▶ FUNDING

▶ PLANNING

▶ IMPLEMENTATION



# Funding and Implementation

## Introduction

Large capital investments require comprehensive financial planning in order to assure the construction, maintenance and continued operation of the envisioned investment. This City Transportation Plan identifies an innovative, ambitious vision for the City in regards to its transportation infrastructure. The Plan identifies numerous goals and objectives that will result in the need for increased revenue and funding to achieve, the largest investment being the proposed transit concept.

The Alexandria Transit Concept represents a significant undertaking and presents the most significant funding need component of this Master Plan. The transit concept can be thought of as a capital project still in its preliminary stages. This chapter explores decisions that impact the ultimate Transit Concept project cost and the funding mechanisms and implementation approach to make it a reality. Where applicable, other Master Plan elements that can be funded by similar sources and coordinated in unison with delivery of the Transit Concept project will be incorporated in the presentation of funding options.

The first section of this section details the cost estimation methodology and the resulting order of magnitude capital and operating cost estimates for the Transit Concept. Since no one source is likely to provide the entire funding for any one element of this plan, specifically the transit concept, the focus of this section is upon formulating funding "packages" of multiple options. While capital construction and vehicle acquisition costs represent the most pressing funding need of this plan, funding options that provide a continuing source of local revenue for the ongoing operation, construction and maintenance are also outlined.

Second, this section addresses the funding needs of plan initiatives as a whole providing a summary of project delivery approaches, a variety of funding options from various sources and an overview of the continued implementation and planning process required to make the elements of this plan a reality.

# Cost Estimation Process

The cost estimation process divides the project into specific component categories, each with a different impact on the ultimate image and performance of the system based on the funding level provided. Various national and local indicators were utilized to developing unit costs for the major items that comprise each of these components. While these figures represent average costs, there is a great degree of variability. A comparison of different modes and assumptions has been used to provide the widest range of project scenarios. Throughout subsequent planning and engineering phases leading up to construction and operation of the system, these costs estimates will account for mode selection, design criteria and local conditions, thereby increasing accuracy through continual refinement.

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| Typical Right-of-Way Costs by Mode | |
|---|---|
| Mode | Cost Range per Mile (Millions) |
| Bus Rapid Transit (BRT) | $0.8 - $11.0 |
| Streetcar | $6.0 – $19.0 |
| Light Rail Transit (LRT) | $14.0 - $31.0 |

**Right-of-Way** - Represents the cost to prepare a running surface for transit vehicles. While the Transit Concept anticipates utilizing existing roadways, surface improvements, lane markings, and access control are required for rubber-tired vehicles. For fixed-guideway rail vehicles, additional costs include track, power supply, and controls. The costs reflected here are significantly lower than costs for constructing new, purpose-built right-of-way for the exclusive use of transit vehicles.

| Typical Vehicle Costs by Mode | |
|---|---|
| Mode | Cost Range (Millions) |
| Bus Rapid Transit (BRT) | $0.5 - $1.2 |
| Streetcar | $1.5 – $3.5 |
| Light Rail Transit (LRT) | $2.5 - $4.5 |

**Vehicles -** The number of vehicles required by a transit project is derived from service plans, with the total vehicle requirement accounting for running times (speed) within a corridor, frequency of service along the route, and required spares. Higher vehicle costs reflect modern technology, amenities, and propulsion systems, factors directly related to the attractiveness of the service.

**Stations -** This includes the design, construction and the technology incorporated into the "Smart Stations" that will be located along the routes. Final design criteria will greatly influence the project cost for station construction, but basic elements envisioned for the Transit Concept include a boarding platform, passenger information displays, and distinctive design.

**Traffic Improvements -** This includes smaller components, such as signal priority, vehicle location technology, and intersection redesigns that enable features such as queue-jumping (rubber-tire vehicles only).

