



ARLINGTON COUNTY, VIRGINIA

**County Board Agenda Item
Meeting of
April 16, 2011**

DATE: April 1, 2011

SUBJECT: Approval of Award of Agreement No. 375-10 between the Arlington County Board and URS Corporation and authorization of funds to conduct alternatives analysis, environmental planning, and conceptual engineering for the Route 1 Corridor Streetcar Project and approval of Project Coordination Agreement between the County Board of Arlington and the City Council of Alexandria, Virginia.

C. M. RECOMMENDATIONS:

1. Approve the Award of Agreement No. 375-10 between the Arlington County Board and URS Corporation to conduct alternatives analysis, environmental planning, and conceptual engineering for the Route 1 Corridor Streetcar Project for a total contract amount of \$3,240,000.
2. Authorize an allocation of \$324,000 as a contingency, for a total project authorization of \$3,564,000 with the County's share of the contract and contingency being \$1,782,000, and the City of Alexandria's share being \$1,782,000.
3. Authorize the Purchasing Agent to execute the contract documents for Agreement No. 375-10, subject to legal review by the County Attorney.
4. Approve the Project Coordination Agreement between the County Board of Arlington and the City Council of Alexandria, Virginia, in the form attached as Attachment A, and authorize the County Manager to execute the agreement on behalf of the County Board.

ISSUES: This project is a joint effort between Arlington County and the City of Alexandria. Coordination with the City of Alexandria is essential to creating a seamless transit service with logical and useful termini. A project coordination agreement will guide this coordination process.

Streetcar projects are capital intensive. Therefore, it is important to retain the ability to apply for Federal funding to support the substantial construction cost of the streetcar line.

County Manager:

County Attorney:

23.

Staff: Matthew Huston, DES, Transportation, Transit Bureau

SUMMARY: Arlington County staff requests the award of Agreement No. 375-10 for planning and engineering services for the Route 1 Corridor Streetcar Project and to enter into a Project Coordination Agreement with the City of Alexandria to jointly carry out the project. URS Corporation has submitted a cost proposal of \$3,240,000 to conduct alternatives analysis, environmental planning, and conceptual engineering. County staff recommends a contingency amount of \$324,000 for a total authorized funding of \$3,564,000. This cost would be borne 50 percent by Arlington County and 50 percent by the City of Alexandria.

BACKGROUND: The Route 1 Corridor Streetcar Project is part of the County's approved FY 2011-2016 CIP. The project calls for the implementation of a 2.5-mile long streetcar line with station stops beginning near the Pentagon City Metrorail Station through Crystal City to the Arlington County Line at Four Mile Run. The City of Alexandria proposes a continuation of the streetcar line to the Braddock Road Metrorail Station in Alexandria. The streetcar line will connect to the proposed Columbia Pike Streetcar line in Pentagon City.

The first steps in the implementation of the streetcar project are to examine alignment alternatives, carry out environmental studies, conduct conceptual engineering, and estimate construction and operation costs.

Request for Proposals number 375-10 for planning and engineering services was advertised on September 3, 2010. Five (5) proposals were received on November 1, 2010, from the following firms: HDR Engineering, Inc.; Kimley-Horn and Associates, Inc.; Rummel, Klepper & Kahl, LLP; STV Incorporated; and URS Corporation. A selection panel of diverse staff from Arlington County and the City of Alexandria reviewed the proposals in detail and invited three (3) offerors to make oral presentations. As a result of the oral presentations, the selection panel unanimously determined URS Corporation was the top rated firm. The County and City entered scope and fee negotiations with URS Corporation.

DISCUSSION: The proposed streetcar project is the next step in the transit improvement strategy for the Route 1 corridor in Arlington and Alexandria. The project would convert the interim bus transitway to streetcar operation, or potentially a mix of buses and streetcars. The bus transitway infrastructure, particularly station stops, would be reused to the greatest extent possible by the streetcar project. The project would provide transit linkages throughout the Potomac Yard redevelopment area in Arlington and Alexandria as well as connect to the existing regional rail systems: Metrorail and Virginia Railway Express.

Streetcar projects require substantial capital investment. It is wise to preserve the ability to apply for Federal funding as one source of funding for the project. Federal participation requires complying with the National Environmental Policy Act (NEPA). The contract under consideration would produce an Environmental Assessment document, in conjunction with the Federal Transit Administration (FTA), to meet NEPA requirements.

This contract would also produce a finance plan that examines local, state, and Federal fund sources in the context of other major transit capital projects in the region. One outcome of the finance plan will be information to help the County, as well as the City, to decide whether to enter this project into the FTA New Starts program or other Federal and state funding programs.

This contract would advance conceptual engineering to the level required to support the environmental document and to develop a preliminary construction and operations cost estimate. Central to conceptual engineering will be to locate potential storage and maintenance facilities and traction power substations and to identify engineering constraints along the transit alignment.

As coordination with the City of Alexandria is essential, a Project Coordination Agreement has been drafted. This agreement describes the project scope, schedule, and budget, lays out how staff will coordinate in the management of the project, and sets up the cost sharing between the City and County for the consultant contract. Amendments to the scope of work can only be made in writing by the project managers from both jurisdictions, and amendments to the project budget can only be made by the County Board and the City Council. The Council and Board agree to appoint two members each to a Policy Committee to give overall direction to the project.

FISCAL IMPACT: The funding authorized for Arlington's share of this contract will be paid with funds from two sources as identified in the FY11-16 CIP. The first source is the Transportation Capital Fund from commercial tax revenue (331.47001.CC04) in the amount of \$1,201,600. The second source is an awarded State Capital Reimbursement Grant for \$530,000. Staff will apply for an additional State Capital Reimbursement Grant in January 2012 for an estimated \$50,400. The work performed under this contract will last approximately two years. At a future meeting of the County Board, County staff will seek funding approval to cover preliminary engineering, final design, and construction costs for the Route 1 Corridor Streetcar.

There is sufficient funding in the Transportation Capital Fund for County staff project management and administration time, estimated to cost \$240,000.

ROUTE 1 CORRIDOR STREETCAR COORDINATION AGREEMENT

THIS PROJECT COORDINATION AGREEMENT (the “**Agreement**”) is made this _____ day of _____, 2011, by and between the **COUNTY BOARD OF ARLINGTON (“Arlington County” or “Arlington County Board”)**, a body corporate and politic and a subdivision of the Commonwealth of Virginia and the **CITY COUNCIL OF ALEXANDRIA, VIRIGINA (“City of Alexandria” or “Alexandria City Council”)**, a body corporate and politic and a subdivision of the Commonwealth of Virginia. Arlington County and the City of Alexandria are referred to herein individually as a “**Party**” and collectively as the “**Parties**”.

RECITALS

WHEREAS, Jefferson Davis Highway (U.S. Route 1) running between Pentagon City and the Braddock Road Metrorail Station area is a busy thoroughfare running north and south through Arlington County and the City of Alexandria (“Route 1 Corridor”); and

WHEREAS, Arlington County has adopted a Crystal City Sector Plan update (2010) and amendments to the General Land Use Plan (2010) to guide the redevelopment of Crystal City, as well as Pentagon City and Potomac Yard; and

WHEREAS, the City of Alexandria has adopted a Master Plan Amendment to include the Potomac Yard/Potomac Greens Small Area Plan and North Potomac Yard Small Area Plan (2010); and

WHEREAS, the Route 1 Corridor serves as a major transportation corridor in Northern Virginia and the Washington metropolitan region, with a variety of regional and local bus routes, Metrorail, Virginia Railway Express, and automobile traffic that connect major destinations such as Old Town in the City of Alexandria and Crystal City and Pentagon City in Arlington County; and

WHEREAS, the Parties, recognizing the existing and potential demand on the emerging transit market and the need for an enhanced surface transit system in the Route 1 Corridor), have completed the Crystal City/Potomac Yard Transit Alternatives Analysis dated March 2003, in conjunction with the Washington Metropolitan Area Transit Authority (WMATA) and the Virginia Department of Rail and Public Transportation (DRPT); and

WHEREAS, Arlington and Alexandria have completed a Crystal City/Potomac Yard Interim Improvement Strategy dated December, 2005, and are advancing bus improvements in the Route 1 Corridor; and

WHEREAS, the Parties now intend to complete the next phase of planning and design for transit improvements in the Route 1 Corridor, consisting of environmental planning and preliminary engineering to examine streetcar implementation; and

ATTACHMENT A

WHEREAS, the Parties have jointly developed a Scope of Work, Schedule and Budget for professional services to complete the environmental planning and preliminary design services for the streetcar in the Route 1 Corridor (“Project”).

