

5.D.

Jurisdiction and Agency Coordinating Committee Northern Virginia Transportation Authority

MEMORANDUM

TO: Martin E. Nohe, Chairman
Northern Virginia Transportation Authority

Members
Northern Virginia Transportation Authority

FROM: Tom Biesiadny, Chairman
Jurisdiction and Agency Coordinating Committee
Northern Virginia Transportation Authority

SUBJECT: Approval of Scope of Work for TransAction 2040 Update (Agenda Item 5.D.)

DATE: January 8 , 2010

Recommendation:

The Jurisdiction and Agency Coordinating Committee (JACC) recommends that the Authority approve the scope of work for the development of the TransAction 2040 Northern Virginia Long Range Transportation Plan in substantial form while allowing the JACC to make minor editorial changes and add procurement language, and authorize the JACC to work with the Northern Virginia Transportation Commission to issue a request for proposals for consultant support in February 2010.

Background:

NVTA's statutory authority requires the Authority to update its long range transportation plan every five years. NVTA adopted TransAction 2030 during FY 2007. In the past, this update has taken approximately two years to complete. To meet the statutory requirement, the process of updating the plan has been initiated and will need to be completed during FY 2012. The Jurisdiction and Agency Coordination Committee has developed a draft scope of work of the plan for the review of the Authority. The scope of work was initially presented at the November 2009 NVTA meeting. Since then, some comments have been received and incorporated into the scope. In addition, several aspects of the technical approach have been updated. The scope of work is attached for the Authority's consideration. Also attached is a summary of TransAction 2030. The major changes to TransAction 2030's scope of work are summarized below.

Additional comments can be submitted to the Jurisdiction and Agency Coordinating Committee's project manager, Monica Backmon, at mbackmon@pwcgov.org. The JACC will work to incorporate comments received by January 13, 2010.

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The proposed changes to the draft TransAction 2040 scope of work from what was presented at the November meeting include:

- Removal of TPB's regional conformity model as the preferred modeling approach and allowing alternative options to be presented by the winning consultant team.
- Completed projects will be deleted from the Plan and included in the baseline.
- Cost estimates for all projects will be recalculated from scratch (rather than inflating old estimates).
- Highway and transit level of service language has been revised.
- Inconsistencies between the projects in TransAction 2030 and current construction projects and other planning documents will be addressed.

New analyses being proposed for TransAction 2040 include:

- The planning horizon extended from 2030 to 2040 to match TPB modeling and the next Constrained Long Range Plan.
- The project list to be opened to new projects.
- Cost-benefit calculations will be considered as part of the prioritization process, possibly using a methodology developed for U.S. Department of Transportation's TIGER discretionary grant program.
- Individual highway and transit projects will be tested to determine their impact on vehicle miles traveled and delay across the entire Northern Virginia network. This information will also be used in the project prioritization.

Other proposed changes for TransAction 2040, include:

- Consideration of using TPB's new travel demand model, incorporating major 2007 data collection effort.
- Involving the NVRTA's Planning Coordination Advisory Committee (elected officials) and Technical Advisory Committee (individuals with transportation expertise).
- Analyzing recommended network(s) using an alternative land use scenario.
- Incorporating HOT lanes projects on the Beltway and I-95/395.
- Considering possibility of other HOT lanes projects.

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The proposed schedule for TransAction 2040 is:

- November 2009: NVTA Briefing on Scope of Work
- January 2010: NVTA Adoption of Scope of Work
- February 2010: RFP Issuance
- Summer 2010: NVTA Approval of Consultant Contract
- Fall 2011: Recommendations Presented to NVTA & Jurisdictions
- December 2011: Transmission of Summary Findings to General Assembly
- Winter 2012: Local Government Consideration and Endorsement
- Spring 2012: NVTA Adoption

The NVTA will also be considering a recommendation regarding the Planning Coordination Advisory Committee. In addition, NVTA appointed six members of the Technical Advisory Committee (TAC) and an additional seven people to recommend to the Secretary of Transportation for the three positions on the TAC that he is designated to appoint. If the Secretary makes his appointments prior to the NVTA meeting, details will be provided to the meeting. The JACC will schedule meetings with both the PCAC and the TAC after the January 14, 2009, NVTA meeting.

Jurisdiction and Agency Coordinating Committee members and I will be available at the January 14, 2010, NVTA meeting to answer questions.

Attachment: a/s

Cc: Members, NVTA Jurisdiction and Agency Coordinating Committee

On December 16, 1999, the Transportation Coordinating Council of Northern Virginia (TCC) adopted the Northern Virginia 2020 Transportation Plan to guide the region's transportation priorities and funding allocations. The TCC resolution endorsing the plan directed that the plan be updated and presented to the member jurisdictions at least every five years.

In 2002, the Virginia General Assembly established the Northern Virginia Transportation Authority (NVTA). Among other things, the General Assembly charged the NVTA with preparing "a regional transportation plan for Planning District Eight, to include, but not necessarily be limited to, transportation improvements of regional significance, and those improvements necessary or incidental thereto, and shall from time to time revise and amend the plan."

For two years, NVTA worked with the local jurisdictions and regional and statewide transportation agencies to update the Northern Virginia 2020 Transportation Plan. The result of this effort is the TransAction 2030 Long-Range Transportation Plan.

The effort included the following activities:

- Updating the Northern Virginia 2020 Transportation Plan project list to delete projects that were completed between 1999 and 2005;
- Updating the cost estimates for the remaining projects in the 2020 Plan;
- Updating project scopes, based on studies undertaken between 1999 and 2005;
- Extending the planning period from 2020 to 2030;
- Modeling the impact of constructing/implementing the projects in the TransAction 2030 Plan on the region's highway network and comparing these impacts to the Washington region's Constrained Long-Range Plan (CLRP) which is adopted by the Transportation Planning Board; and
- Calculating the funding required to fully implement the TransAction 2030 Plan.

The TransAction 2030 effort also involved several other aspects that were not part of the Northern Virginia 2020 Transportation Plan. These include:

- Conducting a statistically valid public opinion poll to assess the public's view of the most important transportation improvements for the region and the funding sources they found most acceptable to pay for them;
- Conducting public outreach at large jurisdictional fairs, as well as through a traditional public meeting;
- Developing transit level of service maps based on passenger loads, service coverage, travel time, frequency and hours of service;
- Developing park-and-ride lot level of service maps;
- Developing multi-modal level of service information for eight corridors (Route 7, the Beltway arterials [a combination of Franconia Road, Backlick Road, Gallows Road and Chain Bridge Road], U.S. Route 1, U.S. Route 29, U.S. Route 50, Route 28, the Fairfax County Parkway and the Tri-County Parkway);
- Prioritizing projects within each of the eight corridors in the region using objective criteria; and
- Comparing the TransAction 2030 Plan network to the CLRP's 2030 network using objective criteria.

The NVTA's analysis of transit, park-and-ride and multi-modal levels of service is one of the first efforts in this area of transportation planning in the country.

The TransAction 2030 Plan did not add new projects to those identified in the Northern Virginia 2020 Transportation Plan, beyond those identified in the Northern Virginia Regional Bikeway and Trail Study.

