

# Work Session

<b>Agenda Item #</b>	3
<b>Meeting Date</b>	July 14, 2014
<b>Prepared By</b>	Nima Upadhyay, Special Project Coordinator
<b>Approved By</b>	Brian Kenner City Manager

<b>Discussion Item</b>	Update on the Flower Avenue Green Street Project
<b>Background</b>	<p><u>Project Brief</u></p> <p>Flower Avenue, between Carroll Avenue and Piney branch Road is a one mile long, two lane, two way roadway with posted speed limit of 25 miles per hour. High numbers of pedestrians, including school children, walk or wait for a bus along the Flower Avenue. Montgomery County Ride-On operates 3 routes &amp; there are sixteen bus stops in the corridor, eight in each direction. The eastern side of the street lacks sidewalk and the sidewalk along western side is in need of renovation to meet ADA accessibility requirements. Pedestrians face difficulties crossing the street due to the limited crosswalks, traffic speed and sight line issues. Study done by SHA shows that 85 percent of vehicles on Flower Avenue are traveling 10 mph over posted limit. Improvements proposed by the project include sidewalk and traffic calming measures to improve pedestrian safety and security. Bus shelter and reassessment of Ride-On service to enhance service quality.</p> <p>Unlike most city streets, Flower Avenue has minimal stormwater infrastructure. Streets generally have catch basins or inlets into which rain water flows and is transported through underground pipes to local streams. On this section of Flower Avenue there are two inlets opposite each other near Domer Avenue. There are no other inlets for the full length of the Flower Avenue project area. Stormwater on Flower Avenue simply runs onto side streets or private property. Rainwater run-off is shunted into Sligo Creek and Long Branch Creek without slowing or filtering. In order to address the stormwater issues, the project proposes low-impact stormwater retention facilities. These stormwater retention facilities will provide environmental benefit by capturing and treating street run-off.</p> <p><u>Project Status</u></p> <p>Development of the Flower Avenue Green Street project has been underway since July 28, 2012. The City contracted with Rummel, Klepper and Kahl (RKK) to perform the design phase and prepare construction documents. The scope of the project originally envisioned has been adjusted as the project develops. Last year, the City worked with Washington Suburban Sanitary Commission (WSSC) to coordinate their water main replacement program with this project. WSSC has agreed to pay RKK to design and prepare construction documents for the water main replacement and the City plans to include that work in the bid documents so it can be constructed at the same time. WSSC will pay for the portion of the project that relates to the water main replacement. The City was informed last week that Washington Gas has decided to replace the gas main on Flower Avenue. The impact of that decision is still being determined and may result in a delay to the start of construction. See chart 1 below for a summary of funding.</p>

The source of the remaining needed funding of \$27,525 is anticipated to come from City funding. However, the cost estimate may increase as the design becomes final and the City may identify other sources of funding that can be applied for.

The City will be holding the third community meeting to review the project on

Wednesday, July 16. The meeting is scheduled for 7 pm at the Washington Adventist University's Wilkinson Hall.

The preliminary sidewalk design for Flower Avenue has been revised to reduce the easement area required from the property owners on the east side of Flower Avenue. The original design impacted 17 properties. The current design impacts 6 properties and we anticipate completing the easement process with the owners by the end of August.

The design firm has identified additional funding needed to cover the cost of additional work to bring the project to final design. The additional costs relate to more meetings than originally assumed with stakeholders, Ride On, WAU, WSSC and the community; additional evaluation, drawing preparation and signage and road marking required for requested traffic calming and curb adjustments and to reduce easement needs; more website work than anticipated; more comprehensive street lighting analysis and design; additional tree impact assessment reports than anticipated; the expanded scope of work for stormwater management from 4 to 14 facilities; and additional coordination with utilities. The itemized additional service proposal is attached.

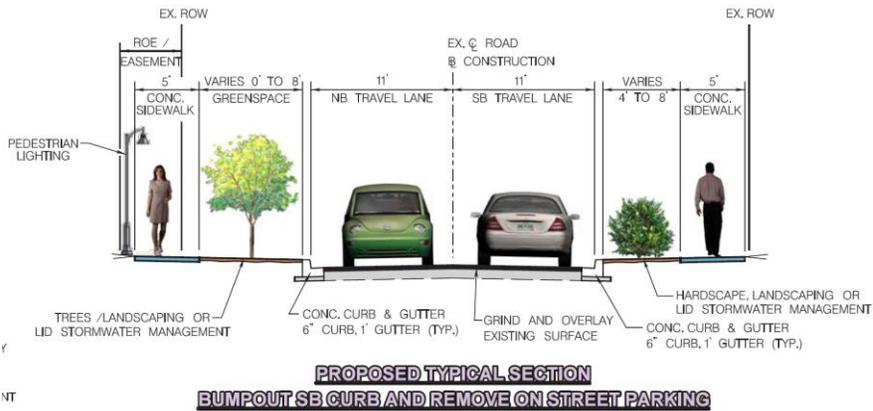
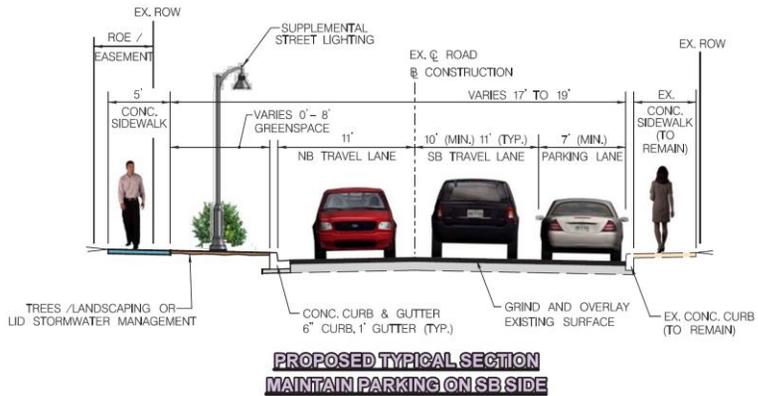
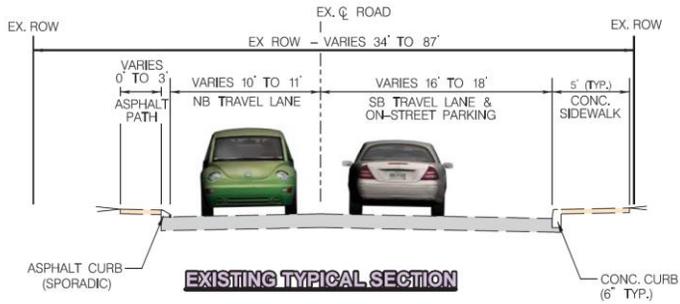
The project timeline previously anticipated completion of design by the end of 2014. Based on the additional scope of work outlined above, the WSSC water main development, and the required multiple design reviews by the SHA TAP review team and their requirement that all permits must be in hand prior to bidding, we now anticipate design to be concluded in the summer of 2015. The bidding process is expected to require six months. The actual start of construction is likely to be early to mid 2016.

