

**INTERLOCAL COOPERATION AGREEMENT BETWEEN
TEXAS A & M UNIVERSITY – CORPUS CHRISTI AND
THE CITY OF CORPUS CHRISTI REGARDING
ENVIRONMENTAL MONITORING STATIONS**

WHEREAS, Texas A & M University – Corpus Christi ("TAMU-CC") and the City of Corpus Christi ("City") are authorized by Chapter 791 of the Texas Government Code to enter into an interlocal cooperation contract;

WHEREAS, Section 791.035 of the Texas Government Code states that a local government and an institution of higher education or university system may contract with one another to perform any governmental functions and services;

WHEREAS, Section 791.035 provides that if the terms of the contract provide for payment based on cost recovery, any law otherwise requiring competitive procurement does not apply to the functions and services covered by the contract;

NOW, THEREFORE, the parties hereto agree as follows:

1. PURPOSE. The purpose of this Agreement is for TAMU-CC, acting through its Conrad Blucher Institute for Surveying and Science, to perform operation and maintenance of 13 environmental monitoring stations for the City of Corpus Christi in Nueces Bay, Nueces River, Oso Creek, and throughout Corpus Christi, further described in Exhibit A Statement of Work.

2. STATEMENT OF WORK. TAMU-CC acting through its Conrad Blucher Institute for Surveying and Science agrees to perform services as outlined in Exhibit A for each year of this Agreement.

3. PERIOD OF PERFORMANCE. The initial term of this Agreement is January 1, 2018 through December 31, 2018 unless terminated as provided herein. This Agreement may be renewed for up to two additional one-year terms by written agreement of the City Manager and authorized representative from TAMU-CC, unless terminated as provided herein.

4. FEES FOR SERVICES PROVIDED.

A. For January 1 2018 through December 31, 2018, the City agrees to pay TAMU-CC up to \$170,134 as payment in full for all services provided herein, as further outlined on Exhibit B. The payment shall be paid on a monthly basis upon receipt and review of monthly invoice. In subsequent years of this Agreement, the fee to be paid by the City for services performed by TAMU-CC under this Agreement shall not be increased by more than three percent each year.

B. These payments are payment in full for all TAMU-CC costs to perform all of the the services described in Exhibit A for each twelve month term. Each party acknowledges that all expenditures under this agreement shall be paid with current revenues of the paying party.

C. The parties acknowledge that continuation of this agreement beyond City's current fiscal year which ends September 30 is subject to the annual City budget process and appropriation of funds. If funds are not appropriated sufficient to pay for this Contract in the then-current City budget year, then this Contract shall terminate upon ten business days' written notice and City shall have no further payment obligation to TAMU-CC.

D. TAMU-CC shall submit a fixed-price monthly invoice.

5. TERMINATION. Performance under this agreement may be terminated by either party, with or without cause, upon 30 days' written notice.

6. NOTICES. All notices to parties under this Agreement shall be in writing and sent to the names and address stated below. Either party to the Agreement may change the name and address by notice to the other in accordance herewith, and any change shall take effect immediately upon receipt of the notice.

Texas A&M University – Corpus Christi
Attn: Ahmed Mahdy
Interim Vice President, Division of Research,
Commercialization and Outreach
6300 Ocean Drive, Unit 5844
Corpus Christi, Texas 78412-5844

City of Corpus Christi
Attn: Utilities Director
P.O. Box 9277
Corpus Christi, TX, 78469

7. AMENDMENTS AUTHORIZED. The representatives who were authorized to sign this agreement are authorized to execute minor amendments to this agreement, to extend deadlines or minor changes in the scope of work.

8. SEVERABILITY. If any of the provisions of the agreement in the application thereof to any person or circumstance, is rendered or declared illegal for any reason, or shall be invalid or unenforceable, the remainder of the agreement and the application of the provision to other persons or circumstances shall not be affected thereby, but shall be enforced to the greatest extent by applicable law. The City and Texas A & M University- Corpus Christi agree that this agreement shall be reformed to replace the stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

9. DISPUTE RESOLUTION PROCESS. To the extent applicable, the dispute resolution procedures provided in Chapter 2260 of the Texas Government Code will be used to resolve contract claims under this contract.

