

## LETTER OF AUTHORIZATION

### North Central Texas Council of Governments (NCTCOG) Regional Stormwater Monitoring Program

#### Consultant Stormwater Monitoring Program Assistance for Fiscal Year 2020 (FY2020)

NCTCOG has coordinated the implementation of a cooperative Regional Stormwater Monitoring Program on behalf of the region's seven largest cities (Arlington, Dallas, Fort Worth, Garland, Irving, Mesquite, & Plano), and the North Texas Tollway Authority (NTTA), and with their support through the Regional Stormwater Monitoring Task Force ("Task Force"). The Regional Stormwater Monitoring Program, formally endorsed by the Texas Commission on Environmental Quality (TCEQ), is designed to assist participating entities to comply with the TPDES (Texas Pollutant Discharge Elimination System) stormwater monitoring requirements, including wet weather monitoring, for each individual permit holder, while providing a more efficient, consistent, and cost-effective regional effort.

The NCTCOG and the City of Mesquite ("Participant"), collectively referred to as "Parties," have executed an Interlocal Agreement, dated November 15, 2017, that establishes the structure through which participating entities have agreed to participate in the Fourth Monitoring Term of the Regional Wet Weather Characterization Program, operating from October 1, 2017 through September 30, 2022.

The Parties are executing this Letter of Authorization to allow the NCTCOG to enter into a phased contract with the Consultant, Atkins North America, Inc. ("Consultant"), chosen by the Task Force through a procurement process conducted by the NCTCOG, on behalf of the Participant, whereby the Consultant will provide regional monitoring program assistance to the Participant for **FY2020**, from **October 1, 2019** through **September 30, 2020**.

The Scope of Work (Attachment 1) for the duration of the Consultant contract, as approved by the Task Force, is limited to those participating entities who have signed the Interlocal October 1, 2019 Agreement and the Letter of Authorization and submitted payment for the appropriate fiscal year.

This Letter of Authorization seeks funding and authorization to proceed with the scheduled tasks for **FY2020** for the Participant. Work under this Letter of Authorization is for the time period of **October 1, 2019** through **September 30, 2020** to complete the work tasks for **FY2020** included in Attachment 1. The City of Mesquite's share of the Consultant cost for **FY2020** Consultant Stormwater Monitoring Program Assistance is **\$57,218.00** (Attachment 2).

Execution of this Letter of Authorization obligates the Participant to pay \$57,218.00 for FY2020.

NCTCOG will invoice the Participant for actual services expected to be received by the Participant for FY2020. The Participant shall remit the invoiced amount to NCTCOG within thirty (30) calendar days of receipt of the invoice.

In the event the Participant finds an error in the invoice, the Participant shall notify NCTCOG as soon as possible within a thirty (30) calendar day period, and shall make payment no less than ten (10) calendar days after the problem(s) are corrected or the error is resolved to the

satisfaction of all Parties. In the event that payment for invoiced goods or services is not received by the NCTCOG within thirty (30) calendar days of receipt of the accepted invoice, NCTCOG is authorized to charge the Participant interest in accordance with the Prompt Payment Act.

The undersigned, duly authorized to make such obligations, represent the Party's agreement to these provisions.

\_\_\_\_\_  
(Authorized Signature)

\_\_\_\_\_  
(Typed Name)

Date: \_\_\_\_\_

\_\_\_\_\_  
Mike Eastland, Executive Director  
North Central Texas Council of  
Governments

Date: \_\_\_\_\_

## **Attachment 1 - Scope of Work for FY 2020**

### **Part A – Field Sample Collection, Analysis of Stormwater Samples, and BMP Analysis**

The Consultant will conduct the following tasks to assist the contracting Participants in performing monitoring at identified sites:

Tasks 1110-1510 will be conducted for Arlington, Garland, Irving, Mesquite, Plano, and NTTA.

Task 1610-1710 will be conducted for Arlington, Dallas, Fort Worth, Garland, Irving, Mesquite, Plano, and NTTA.

#### **PROJECT MANAGEMENT AND COORDINATION**

- Task 1110 – Project Management;
- Task 1120 – General Training; and
- Task 1130 – Annual Refresher Training.

#### **SAMPLE ANALYSIS PROJECT PLAN (SAPP) / QUALITY ASSURANCE PROJECT PLAN (QAPP)**

- Task 1210 – Monitoring Plan Protocol Revision; and
- Task 1220 – Field Reconnaissance and Site Selection.

#### **FIELD SAMPLING AND ANALYSIS**

- Task 1310 – Storm Tracking;
- Task 1320 – Mobilization to Sampling Sites;
- Task 1330 – Auto-Sample Retrieval;
- Task 1340 – Equipment Maintenance;
- Task 1350 – Deployment and Decommissioning; and
- Task 1360 – Analytical.

#### **ELECTRONIC DATA MONITORING REPORTS**

- Task 1410 – Data Management (Four Program Years, FY 2018-2021).

#### **ANNUAL REPORTS**

- Task 1510 – Annual Report (Four Program Years, FY 2019-2022).

#### **FINAL SUMMARY REPORT**

- Task 1610 – Final Summary Report (FY 2022).

#### **BMP ANALYSIS AND EVALUATION PLAN**

- Task 1710 – BMP Analysis and Evaluation Plan (FY 2018-2022).

Each of the proposed tasks is described below.