Chart 1

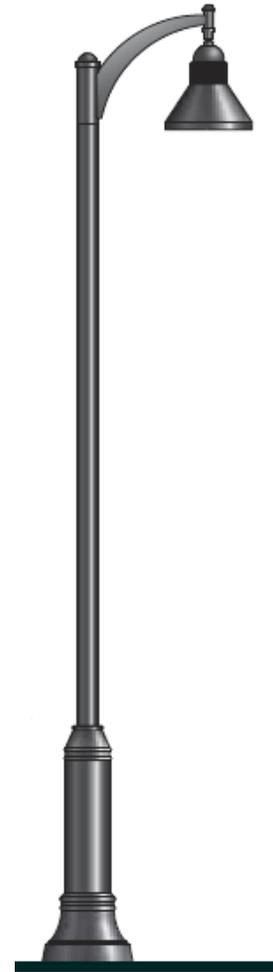
<b>Estimated Project Cost:</b>	
Original Design Contract:	\$275,755
Additional Design Costs:	\$176,794
Resurfacing Estimate:	\$334,000
Stormwater Management Facilities:	\$219,000
Sidewalk Installation:	\$248,250
LED Lighting Retrofit and New Lighting:	\$362,850
Construction Costs not identified above:	\$341,000
20% Contingency:	\$301,000
<b>Total Estimated Costs:</b>	<b>\$2,258,649</b>

	<table border="1"> <tr> <td colspan="2"><b>Funds Committed To Date For The Project:</b></td> </tr> <tr> <td>State Highway Administration</td> <td>\$696,000</td> </tr> <tr> <td>Chesapeake Bay Trust</td> <td>\$20,000</td> </tr> <tr> <td>Montgomery County</td> <td>\$200,000</td> </tr> <tr> <td>Transportation Alternatives Grant</td> <td>\$1,040,330</td> </tr> <tr> <td>National Fish and Wildlife Federation:</td> <td>\$168,750</td> </tr> <tr> <td>Community Development Block Grant FY15:</td> <td>\$106,250</td> </tr> <tr> <td><b>Total</b></td> <td><b>\$2,231,330</b></td> </tr> </table>	<b>Funds Committed To Date For The Project:</b>		State Highway Administration	\$696,000	Chesapeake Bay Trust	\$20,000	Montgomery County	\$200,000	Transportation Alternatives Grant	\$1,040,330	National Fish and Wildlife Federation:	\$168,750	Community Development Block Grant FY15:	\$106,250	<b>Total</b>	<b>\$2,231,330</b>
<b>Funds Committed To Date For The Project:</b>																	
State Highway Administration	\$696,000																
Chesapeake Bay Trust	\$20,000																
Montgomery County	\$200,000																
Transportation Alternatives Grant	\$1,040,330																
National Fish and Wildlife Federation:	\$168,750																
Community Development Block Grant FY15:	\$106,250																
<b>Total</b>	<b>\$2,231,330</b>																
<b>Policy</b>	<p><b><u>City Code Section 7.04.060</u></b></p> <p>“The City Council shall, by ordinance duly enacted, approve all expenditures of \$5,000.00 or more for professional services and all expenditures of \$10,000.00 or more for any other single purchase of goods or services other than professional services, provided, however, that ordinances approving such expenditures may be enacted upon a single reading...if such expenditure is specifically authorized in the budget...”</p>																
<b>Fiscal Impact</b>	<p>The original design contract for this project through Rummel, Klepper and Kahl was \$275,755. Additional cost required to finalize design is estimated to be \$176,794.</p>																
<b>Attachments</b>	<p>Flower Ave Vision document, Additional Services Proposal From Rummel, Klepper and Kahl, June 23, 2014.</p>																
<b>Recommendation</b>	<p>Receive project update from staff. Council authorization of additional funding is scheduled for July 28, 2014.</p>																
<b>Special Consideration</b>																	

# FLOWER AVENUE GREEN STREET PROJECT



## Low-impact stormwater retention facilities



Pepco approved GE Evolve Scalable LED roadway luminaire (ESR1-BXCX).

**Munich 49 LED  
Mounted at 20'**

### Scope of the project:

Flower Avenue Green Street Project plans to achieve these six primary objectives: (1) design of ADA complaint sidewalk on the east side of the street and identification of repairs needed to the existing sidewalk on the west side, (2) identification of locations for, and design, of low-impact stormwater retention facilities to capture and filter run-off from the street, (3) design improvements to pedestrian crossings and bus stops, (4) recommend energy efficient street lighting fixtures for the area, (5) identify the amount of on-street parking needed for the current residents and (6) assess the optimum road configuration to enable objectives 1 – 3 above. The City will repave the street, once the project improvements are implemented.

### Project Brief

Flower Avenue is a two lane, two way roadway with posted speed limit of 25 miles per hour. High numbers of pedestrians walk or wait for a bus along the Flower Avenue. Montgomery County Ride-On operates 3 routes & there are sixteen bus stops in the corridor, eight in each direction. Eastern side of the street lacks sidewalk & the sidewalk along western side is in need of renovation. Pedestrians face difficulties crossing the street due to the limited crosswalk. Study done by SHA shows that 85 percent of vehicle travelling along Flower Avenue is approximate 10 mph over posted limit. Improvements proposed by the projects includes sidewalk and traffic calming measures will maximize pedestrian safety & security. Bus shelter & reassessment of Ride-On service will maximize the use of Buses & enhance their service quality.



