



# County of Fairfax, Virginia

To protect and enrich the quality of life for the people, neighborhoods and diverse communities of Fairfax County

## Braddock Road Multimodal Study Request for Proposals

### Project:

**The purpose of this study is to analyze and recommend a plan for increasing the capacity of Braddock Road from Guinea Road to I-495, including evaluation of managed lanes from Burke Lake Road to I-495. The study will also analyze a potential transit center in the vicinity of the Kings Park Shopping Center. As a result, the study will address three projects that have been part of the Comprehensive Plan for several years:**

- **Construct/add one HOV lane in each direction from Burke Lake Road to I-495.**
- **Construct/add one general purpose lane in each direction from Guinea Road to Burke Lake Road.**
- **Construct a transit center along Braddock Road located in the vicinity of the Kings Park Shopping Center.**

### Background:

A plan for HOV widening on Braddock Road was adopted by the Fairfax County Board of Supervisors in 1990. The Northern Virginia 2010 Transportation Plan recommended HOV widening on Braddock Road from Burke Lake Road to I-495 and conventional widening from Guinea to Burke Lake Road.

The section of Braddock Road to be studied currently handles approximately 70,000 vehicle trips a day, and is one of the more congested corridors in the county. This project will analyze the feasibility of providing managed lanes along this congested corridor that provides a direct connection to I-495. The Beltway offers vehicular and transit connections to the entire Washington DC metropolitan region.

In 2013, the county launched new bus service from the Burke Centre VRE station to Tysons with stops on Braddock Road near the Burke Lake Road intersection. This and other existing and planned routes in the area will need to be considered in the road widening and transit center analysis.

The Braddock District Supervisor has established a community task force for the Braddock Road Multimodal Study made up of community representatives along the project corridor. Further information on the task force can be found at <http://www.fairfaxcounty.gov/braddock/braddockroad.htm> (See attached Braddock Road Multimodal Study Task Force Outline).

## **Study Elements:**

The study will include the main elements listed below.

### **A. Analysis of Roadway Alternatives:**

The following alternatives should be analyzed and a recommendation should be provided. All alternatives shall be compared to a no-build scenario.

1. Addition of two (one lane each direction) HOV 2 lanes from Burke Lake Road to I-495
2. Addition of two (one lane each direction) HOV 3 lanes from Burke Lake Road to I-495
3. Addition of two (one lane each direction) HOT lanes from Burke Lake Road to I-495
4. Addition of two (one lane each direction) general purpose lanes from Burke Lake Road to I-495
5. Addition of two (one lane each direction) general purpose lanes from Guinea Road to Burke Lake Road
6. Spot improvements and other innovative operational improvements from Guinea Road to I-495 without additional lanes.

### **B. Transit Center**

1. Parking needs assessment.
2. Site location evaluation.
3. Conceptual design.
4. Traffic impact analysis.

## **Study Area:**

The study area is expected to cover the corridor along Braddock Road from Guinea Road to I-495, extending to Twinbrook Drive to the west, Ravensworth Road to the east, and the Rolling Road/Burke Lake Road intersection to the south. It is anticipated the following roads at a minimum will need to be included in the study area data collection and traffic analysis:

- Braddock Road
- Twinbrook Road
- Olley Lane
- Guinea Road
- Rolling Road
- Burke Lake Road
- Wakefield Chapel Road
- Port Royal Road
- I-495
- Ravensworth Road

The study area should include the first signalized intersection (or ramp merge and diverge area at I-495) when traveling away from Braddock Road along the cross streets listed above, not counting the signalized intersections at Braddock Road.

## **Study Scope of Work:**

The Consultant shall prepare a scope of work that addresses, at a minimum, the following activities to conduct this study. The submitted proposal should address, but not be limited to each of the tasks described below, and the consultant is encouraged to propose an innovative and cost-effective analysis. The scope of work will be broken down into the following key components and respective tasks:

### **1. Existing Studies and Planning Documents**

Review existing studies and incorporate the recommendations from the following documents with this study:

1. The county's latest Transit Development Plan (TDP) recommendations for all planned transit service changes and improvements within the core and expanded study areas listed in the recommendations section of the TDP.

[http://www.fairfaxcounty.gov/fcdot/pdf/tdp/chapter\\_7\\_recommendations.pdf](http://www.fairfaxcounty.gov/fcdot/pdf/tdp/chapter_7_recommendations.pdf)

2. Recommendations from the Braddock Road/Wakefield Chapel Road/Danbury Forest Drive Study, which includes realigning Danbury Forest Drive to create a four-way intersection with Braddock Road and Wakefield Chapel Road.