## **PROJECT MANAGEMENT AND COORDINATION**

### **Task 1110 – Project Management**

Consultant will perform project management activities to coordinate project activities, staff, and subconsultants under this task. Project Management is expected to occur for 57 months starting October 1, 2017 and ending September 30, 2022. Consultant will provide quarterly progress reports and invoices to NCTCOG and updates on sampling events and maintenance as they occur. Project updates will be provided to Participants via the NCTCOG. Project accounting, scheduling and coordination with internal staff, subconsultants and contract laboratory will be conducted. Consultant will attend up to four meetings with the Task Force per year to provide updates, scheduling and answer questions about the program. Consultant will prepare for and attend up to three meetings with the Texas Commission on Environmental Quality (TCEQ) and/or the United States Environmental Protection Agency (EPA) related to permit renewal or reapplication processes.

### **Task 1120 – General Training**

Consultant sampling and maintenance staff will be trained in the revised monitoring protocol. Training will include but is not limited to: refresher on monitoring software; refresher on sampling procedures; quality assurance and quality control (QA/QC) sample collection methods and frequency; sample documentation and laboratory delivery protocol; maintenance tasks and required frequencies; and health and safety issues. Training will be conducted in an office setting. New site locations will be reviewed, but will not be visited until deployment of equipment.

### **Task 1130 – Annual Refresher Training**

Consultant will conduct brief annual refresher training sessions for field sampling and data management staff. NCTCOG staff will be invited to attend. Training will allow for a recap of health and safety issues for specific sites (if necessary), problematic sampling sites, security issues, new sampling locations, and any changes to the SAPP/QAPP (if they occur). Refresher training is expected to be one day annually and not exceed two hours for team members for each year.

## **SAPP/QAPP**

### **Task 1210 – Monitoring Plan Protocol Revision**

Consultant will revise the *Regional Stormwater Monitoring Program: Monitoring Program and Quality Assurance Project Plan for Wet Weather Equipment Deployment and Sampling Program: 2011 - 2016*. Revisions will include:

- Updating sampling and maintenance procedures, including updating procedures based on the new list of analytes;
- Revising maps for new sites;
- Preparing new health and safety provisions;
- Verifying laboratory analyses methodology;
- Collecting watershed and rainfall information; and
- Estimating annual flows for watersheds.

Consultant will provide a draft; address one round of comments from the monitoring program Participants to this Agreement and the NCTCOG and produce a final document to NCTCOG. Documents will be provided in electronic formats only (MS Word and Adobe pdf).

### **Task 1220 – Field Reconnaissance and Site Selection**

Consultant will perform field reconnaissance, in coordination with each Participant, to identify “Wet Weather Candidate Stormwater Sampling Locations” in watersheds selected by each Participant. Consultant will conduct on-site inspections of the sites, where photographs will be taken at each potential sampling site, each with the specific site ID. Latitude and longitude will be recorded using a handheld Global Positioning System (GPS) unit. Detailed notes on the site, surrounding area and stream channel conditions, and any other relevant information will be recorded using a pre-approved “Candidate Wet Weather Sampling Site Evaluation Checklist and Data Collection Form.” Sketches will also be drawn of the sites showing the stream crossing, surrounding roads, identified structures, and north arrow.

Consultant will perform field reconnaissance in the fall of 2017 through 2018 for watersheds to be sampled. Consultant will repeat this reconnaissance in 2019 to determine if the sites previously selected are still viable. Consultant will provide a brief Wet Weather Sampling Site Selection Memorandum to the NCTCOG that describes the physical site locations and the rationale for selecting specific sampling sites.

## **FIELD SAMPLING AND ANALYSIS**

### **Task 1310 – Storm Tracking**

Consultant will monitor meteorological conditions and storm fronts in order to anticipate qualified storm events. During warm weather months when afternoon showers are common, staff will check weather conditions at least twice a day to determine whether precipitation is likely at the site. During cold weather months, Consultant will monitor the approach of rain-producing cold and warm fronts. Consultant will not monitor weather when proper antecedent dry period requirements have not been met at the site. For likely precipitation events, the staff will evaluate whether a qualified rain event may occur and take necessary action as outlined in the monitoring plan.

When tracking storms, the depth of rainfall in the previous 72-hour period will be obtained using the on-site rain gauges and by visiting the City of Dallas Flood Control rain gauge network web site at <http://www.ci.dallas.tx.us/sts/html/fc.html>, the Intellicast precipitation contour map at <http://www.intellicast.com>, and the Weather Underground network of local weather stations. Weather forecasts will be obtained from the National Weather Service web site <http://www.srh.noaa.gov>.

### **Task 1320 – Mobilization to Sampling Sites**

When suitable conditions are identified at one or more sampling sites, Consultant will mobilize to the appropriate sites to retrieve automatic samples, inspect sampling equipment and to collect grab samples. Prior to mobilization, field personnel will gather necessary equipment and data sheets, calibrate water quality meters, and travel to the site when mobilization has been authorized. Field teams will consist of two people for safety. Field personnel will attempt to arrive as soon as the storm starts. Consultant will use internal resources to remotely program and turn on samplers (those with cellular modems) to assist with mobilization efforts. Consultant will conduct tailgate safety meetings, reviewing the anticipated site hazards prior to each sampling mobilization.

### **Task 1330 – Auto-Sample Retrieval**

Consultant will collect quarterly stormwater samples in accordance with the revised monitoring plan protocol (Task 1210). Consultant will collect composite samples of the storm event at 30-minute intervals for 120 minutes. Sampling will be initiated during the first flush of a storm event. Each sampling event will include collection of a first-flush grab sample and a time-weighted composite sample. The time-weighted composite sample will include a minimum of five aliquots.

Physical water quality measurements will be collected for each stormwater sample collected. These measurements include water and air temperature, specific conductance, and pH. This data will be recorded on field data forms.