# Estimated Transit Concept Costs

## Capital Costs

For each corridor illustrated in the Alexandria Transit Concept, the right-of-way type, number of stations, and sketch service plan were developed to achieve capital and operating cost estimates. The estimates reflect present-day costs, since the future start of construction and vehicle procurement dates are unknown. The following assumptions are reflected in the results of cost estimation for the Transit Concept. Any changes in these assumptions could result in significant changes in the results of project cost estimation.

The Transit Concept consists of three (3) primary corridors, Route 1, Van Dorn/Shirlington, and Duke Street, comprising a system total of 17 miles. The per-mile capital costs for various transit modes were applied, in addition to the assumptions, to derive a system-wide order of magnitude cost. The results for this project range from $115 million for a BRT system to $665 million to utilize a LRT mode (see graph below). It is important to note that individual corridors could be implemented incrementally, as funding allows, rather than constructing the project as an entire system. More advanced planning will reveal corridor-specific cost factors which may influence an appropriate sequence of implementation.

**Major Transit Cost Assumptions**

**(1)** On-street right-of-way within the existing highway profile, thus reducing impact on surrounding land-uses and resulting in minimal property acquisition costs.

**(2)** Maintenance facility costs are included in construction cost estimates for rail modes (Streetcar and LRT). The BRT mode is assumed to utilize the expanded DASH maintenance facility.

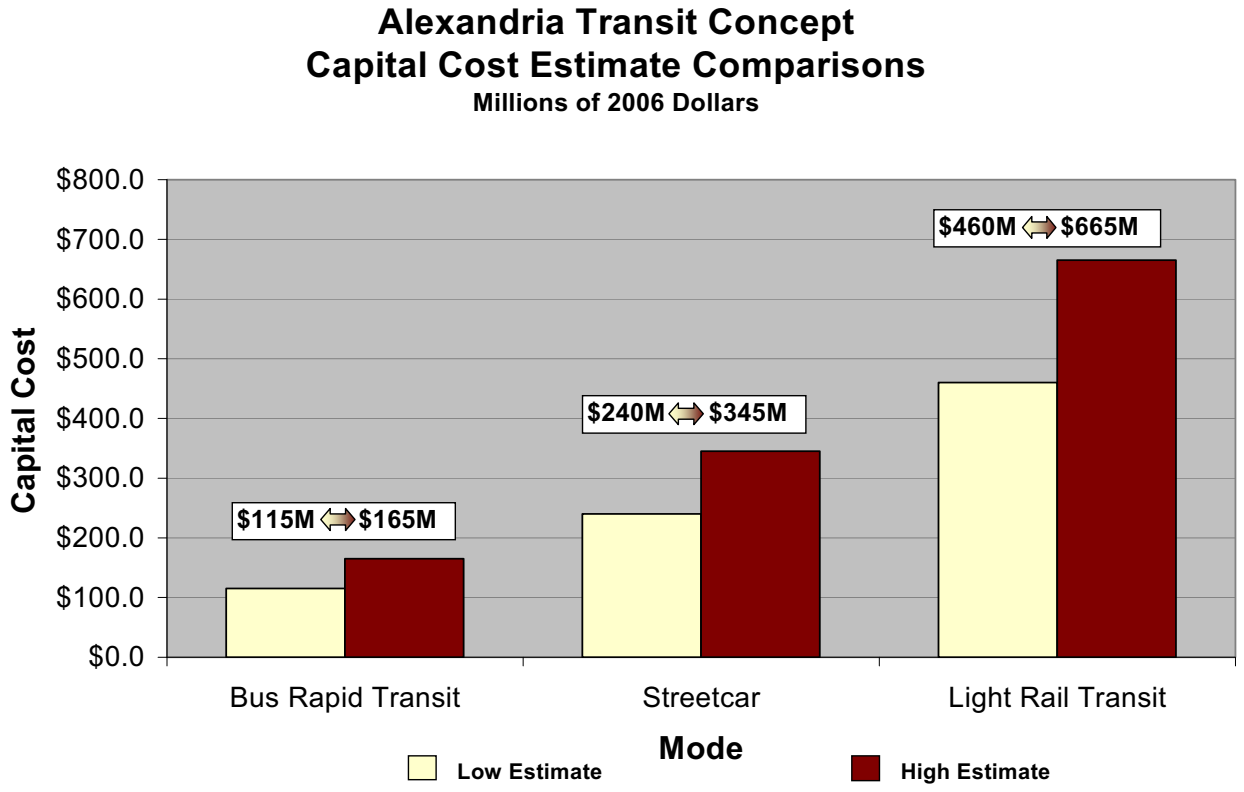
**(3)** Circulator vehicle costs and operations have not been incorporated. Transit Concept service will replace some existing bus service on the same route, freeing these resources for circulator service.