Figure 1: Proposed improvement on the Flower Avenue at Houston Avenue Intersection

Unlike most city streets, Flower Avenue has no stormwater infrastructure. Streets generally have catch basins or inlets into which rain water flows into underground pipes as part of the city's stormwater system. There are two inlets opposite each other on Flower near Domer, serving a pipe that runs perpendicular to the street. The water is shunted into Sligo Creek and Long Branch creek without slowing or filtering. There are no other inlets for the full length of the Flower Avenue project area. All other stormwater on Flower Avenue simply runs onto side streets or private property. In order to address the stormwater issues, the project proposes low-impact stormwater retention facilities. The Low-impact stormwater retention facilities will provide environmental benefit by capturing & treating the street run-off.

May 7, 2014 (**Revised June 23, 2014**)

Ms. Daryl Braithwaite  
Department of Public Works  
City of Takoma Park  
31 Oswego Avenue  
Takoma Park, MD 20910

Contract: **Flower Avenue Green Street Design**

Subject: **Additional Engineering Services Fee Proposal, No. 2**

Dear Ms. Braithwaite,

We are submitting our proposal to perform additional services that are needed to complete the contract documents for the Flower Avenue Green Street project. As initially identified in our email of 9/06/13 and follow-up conference call of 9/09/13, we have completed a portion of the additional tasks as needed to progress the concept design to the current layout (3<sup>rd</sup> revision posted to the project website on 9/5/2013). The additional tasks completed to date have included meetings, studies, concept plan revisions, ROW sketch plans, tree removal recommendations, lighting concept resubmission and utility coordination. As we move forward into final design, and as discussed during our 06/04/14 meeting and follow-up email on 06/11/14, additional tasks have been identified that are necessary to complete the stormwater management, lighting, retaining wall and signing and pavement marking design.

The complete list of additional services includes the following:

1. **Meetings & Studies**
2. **Revisions to Concept (30% Plan)**
3. **Website Updates**
4. **Right of Way Sketch Plans**
5. **Tree Recommendations**
6. **2<sup>nd</sup> Lighting Concept Submission**
7. **Additional Stormwater Management (SWM) Design**
8. **Revised Geotechnical Program**
9. **Retaining Walls, Signing & Pavement Marking Design**
10. **Additional Utility Coordination, Test Holes**
11. **Supplemental Survey (Excluded)**

The scope of services for each of these tasks is presented on the following pages. Hour and fee derivations are attached; *italicized* items represent work completed to-date.

## 1. Meetings & Studies

RK&K attended four (4) additional meetings as follows:

- 12/11/12 Meeting with Agency Stakeholders: RK&K (3 staff persons) attended this meeting to introduce the project to the agency stakeholders. A concept design plan was presented and meeting minutes were prepared and distributed to all attendees on 12/20/12.
- 02/20/13 Meeting with Montgomery County Ride-On: RK&K (3 staff persons) attended this meeting with the City and Ride-On representatives. Prior to the meeting, RK&K reviewed ridership data provided by Ride-On and prepared an agenda with recommendations for eliminating / consolidating existing bus stop locations. Ride-On provided comments on recommended locations. Meeting minutes were prepared and distributed to all attendees on 02/26/13.
- 04/23/13 Meeting with WAU: RK&K (2 staff persons) attended this meeting with the City, WAU and their design engineer to discuss the proposed layout for their new soccer field.
- 06/28/13 Meeting with WAU: RK&K (1 staff person) attended this meeting with the City, WAU and their design engineer to discuss updates from the previous meeting, including: bumpouts, WAU bus accessibility, status of athletic field redesign and timeline.
- 11/21/13 Meeting #1 with WSSC: RK&K (2 staff persons) attended this meeting with the City and WSSC to discuss replacement of the water main along Flower Avenue and potential impacts to WSSC facilities associated with the Green Street project. RK&K prepared a meeting agenda. Meeting minutes were drafted by WSSC (Hala Flores) and RK&K reviewed and provided suggested edits (approved by WSSC on 12/09/13). Subsequent to the meeting, the concept design plan, including SWM concept and pavement recommendations were submitted to WSSC for review.
- 04/16/14 Meeting #2 with WSSC: RK&K (3 staff persons) attended this meeting with the City and WSSC to discuss the 30% design comments, scoping of the water main replacement design and associated cost sharing. RK&K prepared a meeting agenda and minutes.

**3<sup>rd</sup> Public Meeting (TBD):** As discussed with the City, a third public meeting is anticipated upon completion of discussions with individual owners regarding easements / right of way. The meeting will present the current roadway layout, including locations for ESD practices and ornamental lighting. WSSC will also attend this meeting and discuss the water main replacement work.

RK&K performed the following additional studies, which were not anticipated under our current scope:

**Sight Distance Study:** Safety concerns were raised by the public at the 01-17-13 community meeting regarding poor intersection sight lines at several Flower Avenue side streets (Wabash, Hudson, Kennebec, & Maplewood). Excessive speeds and failure of motorists to yield to pedestrians at marked crosswalks through the Flower Avenue project corridor was also mentioned as a concern. The community asked if additional 4-way stop signs could be added along the corridor. The City asked RK&K to evaluate. We reviewed traffic data and confirmed that traffic

volumes do not meet all-way stop warrants for any of the intersections. However, 4-way stop signs can be added where intersection sight distance is deficient. RK&K performed a site visit to evaluate the (existing) sight lines. We also performed a sight line evaluation at each intersection under proposed conditions. The results of the analysis suggested that 4-way stop signs could be added at Domer, Wabash and Kennebec, due to insufficient sight lines from the side streets.

**AUTOTURN Study:** RK&K reviewed Ride-On (Routes 12, 13 & 25) and Montgomery County Public School bus routes along Flower Avenue / adjacent side streets. An AUTOTURN analysis was conducted at all the intersections and curb bumpouts / radii were modified as necessary to accommodate the appropriate design vehicle. As indicated in an email to the City on 08-30-13, the design vehicle is a single unit (SU) for all intersections that do not have buses making turns to / from the side streets along Flower Avenue.

