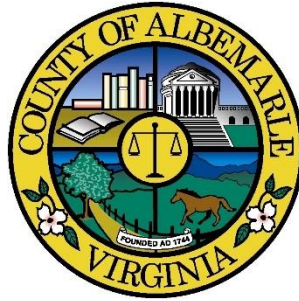


**Eastern Avenue
Rockfish Gap Turnpike to Westhall Drive
Preliminary Design
Scope & Fee Proposal**

November 11, 2019



ENGINEERING SCOPE OF SERVICES & FEE PROPOSAL

for

**Eastern Avenue
Rockfish Gap Turnpike to Westhall Drive
Preliminary Design**

November 11, 2019

Submitted To: Albemarle County Facilities Planning and Construction
Project Management Division

Submitted By: Kimley-Horn and Associates, Inc.
1700 Willow Lawn Drive
Suite 200
Richmond, VA 23230
804-673-3882



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PROJECT DESCRIPTION**

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This project consists of a location study and the design of conceptual roadway plans including the development of an engineer's opinion of probable construction cost to support Albemarle County in obtaining funding for the construction of Eastern Avenue between Route 250 (Rockfish Gap Turnpike) and Westhall Drive. The proposed improvements total approximately 3,000 linear feet and generally involve the construction of a two lane undivided typical section with a crossing over Lickinghole Creek. The proposed improvements will consist of evaluating and recommending a preferred alignment for Eastern Avenue from Route 250 (Rockfish Gap Turnpike) to the existing northern beginning point of Eastern Avenue at Westhall Drive. This will including a proposed bridge crossing of Lickinghole Creek. The proposed typical section for Eastern Avenue is assumed to consist of a two-lane undivided section with the design of left and right turn lanes, sidewalk, bicycle accommodations and curb and gutter improvements. Following selection of a preferred alignment for Eastern Avenue by Albemarle County, Kimley-Horn will develop the conceptual design of one (1) preferred alignment. The conceptual design plans will consist of horizontal geometry, vertical geometry, conceptual design of storm sewer improvements, conceptual intersection design at Eastern Avenue and Westhall Drive and at Eastern Avenue and Route 250 (Rockfish Gap Turnpike) and conceptual structure and bridge engineering.

The following services will be provided for the proposed improvements: project leadership and communications, survey, location study, environmental services, traffic engineering and analysis, structural design, roadway design, drainage design, engineer's opinion of probable construction cost.

Kimley-Horn understands the intent of the project is to determine the location of the Eastern Avenue extension and develop the design to a sufficient stage for Albemarle County to more accurately determine the budget, schedule and funding strategy.

This project is funded with local funds, but it is Kimley-Horn's understanding that the County may attempt to fund future phases (Final Design, Right-of-Way or Construction) with state and federal funds. Kimley-Horn will conduct the location study, environmental services and conceptual design of the proposed improvements as a locally administered project in accordance with current VDOT and AASHTO design standards in anticipation of federal funds being applied to the project.

BUDGET AND MAJOR MILESTONE SCHEDULE

Unless otherwise stated, Kimley-Horn and Associates (or Kimley-Horn) is responsible for providing all information and performing all tasks listed herein for the lump sum price of two hundred sixty-five thousand forty-seven and seventy cents (\$265,047.70).

INFORMATION PROVIDED BY CLIENT

Kimley-Horn shall be entitled to rely on the completeness and accuracy of all information provided by the County, the County's consultants or representatives. The County shall provide all available information requested by Kimley-Horn during the project, including but not limited to the following:

- Copies of relevant design studies
- Traffic counts and relevant pedestrian and bicycle usage data.

STANDARD AND REFERENCE DOCUMENTS

This project will be designed in accordance with the 2016 Edition of the VDOT Road and Bridge Standards, the 2016 Edition of the VDOT Road and Bridge Specifications, the current edition of the VDOT Road Design Manual, the current edition of the VDOT Survey Manual, the current edition of the VDOT Drainage Manual, the current edition of the VDOT Structure & Bridge Manual, the current edition of the VDOT Locally Administered Projects (LAP) Manual, the 2011 edition of the American Association of State Highway & Transportation Officials (AASHTO) Policy on the Geometric Design of Highways and Streets (AASHTO Green Book), the 2004 edition of the American Association of State Highway & Transportation Officials (AASHTO) Guide for the Planning, Design, and Operation of Pedestrian Facilities, the current edition of the Albemarle County Design Standards Manual, and the current edition of the Albemarle County Service Authority (ACSA) Design & Construction Standards Manual. Other engineering standards and practices will be utilized during the project analysis and design, as appropriate.