The plan does:

- Double the number of Metrorail stations in Northern Virginia as a result of Metrorail extensions in the I-66, I-95 and Dulles corridors;
- Add light rail transit and/or bus rapid transit to the Route 7, Route 28, Crystal City-Potomac Yards and Columbia Pike corridors;
- Add 600 miles of on-road and off-road trails; and
- Increase highway capacity by eight percent above what is already planned in the region's Constrained Long Range Plan.

The TransAction 2030 Plan reaches the following conclusions:

- Northern Virginia's highway level of service has deteriorated significantly from 1999 to 2005.
- Despite planned transportation investments of approximately \$30 billion from 2005 to 2030, as outlined in the region's CLRP, Northern Virginia's highway level of service will continue to decline.
- The proposed additional \$16.6 billion investment between 2005 and 2030, as outlined in the TransAction 2030 Plan, will improve highway level of service in most corridors.
- Even with the investment proposed by the TransAction 2030 Plan portions of I-95, I-395, U.S. Route 1, U.S. Route 7 and the Dulles Toll Road will continue to see one hour or more of stop-and-go traffic in the a.m. peak period in 2030.
- Implementation of the TransAction 2030 Plan requires an additional investment of approximately \$664 million per year for the next 25 years.
- Half of the Northern Virginia residents surveyed believe that public transportation investments are the top priority, compared to only 28 percent who chose highway improvements. There were no significant differences in this result by jurisdiction;
- Northern Virginia residents are willing to pay more to fund both highway and transit improvements.
- When framed in a realistic context; Northern Virginia residents favor increases in the sales tax, over increases in income and gas taxes, to fund transportation improvements.
- Only 68 percent of the areas in Northern Virginia that have household densities to support public transit service actually had transit service in 2005.
- Metrorail operating conditions remain constant in the Dulles corridor and the Orange line with the implementation of the TransAction 2030 Plan; however, additional study will be needed to identify improvements to address future capacity constraints and ridership growth on other lines, particularly the Blue line.
- The level of service on VRE's Manassas line declines between Rolling Road and Alexandria, due to increased ridership and the extensions to Nokesville and Haymarket. Increased turn-back and express trains will need to be examined in the future.
- Implementation of the TransAction 2030 Plan improves accessibility as measured by the average number of jobs within 45 minutes of households via auto and transit.

- The Plan demonstrates significant increases in transit and high occupancy vehicle (HOV) use between many of the activity centers.

TransAction 2030 was endorsed by all nine local jurisdictions that are members of NVTA. NVTA formally adopted TransAction 2030 on September 14, 2006.

The next steps for the TransAction 2030 Plan include:

- Pursuit of additional funding to implement the Plan.
- Incorporation of the Plan into the CLRP as funding becomes available.
- Incorporation of the Plan into Virginia's long range statewide transportation plan.
- Incorporation of the Plan into local comprehensive plans.
- Performance of more detailed analysis on the highway and transit segments that will not improve with the implementation of the Plan to determine what additional improvements are needed.
- Implementation of Plan projects as funding becomes available.

Since the TransAction 2030 Plan did not expand the project list developed by the Northern Virginia 2020 Transportation Plan, the next update of the Plan should evaluate additional projects to address problem areas that remain even if the TransAction 2030 Plan is fully implemented.

The plan indicates a need for \$46.6 billion in transportation funding over the next 25 years. Of this amount, approximately \$30.0 billion is expected to be available from the continuation of existing transportation funding sources. This leaves a deficit of \$16.6 billion over the 25 year period. This translates into an additional annual requirement of approximately \$664 million per year.

Section A

Background and Instructions for Proposers

Context

The transportation challenges facing the Northern Virginia region are familiar:

- The number of vehicles, trips made and miles driven have far out-paced the capacity of our roadways.
- Population and employment continues to grow, but transportation funding has not kept sufficient pace to meet the region's mobility needs.
- The current "Hub and Spoke" transportation network does not address the regional "Web" pattern of suburb-to-suburb trip making effectively, particularly across modes of transportation.
- Air quality continues to be of great concern
- Metrorail capacity on lines serving Northern Virginia is critically constrained. Ridership on the Virginia Railway Express continues to grow significantly.
- Aging infrastructure continues to require more transportation dollars, reducing available revenue for system expansion.
- Incomplete trail and sidewalk networks reduce the potential for bicycle and pedestrian activity in the region.

Background

In July 2002, the Virginia General Assembly created the Northern Virginia Transportation Authority (NVTA) and charged it with developing a regional transportation plan. One of NVTA's primary responsibilities is to recommend transportation projects to the Commonwealth Transportation Board (CTB) for funding. The NVTA is also responsible for preparing a long-range plan for Northern Virginia. The Authority is comprised of 17 members; nine are mayors or chairs, or their designees, of the nine cities and counties that are members of the Authority; two are members of the House of Delegates; one is a State Senator; and two are citizens appointed by the Governor. In addition, the Director of Virginia's Department of Rail and Public Transportation and the Commonwealth Transportation Commissioner, or designee, and a representative of the five towns which maintain their own roads (Dumfries, Herndon, Leesburg, Purcellville, and Vienna) serve as non-voting members. Northern Virginia consists of the counties of Arlington, Fairfax, Loudoun, and Prince William; the cities of Alexandria, Fairfax, Falls Church, Manassas and Manassas Park.

The NVTA adopted the TransAction 2030 Long Range Transportation Plan in FY 2007, updating the Northern Virginia 2020 Transportation Plan that was produced by the Virginia Department of Transportation (VDOT) under the direction of the Transportation Coordinating Council of Northern Virginia which the NVTA replaced. That study identified eight major corridors in Northern Virginia. A 1999 NVTA resolution specified that the updated Plan should be presented to the member jurisdictions every five years. NVTA's authorizing legislation contains a similar requirement.

Since TransAction 2030 was adopted in FY 2007, a number of transportation projects have been completed. At the same time, a transportation funding crisis has deepened, and the region continues to grapple with air quality concerns. Our region's leaders have responded through their initiation and support of ongoing efforts that recognize the linkage among transportation, land use, air quality and other quality of life indicators. Some of these efforts include the Transportation Planning Board's (TPB) Regional

Mobility and Accessibility Study, the Northern Virginia Regional Commission's (NVRC) Alternative Transportation and Land Use Activity II (ATLAS II) Study, and the Commonwealth of Virginia's VTRANS 2035, the statewide, long range multi-modal transportation plan. The objectives of the latest NVTA plan update, known as TransAction 2040, will be to re-evaluate travel demand throughout the Northern Virginia region, analyze the performance of the existing and planned transportation networks for various modes of travel, identify projects that will facilitate improved performance of the transportation network, and prioritize and estimate the cost of improvements needed between now and 2040, noting the lessons offered by other regional and state initiatives.

The Vision adopted by the Transportation Coordinating Council and the NVTA states:

In the 21st century, Northern Virginia will develop and sustain a multimodal transportation system that supports our economy and quality of life. It will be fiscally sustainable, promote areas of concentrated growth, manage both demand and capacity, and employ the best technology, joining rail, roadway, bus, air, water, pedestrian and bicycle facilities into an interconnected network.

The goals established for the TransAction 2040 Plan, which are built on those for the TransAction 2030 Plan include:

- Provide an integrated, multi-modal transportation system
- Provide responsive transportation service to customers
- Respect historical and environmental factors
- Maximize community connectivity by addressing transportation and land use together
- Incorporate the benefits of technology
- Identify funding and legislative initiatives needed to implement the Plan
- Enhance Northern Virginia relationships among jurisdictions, agencies, the public and the business community.

