

CITY OF BETHLEHEM
INTER-DEPARTMENTAL CORRESPONDENCE

SUBJECT: REQUEST TO ENTER INTO A PROFESSIONAL SERVICES AGREEMENT WITH THE LEHIGH VALLEY PLANNING COMMISSION.

TO: J. WILLIAM REYNOLDS, Council President

FROM: RALPH E. CARP, Director of Parks and Public Property

DATE: 1 JULY 2015

Mr. Reynolds,

Please find the attached proposed agreement with the Lehigh Valley Planning Commission and the proposed resolution for your review and approval. This contract is for preparation of the Monocacy Creek Act 167 Plan. Fees for this contract will not exceed \$98,676.77. Funding for this project is provided by grant money from the Pennsylvania Department of Environmental Protection and is allocated in the budget in the amount of \$150,000 in account #69999-66173.

Please contact my office should you have any questions.

Thank you.

Copy to: File

By: *Ralph E. Carp*

Director, Parks and Public Property

Attached: Contract
Resolution

CITY OF BETHLEHEM
INTER-DEPARTMENTAL CORRESPONDENCE

SUBJECT: Request for Approval by City Council of Contract Award or Contract Price Increase Pursuant to City Ordinance, Article 121.05 (a)

TO: Project or Contract Reference: Monocacy Creek Watershed Act 167 Update
City Council, all members, and Council Solicitor

FROM: Ralph E. Carp, Department Head

DATE: 1 July 2015

On behalf of the Administration, pursuant to City Ordinances, Article 121.05, I request City Council's approval of the following recommendation of the referenced contract award or price increase.

- Check Type of Contract or Change:

The contract is for over \$50,000 and required to be bid under the Third Class City Code. We have advertised the above referenced project and received qualified bids. We recommend award of the contract to the bidder identified and for the reasons stated below.

The recommendation is for a price increase of 10% or more for an existing contract over \$50,000 that was previously bid and awarded under the Third Class City Code.

The contract is for the engagement of professional services. We have received and reviewed a proposal or proposals for professional services in connection with above referenced project or requirement for professional services. We recommend award of the contract.

- Is the contract appropriation or price increase included in this year's budget? yes no
- Identify contract funding sources (general fund, grants, loans, etc.....):

Account #69999-66173

- The name and address of the recommended Contractor/Vendor/Professional Service Provider/Lowest Responsible Bidder are:

Lehigh Valley Planning Commission
961 Marcon Blvd
Suite 310
Allentown, PA 18109

- Term of contract or estimated completion date, subject to standard extensions:

Estimated Completion is 9/30/2016

- Description of project or scope of services to be provided:

The LVPC will work with the Wildlands Conservancy to prepare and update the Act 167 plan for the Monocacy Creek Watershed. A combination of field data collection and GIS data interpretation will assist in providing a better understanding of the Monocacy Creek watershed.

- State the actual or estimated price to the City or the proposed Department budget allowance for the initial term; and state payment rate per unit of service if applicable:

The DEP Grant is for \$150,000, therefore, there is no cost to the City.

- Number of renewal term options and duration of each renewal, if any: N/A

- Maximum dollar value of all renewals provided for beyond the original term as if all renewals were exercised: N/A

- Reasons for recommendation of Administration and Council approval of contract:

The Lehigh Valley Planning Commission is well versed in what data is needed to properly prepare an Act 167 plan.

Please approve this recommendation by passing the accompanying resolution. A vote of final approval is requested at the first City Council agenda listing of this matter.

By: _____

T. Ralph E. Carr

Department Head

Copies To: Mayor
Director of Administration
Director of Budget and Finance
Law Bureau
Purchasing Bureau
Controller

Attachment: proposed resolution

RESOLUTION NO. 2015-__

Authorization for Contract or Amendment under Article 121.05(a)

BE IT RESOLVED by the Council of the City of Bethlehem that the Mayor and the Controller and/or such other City officials as deemed appropriate by the City Solicitor, are hereby authorized to execute an agreement with the Lehigh Valley Planning Commission for professional services for the Monocacy Creek Act 167 Update project.

Sponsored by /s/

/s/

ADOPTED by Council this __ day of _____, 2015.