### **Deliverables:**

- A memorandum summarizing relevant aspects and recommendations from the studies listed above

### **2. Identify Existing Conditions**

#### **2.1 Obtain Aerial Images and Develop Traffic Data over Peak Periods (90 minutes)**

The following existing conditions should be collected from new aerial images collected over a minimum period of 90 minutes (the peak 90 minutes) at a rate of one image per second for both the am and pm peak periods at a level of detail and accuracy acceptable to VDOT for VISSIM calibration purposes:

- Peak hour volumes for all movements at intersections and driveways.
- Queue lengths
- Travel times
- O-D matrix that includes all possible entry and exit points to and from Braddock Road in the study area. It should include external links to evaluate total vehicular trips and traffic patterns in the corridor, including trips entering the Express Lanes, I-495, and all major transportation facilities within the Study Area for AM and PM peak periods. This origin-destination matrix should be of sufficient detail and accuracy for the calibration of a simulation model.
- O-D matrix should also include trips to and from activity centers such as shopping centers, schools, and parks in the study area.
- Commuter parking information (see section 2.3)

**Deliverables:**

- All aerial images collected
- Data files and summary tables of the data collection items listed in section 2.1
- Summary of origin-destination data for activity centers with specific section focusing on the Kings Park Shopping Center.

**2.2: Identify Roadway and Intersection Geometry and Traffic Control Conditions**

Utilizing aerial images from the previous task, SYNCHRO files from VDOT, field observation if necessary, and other sources, identify the lane configuration of all links and intersections within the study area, including the number of through lanes, turning lanes, lane widths, traffic control conditions at intersections, pedestrian crossing locations and bicycle facilities, utilities including street lights, right-of-way, and type of land use for each property adjoining Braddock Road.

**Deliverables**

- Graphics of the existing roadway alignments using GIS mapping for all study area in 1"=100' scale showing roadway and intersection geometry and existing right-of-way lines, utilities, land use, and existing intersection control measures.

**2.3: Conduct a Parking Survey**

Conduct on-street and non-residential parking survey, including survey of formal and informal commuter parking lots within the study area. The following information should be obtained: location of parking lot, number of parking spaces, and maximum occupancy on a weekday..

**Deliverables:**

- Summary of parking survey results

**2.4 Existing Conditions Operational Analysis**

Conduct a SYNCHRO analysis of all intersections.

**Deliverables:**

- Tables and graphics providing the delay, LOS, and queue lengths per movement for each intersection

**2.5: Neighborhood and Commuter Survey**

**2.5.1: Design Survey**

The consultant will develop a survey of residents within the Study Area and commuters using Braddock Road for the intended purpose of obtaining attitudes of each group, as further described below. The survey design should specifically include the manner in which each group will be identified and the desired response rate to ensure that it is representative of each group. The survey design and questions will be approved by FCDOT prior to execution of the survey by the consultant.

The purpose of the survey is to obtain, at a minimum, opinions as follows:

Residents:

- a) Assess how residents view travel and traffic in the study area and determine extent to which there is a belief that traffic is a problem that needs to be addressed.

- b) Identify concerns about possible changes to Braddock Road and the Study Area and what positive outcomes may be achieved with possible changes.
- c) Determine the extent to which residents travel on Braddock Road and in the Study Area and how those travel patterns relate to acceptance of proposed changes.
- d) Determine the extent to which some changes or improvements are more readily acceptable and what makes that change acceptable.
- e) Assess opinions on the ease of making vehicular, bicycling and walking trips to nearby destinations and activity centers within the study area (e.g., shopping centers, schools, parks, etc.).
- f) Assess opinions of where there is a need to improve pedestrian and biking connectivity and the associated facilities.
- g) Assess opinions about the future transit center that will be located along Braddock Road.
- h) Assess the likelihood that residents would change their current mode choice in response to the study alternatives, including the proposed transit center with or without commuter parking and with or without improved pedestrian and bicycle facilities.

**Commuters:**

- a) Identify commuters perceptions of problems in the Study Area related to travel, including transit and pedestrian and bicycle facilities and determine priorities for improvements.
- b) Identify current travel modes and factors guiding mode/route choices.
- c) Identify concerns about possible changes to Braddock Road and the Study Area.
- d) Identify positive outcomes to be achieved with possible changes to Braddock Road and the Study Area.
- e) Determine the extent to which some changes or improvements are more readily acceptable and what makes that change acceptable.
- f) Assess the likelihood that commuters would change their current mode choice in response to the study alternatives, including the proposed transit center with or without commuter parking and with or without improved pedestrian and bicycle facilities.