10. MISCELLANEOUS. This agreement constitutes the entire agreement between the parties relative to the subject matter, and may only be modified or amended by a written agreement signed by both parties. It shall be construed in accordance with the laws of the State of Texas.

IN WITNESS WHEREOF, the parties have caused this agreement to be executed by their authorized representative, to be effective as of date of last signature.

Texas A&M University – Corpus Christi

Mayra A.

Hough

Digitally signed by

Mayra A. Hough

Date: 2017.10.30

10:09:54 -05'00'

By: *for*

Name: Dr. Ahmed Mahdy

Title: Interim Vice President, Research, Commercialization and Outreach

Date: 10/30/2017

CITY OF CORPUS CHRISTI

ATTEST

Rebecca Huerta
City Secretary

By: _____
Margie C. Rose
City Manager

APPROVED AS TO FORM:

This _____ day of _____, 2017

Lisa Aguilar, Assistant City Attorney For City
Attorney

To be inserted:
Exhibit A Statement of Work
Exhibit B Costs for Services



CONRAD BLUCHER INSTITUTE FOR SURVEYING AND SCIENCE

LARRY DROYA
Research Specialist II
Conrad Blucher Institute for Surveying and Science
College of Science and Engineering
6300 OCEAN DRIVE, UNIT 5799
CORPUS CHRISTI, TEXAS 78412
O 361.825.5759 • C 361.438.6594

Exhibit A

October 22nd, 2017

Gabriel Ramirez
2726 Holly Rd.
City of Corpus Christi
Corpus Christi, TX 78415

Reba George
1201 Leopard St.
City of Corpus Christi
Corpus Christi, TX 78412

Dear Gabriel and Reba,

The statements of work covered herein are submitted to the City of Corpus Christi Utilities Department (CCUD) for consideration. These statements will constitute a fee for services rendered by the Conrad Blucher Institute for Surveying and Science (CBI) at Texas A&M University - Corpus Christi (TAMUCC). Included is an outline of our scope of work and budget to continue to maintain operation of environmental monitoring stations in Nueces Bay, Nueces River, Oso Creek and within the City of Corpus Christi.

PROPOSED SCOPE OF WORK FOR NUECES BAY AND NUECES RIVER WATER QUALITY MONITORING, OSO CREEK WATER LEVEL AND CITY OF CORPUS CHRISTI METEOROLOGICAL MONITORING: 2018

SUMMARY

Operation and maintenance of thirteen real-time environmental monitoring stations in Nueces Bay, Nueces River, Oso Creek and throughout the City of Corpus Christi will continue to be covered under this agreement. Corpus Christi meteorological monitoring stations will report air temperature, wind speed, wind direction, liquid precipitation, barometric pressure and relative humidity. Nueces Bay and Nueces River water quality monitoring stations will primarily report water temperature, specific conductance, and salinity and will secondarily report dissolved oxygen, and pH. Oso Creek water level monitoring stations will report air gap clearance, stage, air temperature, relative humidity, barometric pressure, and liquid precipitation. All data will be available in graphical and tabular format on CBI's website, <http://cbi.tamucc.edu>, for the duration of the project period. Additional management resources concerning Nueces Bay water quality monitoring can be found at <http://www.cbi.tamucc.edu/Nueces-BayWater-Quality-Monitoring/>. This proposal covers a period of 12 months.

