



MEMORANDUM

**City of Austin
Financial Services Department
Purchasing Office**

DATE: October 22, 2019

TO: Memo to File

FROM: Mike Zambrano, Jr. – Contract Management Specialist III

RE: NI160000007: Amendment No. 2, Option 2 – Automatic Extension

The subject contract is between the Lower Colorado River Authority and the City of Austin. It was written for “Flood Early Warning Date Housing Services and Material”. Per Section 4.1 (Term – Automatic Renewal), of this Interlocal Agreement, the contract will “automatically extend for up to three successive one (1) year periods”. The only function of Purchasing is to add funds to the contract. The table below is for informational purposes and displays the funds added to date. One extension option remains.

Action	Action Amount	Total Contract Amount
Initial Term: 11/19/2015 – 11/18/2018	\$705,000.00	\$705,000.00
Amendment No. 1: Option 1 – Automatic Extension 11/19/2018 – 11/18/2019	\$141,000.00	\$846,000.00
Amendment No. 2: Option 2 – Automatic Extension 11/19/2019 – 11/18/2020	\$141,000.00	\$987,000.00



MEMORANDUM

**City of Austin
Financial Services Department
Purchasing Office**

DATE: October 22, 2019

TO: Memo to File

FROM: Mike Zambrano, Jr. – Contract Management Specialist III

RE: NI160000007: Amendment No. 1, Option 1 – Automatic Extension

The subject contract is between the Lower Colorado River Authority and the City of Austin. It was written for "Flood Early Warning Date Housing Services and Material". Per Section 4.1 (Term – Automatic Renewal), of this Interlocal Agreement, the contract will "automatically extend for up to three successive one (1) year periods". The only function of Purchasing is to add funds to the contract. The table below is for informational purposes and displays the funds added to date. Two extension options remain.

Action	Action Amount	Total Contract Amount
Initial Term: 11/19/2015 – 11/18/2018	\$705,000.00	\$705,000.00
Amendment No. 1: Option 1 – Automatic Extension 11/19/2018 – 11/18/2019	\$141,000.00	\$846,000.00

**INTERLOCAL COOPERATION AGREEMENT
FOR FLOOD EARLY WARNING DATA HOSTING SERVICES AND MATERIAL
BETWEEN CITY OF AUSTIN
AND LOWER COLORADO RIVER AUTHORITY**

This Interlocal Cooperation Agreement ("**Agreement**") is entered into by and between the Lower Colorado River Authority ("**LCRA**"), a conservation and reclamation district of the State of Texas created pursuant to Article XVI, Section 59, of the Texas Constitution, and City of Austin ("**CITY**"), a Texas home-rule municipal corporation, pursuant to the authority granted and in compliance with the provisions of the Texas Interlocal Cooperation Act (Chapter 791, Texas Government Code) to be effective for all purposes as of November 19, 2015 (the "**Effective Date**"). (LCRA and CITY may also be referred to individually as a "**Party**" and collectively as the "**Parties.**")

RECITALS

LCRA's systems for the operation of its electrical generation and transmission systems and its surface water conservation and management systems include a communications network, including a regional, trunked radio system and data network which have been installed for LCRA's use within LCRA's service areas for purposes of communications in conjunction with its provision of electric power and energy in Texas, water supply management, flood warning and control, public safety, and emergency services.

By separate agreement, LCRA currently provides communications hardware, facilities, and technical services to CITY for the installation and operation of fixed and mobile radio hardware for watershed protection and flood early-warning operations and to assist CITY with deploying and maintaining radio communications. That hardware, provides data interconnection for (1) flood control operations, (2) remote monitoring of stream gauges and other watershed protection hardware, (3) stream flow data collection and transfer, (4) response to catastrophic or large-scale incidents or natural disasters, and (5) radio communications coordination support for local, state, tribal, and federal agencies in the State;

It would benefit CITY to have LCRA provide a hosting environment for stream-gauge and other data collected by the CITY's hardware utilizing LCRA's radio system and data network. Under this agreement, LCRA is willing to provide data management and storage and to develop a public facing website for precipitation and stream levels. The assistance of LCRA as a host for data reporting will benefit the CITY by:

- Providing timely and accurate transmission of data from CITY's precipitation and stream level gauges into a database for archival storage and public retrieval of the data;
- Placing the CITY's flood early-warning data in a publicly accessible internet site in similar format and with similar timeliness as LCRA's own watershed and waterway

- data;
- Providing access by CITY to all its data collected and archived on LCRA's system;
- Creating an informative and easy-to-use custom public website, branded for CITY, for the display of CITY's flood early-warning data with the functionality of LCRA's own Hydromet website.

LCRA has prepared technical requirements for the project, attached to this Agreement as Attachment A, and LCRA has submitted a Proposal, dated September 8, 2015, to CITY for providing the hosting and data collection services, attached to this Agreement as Attachment B.

AGREEMENT

In consideration of the mutual benefits received by both Parties and the public under the terms of this Agreement, the receipt of which is hereby acknowledged, the Parties agree as follows:

1. ACCEPTANCE; CITY ACCESS TO LCRA

1.1. This Agreement, under which LCRA will provide services and materials to CITY, is the full final and complete agreement between the parties with respect to the Services and materials to be supplied to LCRA to City. It is agreed that the provision of services and materials is to be made only on the terms and conditions herein. LCRA shall not be bound by the terms and conditions in CITY's purchase order or other documentation unless expressly agreed to in writing. In the absence of written acceptance of these terms, acceptance of services hereunder shall constitute an acceptance of these terms and conditions by CITY.

1.2. Access to LCRA's data network consists of CITY's right to use certain system applications and capabilities of the data network, as described in Attachment A, in consideration for CITY's payment of one-time and recurring fees as indicated in Attachment B.

1.3. CITY expressly understands that LCRA will monitor CITY's activities pursuant to this Agreement and that LCRA will retain control over all aspects of the operation of LCRA's data network.

2. SERVICES; COST-SHARED BASIS

2.1. Hosting Services. LCRA agrees that it shall perform the Hosting Services in a manner consistent with the following requirements and in accordance with Attachments A & B:

- a) Provide a hypertext link to a site on the World Wide Web that is hosted by LCRA and branded as CITY's site,

- (b) Establish and maintain appropriate environmental, safety, and facility procedures, data security procedures, and other safeguards against the destruction, corruption, loss or alteration of the Hosting Services and any CITY data.
- (c) Utilize LCRA best practices (including appropriate firewall protection intrusion prevention tools, and Intrusion detection tools) to protect, safeguard, and secure the System and CITY data against unauthorized access, use, and disclosure.

2.2. In addition to basic services and materials, LCRA shall procure and provide installation, maintenance, and related services under this Agreement or described in the Proposal; such services shall be performed either by LCRA's personnel or through independent contractors hired by LCRA. LCRA shall ensure that all contractors are knowledgeable and experienced in the work they may perform.

3. SERVICE RATES, CHARGES AND TERMS

LCRA shall provide the services described in this Agreement at the rates and charges shown in Attachment B. All rates, charges, and fees for services, materials and licenses provided under this Agreement shall be paid by CITY annually and/or monthly. LCRA will invoice CITY annually for all required licenses and monthly, or as otherwise agreed to by the parties, for all services. Failure of LCRA to send or for CITY to receive an invoice shall not relieve CITY from payment of any fees due. The monthly basic service fee associated with CITY's access to the system shall be invoiced in advance. Periodic charges for additional services additional technical support and other optional services shall be invoiced at the end of each monthly billing cycle, or as otherwise agreed to by the parties. Late payments shall be subject to interest or reasonable service charges. Charges for materials purchased or installed shall be invoiced immediately following delivery or installation with payment due within 30 days of the invoice date.

4. TERM - AUTOMATIC RENEWAL

4.1 The initial term of this Agreement shall commence on the Effective Date as set forth above and shall end three (3) years later, unless automatically extended. The Agreement shall automatically extend for up to three successive one (1) year periods provided that either Party may terminate this Agreement (a) at any time by giving to the other party written notice at least one-hundred eighty (180) days prior to the termination day, or (b) by giving to the other party written notice at least ninety (90) days prior to the end of any one (1) year extension.

4.2 The rates, charges, and fees due and payable by CITY for any annual extension shall be the same as made during the preceding term unless LCRA notifies CITY of any changes pursuant to the provisions of section 3. If, after such notification, CITY does not terminate this Agreement and allows it to automatically renew, charges for the next term shall be the new charges set out by LCRA in its notification prior to the automatic renewal date, subject to modification as herein set out.

4.3 All data provided to LCRA from CITY's gauges shall be the property of CITY. Upon expiration or termination of this Agreement, LCRA will provide all such CITY data to CITY in a mutually agreed upon and standard commercial format within thirty (30) days of the effective date of any termination or expiration. LCRA may keep a single copy of such data for archival purposes in a manner consistent with LCRA's data retention policy.

5. SERVICE INTERRUPTIONS

5.1. LCRA shall have the right, in coordination with CITY, to plan and schedule system outages for purposes of system maintenance, updates, and similar necessities.

5.2. In the event of an emergency, as declared by the LCRA's emergency coordinator, LCRA reserves the right to reallocate service priorities for the duration of the emergency.

6. ASSIGNMENT; SUBCONTRACT; NO THIRD-PARTY BENEFICIARIES

This Agreement may not be assigned in whole or in part by CITY to any other person or entity unless LCRA enters into a new written agreement with that person or entity. LCRA reserves the right to assign this Agreement or subcontract any of its obligations hereunder. This Agreement is entered into for the sole benefit of the Parties. Nothing in this Agreement shall be construed as conferring any rights, benefits, remedies, or claim upon any person, firm, corporation or other entity not a Party to this Agreement.

7. DEFAULT AND REMEDIES

7.1. A material breach of this Agreement by either party shall constitute an event of default and entitle the non-breaching party to terminate the Agreement for cause in accordance with section 7.2. Notwithstanding the foregoing sentence, if CITY fails to make any payment of any sum due or fails to perform as required by any other provision hereunder, and continues in such failure for fifteen (15) days after written notice has been sent by LCRA to CITY, CITY shall be deemed in default under this Agreement.

7.2. If a Party should be in default and if the other Party has performed all of its obligations, the non-defaulting Party shall deliver written notice to the defaulting Party describing the default. If the default continues for more than one month after delivery of the notice (or such time as necessary to correct the default with due diligence), the non-defaulting Party may immediately terminate this Agreement and pursue its remedies as provided below or as otherwise provided at law or in equity.

8. WARRANTIES

LCRA warrants that its management and operation of its data network will comply with reasonable and standard practices. LCRA further warrants that the junction boxes to be provided under this Agreement shall meet the requirements stated therein and LCRA standards for its own similar materials for a period of one (1) year following delivery and

installation, provided that the foregoing warranty shall not apply to normal wear and tear or damage caused by CITY or third parties constituting misuse, intentional damage, or vandalism.

9. DISCLAIMER OF WARRANTIES; LIMITATION OF REMEDIES

9.1. LCRA does not warrant that the Hydromet System, XConnect, or any portion thereof, are error or bug free, compatible or otherwise able to be integrated with third-party applications, or that CITY'S use of the Hydromet System, or any portion thereof, will be uninterrupted. CITY acknowledges and agrees that LCRA is not the manufacturer of network hardware, and LCRA hereby disclaims all representations and warranties, direct or indirect, express or implied, written or oral, in connection with any hardware or equipment utilized by LCRA in performing services under this Agreement, including but not limited to any and all express and implied warranties of suitability, durability, merchantability, and fitness for a particular purpose.

9.2. Notwithstanding the above limitations, LCRA shall be liable for the cost of restoration, repair, or replacement of any CITY-owned facilities to the extent such facilities are damaged or destroyed as a direct result of a grossly negligent or willful act of LCRA.

9.3. Integration of Third-Party System Data. LCRA does not warrant or represent that third party data is accurate, complete, or timely. Changes made to third-party systems integrated into the CITY web page may cause technical difficulties in retrieving updated data. LCRA is not liable for system changes made to third-party systems, and any changes to the delivered design that rely on third-parties, breaks and/or fixes would be at an additional expense to CITY.

10. INTERRUPTION OF SERVICE; FORCE MAJEURE

Except for actions required by this Agreement, LCRA shall not be liable to CITY or any other person for any loss or damage, regardless of cause. LCRA does not assume and shall have no liability under this Agreement for failure to provide, or delay in providing, service due directly or indirectly to causes beyond the control of LCRA or its subcontractors, including, but not restricted to, acts of God, acts of governmental entities, acts of the public enemy, strikes, riots, terrorism, internet unavailability, interruption or degradation, or severe weather conditions.