**(4)** Smart Stations will be located every ½ mile

**(5)** Design and Management fees will total 15% of capital costs

**(6)** Average speeds from 12-20mph (no express service reflected)

**(7)** Peak headways from 5-10 minutes, off-peak from 10-15 minutes.



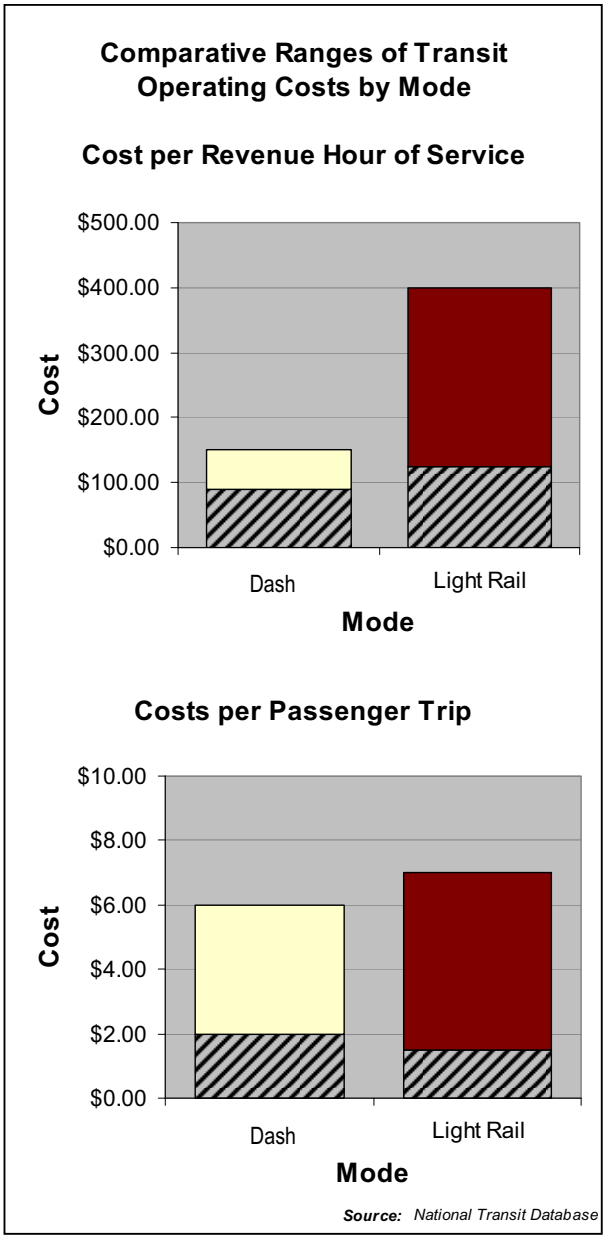
# Estimated Transit Concept Costs

## Operating Costs

Peer system operating costs were applied to sketch service plans for each mode to approximate the annual cost to provide service. The results indicate a funding need of approximately $16-$25 million/year based on projected revenue hours of service. Cost ranges for important cost measures of Cost Per Revenue Hour of Service and Cost per Passenger Trip are provided in the adjacent graphs. Cost data on a national basis is best reflected in Bus and Light Rail modes, as separate reporting is not yet required for Bus Rapid Transit or Streetcar service. In these graphs, revenue Hours of service reflect the costs incurred regardless of ridership, while cost per passenger trip reflect certain efficiencies gained through moving larger groups of people within single vehicles. Note that the span of these ranges reflect local conditions, labor rates, and regulations, which would be unique to Alexandria upon implementation of the Transit Concept.