NOW THEREFORE, in consideration of the above recitals and the terms and conditions hereinafter set forth the Parties hereby agree to the following:

1. PROJECT SCOPE and SCHEDULE

The Parties in conjunction with a prime consultant have jointly developed a Scope of Work (Project Scope) dated March 18, 2011, and Schedule dated March 30, 2011, for the Project, which are attached hereto and incorporated herein by reference as Attachment 1. The Parties agree that the Scope of Work and Schedule may only be amended by mutual written agreement signed by the Project Managers for each Party. Proposed changes in the Project Scope or Schedule that will incur additional costs beyond the adopted Project Budget may only be made with the prior approval of the Arlington County Board and the Alexandria City Council.

2. POLICY COMMITTEE

The Project Study will be guided on policy issues by a Policy Committee composed of two representatives each from the Arlington County Board and the Alexandria City Council appointed by the respective bodies. The Policy Committee will meet to approve the overall direction, goals and objectives of the Project, including recommended changes to the Project Scope and Schedule and Project Budget for approval by the Parties, to review any draft documents before presentation to any public body for action or to the public, and as otherwise determined necessary by the Parties.

3. TECHNICAL ADVISORY COMMITTEE

The Project Study will be advised on technical issues by a Technical Advisory Committee (TAC), and subcommittees thereof, which will be composed of representatives invited by the County and City Project Managers from appropriate City, County, State, and Federal Agencies, including the lead agency, or joint lead agency, and any participating or cooperating agency as those terms are defined under NEPA. The TAC will serve as a means to coordinate communication and review functions among the Parties, Federal, and State participating and cooperating agencies. The TAC will meet regularly as determined necessary by the Parties to advance the Project.

4. PROJECT BUDGET

The Parties have jointly developed a budget dated March 30, 2011 (Project Budget) for completion of the Project Scope, a summary of which Project Budget is attached hereto and incorporated herein as Attachment 2. The Parties agree that the Project Scope comprises tasks that are common to completion of the Project in both jurisdictions, called “Common Tasks”. Should the Project Scope be amended to include tasks that primarily serve one Party, these tasks would be called “Primary Tasks”. As to Common Tasks within the Scope of Work, the Parties agree that the costs of the Project Budget are to be divided on the following basis: Arlington County will be responsible for Fifty percent (50%) and the City of Alexandria will be responsible for Fifty percent (50%). The proportional payment of each Party for Primary Tasks will be set by mutual agreement of the Parties on a case by case basis.

5. PROJECT MANAGEMENT

The Parties agree to coordinate the management and execution of the Project, and to serve jointly as the Project Sponsors for the purposes of the environmental documentation as that term is defined under the National Environmental Policy Act (NEPA), until such time as the Parties agree on a different sponsorship. The Parties further agree to pursue completion of the Project in a diligent manner, to identify and coordinate the involvement of “participating local agencies”, to provide information and to make decisions in a timely manner, and to reach decisions on the basis of consensus. Each Party shall appoint a Project Manager, who will together serve as a Project Management Team in conjunction with the consultant project manager. The Project Management Team will meet regularly as determined necessary by the Parties to advance the Project.

The Parties agree that the costs of particular tasks within the Project Budget may be adjusted upon mutual written agreement of the Project Managers, only if such modifications do not increase the cost of the Project Budget beyond the amounts previously approved by each Party for the jurisdiction. Any increase in the Project Budget will require the approval of the Arlington County Board and the Alexandria City Council.

6. CONSULTANT AGREEMENT

Arlington County and the City of Alexandria have worked jointly to select a prime consultant to assist with the Project and have agreed on the scope of consultant services and the contract budget. The contract for consultant services shall be between the Arlington County Board and the consultant contractor (Consultant). The Consultant will submit invoices to Arlington County for payment on a time and materials basis. Upon approval by both the City and County Project Managers, Arlington County shall pay the Consultant invoices. Arlington County in turn shall submit invoices to the City of Alexandria for its proportionate cost as set forth herein, or as agreed for Primary Tasks. Invoices shall be accompanied by necessary documentation showing confirmation of payment to the Consultant by Arlington County. Only Consultant costs are eligible for reimbursement under this Section. Consultant costs submitted by Arlington County to the City of Alexandria shall include a one-half percent (0.5%) administrative charge to cover Arlington County’s costs of contract administration.

7. GENERAL

- A. Incorporation of the Recitals. The recitals set forth above are incorporated herein by this reference to the same extent and with the same force and effect as if fully hereinafter set forth.
- B. Authority. Each Party to this Agreement represents and warrants to the other Party that it has the full and unrestricted lawful power and authority to enter into and carry out the terms of this Agreement and the execution, delivery and performance of this Agreement.
- C. Applicable Law. This Agreement, and the rights and obligations of the Parties under this Agreement, shall be governed by the laws of the Commonwealth of Virginia without regard to principles of conflicts of laws.

ATTACHMENT A

- D. Amendments; Waivers. Amendments, modifications, or supplements to this Agreement shall be in writing, signed by all Parties. Waivers under this Agreement shall be in writing, signed by the Party to be charged with the waiver. In the absence of a signed waiver, no act, or failure to act by any Party shall constitute or be construed as an estoppel or waiver with respect to that Party's rights.
- E. Severability. Each provision of this Agreement is intended to be severable. If any term or provision of this Agreement shall be determined by a court of competent jurisdiction to be illegal or invalid for any reason whatsoever, such provision shall be severed from the Agreement and shall not affect the validity of the remainder of this Agreement, unless to do so would cause this Agreement to fail of its essential purposes.
- F. Relationship of the Parties. This Agreement does not create any partnership, joint venture agency or other similar relationship among the Parties, but is merely a means to perform certain tasks benefitting the Parties.
- G. Binding Effect. This Agreement shall be binding upon and inure to the benefit of the Parties, and their successors and assigns.
- H. No Third Party Beneficiary. Nothing contained in this Agreement shall be deemed to create rights or obligations accruing to the benefit of, or enforceable by, any entity or person not a party to this Agreement, including, without limitation, any contractors, subcontractors or other parties providing labor, services, or materials in connection with the Project.
- I. Reasonable Approval Standard. Except as otherwise specifically provided in this Agreement, where any Party's approval is required under this Agreement, such approval shall be in writing. The Parties agree and understand that the Project Managers are hereby authorized to approve actions within the approved Project Scope and Schedule and Project Budget. Any change to the Project Budget beyond the amounts previously approved by each County will require authorization from the Arlington County Board and the Alexandria City Council.
- J. Entire Agreement; Amendment. This Agreement and its attachments, contain the entire agreement between the Parties with respect to the subject hereof, and all other prior communications and agreements, whether written or oral, are superseded hereby. This Agreement may be amended or modified only by an instrument in writing executed by the Parties.
- K. Dispute Resolution. Any dispute arising under this Agreement may be disposed of by written agreement between the Parties. If such a dispute cannot be resolved by the Parties within ten (10) business days, then the disputing party may, but shall not be required to, request that such dispute be considered and resolved by a mediator(s) mutually agreed upon by the Parties. If the Parties agree to resolve the dispute by mediation, then the mediator(s) shall provide a written recommendation to resolve the dispute. The Parties agree to make a good faith effort to accept such a recommendation.

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Nothing herein is intended to limit the rights of either of the Parties to resolve disputes through any other means not described or provided for in this Agreement.

- L. Monetary Obligations Limited To Appropriated Encumbered Funds. Notwithstanding any other provision of this Agreement to the contrary, as to either Party, any monetary obligations arising under this Agreement are further strictly limited and subject to the amount of funds approved and appropriated by the Arlington County Board and the Alexandria City Council. The Parties shall not otherwise be liable under this Agreement to commit to or to expend or to incur liability for any expenditure of funds or payment of money in excess of the amount so approved and appropriated for this Agreement by the Arlington County Board and the Alexandria City Council. There shall not be any recourse against either Party or the Route 1 Corridor Streetcar project funds for any such expenditure, commitment to expend funds, or payment thereof, which has not been so approved and appropriated.
- M. Personal Liability. Nothing in this Agreement shall be construed as creating any personal liability on the part of any officer, employee, or agent of the parties, nor shall it be construed as giving any rights or benefits to anyone other than the Parties hereto.
- N. No Waiver of Sovereign Immunity. Nothing in this Agreement shall be construed as a waiver of the Parties' sovereign immunity.
- O. Termination. This Agreement may be terminated by either party upon sixty (60) days advance written notice. Upon termination, both Parties shall retain ownership of plans, specifications and project materials produced as of the date of termination, as applicable under law, unless otherwise mutually agreed upon in writing.
- P. Headings. Headings are intended only as a matter of convenience and for reference and in no way define, limit, or describe the scope or intent of this Agreement.
- Q. Notices. Any notice or communication required under this Agreement shall be effective upon receipt and shall be sent by personal delivery or by overnight air courier service with evidence of receipt to the following:

If to Arlington County,
Dennis Leach, Director
Division of Transportation
Department of Environmental Services
2100 Clarendon Blvd., Suite 900
Arlington, VA 22201

With copies to:
Stephen A. MacIsaac, County Attorney
2100 Clarendon Blvd. Ste 403
Arlington, Virginia 22201

If to City of Alexandria,
Richard Baier, Director

ATTACHMENT A

Department of Transportation and Environmental Services
301 King Street, Room 4100
Alexandria, Virginia 22314

With copies to:
James L. Banks, City Attorney
301 King Street, Room 1300
Alexandria, Virginia 22314

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed under seal as of the date first above written.

