



March 5, 2020

Proposal for Village of Waterford Traffic Calming and Byway Assessment

Michael Baker International (Baker) is pleased to submit this proposal to Loudoun County for delivery through the on-call consultant contract #RFQ-585. The scope of services and associated fee are included in this submittal for your review.

Purpose

The purpose of this task is to evaluate mid-term traffic calming options and to assess the feasibility of long-term byway options for the Village of Waterford. The mid-term concept evaluation will investigate options for the installation of traffic calming measures for the Village of Waterford, at the three entry points to the Village along First Street (Route 662), Loyalty Road (Route 665), and Clarkes Gap Road (Route 662). This component will include the conceptual designs of chicanes, chokers, and splitter islands, as well as an evaluation of impacts and program level cost estimates of each alternative traffic calming measure.

The second component of this task is to determine the feasibility for a long-term improvement project that will significantly reduce or eliminate cut-through traffic in the Village of Waterford. The primary work for this component will be to identify physical, environmental and other known constraints, possible byway locations around the Village of Waterford, and identify next steps to include detailed and formal evaluation complying with federal and state guidelines of the long-term options.

It is critical that both components of the task do not jeopardize the Village of Waterford's status on the Virginia Historic Landmarks Register as well as the Village's status as a National Historic Landmark District.

Background

During the January 21, 2020 Board of Supervisors Business Meeting, Catocin District Supervisor Kershner moved that the Board of Supervisors direct staff in the Department of Transportation and Capital Infrastructure (DTCI) to initiate the process to install three temporary pole mounted speed display signs at the entry points to the Village of Waterford along First Street (Route 662), Loyalty Road (Route 665), and Clarkes Gap Road (Route 662) (to be installed in Spring 2020). Supervisor Kershner further moved that DTCI review the viability of other traffic calming measures such as chicanes, chokers, and splitter islands at the three entry points to the Village mentioned previously, as well as the feasibility of a byway. These directives are based on the results of several studies conducted in the Village of Waterford, including *2018 Final Technical Report: Village of Waterford Cut-Through Traffic Study* and a 2019 Traffic Calming Study conducted by DTCI.

It is important to note that this task order is to investigate the feasibility of mid-term and long-term options to divert cut-through traffic within the Village of Waterford and recommendations will only be provided for the mid-term options. A recommendation for the byway will not be included. As such, a purpose and need statement will only be developed for the mid-term option and will not be developed for the long-term assessment. The 2019 Countywide Transportation Plan (CTP) does not include a byway around the Village of Waterford and if the County chooses to move forward with the byway facility, a successful process to amend the 2019 CTP will be required.

The individual tasks necessary to complete these traffic services are described below:

Task 1 – Data Collection

Traffic Data

Traffic volume and speed data were previously collected by the County in 2019 at various locations inside the Village as well locations outside of the Village Corporate Limits. That information will be used in support of this study effort. No additional traffic data will be collected as part of this study; however, the data provided by the County will need to be processed for use in the development of a mid-term traffic calming recommendation and to assess the feasibility of a long-term byway option.

Crash Data

Crash data will be obtained from the VDOT public crash database. The crash data will be reviewed, reported, and analyzed for the inclusion in the evaluation of the alternatives.

Site Field Review

Michael Baker will conduct a site field review to observe the study area first-hand, take photos, verify information of previous studies and become completely familiar with the study area. Examples of information to be collected in the field include, but not limited to:

- Existing lane configurations
- Existing sight-distance conditions
- Apparent geometric, private property or utility challenges associated with accommodating the mid-term and long-term traffic calming options.
- Historical landmarks and bodies of environmental significance
- Look for possible causes of crash history
- Overhead utility locations (supplemented with Loudoun County WebLogis data for other utility locations)

Environmental Data

Environmental data will be collected for use in the evaluation of mid-term traffic calming measures and the review of the long-term byway options. The data to be collected will include, but not be limited to Natural resources (wetlands and streams), recreational resources, cultural resources, protected species, floodplains, existing well and drain field locations, major powerlines, water lines, cemetery locations, and parcel boundaries obtained from the County, VDOT or publicly available resources. The data will be mapped and evaluated, and the cost estimates for each option will include mitigation costs for any identified constraints.