### **Task 1340 – Equipment Maintenance**

Consultant will perform routine maintenance on the monitoring equipment. Routine maintenance will include decontaminating field equipment; replacing auto-sampler composite containers; preparing sampling stations for next storm event; checking integrity of shelters, conduit, bubbler and sampler lines and sample strainer; cleaning on-site rain gauges where applicable, performing other site checks; and recording maintenance activities. Maintenance activities will take place prior to each sampling quarter and immediately after each stormwater sampling event or dry run. Maintenance activities are expected to continue for 48 months or until the sampling activities have been completed.

### **Task 1350 – Deployment and Decommissioning**

At the beginning of the project, Consultant will perform an evaluation on the stormwater quality monitoring equipment. Each monitoring program Participant, listed above, will deliver their monitoring equipment to the Consultant at a time convenient to both the equipment owner and Consultant. Consultant will subcontract with a qualified technician to replace pump tubing, pump bushings, and internal desiccant for samplers to be used during the program term. Consultant will provide a summary of the equipment evaluation and recommendations (if necessary) on further required maintenance action(s) to take. Consultant will update and coordinate with the NCTCOG regarding options for repairing or replacing equipment requiring service outside of the above-mentioned items.

Consultant will deploy and install the monitoring equipment. Staff will place equipment in the designated sites within a safe enclosure while striving to protect the equipment from vandalism, flooding, insects, etc. The enclosures will be anchored to the ground and piping will be used to guide the suction and bubbler tubing to the stream. Equipment deployed may include:

- Automatic sampler;
- Tipping bucket rain gauge (specific locations only);
- Cellular modem (specific locations only);
- 12-V marine battery;
- Solar panel;
- Sampling containers;
- Bubbler tubing and bubbler stainless steel line;
- Sample and pump tubing;
- Earth anchors and steel cables;
- Storm box sample shelter;
- Protective conduit; and
- Strainer.

Consultant will perform equipment deployment twice, once in the fall of 2017 and again in December 2019.

At the conclusion of the sampling activities in Year 2021, Consultant will wipe clean monitoring equipment and store the equipment for up to four weeks at the designated Consultant facility. Each monitoring program Participant will pick up their equipment at a time convenient for both the equipment owner and Consultant.

### **Task 1360 – Analytical**

Over the course of the monitoring contract, Consultant will submit one quarterly sample per monitoring station along with QA/QC samples (10% of the total number of samples) to TTI Laboratories. Consultant will communicate with the laboratory regarding delivery times, weather forecast, and expected number of samples per submittal. Samples will be packed with ice and chain-of-custody forms will be filled out prior to submittal. A list of the analytes may be found in the revised monitoring protocol.

TTI will be available 24-hours a day and on holidays for sample submittal.

## **ELECTRONIC DATA MONITORING REPORT**

### **Task 1410 – Data Management (Four Program Years)**

Consultant will prepare quarterly summaries of the successful events including laboratory analysis, water quality observations, and graphical representations of the rainfall and water level data. Consultant will prepare one draft set of summaries and address one round of comments and then finalize. Consultant will submit an electronic data deliverable in MS Excel format consistent with the NCTCOG data reporting requirements and the regional program monitoring database format requirements and digital documents of the quarterly summaries in MS Word and Adobe PDF formats.

## **ANNUAL REPORT**

### **Task 1510 – Annual Reports (Four Program Years)**

Consultant will assist in the preparation of four annual reports by providing the NCTCOG with technical review and oversight for the report results and narrative. Consultant will compile rainfall data, laboratory data, FLOWLINK data, annual flow and loads into a pre-approved reporting format for Arlington, Garland, Irving, Mesquite, NTTA, and Plano. The NCTCOG will summarize the annual program components and sampling activities for the prior year, with assistance from the Consultant, and compile GIS-based maps of the sample locations. Consultant will assist the NCTCOG with addressing comments from Participants and finalizing the report. Consultant assistance will include providing report templates, guidance text, and a review of the draft version of the report. NCTCOG will conduct a final review of the annual reports and submit to TCEQ. Digital copies will be provided for Participants by NCTCOG. Consultant and the NCTCOG will perform these activities for four program years (FY 2018 – 2021).

## **FINAL SUMMARY REPORT**

## **Task 1610 – Final Summary Report (One Time)**

Consultant and NCTCOG will jointly develop a Final Regional Summary Report at the conclusion of the monitoring efforts. Activities will support Arlington, Dallas, Fort Worth, Garland, Irving, Mesquite, NTTA, and Plano. The report will allow for a statistical analysis of the data, comparison of other data sets, and make recommendations for future monitoring activities. The Final Summary Report will be due by September 30, 2022. The following is a breakdown of the activities/roles for Consultant and NCTCOG:

- Consultant
  - Perform analyses of data from current and previous terms, including:
    - Summary statistics (number of samples, minimum, maximum, median, arithmetic mean, geometric mean).
    - Statistical comparisons (previous baseline data from all previous terms, Clean River Program in-stream data, and watershed stations)
  - Obtain and enter reference data (e.g. previous monitoring terms, the National Storm Water Quality Database and the Texas Surface Water Quality Criteria [30 TAC 307]) into statistical software package for comparisons.
  - Prepare statistical figures and tables including:
    - Summary table
    - Box-whisker plots
    - Results tables
  - Jointly formulate results, data interpretation, and recommendations with NCTCOG and Participants.
  - Jointly address one round of comments and revisions from NCTCOG and Participants.
  - Jointly finalize the report with NCTCOG by providing technical assistance with narratives, descriptions of the program components and sampling activities, and incorporating feedback from the NCTCOG and the Participants.
- NCTCOG
  - Facilitate the development of the final report by conducting revisions, providing the Consultant with feedback, and coordinating the incorporation of Participant feedback.
  - Prepare watershed maps.
  - Distribute draft and final digital copies to participants and post final copy to NCTCOG website.