**Cross-Slope Transition Study:** The original proposal did not anticipate roadway centerline / crown shifts that would eliminate street parking to avoid ROW impacts. The crown shifts and the proposed bump outs along the corridor will require detailed evaluation of pavement cross-slope transitions and curb flow line elevations to ensure that existing drainage patterns are maintained along the corridor. “Superelevation tables” with pavement cross-slope information / transitions and intersection stakeout details (10 locations) will be prepared as required. We have included time to develop and refine the cross-slope tables and intersection details at 60% and 90% design.

## 2. Revisions to Concept (30% Plan)

To-date, RK&K made revisions to the design layout a total of five (5) times. Our current proposal included one update based on comments received from the community after the 1<sup>st</sup> public meeting. Updates are summarized as follows:

- *Revision No. 1 (April 12, 2013): Revised design to address comments received from 01-17-13 public meeting (effort is included in our current scope and is excluded from this fee proposal).*
- *Revision No. 2 (September 6, 2013): Revised design to address comments received from 04-23-13 public meeting and to incorporate changes identified in the SWM concept layout (2<sup>nd</sup> submission).*
- *Revision No. 3 (January 16, 2014): Revised design to address 01-08-14 property owner comments regarding easements.*
- *Revision No. 4 (March 7, 2014): Revised roadway / SWM layout based on 02-10-14 comments received from WSSC on 30% roadway design.*
- *Revision No. 5 (April 14, 2014): Revised design to address 02-06-14 property owner comments regarding easements.*

## 3. Website Updates

We are currently scoped to make no more than four (4) updates to the project website and have exceeded this effort. We provided a total of eight (8) postings / updates to the website from January 2013 through September 2013 to include: concept plan revisions; typical sections; comment responses from public meetings; blog comment responses; calendar updates; and “About the Project” updates. We have included the additional hours required to complete these postings to-date.

We have also included additional hours to provide website updates / postings from 60% design documents through final design documents.

#### **4. Right of Way Sketch Plans**

As requested by the City, we prepared right of way (ROW) sketch plans showing proposed easement areas required from property owners for the City to construct sidewalk and driveways for the project. RK&K prepared a total of eighteen (18) sketch plans and a summary spreadsheet and submitted to the City on September 12, 2013. Since the 09-12-13 submission of sidewalk easement docs, RK&K has received comments and made revisions as follows:

- Received several responses from property owners requesting revisions to the layout on January 8, 2014. *RK&K prepared revisions to easement sketch plans and summary spreadsheet on January 16, 2014.*
- City confirmed on February 6, 2014 that owners at 8211, 8213, 8215 and 8219 Flower Ave refused to sign the sidewalk easement. The City asked RK&K to evaluate shifting the centerline west (and eliminate street parking on the west side) to avoid impacts to these properties. *RK&K prepared updated easement sketch plans and summary spreadsheet on April 14, 2014.*

We have also included additional hours to prepare future updates to the ROW sketch plans, as requested by the City.

#### **5. Tree Care / Removal Recommendations**

*RK&K conducted site visits and submitted the existing tree condition survey (east side of Flower Avenue) to the City on October 9, 2012. This included plans with tree numbers / condition labels and summary spreadsheet with detailed descriptions / notes. (This effort is included in our current scope) and is excluded from this fee proposal).*

As requested by the City, RK&K prepared tree care / removal recommendations based on the concept roadway layout that was presented to the community in January 2013. Tree removal plans and a revised summary spreadsheet with care / removal recommendations were submitted to the City on December 5, 2012.

We have also included hours to revise the tree care / removal recommendations one more time after ROW discussions are complete and the roadway concept layout has been approved by the City to proceed to semi-final (65%) design.

#### **6. 2<sup>nd</sup> Lighting Concept Submission**

*RK&K submitted an initial lighting concept on December 19, 2012 to evaluate the existing light level criteria from PEPCO (HPS) luminaires on the west side of Flower Avenue. The concept included photometric analysis, memorandum and concept plans with recommended modifications to the existing luminaires by increasing wattages. (This effort is included in our current scope and is excluded from this fee proposal).*

RK&K prepared a 2<sup>nd</sup> lighting concept on October 28, 2013 to evaluate the areas along the roadway (travel lanes, parking lane and sidewalk) that do not satisfy the recommended criteria. This included a re-evaluation of the PEPCO leased lighting on existing utility poles (west side of Flower Avenue) to incorporate the new LED luminaires that were recently released by PEPCO. Note: The City confirmed via conference call on October 4, 2013 that they want to use the new LED's offered by PEPCO in lieu of the old HPS luminaires for the leased lighting. RK&K obtained catalog cuts and reviewed the IES files for the LED luminaires (GE Evolve). The design also incorporates the ornamental (Munich) LED fixtures along the east side of Flower Avenue. The concept included new photometric analysis, memorandum and concept plans with recommendations for a cost-effective design.

## 7. SWM Design

*RK&K and CWP submitted an initial SWM concept on December 5, 2012 to determine requirements based on the roadway concept design (presented to the public in January 2013). The SWM concept included a memorandum with recommendations and concept plans with 17 potential ESD locations identified. (This effort is included in our current scope and is excluded from this fee proposal).*

**2<sup>nd</sup> SWM Concept:** RK&K and CWP prepared a 2<sup>nd</sup> SWM concept on September 25, 2013. The roadway concept was revised based on comments received from the City, Ride-On and at the 2 public meetings (January and April 2013). This required a re-evaluation of SWM requirements for the project. The 2<sup>nd</sup> SWM concept included a memorandum with recommendations and concept plans with 20 potential ESD locations identified (4 ESD locations were identified in the original proposal as required to meet SWM requirements). Note: *To-date, there are 13-14 locations deemed viable to proceed with further analysis and detailed design.*

**Additional ESD Design:** As directed by the City on April 16, 2014, RK&K has included additional effort to complete further analysis and design for ten (10) more ESD facilities. We have included sufficient hours to prepare design analysis and computations and to complete the design details for these facilities from 60% through contract documents.