11. LIMITATIONS OF LIABILITY; INDEMNIFICATION

11.1. CITY understands that (a) occasional interruption or irregularities in network service may occur; and (b) any potential harm from interruptions or irregularities in the service is speculative in nature. LCRA assumes no responsibility other than that contained in this Agreement. Notwithstanding any other provisions of this Agreement, **neither Party shall be liable to the other for any special, incidental, consequential, punitive or indirect damages or for any loss of use, revenue, or profit suffered by the other Party, its successors or assigns, contractors, or affiliates in connection with any breach of obligation under this Agreement, nor as a result of premises**

defect, condition, or use of real or personal property, interference, failure, or unavailability of any hardware, facility, or service to be provided by LCRA under this Agreement or under any other circumstance.

11.2. LCRA is not liable for any damage, accident, injury or the like occasioned by the use of the data network, or data provided by the CITY gauges, or by the use of any data hosted for CITY by LCRA.

11.3. [Reserved]

11.4. Nothing in this Agreement is intended to waive any immunity from suit or liability to which a Party may be entitled by law.

12. NOTICES

Any notice or demand required or permitted to be made hereunder shall be made to the addresses given below. Either Party may from time to time designate any other address for this purpose by written notice to the other Party. All notices or demands shall be effective upon receipt and shall be deemed to be received when actually delivered by hand delivery, facsimile transmission, overnight courier, or two days after deposit in a regularly maintained receptacle of the United States Mail, registered or certified, return receipt request, postage prepaid.

CITY: City of Austin Watershed Protection Department Watershed Engineering Division P.O. Box 1088 Austin, Texas 78767	LCRA: Lower Colorado River Authority Chief Information Officer 3700 Lake Austin Blvd. Austin, TX 78703
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13. TAX CODE CONSEQUENCES.

13.1. The relationship of the Parties shall not be treated as a partnership, joint enterprise, or other taxable entity for any purpose, including liability under the United States Internal Revenue Code (the "Code"). No provision of the Agreement shall be construed to create an association, joint venture, trust, or partnership with regard to the other Party. The Parties agree to take appropriate actions, including appropriate elections under Section 761 of the Code, to exclude the application of the partnership provisions of the Code.

13.2. Each Party shall be responsible for payment of all taxes, if any, on its own facilities. In addition, CITY is responsible for any applicable taxes on any hardware provided to CITY under this Agreement.

14. AMENDMENT; WAIVER; SEVERABILITY

Amendments to or modification of this Agreement shall be in writing and signed by authorized representatives of the Parties. Lack of enforcement of any right under this Agreement by either Party shall not constitute a waiver of that right or any other in the future. The terms and conditions of this Agreement supersede other agreements, written or oral, between the Parties regarding the subject of this Agreement. Should a court of competent jurisdiction find any part of this Agreement invalid or unlawful, the remainder of this Agreement shall remain in full force and effect, consistent with the original intent of the Parties. This Agreement shall be construed in accordance with and governed by the laws of the State of Texas. Venue with regard to any lawsuit shall be in the state District Courts of Travis County, Texas.

15. NO ORAL AGREEMENTS.

The parties agree that this Agreement contains all representations, contracts and agreements between the parties regarding the subject matter of this Agreement and supersedes any other prior or contemporaneous negotiations, writings, understandings, oral representations related to the services or materials to be performed or provided under this Agreement notwithstanding the foregoing, nothing in this Agreement is intended to amend or supersede that certain interlocal agreement between LCRA and the City effective as of January 29, 2015 under which LCRA provides communications hardware, facilities and technical services to the City. In the event of a conflict between the provisions of this Agreement and those of any attachment, the provisions of this Agreement shall prevail and such attachments shall be corrected accordingly.

16. REVIEWS

The Parties agree to conduct periodic reviews at the request of either Party to coordinate operations and related administrative or management activities with regard to the services provided under this Agreement. The Parties may loan hardware to each other in furtherance of this Agreement, but any such hardware shall remain the property of the loaning Party and must be returned after requested within a reasonable period of time to insure non-interruption of official duties and services.

17. INTERLOCAL CERTIFICATION

The Parties certify that (a) the services described herein and to be provided under this Agreement are necessary and essential for activities that are properly within the Parties' statutory functions; (b) the proposed arrangements serve the interests of efficient and economical administration of the Parties' authorized functions; (c) the services, supplies, or materials contracted for are not required by Article XVI, Section 21 of the Texas Constitution to be supplied under contract given to the lowest responsible bidder, and; (d) the Party or Parties paying for the performance of governmental functions or services shall make these payments from current revenues available to the paying party.

18. SOFTWARE LICENSE

18.1. The CITY shall transfer ownership of the CITY's existing Sutron XConnect

License ("License"), including, all rights, title, and interest to LCRA at no additional cost. The transfer will include the right for LCRA to use any current or prior versions or upgrades and is in accordance with Sutron's "Transfer of Software License Agreement." LCRA agrees to be bound by the terms of Sutron XConnect License's End User License Agreement and will be responsible for paying the annual operation and maintenance fee ("fee"). The CITY will reimburse LCRA for this fee as described in Attachment B of the "The Proposal." The transfer of ownership of the License is subject to Sutron's final determination that the License can be transferred.

18.2. Upon termination of this agreement, LCRA shall transfer ownership of the License back to the CITY within sixty (60) days of the contract termination.

19. ATTACHMENTS

This Agreement contains the following attachments:

ATTACHMENT A – Technical Requirements

ATTACHMENT B -- Proposal

Executed to be effective on the Effective Date set out in the first paragraph above.

Agreed by:

City of Austin:

Lower Colorado River Authority

By: 

By: 

Name: REY ARELLANO

Name: John Miri

Title: ASSISTANT CITY MANAGER

Title: Chief Administrative Officer

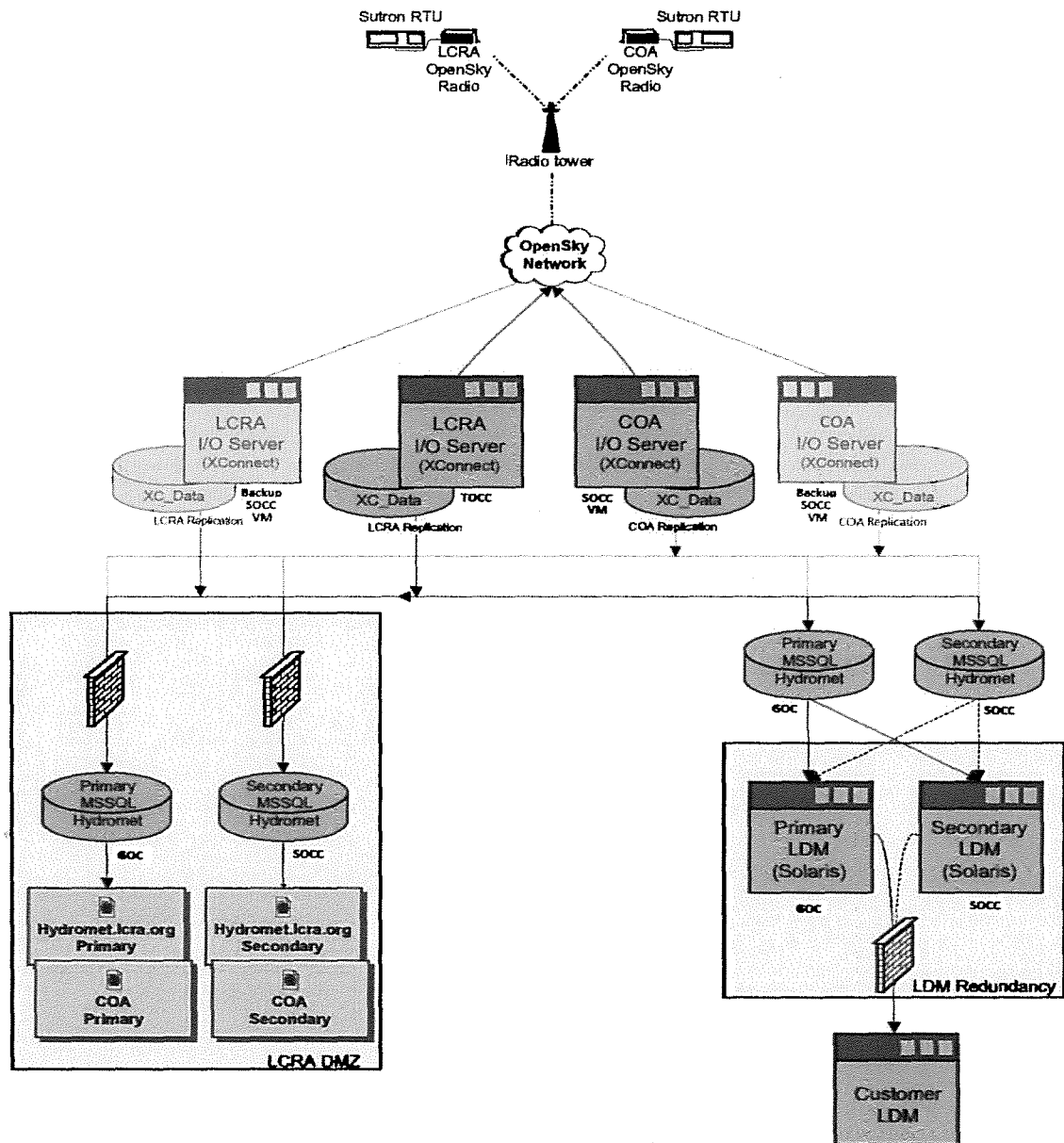
Date: 11/18/15

Date: 11/19/2015



ATTACHMENT A
Functional and Technical Requirements

System Architecture Diagram:



FUNCTIONAL STANDARDS			
Req #	Requirement Description	Importance	(To Vendor) Describe how the Requirement shall be met:
F001	The solution shall be a complete turn-key solution	Must Have	LCRA will implement two servers in the LCRA data center, Production and Test implementations of Sutron XConnect and MSSQL, linked to LCRA OpenSky and Hydromet technology currently in production at LCRA. Specific configuration and setup changes will be implemented as required by this project. Additional development is provided by LCRA, with the final system providing client access to CITY of Austin personnel to operate Sutron XConnect. A Hydromet webpage interface will provide public access to the data.
F002	The solution shall receive FEWS gauge data (rain, stream level, and stream flow) within the LCRA TOCC from the OpenSky radio network	Must Have	Yes. This requires implementation of independent production and test Sutron XConnect servers and MS SQL databases.
F003	The solution shall put the data received from the OpenSky radio network into the XConnect controller	Must Have	Current technology as implemented at LCRA Sutron XConnect communicates with Sutron RTU's in the field via the OpenSky system through specific firewall controlled TCP/IP ports.
F004	The solution shall place the data received from the FEWS gauge data into a database	Must Have	Standard Sutron XConnect software using MS SQL Server technology.
F005	The solution shall take the information received from the database in near real-time and provide the scripting necessary to place specifically formatted LDM files every 5 minutes.	Must Have	Microsoft SQL Server report transferred to LDM Servers and inserted into queue accessible by City of Austin, NWS, and radar vendor.
F006	The solution shall send out LDM files every 5 minutes	Must Have	Scheduled database reporting of all data of interest since last report. The 5 minute interval is inconsistent with 15 minute polling spec in F032.
SERVER			
F007	The solution shall utilize XConnect software.	Must Have	LCRA will provide licenses and annual support.
F008	The solution shall utilize the OpenSky system	Must Have	As implement by LCRA Telecommunications.
F009	XConnect shall provide the data with the date and time/stamp.	Must Have	Standard XConnect setup. Currently in production at LCRA.

Attachment A – Functional and Technical Requirements

FUNCTIONAL STANDARDS			
Req #	Requirement Description	Importance	(To Vendor) Describe how the Requirement shall be met:
F010	The XConnect solution shall reside on two separate servers inside the LCRA for TEST and PRODUCTION environments	Must Have	Two virtual windows servers.
F011	The data flow from XConnect to the MSSQL database and the implementation of the LDM shall be similar to the LCRA data flow.	Must Have	Via MS SQL Server near real-time transactional replication technology as currently implemented by LCRA.
F012	The data sent to the LCRA Hydromet database will be displayed within the LCRA Hydromet "style" Webpage	Must Have	Data will be displayed on a COA branded webpage similar to LCRA's Hydromet Page.
F013	The solution shall utilize XConnect to time-stamp FEWS gauge data upon receipt from OpenSky	Must Have	Standard XConnect setup. Currently in production at LCRA.
F014	The MSSQL database and the Hydromet web page shall store IN REAL TIME, WITH HYDROMET WEB PAGE TRENDING FUNCIONALITY IMMEDIATELY AVAILABLE, and display data as indicated below to 2 decimal points.		Data is stored upon acquisition in a local SQL server database. Each data record is replicated to the web server databases with delays limited only by network latency. Data can be cached on the web server for up to one minute to manage high website traffic. Additionally, all data saved to two decimal points.
F014.1	*precipitation count (bucket tip -- INTEGER)	Must Have	All data saved to two decimal points.
F014.2	*the feet of stage (FLOATING POINT)	Must Have	All data saved to two decimal points.
F014.3	*the battery voltage (FLOATING POINT)	Must Have	All data saved to two decimal points.
F014.4	*the stream flow rate (FLOATING POINT)	Must Have	All data saved to two decimal points.
F015	The solution shall provide the COA secure access into the XConnect TEST and production servers.	Must Have	Access will be provided by standard internet service currently in production at LCRA. Specific City of Austin staff will be required to procure an LCRA username and comply with LCRA policy.
F016	The solution shall provide the COA remote access into the XConnect TEST AND production servers.	Must Have	Access will be provided by standard internet service currently in production at LCRA. Specific City of Austin staff will be required to procure an LCRA username and comply with LCRA policy.
F017	The solution shall utilize the XConnect production data as the basis for the data represented on the Hydromet page.	Must Have	Yes, as described in F011.
F018	The solution should support instances of production and testing (application updates, OS updates) and training environments simultaneously. Training shall consist of the following: 1) Instructions for the editing,	Must Have	Two virtual windows servers as described in F010. LCRA understands COAs training needs and will accommodate.