**2.5.2: Perform Survey**

The consultant will perform the survey once its design has been approved by FCDOT.

**Deliverables:**

- Report summarizing the methodology, data collection, results, and conclusions of the survey, including a general description of how the survey was conducted and a summary of the opinions with the associated conclusions from the survey results.
- The results should be summarized and conclusions should be made. The survey results should be stratified by broad geographic areas, traveler type such as commuter, shoppers, etc. and other demographics such as age.
- Relevant tables and graphics to support study conclusions.

**3. Transit Center Feasibility Study**

**3.1 Identify and Screen Alternative Sites**

- a. Based on parking survey, determine the required number of parking spaces needed at the transit center.

- b. Site location evaluation of up to 5 sites in close proximity to Braddock Road and Burke Lake Road.
- c. Review zoning regulations for all Transit Center site locations
- d. Coordinate with Fairfax Connector and WMATA on existing and future bus stops and routes and service along the Braddock Road corridor, including recommendations in the county Transit Development Plan.
- e. In coordination with FCDOT, task force, and other stakeholders, select two sites for further study.
- f. Prepare up to 3 conceptual design alternatives to accommodate future car parking needs including parking layout or structure (if needed), bus bays needs and bike parking needs for the two selected sites.
- g. Prepare cost estimate for each of the conceptual designs for each of the two sites
- h. Conduct Transit Center traffic impact analysis for each of the two sites. If different traffic patterns are created for the alternate conceptual designs, traffic impact analyses should be performed for each alternate concept.
- i. Develop Evaluation Matrix to be used to select one preferred site

### **3.2 Finalize Preferred Site (Optional)**

Upon direction by FCDOT following review of the alternatives by appropriate stakeholders, finalize one conceptual plan, including:

- massing studies (optional)
- site sections (optional)
- elevation concepts (optional)

#### **Deliverables**

- Brief memo describing the rationale for selecting the two preferred sites from the five originally identified
- Three conceptual plans for each of the two sites in close proximity to the Braddock Road corridor.
- Evaluation matrix including zoning evaluations, environmental assessment constraints, and cost estimates for all site plans
- Summary of pros and cons for each proposed Transit Center location as a part of final report
- One site plan as directed pursuant to 3.2
- Report

## **4. Travel Demand Modeling**

### **Note:**

The County transportation model should be used. FCDOT will supply the applicable files and information.

### **4.1 Subdivision of Zones, Determination of Associated Land Use for Existing Conditions and Future Year (2040), Establishment of Transportation Networks**

Zones should be subdivided to a level appropriate for the level of detail required in this project. In addition, as part of the subdivision of zones, the land use should be subdivided accordingly. The road networks (existing conditions, 2040) should be coded in an appropriate level of detail.

**Deliverables:**

- Associated files

**4.2 Calibration of Travel Demand Model (existing conditions)**

The travel demand model should be calibrated in a way that is acceptable to VDOT. The resulting trip matrix should be of sufficient detail to produce the O-D matrix for the VISSIM simulation.

**Deliverables:**

- Associated files and a table of observed traffic counts compared to modeled traffic

**4.3: Forecast Traffic (2040)**

By using 2040 land use and the 2040 road network, a future vehicle trip matrix should be established at sufficient detail to produce the O-D matrix for VISSIM simulation.

**Deliverables:**

- Associated files

**5. VISSIM Simulation for Existing Conditions and 2040**

**5.1 Calibration of VISSIM Model (existing conditions)**

A VISSIM model should be coded for the study area. The O-D matrix produced in Task 4.2 should be used to accurately replicate weaving and merging conditions. The calibration should be done according to VDOT standards.

**Deliverables:**

- Documentation of the calibration process and results as required by VDOT
- An image-based comparison of the queues shown in the aerial images (from Task 2.1) and the simulated queues should be provided.

**5.2 No-Build VISSIM Model for 2040**

A no-build VISSIM model simulation should be provided for 2040. MOEs identified in Section 5.3 below should be produced.

**Deliverables:**

- Associated files

**5.3 Evaluation of Future Alternatives**

Based on the calibrated VISSIM model, a 2040 VISSIM model simulation should be produced for each of the alternatives listed in section A of the study elements and for each of the final transit alternatives. The consultant should allow for up to three variations for each of the basic configurations identified in Section A, where variations may entail minor adjustments to intersection geometry or other traffic operational factors.