**COUNTY BOARD OF
ARLINGTON COUNTY, VIRGINIA**

**CITY COUNCIL OF
ALEXANDRIA, VIRGINIA**

By: _____
Name: Barbara Donnellan
Title: County Manager

By: _____
Name: James Hartmann
Title: City Manager

Route 1 Corridor Streetcar Project

Revised Draft Scope – URS Corporation

March 18, 2011

SCOPE OF SERVICES

Arlington County and the City of Alexandria (“project sponsors”) seek consultant assistance in the tasks as described below. All work shall be completed to Arlington County, City of Alexandria, Virginia Department of Transportation (VDOT), or other Federal standards as identified, depending on the Scope of Work.

The following tasks are anticipated elements in this scope of work:

Task 1: Project Management Plan

Task 2: Agency Coordination

Task 3: Public Participation

Task 4: New Starts/Small Starts Project Initiation and Potential Alternatives Analysis

Task 5: Assessment of Potential Effects

Task 6: Financial Plan

Task 7: Preliminary Engineering in support of NEPA

It is anticipated that the alternatives analysis, environmental assessment, financial planning, and preliminary engineering (the “Study”) will be conducted simultaneously to the greatest extent possible.

The project sponsors retain the option to negotiate additional services under this contract, including but not limited to preliminary engineering, final design, construction bid documents, and construction phase services.

Arlington County is partnering with the City of Alexandria to complete this work. Arlington County will be the contracting agency.

The consultant Scope of Services is predicated on the assumption that the City and County will provide the following:

- Georeferenced digital orthophotography covering the entire corridor
- GIS data for property boundaries, topographic features, buildings and utilities
- Existing topographical mapping for approximately 2/3 of the corridor study area
- Existing utility location mapping for approximately 2/3 of the corridor study area
- Assistance in defining and limiting alignment options in Segment A to two alternatives
- Assistance in defining and limiting alignment options through and around Potomac Yards to two alternatives
- Assistance in defining and limiting alignment options in Segments E and F to two alternatives
- A detailed bus operating plan for the bus transitway which will require minimal modification for use as the streetcar transit operating plan

- As-built plans for structures in the corridor including the Monroe Avenue Bridge and the structural evaluation of the railroad bridge over 4-Mile Run
- Standard prototypical station designs
- Traffic counts at approximately 30 study area intersections suitable for use in the transportation impact analysis
- All previous environmental studies of the project corridor including NEPA review and environmental site assessments.

Study Area Limits

The study area is contained within Arlington County and the City of Alexandria. The geographic limits of the study area are:

- Interstate 395 to the north
- George Washington Memorial Parkway and Washington Street to the east
- Braddock Road to the south
- CSX Railroad, Mount Vernon Avenue, and South Arlington Ridge Road to the west

Task 1: Project Management Plan

The Consultant shall appoint a project manager who will be the primary point of contact with the County's and City's project management team. The Consultant project manager will be responsible for the following deliverables, which include but are not limited to:

1. Final scope and cost estimate
2. Project work plan and staffing plan
3. Monthly progress reports and invoices
4. Quality control reviews
5. Coordination with the project management team and maintaining action list

Task 2: Agency Coordination

To facilitate agency coordination, three groups of stakeholders have been identified:

1. A Technical Working Group made up of a broad range of agency staff,
2. a Community Coordination Group made up of engaged citizens, and
3. a Policy Advisory Committee made up of local and state elected and appointed officials.

The City and County will establish the membership of these groups. The Consultant shall participate in regular coordination meetings with each group. We anticipate monthly meetings with the Technical Working Group (anticipate 15 to 20 members) and quarterly meetings with the Community Coordination Group (anticipate 15 to 20 members+ Tech committee participation) and the Policy Advisory Committee (anticipate 8 to 10 members + Tech committee participation).

Anticipated deliverables include, but are not limited to:

1. Meeting logistics
2. Meeting schedules and notices.
3. Attendance and presentations at meetings
4. Meeting summaries and briefing materials for each meeting

Task 3: Public Participation

The Study shall be conducted in a collaborative atmosphere, with public participation integrated into the process of technical evaluation. Timely updates and clear communications with citizens, businesses, developers, and state, federal, and local elected officials are keys to public participation.

The Consultant shall prepare materials needed for public and community meetings. These materials include but are not limited to invitation mailings, meeting notes, presentation slides, briefing materials, and visual aids such as maps and display boards.

Mailing List

The Consultant shall create and maintain a mailing list of Project stakeholders and interested members of the public. The mailing list will be built upon mailing lists from prior studies in the corridor. The Consultant shall mail an initial notice about the project to stakeholders and shall mail notices of all public meetings. The mailing list is expected to include up to 5,000 names.

Web Site

At the beginning of the Study process, the Consultant shall design a Project web site with current project information, including a project timeline and public meeting schedules. The Consultant shall host and maintain the web site throughout the Study with regular updates to the status of the Study, upcoming events, and summaries of findings and reports. Public comment and feedback shall be facilitated via the web site and shall be tracked, reviewed, and documented.

Public Meetings

The Consultant shall conduct five public meetings or hearings to inform the public, jurisdictions, and resource agencies about the Route 1 Corridor Streetcar Project and to solicit their input. Each meeting will be conducted twice; once in Alexandria and once in Arlington with times offset to allow either afternoon or evening attendance. The Consultant, in cooperation with the City and County, will arrange for an appropriate public space for each meeting. The Consultant will be responsible for development of materials, boards, presentations, and a post-meeting summary report for each of the meetings. Public meetings are expected to be held as follows:

- Two public meetings during the Alternatives Analysis
- One public meeting on the Environmental Assessment
- Two public meetings during design development

Briefings

The Consultant shall participate in project briefings with local elected officials and other interest groups. The Consultant will assist in preparation for the meetings and facilitation of discussions at the meetings.

Social Media

The Consultant will monitor blogs that develop around the project. The Consultant shall advise and coordinate with the client before postings.

Newsletters

The Consultant will prepare four project newsletters. The newsletters will be prepared in draft form for client review and comment.

Anticipated deliverables include, but are not limited to:

1. Mailing list and notice mailings for public meetings
2. Project web site, with regular updates
3. Scheduling of meeting dates and locations
4. Legal notice of hearings and their placement in newspapers of mass circulation
5. Presentations in PowerPoint and briefing materials for public meetings and local briefings
6. Summary Report of public meetings and project briefings
7. Detailed Report of public hearings, including responses to each verbatim comment in the public hearing record.

Task 4: New Starts/Small Starts Project Initiation and Potential Alternatives Analysis

4.1 New Starts/Small Starts Project Initiation

The Consultant shall assist the project sponsors in identifying the requirements for entry into the Federal Transit Administration's New Starts/Small Starts program and other existing or anticipated Federal and State funding programs. The Consultant shall advise the sponsors as they evaluate the extent to which the Streetcar Project would be eligible for the New Starts/Small Starts program and decide which Federal funding programs it wishes to pursue. The Consultant shall advise the project sponsors of the implications of pursuing different funding programs. This work will need to be coordinated with Task 6: Financial Plan.

The Consultant will prepare an illustrative schedule for project implementation under two scenarios: a scenario in which the County and/or City would apply for FTA Small Starts funds, and a scenario in which the project is funded with only local funds.

The Consultant will prepare a preliminary capital cost estimate of the project to conservatively estimate the project costs that are likely to be incurred by both Alexandria and Arlington. The Consultant will work with Alexandria and Arlington staff to develop an initial set of alignment and design assumptions to use for this preliminary cost estimate.

The Consultant will also conduct a high-level financial feasibility analysis for the project, using existing information from Arlington and Alexandria. The purpose of this analysis will be to determine whether the project can be funded with state and local funds, or whether the financial feasibility is dependent upon the receipt of New Starts/Small Starts funding. This work will utilize existing revenue forecasts for local funds and preliminary capital cost estimates. The Consultant will also evaluate the impacts of capital cost escalation on the Project under each funding scenario. The Consultant will review and confirm financial assumptions

with the County's Office of Management and Budget Services, and the City of Alexandria City Manager's office.

The results of the financial feasibility analysis will be incorporated into a draft technical memo that will be presented to the City and County representatives. This report will include the illustrative schedules under each scenario, and discussion of the risks and uncertainties associated with the Federal funding process. Based on review and input from the County and City staff, this memo will also outline a recommended course of action for pursuing Federal funds. The Consultant shall advise the project sponsors as to the type and scope of Alternatives Analysis that could be pursued.