To attain these goals, the projects identified for TransAction 2040, when taken as a whole should:

- Measure the extent of transit service in the region
- Provide increased road and transit capacity
- Improve connections to, from and between activity centers for all modes and populations
- Use technology for more efficient system operations (ITS)
- Integrate transportation operations coordination and traveler information
- Improve connectivity of the regional bicycle and pedestrian trail system
- Incorporate pedestrian and bicycle improvements into roadway improvement projects
- Maintain the existing system for maximum performance
- Provide a multi-modal solution

While these goals are consistent with previous plans, the TransAction 2040 process should be informed by recent research on the connection between land use and transportation, and the increasing awareness of the environmental impacts of vehicle emissions. The consultant team will assist the NVTA in evaluating the transportation needs, proposed projects and cost estimates for improvements needed between now and 2040. Through analysis and a prioritization process that is integrated with a robust public involvement program, the consultant will help the NVTA prioritize the identified projects and develop current and year of expenditure cost estimates. The final section of the Scope of Work provides a list of resources that the NVTA's Jurisdiction and Agency Coordinating Committee (JACC) and its member jurisdictions will provide to the consultant for use in this project. The JACC's TransAction 2040 Subcommittee will coordinate the development of the TransAction 2040 Plan and will serve as the primary sounding board for the project, with the NVTA being the decision making body that will ultimately approve the Plan.

Instructions to Consultants for Developing the Scope of Work

In describing their approach in Tasks 3 and 4, consultants should include in their proposals a strategy for incorporating the TransAction 2030 Plan methodology or a similar process for prioritizing transportation improvements and achieving regional acceptance in their TransAction 2040 proposal. This process should be integrated with the public involvement program, and thoroughly communicated with stakeholders. The consultant should demonstrate how the public involvement in the prioritization process is linked to the goals and objectives and addresses the mobility, environmental, land use, and funding challenges identified in the above section. The methodology will not only be used to prioritize the projects in the TransAction 2040 Plan, but may also be used by the NVTA in subsequent years to prioritize those NVTA funded projects that are included in future CLRP updates, TIP updates, and other initiatives. All modes of transportation projects will be prioritized (transit, highway, ITS, commuter parking, bicycle and pedestrian projects).

The consultant should explain how they would approach the analysis tasks and identify any options that they believe will be necessary to complete the project and meet the needs of the NVTA. This includes any additional network and demand analysis needed to reach a set of transportation improvements that, if implemented between now and 2040 would result in the best reduction in congestion in the Northern Virginia region. This not only includes roadway congestion but also transit capacity issues as well.

The consultant should clearly demonstrate their capability in using the TPB staff's most current travel demand model. They should clearly describe the model inputs, calibration procedures, and recommended outputs for this study.

The effective visual presentation of the outputs is of utmost importance to the NVTA. The format of outputs should be described to show how these outputs will be presented so that the layperson can understand how well the various networks tested measure against the problems listed above.

Preferred presentation formats include maps, graphs, and other figures, as opposed to spreadsheets of data. Add-on modules that are compatible with the regional travel forecasting model will be viewed positively if they are able to enhance the public involvement effort, use a multi-modal perspective to evaluate improvements, and assist decision-makers with evaluating improvements to accomplish regional mobility, environmental protection, land use, and quality of life goals. The consultant should propose their approach for development of an interactive tool for communicating the results of modeling and forecasting the transportation network and how the outcomes will impact individuals and communities. This tool should be incorporated into the public involvement program.

In the development of the TransAction 2040 Plan, the consultant should indicate how they intend to communicate with project steering committees, official oversight bodies, jurisdictions, regional bodies, state agencies and the public who will be impacted by the development of the plan. Public information and participation is critical to this project and should be considered integral to each component of the study. While the parties to the process vary greatly, consistency is essential in communicating effectively.

Establish Working Committee Communication and Schedule

The TransAction 2040 Subcommittee ("subcommittee") of the JACC will assist in identifying and facilitating contact with the appropriate stakeholder groups to confer with during the project including those identified in the NVTA By-laws. Specifically, these NVTA (by-law) created working groups are the Technical Advisory Committee (TAC) and the Planning Coordination Advisory Committee (PCAC). (The details of each respective stakeholder groups are outlined below in sections A and B.)

At the early stages of the project, the consultant – in coordination with the subcommittee - will prepare a detailed meeting schedule, which will include key communication points, key decision points, and

ongoing project updates by the 2040 Subcommittee and consultants for JACC, NVTA, jurisdictional leaders, and stakeholders, in addition to the public communication activities.

A. Technical Advisory Committee (TAC).

- (1) Charge. This committee of individuals with multi-modal expertise and regional focus shall be responsible for reviewing the development of major projects and potential funding strategies and providing recommendations to the NVTA. “Development of projects” means the identification of projects for the NVTA Long Range Transportation Plan and the NVTA Six Year Program, and the application of performance-based criteria to the projects identified.
- (2) Membership. The committee shall consist of nine (9) individuals who reside or are employed in counties and cities embraced by the Authority and have experience in transportation planning, finance, engineering, construction, or management. An effort shall be made to have multi-modal representation, to include highway, transit, pedestrian, and bicycle expertise as well as being balanced regionally.

B. Planning Coordination Advisory Committee (PCAC).

- (1) Charge. This committee shall be responsible for advising the NVTA on broad policy issues related to the periodic update of the NVTA’s Long Range Transportation Plan (e.g., TransAction 2030) and the development of the NVTA’s Six Year Program with special consideration to regional transportation, land use and growth issues and provide advisory recommendations to the NVTA.
- (2) Membership. All members shall be elected officials from jurisdictions embraced by the NVTA. Such membership shall include, as a minimum, one elected official from each town that is located in any county embraced by the NVTA and receives street maintenance payments.

Project Coordination

The consultant will report directly to NVTC’s Contract Manager and NVTA’s technical Project Manager, who are responsible for ensuring that the planning process is proceeding according to the direction given by the NVTA and TransAction 2040 Subcommittee dedicated to this planning effort. The technical approach will be supervised and all deliverables reviewed by the TransAction 2040 Subcommittee which is staffed by local jurisdictions, Department of Rail and Public Transportation-Virginia (DRPT), VDOT, WMATA, VRE, Potomac and Rappahannock Transportation Commission (PRTC), and NVTC. Consultants should plan for two rounds of review and revision for all project deliverables; once with the TransAction 2040 Subcommittee and once with the JACC. NVTC’s contract manager is responsible for ensuring expenditures are made according to the budget and schedule.

Section B

Scope of Work

Task 1: Finalize Work Plan

The consultant's initial task for this project is to refine and finalize the scope of work, overall project approach, public outreach plans and project schedule. The consultant will accomplish this task by conferring with the TransAction 2040 Subcommittee members and other stakeholders, reviewing the project approach, travel demand forecasting methodology (Task 3.1), list of optional tasks, and project schedule.

During these preliminary discussions, the consultant may need to incorporate optional tasks, into the scope of work.

This task will precede the Kick-off Meeting. Task 5 in the scope of work provides detail on what is expected.

The outcome of Task 1 will be a finalized work plan with deliverables and project schedule, including all expected presentation materials, flyers and communications materials and a project budget for each task.