Attachment A – Functional and Technical Requirements

FUNCTIONAL STANDARDS			
Req #	Requirement Description	Importance	(To Vendor) Describe how the Requirement shall be met:
	deletion or addition of a gauge onto the Hydromet system; 2) An understanding of common places to look for issues in the event that there is a No Report that is not evident within XConnect, but is evident in the LDM or on the web page. The training environment can be in the form of a written document.		
F019	The COA shall approve the TEST server setup	Must Have	COA shall approve setup of XConnect including initial and ongoing site, sensor, and telecommunications configuration. LCRA standard implementation of Windows and MSSQL are under LCRA administration control.
F020	The COA shall approve the Production server setup	Must Have	COA shall approve setup of XConnect including initial and ongoing site, sensor, and telecommunications configuration. LCRA standard implementation of Windows and MSSQL are under LCRA administration control.
F021	The LCRA shall transfer the XConnect TEST Server setup to the XConnect PRODUCTION Server setup.	Must Have	Yes.
F022	The COA shall have secure remote access to the TEST Server	Must Have	As described in F015 and F016
F023	The COA shall have secure remote access to the Production Server	Must Have	As described in F015 and F016
F024	The LCRA shall provide written documentation to the COA detailing necessary procedures to add, delete, or modify a FEWS gauge. Clarification -- This is the same as F018.	Must Have	Provided as a supplement to the Sutron XConnect user manual. Guidance will be provided for maintaining standards and conventions.
F025	The proposed solution shall be available to the COA, at the least, 95% of the time.	Must Have	Yes. The XConnect and webserver will be available to the COA at least 95% of the time.
F026	The LCRA shall notify the COA if there are any Server outages	Must Have	Yes, via e-mail to specific City of Austin staff or a group account, same as F027, F039, F054.
F027	The LCRA shall notify the COA of remote access outages (either planned or unplanned)	Must Have	Yes, via e-mail to specific City of Austin staff or a group account, same as F026, F039, F054.

FUNCTIONAL STANDARDS			
Req #	Requirement Description	Importance	(To Vendor) Describe how the Requirement shall be met:
F028	The servers for the Hydromet databases are created as mirrored servers for the possibility of failovers of the databases. Clarification -- COA wants an understanding of how the LCRA provides a failover for their system because the COA would like to have it replicated.	Must Have	The databases are not mirrored servers. The databases are independent servers with real-time transactional replication of data to other production servers to allow data and physical database server redundancy and manual failover. XConnect does not automatically failover polling to a second server. Manual failover to a second server is therefore the only solution to the test server. Failover is manual: LCRA logs on to the onto the backup XConnect server an enables polling. The data is replicated so the data paths are already established with the LDM Hydromet website servers.
F029	The solution shall provide two LDM servers (for the FEWS gauge data as provided by the two Hydromet database servers.)	Must Have	Yes. The two servers are independent of the Hydromet database servers, managing file transfers and network security.
F030	The solution shall receive the following data from the LDM :		Yes, as described in F030.1-4.This should be described as 'solution shall be receiving the following data'...
F030.1	*Every 15 minutes a central server for the LCRA polls each of their gauges through the radio system, and the results are collected together.	Must Have	Yes.
F030.2	*The polls are timed to start 5 minute before the hour (:55,:10,:25,:40)	Must Have	Yes.
F030.3	*The poll gets an instantaneous reading of the accumulation reading at the gauge, and the time the data was also received by the SUTRON XConnect.	Must Have	Yes.
F030.4	*We also assume that there is a script run by cron that grabs any new summary files from the LCRA and places them in the LDM feed.	Must Have	Yes. Current practice in production at LCRA.
F031	The LDM format shall be as follows:		Yes.
	AAOT2 800 20141030062942 0.12 0.00 1301 Oltorf The COA thought this format was the same as in use by the LCRA. The COA would like the precipitation data to be in the same format as	Must Have	Yes, will require minor modification of existing data file formats currently in production.

FUNCTIONAL STANDARDS			
Req #	Requirement Description	Importance	(To Vendor) Describe how the Requirement shall be met:
	the LCRA LDM. The COA would like to have the LCRA suggest formats for the LDM Server for precipitation data and to work with the CITY on their suggestion to have stage/stream level sensors report in an "alarm stage" (5 minute polling rate based upon "rate of rise" of stream level/stream flow) with the 15 minute database files. However, for stage and/or stream level sensors, the COA suggests the following format based upon a rate of rise alarm condition at the site:		
	<p>AAOT2 800 20141030062942 6.04 1.12 2.54 1301 Oltorf</p> <p>AAOT2 800 20141030063455 7.16 0.08 7.52 1301 Oltorf</p> <p>AAOT2 800 20141030063928 7.24 0.00 3.40 1301 Oltorf</p> <p>In the example above, there would be a high stage level alarm threshold met at 2.5 feet. At that time, XConnect would go into an alarm polling format (5 min. interval). The strings above is a "guess" of what the LCRA is currently using as the LCRA LDM convention which we think is NWS sensor name, RTU device ID, date/time string, cumulative rainfall value, incremental rainfall, stage, XConnect/SQL database name. The sensor name that populates the SUTRON database (XConnect Access/SQL) is defined in AXConnect based on the RTU sensor name. For example, the RTU sends the following SSP string (SUTRON Standard Protocol) in a CSV format) from the field via the OpenSky network in response to an XConnect initiated poll: It looks as follows:</p> <p>10/16/2004 3:00:09 PM XCONNECT, 800, 12071620, OK Curdata, Rain, 2,1,1.240000,2,1,0.053070,2,OK,Batt,2,1,13.9 31091,2,OK</p> <p>The SQL database site name is 1301 Oltorf which is based on the RTU's device ID (800) in XConnect. The SQL database sensor names for the site will be,</p>	INFO	<p>LDM Files will be produced and transferred every fifteen minutes, and <u>include all rainfall, stage, and flow data captured since the last report was produced</u>. No data aggregation or filtering. This is consistent with F005, F006, F031, and F068.</p> <p>Alarm conditions automatically increase polling rates is a separate function that is dependent upon Sutron XConnect functionality. LCRA currently does not have this functionality and is not is the current scope of implementation.</p> <p>Also, a file has been provided detailing the format.</p>

Attachment A – Functional and Technical Requirements

FUNCTIONAL STANDARDS			
Req #	Requirement Description	Importance	(To Vendor) Describe how the Requirement shall be met:
	Rain (value-1.24 inches cumulative rainfall) Level (value = 0.05 , feet) Battery (value = 13.9,V)		
	(The date/time stamp is placed by XConnect and is stored in the MSSQL database and reported on the LDM – we think) <i>Clarification -- Data on the LDM is limited to precipitation gauge data. The data shall be available every 15 minutes as indicated above. The purpose of this is to provide the radar vendor and the NWS with precipitation gauge data.</i>		Yes. Date/time stamping of data is managed by XConnect, and stored in MSSQL
F032	The LDM shall post its data every 15 minutes	Must Have	Yes. As described in F030.4.
F033	The LDM shall include those gauges that reported during that last 15 minute time span.	Must Have	Yes. All data not previously reported will be included in each report.
DATABASE			
F034	The solution shall house the following data . within its database:		Yes. Additional user-friendly short site names also preferred for Hydromet site.
F034.1	the NWS Tag ID	Must Have	Yes
F034.2	the gauge street address	Must Have	Yes
F034.3	the gauge data type	Must Have	Yes
F034.4	and the gauge LAT/LONG	Must Have	Yes
F034.5	the gauge data	Must Have	Yes
F035	The Hydromet databases will be created to receive the gauge data with the date/time stamp of the gauge data as received by XConnect.	Must Have	Yes. Currently in production.
F036	The databases will be structured and sized in such a manner to receive the FEWS gauge data for a long period of time. FEWS gauge data is required to be stored forever.	Must Have	Yes, FEWS gauge data will be stored for the duration of the contract.
F037	In the event the agreement between the LCRA and the COA is terminated, the COA shall receive the historical COA gauge data from the MSSQL database within 30 days of the termination.	Must Have	Yes, LCRA agrees with this term.
F038	The COA understands the following: 1) the gauge network operates on a 15 minute poll sequence within Xconnect 2) the date/time	Must Have	1) LDM Files will be produced and transferred every fifteen minutes, and include all rainfall, stage, and flow data

Attachment A – Functional and Technical Requirements

FUNCTIONAL STANDARDS			
Req #	Requirement Description	Importance	(To Vendor) Describe how the Requirement shall be met:
	stamp of the data is placed upon the data by Xconnect 3) the database stores the 15 minute data; and 4) the LDM is configured for the sensors of interest for a 15 minute file delivery. The COA would also like to set an alarm condition for stream level and/or stream flow based upon a rate of rise. The polling and the file delivery still occurs in the 15 minutes (if that is the setup currently in use by the LCRA). However, the file delivery would include 3, 5 minute data points for stream level and/or stage. The COA would like to have an understanding of how this might be accomplished in the database.		<p>captured since the last report was produced. No data aggregation or filtering. This is consistent with F005, F006, F031, and F068.</p> <p>Alarm conditions automatically increase polling rates is a separate function that is dependent upon Sutron XConnect functionality. LCRA does not currently have this functionality and it is currently not in the scope of the implementation, nor can LCRA commit to this functionality for COA.</p> <p>2) Yes, the date/time stamp of the data is placed upon the data by XConnect.</p> <p>3) Yes, the database stores the 15 minute data.</p> <p>4) The alarm functionality is addressed above in item 1. File delivery occurs every 15 minutes and will include all polls made since the last file delivery (every 15 minutes).</p>
SERVER	LDM Servers		
F037	LCRA shall allow the COA, the NWS, and the radar vendor secure access to the LDM server	Must Have	Yes. Limited to specific fixed IP addresses for security. Read-access to data only.
F038	The solution shall allow the COA to review the timeliness and accuracy of the LDM data	Must Have	Recommended solution is for the client LDM to monitor receipt of data. Notify LCRA of interruptions.
F039	The LCRA will provide notification to the COA of planned (or unplanned outages) of the LDM feeds.	Must Have	Notifications of LCRA LDM server outages will be made via e-mail to specific City of Austin staff or a group account, same as F026, F027, F054.
HYDROMET			
F040	The LCRA shall build a Hydromet Style webpage for the City of Austin gauge data that is stored within the Hydromet databases.	Must Have	Implemented using technology currently implemented in production. This allows City of Austin sites to be displayed as specified in the Hydromet database. Site name, sensor type, lat/long, etc.
F041	The LCRA shall test a Hydromet Style webpage for the City of Austin gauge data that is stored within the Hydromet databases.	Must Have	Site as implemented in F040 will be fully tested on a test server before placing in production

FUNCTIONAL STANDARDS			
Req #	Requirement Description	Importance	(To Vendor) Describe how the Requirement shall be met:
F042	The LCRA shall maintain a Hydromet Style webpage for the City of Austin gauge data that is stored within the Hydromet databases.	Must Have	Site as implemented in F040 will be maintained and any changes will be tested prior to placing in production.
F043	The LCRA shall host a Hydromet Style webpage for the City of Austin gauge data that is stored within the Hydromet databases.	Must Have	Yes. The webpage will be hosted on two separate load balanced servers at two separate physical locations.
F044	The Hydromet solution shall mirror the look (GUI format, colors, fonts, labels)of the LCRA Hydromet webpage	Must Have	Yes. The webpage will include City of Austin logo and site links.
F045	The webpage shall include FEWS gauge data using the same style GUIs on the same base map as is utilized by the LCRA (Google base map).	Must Have	Yes. Specific City of Austin zoom levels and regions will be available via a drop-down menu.
F046	The Hydromet solution shall mirror the functionality of the LCRA Hydromet webpage	Must Have	Yes.
F047	The Hydromet solution shall offer the same options for users as is utilized by the LCRA Hydromet webpage	Must Have	Yes.
F048	The solution shall incorporate the current Stage or Flow Values on the Webpage.	Must Have	Yes.
F049	The Hydromet Solution shall incorporate the following Links, in addition to the mirrored (existing) links, on the COA Hydromet Webpage:		Yes.
F049.1	o Back to LCRA Hydromet	Must Have	Yes.
F049.2	o Historical Data	Must Have	Yes.
F049.3	o A Summary Data for Rainfall	Must Have	Yes.
F049.4	o A Link to www.atxfloods.com website	Must Have	Yes.
F050	The solution's data format shall be either in the format as an EXCEL spreadsheet or in the format of a *.csv file.	Must Have	Yes.
F051	The LCRA shall make provisions for the web site uses to be able to download data greater than a 180 days.	Must Have	This requires additional development and testing. Testing will include provisions for managing database query load and performance impacts. Testing may indicate need to limit download rates or amounts of data to prevent performance issues.
F052	The web page shall have the same latency as the LCRA Hydromet webpage.	Must Have	Yes. Confirmed on roll-out testing. The technology will be identical, so no variance is anticipated.