**Deliverables:**

- Report should stress easy to read tabular and graphic presentation of findings and include concise, clarifying support text, and shall include at a minimum for each alternative:
- Overall total network hours of delay for Braddock Road study area
- Travel time and delay along Braddock Road between the project termini
- Intersections queue length by movement graphics
- Balanced flow maps
- Summary of intersection delay and LOS by movement table
- Intersection queue lengths
- AVI clips

**5.4 Evaluation of Near-Term Alternatives (Optional)**

If directed by FCDOT, as an optional task the consultant will prepare VISSIM network(s) and simulations as identified in 5.2 and 5.3 for an intermediate year which will be established through consultation with FCDOT and appropriate stakeholders.

**6. Alternatives Evaluation****6.1: Measures of Effectiveness**

Evaluate each alternative and prepare recommendations using MOE's and an Evaluation Matrix. The project team, including FCDOT and the consultant, shall work with the community task force to finalize MOE's to be used. MOE's should include following factors at a minimum:

- Cost
- Constructability
- Traffic operations
- Right of way and property impacts
- Environmental impacts
- Overall delays in the study area
- Person throughput
- Queue length
- Intersection performance (delay and LOS per movement)

**6.2: Alternatives Selection**

Using the MOE's and Evaluation Matrix, coordinate with FCDOT, VDOT, the task force, Fairfax County Public Schools (FCPS), Fairfax County Park Authority (FCPA), and other stakeholders to select up to three, viable "preferred alternatives" to be studied further.

**Deliverables:**

- Matrix including all MOE's
- Memorandum documenting the narrowing of alternatives to 3 recommended

**7. Preferred Alternatives Development and Evaluation**

Develop and evaluate preferred alternatives selected in Task 6.

### **7.1: Conceptual Plans**

Conceptual plans shall be developed for preferred alternatives that show proposed facilities (roadway, stormwater, etc.) property, environmental, and utility impacts. Plans shall also include potential landscaping and noise and visual mitigation measures.

#### **Deliverables:**

- Plans at 1"=100' scale showing the elements detailed above

**7.2:** Examine ability to connect directly to I-495 Express Lanes facility, including possible bridge widening to accommodate the additional lanes. Evaluate all three alternatives for viability – general purpose (GP) lanes only/HOV 2/HOV 3/HOT lanes. Make recommendation on preferred alternative. Evaluate best location for roadway widening to accommodate GP lanes only/HOV 2/HOV 3/HOT lanes (e.g., far left lane, far right lane, center lane) in terms of effectiveness, safety, and traffic flow. Evaluate enforcement strategies to examine occupancy violations utilizing the HOV and HOT facilities.

#### **Deliverables:**

- Memorandum documenting the elements detailed above

**7.3:** Examine implementing innovative at-grade solutions for incorporating preferred alternative on Braddock Road from Burke Lake Road to I-495 (e.g., turn-lane restrictions, lane conversion to accommodate peak hour traffic, queue jumping for buses). If applicable, solutions used in other states can be considered.

#### **Deliverables:**

- Memorandum discussing innovative solutions

**7.4:** (Optional Task): If at grade alternatives are not effective for managed lanes between Burke Lake Road and I-495, examine possibility of grade-separated solutions.

#### **Deliverables:**

- Memorandum documenting recommendations

### **7.5: Operational Improvements**

Evaluate traffic signal operations and coordination along the corridor and potential operational improvements, utilizing SYNCHRO files from VDOT.

#### **Deliverables:**

- Presentation showing potential operational improvements using simulation video clips.

### **7.6: Access Management**

Evaluate access points along Braddock Road and provide recommendations on changes necessary to meet current access management standards.

#### **Deliverables:**

- Plans at 1"=100' scale showing existing access points and recommended changes

### **7.7: Pedestrian and Bicycle Facilities**

Analyze existing pedestrian and bicycle facilities network in the study area, and develop recommendations for improvements and additional facilities including the following:

- Roadway crossings (at grade) along Braddock Road at key intersections
- Connections from Braddock Road into adjacent neighborhoods and to existing facilities within approximately 0.5 miles from the study corridor.
- Connections to existing Fairfax County Park Authority facilities, including the Long Branch Stream Valley (trail goes from Olley Lane to Canterbury Woods Park) and the Cross County Trail (trail passes underneath Braddock Road where it crosses Accotink Creek).
- Connections to shopping centers, parks, schools, and other destinations in the study area, including the proposed transit center.

