level of local funding proposed for the project, and the extent to which this local funding is dedicated to, and in place for, the proposed investment. This criterion also addresses the reasonableness of project cost estimates and revenue forecasts; the adequacy of provisions to address unanticipated costs or funding shortfalls; the financial condition of the New Starts project sponsor; and how the sponsor will ensure the operation and maintenance of its existing transit services while implementing the proposed fixed guideway system. Like the project justification criteria, information, which supports the local financial commitment criterion, is refined throughout the New Starts planning and project development process.

The three measures for local financial commitment include:

- Stability and reliability of capital financing plan
- Stability and reliability of operating financing plan
- Local share of project costs

11.4.d. Exceptions To The New Starts Criteria

Projects that seek less than \$25 million in Section 5309 New Starts funding, and certain other specific projects that have statutory exemptions in TEA-21, are exempt from the New Starts criteria. However, TEA-21 prohibits FTA from entering into a full funding grant agreement with any project that is not evaluated and rated against the criteria. Therefore, FTA strongly encourages all sponsors of projects authorized in TEA-21 to develop and submit to FTA their New Starts criteria when ready to advance into preliminary engineering or final design.

11.4.e. New Starts Rating And Evaluation

FTA assigns a rating of *high*, *medium-high*, *medium*, *low-medium*, or *low* to each of the individual project justification criteria and to the measures for local financial commitment. These criteria measure specific ratings that are combined into summary project justification and finance ratings. These summary ratings used to determine overall project ratings according to the following decision rule:

- Highly Recommended—Projects must be rated at least *medium-high* for both finance and project justification;

- Recommended—Projects must be rated at least *medium* for both finance and project justification;
- Not Recommended—Projects not rated at least *medium* in both finance and justification will be rated as *not recommended*.

It is very important to note that project evaluation is an on-going process. FTA evaluation and rating occurs annually in support of budget recommendations presented in the *Annual Report on New Starts* and when projects request FTA approval to enter into preliminary engineering or final design. Consequently, as proposed New Starts projects proceed through the project development process, information concerning costs, benefits, and impacts is refined and the ratings are updated to reflect new information.

11.4.f. FTA Project Recommendations

FTA's ratings are intended to reflect overall project merit; proposed projects that are rated as recommended or highly recommended have demonstrated significant potential benefits and are therefore eligible for New Starts funding. However, a rating of recommended or highly recommended does not translate directly into a funding recommendation or commitment in any given year. Rather, FTA must also consider the amount of New Starts funding available on an annual basis and the phase of project development of candidate New Starts projects. To be included in FTA's annual budget request, proposed New Starts projects must also be sufficiently developed for consideration of a federal Full Funding Grant Agreement (FFGA), FTA's funding mechanism for supporting multi-year capital projects.

The following general principles are applied when determining annual funding allocations among proposed New Starts projects:

- The New Starts program is a capital program. FTA budget recommendations will be limited primarily to providing capital assistance. Funding for alternatives analysis may be provided through FTA's §5303 Metropolitan Planning or §5307 Urbanized Area Formula Grants programs, or through local sources. New Starts funds are not intended to be used for planning activities in support of alternatives analysis.
- TEA-21 requires that no less than 92% of annual New Starts funding be made available for final design and construction.
- Firm funding commitments, embodied in FFGAs, are not made until the final design process has progressed to the point where costs, benefits, and impacts are most accurately known. FTA will not enter

into FFGAs with projects in the preliminary engineering stage of development.

- Existing FFGA commitments are to be honored before any additional funding recommendations are made. As a consequence, the amount of New Starts funding available for entering into new FFGAs in any given year is limited to the balance of funding remaining after fulfilling existing FFGA commitments.
- The FFGA defines the terms of the Federal commitment to a specific project. Upon completion of an FFGA, the Federal funding commitment has been fulfilled; additional project funding will not be recommended. Any additional costs beyond the scope of the Federal commitment are the responsibility of the grantee.