A more detailed financial plan and project implementation plan will be developed in Task 6: Financial Plan. This work will be utilized to scope out the level of analysis required regarding the Alternatives Analysis process. Depending on the results of this subtask work, the project sponsors may exercise optional Subtask 4.2, Alternatives Analysis.

4.2 Alternatives Analysis (optional subtask)

If this subtask option is exercised, the Consultant shall conduct an Alternatives Analysis that meets the requirements for entry into the Federal Transit Administration's New Starts/Small Starts program. The process will follow FTA's framework for alternatives analysis.

The Public Participation process (Task 3) shall be applied at each step of the Alternatives Analysis.

4.2.1 Needs assessment and Alternatives Analysis Initiation Package

The Consultant shall develop a Problem Statement that will serve as a precursor to the Purpose and Need Statement (Subtask 5.2). The Problem Statement shall describe the existing and anticipated future land development and transportation conditions and shall explain the need for transportation system improvements. The Consultant will prepare an Alternatives Analysis (AA) Initiation Package. The purpose of the document is to provide information to the public regarding the AA process and also to act as a vehicle for coordination with the FTA. The AA Initiation Package will:

- Inform participants of the context of the study and its initial status,
- identify the transportation issues that motivate the study,
- describe the evaluation factors that will be used to compare alternatives, and
- identify the preliminary alternatives being considered for more detailed study.

4.2.2 Screening process and criteria

The Consultant shall devise a screening process to be used to arrive at a recommended Locally Preferred Alternative. This process shall identify the different levels of screening that may be applied and the criteria to be used at each level of screening. The technical methods for evaluation shall also be defined in this subtask.

4.2.3 Definition of alternatives

The Consultant shall assist the City and County staff and public in identifying a full range of reasonable alternatives to be considered in this Study. The first level of screening shall also be applied in this subtask. The alternatives carried forward for additional analysis shall be further defined in enough detail that the evaluation can be conducted. It is anticipated the FTA will play a role in determining the alternatives that are carried forward. It is anticipated that the alternatives will consist of a No-build/Baseline that includes a bus transitway and a streetcar build alternative with a limited number of streetcar alignment options as defined in Task 7.1.1.

4.2.4 Evaluation of alternatives

The Consultant shall conduct the technical analyses of the remaining alternatives, as described in the screening process developed earlier. As part of the evaluation, the alternatives shall be further refined.

4.2.5 Documentation and Locally Preferred Alternative

The Consultant shall prepare a final alternatives analysis study report summarizing and interpreting the results of the previous steps in the AA. The Consultant, in conjunction with City and County staff, FTA, and the public, shall recommend a technically preferred alternative. The Consultant shall assist City and County staff in presenting the recommended alternative to the Arlington County Board and the Alexandria City Council for consideration and adoption as the Locally Preferred Alternative.

Anticipated deliverables include, but are not limited to:

1. AA Initiation Package documenting Purpose and Need, Evaluation Methodology and Alternatives.
2. Technical Memorandum documenting evaluation criteria and methodologies including:
 - a. Ridership forecasting
 - b. Environmental concerns and potential mitigation
3. Final AA study report with the recommended preferred alternative.

Task 5: Assessment of Potential Effects

The NEPA process and documentation shall comply with the federal, state, and local requirements. The Consultant shall be familiar with these requirements and provide advice to City and County staff to ensure compliance with these requirements. One of the key requirements for this project is the Virginia State Environmental Review Process (SERP).

This scope assumes that the NEPA Class of Action will be an Environmental Assessment (EA). The Consultant shall assist the City and County in working with the FTA to make a probable class of action determination.

The EA will evaluate potential transportation, socio-economic, and environmental effects, and it shall be a concise effort focused directly on issues concerning the public, FTA, the state, and local jurisdictions. Issues identified shall be specific to this corridor and to the proposed transit infrastructure improvements.

The EA will analyze effects that could occur during the construction period and longer-term impacts resulting from dedicated rights-of-way, and will identify mitigation measures to alleviate potential impacts, as appropriate.

It is assumed that the EA will rely on technical information developed in support of the 2007 Categorical Exclusion for segments D and E, the 2010 update to the CE for Segments D and E, and the 2010 CE for Segment B.

5.1 Virginia DOT State Environmental Review Process (SERP)

It is our understanding that VDOT does not engage SERP on projects that involve federal funding. SERP is now limited to VDOT projects that are 100% state funded with an estimated capital cost exceeding \$500,000. For transit projects that include state funding and require shared VDOT resources, such as ROW, VDOT wants to participate in an advisory role in the determination of the class of NEPA action. VDOT would like concurrence on the class of action decision with FTA. The Consultant shall assist in coordination activities as they relate to the SERP process.

5.2 Purpose and Need Statement

The Consultant shall prepare the Purpose and Need Statement that lays out the premise for the No Action and Proposed Action Alternatives to be evaluated. It is assumed that the main elements of the Purpose and Need have been written during previous studies of transit improvements in the Route 1 corridor.

The anticipated deliverable includes, but is not limited to a Purpose and Need Chapter for the EA.

5.3 NEPA Baseline Conditions

The Consultant shall establish the base year conditions and identify data requirements for baseline analysis. The Consultant shall develop quantitative and

qualitative methodologies to compare baseline conditions with the potential effects resulting from the Proposed Action Alternatives.

The anticipated deliverable includes, but is not limited to NEPA Baseline conditions memorandum

5.4 Definition of NEPA Alternatives and Design Options

The Consultant, in cooperation with City and County staff, will define the NEPA alternatives to be studied. The Build Alternative is assumed to be the streetcar operation along the alignment described in Project Alignment section above. During this task the Consultant will work with City and County staff to define design options to be considered in the EA including alignment, terminus locations, stop locations, operations plans, storage and maintenance facility locations, etc. The No-build/Baseline Alternative is expected to contain the bus transitway and be consistent with that defined for the AA.

The anticipated deliverable includes, but is not limited to an EA chapter on the definition of alternatives.

5.5 Analysis of Transportation Effects

The consultant team will develop a VISSIM simulation of the proposed transit system improvements along the corridor. This simulation will be a conceptual analysis and will focus on the transit operations, traffic, and transportation effects along the corridor. This analysis will be based on the data collection and modeled scenarios developed as part of earlier related projects. The scope assumes that simulations will be prepared for five (5) scenarios, including: No Action/Baseline conditions for the base year, and 2035; and Build conditions for 2035. The VISSIM modeling process to be conducted by the Consultant is outlined below:

5.5.1 Data Collection

- Identify roads/intersections to be included in the analysis – it is estimated that the study area will include approximately 63 intersections and 5 interchanges.
- Traffic counts – It is assumed that existing counts are available at approximately half of the intersections to be analyzed. Intersection count data will be gathered via peak period manual counts (6-9AM and 3-6PM). Interchange ramp data will be gathered via tube counters (48 hours).
- Traffic Signal Information – It is assumed that characteristics of existing traffic signals will be provided by city and county staff
- Lane Configuration – URS will identify intersection approach lane configurations based on aerial photography and field verification. It is assumed that city and county staff will provide lane configuration for any proposed changes to the street system.
- Travel Time Runs - Existing travel time will be sampled along US 1 and along the streetcar route. Travel time runs will be performed 2 days for each route, AM peak period and for PM peak period.

- Transit Routes and Stations – It is assumed that existing transit operations data will be provided by city and county staff.
- Pedestrian and bicycle facilities – The Consultant will work with the County and City to identify existing and planned pedestrian and bicycle facilities.

5.5.2 Traffic Volume Development

The Consultant will develop a ridership travel demand model that accounts for anticipated Streetcar ridership and adjacent network effects for the no-build and build condition in accordance with best practice and FTA standards. The ridership forecasting task will:

- Provide the streetcar ridership estimates and regional travel characteristics to support the New Starts project development process
- Provide the future traffic forecasts to be used in the VISSIM modeling

The overall approach to modeling each market will be based on using the existing MWCOG regional model recently calibrated for use on the Purple Line in tandem with applying models developed specifically for corridor circulators/distributors in other urban areas, notably Los Angeles, Miami, Chicago and Detroit.

The regional model will be used to establish the basic demand for trips traveling from and to the corridor and through the corridor for workers and non-work trips. New models may be applied to estimate parking location and mode choice between parking location and the final destination, and mid-day trips for workers and non-workers within the corridor (internal circulation model). Estimates of major activity trips to corridor attractions and visitor trips will also be developed with new model specifications.

All models will be calibrated to local conditions for the region based on observed traffic counts, transit on-board survey data and parking and visitor attraction data. Discussions with FTA about the specialized markets within the corridor and applicability of these models to the project evaluation will be determined after a review of available data.