FUNCTIONAL STANDARDS			
Req #	Requirement Description	Importance	(To Vendor) Describe how the Requirement shall be met:
F053	The LCRA shall provide monthly website statistics to the COA such as number of web page views.	Must Have	This can be provided by independent websites such as google analytics, and LCRA will participate in sharing these references.
F054	The LCRA shall notify the COA of any outages of the website, planned or otherwise.	Must Have	Via e-mail to specific City of Austin staff or a group account, same as F026, F027, F039.
F055			
F056			
INFORM-ATION	SERVICE DELIVERY		
INFO1	The COA considers the LDM feed to be "Mission Critical" during periods of rain within the Austin-Travis County area. Rainfall includes any rainfall greater than one bucket tip.	Info	LCRA will manage the COA Hydromet System as Mission Critical during rain events and Business Critical during non-rain events.
INFO2	Other than the time listed above, all other features of the solution are considered to be "Business Critical."	Info	Yes, that is correct.
INFO3	The solution shall provide written information for basic trouble shooting by the COA for instances where the timely transmission, data storage, or website delivery is not working as intended.	Info	LCRA will provide steps by scenarios.
INFO4	The webpage will be secure from "hackers" to the same level as currently employed by the LCRA Hydromet.	Info	Systems are operating in the same environment, and undergo active firewall management, and testing. The City of Austin webpage and database servers are protected inside a firewall DMZ and website traffic is monitored and filtered. LCRA website URL's are actively tested.
INFO5	Because none of the COA gauges with Stage readings are used in the NWS AHPS models, the colors on the GUIs under normal conditions are grey.	Info	This appears to be a comment rather than LCRA required to address how we will meet the requirement.
ADDITIONAL SERVICES			

FUNCTIONAL STANDARDS			
Req #	Requirement Description	Importance	(To Vendor) Describe how the Requirement shall be met:
Add1	Incorporation of USGS gauge information into the COA Hydromet style webpage. The solution includes the incorporation of the data into the MSSQL Hydromet database and also should include the services for the development of the script necessary for pulling the data from NWIS, the setup of the MSSQL data stream into Hydromet, and the incorporation of the data onto the Hydromet Style webpage. The trending of the stage and flow from the USGS should be identical to the trending for the stage and flow as indicated in the charts and ledgers indicated above.	Desired	This will require further development. LCRA anticipates deploying a solution based upon the USGS latest XML web service technology implementing the WaterML standard. This will allow retrieval of only data that has changed since the last update. USGS sites typically provide data in 15 minute increments but are updated once an hour. The USGS does not require referencing them as the source, but we anticipate doing so.
Add2	The proposed solution will include a place holder for additional items that may come up over the period of the initial contract term of 6 years.	Desired	
Add3	Incorporation of archived City of Austin Gauge data. The current database size is 12GB.	Desired	Data is anticipated to be delivered in a uniform text file format, allowing robust import of the data in a timely fashion.
ROLES			
ROLE1	The LCRA shall be responsible for the WINDOWS upgrade installations on the Servers		Yes, that is correct.
ROLE2	The LCRA shall setup, test, and maintain, the MSSQL Database (Hydromet database) for the COA. This includes the acquisition and maintenance of the software. The contract will include the annual software licenses and software maintenance required for the Hydromet databases.		Yes, that is correct.
ROLE3	The LCRA shall be responsible for the setup and maintenance of the Hydromet databases.		Yes, that is correct.
ROLE4	The LCRA will be responsible for the setup of the system.		LCRA will be responsible for the installation and setup of XConnect and ongoing maintenance of the software. LCRA will also provide the initial configuration of the XConnect system based upon site and sensor information provided by the City of Austin, The City of Austin will be responsible for operation of the XConnect system and

Attachment A – Functional and Technical Requirements

FUNCTIONAL STANDARDS			
Req #	Requirement Description	Importance	(To Vendor) Describe how the Requirement shall be met:
			minor modifications to gauge site, sensor, and OpenSky polling configuration.

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
1	General	The system shall have web-enabled components of the application that meet the Rehabilitation Act of 1973 Section 503, W3C and industry standards for graphics and design; speed; reliability; and security for dynamic content and user interaction.	Must Have	Design, speed, and reliability are defined by scope. Potential limitations of vendor provided software.
2	Application Architecture	The system shall provide all screens, reports and transactions through a web browser.	Desired	
2.1	Application Architecture	For web browser-based access, no requirement to deploy application code to client workstations (Note: Java Runtime Environment (JRE) is an exception)	Desired	Yes
3	Application Architecture	The system shall provide the ability to automate the deployment of software and updates to user workstations including, but not limited to web-based deployment tools, push/pull software to the desktop. (Note: Applicable only to run-time environment, like Java)	Must Have	Server based solution software is installed by system administrator

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
4	Application Architecture	The system shall provide built-in application and system configuration tables accessible by all modules	Must Have	Yes. Provided by XConnect MS SQL Server integration
5	Application Architecture	The system shall provide customizable user portals including, but not limited to the ability to customize menus and forms, by user without modification of program code.		
6	Application Architecture	The system shall provide (if needed) the ability to manage automatic job scheduling (i.e. batch jobs, billing) including, but not limited to the interface with external job schedulers and automatic notification capabilities when a job abnormally terminates. The CITY currently support UNIX CRON, Tivoli work Scheduler, Oracle DBMS_JOBS, and MS SQL DTS.		
7	Application Architecture	The system shall provide forms-based data validation (field level validation) and display error messages when validation fails (i.e., user enters text in a numeric field).	Must Have	XConnect interface, Hydromet website comply
7.1	Application Architecture	Copy, cut, paste, and undo capability from data fields and screens to other applications	Must Have	XConnect interface, Hydromet website comply
8	Application Architecture	The system shall provide the ability to perform mass changes to a defined group of transactions, with appropriate selection criteria.	Must Have	System allows definition of template site sensor types that allow change in template to effect all sites. Poll Groups can also be defined for mass scheduling
9	Application Architecture	The system shall provide the ability to effective date transactions and table updates including, but not limited to	Must Have	Systems Administrator level changes are not provided

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
		future and retroactive changes, based on user-defined criteria.		
10	Application Architecture	The system shall provide the ability to drill down from a transaction view to the supporting source document or record, regardless of the module source	Must Have	Record level data is accessible via Hydromet website
11	Application Architecture	The system shall provide the ability to apply future upgrades and patches without impacting existing application user interface customizations (e.g., user-defined forms/fields, web interface, etc.).	Must Have	All systems upgrades will be tested prior to production roll out. Vendor supplied software cannot be guaranteed to effect upgrade process.
12	Application Architecture	The proposed solution shall support Distributed File System (DFS) shares for file access.	Must Have	Supported, but use is not anticipated
13	Database Architecture	The system shall provide standard data extraction Application Program Interface (API) to allow import and export of data to other systems.	Must Have	Supported for LCRA system administrator level use
14	Database Architecture	The system shall provide the ability to import and export information to/from external applications and formats including but not limited to the following:	Desired	Only CSV or Excel listed in FEWS Requirement F050
14.1	Database Architecture	MS Word	Desired	N/A
14.2	Database Architecture	MS Excel	Desired	Listed in Requirement as option
14.3	Database Architecture	MS Access	Desired	N/A
14.4	Database Architecture	PDF	Desired	N/A
14.5	Database Architecture	XML	Desired	N/A
14.6	Database Architecture	Comma delimited	Desired	Listed in Requirement

Attachment A – Functional and Technical Requirements

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
14.7	Database Architecture	Tab delimited	Desired	N/A
14.8	Database Architecture	Space delimited	Desired	N/A
14.9	Database Architecture	Quotation delimited	Desired	N/A
14.10	Database Architecture	ASCII	Desired	N/A
14.11	Database Architecture	HTML	Desired	N/A
15	Database Architecture	The system shall provide the ability to encrypt sensitive data by column.	Desired	System supports open access to data by public.
16	Database Architecture	The system shall provide the ability to encrypt sensitive data by row.	Desired	System supports open access to data by public.
17	Database Architecture	The system shall provide Structured Query Language (SQL) capabilities for database queries.	—	
18	Database Architecture	The system shall provide the ability to exchange database information using industry accepted standards and formats including the following:	Must Have	
18.1	Database Architecture	XML	Must Have	Anticipated implementation for USGS data acquisition. Hydromet website supports current data XML
18.2	Database Architecture	JSON	Must Have	Not described in Scope
19	Database Architecture	The system shall provide the ability to utilize enterprise-defined naming conventions and standards including, but not limited to data elements, entities, tables, programs, report names, etc.	Desired	Yes. As implemented in proprietary designs.

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
20	Database Architecture	The system shall provide the ability to copy, archive and retrieve data to external storage media (e.g. tape, DVD, SAN) based on user-defined selection criteria.	Must Have	Not described in Scope
21	Database Architecture	The system shall provide the ability to perform database maintenance including, but not limited to backup and upgrades without requiring system downtime during core business hours.	Must Have	Functionality available to LCRA systems administrator
22	Database Architecture	The proposed solution shall include a method of purging record data from the database(s) ensuring referential integrity with master/ child records.	Must Have	Functionality available to LCRA systems administrator
23	Database Architecture	The proposed solution shall use the same data validation criteria for bulk data loads as it does for manual data entry.	Must Have	Functionality available to LCRA systems administrator
24	Database Architecture	The system shall provide the ability to set up log event triggers to automatically notify the system administrator when user-defined database conditions are met. (Note: If a hosted solution, provide access to configurable alerts)	Must Have	Functionality available to LCRA systems administrator
25	Infrastructure	Utilizes industry standard virtualization infrastructure capabilities.	Must Have	Anticipated deployment available to LCRA systems administrator
26	Infrastructure	The system shall support load balancing.	Must Have	Load balancing of website implemented between two physical locations
27	Infrastructure	If the proposed solution includes electronic hardware such as servers or network devices, all network-enabled hardware must support auto-negotiation of network speeds and duplex settings, including	—	Yes

Attachment A – Functional and Technical Requirements

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
		10 mbps, 100 mpbs and Gigabit Ethernet, if applicable.		
28	Infrastructure	The proposed application should NOT require static network routes.	—	
29	Infrastructure	The proposed solution must be capable of operating over routed subnetworks (does not require components to be co-located on the same subnetwork).	—	Yes
30	Infrastructure	If applicable, all supplied portable devices (laptops, hand-held units, etc.) shall have display screens that are readable in conditions ranging from darkness to direct sunlight.	Must Have	N/A
31	Infrastructure	If applicable, all supplied portable devices (laptops, hand-held units, etc.) shall be resistant to heat, cold, moisture, dust and shock.	Must Have	N/A
32	Infrastructure	If applicable, all supplied portable devices (laptops, hand-held units, etc.) shall be capable of receiving program or firmware updates via network connections.	Must Have	N/A
33	Infrastructure	The Vendor shall use standard Domain Name Services (DNS) for identifying all server components in the system.	Must Have	Yes
34	Infrastructure	The proposed solution shall use an accurate, NIST time source for a traceable time stamp, which is applied to various transactions or key events.	Must Have	Yes

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
35	Infrastructure	If the solution back-end components use date/time stamping, the client-side components shall be synchronized with the back-end servers.	Must Have	Yes. Clients display time stamps set by server.
36	Integration Architecture	The system shall provide the ability to set up appropriate approval, audit trail, and reconciliation procedures for all inbound and outbound interfaces.	Must Have	Processes available to LCRA system administrator and service desk data changes are archived.
37	System Administration Toolkit	If the proposed system is Simple Network Management Protocol (SNMP) compliant, the Vendor shall provide standard Management Information Base (MIB) files for all SNMP-enabled components.	—	
38	System Flexibility	The system shall provide highly configurable screens including, but not limited to repositioning fields, renaming fields, removing or inactivating unused fields, and allowing the addition of custom-defined fields.	Desired	System specify Hydromet webpage
39	System Flexibility	The system shall provide the ability to accommodate long fields (e.g. long names, unicode, hyphenated names).	Desired	Yes - where applicable.
40	System Flexibility	The system shall provide the ability to define business rules based on user-defined criteria (e.g. organizational level, account code, bargaining unit, location, program, grant).	Must Have	N/A
41	System Flexibility	The system shall provide the ability to create and/or modify user-defined business rules to validate data at the time of entry.	Desired	Yes. Limited functionality as provide by Sutron XConnect