Task 2: Inventory of Regional Transportation Needs

The second task of this project will be to identify the transportation needs for Northern Virginia up to the year 2040. The consultant will, at a minimum, review "TransAction 2030," identify regional factors influencing travel demand such as population growth patterns, land use, employment and demographic data, and establishment of the framework for the analysis in Task 3.

The consultant will be expected to seek input from the PCAC, an advisory committee affiliated with the NVTA. This committee, when appointed, will be one of the committees responsible for providing input on regional transportation, land use and growth issues.

The consultant should also be familiar with the TPB approved 2009 Constrained Long Range Plan (CLRP), which was developed with a number of scenarios incorporating land use and transportation objectives and the 2010 CLRP under development by the TPB.

2.1 Review Existing Plans

In this task, the consultant will summarize the previous TransAction 2030 plan processes and outcomes.

The consultant will review all relevant plans prepared either regionally or by affected jurisdictions, including jurisdictional transportation master plans, transit development plans, comprehensive plans, and other relevant studies, that have been completed since TransAction 2030 was adopted September 14, 2006.

The consultant will provide a summary of the existing plans to the TransAction 2040 Subcommittee, the JACC and the NVTA TAC and request any additional input regarding existing plans that need review. Upon the approval of the JACC and the TAC, the consultant will produce a technical memorandum which details the transportation plans that have been reviewed, and identify any conflicts in terms of transportation improvements or strategies among the adopted plan documents that will need to be addressed in subsequent tasks.

2.2 Identify Demographic and Data for Analysis

In this subtask, the consultant will gather necessary demographic information to assess trends that will impact transportation demand in Northern Virginia. The data should include:

- the 2007-2008 MWCOG/TPB Household Travel Survey --(as conducted by the TPB) is incorporated into the travel demand model used in analyzing the transportation networks.
- the most up-to-date population, household and employment projections to 2040 adopted by MWCOG in developing the inventory of transportation needs.
- Demographic trends results from recent transportation plans performed in the region, including the I-66 Corridor Transit/TDM study, the I-95/395 Transit TDM Report, the Fairfax Connector Transit Development Plan, the Loudoun County Transportation Plan, the Arlington County Master Transportation Plan, the City of Alexandria Transportation Master Plan, and other plans as identified, that include demographic projections that further inform the transportation demand in Northern Virginia in the future.

The consultant should prepare a presentation of the demographic data to the TransAction 2040 Subcommittee for discussion and incorporation in the demand analysis. Any major discrepancies identified among the data reviewed should be included in the discussion.

2.3 Identify Transportation Plans and Projects for Analysis

Once the demographic inputs affecting transportation demand are identified, the consultant will begin looking at the project lists from the TransAction 2030 Plan, and the other transportation plans that have been developed in the region.

The project lists will need to be revised to reflect the outcome of completed projects, jurisdictional plans, regional plans, statewide plans, including strategic plans for transportation and traveler information systems, and corridor studies conducted since the previous plan was adopted.

The consultant team will obtain project lists and existing cost estimates from various recent planning efforts, including the 2010 CLRP, VDOT's Six-Year Plan, the Washington Metropolitan Area Transportation Authority's (WMATA) Capital Improvement Program, the Virginia Railway Express (VRE) Strategic Plan, the Statewide Surface Transportation and Statewide Intelligent Transportation Systems (ITS) Plans, Jurisdictional Transit Development Plans (TDP), Jurisdictional Transportation Master Plans, VTrans2035 Statewide Long Range Intermodal Transportation Plan, and other relevant agency and jurisdictional plans.

Cost estimates should be in 2010 dollars and the consultant may be asked to inflate these cost estimates to year of expenditure. The consultant should develop new cost estimates for any projects for which current estimates do not exist or for which the existing estimate is more than two years old.

As the plans are reviewed, discrepancies or gaps should be noted. For example, Virginia's long-range multimodal transportation plan, VTrans2035, identified 11 "Corridors of Statewide Significance" that represent major connections to the Commonwealth's major activity centers. Four out of 11 corridors traverse through Northern Virginia (I-66, I-95/395, U.S. Route 29 and U.S. Route 15). Three of the four state-identified corridors are included in TransAction 2030 related.. In VTrans 2035, these statewide corridors were broadly defined to include nearby or parallel roadways and rail lines. In this example, the consultant should identify nearby or parallel roadways and rail lines when examining other regional corridors. In TransAction 2030, the plan identified the following eight regional corridors:

1. Dulles/VA Route 7 Corridor
2. Loudoun County Parkway/Tri-County Parkway and VA 234/VA 659 Corridor
3. VA 28 Corridor
4. Prince William Parkway (VA 3000) Corridor
5. Fairfax County Parkway (VA 7100) Corridor

6. I-66/US 29/US 50 Corridor
7. I-495 Beltway Corridor
8. I-95/I-395/US Route 1 Corridor
9. “Corridor 9” – other projects not clearly in one of the other specific corridors but are in the boundaries of Northern Virginia

The deliverable from this subtask will be a current list of transportation projects including cost estimates for transit, highway, ITS, commuter parking, bicycle, and pedestrian projects. Discrepancies identified by the consultant, such as “network gaps” or “emerging corridors”, should be highlighted for discussion with the TransAction 2040 Subcommittee for discussion.

All projects completed since TransAction 2030 was adopted should be noted for inclusion in the baseline transportation network for the modeling to be completed in Task 3.

2.4 Identify New Projects for Inclusion in Plan

Based on input from the various documents reviewed in Task 2.3, the local jurisdictions, the TAC, citizens and other stakeholders as well as the modeling effort undertaken in Task 3, the consultant shall identify a list of new projects to be included in TransAction 2040. The consultant will develop cost estimates for each of these projects.

2.5 Identify Land Use Plans for Analysis

In addition to the land use scenario used to project travel demand in the MWCOG’s 2010 CLRP planning process, the consultant will identify alternative land use assumptions including the NVRC’s Alternative Transportation and Land Use Study Phase II (ATLAS II) recommendations, and the MWCOG’s CLRP Aspirations Scenario. These assumptions, which make adjustments to population, household and employment inputs into the baseline models, have been developed to create more transit-oriented land use scenarios for analyzing the effectiveness of the transportation network.

The consultant will identify a land use strategy to be used in testing against the baseline in conjunction with the TransAction 2040 Subcommittee. The consultant is not expected to develop a new land use scenario from scratch for this task.

The final products of Task 2 will be a demographic analysis, a current list of transportation projects with updated costs to be implemented through 2040, a list of projects completed since TransAction 2030 was developed, and a set of land use scenarios to be included in the transportation network analysis in Task 3.

Task 3: Analysis

The primary objective in “Task 3” is to take the inputs identified in Task 2 and test various transportation networks and land use scenarios to determine how well these factors or assumptions address the projected or anticipated congestion in the Northern Virginia region.

The consultant will generate a series of maps and other outputs based on the modeling approach determined in Tasks 1 and 3.1 that will clearly show the effect of transportation improvements on levels of congestion and other evaluation criteria.

3.1 Travel Demand Model Runs

The consultant will develop and present a set of network and land use scenario analyses to help decision-makers in the region understand future demand and prioritize projects. With this objective, the consultant should consider alternative travel demand forecasting approaches and discuss their potential outcomes with the TransAction 2040 Subcommittee prior to finalizing a specific modeling approach in Task 1. It is recognized that this is the most critical portion of the project.