## **BMP ANALYSIS AND EVALUATION PLAN**

### **Task 1710 – BMP Analysis and Evaluation Plan**

Consultant will develop a BMP Analysis and Evaluation Plan that outlines a recommended approach for evaluating BMPs through the regional program. The BMP Analysis and Evaluation Plan will be a guidance document that outlines the approach to analyze BMPs. The plan will build upon previous program term efforts to create a more robust inventory of BMP effectiveness.

The plan will provide a methodology for using BMP and water quality data to determine BMP implementation effectiveness at the watershed scale. The plan will:

1. Identify pollutants of concern
2. Identify BMP evaluation metrics such as construction dates, implementation timelines and frequencies, locations, drainage and/or coverage areas, and other quantifiable parameters.
3. Document potential sources of BMP data (i.e., Permits, SWMPs, and Annual Reports)
4. Provide a correlation between pollutant parameters and BMP metrics; and,

5. Recommend a methodology and evaluate BMP implementation effectiveness indicators based on BMP data only, water quality data only, and a combination/aggregation of BMP and water quality data within monitored watersheds.

The Consultant has completed a draft of the BMP Analysis and Evaluation Plan within the second year (FY19) and will develop a final version within the third year (FY20) of the program term. Submittals will include an outline of the plan, a draft, and a final version of the plan for NCTCOG and participant review.

It is anticipated that Participants will use the plan to collect BMP data/metrics during the third (FY20) through the fourth (FY21) years of the program term and to report BMP data/metrics during annual reporting activities. Consultant assistance with BMP data/metric collection will include providing guidance to NCTCOG and answering questions regarding data/metric requirements as described in the BMP Analysis and Evaluation Plan, and recommendation of where BMP data could be located. Consultant will review annually collected data as part of Task 1510. Consultant will use the plan to collect water quality data. NCTCOG will coordinate with participants to identify appropriate sources of BMP data and create or initiate the creation of a database and maps of collected BMP and water quality data in the monitored watersheds. Consultant assistance with database creation and maps will include providing guidance to NCTCOG and answering questions regarding data/metric requirements as described in the BMP Analysis and Evaluation Plan.

Consultant will include in the final program summary report, BMP implementation effectiveness indicators for each monitored watershed for the time frame FY 20 through FY 21 based on the quality and quantity of data collected and reported by the Participants. For BMP data not meeting the data format requirements as described in the BMP Analysis and Evaluation Plan, the BMP effectiveness indicator will be estimated based on water quality data only. The report will also include suggestions on how to improve the BMP Analysis and Evaluation Plan to incorporate data from prior program terms and to correct any deficiencies identified during plan implementation. The suggested improvements will be recommended for consideration during the next program term.

**Consultant Task List for FY20 – Part A  
(Arlington, Irving, and Plano)**

| FY20 |                                   |  |
|------|-----------------------------------|--|
| Task | Task Name                         | Activities   |
| 1110 | Project Management                | <ul style="list-style-type: none"> <li>• Coordinate work of subs and internal team.</li> <li>• Prepare and provide progress reports.</li> <li>• Project accounting and internal meetings.</li> </ul>   |
| 1120 | General Training                  | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>  |
| 1130 | Annual Refresher Training         | <ul style="list-style-type: none"> <li>• Prepare training materials.</li> <li>• Conduct team training for project.</li> </ul>  |
| 1210 | Monitoring Plan Protocol Revision | <ul style="list-style-type: none"> <li>• Prepare maps for new sampling sites.</li> <li>• Prepare new Health and Safety provisions.</li> <li>• Update site information.</li> <li>• Prepare draft and final Monitoring Plan (electronic format).</li> </ul>  |
| 1220 | Field Recon and Site Selection    | <ul style="list-style-type: none"> <li>• Revisit FY20/21 sites to confirm viability.</li> <li>• If necessary, visit multiple locations within a given watershed for the selection of alternative sites.</li> <li>• Identify sampling sites that can be maintained for longer durations.</li> <li>• Collect watershed and rainfall data needed to support annual flow and load estimations.</li> <li>• If applicable, provide written documentation for recommended sites.</li> </ul> |
| 1310 | Storm Tracking                    | <ul style="list-style-type: none"> <li>• Track storms.</li> <li>• Download data from sites (with modems where applicable).</li> <li>• Coordinate and deploy sampling teams.</li> <li>• Coordinate with laboratory for delivery of samples.</li> </ul>  |
| 1320 | Mobilization to Sampling Sites    | <ul style="list-style-type: none"> <li>• Pre- and post- calibrate meters.</li> <li>• Conduct tailgate safety meetings.</li> <li>• Clean meters and tools.</li> <li>• Replace consumable items.</li> <li>• Staff deployment to sampling sites.</li> </ul>   |
| 1330 | Auto-Sample Retrieval             | <ul style="list-style-type: none"> <li>• Inspect portable units and lines.</li> <li>• Record required observations.</li> <li>• Collect samples from <b>two</b> sites per quarter.</li> <li>• Ice down samples.</li> <li>• Label jars.</li> <li>• Complete chain of custody forms.</li> </ul>   |
| 1340 | Equipment Maintenance             | <ul style="list-style-type: none"> <li>• Reset and calibrate equipment (for <b>two</b> sites) prior to each quarter.</li> <li>• Reset equipment due to flooding, vandalism, changes in stream or bank that affect suction line placement, and cleaning of strainer and bubbler lines (submerged).</li> </ul>   |
| 1350 | Deployment and Decommissioning    | <ul style="list-style-type: none"> <li>• Install water quality monitoring equipment for <b>two</b> sites.</li> <li>• Photo document installed equipment.</li> </ul>  |