Note: *As discussed at the 06/04/14 meeting, the remaining fee of our subconsultants, CWP and MRA will be used by RK&K towards completion of the design.*

## 8. Revised Geotechnical Program

**Geotechnical:** *Our current scope includes four (4) soil borings and four (4) infiltration tests. As directed by the City on April 16, 2014 we have revised our geotechnical program to include 10 additional ESD facilities. Our updated geotechnical scope is attached.*

## 9. Retaining Wall, Signing and Marking Design

**Retaining Wall:** The existing retaining wall at 8403 Flower Avenue will require reconstruction further east onto the property to accommodate the proposed 5 foot sidewalk. *As discussed at the 06/04/14 meeting, the City's on-call contractor will reconstruct the wall and steps and remove the northern-most driveway entrance in advance of the Flower Avenue project. As such, the development of retaining wall design plans is excluded from this proposal.* RK&K will provide a sketch plan with coordinates and required set-back for the reconstructed wall. We have included

hours to prepare the sketch plan. We assume the City will provide all required coordination with the homeowner concerning reconstruction of the wall, steps and driveway.

**Signing and Pavement Marking Design:** The project will require modification of the existing street signing and pavement markings. Consequently, our scope includes preparation of complete signing and pavement marking plans. The effort will begin with a field investigation to inventory all existing signs and pavement markings within the project limits. Two people will be used for safety. RK&K will subsequently develop signing and marking plans at a scale to match the roadway plans to indicate the location of proposed and existing signs and pavement markings. Plans will include details on sign supports as required. Specifications and cost estimate will be developed and submitted with the 90% and 100% plan submissions. *As discussed at the 06/04/14 meeting, the first signing and pavement marking design submission will be at 90% design.*

#### **10. Additional Utility Coordination, Utility Test Holes**

Our current fee proposal included a total of four (4) ESD facilities and associated coordination with utilities from 60% design through contract documents. With the additional ten (10) ESD locations, we anticipate more coordination with utility companies, including WSSC and Washington Gas. Also, the change from maintaining HPS leased lighting to a complete upgrade to LED leased lighting will also require additional coordination with PEPCO.

**WSSC:** The following effort was not included in the fee scope (Additional Services Proposal No. 1) for the water main replacement design:

- *RK&K submitted 30% road design to WSSC on 01/02/14*
- *WSSC provided comments on 02/11/14*
- *RK&K submitted comment responses and revised 30% road design on 03/07/14*
- *WSSC provided comments on 04/01/14*
- *RK&K submitted comment responses on 04/15/14*

**Washington Gas:** Additional coordination with Washington Gas is anticipated to develop details to protect their facilities (gas main / HC) adjacent to proposed infiltration ESD practices. We have included additional hours to cover this effort.

**PEPCO:** We anticipate additional coordination with PEPCO due to the large increase in the number of locations where leased lighting will be modified from HPS to LED luminaires. This may also require identification of additional conduit and handhole locations.

**Utility Test Holes:** If necessary, we will prepare and submit a test pit plan to the City, concurrent with the 60% design submittal package. We have included a contingency of \$4,000 to cover the fee for up to four (4) utility test holes and will submit a detailed proposal after 60% design comments are received.

**Note:** Test hole costs included in the WSSC fee scope pertain only to the water main replacement / relocation work.

#### **11. Supplemental Survey (Excluded)**

The topographic survey (by others) provided by the City did not identify pipe inverts, direction or depth of structures for the 2 inlets north of Wabash Avenue. We will require this information to modify the storm drain structures, since the curb line is being adjusted in this location.



Ms. Daryl Braithwaite  
Flower Avenue Green Street Design  
Additional Services Fee Proposal, No. 2  
May 7, 2014 (**Revised June 23, 2014**)  
Page 7

*The City confirmed on May 6, 2014 that the GIS database includes the storm drain system and was field-verified. The City will provide actual measurements for pipe inverts, direction and depth of structure to RK&K for development of detailed design. Therefore, supplemental field survey is excluded from this fee proposal.*

**Fee**

Our estimated fee for this additional services proposal is \$176,793.67.

In summary, the total task fee would be adjusted as follows:

- ❖ Original Fee: \$275,754.83
- ❖ Additional Services Proposal No. 1: \$263,215.13 (WSSC Water Main Replacement, rev. 06/14)
- ❖ **Additional Services Proposal No. 2: \$176,793.67**
- ❖ **Total Task Fee: \$715,763.63**

Our revised hour and fee derivation is attached for your review.

We look forward to continue working with the City to advance the project towards final engineering documents. If you have any questions regarding our proposal, please do not hesitate to contact Robert Gillespie at (800) 787-2755 or me at (410) 462-9247.

Sincerely,  
Rummel, Klepper & Kahl, LLP

Richard J. Adams, Jr., P.E.  
Director, Transportation

Enclosure

RJA/rja

cc: DWW/112-140

RJA

RJG

Geotechnical Engineering Scope & Fee Breakdown  
For  
Flower Avenue Green Street  
Additional Services Fee Proposal, No. 2  
City of Takoma Park, Maryland

May 5, 2014 (**Revised June 23, 2014**)

---

### **Project Description**

The proposed construction will consist of new sidewalks and SWM features within the City of Takoma Park, Flower Avenue between Piney Branch Road and Carroll Avenue. To-date, fourteen (14) ESD features have been identified for further study, requiring approximately 21 soil borings and 14 infiltration tests. The original proposal accounted for 4 borings and 4 infiltration tests. This proposal (Additional Services Fee Proposal No. 2) accounts for the 17 additional locations to be drilled and 10 additional infiltration tests and summarized in a geotechnical engineering report. It is anticipated that the ESD facilities will be approximately 4-ft deep.

It is our understanding that WSSC has agreed that the geotechnical field work that will be obtained for the construction of ESD's within the water main limits may be utilized for the water main recommendations. The ESD borings are planned to a depth of 10-ft below the existing ground surface and all water main borings are planned to a depth of 15-ft. The cost for drilling the initial 10-ft of each borings is included in this proposal. The remainder of the drilling is included in the WSSC proposal (Additional Services Fee Proposal No. 1). The cost for the MOT to conduct this work has been split between the cost shown in this proposal and the WSSC proposal. Stakeout, labor and field inspection for the ESD and water main borings has been split (we anticipate a total of 9 days of field work to complete both). It is anticipated that a separate report will be required for the WSSC work. All extra ESD field work will be included in the originally scoped geotechnical engineering report. Labor has been added to include incorporating the additional work into the report.