DRAFTING REQUIREMENTS

Kimley-Horn will use Microstation V8i OpenRoads ConceptStation to make the recommendations for the alignment alternatives in Task 3.

The conceptual design tasks of this project will be designed in English units and the plans will be drafted using Microstation V8i using the Virginia Department of Transportation's Open Roads Design Package.

Unless otherwise noted, the plans will be prepared at 1" = 25' scale.

This contract consists of the development of preliminary design plans which should not be used for right-of-way acquisition nor construction. Plans will not be sealed by the Engineer of Record. However, the work will be directed and observed by a Licensed Surveyor, Professional Engineer(s), and Landscape Architect, as appropriate. Licenses shall be active in the Commonwealth of Virginia as of the date of the submittal.

All electronic copies of plans that are submitted to Albemarle County and VDOT will be in PDF format and utilize the conventional file naming system identified in Chapter 7 of the VDOT CADD Manual.

TASK 1 – PROJECT LEADERSHIP AND COMMUNICATIONS

Representatives of Kimley-Horn and key sub-consultants may participate in e-mail correspondence, telephone calls, and teleconferences with the County, VDOT, and other agencies throughout the duration of the project. Regular coordination meetings / conference calls will be conducted with the County project manager (or PM), the nature and frequency of which will be determined by mutual agreement between Albemarle County and Kimley-Horn.

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Kimley-Horn will serve as Albemarle County's liaison with VDOT on the project to provide a conduit for information between the County, the Consultant team and VDOT.

Project Meetings

The following meetings (not specifically identified elsewhere in the scope of services) and identified numbers of Kimley-Horn staff are assumed to be a part of this scope of services:

- One (1) Project Kick-off Meeting in Charlottesville (up to 2 Kimley-Horn staff)
- One (1) meeting in Charlottesville to review comments received on the Conceptual Design Phase Submittal (Up to 3 Kimley-Horn staff)
- Up to 12 Bi-weekly teleconferences

Kimley-Horn will prepare agendas that outline important items for discussion and action items for each meeting described above. The approved agenda and meeting materials will be emailed by Kimley-Horn to meeting attendees prior to the meeting once the County has reviewed and approved the meeting agenda and planned meeting materials. Kimley-Horn will prepare a summary of meeting notes from each meeting and provide to the County for review after the meeting is held. The approved meeting notes will be emailed by Kimley-Horn to meeting attendees after the meeting notes are approved by the County.

Deliverables

- Work plan and staffing schedule
- Project schedule
- Teleconference/ Meeting Agendas
- Teleconference/ Meeting Notes

TASK 2 – SURVEY

Survey services will be performed by H&B Survey and Mapping, LLC (or H&B) in accordance with the VDOT Survey Manual except as noted below.

Limits

The survey limits along the project corridor are illustrated in the attached survey area map, located in Appendix A, and they can generally be identified as along Cory Farm Road from Route 250 (Rockfish Gap Turnpike) for approximately 200 feet and the future alignment of Eastern Avenue from the norther end of Cory Farm Road to the existing intersection of Westhall Drive at Eastern Avenue for approximately 2,000 feet. Survey corridor width varies along the project corridor as depicted in Appendix A, which will be obtained through high altitude aerial flight.

GPS Survey Control/ Project Datum

H&B will utilize our RTK GPS UNIT to establish (8) main aerial survey control points & (8) secondary aerial survey control points for this project based on the Leica Smartnet System. The horizontal project datum will be Virginia State Plane South Zone NAD83 in US Survey Feet.

Topography – DTM Surface

H&B will create a DTM surface using McKenzie Snyder's aerial information.

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H&B will field annotate the aerial topography features as located in the aerial mapping for this project.

Deliverables

- Survey file (2D)
- Survey control file (2D)
- Survey points and break lines file (3D)
- Survey contour file (2D)
- GEOPAK .dat and .tin files

TASK 3 – LOCATION STUDY

Kimley-Horn will perform a location study to make recommendations for alignment alternatives for the Eastern Avenue extension over Lickinghole Creek.