11.4.g. FTA Ratings

TEA-21 requires FTA to rate candidate New Starts projects that have completed at least an alternative analysis, as either “*Highly Recommended*,” “*Recommended*,” or “*Not Recommended*.” These ratings are intended to reflect conditions at the time of FTA's evaluation. Project evaluation is an on-going process. It is based on an analysis of the Section 5309 New Starts Criteria and documentation submitted to FTA by local agencies. As New Starts projects proceed through project development, the estimates of costs, benefits, and impacts are refined. FTA's ratings and recommendations will be updated annually to reflect new information, changing conditions, and refined financing plans.

11.4.h. Funding Availability

TEA-21 authorizes \$6.09 billion in guaranteed funding for New Starts through FY 2003. This legislation expires on September 30, 2003 and Congress will draft a new authorization bill. Funding subsequent to FY2003 will be authorized in the new transportation funding legislation. The new legislation is expected to follow the same general principles as that of TEA-21:

- Preserving state and local government funding flexibility to allow the broadest application of funds to transportation solutions
- Building on the intermodal approaches of ISTEA and TEA-21
- Simplifying federal transportation programs and continuing efforts to streamline project approval and implementation.

The funding for TEA-21 was over subsidized by \$1.2 billion leaving some uncertainty in how all projects will be completed.

Department of Transportation information suggests that the new legislation will be “evolutionary rather than revolutionary.” Passage of a new surface transportation act is scheduled for October of this year although such legislation often takes place some time after the previous legislation has expired.

11.5 INNOVATIVE FINANCING

Ever rising costs for transit projects and competing demands for public funds have necessitated a search for “alternative” modes of financing, that is, alternative to general funds from the local and state government and revenues from the farebox. At both the federal and state level, creative means of financing transit projects have been developed. From the public sector, most innovative techniques revolve around covering current costs of a transit project with anticipated future revenues. Implementing a project prior to having all funds in hand permits projects to commence earlier, frequently at a lower cost, and permits benefits to accrue to the community sooner.

Private sector funds can also be used for funding transit projects primarily through various forms of value capture. Transit typically raises the value of real estate and this increased value can be recaptured through various taxing methods. Claiming the increased value even before the transit project is constructed permits benefits to accrue sooner.

Finally, the term “public-private partnership” has become increasingly common in transportation projects. The public and private sectors each have certain financial strengths and flexibility, which when coupled together, can accelerate the accumulation of capital to construct transportation projects. Federal and state legislation has greatly facilitated these partnerships.

11.5.a. Public Sector Financing

A variety of mechanisms exist both to directly fund transit projects and to advance capital in anticipation of future revenues. Clearly, funding for any public sector venture is generally limited and many projects compete for the same limited pool of resources. Consequently, it is important for jurisdictions looking to fund new transit projects to explore the widest possible range of funding sources. Frequently, a combination of sources may be the most effective way to assemble sufficient funds to initiate a project.

The following mechanisms offer an array of possible ways, either alone or in combination, to finance transit in the Crystal City/Potomac Yard Corridor.

Congestion Mitigation And Air Quality Funding (CMAQ) – The CMAQ Program funds transportation projects that reduce emissions in non-attainment and maintenance areas. CMAQ also funds projects that will offer congestion relief and which similarly improves air quality. Included in the list of activities eligible for funding under CMAQ are:

- Improved public transit,
- Traffic flow improvements and high-occupancy vehicle lanes,
- Shared-ride services,
- Bicycle/pedestrian facilities,
- Flexible work schedules.

During the first six years of the program, transit received the largest share of the funding (43 percent) followed by traffic flow (34 percent) and then other methods in smaller shares.

CMAQ funds may be used for public transit in three broad categories:

- Service or system expansion
- New transit service
- Financial incentives to use existing transit services

Applicants for CMAQ funding need to develop ideas and prepare a project proposal using State (VDOT) or MPO (MWCOG) procedures. The process is unique for each state and MPO. The MPO is responsible for developing and establishing priorities for projects. All proposed projects must come from the latest conformity plan and transportation improvement program (TIP). All CMAQ projects must come from the fiscally constrained plan and TIP in order to be authorized. Authorization is the final approval that is given by FHWA or FTA. Twenty percent of the funding for a CMAQ funded project must come from local sources.