**Deliverables:**

- Plans at 1"=100' scale showing existing facilities and recommended improvements

**7.8: Right of Way, Property, and Utility Impacts**

Using GIS data, assess the right of way, property, and utility impacts of the proposed additional lanes for the 3 recommended alternatives selected in Task 6. Additional land that may be required as part of the Braddock Road project will need to be checked with the final I-495 HOT Lanes fee taking and easement limits.

**7.9: Stormwater Management (SWM)**

Assess the drainage issues for the alternatives using drainage maps and GIS maps, including an analysis of the potential stormwater management facilities that will be required and associated property and right of way impacts. Set up criteria to measure all factors in alternatives and their impacts. Essential graphics and tables should be included depicting needed R-O-W, utility impacts and environmental obstacles. It is anticipated that the three preferred alternatives may have similar SWM requirements; however, alternative SWM options should be developed.

**Deliverables:**

- Plans at 1"=200' scale showing possible locations for SWM measures, existing and proposed right of way, and existing utilities.

**7.10: Preliminary Environmental Analysis**

Conduct an environmental screening of the alternatives to identify major environmental obstacles to the proposed alternatives such as air, noise, cultural and historical sites, wetlands, ROW impacts, impacts on parks, etc.

**Deliverables:**

- Documentation and level of effort shall conform to the VDOT PEI (Preliminary Environmental Inventory) format, summarizing environmental inventory and highlighting any critical project issues. Visual and noise mitigation measure should be studied and if feasible, incorporated into the recommended concept.

**7.11: Constructability Review**

Evaluate proposed alternatives for constructability, including maintenance of traffic during construction.

### **7.12: Landscaping**

If impacted by roadway improvements or transit center, identify landscaping needs for adequate screening. Essential graphics should be included showing possible screening options adjacent to residential communities. Include planning level cost estimate.

### **7.13: Coordination**

Coordinate proposed alternatives with the following:

- Fairfax County Public Schools on how each alternative will impact school bus routes.
- Fairfax County Park Authority on how each alternative will impact park facilities and access.

### **7.14: Cost Estimates**

Prepare construction cost estimates for each of the preferred alternatives.

### **7.15: Updated MOE's and Evaluation Matrix**

Update MOE's and Evaluation Matrix, including a list of pros and cons for each site. MOE's shall be revisited with the community task force and stakeholders as well as FCDOT and VDOT before final evaluation.

In coordination with FCDOT, VDOT, the task force, FCPS, FCPA, and other stakeholders prepare final recommendation to choose one of the preferred alternatives. An updated set of MOE's and evaluation matrix shall be prepared along with pros and cons of each of the preferred alternatives. These documents will be shared and discussed with the task force and stakeholders.

#### **Deliverables:**

- Updated List of MOE's including 7.11 to 7.14 above
- Updated Evaluation Matrix
- Summary of pros and cons for each preferred alternative

## **8. Final Recommended Alternative and Final Report**

Participate in the consensus selection of a single preferred alternative through coordination with community and stakeholders as well as FCDOT and VDOT. Prepare a final report documenting the process and final recommendations. The documentation should address public outreach, data collection, analysis, alternative testing and evaluation, and should present configurations, alignments and cost estimates.

#### **Deliverables:**

- Technical report detailing all tasks above, including an Executive Summary, Conclusions, and all supporting data as appendices.
- Provide five copies of the draft final report for the County's review and ten copies for the final report to be distributed. Digital copies of the report and all supporting materials should also be provided.

## **9. Task Force Participation/Meeting Presentations/Public Involvement**

The Braddock District Supervisor has established a community task force for this project made up of community representatives along the project corridor. Further information on the task force can be found at <http://www.fairfaxcounty.gov/braddock/braddockroad.htm>. As part of the project, attendance at task force meetings will be required. In addition, several larger public information meetings are envisioned for this study.

**9.1: Attend task force meetings.**

The first Wednesday of every month has been reserved for task force meetings that are held at 7:30 p.m. We do not anticipate consistent monthly meetings. Meetings will be held at appropriate stages of the project, and there could be periods where there are several monthly meetings in a row. The consultant should attend the meetings, prepare meeting minutes, and provide the necessary handouts and presentation materials for work performed as part of the study that will be presented at the task force meetings. In addition, the schedule should include a first meeting with the task force. This meeting will serve as an introduction to the task force, and also include a discussion of the project scope, schedule, and task force involvement. Assume an average of eight meetings a year over the life of the study with a lump sum cost per meeting. Additional meetings should be included as an optional task (see below) with a lump sum cost per meeting.