Kimley-Horn will identify up to three alignment alternatives for the crossing of Lickinghole Creek to consider in this study. Kimley-Horn will analyze potential design constraints, cost considerations, potential structural design, environmental impacts, and right-of-way impacts to identify the recommended and preferred alignment alternatives.

Kimley-Horn will develop planning level concept drawings for each alignment alternative. The planning level concept drawings will be illustrated on aerial imagery with the available GIS files provided by Albemarle County.

Kimley-Horn will develop a selection matrix to compare the potential risks and benefits of the three alignment alternatives. Based on Kimley-Horn's efforts, Kimley-Horn will recommend a preferred alignment for the County's consideration. The preferred alignment will be identified in a brief technical memorandum summarizing the location study efforts.

TASK 4 – ENVIRONMENTAL SERVICES

Environmental processes for the are outlined below based on the understanding that the Project is funded with local funds at this time but may receive federal funds in the future. Therefore, Kimley-Horn will conduct a preliminary environmental review using select NEPA process criteria to determine if sensitive sites may be present or potentially impacted by the proposed project as follows:

Database Reviews

Kimley-Horn will review readily obtainable GIS and database information relating to the following areas:

Socio-Economic

Kimley-Horn will review available socio-economic GIS and census data to determine if minority or low income populations are present within the study area. We will also review available comprehensive and master plans and GIS data to identify existing or planned recreational, bicycle, and pedestrian facilities and community services with the study area.

Threatened and Endangered Species Database Review

Kimley-Horn will review the Virginia Department of Game and Inland Fisheries (DGIF) Virginia Fish and Wildlife Information Service (VaFWIS), VDGIF's Wildlife Environmental Review Map Service (WERMS), VDGIF's Northern Long-Eared Bat (NLEB) Winter Habitat and Roost Trees Application, VDGIF's Little Brown Bat (MYLU) and Tri-colored (PESU) Bat Winter Habitat and Roosts Application, Department of Conservation and Recreation (DCR) Natural Heritage Data Explorer (NHDE), US Fish and Wildlife (USFWS) Information for Planning and Conservation (IPAC), and Center for Conservation Biology (CCB) VaEagles Nest Locator databases to determine whether known or suspected federal and state threatened and endangered (T&E) species, state-listed plants or insects, or natural heritage resources have been identified within the project limits or a two-mile radius of the project limits, unless otherwise noted.

Historic Resources Database Review

Kimley-Horn will review the Virginia Department of Historic Resources (VDHR) Virginia Cultural Resource Information System (V-CRIS) database to identify known or suspected historic or archaeological sites within the study area that are listed on the National Register of Historic Places (NRHP) or eligible or potentially eligible for listing on the NRHP.

Section 4 (f) & Section 6 (f)

Kimley-Horn will review available GIS data to identify potential properties located within the study area that may be considered Section 4(f) properties. In addition, Kimley-Horn will review the National Park Service (NPS) list of Section 6(f) properties.

Floodplain Review

Kimley-Horn will evaluate the study area relative to the 100-year floodplain based on FEMA floodplain mapping.

Hazardous Materials Review

Kimley-Horn will conduct a preliminary review for hazardous materials that may be present or previously present within or adjacent to the project limits. The preliminary review will consist of a review of state and federal databases utilizing EDR.

Preliminary Wetland Assessment

Kimley-Horn will conduct a preliminary wetland assessment utilizing general methodologies for identification of wetlands contained in the USACE 1987 Manual and applicable Regional Supplement. Kimley-Horn will review readily ascertainable background material including aerial photography, topographic maps, National Wetland Inventory (NWI) Maps, Natural Resources Conservation Service soil survey data, National Hydrography Dataset (NHD) and available Lidar. The background material will be used to identify potential wetlands and waters located within the project corridor. Following the background material review, Kimley-Horn will perform a limited field review to assess the project corridor and the correctness of the background material and identify the general location and type of wetlands and waters within the project corridor.