Public Private Transportation Act (PPTA) - The PPTA, a Virginia law, authorizes private entities to acquire, construct, improve, maintain, and/or operate “qualifying transportation facilities” under agreements with any responsible public entity that itself would have the power to conduct those activities. The state and local counties and cities qualify as responsible public entities. Roads, bridges, parking facilities, mass transit facilities, airports, seaports, inland ports, and other commercial transportation projects may qualify under the PPTA. The PPTA operator may impose user fees,

issue debt or equity securities, or enter into sale and leaseback transactions, and grant liens on its property.

Many recently proposed PPTAs have relied in part upon future public funds. Operators construct a project with private financing and are repaid through funds in the future. Future highway funds for example can pay for current projects. PPTA proposals have also relied, in part, upon tolls, user fees and fares as a means of repaying the operator.

GARVEES (FRANS) – GARVEES or Grant Anticipation Revenue Vehicles are issued by the state and backed by future federal aid. Legislation authorizes reimbursement of the debt service as part of the federal payment. These bonds permit the state to issue bonds and construct a project repaying the debt through future federal funding. This financial vehicle is limited by the amount of federal funds anticipated and the policies of the state which seek to maintain the highest rating for state-issued bonds.

Surface Transportation Program (STP) – The STP is a source of flexible funding intended for use on any Federal-aid highway. STP funds may be used for programs to reduce certain categories of traffic (i.e., “cold starts” of automobiles typically resulting from commuters starting their cars in the morning and driving to work); modifications of existing public sidewalks to comply with the *Americans with Disabilities Act*; infra-structure-based intelligent transportation system capital improvements; and certain bicycle, pedestrian, and parking facility projects. The program also allows for funding of “certain other transportation-related projects” for which the Crystal City/Potomac Yard Project may qualify. STP funds require no local match.

Clean Fuels Formula Grant Program – This program assists in the purchase of low-emissions buses and related equipment, construction of alternative-fuel fueling facilities, modification of garage facilities to accommodate clean-fuel vehicles, and assist in the utilization of bio-diesel fuel. Eligible projects include the purchase of clean-fuel buses, construction, modification and/or leasing of associated facilities, and repowering or retrofitting of existing buses. Compressed natural gas, liquefied natural gas, biodiesel, fuel, battery, alcohol-based fuel, hybrid electric, fuel cell, or other zero emissions technologies are all eligible under this program.

Transportation Infrastructure Finance And Innovation Act (TIFIA) – The TIFIA loan is credit assistance rather than a grant. It can serve to secure a loan, give a loan guarantee, or line of credit. The legislation requires that the cost of the project must exceed \$100 million and that the TIFIA loan can

cover up to 33 percent of the cost. The TIFIA loan relies upon revenue to repay the financing.

State Infrastructure Bank – The Virginia Transportation Act authorized project loans from the State Infrastructure Bank to finance projects. Loans must be repaid from other sources, but permit a project to be initiated in the absence of available funds.

Multi-Modal Cost Savings Act – Congress is currently considering legislation that would permit private entities to issue tax-exempt debt to finance public projects. This mechanism could be used in connection with a PPTA or other private-public venture.

State Revolving Loan Fund – This arrangement allows the state to use FTA grant funds to establish and operate a revolving loan fund. The aggregate of Section 16, 18, and 9 funds can be pooled and then subsequently used to purchase vehicles, which are in turn either leased or sold to the various operators. In effect, the State Revolving Loan Fund permits pooling of vehicle costs.

Lease Payment – FTA funds can be used to lease rather than purchase vehicles and equipment. In order to qualify the project sponsor must demonstrate that leasing is more cost-effective than purchasing. Payments from federal and local funds can be banked to pay the lease costs. This arrangement, cannot however, be used for operating costs.

Delayed Local Match – Federal funds can be used for initiating a project even when local funds are not yet available. Local and private matching funds are then used later in the construction of the project.

Corridor Preservation/Advance Right-Of-Way Acquisition - Federal funds can be used to acquire right-of-way for a project. The appreciation on the land can then become part of the local match.

11.5.b. Private Sector Financing

Funding for transit can be obtained entirely through private funds even when the project itself is a public project. Generally by taxing the private property, either in advance of, or subsequent to the improvement, funds can be generated from local landowners to support the project.