### **Scope of Services**

The basis for the geotechnical effort and cost estimates for this proposal is based upon the following tasks, it is assumed that the subsurface exploration and analysis will be completed in one phase:

1. Perform a site reconnaissance at the project site. An RK&K Geotechnical Engineer or Geologist will locate the test borings in the field using a hand held GPS unit and existing site features.
2. Findling, Inc. under contract to RK&K, will mobilize to the project site with a Truck-mounted drill rig. Findling will be responsible for contacting MISS Utility and other required agencies to clear public utilities. Vacuum excavations will be performed to verify the boring locations are not in conflict with existing utilities. Access to the project site will be obtained by the client. It is anticipated the ROW permits will be provided by the Client at NTP and the cost associated with obtaining these permits is not part of this proposal.

3. Findling will drill 18 Standard Penetration Test (SPT) for the proposed sidewalk/SWM improvements. Soil samples continuously to a depth of 10-ft.

If auger and spoon refusal is encountered before the boring termination depth, rock core samples will not be obtained.

It is anticipated that the field work will be conducted between the hours of 9 AM to 3 PM. Traffic control will be required for the entire duration of field work. MOT will be provided by Findling and is anticipated to consist of a lane closure with a flagging operation. It is anticipated that the City of Takoma Park will waive all fees for working within the ROW for this project.

4. Field infiltration tests will be conducted at a total of 14 locations; (10 additional locations included with this proposal). The test will be conducted in offset holes drilled adjacent to the SPT borings. The depth of the field testing will be determined based on the existing groundwater levels as measured in the SPT borings and will be set no deeper than 6-ft below the existing ground surface.

5. Borings that penetrate existing pavements will be patched with cold mix asphalt.

Monitor groundwater levels during and at completion of the field work and 24-hours thereafter, unless backfilling is required for public safety. The test borings will be backfilled with grout prior to demobilization from the site. All auger spoils will be removed from the site. Spoils from all soil borings will be removed and disposed offsite prior to demobilizing from the project site daily. All soil borings will be grouted upon completion.

6. Findling will perform laboratory testing on selected soil samples. The testing will include: 25 natural moisture content determinations, 2 grain-size distribution without hydrometers, 18 grain-size distribution with hydrometer, and 20 Atterberg Limit tests.

7. RK&K will evaluate the results of the subsurface exploration and laboratory testing, and prepare a geotechnical engineering report in accordance with generally accepted standards. The results of the subsurface exploration and analysis will be submitted in a report and will contain the following:

- A brief review and description of our field and laboratory test procedures and the results of the testing conducted;
- A review of the area and site geologic conditions;
- A review of subsurface conditions encountered with available physical properties;
- Recommendations to aid in the design of flexible pavements;
- Recommendations to aid in the design of the proposed SWM features and;
- Other geotechnical concerns that may affect the planned construction.

**Schedule**

Based on our current workload, we can begin necessary public utility clearance processes as soon as we receive written authorization to proceed. This work and the typical driller backlog usually requires about two to three weeks. We estimate the fieldwork to take ten days to complete, the laboratory testing two to three weeks after completion of the field work, and the final geotechnical engineering study will be submitted about two to three weeks after receipt of the laboratory testing. However, we can provide preliminary verbal findings within two to three days of completion of the fieldwork.

**Attachments:** Price Proposal (1 Sheet)

**Geotechnical Engineering Fee Proposal**  
**City of Takoma Park - Flower Avenue Green Street**  
**Additional Services Fee Proposal, No. 2**  
**Montgomery County, MD**  
5/5/2014 (Revised June 23, 2014)

**TEST BORINGS**

<b>Description of Item</b>	<b>Estimated Quantity</b>	<b>Unit</b>	<b>Findling, Inc. Unit Price</b>	<b>Extension</b>
Mob and Demob of Truck Rig	1	LS	<b>\$600.00</b>	\$600.00
Utility Clearance Coordination	1	LS	\$450.00	\$450.00
Vacuum Test Holes	<b>1</b>	Day	\$3,500.00	\$3,500.00
City of Takoma Park ROW Permits - WAIVED	0	LS	\$0.00	\$0.00
SPT Soil Sampling - Typical (2.5-ft in upper 10, 5-ft thereafter)	<b>180</b>	LF	\$22.00	\$3,960.00
MOT Lane Closure with Flagging	5	Day	\$1,800.00	\$9,000.00
Pavement Cut/ Patch	27	EA	\$50.00	\$1,350.00
Blank Auger for Infiltration Test	90	LF	\$11.00	\$990.00
Infiltration Test	10	EA	\$450.00	\$4,500.00
Grouting of Borings	270	LF	\$12.00	\$3,240.00
Bulk Bag Sample	0	EA	\$25.00	\$0.00
Delay Time	4	HR	\$185.00	\$740.00

**TOTAL ESTIMATED DRILLING COST** **\$28,330.00**

**LABORATORY TESTING (Soil Samples)**

<b>Laboratory Test</b>	<b>Approx. Quantity</b>		<b>Findling, Inc. Unit Price</b>	<b>Extension</b>
Natural Moisture Content Determination	25	EA	\$10.00	\$250.00
Standard Proctor	0	EA	\$140.00	\$0.00
Gradation Analysis with Hydrometer	2	EA	\$80.00	\$160.00
Gradation Analysis without Hydrometer	18	EA	\$160.00	\$2,880.00
Atterberg Limits	20	EA	\$80.00	\$1,600.00

**TOTAL ESTIMATED LAB TESTING COST** **\$4,890.00**

**CORROSION TESTING (Soil Samples)**

<b>Laboratory Test</b>	<b>Approx. Quantity</b>		<b>Russell Corrosion Unit Price</b>	<b>Extension</b>
Carbon Dioxide (Water)	0	EA	\$75.00	\$0.00
Corrosion Testing (Soil)	0	EA	\$160.00	\$0.00

**TOTAL ESTIMATED CORROSION TESTING COST** **\$0.00**

**FLOWER AVENUE GREEN STREET  
 HOUR AND FEE DERIVATION (ADDITIONAL SERVICES PROPOSAL NO. 2)  
 5/7/2014 (Revised June 23, 2014)**