In addition to considering simply applying the existing regional conformity model, the consultant should also consider the following strategy provided by VDOT staff, and discuss how this would be implemented or improved upon:

Potential Modeling Approach for Plan Development

Use a demand trip table to develop the Plan to address gridlock, not the Conformity trip table. The Conformity trip table is developed based on transportation supply and speed feedback. It is based on the theory that severely congested transportation conditions in a corridor or subarea will cause individuals to change the location of their housing and/or employment to shorten their trips. Using this trip table for Plan development could result in locating infrastructure improvements in corridors that will not give us the most effective investments because they are not based on demand.

Example of Using Conformity Model Trips for Plan Development

Use of the conformity model trips can lead to anomalies. As an example, in the previous TransAction 2030 Plan the modeling for the I-66/Route 50 corridor outside the Beltway forecast a good 2030 LOS even though there was a large increase in land activity growth in this corridor by 2030 and even though there were no significant infrastructure improvements planned in this corridor. The most probable explanation for this anomaly is that the Conformity supply side trip table changed trip patterns by shortening trip lengths, changing trip distributions and diverted the remaining trips to other corridors that the model finds still having capacity. This trip diversion is OK for conformity where we want to estimate emissions to see if we can meet the emissions budget but can produce suspect results when used for plan development.

The Need for a Trip Table Based on Demand for Plan Development

A demand trip table is based on what the volumes would be if we have LOS D/E or better on all our major arterials and freeways. LOS F speeds in the model distort future trip patterns and volumes in trip table development.

Final TransAction 2040 Plan Product

The final TransAction 2040 Plan could be developed and based on a 2040 demand trip table (by mode). This approach would provide more direct input into prioritizing the elements in the plan based on the criterion of their contribution to reducing regional congestion. The results of this exercise will be used in the project based performance evaluation outlined in section 3.2.

As noted above, the demand trip table approach may offer advantages for more clearly identifying congested corridors and prioritizing improvements based on congestion relief. However further discussion about the use of this approach should occur during Task 1.

The consultant is expected to begin with the updated TransAction 2030 network, reflecting the current status of projects that have been completed, adding new projects and eliminating projects that are no longer being considered to show where the TransAction 2040 process begins in addressing the projected travel demand. The consultant will obtain the 2010 CLRP network (round 7.2A (or most current) cooperative forecast) for 2040 from the TPB staff.

The consultant should determine the model runs and inputs needed that will facilitate the prioritization process in Task 4. The strategy developed for this task should be explained thoroughly, with deliverables clearly identified so that all options are clear and can be finalized in Task 1.

The deliverable for Task 3.1 is a set of transportation demand model outputs based on agreed-upon network and land use scenarios for a 2040 base network as well as an alternative land use network.

3.2 Analysis of Model Output

The consultant should consider the project evaluation process that was adopted by the NVTa and used to help prioritize projects for the TransAction 2030 Plan. In this task, the consultant will prepare the data necessary to undertake the prioritization effort. In TransAction 2030, projects were ranked against each criteria by mode using a (consumer report) approach that was translated into numerical values. The individual criteria are shown below and further described in attachment B. In conducting this ranking, the consultant shall also consider the results of the market research undertaken in Section 5.2.

Qualitative Project-Based Performance Evaluation Criteria

How well does a project perform compared to other projects in the corridor?

- *Activity Center Connections*
- *Multi-modal Choices*
- *Person Throughput*
- *Intermodal Connections*
- *Management and Operations Urgency*
- *Need for Rehabilitation*
- *Compatibility with Local Plans*
- *Land Use Support*
- *Improved Bicycle and Pedestrian Travel Options*
- *Reduced Roadway Congestion*
- *Safety*
- *Cost Sharing*
- *Freight Movement*

Network-Based Performance Evaluation Criteria

How well does the overall system perform?

- *Provide an Integrated Multi-modal Transportation System*
- *Improve Mobility*
- *Improve Accessibility*
- *Improve Transportation Land Use Linkage*
- *Protect the Environment*

Scored projects and network model runs are used to develop a set of prioritized projects that will be presented to the public for comment and approval by the NVTA. The consultant should have understanding of this process as the model outputs are analyzed.

3.2.1. The consultant will analyze the model results and determine which combination of projects best address the projected travel demand and reduces congestion for the horizon year in each scenario modeled. Mode shares should reflect the availability of alternatives in the underlying network and in the project list.

3.2.2. The consultant will use the USDOT's federal guidance on cost/benefit analysis issued in reference to the USDOT's federal guidance on Cost Benefit Analysis. This guidance was issued in reference to the Transportation Investments Generating Economic Recovery (TIGER) Grant application issued in May of 2009, to establish set of values for each project. This cost benefit analysis will be added to the other project based performance evaluation criteria.

The deliverable for Task 3.2 is a report to the TransAction 2040 Subcommittee showing the list of projects that are planned in the region, and their benefit to the transportation network. The impact on network performance of the projects should be prepared for presentation and discussion with the TransAction 2040 Subcommittee.

3.3 Development of Level of Service (LOS) Maps Showing Network Performance

One of the most important outputs from the modeling exercise is LOS maps for each of the transportation networks described above. The highway LOS maps provided in the TransAction 2030 summary report have proven quite useful. The region's leadership has frequently referred to these maps to explain the region's transportation needs and advocate for additional funding. The NVTA is seeking LOS maps for highway, transit, pedestrian and bicycle, and park and ride lots.

3.3.1. Highway LOS Maps

The consultant should consider the following in the development of the LOS maps:

- Coding the 2040 Plan highway and transit network and running the travel demand model selected pursuant to Tasks 1 and 3.1;
- Developing highway LOS maps using similar criteria to those in the TransAction 2030 Plan.

3.3.2. Transit LOS Maps

The consultant should consider the following in the development of the LOS maps:

- The Transit Capacity and Quality of Service Manual (TCQSM) offers one methodology for computing transit LOS. The Highway Capacity Manual adapts four transit LOS measures from the TCQSM for a more simplified methodology. The Florida Department of Transportation Q/LOS Handbook offers an alternative transit LOS methodology, in part, by adding an adjustment factor for street crossing difficulty for pedestrians.
- Forecasts of corridor-level transit person trips, including the ratio of peak transit demand to available capacity;
- Frequency of bus service (buses per hour) compared with land use density (households and jobs per acre, households and jobs in transit travel sheds);
- Access to transit as defined by the percentage of jobs and households within ¼ mile of bus or ½ mile of rail service or within a particular travel time by all connecting modes;
- Change in transit travel time between activity centers;
- Transit ridership;
- Revenue hours of bus and rail services;
- Revenue miles of bus service.

3.3.3. Pedestrian and Bicycle LOS Maps

The consultant will map LOS in terms of connectivity with and access to destinations and multimodal facilities throughout the region. The network should include the Northern Virginia trail network and all existing and planned pedestrian and bicycle facilities. The consultant should identify gaps in the network on the map.

3.3.4. Park and Ride Lot LOS Maps

The consultant will develop a LOS map for park and ride lots in the region. In essence, this will be a park and ride lot capacity and utilization map, which will include parking at rail stations located around the region. This will be done by creating a nomenclature for indicating capacity such as identifying “red” lots that fill up before the end of the AM peak travel period, “yellow” lots that fill up sometime during the day and “green” lots that have available parking throughout the day. Updated park-and-ride capacity and usage data can be obtained through the recently completed VDOT Northern Virginia Park and Ride Lot Feasibility Study, WMATA, VRE, and local jurisdictions.