Special Improvement Tax Districts – Areas that will directly benefit from a transit improvement can be designated as a special improvement tax district. Property within the tax district is taxed at a higher rate, the differential is

applied to a fund to support transit in the district. Revenues from the special tax can either be accumulated to eventually pay for the improvement or alternatively be used to back bonds. In the latter case, the project can be initiated with bond money backed by future tax revenues. The development conditions associated with Potomac Yard retain the option of creating a special tax district.

Tax Increment Financing – Typically, property appreciates in value with transportation improvements. Local jurisdictions can recognize that increased value by issuing bonds supported by the increased tax revenues that will be generated subsequent to the transit improvement's implementation. While the tax rate will remain unchanged, the property value and therefore the tax revenues will increase.

Certificates Of Participation (COP) – This is a leasing arrangement in which bonds are issued to finance the purchase of transit assets. Tax-exempt bonds are secured with a revenue source. Under this arrangement, the state would lease equipment to a legal entity specifically created to operate the transit system. The lease payments would be used to repay the bonds. Typically, this mechanism is used to fund vehicles; for example, federal funds pay the lease payments; COPs secure the lease rather than the federal funds.

Sales Or Use Tax – The federal, state, or local government can create a general tax or fee whose revenues are dedicated to transit. The recent Tax Referendum in Northern Virginia and Hampton Roads would have increased the tax on most sales in Virginia from 4.5 percent to 5 percent. If this referendum had passed the additional half-cent would have been dedicated to transportation. In fact, the Crystal City/Potomac Yard Project was slated to receive \$75 million from the receipts of that tax. However, that measure was defeated.

User fees can also be imposed on selected items such as vehicle registration or driver licensing that can be directed toward transit or other transportation projects. Currently, fees on tires and batteries are applied at the federal level to the Highway Trust Fund.

11.5.c. Public-Private Financing

The public and private sectors can work cooperatively to finance and operate a transit improvement. Both offer unique strengths and capabilities and when properly paired can result in a net benefit to all participants including the traveling public.

Joint Development of Transit Assets – Development of a transit property can be made jointly by public and private interests so long as the each entity's development is physically or functionally separate from the other. WMATA has made use of this method to make air rights above Metrorail stations available for private lease. The private entity leases the air rights for a period of 99 years, returning some of the land value to WMATA. In addition, the private entity frequently pays a percentage of revenues or profits as part of the lease fee.

Cross Border Lease – This investment vehicle allows a foreign country investor to own assets in the United States. The assets are leased to an American entity. The local entity can benefit from the foreign tax laws. (This mechanism is similar to the Safe Harbor Lease arrangement that was eliminated in 1986). This mechanism is most effective when the investment exceeds \$50 million.

Super Turnkey – Under this arrangement, a private entity builds, operates, and ultimately transfers the transit improvement to the public entity. Experience has shown that because the system is built and initially operated by the private entity, it is usually constructed more rapidly and with less litigation.

11.6 ADVANCING THIS PROJECT THROUGH ENVIRONMENTAL STUDIES

New Starts projects receive funding in several stages. The Crystal City-Potomac Yard Corridor Transit Alternatives Analysis is the first step in this long process. This alternative analysis must meet certain project justification and financial criteria. This includes creation of a New Starts baseline alternative and the development of a New Starts Locally-Preferred Alternative (LPA). The recommended LPA coming out of this study is for the BRT (Eads Street Alignment).

The Federal Transit Administration (FTA) compares the costs and benefits of the baseline and the LPA to determine if the project is sound. If the project is considered sound, FTA approves it, and the project can move to the next step.

The local Metropolitan Planning Organization (MPO) and other jurisdictions (such as the State) must then adopt the project as part of a regional transportation plan. In this case, the BRT alternative must be adopted into the Metropolitan Washington Council of Governments' Constrained Long-Range Plan (CLRP). The project must then be evaluated and reviewed in accordance to the requirements of the *National Environmental Policy Act*

(NEPA). If FTA approves the NEPA document, it will then issue a Record of Decision or a Finding of No Significant Impact (FONSI).