RESEARCH OBJECTIVES

Nueces Bay and Nueces River Water Quality Monitoring

The Conrad Blucher Institute for Surveying and Science (CBI) at TAMUCC has been operating and maintaining real-time salinity monitoring stations in Nueces Bay and in Nueces River for the City of Corpus Christi since November 1991 in order to help better understand the effects of freshwater inflows on salinity into the Nueces Bay system. The data collected will be used to help the City of Corpus Christi water supply managers determine the quantity and frequency of fresh water pass through events required by the amended Agreed Order between the City and the Texas Commission on Environmental Quality (TCEQ) via the Lake Corpus Christi Wesley Seale Dam. Other benefits of the data collection include collaboration with other researchers in the Nueces delta, namely, the Center for Coastal Studies (CCS) and Harte Research Institute for Gulf of Mexico Studies (HRI) at TAMUCC, the University of Texas Marine Science Institute (UTMSI) at Port Aransas, the Coastal Bend Bays and Estuaries Program (CBBEP) and the U.S. Army Corps of Engineers (USACE) Fort Worth District.

Nueces Bay salinity monitoring by CBI consists of two monitoring stations: SALT01 (27° 50' 21" N, 97° 26' 38" W) and SALT03 (27° 51' 5" N, 97° 28' 55" W) and one monitoring station in Nueces River: SALT05 (27° 53' 30" N 97° 36' 37" W). These stations consist of a Hach Hydrolab MS5 water quality datasonde, cellular modem, Campbell Scientific CR1000 datalogger, and photovoltaic power system. Primary parameters measured at all monitoring stations include salinity, specific conductance and water temperature. Additionally, ancillary parameters are measured including dissolved oxygen, and pH. The stations are located in such a manner to track fresh water inflows into Nueces Bay using salinity levels as an indicator of freshwater movement. Relief for required freshwater releases may be taken by the City if the salinity levels in Nueces Bay fall below the Upper Salinity Bounds. A daily running report (<http://lighthouse.tamucc.edu/salrel>) produced by CBI and the Nueces River Authority (NRA) shows the current freshwater relief status.

The City has designed and built a diversion channel and pumping system that, when activated, pumps freshwater from the Nueces River into the Nueces delta and adjacent wetlands starting at the head of the Rincon Bayou channel. The freshwater diversion pumping system is designed to redirect freshwater flowing into Nueces Bay proper to the Nueces Delta in order to most effectively utilize available freshwater by diverting it to the area with the most potential for increased biological productivity. Currently, UTMSI, HRI, and CCS are conducting long-term ecological studies of the effects of this diversion. Two salinity monitoring stations (NUDE2: 27° 53' 19" N, 97° 34' 10" W and NUDE3: 27° 53' 1" N, 97° 31' 59" W) located along the Rincon Bayou were established in 2009 to determine the fate of freshwater diversions from the pipeline. The salinity monitoring stations located in the Nueces Delta are funded by the CBBEP and are not covered in the scope of this proposal but are a part of an overarching hydrodynamic monitoring system.

Oso Creek Water Level Monitoring

Three water level monitoring stations are located on bridges along the Oso Creek at Saratoga Rd. near Calle Cuernavaca (OCWL01: ~27° 43' 18.26" N 97° 27' 28.55" W), Weber Rd. near Yorktown Blvd. (OCWL02: ~27° 41' 19.82" N 97° 25' 45.36" W) and at Staples St. near Oso Pkwy. (OCWL03: ~27° 39' 24.89" N 97° 24' 5.89" W). These stations consist of a Campbell Scientific CS-475 radar water level sensor, Vaisala WXT-520 weather transmitter, cellular modem, Campbell Scientific CR1000 datalogger, and photovoltaic power system and will report water level and stage height, air temperature, liquid precipitation, barometric pressure and relative humidity. The Oso Creek water level monitoring stations will assist the CCUD in monitoring Oso Creek water levels in relation to adjacent infrastructure.