|      |                                    |   |
|------|------------------------------------|---|
|      |                                    | <ul style="list-style-type: none"> <li>• Purchase necessary materials for installation.</li> </ul>  |
| 1360 | Analytical                         | <ul style="list-style-type: none"> <li>• Place water chemistry samples on ice and deliver to laboratory.</li> <li>• Perform water chemistry analytical tests.</li> </ul>  |
| 1410 | Data Management                    | <p>For each successful sampling event:</p> <ul style="list-style-type: none"> <li>• Perform data checks for consistency with monitoring plan, laboratory QA/QC, and abnormalities (e.g. illicit discharges, algal blooms, outliers).</li> <li>• Download and process FLOWLINK data.</li> <li>• Input data into EDD, summarize activities and data in summary sheets.</li> </ul> |
| 1510 | Annual Report                      | <ul style="list-style-type: none"> <li>• Assist in the preparation of annual report.</li> </ul>   |
| 1610 | Final Summary Report               | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 1710 | BMP Analysis and Evaluation Report | <ul style="list-style-type: none"> <li>• Assist NCTCOG with coordinating the collection of data on BMPs.</li> </ul>   |

**Consultant Task List for FY20 – Part A  
(Garland)**

| FY20 |                                   |  |
|------|-----------------------------------|--|
| Task | Task Name                         | Activities   |
| 1110 | Project Management                | <ul style="list-style-type: none"> <li>• Coordinate work of subs and internal team.</li> <li>• Prepare and provide progress reports.</li> <li>• Project accounting and internal meetings.</li> </ul>   |
| 1120 | General Training                  | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>  |
| 1130 | Annual Refresher Training         | <ul style="list-style-type: none"> <li>• Prepare training materials.</li> <li>• Conduct team training for project.</li> </ul>  |
| 1210 | Monitoring Plan Protocol Revision | <ul style="list-style-type: none"> <li>• Prepare maps for new sampling sites.</li> <li>• Prepare new Health and Safety provisions.</li> <li>• Update site information.</li> <li>• Prepare draft and final Monitoring Plan (electronic format).</li> </ul>  |
| 1220 | Field Recon and Site Selection    | <ul style="list-style-type: none"> <li>• Revisit FY20/21 sites to confirm viability.</li> <li>• If necessary, visit multiple locations within a given watershed for the selection of alternative sites.</li> <li>• Identify sampling sites that can be maintained for longer durations.</li> <li>• Collect watershed and rainfall data needed to support annual flow and load estimations.</li> <li>• If applicable, provide written documentation for recommended sites.</li> </ul> |
| 1310 | Storm Tracking                    | <ul style="list-style-type: none"> <li>• Track storms.</li> <li>• Download data from sites (with modems where applicable).</li> <li>• Coordinate and deploy sampling teams.</li> <li>• Coordinate with laboratory for delivery of samples.</li> </ul>  |
| 1320 | Mobilization to Sampling Sites    | <ul style="list-style-type: none"> <li>• Pre- and post-calibrate meters.</li> <li>• Conduct tailgate safety meetings.</li> <li>• Clean meters and tools.</li> <li>• Replace consumable items.</li> <li>• Staff deployment to sampling sites.</li> </ul>  |
| 1330 | Auto-Sample Retrieval             | <ul style="list-style-type: none"> <li>• Inspect portable units and lines.</li> <li>• Record required observations.</li> <li>• Collect samples from <b>three</b> sites per quarter.</li> <li>• Ice down samples.</li> <li>• Label jars.</li> <li>• Complete chain of custody forms.</li> </ul>   |
| 1340 | Equipment Maintenance             | <ul style="list-style-type: none"> <li>• Reset and calibrate equipment (for <b>three</b> sites) prior to each quarter.</li> <li>• Reset equipment due to flooding, vandalism, changes in stream or bank that affect suction line placement, and cleaning of strainer and bubbler lines (submerged).</li> </ul>   |
| 1350 | Deployment and Decommissioning    | <ul style="list-style-type: none"> <li>• Install water quality monitoring equipment for <b>three</b> sites.</li> </ul>   |

|      |                                    |   |
|------|------------------------------------|---|
|      |                                    | <ul style="list-style-type: none"> <li>• Photo document installed equipment.</li> <li>• Purchase necessary materials for installation.</li> </ul>   |
| 1360 | Analytical                         | <ul style="list-style-type: none"> <li>• Place water chemistry samples on ice and deliver to laboratory.</li> <li>• Perform water chemistry analytical tests.</li> </ul>  |
| 1410 | Data Management                    | <p>For each successful sampling event:</p> <ul style="list-style-type: none"> <li>• Perform data checks for consistency with monitoring plan, laboratory QA/QC, and abnormalities (e.g. illicit discharges, algal blooms, outliers).</li> <li>• Download and process FLOWLINK data.</li> <li>• Input data into EDD, summarize activities and data in summary sheets.</li> </ul> |
| 1510 | Annual Report                      | <ul style="list-style-type: none"> <li>• Assist in the preparation of annual report.</li> </ul>   |
| 1610 | Final Summary Report               | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 1710 | BMP Analysis and Evaluation Report | <ul style="list-style-type: none"> <li>• Assist NCTCOG with coordinating the collection of data on BMPs.</li> </ul>   |