The purpose of this assessment is to identify the general locations and types of wetlands located within the project corridor and depict these areas on a site figure. The specific wetland and upland boundaries will not be field located or determined. The wetlands will not be flagged in the field or GPS located, which will be required as part of a formal delineation for submittal and confirmation with the USACE. It is assumed that the field effort for the preliminary environmental review and wetland delineation will be conducted concurrently.

Limited Field Review

Following the database reviews, Kimley-Horn will perform limited field review of the study area. The limited field review will be conducted from existing rights of way to generally verify the results of the database review. Areas of concern not identified during the database review but observed in the field will be documented. Also during the field investigation, Kimley-Horn will obtain photos of significant observed environmental conditions and will provide this data in a photo log. It is assumed that the site visit will be limited to up to two people for one day in the field.

Preliminary Environmental Review Summary

Upon completion of the database and limited field review, Kimley-Horn will analyze the data and determine potential impacts to environmental resources identified above. A brief summary of the methodologies, environmental resources identified, potential impacts to such resources, and recommendations for additional studies, if any, will be provided along with pertinent figures and a photo log.

Deliverables

- Preliminary Environmental Review Summary

TASK 5 – TRAFFIC ENGINEERING & ANALYSIS

Traffic Engineering and Analysis will be performed in accordance with the 2009 Manual on Uniform Traffic Control Devices (MUTCD), 2011 Virginia Supplement to the MUTCD, and 2011 VDOT Traffic Engineering Design Manual.

Traffic Data Collection

Traffic counts will be conducted by Peggy Malone & Associates and taken on a Tuesday, Wednesday, and/ or Thursday while Albemarle County Public Schools are in session. The following traffic counts will be conducted and utilized for analysis:

- Turning Movement Counts at the following intersections between 6:00AM – 8:00PM. Turning movement counts will include the collection of passenger cars, heavy vehicles, pedestrians, and bicyclists, as well as delineate U-turns from left turn movements.
 - o Rockfish Gap Turnpike at Cory Farm Road (Unsignalized)
 - o Rockfish Gap Turnpike at Radford Lane (Unsignalized)
 - o Eastern Avenue at Westhall Drive (Unsignalized)
 - o Eastern Avenue at Jonna Street (Unsignalized)

In addition, one (1) Kimley-Horn staff will conduct a field visit to observe existing traffic conditions during the AM and PM peak hours and inventory existing geometry. Kimley-Horn will request and review traffic impact studies and other planning studies conducted near the study area within the past 10 years from Albemarle County and VDOT.

Should additional counts be needed, they will be considered additional services.

Develop Synchro Model & Analyze Existing Conditions

The study area for the traffic analysis includes the four study intersections identified in the Data Collection task. Using the existing (2020) AM and PM peak hour volumes, Kimley-Horn will conduct existing AM and PM peak hour traffic analyses for the study area intersections. Existing traffic operations analyses will be conducted using Synchro (Version 10.0). SIDRA Intersection

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will be used to analyze existing roundabouts in the network as necessary. Existing conditions operations analysis will be performed in accordance with TOSAM.

Future Traffic Volume Projections

Kimley-Horn will review historical traffic data, previous study efforts, and available traffic forecasts to develop a future background traffic growth rate. Once approved, Kimley-Horn will apply the growth percentages to the existing (2020) traffic counts to develop the following traffic volumes:

- Background Advertisement Year (2026) traffic volumes
- Background Design Year (2048) traffic volumes

It is anticipated that changes in travel patterns will occur within the study area resulting from the new roadway connection. Kimley-Horn will use the generated traffic volumes that were developed as part of relevant traffic impact studies and other planning studies within the study area gathered in the relevant transportation studies task. The generated traffic volumes will be added to the background traffic volumes to develop the following traffic volumes that will be used for future traffic analysis:

- Buildout Advertisement Year (2026) traffic volumes
- Buildout Design Year (2048) traffic volumes

The buildout traffic volumes will then be balanced to account for any differences due to applying the growth percentages and additional traffic generation.

Develop Synchro Model and Analyze Base Future Conditions

Using the developed Buildout (2026 and 2048) traffic volumes, Kimley-Horn will conduct future AM and PM peak hour traffic analyses for the study area intersections. The analysis will assume the geometry for the study area intersections remains unchanged from existing. Future traffic operations analyses will be conducted in accordance with TOSAM.