The deliverable for Task 3.3 will be a series by mode of Level of Service maps indicating the ability of the projects to impact the network performance. The consultant will present the LOS maps to the TransAction 2040 Subcommittee for discussion.

3.4. Feedback Loop

If at the end of the analysis in Task 3, any segment or facility of the network is still functioning at LOS F or worse, the consultant, in conjunction with local governments, state agencies, the TransAction 2040 Subcommittee and the TAC, will identify additional projects to address these problem areas and the consultant will rerun the prioritization and the LOS analysis with these additional projects.

At the end of Task 3, the consultant should prepare a presentation of the draft list of projects to the stakeholder groups upon approval by the TransAction 2040 Subcommittee.

Task 4: Prioritization of Improvements

4.1 Develop Prioritization Approach for Public Input

Using a combination of the NVTA-approved criteria and the cost-benefit analysis developed by the consultant in Task 3, the consultant shall prepare for robust public input into the prioritization process.

The consultant should incorporate the prioritization process previously used by NVTA in the TransAction 2030 Plan indicating how they intend to perform a similar process to gather regional support and buy-in for the array of needed transportation projects and establishment of regional prioritization to enable progress to be made under a range of potential funding realities. Input will be expected to be provided by the PCAC and TAC of the NVTA as well as the public and regional stakeholders. The consultant should show how the goals and objectives of the TransAction 2040 Plan will be presented and discussed with the public, and how the input received will be incorporated into the final plan. Some possible discussion topics may include:

- The types of projects which are most effective in meeting transportation needs
- The types of projects that are most urgently needed
- The willingness of funding agencies to pay for an array of transportation projects
- The relative importance of the projects to the individual, the community and the region

This approach should be implemented at one of the two sets of public workshops outlined in Section 5.3.

4.2 Qualitative and Quantitative Prioritization Process

As developed for the TransAction 2030 Plan, the following criteria have been approved in establishing priorities among transportation projects. The consultant should use these criteria in ranking the projects identified in prior tasks as benefiting the network. The values assigned to each project through this process should be indicated in a detailed project list.

Qualitative Project-Based Performance Evaluation Criteria

How well does a project perform compared to other projects in the corridor?

- *Activity Center Connections*
- *Multi-modal Choices*
- *Person Throughput*
- *Intermodal Connections*
- *Management and Operations*
- *Urgency*
- *Need for Rehabilitation*
- *Compatibility with Local Plans*
- *Land Use Support*
- *Improved Bicycle and Pedestrian Travel Options*
- *Reduced Roadway Congestion*
- *Safety*
- *Cost Sharing*
- *Freight Movement*

Network-Based Performance Evaluation Criteria

How well does the overall system perform?

- *Provide an Integrated Multi-modal Transportation System*
- *Improve Mobility*

- *Improve Accessibility*
- *Improve Transportation Land Use Linkage*
- *Protect the Environment*

The deliverable for this subtask is a detailed list of projects with values assigned based on the above qualitative and quantitative criteria.

The consultant should apply a Transportation Ranking Model such as that described in Attachment A to assist in evaluating the performance of network elements with respect to mobility and cost.

4.3 Cost/Benefit Analysis for Project Prioritization

The consultant should establish a process for evaluating projects consistent with the federal guidance provided for applicants in the “Grants for Transportation Investment Generating Economic Recovery” or “TIGER Discretionary Grants” process. The link to the guidance is show below. <http://edocket.access.gpo.gov/2009/pdf/E9-11542.pdf>. Once approved by the TransAction 2040 Subcommittee, the consultant should use this process to establish cost/benefit values to the list of projects identified in Task 3.

The deliverable for this subtask is a detailed list of projects with values assigned based on the cost/benefit analysis developed by the consultant to be presented to the TransAction 2040 Subcommittee, JACC and the TAC. Further public presentations will follow the development of this deliverable.

Task 5: Public Information and Participation

The consultant, upon approval in Task 1 of the finalized communications program, including the materials needed, the timeframe for each type (technical memorandum, summary report, presentation, graphics, etc.) will execute the communications program. The consultant will work in a collaborative way to ensure that communications are targeted effectively and are timely in their delivery. Communications outreach should, at a minimum, include:

- Project development process – JACC, PCAC, TAC, etc.
- Project updates – JACC, PCAC, TAC, NVTA, NVTC, PRTC, TPB, VDOT, DRPT
- Project Input opportunities – JACC, PCAC, TAC, NVTA, NVRC, VDOT, DRPT, Jurisdictions, citizens
- Communication with relevant elected bodies
- Communication with agency/jurisdiction professionals
- Communication with other community stakeholders/informed interests
- Communication with the public

5.1 The consultant should prepare a plan and schedule for regular meetings with all of the affected groups, as well as regular opportunities to communicate with the public. Additional public involvement opportunities may become evident as the project progresses, and should be anticipated as much as possible.

The consultant should describe their plan for advertising meetings to generate interest among stakeholders and the public.

Throughout the project process, the consultant should make every effort to include all impacted populations including people with disabilities and those with Limited English Proficiency (LEP). Particular languages include Spanish and Korean. Alternative formats should also be made available upon 48 hours notice.

The outcome of this task will be a communications and meeting schedule that is finalized in Task 1.

5.2 Market Research

In addition to communicating the progress of the project, a market research component shall be accomplished to capture perceptions of the proposed transportation plan, projects and investments, and how to fund these investments. Development of priorities by mode and location is a necessary part of the plan development process. As a major component of the public involvement process, which will occur throughout the project, a strategic plan with measurable results to engage the public must be included.

The consultant should indicate what type of interaction is intended and how that will be conducted strategically throughout the project process, and be prepared to discuss this in Task 1. For example, in the TransAction 2030 Plan, a telephone survey was completed. Other area plans have used on-line surveys targeting residents of specific geographic areas. Use of the latest technologies available to solicit input from citizens should be incorporated while also communicating with groups who may not be able to access these technologies. Use of both the data resulting from those efforts and the questions that those efforts left unanswered should be considered. Methods for dissemination of the survey instrument as well as the results should be explained, and should be designed to maintain statistical validity in the process. The results are expected to be used to validate the modeling outcomes, as well as the prioritization process described in Tasks 2 and 3.

A clear and concise writing style should be used in all documentation. Graphics and other visualization tools should be used to help communicate technical information such as projects and costs, modeling techniques and outcomes, and project prioritization. Emphasis on communicating complex concepts in simple, easy to understand language and format is also critical.

5.2 Public Information

The consultant will be responsible for the preparation and distribution of press releases and other mechanisms to communicate with the public via the media. Media contact should be initiated at key project milestones: to announce the kick-off, to advertise the public workshops, and to publicize the final NVTA endorsement of the Plan update. While the consultant may respond to general project questions from the media, the consultant will not serve as the project spokesperson. All policy questions will be directed to the Chairman of the NVTA.

5.2.1 The consultant will be responsible for writing and editing the updated Plan document. Standard desktop publishing features such as headings, styles, and labeled tabs should be used to ensure the Plan is both easy to read as well as convenient to use as a reference document. The final TransAction 2040 Plan is expected to be approximately 100 pages in length and include associated maps, tables, and other figures. Hard copies of this final document will be distributed to NVTA members and NVTA JACC members and Northern Virginia's 50 public libraries (2 copies per library -main and branches). Five additional copies will be distributed to each NVTA jurisdiction. Public distribution of the document will be provided primarily via the website and CD ROM copies (approximately 200 to be made).