It should be noted that at the conceptual stage of planning, the operating costs for such transit systems are complex to calculate, as they involve knowing the current and future vehicle speeds, the time saved from faster boarding times and other parameters. Compared to traditional bus service, the Transit Concept would likely cost more to operate. However, cost per passenger trip would likely decrease. Faster travel times allow the same number of vehicles and drivers to make more trips per day, thereby carrying a greater number of passengers, increasing revenues from passenger fares and thus decreasing overall costs. These efficiencies explain how, based on a certain ridership threshold, Light Rail can prove more efficient then BRT provided it carries vastly larger volumes of riders in fewer and larger vehicles.

Case studies, reflecting costs and funding approaches for systems representing Bus Rapid Transit, Streetcar, and Light Rail modes have been detailed in the Appendix of this report.



# Calculating Funding Needs

Transportation projects are typically funded through a variety of sources. In many cases, a significant portion of the capital cost can be funded through Federal grant programs. These programs have specific eligibility requirements and often require the project to compete nationally for limited funds. Even with grant funding, local funding commitments must be secured to match grant contributions. In one such scenario, Federal Transit Administration funding could be anticipated to account for 50% of the project cost. According to the Transit Concept cost estimates, approximately $136-$196 million in other funding would be needed. This section looks at both the Federal programs available as well as various other project delivery methods to secure the needed funding to construct the Transit Concept.

## Project Delivery Approach

Project delivery refers to the relationship between public and private funding partners of a transportation project, and ultimately impacts the timeline of beginning revenue service. The traditional approach assumes an approximate 50% contribution of federal funds for capital costs. In this role, only an authorized recipient of Federal funds (state or local government agency) can engage in the planning, construction, financing, and operation of the system. There are significant requirements involved with Federal funding, and some similar projects have completed analysis indicating that this pay-as-you-go approach adds several years and significant cost to the overall project.

In place of federal discretionary funds, more innovative approaches for financing involve significant local and private contributions. Often, these projects entail design-build strategies. In such a scenario, one private company provides bundled services throughout project implementation, including some private financing in return for a stake in operating profits. Various components of the Transit Concept could potentially have different project delivery approaches. Typically the system (right-of-way, vehicles) is better suited for traditional financing while development of station areas has significant potential to attract private interest and funding. The funding mechanisms available to project sponsors and local partners are outlined in the following sections.

## Local/Private Funding Options

Local and Private options are also available as funding options for the Transit Concept. These options are particularly useful in enticing private development to occur along improved corridors, necessary to further support the high frequency service envisioned. Other options are better suited to defray operating subsidies, which is essential to demonstrate the long-term financial health of the sponsoring agency to be able to continue to afford to provide the envisioned service. The best suited examples to the Transit Concept include:

**Business Improvement District** – Added tax or fee placed on all businesses within a service district. This is often an ideal mechanism for funding incidental project costs, such as lighting, security, street cleaning, and the unique branding of an area or transportation system.

**Joint Development** - This opportunity exists particularly with regard to facilities that provide a logical activity center, such as a tourist information kiosk, multi-mode transfer center, or bus system transfer center. Such facilities often provide substantial traffic flow for potential businesses in the surrounding areas.

**Tax Increment Public Infrastructure Fund -** Used in redevelopment and improvement of specific areas. As new development increases land value, the higher tax returns are captured and set aside to help retire the debt that funded the public infrastructure improvements that enticed the new development.