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
42	Security & Authentication	The system shall provide the ability to restrict access to the application for remote, by client IP address or network address range.	Must Have	Need Clarification
43	Security & Authentication	The system shall comply with all applicable CITY mandated security protocols and standards.	Must Have	Unsure at this time as it is unclear of the CITY's security protocols and standards.
44	Security & Authentication	The system shall provide adequate protection of data covered by regulatory or other compliance requirements (e.g. CJIS, U.S. Health Insurance Portability and Accountability Act (HIPAA), Family Educational Rights and Privacy Act (FERPA)).	Must Have	N/A
45	Security & Authentication	The system shall provide the ability to use a single user sign-on for all modules with security configured for each module (i.e. user to gain access to the database associated with the application without re-entering the user ID and password). The single sign-on capability shall be compatible with the user's operating system sign-on.	Desired	No
46	Security & Authentication	The system shall provide the ability to create user IDs with an expiration date and time and link the user logon ID to the employee or contractor Information including, but not limited to identification number, assigned locations, etc.	Desired	Yes. Functionality is available to LCRA System Administrator
47	Security & Authentication	The system shall provide the ability to support 128-bit SSL or higher or TLS, between the client browser and all application modules.	Must Have	N/A

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
48	Security & Authentication	Provide encryption capability for application data exchanged between the front-end user system and the back-end servers.	Must Have	N/A
49	Security & Authentication	The system shall provide protection against unauthorized access to data by persons and other software programs.	Must Have	The functionality to allow access to data to authorized person is available by an LCRA Administrator.
50	Security & Authentication	The system shall provide the ability to display, at logon, the last date and time the user accessed the system.	Desired	Yes, it has the capability.
51	Security & Authentication	The system shall allow an administrator to inactivate user access	Must Have	Yes. Functionality available to LCRA System Administrator
52	Security & Authentication	The system shall provide the ability to suspend user access based on a table-driven parameter (i.e. employment status).	Desired	No
53	Security & Authentication	The system shall allow the ability to manage user permissions centrally for all modules of the applications.	Must Have	Yes. Functionality available to LCRA System Administrator
54	Security & Authentication	The system shall mask (i.e., substituting password characters with '*') passwords as they are entered into the system.	Must Have	Yes.
55	Security & Authentication	The system shall provide the ability to support using tokens and/or passwords for user logons.	Must Have	Passwords
56	Security & Authentication	The system shall provide the ability to for users to change password and allow users to periodically change their password and allow password expiration.	Must Have	Yes, LCRA accounts required for remote access require periodic password change.
57	Security & Authentication	The system shall provide the ability to suspend user-access	Desired	No

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
		after a user-defined period (e.g. 90 days) of inactivity.		
58	Security & Authentication	The system shall provide the ability to configure passwords including, but not limited to the following:	Must Have	Yes, all specs are under control of LCRA System Administrator
58.1	Security & Authentication	A minimum password length of at least eight characters.	Must Have	Yes
58.2	Security & Authentication	Support passwords that are case sensitive, contain numbers, alphanumeric characters, and special characters.	Must Have	Yes
58.3	Security & Authentication	Require complex passwords based on user defined criteria.	Must Have	No
58.4	Security & Authentication	Prevent trivial passwords (e.g. repeat characters, keyboard strings).	Desired	No
58.5	Security & Authentication	Prevent re-use of passwords	Desired	Yes. Criteria defined by CISO
58.6	Security & Authentication	Require non-dictionary-based passwords	Desired	No
59	Security & Authentication	The system shall provide the ability to record the date and time the password was changed.	Must Have	Yes. Information available to LCRA System Administrator and LCRA Service Desk
60	Security & Authentication	The system shall provide the ability to deny user access after a CITY-defined number of unsuccessful attempts to logon.	Must Have	No, not at this time.
61	Security & Authentication	The system shall provide the ability to log, based on user-defined criteria, each authorized and/or unauthorized access attempt. Log information includes, but is not limited to, user identification, IP address, date, time, transaction type, and type of access (e.g. read, modify).	Must Have	No

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
62	Security & Authentication	The system shall provide the ability to record and maintain past security profiles (i.e. history of security access for an employee) when changes are made to an employee's security profile.	Desired	N/A
63	Security & Authentication	The system shall provide the ability to assign application access rights for the entire suite of applications at a single point of entry.	Must Have	N/A
64	Security & Authentication	The system shall provide the ability to control access to all activities (e.g. online transactions, batch processing, report writer, query, system utilities) including, but not limited to the following levels:	Must Have	No
64.1	Security & Authentication	System	Must Have	N/A
64.2	Security & Authentication	Database	Must Have	N/A
64.3	Security & Authentication	Module	Must Have	N/A
64.4	Security & Authentication	Field	Must Have	N/A
64.5	Security & Authentication	Inquiry	Must Have	N/A
64.6	Security & Authentication	Report	Must Have	N/A
64.7	Security & Authentication	Approval	Must Have	N/A
64.8	Security & Authentication	Transaction	Must Have	N/A
64.9	Security & Authentication	Table	Must Have	N/A
64.10	Security & Authentication	Individual	Must Have	N/A
64.11	Security & Authentication	Group	Must Have	N/A
64.12	Security & Authentication	Organization (e.g. department, division)	Must Have	N/A

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
64.13	Security & Authentication	User Role (e.g. supervisor, data entry, review only) across all functional areas.	Must Have	N/A
64.14	Security & Authentication	User Site (i.e. location) across all functional areas.	Must Have	N/A
64.15	Security & Authentication	Position across all functional areas.	Must Have	N/A
64.16	Security & Authentication	Period	Must Have	N/A
65	Security & Authentication	The system shall provide the ability to create and maintain security profiles to control access including, but not limited to the following:	Must Have	N/A
65.1	Security & Authentication	Employee Level	Must Have	N/A
65.2	Security & Authentication	Module	Must Have	N/A
65.3	Security & Authentication	Field	Must Have	N/A
65.4	Security & Authentication	Transaction Type	Must Have	N/A
65.5	Security & Authentication	Employee Group	Must Have	N/A
65.6	Security & Authentication	Standard Report	Must Have	N/A
65.7	Security & Authentication	Ad hoc Report	Must Have	N/A
66	Security & Authentication	The system shall provide the ability to automatically log users off the system when there has been no activity for a pre-defined period.	Must Have	OK
67	Security & Authentication	The system shall provide the ability to generate summary and detail reports including, but not limited to user access, usage logs, audit logs, failed and/or unauthorized access attempts based on user defined parameters (e.g. audit requirements). The system shall also provide the ability to alert the application	Must Have	No

Attachment A – Functional and Technical Requirements

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
		administrator when any of these events exceed a specific threshold.		
68	Security & Authentication	The system shall provide the ability to utilize session encryption methods necessary to ensure the secure electronic transfer of sensitive information.	Must Have	Yes
69	Security & Authentication	The system shall ensure the CITY's data is not made available to any other parties not specifically authorized to view or access the data. (ASP Hosted)	Must Have	Webpage is intended for public display of data
70	Security & Authentication	If, as a result of annual security assessments, high vulnerabilities are discovered, they must be remediated within one month of discovery.	Desired	N/A
71	Security & Authentication	The proposed solution shall not require operating system administrator privileges on the client workstation(s) to run or receive application updates.	Must Have	N/A
72	Security & Authentication	If bulk data loads via the Internet are supported by the solution, a secure network transport method for bulk data shall be supported.	Must Have	N/A
73	Security & Authentication	When new users are created, the security permissions assigned to the new accounts shall default to least privileged.	Must Have	Yes. Functionality available to LCRA System Administrator
74	Security & Authentication	Authorized users shall have the ability to monitor (in near real-time) and report on file access activities for a particular user, group, application, device, and file.	Desired	N/A
75	Security & Authentication	The solution shall display a configurable security banner upon login.	Desired	Yes. Functionality is available to LCRA System Administrator

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
76	Security & Authentication	The proposed solution shall include re-assignable application ports to maintain network security.	Desired	N/A
77	Security & Authentication	The proposed solution shall provide a method to rename built-in system accounts (i.e. Administrator, Admin, Super, etc.)	Desired	N/A
78	Security & Authentication	The proposed solution shall provide a method to change the passwords for built-in system accounts (i.e. Administrator, Admin, Super, etc.)	Must Have	N/A
79	Security & Authentication	When the vendor is connected to the CITY's VPN for solution support purposes, single tunneling shall be required (which means that they are disconnected from their local network during the VPN session).	Must Have	N/A
80	Security & Authentication	Passwords must NOT be included in automated sign-on procedures, stored unencrypted in cache, or transmitted as clear text over the network.	Must Have	Yes
81	Security & Authentication	The application shall provide a transaction log related to changes made to security (roles/groups/permissions).	Must Have	N/A
82	Security & Authentication	To help enforce CITY's security policies, the solution shall allow the application administrator to disconnect a particular user and to lock out a user during an active session.	Must Have	N/A
83	Security & Authentication	The application shall allow the Application Administrator to restrict generic logins.	Must Have	Yes. Functionality available to LCRA System Administrator

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
84	Security & Authentication	The application shall allow the Application Administrator to set the number of concurrent logins for a particular user on the same or on multiple workstations. The application shall generate an alert if a user attempts or exceeds this number.	Desired	No
85	Security & Authentication	The vendor must conduct a 3rd party annual security assessment of all tiers of its hosting facility, including application servers and network devices. Copies of the security audit reports must be provided to the City of Austin annually. (ASP Hosted)	Must Have	No
86	Security	The system shall have the ability to encrypt data (e.g. medical records, personal information)	Desired	N/A
87	Audit	The system shall provide user-defined audit features for all transactions in solution including, but not limited to all historical changes, date, time, and User ID of the person making the change.	Must Have	Yes, reports can be generated upon request.
88	Audit	The system shall provide the ability to prevent audit records from being deleted or altered, except as part of a system administration archival process.	Must Have	Yes. Functionality available to LCRA System Administrator
89	Audit	The system shall provide the ability for audit-tracking reports including, but not limited to user access and usage logs.	Must Have	
90	Audit	The system shall provide the ability to archive and restore audit logs.	Must Have	Yes. Functionality available to LCRA System Administrator

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
91	Business Continuity and Disaster Recovery	The system shall provide full recovery and system backup capabilities for all online and batch transactions according to CITY-specified timeframes.	Must Have	Yes, in accordance to the SLA.
92	Business Continuity and Disaster Recovery	The system shall provide the ability to restore transactions from the database transaction log.	Must Have	Yes. Functionality available to LCRA System Administrator
93	Business Continuity and Disaster Recovery	The system shall provide software redundancy, including but not limited to:	Must Have	
93.1	Business Continuity and Disaster Recovery	Software crash tolerance (i.e. server and client software shall maintain its integrity in case of power failures and abrupt shutdowns).	Must Have	Yes. Highly available MSSQL Server based technology with routine pack up, UPS, and generator backed power supply.
93.2	Business Continuity and Disaster Recovery	Redundancy in the application server tier with automated cut-over	Must Have	Physical redundancy is provided with automated caching and restoration of data stream. Failover of data acquisition requires simple end-user enabling of secondary version of XConnect. This is valid method for management of data stream and avoidance of OpenSky radio system overload. Automated cut-over not recommended for scoped product/test servers. Automated failover of Hydromet webpage is supported by load balancing.
93.3	Business Continuity and Disaster Recovery	Redundancy in the database server tier with automated cut-over	Must Have	Fully redundant database tier with automated caching of data to allow fully automated restoration of data stream.

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
93.4	Business Continuity and Disaster Recovery	Restart and recovery capability after system/server failure with no loss of data or software components.	Must Have	Yes. Highly available MSSQL Server based technology with routine back up, UPS, and generator backed power supply.
93.5	Business Continuity and Disaster Recovery	Roll-back capability	Must Have	Microsoft SQL Server based technology makes this available to LCRA System Administrator
93.6	Business Continuity and Disaster Recovery	Integrity checking capability to identify the existence of program and/or system discrepancies and issue an alert to the appropriate systems operations team.	Must Have	Microsoft SQL Server based technology makes this available to LRA System Administrator
93.7	Business Continuity and Disaster Recovery	File protection capability to limit the types of operations (e.g. read, write, delete, data dictionary modification) that can be performed by individual users on given data or program files.	Must Have	Sutron XConnect implements MS SQL Server based Client access control.
93.8	Business Continuity and Disaster Recovery	Incremental, differential, and full backups and restores of the database, core and customized software, software and database configuration options, user preferences and rights, etc. This includes the ability to recover specific data records and/or files from backup and/or near-line storage.	Must Have	Configuration accessible to LCRA System Administrator
94	Business Continuity and Disaster Recovery	The system shall provide the ability for authorized users to view and print application error logs online.		
95	Business Continuity and Disaster Recovery	The system shall provide the ability to alert specified users when key components are unavailable (e.g., DBMS, servers, interfaces, network transport, etc.).	Desired	Yes.