Origin/Destination Data

A Streetlight analysis will be performed using the latest year of available peak period commuting hours to obtain origin/destination data for the primary cut-through traffic patterns through the Village of Waterford:

- Vehicles traveling between Milltown Road and Clarkes Gap Road (both directions)
- Vehicles traveling between Clarkes Gap Road and Loyalty Road (both directions)

It is assumed that the primary source of the cut-through traffic is Loudoun County commuters and out-of-state commuters. However, the boundaries of the Streetlight data will be determined during the analysis to ensure the limits of the analysis capture all of the relevant data.

Future Volumes Forecast

For the purposes of assessing the traffic control at the three (3) existing entry points of the Village of Waxpool, the future design year is assumed to be 2040. In order to obtain the 2040 future volumes forecasts, the County's Travel Demand Model (TDM) will be utilized. It is assumed that DTIC staff will be responsible for all TDM related activities in order to provide Baker with the 2040 forecasted volumes, and Baker will not be required to validate the model input changes or outputs. The TDM output will be in the form of link-level data for daily volumes as well as AM and PM peak periods. The forecasted volume data will be compared to the existing traffic volumes.

Task 2 – Mid-term Concept Evaluation

This task will evaluate and compare permanent, mid-term options for chicanes, chokers, and splitter islands at the three entry points to the Village along First Street (Route 662), Loyalty Road (Route 665), and Clarkes Gap Road (Route 662), while preserving the historic status and character of the village.

For each of the traffic calming options listed above, potential construction locations will be determined, conceptual designs will be developed, and detailed programming level cost estimates will be calculated. The conceptual designs will be completed in Microstation and overlaid on aerial imagery and GIS parcel data to identify potential impacts. These sketches will be used for illustration purposes during meetings and will be included in the study final report. The evaluation of the mid-term alternatives will include a matrix comparing criteria for cost, feasibility, right-of-way impacts, aesthetics, maintenance requirements, along with other items identified during the study process. A preferred option for traffic calming will be decided upon based on the evaluation and input from stakeholders.

Task 3 – Long-term Concept Feasibility Assessment

This task will assess and compare long-term concepts for a project that will significantly reduce or eliminate cut-through traffic in the Village of Waterford. The primary work for this task will be the identification of physical, environmental, and other known constraints for possible byway locations around the Village of Waterford. This task will also include the identification of future required activities for the detailed and formal evaluation of long-term options, complying with federal and state guidelines, including its workflow process.

Work for this task will include mapping the environmental constraints identified in Task 1 and developing potential locations for a new-location byway around the Village for the feasibility assessment. The byway options will include connection alternatives from both Milltown Road and Loyalty Road to Clarkes Gap Road (Route 662). A minimum of four (4) options will be included in the study which will look at future possible connections between Main Street, Loyalty Road and Clarkes Gap Road. Two of the options shall be assessed on the western part of the village and two options east of the village. As part of the report each option will be presented with a workflow that will explain the process and timelines for each option from Planning Phase to Construction, if feasible. Each option shall include a disclaimer/note that specifies that these options are a representation of the study assessment and they are not part of the current Countywide Transportation Plan (CTP). The workflow shall include the following, but it is not limited to:

1. Planning Phase
 - a. Formal Studies Required (Ex. NEPA, etc.)
 - b. Alignment Studies
2. Environmental Reviews/Impacts
 - a. Floodplain
 - b. Wetlands
 - c. Historic Impacts (depending on options)
3. Design
4. Traffic Analysis
5. Land Acquisition
6. Utility Relocations
7. Construction Advertisement
8. Construction

All tasks identified in the workflow shall include an approximate duration (in years or months). In addition, each option will include a Cost Range that considers all of the above tasks from Planning Phase to Construction. The cost range shall be a combination of professional experience and any other sources such as VDOT PCES tool for present and future value.