**Impact Fees** – Represent exactions upon developers for the incremental impacts upon transit service required to service the trips generated by the facility.

**Motor Vehicle Registration Fee** – A modest increase in vehicle registration fees could be utilized to generate additional local funds to leverage further Federal funding.

# Implementation & Plan Process

Public participation and involvement is central to all steps in the project implementation process. The role, mechanism, and information conveyed from the public varies for each step, providing critical guidance as the definition of the project evolves. This assures the public is kept abreast as the project moves along the project development and implementation process and is instrumental in shaping key details and outcomes. The methodology describing this process is detailed on the associated process chart, and outlined below:

**Public Involvement**
Occurs throughout process via a variety of media and methods including:

- Newsletters
- Project Website
- Open Houses
- Facilitated Meetings
- Email Notification
- News Articles

**1. FORMULATION**

Potential transportation and capital projects may be initiated as the result of public requests, advocacy group recommendations, city department and city council actions. During project formulation, a project may be identified at a conceptual level and corresponding policy changes, if needed, are also developed. Ideally, project formulation occurs through a comprehensive or localized planning process, thereby relating potential projects to overarching goals, funding opportunities, and long term vision. The outcome of the project formulation stage is a "Long List" of potential projects, including preliminary project details and funding needs estimates. At this point, these project lists can be classified according to various market/policy criteria, such as:

- Street
- Transit
- Bicycle/Pedestrian
- Beautification
- Parks and Recreation
- Safety

Following the creation of this pool of potential projects, they then need to be evaluated and compared to determine the most beneficial and goal-oriented projects to advance forward into the project development process.

**2. SCREENING**

This step brings many factors together to identify more promising projects. In order to balance multiple interests and definitions of a "promising" project, the criteria are objective and derived from multiple sources. Examples of the evaluation and screening process include:

**Public Input -** The public re-affirms that this project meets stated goals. Public facilitation methods can reveal those projects that are most favored by the broadest constituency.

**Policy -** The screening seeks to use quantifiable measures of how well a certain project meets stated policy. For example, a policy stating that the city is committed to reduction of traffic congestion would result in a project being ranked on the basis of traffic reduction potential.

**Market -** The ability for projects to improve conditions in local areas where issues have been previously identified through the planning process, as well as focus on a disadvantaged or underrepresented population would lead to comparison with other projects and thus rank those which have the best potential to meet these needs and serve their target market.

**Constraints -** Projects must be realistically practical, and this screening mechanisms takes into account cost factors, constructability, and other measures which capture the limitations on the resources of the city.