The subtasks and specific assumptions associated with Ridership forecasts include the following:

- a) Traffic Analysis Zone Definition** - review of access/egress coding, incorporation of Round 8 land use data into MWCOG model for future scenarios(not base year)
- b) Travel Market Data Collection** - parking inventory, hotel rooms, visitor locations, shopping malls and major employment locations
- c) Special Market Model Development** - individual travel models will be developed that may include a parking lot choice, internal corridor circulator model and visitor model
- d) Project Forecast** - review networks, produce ridership statistics and create user benefit results. The assumption is that forecasts will be developed for

2005, no-build 2020, 2035 and build 2020 and 2035. It is also assumed that the Purple Line and CCT will be included in the 2035 networks so limited MWCOG network changes are needed.

- e) **Document Uncertainties** – sensitivity testing of the land use and development scenarios that might affect ridership
- f) **FTA Coordination** - meetings with FTA to assure “acceptance” of the travel markets and the calibration/validation of the models
- g) **Network Editing Assumption** - The Consultant team’s DBE, Gallop Corporation, will provide the network edits required by route changes in the baseline and build alternatives under the various baseline, interim and horizon years.
- h) **Develop Balanced Travel Forecasts** – forecasts for 2035, Build and No Build VISSIM model runs

5.5.3 Simulation Modeling

The Consultant will develop and calibrate a VISSIM model of the study area to represent existing traffic operations. Using this existing model as a base, the Consultant will create a future no-build model incorporating planned and programmed roadway system improvements, planned changes to transit operations and future forecast traffic volumes for 2035. A Synchro model will be developed for future conditions and used to develop traffic signal timings for use in the VISSIM model. The future build network will be developed to incorporate the planned streetcar operations and any associated changes to the bus transit system. VISSIM model runs will be prepared for the base year, No-Build in 2035, and Build conditions for 2035.

5.5.4 Traffic Analysis

The Consultant will use the VISSIM model runs to assess transportation operations with and without the proposed project. Modeling results will be extracted and tabulated. Measures of Effectiveness (MOE’s) for both traffic and transit operations will be compiled and compared. An assessment will be made of project impacts on the transportation system including project effects on vehicular traffic, pedestrian and bicycle movements and transit operations.

5.5.5 Mitigation Concepts

The Consultant will identify and analyze alternative mitigation measures to address forecast impacts to the transportation system. Mitigation measures could take the form of roadway improvements, changes in signal timing or phasing, changes to transit operations, streetscape design and others.

5.5.6 Documentation of Transportation Impacts

The Consultant will prepare a Technical Memorandum documenting the transportation impact assessment methodology and results. The Tech Memo will comprehensively document all input data and assumptions as well as output information supporting the impact analysis and mitigation recommendations. The Technical Memorandum will be summarized for inclusion in the project EA.

Deliverable: Transportation Technical Memorandum and EA chapter on transportation effects.

5.6 Analysis of Social and Economic Effects

The socio-economic analysis will target potential community impacts and property acquisition. The Consultant shall conduct an in-depth analysis of the socio-economic characteristics of employees and residents in the corridor and identify low income households and minority populations who would be most vulnerable to potential adverse changes. The Consultant shall determine potential impacts and benefits to community facilities, such as libraries, hospitals, and schools, and evaluate the potential for the proposed action to disrupt the community. The Consultant will conduct an analysis of any displacements associated with property acquisition in connection with the transit alignment, stops, or facilities. The EA chapter on socio-economic effects will document potential impacts in the following subject areas:

- Land use and development
- Acquisitions and displacements
- Neighborhoods
- Environmental Justice
- Community facilities
- Infrastructure and public services

The anticipated deliverable includes, but is not limited to EA chapter on socio-economic effects.

5.7 Analysis of Environmental Effects

The environmental analysis shall highlight issues of concern in the corridor as listed below:

1. The Consultant shall coordinate with local governments, the Virginia Department of Historic Resources (VDHR) and other concerned agencies to determine direct and indirect impacts on cultural and historic resources. URS will undertake research on historic above-ground resources and archaeological sites, focusing in particular on any resources identified since the 2006-2007 technical studies. Project work will also include definition of Areas of Potential Effects (APEs) for archaeological resources and historic above-ground resources. Work will also summarize previous efforts to identify and evaluate historic properties. Initial and formal consultation with the Virginia Department of Historic Resources (State Historic Preservation Office) will also take place under this work item.
2. The Consultant shall coordinate with local jurisdictions and the Virginia state departments managing natural resources to assess potential impacts and develop mitigation plans, should such impacts exist. The Consultant shall conduct a Section 4(f) evaluation and prepare documentation,

- including: 1) development of draft 4(f) evaluation; 2) identification of measures to minimize harm; and 3) development of final 4(f) evaluation.
3. The Consultant shall make an inquiry to the U.S. Fish and Wildlife Service (USFWS) about the presence of threatened or endangered species or habitats in the corridor. The Consultant will evaluate potential project impacts on threatened or endangered species or habitats in the corridor.
 4. The Consultant shall develop and submit a request for a Coastal Zone Management Act Consistency determination through the Virginia Department of Environmental Quality (DEQ).
 5. The Consultant shall identify wetlands, floodplains, and waters of the US that will be impacted by the project. The Consultant shall assess impacts on water quality. The Consultant shall coordinate with the U.S. Army Corps of Engineers and DEQ to identify and assess potential effects on these resources. It is assumed that no wetland delineation or mitigation will be required.
 6. The Consultant shall conduct a Phase I Environmental Site Assessment (ESA) for proposed construction activities within the project limits. The Consultant shall focus on sites within ¼ mile of the studied alignment. It is assumed that the majority of the corridor has already been reviewed and analyzed for hazardous materials and that this task will primarily summarize existing information.
 7. The Consultant shall obtain air quality data from MWCOG and identify whether the corridor is in attainment/non-attainment with the National Ambient Air Quality Standards (NAAQS). The consultant shall review and document air quality data from previous environmental studies. This scope assumes that CO hotspot analysis, if required, will consider up to two intersections. The Consultant will document consistency with regional air quality conformity requirements. The Consultant will address construction related air quality.
 8. The Consultant shall conduct an FTA General Assessment for both noise and vibration in the corridor. The Consultant will conduct noise monitoring at up to 10 locations in the corridor to update baseline noise conditions. The Consultant will estimate future project related noise and compare existing and future noise levels to determine impacts. The Consultant will conduct vibration monitoring at two locations in the corridor and will use these measurements to verify the FTA vibration modeling methodology.
 9. The Consultant shall conduct an assessment of potential visual and aesthetic effects of the proposed design options, focusing on the potential use of an overhead contact system for the streetcar alternative. The Consultant will prepare up to four visualizations of the corridor to graphically illustrate potential visual impacts. The visual analysis will include assessment of the visual effects of project elements (e.g., overhead catenary, station design, new maintenance facility, etc.) on National Register of Historic Places-listed or eligible historic buildings and historic

districts (Pentagon, Parker-Gray Historic District and Town of Potomac Historic District).

10. The Consultant will assess the energy impacts of the project. This assessment is anticipated to compare relative operational energy of alternative modes. A comprehensive life cycle energy assessment is not expected to be required.
11. The consultant will document construction impacts of the project. The construction assessment will document the construction process and measures to be taken to minimize impacts during construction.

The anticipated deliverable includes, but is not limited to EA chapter on environmental effects. An Independent Technical memorandum will be prepared as appendices to the EA to address:

- Air Quality
- Noise and vibration
- Cultural resources
- Phase I Environmental Site Assessment

5.8 EA Development

The Consultant shall prepare a draft of the Environmental Assessment document and submit it to City and County staff for comments. Once review comments are incorporated the consultant will submit the document to FTA for their review and approval to release to the public. The Consultant will send a notice of availability to all affected local, state, and federal agencies and local newspapers. Upon receipt of written comments from the public, the Consultant will revise the EA document accordingly. If no significant impacts have been identified, then the Consultant will submit the revised document to FTA for recommendation of a Finding of No Significant Impacts (FONSI). Upon approval by FTA, a notice of availability of the FONSI shall be sent to affected local, state, and federal agencies.

Anticipated deliverables include, but are not limited to:

1. Draft EA report
2. FTA approved EA
3. Notice of Availability of the EA document
4. Draft FONSI/EA
5. Final FONSI/EA ready for signature

Task 6: Financial Plan

The Consultant will support the efforts of the City and County as they continue to refine the preliminary financial plan for the Streetcar Project. The funding sources and financing structures for the transit improvements are still undecided, and the potential private, local, regional, state, and federal funding sources will continue to evolve during this period. The Consultant will also advise the City and County on procurement strategies. Specific tasks are outlined below. On an ongoing basis, the Consultant will monitor ongoing development of the FTA Small Starts

program, the Urban Circulator program, other Federal discretionary and formula sources, and the Virginia state grant process and assist the County and City in preparing a Small Starts application and a Virginia grant application.