/s/

President of Council

ATTEST:

/s/

City Clerk



Lehigh Valley Planning Commission

KENT H. HERMAN, ESQ.
Chair

LIESEL DREISBACH
Vice Chair

STEPHEN REPASCH
Treasurer

BECKY A. BRADLEY, AICP
Executive Director

June 25, 2015

Mr. Ralph E. Carp
Director of Parks & Public Property
City of Bethlehem
10 East Church Street
Bethlehem, Pa. 18018-6025

Re: Monocacy Creek Act 167 Plan

Dear Mr. Carp,

We are pleased to provide you the enclosed LVPC proposal for preparation of the Monocacy Creek Act 167 Plan. As requested, the proposal has been modified to simply include the Act 167 component. The budget includes a very slight change. The proposed budget for the work is \$98,676.77. Please let us know of any questions you have regarding the proposal. We understand you'll be working through the City Legal Bureau to create a draft contract. Please let us know how you want to proceed at your earliest convenience. We look forward to working with the City on this important project.

Sincerely yours,

Becky A. Bradley, AICP
Executive Director

Scope of Work – Monocacy Creek Act 167 Plan Update

This **Scope of Work** involves the creation of an update of the Monocacy Creek Act 167 Stormwater Management Plan originally prepared in March 1989, with a water quality ordinance prepared in April 2006. The LVPC prepared both of the original documents and will prepare this document on behalf of Lehigh and Northampton counties. Funding for the Monocacy Creek Act 167 Plan Update is provided by the City of Bethlehem and the Pennsylvania Department of Environmental Protection.

Act 167 Plan Update

A. Project Initiation

1. **Consultant Selection** – An engineering consultant will be required to assist the LVPC. The consultant will assist the LVPC in updating the flood frequency analysis for the USGS gage in the watershed. The updated flood frequency analysis will include data from 1949 (beginning of the continuous record) through 2014, and will also include frequency analyses of 1949-1989 and 1989-2014 to attempt to analyze the changes in the magnitude of flood events in the stream since the adoption (in 1989) of the current Act 167 ordinance provisions. The consultant will also provide specific hydrologic and/or water quality analyses as needed to support the continuing development of the model ordinance. The LVPC has historically used Dr. David Kibler, formerly of Pennsylvania State University and Virginia Tech, as the engineering consultant for the Act 167 process.

If possible, the engineering consultant for the Plan Update preparations will be Dr. David Kibler.

B. Data Collection

The LVPC will provide the majority of the data needed for this study from existing documentation, new field surveys, and Geographic Information System (GIS) data. Data collection, assembly, and processing will be completed using a combination of ArcGIS Spatial Analyst and 3D Analyst extensions, ESRI's ArcHydro suite of tools and the US Army Corps of Engineers HEC-GeoHMS Geospatial Hydrologic Modeling Extension. Tasks likely to be performed with these tools include terrain processing, basin processing, establishing stream and watershed characteristics, hydrologic parameters and the development of HEC-HMS model files. The following data elements from the original Act 167 Plan will be updated:

1. Rainfall data will be updated based on current National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Point Precipitation Frequency Estimates. Data from the Bethlehem station (ID #36-0629) will be used. This data will be acquired from NOAA's website.
2. Soils data will be updated based on the most current Natural Resources Conservation Service (NRCS) data available through the Soil Survey Geographic database (SSURGO). Hydrologic Soil Group values will be assigned for the Monocacy Creek Watershed area.
3. Land slopes will be updated based on 2006 Light Detection and Ranging (LiDAR) data. A Digital Elevation Model has been created based on the 2006 LiDAR. This DEM will be utilized for calculating slopes in ESRI's Spatial Analyst extension.

the 1989 Monocacy Creek Act 167 Plan. The framework of the watershed model has already been created in the program; individual watershed subareas and stream channels are already represented in a HEC-HMS model as part of preliminary modeling work started under a prior Pennsylvania Department of Environmental Protection (DEP) contract. LVPC will populate the existing framework with the updated watershed data collected as part of Task B, including revisions to the subarea boundaries based on updated contour and storm sewer mapping. In addition, the LVPC will prepare a simplified morphological assessment of the major tributaries of the creek. LVPC will develop generalized stream channel geometry data at six (6) locations for morphological comparison for use in model development.

2. **Model Calibration** – Calibration of the model is a necessary step in developing a model that can be used with confidence. USGS has maintained a continuous record gaging station on the Monocacy Creek Mainstem at Illicks Mill Road since 1949. Data from this gage will be used to calibrate the model. The model will be calibrated for the 1988 and 2014 land use conditions. Flood frequency curves appropriate for the land use conditions being modeled will be used as the flood flows the model will be calibrated to match. The consultant will compare the 1988 and 2014 flood frequency curves and prepare an assessment discussing the effectiveness of the Act 167 Plan with recommendations. Design events based on the NRCS type-II rainfall distribution will be run through the model for comparison to the results of the frequency analysis. Three actual rainfall events recorded at the Allentown gage will also be run through the calibrated model. The model output will then be compared to the recorded stream gage flows, and the calibration will be adjusted if necessary.
3. **Model Runs of Watershed Future Conditions** – The LVPC will generate a land use map in task B.5 showing the 2014 land use in the watershed. From this land use condition, a future condition land use will be developed using current zoning to create a fully built-out condition. The effects of the projected land development based on this condition will be obtained by modeling the anticipated development within HEC-HMS to identify necessary water quantity controls. Additional model runs will be made for the purpose of assessing the adopted runoff quantity controls based on the original 1988 Act 167 Plan given changes in zoning and stream geometry. Alternative stormwater management approaches will be assessed as necessary.