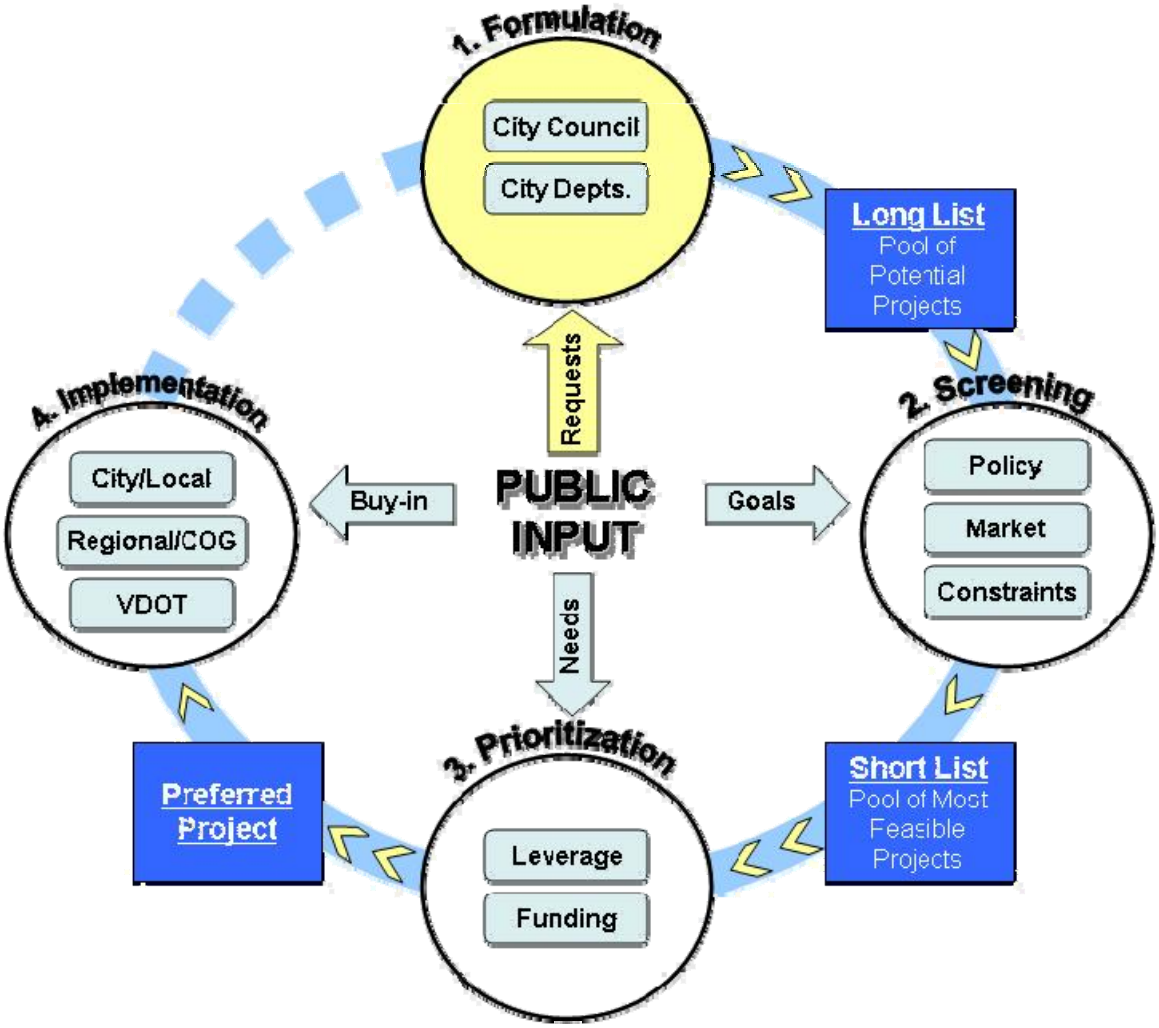
# Implementation & Plan Process

### 3. PRIORITIZATION

This step establishes among the feasible projects a logical sequence of development. The sequence is determined by reaffirming the most pressing needs of the public and accounting for those projects that might provide the biggest benefit based on overall cost. At this point, there may also be unique opportunities, such as a grant awarded to the city, that may dictate an eligible project be prioritized to take advantage of the available funds. The result of this step is a preferred project, one that meets public desires, funding eligibility requirements, and is best integrated with existing facilities or future planning initiatives. For projects seeking federal funding support, it is often a requirement prior to award of funding to demonstrate the completion of this step.

### 4. IMPLEMENTATION

The final step in this process is finalizing the project delivery mechanism. This includes entering the project into local, regional, and state processes. Here, funds will be programmed, contracts awarded and construction oversight conducted. Additionally, final public and elected official buy-in on the associated costs, impacts, and benefits of the project is essential to generate momentum and commitment to champion the project and achieve a timely completion.

### THE PROCESS IS CONTINUAL

The process doesn't conclude here, as projects that are implemented often derive other new projects, thus beginning the process anew. Also, any projects that did not advance past previous stages could eventually be modified or reconsidered in light of any changes in policy. In this sense, the project implementation process is constantly evolving and continual.