	TASK	Director	Project Manager	Sr. Project Engineer	Project Engineer	Engineer	Designer/ Environ. Scientist	CADD Operator	TOTAL HOURS	SUBTOTAL LABOR \$
		\$ 202.50	\$ 137.70	\$ 132.30	\$ 108.00	\$ 94.50	\$ 86.40	\$ 73.14		
<b>1</b>	<b>MEETINGS &amp; STUDIES</b>									
	<b>Additional Meetings</b>									
	Agency Stakeholder's Meeting - 12/11/12	3			3	3			9	\$ 1,215.00
	Prepare Minutes from 12/11/12 Meeting				2				2	\$ 216.00
	Montgomery Ride-On Bus Meeting - 02/20/13		3	3		3			9	\$ 1,093.50
	Review Ridership Data & Prepare Recommendations			4	2	2			8	\$ 934.20
	Prepare Minutes from 02/20/13 Meeting			3					3	\$ 396.90
	WAU Meeting No. 1 - 04/23/13	2		2					4	\$ 669.60
	WAU Meeting No. 2 - 06/28/13			3					3	\$ 396.90
	WSSC Meeting No. 1 - 11/21/13	3		3					6	\$ 1,004.40
	Prepare Meeting Agenda for 11/21/13			3					3	\$ 396.90
	Review / Comment on Minutes from 11/21/13	1		3					4	\$ 599.40
	WSSC Meeting No. 2 - 04/16/14	4	4	4					12	\$ 1,890.00
	Prepare Agenda & Minutes from 04/16/14		1	5					6	\$ 799.20
	3rd Public Meeting - TBD	5	5						10	\$ 1,701.00
	Update Color Concept Roll plan			8				10	18	\$ 1,789.83
	Prepare Powerpoint Presentation	1		12	8				21	\$ 2,654.10
	Compile Comments / Prepare Responses	1		6					7	\$ 996.30
	<b>Additional Studies</b>									
	Sight Distance Study									
	Site Visit to Evaluate Existing Sight Lines		5	5					10	\$ 1,350.00
	Sight Line Evaluation of Proposed Conditions		2	6		9			17	\$ 1,919.70
	AUTOTURN Study			8	12	4			24	\$ 2,732.40
	<b>Cross-Slope Transition Study</b>									
	Set Cross-slopes & Elevations at Crown Shifts (3)			6	12				18	\$ 2,089.80
	Pavement Cross-Slope Tables (60%)		2	6	26				34	\$ 3,877.20
	Intersection Details (60%)		2	16	40				58	\$ 6,712.20
	Pavement Cross-Slope Tables (90%)		2	4	16				22	\$ 2,532.60
	Intersection Details (90%)		2	8	20				30	\$ 3,493.80
	<b>TOTAL HOURS</b>	<b>20</b>	<b>28</b>	<b>118</b>	<b>141</b>	<b>21</b>	<b>-</b>	<b>10</b>	<b>338</b>	
	<b>SUBTOTAL LABOR COST</b>	<b>\$ 4,050.00</b>	<b>\$ 3,855.60</b>	<b>\$ 15,611.40</b>	<b>\$ 15,228.00</b>	<b>\$ 1,984.50</b>	<b>\$ -</b>	<b>\$ 731.43</b>		
	<b>TOTAL TASK 1 - MEETINGS &amp; STUDIES</b>									<b>\$ 41,460.93</b>
<b>2</b>	<b>REVISIONS TO CONCEPT (30% PLAN)</b>									
	Revision No. 2 (09-6-13)			6	12				18	\$ 2,089.80
	Revision No. 3 (01-16-14)			4	8				12	\$ 1,393.20
	Revision No. 4 (03-07-14)			4					4	\$ 529.20
	Revision No. 5 (04-14-14)			6					6	\$ 793.80
	<b>TOTAL HOURS</b>	<b>-</b>	<b>-</b>	<b>20</b>	<b>20</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>40</b>	
	<b>SUBTOTAL LABOR COSTS</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 2,646.00</b>	<b>\$ 2,160.00</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>		
	<b>TOTAL TASK 2 - REVISIONS TO CONCEPT DESIGN</b>									<b>\$ 4,806.00</b>
<b>3</b>	<b>WEBSITE UPDATES</b>									
	Website Updates (to-date)			9		16			25	\$ 2,702.70
	<b>Additional Website Updates (60% design to Construction)</b>									
	TOTAL HOURS	<b>-</b>	<b>-</b>	<b>18</b>	<b>24</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>42</b>	<b>\$ 4,649.40</b>
	<b>SUBTOTAL LABOR COSTS</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 3,572.10</b>	<b>\$ -</b>	<b>\$ 3,780.00</b>	<b>\$ -</b>	<b>\$ -</b>		
	<b>TOTAL TASK 3 - WEBSITE UPDATES</b>									<b>\$ 7,352.10</b>
<b>4</b>	<b>RIGHT OF WAY SKETCH PLANS</b>									
	Sketch Plans & Summary (18 locations) - 09-12-13			12				8	20	\$ 2,172.74
	Sketch Plans, Summary Update - 01-16-14			8				2	10	\$ 1,204.69
	Sketch Plans, Summary Update - 04-14-14			4				2	6	\$ 675.49
	<b>Additional Updates, if required</b>									
	TOTAL HOURS	<b>-</b>	<b>-</b>	<b>26</b>	<b>6</b>	<b>-</b>	<b>-</b>	<b>16</b>	<b>48</b>	<b>\$ 1,205.17</b>
	<b>SUBTOTAL LABOR COSTS</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 3,439.80</b>	<b>\$ 648.00</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 1,170.29</b>		
	<b>TOTAL TASK 4 - RIGHT OF WAY SKETCH PLANS</b>									<b>\$ 5,258.09</b>
<b>5</b>	<b>TREE CARE / REMOVAL RECOMMENDATIONS</b>									
	Tree Care / Removal Recommendations (12/05/12)				8		14	10	32	\$ 2,805.03
	<b>Update Tree Recommendations, as required</b>									
	TOTAL HOURS	<b>-</b>	<b>-</b>	<b>2</b>	<b>8</b>	<b>-</b>	<b>10</b>	<b>8</b>	<b>20</b>	<b>\$ 1,713.74</b>
	<b>SUBTOTAL LABOR COSTS</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 264.60</b>	<b>\$ 864.00</b>	<b>\$ -</b>	<b>\$ 2,073.60</b>	<b>\$ 1,316.57</b>		
	<b>TOTAL TASK 5 - TREE RECOMMENDATIONS</b>									<b>\$ 4,518.77</b>
<b>6</b>	<b>2nd LIGHTING CONCEPT SUBMISSION</b>									
	Collect / Review Catalog Cut & IES files for GE Evolve				8	2			10	\$ 1,053.00
	Perform Photometric Analysis (2nd Analysis)		2		24	46			72	\$ 7,214.40
	Prepare Concept Lighting Plans (2nd Submission)			3	10	6		8	27	\$ 2,629.04
	Prepare Concept Memo (2nd Submission)			3	12				15	\$ 1,692.90
	<b>TOTAL HOURS</b>	<b>-</b>	<b>2</b>	<b>6</b>	<b>54</b>	<b>54</b>	<b>-</b>	<b>8</b>	<b>124</b>	
	<b>SUBTOTAL LABOR COSTS</b>	<b>\$ -</b>	<b>\$ 275.40</b>	<b>\$ 793.80</b>	<b>\$ 5,832.00</b>	<b>\$ 5,103.00</b>	<b>\$ -</b>	<b>\$ 585.14</b>		
	<b>TOTAL TASK 6 - 2nd LIGHTING CONCEPT</b>									<b>\$ 12,589.34</b>