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
96	Business Continuity and Disaster Recovery	The proposed solution shall permit the administration of application updates and operating system security patches without downtime.	Desired	Generally between 15 minute polls, are temporary use of test server.
97	End-User Interface	The system shall provide end-user interfaces capabilities including, but not limited to the following:	Desired	
97.1	End-User Interface	Consistent look and feel across all modules.	Desired	Yes
97.2	End-User Interface	Ability to customize views throughout all modules at the field and record level.	Desired	Limited. XConnect third party app provides ability to adjust window size and location. Hydromet website allows for browser window resizing and hiding navigate bar.
97.3	End-User Interface	Enable the user to complete each step in the workflow process within a given screen (i.e. the end-user shall not be required to navigate to multiple screens to complete a task(s) in the workflow).	Desired	Yes. Screens provide specific functions.
97.4	End-User Interface	The system shall provide a variety of ways to navigate the system including, but not limited to the following:	Desired	Yes
97.5	End-User Interface	Menu-driven	Desired	
97.6	End-User Interface	Drop-down lists for selection of valid responses	Desired	
97.7	End-User Interface	Icon-based	Desired	
97.8	End-User Interface	Kiosk, mobile device presentation	Desired	
98	End-User Interface	The system shall allow customizable views, including but not limited to the ability to accommodate both the casual and power users requiring different views, and the integration of information from	Desired	N/A

Attachment A – Functional and Technical Requirements

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
		multiple modules into a unified end-user display		
99	End-User Interface	The system shall provide "out of the box" functionality which allows end-users data entry and/or inquiry access from mobile/devices/PDAs.	Desired	Yes for Hydromet site, no for XConnect.
100	End-User Interface	The system shall support multiple languages for specific transactions including, but not limited to time entry and public portal.	Desired	No
101	End-User Interface	The system shall meet Web Accessibility standards including, but not limited to the ability to support ADA and compliant with Section 508 of the Federal Rehabilitation Act (see http://www.access-board.gov/sec508/summary.htm). (Web based applications must be ADA compliant following the specifications of 508c of the Americans With Disabilities Act. If compliance is not possible, reasonable alternatives may be considered.)	Must Have	The COA webpage will replicate LCRA's Hydromet system webpage which does not comply with the ADA specifications.
102	Data Entry Support & On-Line Help	The system shall provide field level edit checks for transactions during data entry and provide immediate user feedback including, but not limited to error messages, potential possible corrective actions, warnings, data validation from external sources (e.g. GIS data for address validation, USPS for zip code validation).	Desired	Yes
103	Data Entry Support & On-Line Help	The system shall provide online help that displays data field definitions for all user-entered data fields.	Desired	Yes

Attachment A – Functional and Technical Requirements

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
104	Data Entry Support & On-Line Help	The system shall provide the ability to design a preferred sequence to make data-entry columns and fields match the order of information in organization source documents.	Desired	N/A
105	Data Entry Support & On-Line Help	The system shall provide the ability to describe the nature of data entry errors and potential solutions.	Desired	Yes predefined error messages
106	Data Entry Support & On-Line Help	The system shall provide the ability to allow data entry fields to default to the last entry for applicable data fields as determined by the CITY.	Desired	Not specified by the CITY.
107	Data Entry Support & On-Line Help	The system shall provide the ability to auto-fill an entry based on the transaction and/or field entry (e.g., dates, city, state, zip, etc.)	Desired	N/A
108	Data Entry Support & On-Line Help	The system shall provide the ability to restrict free form entry (e.g. require use of drop-down calendar for date field).	Must Have	Yes, optional free form entry with error messaging and control is already provided by Sutron XConnect and LCRA Hydromet solution.
109	Data Entry Support & On-Line Help	The system shall provide the ability to accept mass data entry from an external source, including the ability to load through automated interface.	Must Have	N/A - Bulk data loads are supported by LCRA in this solution. Outside current scope
110	Data Entry Support & On-Line Help	The system shall provide the ability to perform intelligent spell checking of text fields.	Desired	N/A
111	Data Entry Support & On-Line Help	The system shall provide the ability to minimize the use of the mouse when an end-user performs data entry functions.	Desired	Tab between fields.
112	Data Entry Support & On-Line Help	The system shall provide the ability for user to receive confirmations and notifications for user transactions, batch	Desired	N/A

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
		transactions, and system administrator transactions.		
113	Data Entry Support & On-Line Help	The system shall provide the ability for end-users to receive clear and non-technical error messages including, but not limited to the following:	Desired	Yes. Polling and database transaction log with configurable detail.
113.1	Data Entry Support & On-Line Help	The exact status of the transaction.	Desired	Yes. Polling and database transaction log with configurable detail.
113.2	Data Entry Support & On-Line Help	The options for on-line help.	Desired	Yes. Polling and database transaction log with configurable detail.
113.3	Data Entry Support & On-Line Help	The options for additional help including phone, fax number, and a pre-formatted e-mail problem report.	Desired	N/A
114	Data Entry Support & On-Line Help	The system shall provide customizable auto-save functionality that periodically retains data in case data entry is suspended or interrupted.	Desired	Data entry is auto-saved with confirmation upon exit of entry field.
115	Data Entry Support & On-Line Help	The system shall provide the ability for the CITY's authorized users to create and/or modify the content of on-screen error messages.	Desired	N/A
117	Data Storage & Archiving	The vendor shall provide the CITY a complete copy of current and archived data hosted by an ASP provider in the event of contract termination. (ASP Hosted)	Must Have	LCRA will provide all data in SQL Server bulk load format in event of contract termination.
118	Data Storage & Archiving	Hosted solutions shall support off-line storage of the CITY's data at the CITY's site. (ASP Hosted)	Must Have	No
119	Data Storage & Archiving	The solution shall support future releases of the application without rendering the archived data unusable.	Must Have	All data will be maintained on site at LCRA as specified in FEWS Requirement F036 and 183

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
120	Data Storage & Archiving	The system shall provide online access to the current year plus unlimited previous years of all types of data retained in the system, and shall provide archive capabilities thereafter.	Must Have	All data will be maintained on site at LCRA as specified in FEWS Requirement F036 and 183.
121	Data Storage & Archiving	The system shall provide the ability to archive data to external storage media and support partitions, based on user-defined including, but not limited to number of years.	Must Have	Functionality provided on a per site basis from the Hydromet webpage as specified in FEWS Requirement F051. Storage media and partitioning capabilities are not available to end users.
122	Data Storage & Archiving	The system must be capable of exporting all the content, including all the metadata entered by users as well as system generated metadata and any digital objects associated with the content, into non-proprietary file formats (e.g. xml/csv/txt and Tiff/PDF/JPG etc.) and all exported content must be linked either through naming conventions or metadata elements. This shall include the following capability:	Desired	Limited functionality provided by Sutron XConnect third part app.
123	Data Storage & Archiving	For content that is of permanent value, the system shall have a mechanism of extracting that content, and all associated metadata, from the system on a pre-defined time schedule, as well as by ad hoc requests.	Desired	All permanent data is save in the MS SQL Server database,
124	Data Storage & Archiving	The solution shall be capable of utilizing computer storage devices (object file or block based storage).	—	Commvault

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
125	Data Storage & Archiving	The CITY shall be able to accurately plan for storage and backup requirements, both for initial implementation and for future growth.	—	N/A
126	Data Storage & Archiving	The proposed solution shall be capable of dynamically accepting changes to network configurations with little or no impact on solution availability (i.e. Installing additional servers/workstations and changing the IP or subnet of any of the servers).	—	Yes
127	Data Storage & Archiving	The system shall provide online access to the current year plus unlimited previous years of all types of data retained in the system, and shall provide archive capabilities thereafter.	Must Have	Functionality provided on a per site basis from the Hydromet webpage as specified in FEWS Requirement F051. Except for data not displayed to the public (i.e., battery voltage)
128	Data Storage & Archiving	The system shall provide the ability to archive data to external storage media and support partitions, based on user-defined including, but not limited to number of years.	Must Have	Functionality provided on a per site basis from the Hydromet webpage as specified in FEWS Requirement F051. Storage media and partitioning capabilities are not available to end users.
129	Data Storage & Archiving	The system must be capable of exporting all the content, including all the metadata entered by users as well as system generated metadata and any digital objects associated with the content, into non-proprietary file formats (e.g. xml/csv/txt and Tiff/PDF/JPG etc.) and all exported content must be linked either through naming conventions or metadata	Desired	Limited functionality provided by Sutron XConnect third part app.

TECHNICAL STANDARDS				
REQ #	Category	Requirement Description	Importance Rating	LCRA Comments
		elements. This shall include the following capability:		
130	Data Storage & Archiving	For content that is of permanent value, the system shall have a mechanism of extracting that content, and all associated metadata, from the system on a pre-defined time schedule, as well as by ad hoc requests.	Desired	All permanent data is save in the MS SQL Server database,

DRAFT FOR DISCUSSION PURPOSES 9-23-15

ATTACHMENT B

PROPOSAL DATED SEPTEMBER 8, 2015

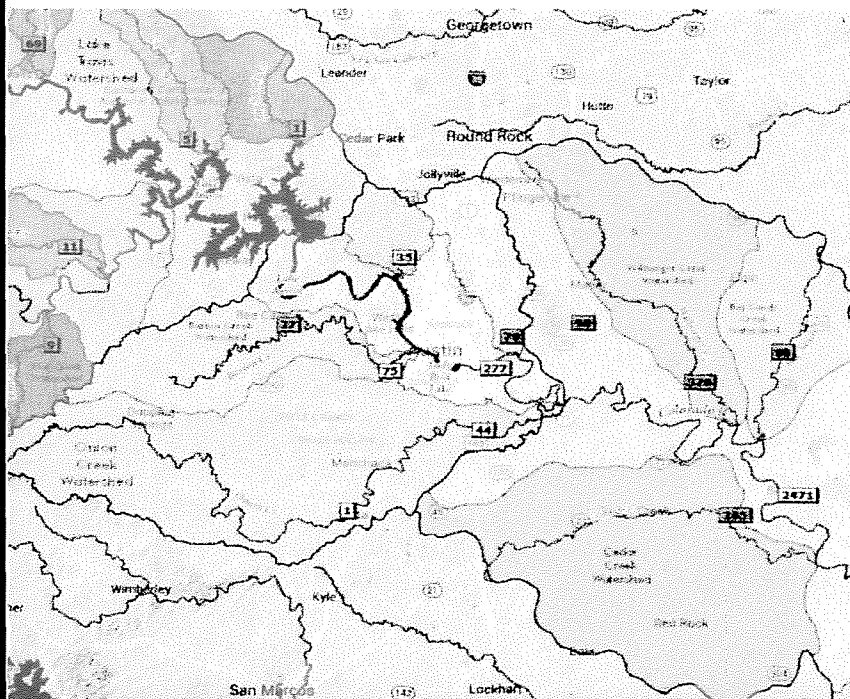
ATTACHMENT B - PROPOSAL

Hydromet Proposal

Prepared

for

austintexas*gov



Revised September 8, 2015



September 8, 2015

City of Austin Watershed Protection Department
Attn: Susan Janek
505 Barton Creek
Suite 1200
Austin, TX 78704

Subject: LCRA Proposal to provide City of Austin access and services related to their Sutron system gauges and a public web interface that assists in data capture, analysis, and archival.

Dear Ms. Janek,

LCRA appreciates the opportunity to extend our capabilities and bring value to the City of Austin in your efforts to provide critical Flood Early Warning information in service of your public mission.

It's not often when two distinct and varied organizations have a purpose and objectives as closely aligned as ours do in relation to protecting the communities we serve from the detriments of flash floods and related events. The opportunity to work together in this endeavor, in retrospect, demonstrates tremendous wisdom from WPD and we believe there is synergy in our continued collaboration.

Building our Hydromet system has been an iterative process that we've labored to construct over many years. It truly has been a journey for LCRA; continually striving to build a system that provides incredible value to our internal organizations' capabilities while serving as an accessible and reliable source of critical information for those that live in and around our waterways.

We are excited about the opportunity to extend what we've achieved beyond LCRA and to partner with the City of Austin for which we have a strong cooperative history. Our hope is to demonstrate through this proposal LCRA's experience of successfully creating, managing and growing the capabilities of these systems and in serving the public. We appreciate the opportunities you've provided to work closely with you and your staff in the preparation of this proposal. Attached you will find revisions to this proposal as discussed between LCRA and COA WPD.