Alternative Screening

Kimley-Horn will develop up to four (4) intersection concepts for consideration at the proposed connection to Rockfish Gap Turnpike (assumed to be either the Cory Farm Road or Radford Lane intersection). Screening analysis will be completed for these concepts using Synchro and/or SIDRA Intersection. The selection of the evaluation tool(s) will be determined based on the geometric characteristics of the proposed alternatives consistent with the results of the Software Selection Tool in the TOSAM. It is anticipated that a signal warrant analyses will be conducted under existing and future buildout conditions at the Rockfish Gap Turnpike intersection.

The screening analyses will be conducted under 2048 traffic conditions. A summary of the traffic operations evaluation for the alternatives screening will be compiled to determine the two (2) most viable options for each intersection to carry forward for further evaluation.

Traffic Analysis Documentation

Kimley-Horn will document the results of the analysis in a technical report. The results will be presented in the report in text, tables, and graphics. Based on the results presented in the technical report, Kimley-Horn will make recommendations as to the preferred alternative.

A Draft and a Final technical report will be provided by Kimley-Horn. Comments received during the review of the Draft technical report will be addressed appropriately by Kimley-Horn.

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Kimley-Horn will utilize the future traffic volume projections to develop required traffic data depicted on the project's Title Sheet including ADT, DHV, and percentage of trucks.

Deliverables

- Traffic Count Data
- Traffic Report
- Traffic Report Data

TASK 6 – STRUCTURAL DESIGN

Structural Design will be performed in accordance with the latest edition of the VDOT Manual of Bridge and Structures and the AASHTO LRFD Bridge Design Specifications (with VDOT modifications). Based on prior planning work conducted for this project it is assumed that a bridge will be required over Lickinghole Creek to meet hydraulic and roadway requirements.

During the location study phase, Kimley-Horn will provide structural input regarding the bridge alignment, span arrangement, superstructure depth and bridge transverse section for the alignment alternatives considered as a part of this phase. Kimley-Horn will provide structural input for bridge related construction costs for the overall opinion of probable construction costs developed for each alignment alternative considered. No structural drawings will be produced as a part of this phase.

During the conceptual design phase of the preferred alignment, Kimley-Horn will refine the bridge limits for the selected alignment alternative utilizing site-specific hydraulic requirements and preliminary line and grade. Kimley-Horn will determine preliminary substructure (abutment and pier) types and assumed foundations based on the survey files and a soil map of the site. As a part of this phase, Kimley-Horn will develop preliminary structure design plans (30%) for submittal with the conceptual roadway design plans. The preliminary structure design plans will consist of a title sheet with a plan view and developed section of the proposed bridge, a transverse section, and typical abutment and pier details to include type of substructure, general dimensions, and anticipated foundation type. Kimley-Horn will refine the bridge related construction costs from the location study phase and provide an update to the opinion of probable construction cost that reflects the selected alignment.

Plans and calculations, and other design related documents will be provided for review and comment at the following Design Phase Submittals:

Deliverables

- Up to three (3) conceptual bridge configuration sketches (one for each alignment)
- Conceptual Structure Design Plans
-

TASK 7 – ROADWAY DESIGN

Roadway Design will be performed in accordance with the latest edition of the VDOT Road Design Manual, 2012 AASHTO Guide for the Development of Bicycle Facilities, 2004 AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities, and the 2011 AASHTO Green Book. Eastern Avenue is classified as a *Urban Local* and will be designed in accordance with the VDOT Geometric Design Standard GS-8 and a design speed of 25 mph.

As part of Task 7, Kimley-Horn will make one submittal to the County and VDOT for review of the conceptual roadway design plans (30% design).

Basis of Design Memorandum

Kimley-Horn will draft a memorandum to document the major design features of the project. The memorandum will address the following:

- Design Standards for the Project
- Functional classification(s), geometric design standard(s), design speed(s), existing ADT(s), and design year ADT(s) for each road affected by the project
- Proposed lane width(s), proposed shoulder width(s), and proposed ditch widths for each road affected by the project
- The use of an open drainage system (shoulder and ditch), or closed drainage system (curb and gutter)
- Proposed intersection improvements, turning lane locations, traffic signals, and/ or roundabouts
- Proposed bicycle and pedestrian accommodations
- Potential design exception(s) and/ or potential design waiver(s)
- Access management standards for entrances, intersections, and interchanges

The Basis of Design Memorandum will be included with the design submission that is sent to VDOT for review.