D. Update Water Quality Standards

The water quality standards developed in previous Act 167 Plans will be evaluated and updated as necessary.

1. **Mechanisms to promote green infrastructure and low-impact development** within the stormwater quality and quantity provisions of the Plan Update will be explored. Alternative stormwater management options to be examined include, but are not limited to:
 - Pervious pavement
 - Amended soils
 - Disconnected impervious areas
 - Rain gardens
 - Green roofs

F. Organization of and Coordination with the Watershed Plan Advisory Committee (WPAC)

The LVPC will organize a WPAC consisting of representatives from the municipalities within the watershed, the Lehigh and Northampton County conservation districts, and other interested parties. Each municipality located within the watershed is listed below.

- Bath Borough
- Bethlehem City
- Bethlehem Township
- Bushkill Township
- Chapman Borough
- East Allen Township
- Hanover Township (Lehigh County)
- Hanover Township (Northampton County)
- Lower Nazareth Township
- Moore Township
- Nazareth Borough
- Upper Nazareth Township

Other Invited Participants:

- Lehigh County Conservation District
- Northampton County Conservation District
- Lehigh Valley Building Industry Association or other development-oriented group(s)
- Monocacy Creek Watershed Association
- Natural Resources Conservation Service
- Pennsylvania Fish Commission
- Trout Unlimited
- Wildlands Conservancy
- Other interested groups or individuals at the discretion of the counties

The purpose of the WPAC will be to assist in the development of a Plan Update and to familiarize the involved municipalities with the stormwater management concepts evolving from the Plan Update process. It will be very important that the municipalities understand and feel comfortable with the Plan Update so that they will be prepared to implement the Plan Update through the adoption of the appropriate ordinance provisions.

The WPACs will review the stormwater Plan Update throughout the planning process. The LVPC will be responsible for arranging the WPAC review element of the program and the technical presentations to the Committee. There will be at least three WPAC meetings. The basic agenda for these meetings would be as follows:

- Meeting 1 – Presentation of work program and review of model calibration and initial modeling runs.
- Meeting 2 – Review of the proposed runoff quantity and quality control strategy.
- Meeting 3 – Review of the draft Plan Update and compilation of WPAC comments.

**Monocacy Creek Act 167 Update and Watershed Environmental Assessment
Act 167 Plan Update - LVPC Proposal**

Task	Total Per Task
A. Project Initiation	
1. Consultant Selection and contracting	
Subtotal	\$ 1,986.54
B. Data Collection	
1. Rainfall	
2. Soils	
3. Land Slopes	
4. Existing (model) land use & CN calculation in GIS	
5. Future (model) land use & CN calculation in GIS	
6. Floodplains (includes floodplain encroachment analysis)	
7. Existing and proposed flood control projects and storm drainage problem areas	
8. Obstructions	
9. Existing and proposed storm sewer mapping	
10. Municipal survey for additional information	
Subtotal	\$ 14,450.46
C. Watershed Modeling and Alternatives Analysis	
1. Physical System Description for Modeling Purposes (includes subarea delineation refinements) (includes channel morphological assessment)	
2. Model Calibration & Recorded Event Testing (LP3 analysis)	
3. Model Runs of Watershed Future Condition	
Subtotal	\$ 13,938.90
D. Update Water Quality Standards	
1. Ordinance Update	
2. "Green" Stormwater Guidelines	
Subtotal	\$ 14,145.26
E. Development of Stormwater Management Plan Update	
1. Compilation of Components of the Plan Update	
2. Preparation and Distribution of the Plan Update	
Subtotal	\$ 30,034.41
F. Organization and Coordination with the WPAC	
WPAC Organization and Coordination	
Subtotal	\$ 3,621.85
G. Project Administration	
1. Budget and Work Program Monitoring	
2. Program Information Distribution	
Subtotal	\$ 11,912.93
H. Municipal Review, Public Hearing, and County Adoption	
1. Coordination of Municipal Review of Draft Plan Updates	
2. Public Hearing	
3. County Adoption	
Subtotal	\$ 8,586.43
Total Act 167 Cost	\$ 98,676.77