6.1: Project Funding Case Studies

The Consultant will prepare a presentation that summarizes the financial and implementation strategies of 6 to 8 comparable streetcar, BRT or rail projects. The case studies will highlight projects that utilized FTA Small Starts funding, as well as projects that are locally funded. The case studies will address the following:

- Procurement strategies used by similar projects
- Alternative financing approaches or funding sources
- Best practices in funding and implementation
- Risks and uncertainties

6.2: Procurement Strategies

The Consultant will review potential procurement strategies with the County and City for design, construction and operations. The Consultant will meet with County and City representatives to discuss the goals and objectives for project delivery, including cost and funding, risk profile, schedule implications, and institutional issues. The Consultant will prepare a technical memorandum that presents the pros and cons of up to 4 alternative strategies with a recommendation that maps back to the County's goals.

If more detailed analysis is needed, the Consultant will develop a scope of work for optional tasks, including support from procurement experts. Such work may include the development of draft procurement documents, or a review of the potential legal issues based on Virginia law.

6.3: Capital Finance Plan

The capital financial plan will be based on the capital cost estimates prepared in Task 5. The Consultant will evaluate proposed cost escalation rates to provide the year-of-expenditure cost estimates.

The Consultant will review and assemble capital sources of funds, including potential Federal, state and local funding sources. Using as much existing information as possible, the Consultant will prepare revenue forecasts for local funding sources, including potential funds from the proposed Crystal City Tax Increment Financing District, and Commercial Real Estate Add-on Tax in Alexandria. These revenue forecasts will include high and low forecasts based on potential risk factors in the underlying cost variables.

In consultation with County and City representatives, the Consultant will refine the debt financing assumptions in the financial model based on specific financial instruments, and run alternative scenarios to evaluate the most cost-effective funding strategy for the project.

6.4: Operations and Maintenance Funding Plan

The Consultant will develop a plan to fund the long-term operations and maintenance of the Project. The plan will be of a level necessary to meet FTA's Small Starts requirements. The Consultant will review the ridership projections developed in Task 5 and apply them to the financial model. In consultation with the County, the Consultant will then apply an appropriate average fare over the 20-year period, assessing the need for periodic fare increases with corresponding potential impact on ridership. In addition to fare revenues, the Consultant will review non-fare operating revenues as well as sources of operating subsidies and apply them to the financial model.

As part of this task, the Consultant will develop a financial model that incorporates the capital plan with the operating funding plan developed in task 6.2 in order to provide a long-term cash flow.

6.5: Sensitivity Analysis and Discussion of Risks

The Consultant will prepare a technical memo that summarizes the cash flow results, as well as the various dimensions of uncertainty in the financial plan and identify the major variables to which the project is highly sensitive.

In collaboration with the County, the Consultant will develop mitigation strategies needed to respond to any FTA comments or concerns regarding the feasibility of the project. Such strategies may include:

- Further prioritizing CIP projects by delaying, deferring or streamlining projects;
- Adapt the scope of the Route 1 Streetcar Project;
- Adapt service growth to match operating revenues;
- Access new sources of funds including additional financing if allowed under current legislation and debt tests;
- Adapt fare policy to improve the farebox recovery ratio; or
- Identify additional sources of non-Federal funding.

6.6: Produce Financial Plan

The Consultant will apply the data and information assembled the tasks above to produce a financial plan for the Route 1 Streetcar Project. It is assumed that this will be a single financial plan document which presents the preferred alternative as a single project, with Arlington and Alexandria as joint local funding partners. The financial plan will be prepared in accordance with FTA standards for a Small Starts application. The Consultant will prepare text and tables suitable for the Financial Plan for the application to enter Project Development in accordance with FTA requirements. The results of the financial plan will be incorporated into FTA New Starts / Small Starts templates.

The Consultant will support the County and City in preparing management documents, Board presentations, or other analyses needed to refine the financial strategy for the Project. The Consultant will also assist the County with preparation of grant documents required for Virginia grant funding, such as the state's transit capital assistance funds.

Anticipated deliverables include, but are not limited to:

1. Attend and prepare materials for meetings/workshops with City and County financial planners
2. Presentation of case studies on project financing and implementation
3. Prepare a Project Financial Plan for the Route 1 Streetcar project, which will address both Arlington and Alexandria as local funding partners
4. Prepare templates in support of a Small Starts application per the FTA Small Starts Reporting Checklist.
5. Prepare templates in support of a Virginia grant application

Task 7: Preliminary Engineering in support of NEPA

The Consultant shall develop preliminary engineering plans with the goals of identifying physical requirements of the Project, developing more refined cost estimates, and preparing for the final design and construction phases of the Project. The level of effort and degree of detail shall be as required to support the NEPA documentation. As the Project advances, it will be critical to develop a coherent set of preliminary design documents that covers all necessary aspects of project development while eliminating unnecessary redundancy. The Consultant shall coordinate design work with ongoing street and streetscape design progressing by the City, County, and private developers as well as the Columbia Pike Streetcar project. Design criteria will be in accordance with the WMATA manual: Tram/LRT Guideline Design Criteria (2003). Where necessary, other applicable standards will be followed and referenced.

7.1 Alignment Development

7.1.1 Alternative Route Analysis

The Consultant shall establish a group of potential alignment options. These alignment options shall be appropriately refined to provide adequate information so that a decision on which alignment to use for the remainder of the preliminary engineering scope can be made. An alternative route analysis report shall be created which summarizes these alignment options, compares benefits and drawbacks, and provides recommendations. This analysis will utilize aerial photography and mapping provided in task 7.3.1 and as-built and readily available utility information provided in task 7.4.1. Plans will be created at a 1"=200' scale showing the base alignment and each alignment option.

Areas where alignment options are anticipated are as follows:

- Segment A from the Braddock Road Metro Station to the Monroe Avenue bridge (2 options)
- Routes through and around the Potomac Yards area to access proposed Metro infill station (2 options)
- Modified Segment E alternatives as outlined in the August 2010 Transit Improvements Project report (2 options)

Anticipated deliverables include an Alternative Route Analysis Report with accompanying plan sets.

7.1.2 Basis of Design

The consultant shall define a design approach applicable to the physical, operational and urban design issues posed by the alignment options and constraints. The design approach will conform to nationally accepted practices and reflect existing local standards as appropriate. The Basis of Design must be both comprehensive, defined with sufficient detail and approved by all stakeholders to complete conceptual engineering. The Basis of Design will address the following:

- Roadway and Civil design approach (Minimum Lane width, Drainage, ADA Upgrades, etc.)
- Brief description of existing traffic signal equipment and any upgrades necessary for streetcar operations
- Streetcar Stop design approach (type of shelter or Canopy, size, etc.)
- Typical streetcar systems elements and design approach (substation requirements, type of OCS, etc.)
- Track elements (rail section, track structure, etc.)
- Approach to Utility conflicts and relocation
- Other on-going or proposed projects along the alignment
- Vehicle assumptions
- Approach to structural evaluation.

The anticipated deliverable includes a Basis of Design Report as outlined above.

7.2 Operations Planning

The Consultant shall prepare operations plans and draft operating and maintenance cost estimates based on the definition of alternatives to be evaluated in the EA document. Refined plans and estimates will accompany the preliminary engineering submission.

An Operations Plans Report (draft and final) will be prepared as a product of this plan. This Report will document the following:

- The existing transit characteristics in the corridor, including descriptions of existing route alignments, frequencies, span of service and service statistics, and existing corridor transit facilities.
- A “baseline” transit service plan. For purposes of this scope, it is assumed that a transit service plan has been defined for the bus transitway project and will be provided by the client.
- Build Service Plans. Streetcar station-to-station travel times, service frequencies and service requirements will be defined. It is assumed that the transitway operating plan provided by the client will define all corridor bus service modifications. Impacts to bus service statistics due to streetcar implementation will be determined.
- Transition Plans. This initial scope will not address the phasing of transit service as the bus transitway is converted to a streetcar alignment.

Service characteristics will be defined in sufficient detail for use in transit network coding.

A separate report will be prepared that documents annual Operating and Maintenance (O&M) cost estimates. Methodologies will be defined for estimating local and express bus O&M costs (by operator), bus facility costs and streetcar O&M costs. O&M cost estimates will be based on service characteristics (e.g., number of stations, track-miles, annual revenue train/bus hours) for each project alternative.

The anticipated deliverables include, but are not limited to, draft and refined operations plans and operating and maintenance costs.