**Consultant Task List for FY20 – Part A  
(Mesquite and NTTA)**

| FY20 |                                   |  |
|------|-----------------------------------|--|
| Task | Task Name                         | Activities   |
| 1110 | Project Management                | <ul style="list-style-type: none"> <li>• Coordinate work of subs and internal team.</li> <li>• Prepare and provide progress reports.</li> <li>• Project accounting and internal meetings.</li> </ul>   |
| 1120 | General Training                  | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>  |
| 1130 | Annual Refresher Training         | <ul style="list-style-type: none"> <li>• Prepare training materials.</li> <li>• Conduct team training for project.</li> </ul>  |
| 1210 | Monitoring Plan Protocol Revision | <ul style="list-style-type: none"> <li>• Prepare new Health and Safety provisions.</li> <li>• Update site information.</li> <li>• Prepare draft and final Monitoring Plan (electronic format).</li> </ul>  |
| 1220 | Field Recon and Site Selection    | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>  |
| 1310 | Storm Tracking                    | <ul style="list-style-type: none"> <li>• Track storms.</li> <li>• Download data from sites (with modems where applicable).</li> <li>• Coordinate and deploy sampling teams.</li> <li>• Coordinate with laboratory for delivery of samples.</li> </ul>  |
| 1320 | Mobilization to Sampling Sites    | <ul style="list-style-type: none"> <li>• Pre- and post- calibrate meters.</li> <li>• Conduct tailgate safety meetings.</li> <li>• Clean meters and tools.</li> <li>• Replace consumable items.</li> <li>• Staff deployment to sampling sites.</li> </ul>   |
| 1330 | Auto-Sample Retrieval             | <ul style="list-style-type: none"> <li>• Inspect portable units and lines.</li> <li>• Record required observations.</li> <li>• Collect samples from <b>two</b> sites per quarter.</li> <li>• Ice down samples.</li> <li>• Label jars.</li> <li>• Complete chain of custody forms.</li> </ul>                 |
| 1340 | Equipment Maintenance             | <ul style="list-style-type: none"> <li>• Reset and calibrate equipment (for <b>two</b> sites) prior to each quarter.</li> <li>• Reset equipment due to flooding, vandalism, changes in stream or bank that affect suction line placement, and cleaning of strainer and bubbler lines (submerged).</li> </ul> |
| 1350 | Deployment and Decommissioning    | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>  |
| 1360 | Analytical                        | <ul style="list-style-type: none"> <li>• Place water chemistry samples on ice and deliver to laboratory.</li> <li>• Perform water chemistry analytical tests.</li> </ul>   |
| 1410 | Data Management                   | <p>For each successful sampling event:</p> <ul style="list-style-type: none"> <li>• Perform data checks for consistency with monitoring plan, laboratory QA/QC, and abnormalities (e.g. illicit discharges, algal blooms, outliers).</li> <li>• Download and process FLOWLINK data.</li> </ul>               |

|      |                                    |   |
|------|------------------------------------|---|
|      |                                    | <ul style="list-style-type: none"> <li>• Input data into EDD, summarize activities and data in summary sheets.</li> </ul> |
| 1510 | Annual Report                      | <ul style="list-style-type: none"> <li>• Assist in the preparation of annual report.</li> </ul>                           |
| 1610 | Final Summary Report               | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 1710 | BMP Analysis and Evaluation Report | <ul style="list-style-type: none"> <li>• Assist NCTCOG with coordinating the collection of data on BMPs.</li> </ul>       |

ATTACHMENT

**Consultant Task List for FY20 – Part A  
(Dallas and Fort Worth)**

| FY20 |                                    |   |
|------|------------------------------------|---|
| Task | Task Name                          | Activities  |
| 1110 | Project Management                 | <ul style="list-style-type: none"> <li>• Coordinate work of internal team.</li> <li>• Prepare and provide progress reports.</li> <li>• Project accounting and internal meetings.</li> </ul> |
| 1120 | General Training                   | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 1130 | Annual Refresher Training          | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 1210 | Monitoring Plan Protocol Revision  | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 1220 | Field Recon and Site Selection     | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 1310 | Storm Tracking                     | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 1320 | Mobilization to Sampling Sites     | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 1330 | Auto-Sample Retrieval              | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 1340 | Equipment Maintenance              | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 1350 | Deployment and Decommissioning     | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 1360 | Analytical                         | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 1410 | Data Management                    | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 1510 | Annual Report                      | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 1610 | Final Summary Report               | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 1710 | BMP Analysis and Evaluation Report | <ul style="list-style-type: none"> <li>• Assist NCTCOG with coordinating the collection of data on BMPs.</li> </ul>   |

## **Part B – Biological Monitoring**

The Consultant will conduct the following tasks to assist the Participants in performing biological monitoring:

### **PROJECT MANAGEMENT AND COORDINATION**

- Task 2110 – Project Management;

### **SAMPLE ANALYSIS PROJECT PLAN (SAPP) / QUALITY ASSURANCE PROJECT PLAN (QAPP)**

- Task 2210 – Monitoring Plan Revision; and
- Task 2220 – Field Reconnaissance and Site Selection.

### **FIELD SAMPLING AND ANALYSIS**

- Task 2310 – Sampling Preparation and Maintenance;
- Task 2320 – Field Sampling; and
- Task 2330 – Analytical

### **ELECTRONIC DATA MONITORING REPORTS**

- Task 2410 – Data Management (Four Program Years, FY 2018-2021).

### **ANNUAL REPORTS**

- Task 2510 – Annual Report (Four Program Years, FY19-22).

### **FINAL SUMMARY REPORT**

- Task 2610 – Final Summary Report (One time only, FY 2022).

Each of the proposed tasks is described below.

### **PROJECT MANAGEMENT AND COORDINATION**

#### **Task 2110 – Project Management**

Consultant will perform project management activities to coordinate project activities, staff, and subconsultants under this task. Project management activities are expected to last up to 57 months. Quarterly progress reports and invoices will be submitted to NCTCOG along with the Part B invoice (under this same Agreement) and progress report. Invoice amounts and progress reports will be noted as different task items under one invoice. Project accounting, scheduling and coordination with internal staff, subcontractors, and contract laboratory, will be conducted. Consultant will attend up to four (4) meetings with the Task Force per year to provide updates, scheduling, and answer questions about the program. The biomonitoring task leader will participate in one of the four meetings.