Corpus Christi Meteorological Monitoring

Seven meteorological stations are located throughout the City of Corpus Christi at TAMUCC (CCWXAM: 27° 42' 54" N 97° 19' 43" W), Rodd Field Rd near Wooldridge Rd (CCWXRF: 27° 40' 34" N 97° 21' 9" W), Carmel Pkwy near S Alameda St (CCWXCM: 27° 43' 54" N 97° 22' 40" W), Cedar Pass Dr. near Sun Valley Dr. (CCWXCP: 27° 41' 6" N 97° 25' 0" W), Del-Mar college east campus (CCWXDE: 27° 45' 51" N 97° 24' 15" W), Del-Mar college west campus (CCWXDW: 27° 46' 24" N 97° 26' 24" W) and in Calallen at the Nueces River pump station (CCWX07: 27° 52' 4.2" N 97° 37' 54.5" W). These stations consist of a Vaisala WXT-520 weather transmitter, cellular modem, Campbell Scientific CR1000 datalogger and a photovoltaic power system and reports air temperature, wind speed, wind direction, liquid precipitation, barometric pressure and relative humidity. These stations help City technicians determine frequency of collection of water samples during rain events in order to satisfy their storm water runoff (MS4) permit. A webpage was developed to assist City technicians monitor rainfall at <http://www.cbi.tamucc.edu/ccrl/>. An alert system was also developed to automatically send e-mail notifications to City technicians when rainfall values reach certain thresholds. Both the rainfall display and e-mail alert systems will continued to be supported and maintained throughout the project period.

STATION SERVICE AND MAINTENANCE

Nueces Bay and Nueces River Water Quality Monitoring

Regular site visits will be made to each water quality station every 2-3 weeks during which the datasondes will be exchanged to prevent inaccurate data due to biofouling. During a site visit, readings will be recorded from the deployed datasonde which will then be replaced with a clean, calibrated datasonde after which readings from the freshly deployed datasonde will be recorded. Independent salinity readings will be taken with a portable refractometer and recorded. Maintenance to the station hardware including cleaning solar panels and replacing damaged components will also be performed during regular site visits as needed. Full inspections will be made annually during which the voltage output of every component on the

power system will be checked, pictures of every station component will be taken, backup log files will be downloaded, the cellular signal will be checked, clock times will be checked and synchronized, etc. Repair of damaged station components will be performed during regular service visits as needed unless the station damage affects data transmission of the primary data parameters in which an emergency site visit will be conducted. Scheduled site visits may be delayed due to foul weather, vehicle repair, flood conditions, etc. In the event that a service trip is delayed, every effort will be made to complete the scheduled site visit as soon as it is safe and feasible. A short summary of each site visit conducted will be placed on the station's website and made publicly available at all times.

Oso Creek Water Level Monitoring

Regular maintenance on water level stations will be conducted every six months during which the voltage output of every component on the power system will be checked, pictures of every station component will be taken, the sensor orientation will be checked and the desiccant will be replaced. The creek stage height directly below the sensor will also be measured and the stage offset value will be updated in the water level sensor. One emergency site visit has been budgeted to repair damaged station components as needed and will be used in the event that the damaged component prevents proper data collection or transmission. A short summary of each site visit conducted will be placed on the station's website and publicly available at all times.

Corpus Christi Meteorological Monitoring

Regular maintenance on meteorological stations will be conducted every six months during which the voltage output of every component on the power system will be checked, pictures of every station component will be taken and the desiccant will be replaced. The weather transmitter will be replaced with a calibrated sensor every two years as per manufacturer recommendation. One emergency site visit have been budgeted to repair damaged station components as needed and will be used in the event that the damaged component prevents proper data collection or transmission. A short summary of each site visit conducted will be placed on the station's website and publicly available at all times.

DATA COLLECTION

Each real-time environmental monitoring station has its own webpage created within the website <http://cbi.tamucc.edu>. Each monitoring station is polled every six minutes from which data are automatically disseminated online via CBI custom polling software. All data stored in the CBI database are publicly available at <http://cbi.tamucc.edu> and will be available for retrieval during the duration of the proposal period. CBI staff performs a quality control check (QC) of all real-time data daily. During a QC, the data will be checked for missing transmissions and data anomalies such as readings outside of a feasible range, readings of a constant value, random spikes, etc. Data anomalies, suspect data, missed transmissions and other factors

affecting the data will be posted as a message on each station's webpage. Daily salinity reports of Nueces Bay are produced showing the running ten and seven day averages as well as the daily average (<http://www.nueces-ra.org/CP/CITY/passthru/index.php>). Monthly salinity levels in relation to the upper and lower salinity bounds are found at <http://lighthouse.tamucc.edu/salrel>, and are used to help determine if the City may take credits to offset scheduled freshwater releases from the storage impounds.