7.3 Aerial Photography and Mapping

This task assumes that no additional aerial surveys will be necessary and that existing aerial surveys will be provided in digital format for use in preparing the base mapping for the project. It is our understanding that existing right-of-way and topographic survey data exists and will be made available in digital format (AutoCAD) for inclusion in the overall base mapping for the project area. It is our assumption that no record research or field work will be necessary within the area of existing survey data. For the purposes of this proposal, that area is defined as all the land along the proposed route from 12th Street on the east side of Route 1 to the County Line at Four-Mile Run. Except for the mapping and compilation of the existing survey data, all items listed below pertain to the remainder of the project route, i.e., the area along 12th Street from the Pentagon City Metro Station to the east right-of-way line of Route 1, and area along the proposed route within the City of Alexandria. The supplemental survey services will include the following items:

- Existing R/W Research and Computations: The Consultant will gather R/W plans from Arlington County, the City of Alexandria and VDOT and compute and plot the existing R/W along the proposed route based on the plans obtained.
- Property Research and Computations: The Consultant will search the land records of Arlington County and the City of Alexandria, obtain deed information and prepare base mapping of approximately 90 parcels. Data from the existing surveys referenced above will be incorporated.
- Establish Horizontal and Vertical Control: Existing control stations will be obtained from Arlington County and Alexandria. The Consultant will tie into existing control stations and set additional points as necessary to support the computation and mapping of existing property information.
- Property Corner Ties: From the deed information compiled above, property corners will be located from the control network previously established. Property boundaries will be adjusted as necessary and the property and R/W lines will be adjusted on the base drawings to reflect any changes.

- Existing topographic base mapping collected as part of previous work efforts for the Crystal City Potomac Yards Transitway Project shall be made available from an outside source, checked, and incorporated into the base mapping.

Anticipated deliverables include the incorporation of survey information into the plans developed in Task 7.4.4 and 7.8.

7.4 Utilities

The Consultant will obtain and compile existing utility information within the project limits, using existing utility as-built data from transit providers, Arlington County, City of Alexandria, private developers, and utility companies. This information will be utilized for initial alignment alternative route analysis and, at a future time, more detailed Quality Level B utility information will be collected which will allow more detailed definition of utility impacts and necessary relocations.

7.4.1 Existing Utility Information Mapping

Information gathered within the project limits, using existing utility as-built data from transit providers, Arlington County, City of Alexandria, private developers, and utility companies shall be compiled to create an electronic base map of the project area. The Consultant shall utilize this information to aid in the evaluation of alternatives as part of Task 7.1 and identify the level to which impacts to utilities should be captured in the opinion of probable cost.

Anticipated deliverables include utility mapping in electronic format.

7.4.2 Sub-Surface Utility Investigation (Quality Level B) - deferred

Upon selection of the preferred alternative for the alignment and vehicle maintenance facility the Consultant will complete subsurface utility research and investigations suitable to understand the existence, extent, and location of existing (and known planned) underground utilities (public and private).

To accomplish this, the Consultant will:

- Perform SUE quality level “B” survey to locate and map existing underground and overhead utilities as well as known proposed utilities from back of sidewalk to back of sidewalk where exists. In those areas where development does not exist, survey will occur for an approximate 150-foot wide strip along the proposed alignment.
- Survey and map physical utility features (i.e. MH [including inverts for sewer], valves, meters, phone pedestals, utility poles, etc.) including applied markings of the underground utilities. MH structure sizes will be identified when available.

- Summarize the existence and location of existing overhead utility poles within the limits of survey as described above including: general pole size, pole material, pole owner, utilities attached and attachment height

Anticipated deliverables include:

- Existing Utility Base Mapping
- Utility Owners List

This task is deferred and will not be completed until specifically authorized by the City/County.

7.4.3 Utility Rules of Practice

The Consultant will work with the client and appropriate utility owners to develop a Utility Rules of Practice document. The Rules of Practice will outline the approach for making the determination of whether a certain utility is potentially in conflict with the proposed streetcar system by defining specific zones of influence, and if a utility relocation is deemed necessary, where best to relocate that facility. The document will define the protocol on which utilities will need to be relocated, rehabilitated in place, or reinforced based on an established zone of influence along the proposed streetcar route.

Anticipated deliverables include a draft and final Utility Rules of Practice report.

7.4.4 Utility Relocation Cost Development

Utilizing results of task 7.4.1 Sub-Surface Utility Investigations, the Consultant will prepare a utility conflict matrix identifying major potential conflicts as outlined in the Rules of Practice document created by task 7.4.3. This matrix will include conflict identification for both private and public utilities.

Coordination with private utility companies will only be conducted in order to gather and confirm locations of existing facilities. Identification of conflicts, confirmation of the Utility Rules of Practice, and coordination of construction activities will occur in future phases of the project.

The City/County will confirm the status of the utility franchise agreements between the County of Arlington, City of Alexandria, and Commonwealth of Virginia and private utility companies. This report will form the basis for the opinion of probable capital cost for relocation of private utilities.

The utility matrix will allow the Consultant to define a low, medium, and high level of utility impact costs that can be applied throughout the length

of the project. In isolated cases, major impacts will be identified and quantified separately in the opinion of probable cost. The findings of the utility analysis will be compiled in a technical memorandum.

Anticipated deliverables include:

- Utility Conflict Matrix
- Utility Relocation Cost Development Technical Memorandum
- Utility conflict identification and relocation plans will not be prepared

7.5 Geotechnical Data Review

The Consultant will obtain and compile existing geotechnical information within the project limits, using existing data from multiple sources. The effort will be developed in three steps:

- Review readily available geotechnical and geologic information. Readily available information will be collected from published geologic maps and reports, available public as-built drawings or reports for public works projects, readily available germane private projects that may be on file with the Owner, and internally available data from nearby projects performed by the consultant.
- A field visit will be performed to review the site conditions and identify potential geotechnical or geologic issues that may not be apparent from available report data. This may include identifying surface features such as rock outcrops, structures with settlement distress, or identifying information in areas where no boring data is available.
- The collected geotechnical data and results of the site visit will be reviewed to provide an initial assessment of subsurface conditions. This assessment will be presented in a summary report. The report will include a summary of the data obtained and reviewed and an indication of potential impacts to the project. Considerations for future field investigations and possible construction issues will also be identified.

Anticipated deliverables include a Geotechnical Summary Report.

7.6 Structural Data Collection

This task requires the collection and summarization of structure inventories, inspection reports, load rating analyses, and as-built drawings for a variety of structures maintained by various entities, including Arlington County, City of Alexandria, Virginia Department of Transportation (VDOT), Washington Metropolitan Area Transit Authority (WMATA), and Crystal City Shops. The structures include, but are not limited to bridges, culverts, large drainage structures, underground garages and walkways, Metrorail stations and building facilities. A list of the major structures included in this study follows:

- U.S. Route 1 Bridge over CSX, Norfolk Southern, WMATA, and City Streets
- Potomac Avenue Bridge over Four-Mile Run

- Crystal City Pedestrian Tunnels at 23rd Street and immediately north of 18th Street
- Crystal City Metrorail Station
- 251 18th Street – Office Building
- Crystal Square Apartments
- Pentagon City Metrorail Station
- Monroe Ave Bridge and railroad bridge over 4-Mile Run (plans and structural review to be provided by the City/County).

To perform this task, we will conduct a preliminary field survey to ascertain all affected structures. Then, we will contact the representative owners of these structures to obtain the relevant structure information. Once the relevant structural information is assimilated, the following deliverables will be compiled:

- Data map depicting the affected facilities.
- Inventory compilations for each structure including general photographs, reports, data inventories, load rating analyses and as-built drawings as needed to support cost estimating and feasibility determination.
- Summary reports for each structure including recommendations and preliminary cost estimates associated with accommodating the proposed streetcar system. As required, schematic drawing plates of structure typical sections will also be provided.

7.7 Facilities Design Development

The Consultant will perform Site Selection and Conceptual Design for a Maintenance and Storage facility for the Route 1 Streetcar Project. The Consultant shall review information created for the Columbia Pike Streetcar project and coordinate refinements with the Columbia Pike Streetcar project team. Fleet maintenance and storage requirement assumptions will be provided to the team from the work in Task 7.2. The Consultant will determine the size of vehicle storage areas, the rough space allocation inside the maintenance building, the parking requirements, landscaping and buffer requirements and other relevant factors affecting the site selection process.

Site specific layouts will be prepared that address the storage yard layout as well as the maintenance facility layouts. Maintenance facility layouts will address the number and size of vehicle servicing and maintenance bays, major maintenance equipment, vehicle maintenance support areas (such as component shops), equipment and parts storage, operator/dispatch facilities, and administrative facilities. Site layouts will address streetcar layout and circulation, parking requirements, the degree of security required, and the Consultant will determine the proposed track configuration for accessing the main line along with catenary requirements.