5.2.2. Similar to the summary materials developed for TransAction 2030, the consultant will be responsible for the creation of a four-color summary brochure and associated color maps. Two 28"x 21" four color foldable maps will be presented on one sheet of paper (using both front and back). The consultant should produce a 12 page (8.5 x 11) summary brochure that includes a front and back cover with a back cover pocket for the insertion of the maps. Inside pages will be made of approximately 100 pound gloss or semi-gloss FSC or recycled paper. Cover pages will be on 150-200 pound recycled cover stock. Pages will be stapled. Text and graphics will appear on all pages, including the front and back of the cover pages, and on the pocket. The consultant will be responsible for the professional printing up to 9,500 copies of the summary brochure and maps.

5.2.3. The consultant will be responsible for the creation and printing of five separate editions of a two-page, two-sided fact sheet that will be distributed at the public workshops. These will be of a lower-cost

quality than the summary brochure but may include colored headers and figures. These fact sheets will be made available on the project website in Adobe PDF format and mailed upon request. The consultant should produce 2,000 copies of each fact sheet.

The consultant will supply the master copies of camera ready documents and electronic files of all public information materials to the Project Manager.

5.2.4. The consultant will be responsible for the design, posting, and maintenance of an ADA accessible project website and email address to make project information widely available and keep the public up-to-date on the study process. The consultant needs to maintain an exclusive, easy-to-remember phone number for the duration of the project. Access for people with hearing impairments must also be considered. The project website will also include a comment form whereby interested citizens can submit their comments, suggestions and inquiries. A strategy for documenting comments received via the website and integrating those comments into the study process should be developed. The website should be attractive to visitors through unified color schemes and graphics and by making up-to-date information available for review and download. Links must be provided to NVTC, NVTA, and NVRC websites.

5.2.5 The consultant team will be responsible for addressing citizen questions about the project by assigning a knowledgeable staff person to answer telephone calls and respond to citizen mail and email inquiries. The consultant will maintain a mailing list and email list of individuals who attend the public workshops and other persons interested in the project. The consultant will create quarterly four-color, four-page (11X17 double-sided and folded) newsletters that will be sent to this mailing list of approximately 2,000 addresses.

5.3 Public Participation in Workshops and Hearings

In addition to the two sets of four public workshops described below, the consultant will be requested to attend a public workshop to kick-off the study. The workshop will be organized and facilitated by staff rather than the consultant; however it is important that the consultant attend the workshop to understand the breadth of issues raised by the public.

Two sets of four public workshops is envisioned to occur concurrently with each Task 2 and Task 4, the prioritization of improvements. These workshops will be held around the region in strategic locations such as:

- Inside the Beltway/Arlington/Alexandria/Falls Church
- South-Eastern Fairfax County/US Route 1/I-95 Corridor
- Dulles Airport Corridor/Herndon/Loudoun County
- Centreville/Manassas/ Prince William County

While the TransAction 2040 Subcommittee will provide recommendations on venues, the consultant will be responsible for making all workshop arrangements, handling logistics including signage for interior and exterior of facility, coordination with VDOT for use of variable message signs, documenting the meeting and public comments, and providing necessary supplies, including any large-scale plotted maps, flip chart paper, easels and markers, and information materials. Materials in alternative formats, including recorded and large print, sign language interpreters (ASL or Exact Sign English) and translators for non-English speakers and devices for people with hearing impairments need to be made available upon request. Light refreshments (water, coffee and cookies) and incentives for the public to attend should also be included. The consultant will prepare a presentation on the analysis and its outcomes and will deliver this presentation at each of the two sets of public workshops. The consultant will also be responsible for workshop advertising through such means as public service announcements, press releases, bus ads, and web-based announcements, etc. The goal is to get 100 people (not including consultant and jurisdictional staff persons and NVTA members) to attend each of the sets of workshops. All key perspectives should be represented at each of these workshops, including employers, commuters for all transportation modes,

road building, transit, bicycle, pedestrian and smart growth advocates, environmentalists, senior, those with limited English proficiency, and persons with disabilities.

The purpose of the workshops is twofold. First, the consultant will brief the public on the outcome of the inventory and analysis completed in tasks one and two. Second, the workshops will engage participants in project prioritization. Consultants should clearly explain in their proposals in detail, how they intend to involve the public in this prioritization effort. Creative and interactive techniques are encouraged. Concrete recommendations should evolve from these workshops so that they can be relayed to the NVTA prior to the NVTA’s final decision on priorities. Offers should explain how input will be obtained, documented, and delivered to the NVTA, and how NVTA action on the input is communicated back to workshop participants and the general public. The consultant will facilitate the workshops and prepare a workshop summary document.

As part of the Public Involvement program, two sets of public hearings will be conducted to gather formal comments regarding the plan, one at the draft phase, and one prior to adoption. A third set of public meetings will be held to present the draft final findings and outcomes.

Task 6: Project Coordination

Consultants should plan for two rounds of review and revision for all project deliverables; once with the TransAction 2040 subcommittee and once with the JACC. One week prior to a meeting with the JACC or the TransAction 2040 subcommittee, the consultant will provide electronic copies of any deliverables to be reviewed. Graphics files, including GIS maps should be exported into a file format that committee members can open such as PDF or PowerPoint. The consultant also should bring 30 hard copies of deliverables and other handouts to JACC meetings, and 15 hard copies of the same to TransAction 2040 subcommittee meetings. This includes color copies of any pages that require color to be easily understood. The consultant should also bring one copy of any large-scale presentation materials. Additional refinements of deliverables may be requested by the NVTA.

The following table outlines the total number of meetings by audience that the consultant is expected to attend. With the exception of the initial kick-off meetings with the NVTA and the public, the consultant will be expected to organize, handle the logistics, and and/or present at these meetings. Typically, monthly meetings with the TransAction 2040 subcommittee will be working meetings to review and provide input on the project progress, and to prepare for presentation to the JACC, followed by other meetings as appropriate public and/or NVTA.

	NVTA TransAction 2040 subcommittee	JACC	NVTA	PCAC	TAC	TPB Tech Committee	Public Workshops (4 per series)	CTB
Kick-off	√		√				√	
Monthly meetings	√	√						
Draft public workshop presentation		√	√					
Public workshop series							√	
Prioritization exercise	√	√	√	√	√			
Draft TransAction 2040 Plan presentation			√	√			√	
Final TransAction 2040 Plan presentation		√	√		√	√		√

APPENDIX

Project Schedule

Milestone	Date
Issue RFP	February 2010
Proposals Due	Spring 2010
Proposal Review & Interviews with top-ranked proposals (if necessary)	Late Spring 2010 / Summer 2010
Consultant recommendation submitted to NVTA for approval	Summer 2010
Initiate contract award	Fall 2010
TransAction 2040 project period (Task 1-5 + optional tasks)	Fall 2010 – Winter 2011
Draft TransAction 2040 Plan submitted to General Assembly	Winter 2011
Local government review and endorsement	Winter 2012
NVTA Adoption	Spring 2012

Available Resources

The following resources are currently available online or will be provided to the Consultant by the NVTA ITC during the study.