LCRA is prepared to initiate work upon execution of an amendment to the current Interlocal Agreement to include these expanded services and upon coordination with your team on the appropriate schedule.

We appreciate the consideration of LCRA for this important endeavor. We have a record of providing valued services in conjunction with the City of Austin and are committed to continuing this tradition. Please contact us with any questions.

Sincerely,

Deana Blaschke
Strategic Partnerships, LCRA
Attachment B – Proposal

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Executive Summary

Our understanding of the City of Austin Needs

This proposal represents LCRA's solution and set of activities needed to assist the City of Austin in getting access to and functionality to support, its ability to effectively forecast and timely communicate potential flood and flood related events. Put simply, we have tried to propose a solution based on our current understanding of your needs, as documented in the requirements document. However, should the City of Austin feel that one or more of the services outlined within the proposal requires further refinement; LCRA welcomes the opportunity to continue discussions and readdress elements of this proposal.

As relayed to LCRA, the City of Austin (COA) Watershed Protection Department (WPD) Flood Early Warning System (FEWS) is in the process of upgrading the path with which the gauges used by FEWS report the gauge data. The WPD FEWS is requesting the Lower Colorado River Authority (LCRA) provide a hosting environment for this gauge data. The LCRA can provide the server, data management, storage and development of a public facing Hydromet website, utilizing the same URL as the LCRA website, for precipitation and stream levels in this hosting capacity.

To accomplish this, the LCRA team proposes leveraging our capabilities and systems surrounding our Hydromet system and extending its functionality, structure, and program to the City of Austin in the following ways:

- » Access -
The COA FEWS data acquired via LCRA's OpenSky radio network would be managed by a Virtual Management server dedicated to acquiring FEWS data from within LCRA. This server will also host an associated database to store data locally and manage replication of this data to LCRA's existing Hydromet system as data arrives.

- » Function –
LCRA will add a weblink to the existing LCRA Hydromet webpage that will take users to City of Austin specific data that allows the City of Austin and the public to access base map layers utilizing Google Maps with stream overlays and major watersheds (FEMA watersheds), access to current radar, and the ability to query and receive historical data along with the other requested functionality. LCRA will appropriately brand the webpage for the City of Austin and customize its interface as discussed.

LCRA is open to collaborating on a schedule and timeline that fits the City of Austin's needs. In Section 5 on page 13, LCRA has outlined a proposed milestone schedule that delivers the proposed scope of work in six to eight weeks (6-8 wks). We have suggested a kick-off date of June 29, 2015, but of course this can be revised should the City of Austin need additional time in its review and/or to obtain project approvals.

LCRA has taken every effort to build a value oriented proposal based on a recovery cost model similar to that outlined in the Interlocal Cooperation Agreement. Given this is our initial endeavor in offering these services externally, we have wrestled with elements such as contingency, growth, and the downstream impacts of gauge health due to various operating conditions. Given these risks, we believe in the 6-8

weeks outlined in the proposed schedule, LCRA can deliver a Hydromet capability to the Watershed Protection Department for \$100,000. A monthly hosting and service fee of \$6,850 includes data archival capabilities and services such as service desk support, content maintenance, troubleshooting, data backup, and more.

We would be remiss not to mention that our capabilities and interest in expanding on these services extend beyond this scope of work. In preparing this proposal our team grew enthusiastic about all the creative possibilities to further extend our expertise to bring even more value for the City of Austin. Some ideas were website enhancements, loading of historical City of Austin watershed data for enhancements. We welcome the opportunity to explore any of these ideas or other services we could provide, should the WPD have interest.

Proposed Scope of Work

1.0 Description of Services:

The City of Austin WPD Flood Early Warning System is in the process of upgrading the path with which the flood gauges used by FEWS report the gauge data. The WPD FEWS is requesting the Lower Colorado River Authority provide a hosting environment for this gauge data. The LCRA would provide data management and storage and development of a public facing webpage for precipitation and stream levels in this hosting capacity. The assistance of the LCRA as a host for the data reporting will accomplish the following for the City:

- Timely and accurate transmission of data from the precipitation and stream level gauges into a relational database for archival storage and public retrieval of the data
- Placement of the FEWS data in the same format and timeliness of the LCRA data onto the LCRA LDM server
- Access to the COA XConnect server

An informative and easy to use custom City of Austin public webpage, with City of Austin branding and logo, for the display of the FEWS data with the functionality of a Hydromet website. Data transfer of the FEWS gauges to occur every 5 and 15 minutes, based on the need of the situation, to the Telecommunications Operating Control Center (TOCC) of the LCRA. -The following is a list of services the LCRA will provide:

- Installation of the FEWS associated XConnect server within the LCRA VM environment. Data from the OpenSky transmission would be sent inside the LCRA system to a separate and distinct XConnect polling server.
- Remote access for authorized City of Austin personnel to the FEWS XConnect server for maintenance of City of Austin gauge network, which includes, but is not limited to, gauge configuration, manual gauge polling and report generation related to batteries.
- Creation of a Hydromet database for the storage and archival retrieval of information of FEWS data through a public facing Hydromet webpage.
- Placement of FEWS data in format specified onto the LCRA LDM server. This allows access by the National Weather Service and by other associated City of Austin vendors.
- Development of a Hydromet public website that contains the functionality of the current LCRA "Hydromet" website displaying the City of Austin FEWS gauges but not including and not associated with the LCRA Hydromet. Functionality of this website includes the following:
 - » Disclaimers and time of data retrieval (approximately every 15 and in certain circumstances every 5 minutes)
 - » Base map layers utilizing Google Maps with stream overlay and major watersheds (FEMA watersheds)
 - » Current radar
 - » Ability to query and receive historical data of COA stream level and precipitation gauges as currently provided for LCRA gauges on LCRA Hydromet

- » Color coding of accumulated COA rainfall totals as the LCRA Hydromet has precipitation totals displayed. This includes the incremental accumulation currently utilized by LCRA – most recent to past two weeks on visual display
 - » Charts of last available stream level and precipitation data with same time intervals as currently available on LCRA Hydromet site from most recent to past two weeks on visual display
 - » Color coding of bank full stage and flood stage for stage information as provided by the City of Austin
 - » Associated graphs and charts of past stage data similar to the LCRA Hydromet website function
 - » Associated GUI functionality of precipitation and stage items as included on LCRA Hydromet
 - » The existing and future COA gauges could be increased in number and in functionality. This includes, but is not limited to, adding stream flow information from the gauge transmission.
 - » Link back to www.atxfloods.com
- Monthly support of the COA FEWS system and website

Proposed Solution Description & Architecture

2.0 Proposed COA-FEWS Data Architecture:

The LCRA team has developed this system architecture and security protocols over many years. We've worked to keep the system simple but robust in functionality with both critical security features and redundancies to ensure its reliability.

The COA FEWS data acquired via LCRA's OpenSky radio network would be managed by a separate COA Sutron-XConnect server dedicated to acquiring FEWS data from within LCRA. This server will also host an associated XC Data MSSQL Server database to store data locally and manage replication of this data to LCRA's existing Hydromet system as data arrives. This COA XConnect server would be the only part of the system directly accessible by COA staff to allow operation of the XConnect software suite to manage data acquisition such as poll scheduling and site/sensor definition.

The Hydromet system includes an MSSQL Server database paired with a separate web server to host the data for the Hydromet.lcra.org web site. This architecture is replicated at two physical locations: the LCRA Systems Operation Control Center (SOCC) and LCRA's General Office Complex (GOC) and firewall protected from the Internet.

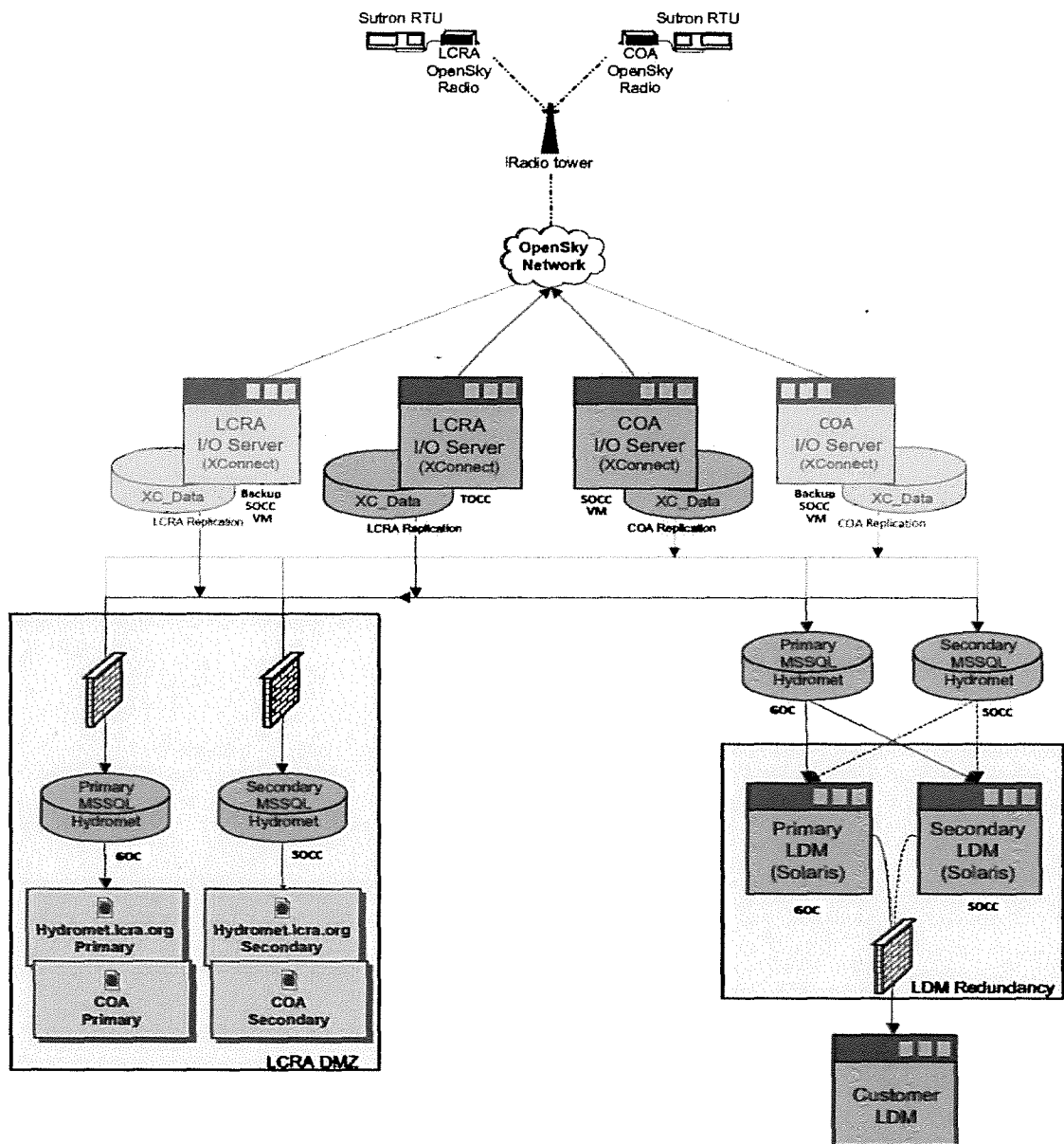
The Hydromet system also includes database, webserver, and Local Data Manager (LDM) servers to monitor, process, and manage data transfers. These systems are also replicated for reliability at two physical locations (the LCRA SOCC and LCRA GOC).

To support data dissemination, database reports are generated every five minutes for dissemination via the LDM server to specific firewall protected cooperators. The COA FEWS radar provider is expected to receive the FEWS data and is an already existing cooperator.

The FEWS data would be replicated real time using existing MS-SQL Server technology and ingested into the Hydromet databases, and co-mingled with LCRA data. The existing database design

includes provisions to identify the hardware source of all data, specification of a site owner name, and site and sensor SHEF identifier for registration with the National Weather Service. Existing infrastructure would manage the increased number of sites and sensors without requiring upgrades.

Diagram 1 – Proposed System Architecture



Service Level Agreement

3.0 Proposed Service Level Agreement (SLA):

This represents the proposed service level agreement (SLA) between LCRA and the City of Austin for the provision of services necessary to achieve the proposed Scope of Work and description of services outlined in Section 2.

LCRA will provide and maintain the data and services to support the following systems throughout the Agreement. The service parameters outlined in this section will guide and determine the services, features, functionality, and parameters associated with these systems. For any systems subject to other compliance standards, LCRA will ensure that the support and service levels meet or exceed those requirements.

Please recognize that there are boundaries of responsibilities for online type services that are supported by third party providers for which LCRA and the City of Austin must take in account within this effort. Where reasonable, LCRA will work with these contractual relationships to support this proposed SLA.