Assumptions:

- Vehicle type similar to the Skoda-Inekon
- Up to 8 vehicles are to be accommodated at site

- Fleet Maintenance and Storage Requirements for the primary facility will be for the Route 1 streetcar fleet only
- Develop Design Criteria specific to the requirements of the Primary Facility
- Up to 3 potential sites will be evaluated for suitability for use as primary facilities
- Determine if a Secondary layup site is required and, if required, identify the preferred site from up to 3 candidate sites
- Conceptual design will not proceed until the determination of whether a primary or secondary facility will be included in the project
- Develop design to roughly a 10% level or enough detail to support the NEPA documentation

Deliverables Site Evaluation Phase:

- Site Evaluation Report including sketches and diagrams to illustrate findings
- Preferred Alternative Memo for Site Selection
- Conceptual Design Drawings
- Comparative cost information

7.8 Track Alignment & Civil Design

The Consultant shall develop conceptual track alignment and civil design plans to facilitate proper street interface with transit running way and station stops. These plans are to include: track and roadway plan and profile, typical sections, typical track details, special trackwork details, and appropriate general information sheets. Track alignment plans shall show right-of-way requirements, modification to traffic signals, stop layouts, pedestrian and bike facilities, and other significant site modifications. The intent of the engineering drawings is to define the scope of the project, assess impacts, and support the opinion of probable cost. The designs will be overlaid on an aerial basemap.

Plans shall be to a 1"=200' scale for 11"x17" sheets. Submittal shall include the following, as required and appropriate:

- Title Sheet
- General Notes
- Index of Drawings
- Typical Sections (roadway including tracks)
- Track and Civil Plan Sheets
- Track Profile Sheets

Anticipated deliverables include draft and refined track and civil plans (in hard copy and/or electronic format) which include the information outlined above. It is anticipated that 10 sets of these plans will be provided per submittal.

7.9 Station Design Development

The Consultant shall prepare preliminary prototypical design plans for station stops using the prototypical designs provided by the City/County. The prototypical stop plans will show configuration of tactile edge strip, ramping, railings, benches, windscreens, shelter coverage, ticket vending (if applicable), stop amenities, and lighting. The Consultant will adapt the prototypicals to fit the Project.

Station stops will be laid out on the civil plan sheets at each proposed location and the adjacent sidewalk and curb will be modified as necessary. This effort is expected to address up to 12 station stops. The prototypical design will be used as a basis and any instances where significant modifications are required to adapt to existing conditions will be brought to the attention of the County.

Anticipated deliverables include:

- Preliminary prototypical designs for station stops
- Stop layouts on the engineering drawings

7.10 Systems Design Development

The Consultant will develop concept designs for the traction power system, Overhead Contact System (OCS), vehicle locator system, ticket vending system, and safety and security systems. These design assumptions will be documented in a technical memorandum defining the system and cost assumptions.

The Consultant will perform a concept level traction power load analysis to determine spacing requirements for the power substations. Readily available substation equipment will be assumed. The Consultant will provide photographs of typical traction power substation installations. Candidate substation locations will be identified as possible sites to be carried through the environmental process. It is assumed that actual sites will only be identified upon identification of a build segment of the streetcar system.

Operation of the streetcar system is anticipated to be line of sight and no signaling or train control will be provided. Powered switch control will only be included at the entrance to the VMF and all other installations will be spring switches.

Anticipated deliverables:

1. Systems engineering technical memorandum documenting design assumptions
2. Traction power substation location technical memorandum

7.11 Streetcar Vehicle

The assumed vehicle has been the Portland style (Skoda-Inekon) streetcar, as specified by DDOT for the Anacostia streetcar project and also assumed for the Columbia Pike Streetcar project. The Consultant will perform a brief review of streetcar vehicle manufacturers that are present in the US market. Relevant

specifications and technologies readily available by each manufacturer will be summarized and identification of potential next steps in the procurement process will be identified in a concise technical memorandum. Confirmation of the vehicle type will be coordinated with the Columbia Pike Streetcar project.

It is assumed that the Portland style vehicle will be used as the basis for design to inform the environmental documentation.

Anticipated deliverable includes:

- Technical memorandum documenting the state of the streetcar vehicle industry, the procurement process and relationship to other projects (Columbia Pike Streetcar, DC Streetcar)

7.12 Bridge Clearance Analysis

The Consultant will examine those locations throughout the selected alignment (3) where the available vertical clearance from proposed top of rail to underside of bridge is below 17 feet. The purpose of this task is to identify the locations and present possible method(s) for resolving these clearance issues. The Consultant will outline the process for obtaining concurrence on design approach from the governing safety oversight agencies.

Anticipated deliverables include a draft and refined Bridge Clearance Analysis report.

7.13 Project Design Criteria

Project design criteria used for conceptual design work were the "WMATA Tram / LRT Guideline Design Criteria" prepared by WMATA in August 2003. The Consultant shall review these criteria and work with Arlington County staff, other project teams, and regional agencies to refine the design criteria in the course of preliminary engineering.

Anticipated deliverables include draft and refined design criteria.

7.14 Capital Cost Estimates

The Consultant will produce a Cost Methodology Report summarizing the strategies, cost categories, unit costs, and other applicable information describing the methodologies to be used in the development of a cost estimate.

Using FTA's standard cost categories and inflation worksheet along with costing information gathered from similar projects, the Consultant will develop estimates of total program capital cost for each Build Alternative in support of the final EA and Small Starts application.

Anticipated deliverables include:

- Draft and refined Cost Methodology Report
- Draft and refined Capital Cost Estimate

7.15 Implementation Schedule

The Consultant will prepare implementation schedules for up to two project delivery types: design-bid-build and design-build. The schedules will include the major activities and their sub-activities.

Anticipated deliverables include a project implementation schedule for each delivery type.

7.16 Preliminary Engineering Report

The Consultant shall compile written results of the preliminary engineering tasks into a summary report that details key findings for each of the design task areas. The report will include a summary of capital cost estimates prepared for capital items to be included in the Streetcar Project.

Anticipated deliverables include a draft and refined Preliminary Engineering Report.

7.17 Review of Crystal City Potomac Yard Busway Design

The Consultant will review the proposed plans and accompanying technical information for the Potomac Bus Project to determine applicability and compatibility with the Route 1 Corridor Streetcar Project. A technical memo will be produced which summarizes the findings of this investigation and provides recommendations for coordination between these projects.

Anticipated deliverables include a draft and refined Technical Memo.

7.18 Project Strategy Workshop

In this task, the Consultant will organize and host a workshop that would include and be led by additional national streetcar design experts otherwise independent of the project. The purpose would be to get an independent perspective and generate additional creativity, solutions and ideas. This workshop would be a collaborative team environment including core team members and stakeholders as identified by the Consultant and Client.

The scope would include the following:

- Group Alignment Tour - The Consultant will lead an alignment tour with the group stopping at key “decision points” along the alignment and discussing issues.
- Visioning and Cost Effectiveness Strategy Session 1 (2-3 hours) - Session I will include the core team members that form the client and consulting team. This group will walk through each alignment segment and identify alternative design solutions/ideas to be considered that could reduce cost, add operational efficiency and/or address feasibility issues. This session would result in a summarized list of issues to be discussed with a group of key project stakeholders in the Session 2.

- Visioning and Cost Effectiveness Strategy Session 2 (2-3 Hours) - Session 2 will include the group from the Session 1 as well as key decision making stakeholders. The idea would be to screen the solutions and ideas developed in the first session with the key decisions makers and stakeholders all in the room together resulting in a final list of potential ideas to be further evaluated or implemented.
- Technical memorandum summarizing Visioning and Strategy Session - The Consultant will prepare a draft and final technical memorandum summarizing the ideas and topics discussed and final outcome of the work session. This memo will be distributed to all team members and stakeholders who participated in the workshop.

Anticipated deliverables include a draft and refined Technical Memo as described above.

POTENTIAL ADDITIONAL TASKS

The project sponsors reserve the option to negotiate additional tasks with the successful Offeror under this contract, including but not limited to:

1. Preliminary engineering and final design
2. Preparation of contract bid documents
3. Preparation of specifications for design-build contractor procurement
4. Construction phase services

ROUTE 1 CORRIDOR STREETCAR PROJECT

Project Budget Summary - Consultant Services

03/30/2011

	Team Cost
Task 1: Project Management Plan	\$ 159,401.51
Task 2: Agency Coordination	\$ 227,040.88
Task 3: Public Participation	\$ 355,722.05
Task 4: New Starts/Small Starts Project Initiation	\$ 240,556.66
Task 5: Assessment of Potential Effects	\$ 952,232.21
Task 6: Financial Plan	\$ 234,636.52
Task 7: Preliminary Engineering in support of NEPA	\$ 901,805.34
Total Labor Cost	<u>\$ 3,071,395.16</u>
Expenses	\$ 163,061.60
Round Up	\$ 5,543.24
Sub Total	<u>\$ 3,240,000.00</u>
Contingency	\$ 324,000.00
Total Budget	<u><u>\$ 3,564,000.00</u></u>
Arlington County portion (50%)	\$ 1,782,000.00
City of Alexandria portion (50%)	\$ 1,782,000.00