- NVTA approved work plan for 2030 Plan Update
- NVTC, NVTA, NVRC websites
 - www.thinkoutsidethecar.org
 - <http://www.novaregion.org/index.html>
 - <http://www.thenovaauthority.org>
- Link to TPB Vision
 - <http://www.mwcog.org/transportation/activities/vision/>
- 2030 Plan and Public Information Materials
 - <http://www.thenovaauthority.org/projects.html#transaction>
- Link to the State's ITS Plan/Program
 - <http://www.drpt.virginia.gov/studies/files/STR-DRPT%20ITS%20Plan%202009-08-29.pdf>
- VTRANS 2035
 - <http://www.virginiadot.org/projects/multi-default.asp>
- VDOT Northern Virginia Park and Ride Lot Feasibility Study, including data tables and GIS files
 - <http://www.virginiadot.org/projects/studynova-ParkRide-feas.asp>
- Regional Employment Centers from the 2030 Plan in GIS format
- Northern Virginia Regional Bikeway and Trail Network Study
 - <http://www.fhiplan.com/novabike/>
- GIS Files for Bicycle Latent Demand Analysis completed for above study
- VDOT Northern Virginia Centric Regional ITS Architecture
 - <http://www.vdot-itsarch.com/nova/novaindex.htm>
- VDOT Six-Year Improvement Program
 - <http://syip.virginiadot.org>
- Metropolitan Washington Area ITS Architecture
 - <http://www.mwcog.org/transportation/activities/operations/architecture.asp>
- Final Report on the Development of a Continuing Process for Monitoring Performance Data on Transit-related ITS Investments
 - http://www.thinkoutsidethecar.org/pdfs/monitor_performance_its_investments.pdf
- MWCOC Version 2.2 (TP+ format) network files
- 2009 CLRP network
- CLRP Aspirations network
- TPB's Short-Term Needs Study
- Six-year Transportation Improvement Program
 - <http://www.mwcog.org/clrp/projects/tip/>
- National Capital Region's Financially Constrained Long-Range Transportation Plan (CLRP)
 - <http://www.mwcog.org/clrp/>
- MWCOC's currently approved population, household and employment figures
- MWCOC Regional Activity Clusters GIS files
- MWCOC Mobility and Accessibility Study
 - <http://www.mwcog.org/transportation/activities/regional/>
- 1999 Performance of Regional High-Occupancy Vehicle Facilities on Freeways in the Washington Region: An Analysis of Travel Time. National Capital Region TPB.
- Congressional ITS Earmarks
- Development of an Advanced Public Transportation Plan for the Fairfax Connector Bus System
- WMATA's Regional Bus Study Summary Document
 - <http://www.wmata.com/pdfs/planning/RegBusStudy.pdf>
- WMATA's Capital Improvement Program (6-year and 10-year CIPs)

- WMATA Strategic Plan
- VRE Strategic Plan
http://www.vre.org/about/strategic/strategic_plan.htm
- Base GIS maps from VDOT, WMATA, VRE, local jurisdictions and other agencies
- Local Comprehensive Plans and Transportation Elements
- Arlington County Master Transportation Plan
http://www.arlingtonva.us/departments/EnvironmentalServices/dot/planning/mplan/mtp/MTP_Draft.aspx
- Virginia Department of Rail and Transportation's Studies
 - I- 95/395 Transit TDM report
 - I-66 Transit TDM report
 - Transit ITS Strategic Plan

HIGHWAY AND TRANSIT RANKING MODEL

One of the most important elements in any prioritization process is how each highway or transit improvement reduces congestion, not just for today but for future years based on how the region is expected to grow.

VDOT has a model using outputs from the regional MWCOG/TPB model or any other similar travel demand forecast model to estimate regional vehicle hours of delay reductions resulting from each highway and transit improvement. Say we have 100 highway improvements and 30 transit improvements to rank. The Ranking model uses the future trip table and mode split percentages from the travel forecast model and the 2010 Base Highway network to determine rankings. This is accomplished by identifying the reduction in delay on the highway network that is attributable to each highway or transit project individually. The “best” improvement is the one that produces the greatest reduction in delay (or alternatively, the greatest reduction in delay per dollar cost). This improvement is then added to the Base Network and the process is repeated for another 129 times to find the second “best” improvement. Delay reductions are counted in the rankings only if the reductions are below a threshold LOS. For example, if we say the threshold is LOS E, then any project that improves vehicle hours of delay reductions from LOS D to a higher LOS is not counted for ranking purposes. This model is run in batch mode meaning it runs all by itself for 3 or 4 days on the computer to rank all 130 highway and transit improvements. The consultant will provide all the inputs, run the model with VDOT’s assistance initially, and analyze the model outputs.

Tasks for the Consultant are as Follows:

Data collection from MWCOG/TPB which will be made available from VDOT:

- Base year highway network
- Base year mode split percentage table
- Available 2040 highway network
- Available 2040 mode split percentage table
- Available 2040 home-based work auto driver trip table

Data Preparations for Input to Ranking Model:

- Identify all highway and transit improvements for testing
 - Highway improvements are identified with an ID number coded to all links identified with that improvement.
Transit improvements are identified by listing all TAZs within a given distance (say 2 miles) of the improvement
- Code the TRANSACTION 2040 highway and transit improvements to the proposed 2040 networks.
- Prepare the other inputs to run the travel demand forecast model and then run model.
- Prepare a table of costs for each of the highway and transit improvements (VDOT has a table for estimating highway costs).
- Prepare all inputs to run VDOT’s Multi-Modal Ranking Model. VDOT staff (Mazen Dawoud 703 383-2229 or Bill Mann 703 383-2211) will help as needed.

Post Analysis after Running the Ranking Model and Reruns if Desired

The consultant needs to analyze the model results for each ranking. Undoubtedly, some anomalies will appear. For example, a few improvements ranked very low will be found to have a “mistake” in the network coding for those improvements. All mistakes found in network coding need to be fixed. Finally the model with corrections needs to be rerun to get corrected rankings.

The model does have the capability to override a jurisdiction bias or a modal bias. Thus, the consultant should budget to do several re-runs to get equity by mode and jurisdiction as requested by the NVTA. Examples of possible runs;

- Initial regional ranking using LOS E threshold for both highway and transit modes.
- Rankings using LOS D for transit and LOS F for highways. (This will give transit preferential treatment compared to highways.)
- Rankings within each jurisdiction.
- Regional ranking setting different thresholds by mode by jurisdiction. We could test for Arlington a transit threshold at LOS C and highways at LOS F. For Prince William we could set the opposite: F for transit and C highways. This will rank transit high for inner jurisdictions and highways for other jurisdictions. This is just an exaggeration and not recommended for testing. It just illustrates a point for flexibility in modeling ranking runs.

Once all the inputs are prepared, re-running the model to test various model thresholds by jurisdiction and LOS is simple, taking only a few minutes to make a change, for most reruns. If the NVTA wants to see the results of several tests, the consultant may wish to reserve several computers since each run takes days on the computer, but only minutes to submit a rerun. The Ranking Model’s results are similar to TTI’s, which says we are the second worst congested large metropolitan area in the nation. TTI measures delays below a threshold of LOS C on only freeways and major arterials, they do not model arterials and collectors, while our model does. This TTI compatibility means we could estimate where we would stand in national rankings among large metropolitan areas if we could build the top 10 rankings, or top 20, etc.