Conceptual Roadway Design Plans

Kimley-Horn will develop a conceptual design of the proposed improvements based on the design criteria established in the Basis of Design memorandum. Conceptual design plans will generally be consistent with a 30% design submittal and will be provided as design scrolls instead of design plan sheets. The conceptual design plans will establish typical sections for the proposed improvements and consist of horizontal alignments, conceptual horizontal geometry, and conceptual vertical alignments. Using the survey files as base mapping showing existing conditions and topographic features, the conceptual design scrolls will consist of typical sections established for each roadway, horizontal alignments, conceptual horizontal geometry and intersection configurations, proposed pedestrian connectivity and accommodations throughout the proposed improvements, approximate limits of construction, approximate locations of proposed right-of-way and easements, and potential locations for BMPs within the project limits. Additionally, Kimley-Horn will note any areas within the project limits that are environmentally sensitive areas.

Kimley-Horn will develop conceptual vertical alignments for the proposed improvements and display profiles on the conceptual design scrolls. Kimley-Horn will develop cross sections every 25' along roadway alignments. Sections will display the relationship between the existing ground and the finished grade to help determine limits of construction and approximate earthwork volumes.

Kimley-Horn will submit the conceptual design scrolls to the County and VDOT for review. One round of consolidated comments received during the plan review at this stage will be addressed by Kimley-Horn and the plans will be revised appropriately.

Plans and calculations, and other design related documents will be provided for review and comment at the following Design Phase Submittals:

Deliverables

- Basis of Design Memorandum
- Conceptual Roadway Design Plans

TASK 8 – DRAINAGE DESIGN

Kimley-Horn will perform Drainage Design for the improvements in general conformance to the current edition of the VDOT Drainage Manual (including current Errata Sheet), current VDOT Hydraulic Design Advisories, current edition of the VDOT BMP Design Manual of Practice, 2013 Virginia Stormwater Management Handbook and 1992 Virginia Erosion and Sediment Control Handbook.

This project is assumed to disturb 6000 square feet or greater and is required to have a Post Construction Stormwater Management Plan, Stormwater Pollution Prevention Plan (SWPPP) and obtain a Virginia Stormwater Management Program (VSMP) Construction Permit.

Hydrologic and Hydraulic Analysis (H&HA)

The proposed project is located within Albemarle County which is a level “d” community with Detailed Flood studies and delineated floodways. Lickinghole Creek is a Federal Emergency Management Agency (FEMA) regulated detailed study stream. As this is a new location crossing, it is unlikely that a No-Rise condition will be achieved. It is assumed that a Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR) will be required for this stream crossing. The CLOMR and LOMR are additional services not included in this scope.

This task will include a HEC-RAS based analysis to evaluate proposed bridge alternatives for Eastern Avenue. It is assumed that the effective FEMA hydraulic model will be used as the starting point for this analysis. Proposed bridge design alternatives will be evaluated based on project objects to minimize cost and environmental impacts, meet County design requirements, and meet County and FEMA floodplain regulations.

Kimley-Horn will perform a preliminary H&HA for the proposed major culvert crossings within the project limits. This analysis will be performed in accordance with Chapter 12 of the VDOT Drainage Manual.

Kimley-Horn will coordinate with County Floodplain Administrator to obtain FEMA effective modeling data, and then review effective FEMA hydraulic model and FIS for Lickinghole Creek.

Kimley-Horn prepare hydraulic model for existing conditions based on effective FEMA hydraulic model. Up to three (3) models will be developed by on the bridge and alignment alternatives developed with the Roadway and Structures Tasks.

Kimley-Horn will develop preliminary proposed conditions HEC-RAS modeling plans to model bridge design layout alternatives. Kimley-Horn will perform post-modeling coordination with the County and other potential stakeholders about preliminary results.

Kimley-Horn will refine the proposed conditions hydraulic model based on selected alternative which meets project objectives as well as County design and floodplain requirements.

Kimley-Horn will prepare a summary report documenting details of hydraulic analysis and selected bridge alternative.