**9.2: Coordinate with the task force.**

Generally, coordination with the task force will be handled directly by county staff. However, the consultant will be an integral part of this process as the task force will be involved throughout the entire study. Include coordination with the task force, which could entail answering task force questions via email and preparing interim documents or maps to distribute to the task force between meetings.

**9.3: Attend public information meetings.**

We anticipate regular public meetings on this study, reaching out to the greater public in the area of the project. The consultant should attend the meetings, prepare meeting minutes, and provide the necessary maps and presentation materials for the meetings. Typically, County staff will present information at the meeting, but the consultant should participate in the question and answer session as appropriate. In some cases, the consultant may be asked to do a portion of the presentation. For each meeting, include attendance at one advance briefing with the Braddock District Supervisor. Assume an average of two meetings a year over the life of the study with a lump sum cost per meeting. Additional meetings should be included as an optional task (see below) with a lump sum cost per meeting.

**Deliverables:**

- For each meeting, prepare meeting notice, agenda, handouts, presentation (if needed) and summary meeting minutes.

**9.4 (Optional Task): Additional meetings.**

Provide a lump sum cost per meeting as an optional task for the following meetings:

- Task Force Meetings: 8 meetings
- Public Information Meetings: 4 meetings

**Technical Proposal Contents and Format:**

The technical proposal shall contain the following information, considered to be the minimum contents of the proposal, and shall be arranged in the same order and identified with headings as presented herein:

1. **Cover Letter:** The cover letter should be signed by a party authorized to bind the entity submitting the proposal.
2. **Work Plan:** Contain a work plan which concisely explains how the consultant will carry out the project. In the work plan, the proposer shall describe each project task and proposed approach to each task as clearly and thoroughly as possible
3. **Schedule:** Include a preliminary schedule for the project in MS Project format. Indicate all work plan tasks and their durations. The chart should also include a preliminary meeting schedule. The schedule shall clearly identify project deliverable dates. It is desirable for the study to be completed within the shortest timeframe possible, but all critical elements in this scope must be completed to the satisfaction of the County.
4. **Staffing Plan:** Include a staffing plan for the project. The plan shall include the following:
  - a) A project organization chart, identifying the project manager.
  - b) Names of key project team members and/or sub-consultants. Only those personnel who will be working directly on the project should be cited.
  - c) The role and responsibility of each team member.
  - d) A table that provides the number of hours allocated to each team member by task for the contract period.
5. **Budget:** In a separate, sealed envelope, include a table detailing the costs associated with each task, including estimated hours required by discipline and staff level and labor rates in accordance with the approved on call contract. Reimbursable costs should also be included.

**Other Administrative Matters**

**Questions Deadline**

Should you have any questions about this task order, please contact me via email only. **The deadline for questions concerning this task order is Friday, October 3, 2014, no later than 3 PM.** Answers to questions will be provided to all the consultants receiving this task order request.

**Pre-Proposal Meeting**

A pre-proposal meeting will be held at the Fairfax County Department of Transportation office as follows:

**September 30 at 1:30 pm**  
4050 Legato Road, Suite 400  
Fairfax, Virginia 22033

**Submission Deadline**

The submission deadline must be strictly adhered to. **All contractors are required to submit six (6) paper copies and one (1) electronic copy by Friday, October 10, 2014, no later than 2 PM to:**

Tad Borkowski, P.E.  
Senior Transportation Planner  
Fairfax County Department of Transportation  
4050 Legato Road, Suite 400  
Fairfax, Virginia 22033  
Telephone: (703) 877-5667  
Email: [tad.borkowski@fairfaxcounty.gov](mailto:tad.borkowski@fairfaxcounty.gov)

**Billing**

Billing for this project will be monthly. A progress report must accompany each invoice.

**Proposed Personnel**

Personnel proposed in the Contractor's written proposal are considered material to any work performed under this task order and subsequent contract. During the course of this procurement and after the contract has been signed, no changes of personnel will be made by the Contractor without County of Fairfax consent. Replacement of any Contractor personnel, if approved, shall be with personnel of equal ability, experience and qualifications. The Contractor will be responsible for any expenses incurred in familiarizing the replacement personnel to ensure their being productive immediately upon receiving assignments.

**Follow-up Supporting Activities**

The Contractor shall conduct any additional data and analysis with prior direction and approval of the County, as may be necessary, to properly address the above task order work.

# Braddock Road Multimodal Study Outline

July 2014

The Braddock Road Widening Study will consist of three main components: study widening/HOV/transit needs from Burke Lake Road to I-495, study widening/transit from Guinea Road to Burke Lake Road, and study a parking/transit center facility on Braddock Road in the vicinity of Burke Lake Road.