**FLOWER AVENUE GREEN STREET  
 HOUR AND FEE DERIVATION (ADDITIONAL SERVICES PROPOSAL NO. 2)  
 5/7/2014 (Revised June 23, 2014)**

TASK	Director	Project Manager	Sr. Project Engineer	Project Engineer	Engineer	Designer/ Environ. Scientist	CADD Operator	TOTAL HOURS	SUBTOTAL LABOR \$
	\$ 202.50	\$ 137.70	\$ 132.30	\$ 108.00	\$ 94.50	\$ 86.40	\$ 73.14		
<b>7 SWM DESIGN</b>									
2nd SWM Concept		2	4	12			8	26	\$ 2,685.74
Additional ESD Design (10 more facilities)									
Prepare Detailed Analysis / Computations		14	22	10	6			52	\$ 6,485.40
60% Design Docs		18	128	24	34		36	240	\$ 27,851.15
90% Design Docs		10	36	30	4		16	96	\$ 10,928.09
100% Design Docs		2		10				12	\$ 1,355.40
<b>TOTAL HOURS</b>	-	46	190	86	44	-	60	426	
<b>SUBTOTAL LABOR COSTS</b>	\$ -	\$ 6,334.20	\$ 25,137.00	\$ 9,288.00	\$ 4,158.00	\$ -	\$ 4,388.58		
CWP									\$ -
<b>TOTAL TASK 7- SWM DESIGN</b>									<b>\$ 49,305.78</b>
<b>8 REVISED GEOTECHNICAL PROGRAM</b>									
Revised Geotechnical Program									
Stakeout & Field Inspection (5 days)			6	24	34			64	\$ 6,598.80
Analysis of Field / Lab Data		2	6		12		12	32	\$ 3,080.92
Prepare Geotech Report		2	4	16			4	26	\$ 2,825.17
<b>TOTAL HOURS</b>	-	4	16	40	46	-	16	122	
<b>SUBTOTAL LABOR COSTS</b>	\$ -	\$ 550.80	\$ 2,116.80	\$ 4,320.00	\$ 4,347.00	\$ -	\$ 1,170.29		\$ 12,504.89
Soil Borings									\$ 28,330.00
Laboratory Testing									\$ 4,890.00
<b>SUBTOTAL DIRECT COSTS</b>									\$ 33,220.00
<b>TOTAL TASK 8- REVISED GEOTECHNICAL PROGRAM</b>									<b>\$ 45,724.89</b>
<b>9 RETAINING WALL, SIGNING &amp; MARKING DESIGN</b>									
Retaining Wall (8403 Flower Ave)									
Develop Sketch Plan for City's On-call			6				3	9	\$ 1,013.23
Signing & Pavement Marking Design									
Inventory Existing Signing & Pavement Markings				9	9			18	\$ 1,822.50
90% Design Docs		4	9	38			35	86	\$ 8,405.51
100% Design Docs			4	14			10	28	\$ 2,772.63
<b>TOTAL HOURS</b>	-	4	19	61	9	-	48	141	
<b>SUBTOTAL LABOR COSTS</b>	\$ -	\$ 550.80	\$ 2,513.70	\$ 6,588.00	\$ 850.50	\$ -	\$ 3,510.86		
<b>TOTAL TASK 9 - RETAINING WALL, SIGNING &amp; PM DESIGN</b>									<b>\$ 14,013.86</b>
<b>10 UTILITY COORDINATION, TEST HOLES</b>									
WSSC									
Comment Responses & Revised 30% Design - 03/07/14		4	12					16	\$ 2,138.40
Comment Responses - 04/15/14			8					8	\$ 1,058.40
Washington Gas		2	12	8				22	\$ 2,727.00
PEPCO		2	22	8				32	\$ 4,050.00
Utility Test Holes									
Coordinate with Test Hole Contractor			3					3	\$ 396.90
Review Test Hole Data			2					2	\$ 264.60
Update Plans & Profiles to Include Test Hole Data			2	8				10	\$ 1,128.60
<b>TOTAL HOURS</b>	-	8	61	24	-	-	-	93	
<b>SUBTOTAL LABOR COSTS</b>	\$ -	\$ 1,101.60	\$ 8,070.30	\$ 2,592.00	\$ -	\$ -	\$ -		\$ 11,763.90
Utility Test Holes (Contingent)									\$ 4,000.00
<b>TOTAL TASK 10 - UTILITY COORDINATION</b>									<b>\$ 15,763.90</b>
<b>Remaining Subconsultant Fee (CWP &amp; MRA)</b>									<b>\$ (24,000.00)</b>
<b>TOTAL FOR ADDITIONAL SERVICES PROPOSAL NO. 2</b>								<b>1,451</b>	<b>\$ 176,793.67</b>