Drainage Design Elements and Computations

The design of culverts, ditches and channels, storm sewer, underdrains, stormwater management facilities, and erosion and sediment control measures will be performed to a conceptual level and identified on the Conceptual Roadway Design Plans as indicated above for the purposes of determining proposed right-of-way requirements. Drainage and Erosion and Sediment Control information required by the Albemarle County Community Development Department also be included on the Roadway Design Plans to the detail necessary to determine the approximate necessary proposed right-of-way.

Kimley-Horn will compile relevant drainage computations, including pre and post development discharges, capacities, and supporting data such as drainage areas (with maps), ground cover calculations, etc., will be provided with the plan submission for the Conceptual Design Phase (30%) and in a preliminary drainage narrative and report. One round of comments, per submission, received from Albemarle County and VDOT, during the plan reviews at this stage will be addressed by Kimley-Horn.

Post Development Stormwater Management Design

In order to preserve pre-development water quantity and water quality characteristics of the project area, Kimley-Horn will design a preliminary Post Development Stormwater Management Plan designed for the project in accordance with the latest revision of VDOT Instructional and Informational Memorandum IIM-LD-195. Preliminary Best Management Practice (BMP) design shall be performed in accordance with VDOT's BMP Design Manual of Practice.

Conceptual stormwater management design features will be identified on the roadway design plans as indicated above. Conceptual stormwater management computations will be provided with the drainage computations and submitted with the plan submissions for the Conceptual Design Phase (30%).

Nutrient Credits

Kimley-Horn will consider the purchase of nutrient credits, if applicable, for stormwater management water quality reduction purposes in accordance with the latest revision of VDOT Instructional and Informational Memorandum IIM-LD-251.

The amount of nutrient credits required and allowed to be used for stormwater management water quality reduction will be calculated by Kimley-Horn.

Deliverables

- Preliminary H&HA
- Conceptual drainage design elements and computations
- Conceptual post development stormwater management computations
- Technical memorandum summarizing drainage findings, recommendations and computations

TASK 9 – ENGINEER’S OPINION OF PROBABLE CONSTRUCTION COST

An engineer’s opinion of probable construction cost (OPCC) will be provided for up to three (3) possible roadway alignments and one for the preferred conceptual design. The OPCC will consist of standard VDOT pay items, unit prices, and the engineer’s opinion of costs for the proposed improvements. Based on the level of design within this scope of services, Kimley-Horn may include lump sum costs within the OPCC to approximate construction costs yet to be quantified by the design.

Unidentified Risk

The contingency included in each OPCC submittal will be adjusted by Kimley-Horn as the design is furthered and quantitative information is available. Kimley-Horn and Albemarle County will work together to arrive at a mutually approved unidentified risk percentage for each state of development included in the scope of services.

Deliverables

- Up to three (3) Engineer’s Opinion of Probable Construction Cost for the studied alignments
- Engineer’s Opinion of Probable Construction Cost at Conceptual Design Phase for one (1) preferred alignment

PROJECT SCHEDULE

We will provide our services as expeditiously as practicable with the goal of meeting a mutually agreeable schedule.

FEE SUMMARY

Task 1	Project Leadership and Communications	\$ 22,041.14
Task 2	Survey	\$ 0.00
Task 3	Location Study	\$ 23,221.12
Task 4	Environmental Services	\$ 20,656.02
Task 5	Traffic Engineering and Analysis	\$ 28,483.64
Task 6	Structural Design	\$ 48,262.88
Task 7	Roadway Design	\$ 32,288.94
Task 8	Drainage Design	\$ 39,356.59
Task 9	Engineer’s Opinion of Probable Construction Cost	\$ 10,877.37
	Lump Sum Direct Costs (incl. subconsultants)	\$ 39,860.00
	Lump Sum for Budgeted Items	\$ 0.00
	TOTAL FEE	\$ 265,047.70

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November 11, 2019

APPENDIX A – SURVEY LIMITS MAP

[Engineer to provide Survey Limits Map for Approval with the Scope of Services and Fee Proposal]

**Eastern Avenue
Rockfish Gap Turnpike to Westhall Drive
Preliminary Design
Scope & Fee Proposal**

November 11, 2019

APPENDIX B – MAN HOUR BREAKDOWN

[Engineer to provide Man Hour Breakdown using standard template for Approval with the Scope of Services and Fee Proposal]