## 1. Corridor-wide tasks

- a. Perform an Origin-Destination study to evaluate total vehicular trips entering the Express Lanes and northbound I-495 and the traffic patterns in the corridor.
- b. Perform a corridor traffic analysis to assess turn lanes, queuing, vehicular weaving and merging issues, growth along the Braddock Road corridor, cut-through traffic and parking in residential neighborhoods.
- c. Coordinate all alternatives studied with adjacent communities.
- d. Study trail systems, bicycle connections, bus stops, lighting, sight distance at intersections, and pedestrian crossings and missing links for safety.
- e. Investigate right-of-way and environmental impacts of all alternatives, such as noise (during construction and after project build-out), air quality, stormwater management, impacts on parks, wetlands, etc., including mitigation strategies.
- f. Develop planning level cost estimates for each alternative.
- g. Look at the county's latest Transit Development Plan (TDP) recommendations for all planned transit service changes and improvements within the core and expanded study areas listed in the "Recommendations" section of the TDP.
- h. Incorporate results and recommendations from the Braddock Road/Wakefield Chapel Road/Danbury Forest Drive Study.
- i. Evaluate access management strategies.
- j. Evaluate landscaping needs and community priorities, including discussion of existing landscaping.
- k. Evaluate traffic signal operations and coordination along the corridor and other operational improvements.

- l. Perform license plate survey at the Kings Park Shopping Center.
- m. Perform neighborhood travel survey.
- n. Evaluate entire study corridor for drainage and effective stormwater management strategies.
- o. Coordinate with Fairfax County Public Schools on how each alternative will impact school bus routes.

**2. HOV Widening from Burke Lake Road to I-495**

- a. Examine ability to connect directly to I-495 Express Lanes facility, including possible bridge widening to accommodate the additional lanes.
- b. Evaluate all four alternatives for viability – GP lanes only/HOV 2/HOV 3/HOT lanes. Make recommendation on preferred alternative.
- c. Evaluate best location for roadway widening to accommodate GP lanes only/HOV 2/HOV 3/HOT lanes (e.g., far left lane, far right lane, center lane) for effectiveness, safety, and traffic flow.
- d. Evaluate enforcement strategies to examine occupancy violations utilizing the HOV and HOT facilities.
- e. Examine implementing innovative at-grade solutions for incorporating preferred alternative on Braddock Road (eg. Turn-lane restrictions, lane conversion to accommodate peak hour traffic, queue jumping for buses).
- f. Also examine possibility of grade-separated solutions and draw a comparison with at-grade solutions for the preferred alternative to be effective.
- g. Study all intersections for vehicular and pedestrian safety improvements and possible alignment. It is noted the following key intersections may require additional analysis:
  - o Wakefield Chapel Road/Braddock Road
  - o Danbury Forest Drive/Braddock Road
  - o Burke Lake Road/Woodland Way/Braddock Road
  - o I-495/Ravenworth Road/Port Royal Road/Queensberry Avenue
  - o Burke Lake Road and Rolling Road
- h. Research similar examples of roadway widening incorporating HOV in other jurisdictions (DC, MD and other states).

**3. General Purpose Widening from Guinea Road to Burke Lake Road**

- a. Develop conceptual design of addition of General Purpose lanes on the Braddock Road segment from Guinea Road to Burke Lake Road.
- b. Ensure coordination with HOV lane east of Burke Lake Road.
- c. Identify right-of-way, environmental issues, and community concerns regarding this segment.

#### **4. Transit Center/Park and Ride/Transit Service**

- a. Develop conceptual design of the Transit Center on Braddock Road, including determination of parking needs, slug line accommodation and transit needs along the Braddock Road study corridor.
- b. Coordinate with Fairfax Connector and WMATA on existing and future bus stops and routes and service along the Braddock Road corridor, and how each alternative will function with the proposed park-and-ride facility.
- c. Evaluate usage of current park-and-ride lots and informal carpooling along the corridor.
- d. Coordinate with recommendations from the Transit Development Plan.
- e. Study pedestrian/bike facilities to/from and within the Transit Center.
- f. Study vehicular access to and from the Transit Center location and evaluate for pedestrian and vehicle safety.

#### **5. Summary of Study Alternatives**

- a. Addition of only General Purpose Lanes from Burke Lake Road to I-495.
- b. Addition of two HOV 2 Lanes from Burke Lake Road to I-495.
- c. Addition of two HOV 3 Lanes from Burke Lake Road to I-495.
- d. Addition of two HOT Lanes from Burke Lake Road to I-495.
- e. Addition of two General Purpose Lanes from Guinea Road to Burke Lake Road.
- f. Addition of Transit Center and Commuter Parking.

g. No-Build Alternative.