For each of the byway options, high-level conceptual layouts with aerial background will be developed, impacts to environmental constraints, right-of way, and utility locations will be identified, and a range of planning level costs will be developed using the VDOT PCES tool in present day and future dollar values (including the planning, design, and construction activities. Design details such as cross-sections will not be developed. The sketches will be used for illustration purposes during meetings and will be included in the

study final report. It is presumed that a CTP Road Type R2 typical section (Rural two-lane undivided with shoulder and ditch) will be sufficient for future traffic demands and the planning level cost estimates will be based on such. The development of typical section exhibits of the rural two-lane typical section (for presentation at meetings) is included in this task

In addition to the Byway options, Baker will look at the Countywide Transportation Plan and identify any future improvements or widenings that have been identified in the CTP that could potentially impact positively the Byway options near the Village of Waterford. A qualitative discussion will be included explaining what potential impacts of the CTP improvements will have on the feasibility of a byway around the Village of Waterford.

Task 4 – Meetings

It is anticipated that seven (7) in-person meetings will be conducted throughout the study process for the following purposes:

- To discuss with project stakeholders the scope and goals of the study. Stakeholders will include but not be limited to VDOT and a representative of the Waterford Citizen’s Association
- To discuss the preliminary mid-term and long-term options with VDOT
- To discuss the evaluations of the mid- term and long-term traffic calming options with the Waterford Citizen’s Association
- To discuss the preliminary findings of the study with the Catoctin District Supervisor, Caleb Kershner, prior to presenting the final report to the Board of Supervisors
- Attending a Loudoun County Board of Supervisors Business Meeting
- Meetings with Loudoun DTCl staff to discuss progress and work completed to date

In addition to the in-person meetings, conference calls and/or WebEx meetings will be conducted with DTCl staff every three weeks or as requested.

Task 5 – Report

A detailed draft report will be prepared that documents the study process, work completed in the previous tasks, the evaluation of mid-term options, and the assessment of long-term byway options. The report will be formatted as an 11 x 17 document.

Based on one set of revisions, a FINAL report will be provided to Loudoun County through electronic submission. The electronic submission will include digital copies of the document, associated mapping (including GIS shape files and MicroStation files) and pertinent graphics, figures, photos, and support material. Eight hard copies of the report will be provided for the County’s use.

Task 6 – Project Management, Coordination and Communication

This task consists of the time required to administer the project addressing contract matters, internal project coordination, general quality control, and schedule management.

Quality Control (QC) Program

Baker has an effective quality assurance/quality control (QA/QC) program that ensures accurate deliverables and control of costs. By following this proactive process, potential problems and design issues are identified, clarified, and addressed early in the project. Quality control measures begin with an in-house staff meeting and are in place prior to the first kick-off meeting with the client.

The QA/QC program requires that a comprehensive work plan be developed interactively by the entire project team with continuous monitoring and updating. This highly interactive process includes hands-on work sessions with the appropriate user and client representatives. This provides an environment in which all issues can be identified, prioritized, and integrated into a comprehensive solution. Other critical elements in Baker's QA/QC program that ensure a consistently high level of service include the following:

- Assignment of a QA/QC analyst to each team;
- Empowerment of the QA/QC reviewer to identify critical issues and assist in developing a time responsive solution for resolution;
- Formal QC activities which occur at the project's initiation and every submittal stage, and informal QA/QC assessments which occur more frequently;
- Consistency review which is provided by the project manager and QA/QC analyst on every work element; and
- An independent peer review, provided by a senior level staff person, to confirm that overall task order objectives are met. For this task order, Paul Prideaux, P.E. will conduct the independent peer review for all submittals and deliverables.

Baker will provide a copy of their signed QC documentation to the County with the final submission.

Task 7 – Optional Services

- The long-term conceptual alignments will be modeled in OpenRoads ConceptStation or similar modeling software. This will provide a baseline check against topographic limitations and standard geometric standards.
- Two additional meetings (if required)
- Additional exhibits/support material for meetings. Any Large format plots will be in roll-out format and will not be mounted.