### **SAPP/QAPP**

### **Task 2210 – Monitoring Plan Revision**

Consultant will revise the *Regional Stormwater Monitoring Program: Bioassessment Monitoring Plan 2011 - 2016*. that will serve as a strict guide for data collection. The TCEQ Surface Water Quality Monitoring Procedures will provide the foundation for data collection, although the methodology will be modified in accordance with site-specific conditions. The QAPP will provide specific details on criteria for site selection, field data collection techniques, diel water quality monitoring, habitat assessment protocols, and data quality assurance. Consultant will prepare one draft, address one round of comments, finalize, and provide electronically to NCTCOG and the Participants.

### **Task 2220 – Field Reconnaissance and Site Selection**

Consultant will perform field reconnaissance with the Cities of Garland, Irving, and Plano to identify two potential sites for each of these Participants for biological monitoring. Station selection will be based on input from the three (3) listed Participants, representativeness of typical habitats, site access, and prior sampling history. Consultant will conduct on-site inspections for two watersheds for Garland, Irving, and Plano for potential sites. During the site inspection, Consultant will collect photographs for each potential biological monitoring site, latitude and longitude, and collect preliminary notes describing each site. Once all sites have been chosen, a Biological Sampling Site Selection Memorandum will be provided to NCTCOG, Garland, Irving, and Plano describing the sites (total of six) selected.

Consultant will perform field reconnaissance in Year 2017 through 2018 for all watersheds to be sampled. Consultant will repeat this reconnaissance in 2019 to determine if the sites previously selected are still viable.

## **FIELD SAMPLING AND ANALYSIS**

### **Task 2310 – Sampling Preparation and Maintenance**

Consultant will notify the Cities of Garland, Irving, and Plano prior to each sampling event. Consultant will attempt to perform biological monitoring for the three (3) Participants during one mobilization. Mobilizations and preparations will occur twice a year for four years. Prior to mobilization, Consultant will (within a 72-24-hour pre-mobilization window) notify the Texas Parks and Wildlife Department of impending biological sampling activities. Field personnel will gather and inspect the necessary equipment and perform the necessary preparatory and calibration activities. Field teams (comprising a minimum of two for safety) will travel to the site when mobilization has been authorized. Consultant will watch weather forecasts during expected dry periods for sampling. Consultant will perform necessary equipment calibrations (pre- and post-), equipment maintenance, and gather appropriate field data forms.

### **Task 2320 – Field Sampling**

Consultant will perform biological monitoring in accordance with the monitoring plan/QAPP developed for Task 2210 under this Agreement. Field sampling will include habitat attribute documentation; flow measurements; basic water chemistry; diel water chemistry; and the collection of aquatic invertebrates, fish and mussels. Field sampling will occur two times per year (spring and fall) for four years. At the end of two years, Consultant will move to the second watershed (site) selected for each entity and schedule sampling for those sites.

### **Task 2330 – Analytical**

Consultant will collect a suite of water chemistry samples for each biological monitoring site two times a year for four years. The specific water chemistry constituents will be listed in the monitoring plan/QAPP. One set of QA/QC samples will be collected during each year of monitoring. Water chemistry samples will be delivered to TTI Laboratories, where all samples will be packed with ice and chain-of-custody forms will be filled out prior to submittal.

## **ELECTRONIC DATA MONITORING REPORT**

### **Task 2410 – Data Management (Four Program Years)**

Consultant will prepare summaries for each successful biological monitoring event performed for the Cities of Garland, Irving, and Plano. Each summary will include site descriptions, data analysis including IBI metrics, tabulated data, figures, and maps (one submittal per watershed). Consultant will prepare one draft set of summaries and address one round of comments and then finalize. Consultant will submit an electronic data deliverable in MS Excel format consistent with the NCTCOG data reporting requirements and the regional program monitoring database format requirements and MS Word documents of the summaries.

## **ANNUAL REPORT**

### **Task 2510 – Annual Reports (Four Program Years)**

Consultant will assist in the preparation of four annual reports. Annual report activities will support the Cities of Garland, Irving, and Plano. Consultant will compile meteorological data, summary tables, preliminary data analysis (including IBI metrics), figures, and a brief summary of the results. Summary tables may include those for benthic macroinvertebrates, physical habitats, fish communities, physical/chemical data, and mussels. Consultant will develop narratives and maps for the report. Consultant will also work jointly with NCTCOG to address one round of comments and finalize the document. Digital copies will be provided for all Participants.

## **FINAL SUMMARY REPORT**

### **Task 2610 – Final Summary Report (One Time)**

Consultant and NCTCOG will jointly develop a Final Regional Summary Report at the conclusion of Part B. Final Summary Report activities will support Dallas, Fort Worth, Garland, Irving, and Plano. The report will summarize all annual reports, analyze all data, and interpret aquatic life use designations and possible ecosystem stressors for each site. The report will be structured to enhance local understanding by conveying information in a manner that is readily adaptable to communicate results to the public and the respective participating governing entities. The following is a breakdown of the specific activities/roles for Consultant and NCTCOG:

- Consultant
  - Input all data and perform data analysis.
  - Obtain and prepare reference data for statistical comparisons.
  - Prepare statistical figures and tables.
  - Jointly formulate results, data interpretation, and recommendations with NCTCOG and Participants.
  - Jointly address one round of comments and revisions from NCTCOG and Participants.
  - Jointly finalize the report with NCTCOG. Jointly finalize the report with NCTCOG by providing technical assistance with narratives, descriptions of the program components and sampling activities, and incorporating feedback from the NCTCOG and the Participants.
  