## 6. Additional Considerations

6.1. AM origin study should include Rolling Road, Burke Lake Road, Guinea Road, Braddock Road West, Wakefield Chapel Road, Port Royal Road, and Queensbury Avenue as major contributors.

6.2. Include westbound traffic from inside the beltway in AM origin study.

6.3. Include AM destination trips entering South bound I-495 traffic to identify total destination needs and to balance need for support of location of HOV lanes.

6.4. Consider impact of various components and how this influences the design.

- 6.4.1. Buses
- 6.4.2. Carpools
- 6.4.3. Commercial
- 6.4.4. School Buses
- 6.4.5. Other vehicles

6.5. Assess PM destination volume exiting Braddock Road at the following destinations:

- 6.5.1. Port Royal Road
- 6.5.2. Queensbury Avenue
- 6.5.3. Wakefield Chapel Road
- 6.5.4. Southampton Drive
- 6.5.5. Rolling Road
- 6.5.6. Burke Lake Road (including split onto Rolling Road continuing west on Burke Lake Road)
- 6.5.7. Guinea Road (both north and south)
- 6.5.8. Braddock Road West beyond Guinea Road

6.6. Evaluate Church Entry/Exit considerations during all normal church and church school operations. (Especially Holy Spirit Church and School which interfaces with Braddock Road/Burke Lake Road/Woodland Way).

6.7. PM destination volume exiting Braddock Road at the following destinations:  
Coordinate all alternatives studied with adjacent communities.

- 6.8. Assess impact on accessibility to King's Park Shopping Center to include the commercial space on Rolling Road facing the shopping center.
- 6.9. Coordinate all alternatives with Fairfax County Park Authority representatives to assess impact on FCPA and private activities on Park Authority land and existing park facilities.
- 6.10. Evaluate impacts to the Cross-Country Trail.
- 6.11. Consider construction of a Wakefield Chapel pedestrian Underpass.
- 6.12. Provide comprehensive Braddock Road Pedestrian and Bicycle trail on both sides of Braddock Road from I-495 to Guinea Road.
- 6.13. Assess integration of trails along Braddock Road with extended bicycle and trail master plans further West on Braddock Road.
- 6.14. Assess feasibility and effectiveness of elevated pedestrian crossings.
- 6.15. Address continued suitability of unsupported crossings (crosswalks with no stoplights).
- 6.16. Consider areas with stormwater issues at:
  - o Red Fox Forest
- 6.17. Assess Sound Abatement concerns for the following communities:
  - o Ravensworth
  - o Red Fox Forest
  - o Long Branch Civic Association
- 6.18. Include evaluation of plans for transit development in surrounding areas (Fairfax County Parkway, I-66, Metro-rail expansion, etc.) that affect what feeds the Braddock Road corridor.
- 6.19. Look at the Fairfax County Development plan to determine the potential impact of surrounding area developments on the future Braddock Road Corridor traffic (areas such as Fort Belvoir, Newington, Springfield Mall, Centerville, Dulles Corridor, etc.)
- 6.20. Evaluate traffic Interface between HOV lanes and bus stops for crossover and interference issues.
- 6.21. Define need for extended left turn lanes at major intersections.

- 6.22. Coordinate with FCPS on how each alternative will impact school bus routes especially at Bradfield Dr.
- 6.23. Assess community vehicle and pedestrian entrapment issues and potential solutions at:
  - Red Fox
  - Long Branch
  - Park Glen
  - Southport
  - Stonehaven
- 6.24. Consider the impact on study alternatives of constructing a fourth I-495 cloverleaf with associated modification of traffic patterns on the I-495 bridge.
- 6.25. Consider the effectiveness of construction of an entry and exit to the outer loop of I-495 at the South end of Port Royal Road to mitigate Braddock Road congestion concerns.
- 6.26. Consider how the process for diamond lanes on Route 1 in Alexandria might apply.
- 6.27. Assess impact of commercial vice public transit at Port Royal Road.
- 6.28. Assess impact of alternate transit and park and ride areas on the Transit Center and bus service, such as:
  - Parkwood Baptist Church Property
  - NVTC
  - Route 286
  - Burke VRE
  - Old Keene Mill Road
- 6.29. Assess impact on accessibility to Wakefield Park Recreational Community Center at Wakefield Park and Ravensworth Shopping Center.