INSTRUMENT CALIBRATION

Hach Hydrolab MS5 Datasonde

Hach Hydrolab MS5s will be serviced and calibrated at a wetlab at TAMUCC. Instruments will be calibrated based on manufacturer recommendation during which the instrument will be placed in a known standard for each parameter and set to match its readings to that standard; all calibration standards used will be NIST traceable. The instruments will then be post-calibrated during which the readings for each parameter will be recorded in the same standard in which it was calibrated. The biofouling will then be removed and any maintenance recommended by the manufacturer will be performed. All calibration and post-calibration records will be available upon request. An annual maintenance agreement with HydrotechZS will be purchased which will cover repair/refurbishment to damaged components on the instruments and an annual quality check including a calibration check of the temperature sensor. Documentation from the annual quality check will be retained at CBI and available upon request.

Vaisala WXT-520 Weather Transmitter

The Vaisala WXT-520 weather transmitter does not require a regular calibration. However, the replacement part WXT-PTUSP contains calibration data and will be replaced every two years as recommended by the manufacturer for accurate data collection.

Campbell Scientific CS475 Radar Water Level Sensor

The Campbell Scientific CS475 Radar Water Level Sensor does not require a regular calibration. However, the sensor will be checked for accuracy during annual inspections and will be sent back to the manufacturer for a quality check if the data provided by the sensor becomes suspect.

REPLACEMENT PARTS AND EQUIPMENT

TAMUCC owns and maintains the instrumentation and equipment purchased with funds from this project. In the case of damage, TAMUCC will repair or replace instrumentation as needed to ensure a continuous data collection record as long as enough funds are available. If not

enough funds are available, the CCUD will be responsible for replacement or repair of instruments. Replacement equipment will be purchased for this project and kept in inventory until needed. If additional replacement equipment beyond what is kept in inventory is needed, every effort will be made by CBI and the CCUD to replace needed components.

COLLABORATIVE MONITORING

This proposed installation and maintenance of environmental monitoring stations will be designed to provide data to support those research efforts currently being done by the CCUD and the Nueces River Authority (NRA). The CBI will work with staff at the CCUD and NRA to provide data, information, instructions, etc. that will help them gather the resources needed to conduct research. This proposed continuation of the salinity monitoring program is designed to provide data to support those research efforts currently being done by various entities including the Center for Coastal Studies, Coastal Bend Bays and Estuaries Program, Harte Research Institute, University of Texas Marine Science Institute, etc. CBI will establish additional collaborative efforts as needed to support this and other projects.

SCHEDULE OF WORK AND FEE FOR SERVICES

The Conrad Blucher Institute for Surveying and Science at Texas A&M University – Corpus Christi hereby agrees for the duration of 12 months (January 1st, 2018 through December 31st, 2018) to perform all services necessary to provide environmental monitoring, as described in this proposal. The budget for January 1st, 2018 through December 31st, 2018 is \$170,134 and is outlined below. The year 1 award amount will be invoiced in equal, monthly installments over the first 12-month period of this contract. A new proposal will be provided for each year of continuing service, and it is anticipated that the proposed annual budget for this project will increase by three percent per year.

Exhibit B

BUDGET SUMMARY

	TOTAL
Salaries & Benefits	\$96,430
Travel Pool	\$9,855
Supplies	\$10,560
Other Expenses	
• Datasonde service contract	\$6,150
• Verizon/Sprint monthly modem cost	\$2,930
• Freight	\$100
Indirect	\$44,109
TOTAL	\$170,134