- NCTCOG
  - Facilitate the development of the final report by conducting revisions, providing the Consultant with feedback, and coordinating the incorporation of Participant feedback.
  - Prepare all watershed maps.

- Distribute draft and final copies for all Participants and post final copy to NCTCOG website.

ATTACHMENT

**Consultant Task List for FY20 – Part B**  
(Garland, Irving, Plano)

| FY20 |   |   |
|------|---|---|
| Task | Task Name                               | Activities  |
| 2110 | Project Management                      | <ul style="list-style-type: none"> <li>• Provide continuous project management.</li> <li>• Attend one monitoring meeting with NCTCOG and participating entities.</li> <li>• Coordination with laboratory and internal team.</li> </ul>  |
| 2210 | Monitoring Plan Revision                | <ul style="list-style-type: none"> <li>• Prepare maps for new sampling sites.</li> <li>• Prepare new Health and Safety provisions.</li> <li>• Update site information.</li> <li>• Prepare draft and final Monitoring Plan (electronic format).</li> </ul>   |
| 2220 | Field Reconnaissance and Site Selection | <ul style="list-style-type: none"> <li>• Revisit FY20/21 sites to confirm viability.</li> <li>• If necessary, visit multiple locations within a given watershed for the selection of alternative sites.</li> <li>• Identify sampling sites that can be maintained for longer durations.</li> <li>• If applicable, provide written documentation for recommended sites.</li> </ul> |
| 2310 | Sampling Preparation and Maintenance    | <ul style="list-style-type: none"> <li>• Perform necessary equipment calibrations (pre- and post-).</li> <li>• Perform equipment maintenance.</li> <li>• Gather field data forms.</li> </ul>  |
| 2320 | Field Sampling                          | <ul style="list-style-type: none"> <li>• Conduct biological monitoring.</li> <li>• Document habitat attributes.</li> <li>• Perform flow measurements.</li> <li>• Collect basic and diel water chemistry.</li> <li>• Collect aquatic invertebrates, fish and mussels.</li> </ul>   |
| 2330 | Analytical                              | <ul style="list-style-type: none"> <li>• Place water chemistry samples on ice and deliver to laboratory.</li> <li>• Perform water chemistry analytical tests.</li> </ul>  |
| 2410 | Data Management                         | <ul style="list-style-type: none"> <li>• Prepare data summaries and electronic data deliverable.</li> </ul>   |
| 2510 | Annual Report                           | <ul style="list-style-type: none"> <li>• Develop draft annual report for biological monitoring activities.</li> <li>• Respond to one round of comments, finalize document and distribute electronically.</li> </ul>   |
| 2610 | Final Summary Report                    | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |

**Consultant Task List for FY20 – Part B**  
(Dallas and Fort Worth)

| FY20 |   |   |
|------|---|---|
| Task | Task Name                               | Activities  |
| 2110 | Project Management                      | <ul style="list-style-type: none"> <li>• Provide continuous project management.</li> <li>• Attend one monitoring meeting with NCTCOG and participating entities.</li> </ul> |
| 2210 | Monitoring Plan Revision                | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 2220 | Field Reconnaissance and Site Selection | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 2310 | Sampling Preparation and Maintenance    | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 2320 | Field Sampling                          | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 2330 | Analytical                              | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 2410 | Data Management                         | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 2510 | Annual Report                           | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |
| 2610 | Final Summary Report                    | <ul style="list-style-type: none"> <li>• <b>No action this FY.</b></li> </ul>   |

**ATTACHMENT 2 – Cost-share Distribution by Year per Entity for  
Chemical and Biological Monitoring (FY18-22)**

| <b>YEARLY COST-SHARE DISTRIBUTION<br/>PER ENTITY (FY 18-22)</b> |                  |                  |                                 |                  |                  |
|---|------------------|------------------|---------------------------------|------------------|------------------|
| <b>Entity</b>   | <b>FY18</b>      | <b>FY19</b>      | <b>FY20</b>                     | <b>FY21</b>      | <b>FY22</b>      |
| <b>Arlington</b>  | <b>\$ 68,881</b> | <b>\$ 57,417</b> | <b>\$ 61,607</b>                | <b>\$ 57,417</b> | <b>\$ 26,216</b> |
| <b>Garland</b>  | <b>\$ 91,656</b> | <b>\$ 87,204</b> | <b>\$ 93,489</b>                | <b>\$ 87,204</b> | <b>\$ 35,911</b> |
| <b>Irving</b>   | <b>\$ 79,986</b> | <b>\$ 69,469</b> | <b>\$ 73,659</b>                | <b>\$ 69,470</b> | <b>\$ 34,538</b> |
| <b>Mesquite</b>   | <b>\$ 59,773</b> | <b>\$ 53,028</b> | <b>\$ 57,218</b>                | <b>\$ 53,028</b> | <b>\$ 22,307</b> |
| <b>Plano</b>  | <b>\$ 69,596</b> | <b>\$ 58,407</b> | <b>\$ 61,550</b>                | <b>\$ 58,407</b> | <b>\$ 30,915</b> |
| <b>NTTA</b>   | <b>\$ 59,774</b> | <b>\$ 53,029</b> | <b>\$ 57,218</b>                | <b>\$ 53,028</b> | <b>\$ 22,307</b> |
| <b>Dallas</b>   | <b>\$ 13,434</b> |                  |                                 |                  | <b>\$ 13,370</b> |
| <b>Fort Worth</b>   | <b>\$ 6,314</b>  | <b>\$ 6,314</b>  | <b>\$ 6,314</b>                 | <b>\$ 6,314</b>  | <b>\$ 6,314</b>  |
|   |                  |                  | <b>Grand Total: \$1,822,083</b> |                  |                  |