3.1 Objective

This proposed SLA attempts to establish the framework of technology services that defines the relationship between the LCRA and the City of Austin regarding the FEWS system. The SLA accomplishes this by first identifying and classifying the key technology systems requested by the City of Austin to perform their business functions. The SLA then details the measurable service levels that LCRA commits to deliver to the City of Austin in support of these systems. The SLA also clarifies the roles and responsibilities of LCRA and the City of Austin and therefore becomes a construct for managing this collaborative relationship.

3.2 Periodic Review

We propose this Agreement remain in effect starting on the Effective Date, as defined by the Inter-local Cooperation Agreement between LCRA and the City of Austin, and the Agreement is to be reviewed at a minimum once per fiscal year; however, in lieu of a review during any period specified, the current Agreement will remain in effect.

3.3 SERVICE AGREEMENT

LCRA will identify the systems supported and will detail the support levels and features for each of these systems. Only the systems/services listed below are covered in this SLA. OpenSky radio system is covered by a separate SLA.

Table 1 - Scope of Services

	System	Business Asset Owner
1.	Hydromet.lcra.org	LCRA, Water Services
2.	XConnect	LCRA, Information Technology

3.3.1 Application Service Levels

Based on the service commitment outlined in Table 2, LCRA recommends the following system availability standard with corresponding service attributes.

The FEWS system will be available 99.5% of the time with an outage of no more than 3.6 hours monthly. The normal service hours are between the hours of 8AM to 5PM Central Standard Time, excluding LCRA Holidays as listed below. For technical support, COA shall call (512) 473-3300, option #2. The LCRA IT Service Desk will assist COA staff from 8AM to 5PM.

For Emergency support during non-business or extended hours, the call will automatically rollover to the LCRA Telecommunications Operations Control Center whom will contact the appropriate internal LCRA IT staff as needed.

LCRA maintains specified time periods during which it may perform necessary maintenance and/or service upgrades. These specified time periods are referred to as "Scheduled Maintenance Windows". These "Scheduled Maintenance Windows" occur each Saturday from 6AM – 12PM. In addition, LCRA reserves the right to perform any required maintenance work outside of the "scheduled Maintenance Window" with a minimum of 2 hours notification to COA WPD. However, COA WPD understands that at any time LCRA may perform emergency maintenance as needed to preserve the overall integrity of the services offered as determined by LCRA with no notice.

During flood events, maintenance will not be performed on systems unless there is an emergency need that impacts the integrity of the service. In these events, LCRA will communicate with the CITY WPD with as much notice as is reasonable during the event.

LCRA Observed Holidays

- New Year's Day
- Martin Luther King Jr Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day / Day After or Before
- Christmas Eve / Christmas Day

Table 2 –Service Availability & Support

Service Attributes	
System Availability	99.5.0%
Service Hours	8:00AM – 5:00PM, Monday - Friday, excluding LCRA Holidays
Service Desk	512.473.3300, Option 2

3.3.2 Technology Service Levels

In addition to the services related to reliability, LCRA can provide as optional services levels the security environments of the systems in scope as follows:

Table 3 - Support Service Levels

Service Description	City of Austin Watershed Protection Dept.
Patch Management Services	Yes
Anti-Virus Software	100%
Maintenance and Admin. of Digital Certificates	Yes
Digital Certificate Compliance Audit Report	Annually

As part of the Service Levels, Patch Management, Anti-Virus Software and Digital Certifications can be provided and reviewed on an annual basis.

3.3.3 Backup and Restore

In the event of a catastrophic incident that disrupts multiple technology services, LCRA will prioritize the FEWS system amongst other assets in order to provide restoration and recovery. LCRA maintains a Disaster Recovery Plan that is reviewed annually, which specifies processes for LCRA Information Technology (IT) to follow in the event of emergency conditions or a disaster from the initial indications of an emergency through a return to normal business operations.

The Recovery Time Objective is the time in which information will be recovered during a catastrophic event. The Recovery Point Objective is the amount of time in which data will be recovered and the backup will be performed weekly including any daily deltas. The FEWS system data will be backed-up for up to fourteen days.

Table 4 – Backup, Restore, and Architecture

Service Description	
Recovery Time Objective (RTO)	<1 business day
Recovery Point Objective (RPO)	24 hours
Backup	Weekly + Daily Deltas

3.3.4 Incident Resolution by Priority and Classification

The LCRA IT Service Desk (512) 473-3300 (Option 2) will serve as the Watershed Protection Department's initial contact for service requests and problem reporting. LCRA's response level will vary upon the Priority Level defined below:

Table 5 - Resolution by Priority and Classification

	Priority 1	Priority 2	Priority 3	Priority 4
Business Impact	Critical Service degraded or unavailable to users with no workaround available.	Renders a Service unavailable or degraded to more than 10% gauges. Certain functions may be unavailable, there may or may not be a workaround.	Incident impacts functionality but there is a workaround and/or does not prohibit the execution of productive work.	Incident may require an extended Resolution Time, but does not prohibit the execution of productive work and a reasonable workaround is available.
Communication Time	Notice sent to users (including expected downtime) < 60 minutes	Notice sent to users (including expected downtime) < 4 hours	Notice sent to users (including expected downtime) < 24 hours	Notice to users < 24 hours
Resolution Plan	Plan developed and communicated < 2 hours	Plan developed and communicated < 8 hours	Plan developed and communicated < 48 hours	Plan communicated upon initiation of work
Resolution Time	< 4 Hours	<12 hours	< 10 days	< 30 Days
Response Time	<30Min	<30Min	<30Min	<30Min

Cells highlighted in grey are limited to 8x5 support, all others supported 24x7

LCRA Team & Contacts

4.0 LCRA Contacts

LCRA: Strategic Partnerships	Deana will serve as LCRA's Account Manager responsible for the ongoing coordination and communications related to the services outlined in the Scope of Work and new project requests.	Deana Blaschke Sr Account Manager, Principal 3700 Lake Austin Blvd. S213 512.578.3394 Deana.blaschke@lcra.org
LCRA: Service Desk	The Service Desk will serve as the City of Austin's first contact point should a service or technical interruption be experienced. The Service Desk will escalate issues appropriately. Please refer to the proposed communication process outlined below in this section.	Service Desk Phone: 512.473.3300 (Option 2) Hours of Operation: 8:00AM – 5:00PM
LCRA: Subject Matter Expert	As the Subject Matter Expert, David will serve as a strategic resource related to Hydromet functionality and long-term development.	David Walker Manager, River Operations 3700 Lake Austin Blvd. Redbud Center 512.578.4060 David.walker@lcra.org

4.1 Incident Management Process – External

- » Customer calls the Service Desk and reports issue
- » Service Desk creates a work order for the Incident
- » Service Desk escalates issue accordingly
- » Issue is worked through to resolution
- » Both work order and customer are updated

4.2 Proposed Roles & Responsibilities

Table 6 - Roles and Responsibilities

Role	Task
LCRA	<ul style="list-style-type: none"> ▪ Maintain and update contacts information ▪ Meet or exceed the Service Levels ▪ Review annually performance levels ▪ Notify the City of Austin of any scheduled work with potential impact to the in-scope systems ▪ Schedule and coordinate any system changes, upgrades, or enhancements ▪ Seek approval from the City of Austin before deployment of system changes to production environments ▪ Manage incidents and related escalation processes through resolution phase ▪ Produce and/or publish systems documentation ▪ Respond to and support compliance requests as needed

City of Austin	<ul style="list-style-type: none"> ▪ Monitor Mission and Business Critical services and report any incidents ▪ Report incidents to the LCRA via the Service Desk during normal business hours or during flood emergencies ▪ Contact Deana Blaschke for additions, changes to project scope of work, or if the need to escalate issues or problems
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4.2.1 Application License Requirements:

LCRA will purchase one Sutron XConnect license for the COA primary production VM server and one license for the Sutron XConnect for the backup production VM server. Payment for the subscription license fee will be due and payable annually by COA to LCRA.

4.2.2 External Users Domain Accounts:

LCRA will provide the COA WPD two (2) unique user IDs, with the option to add user IDs, up to two additional user IDs (4 total), to staff who need access to the Sutron XConnect System hosted for the COA WPD by LCRA. COA WPD staff are responsible for maintaining the confidentiality of their system passwords. Staff shall not share their personal account passwords.

It will be the responsibility of the COA to provide a background check for any COA WPD staff accessing LCRA IT systems. The background check must include a comprehensive criminal background check which includes a seven (7) year felony/misdemeanor search and felony criminal search in all counties/districts identified by the person's social security number trace. The COA WPD must provide written confirmation on COA letterhead that the background check was completed, what was included in the background check and on what date.

The COA WPD staff are held accountable for activities conducted on LCRA systems and networks under their user ID and password. Workers who believe their password may have been stolen must change it immediately and contact the LCRA IT Service Desk. Staff shall change their passwords at least once every 60 days, and shall use complex passwords as documented below:

- At least eight characters with a preference for at least 15 characters.
- At least three of these character types: uppercase letters, lowercase letters, numbers and special characters.
- Does not contain part, or all, of the worker's name, username or ID.
- The COA WPD staff shall provide LCRA written notice of a change in role of personnel access to the CITY's XConnect System within 24 hours.

4.2.3 Affirmative Covenants:

During the term of the contract, COA WPD covenants to be responsible for procuring, installing, and maintaining all equipment, telephone/data/communications lines, communications interfaces, and other hardware necessary for connectivity to the LCRA hosted XConnect System.

4.3 Proposed Delivery Team

Table 7 – Key LCRA Team Members

Name	Assignment
David Walker	Executive-in-Charge and Subject Matter Expert
Bill Carroll	Manager, Enterprise IT Systems
Mike Gibbons	Manager, TOCC
Marilyn Bessire	Account Manager, Sr. – Telecom (Radio Systems and Gauges)
Deana Blaschke	Strategic Partnerships, Sr Account Manager, Principal
Bob Huber	Sr. Engineer, River Operations
James Bryson	Sr. Software Developer, Information Technology
Bobby Saddler	Supervisor, Telecom Engineering
Lynn French	Supervisor, IT Solution Implementation
Garreth Hays	Sr. Software Developer, Information Technology
Jenna Adams	Project Manager

4.4 Reporting Procedures for Hydromet Issues

LCRA is committed to ensuring a high level of service related to access, function, and value relative to the Hydromet system architecture and maintenance proposed. Upon receiving approval from the City of Austin regarding this proposal, LCRA will collaborate with the WPD to establish an issue resolution protocol that meets its needs that will be communicated across all stakeholder groups.

Proposed Schedule & Pricing Methodology

5.0 Proposed Timeline & Pricing Methodology

5.1 Proposed Timeline:

Outlined below is the proposed deliverables and timelines. This timeline can be customized to meet the City of Austin's needs and is subject to change based on feedback and refinement through subsequent discussion and collaboration.

Table 8 – Milestone Schedule

Deliverable or Milestone	Target Completion Date
Project Kick-off	10/07/2015
Server Configuration & XConnect License Access	10/14/2015
Infrastructure and Security Set Up	10/14/2015
Enable Hydromet and Create Website	11/01/2015
City User Acceptance Testing	12/01/2015
Training	12/01/2015 - 12/15/2015
Production Go Live	12/15/2015
Final Acceptance – Sign Off	12/29/2015

5.2 Pricing:

Funding for the FEWS project is subject to a thirty-six month inter-local agreement with the LCRA to provide data hosting services, equipment and future enhancements to the Watershed Protection Department in an amount not to exceed \$705,000 with three 12-month extension options in an amount not to exceed \$141,000 each, for a total contract amount not to exceed \$1,128,000.

Table 9 – Pricing Levels

Proposed Pricing	Amount
COA Flood Early Warning System Project	\$294,725.84
Monthly Hosting & Service Fee (1 – 80 gauges)	\$ 6,850.00
Annual License Fee(s) – XConnect (Production/Backup)	\$ 4,152.00
System Additions:	
- Monthly fee will increase for all gauges due to anticipated service needs beyond 80 gauges.	\$100 per unit/month
- 81 - 120 Gauges (does not include radio air time but does include configuration)	
- 121+ Gauges	TBD

*Already included in current Interlocal Cooperation Agreement

5.2.1. Project Implementation – Scope of Services **\$100,000**

The initial project implementation costs will include the planning, design, development, and implementation of the following:

LCRA to provide a hosting environment for gauge data. Stations will collect

real-time hydrological data and transmit the data as specified in the project plan through LCRA's Open Sky Radio Network to COA's VM server. The hosting service will provide a server for the production environment, data management, storage, and the development of a public facing Hydromet website, utilizing the same URL as the LCRA website for precipitation and stream levels in the hosting capacity.

5.2.2. Monthly Hosting & Service Fee – up to 80 gauges (Recurring) \$6,000

Annual License Fee – XConnect License (Recurring) \$2,076

Monthly Fee will increase for all gauges beyond 80 gauges \$100/per gauge

The monthly hosting services fee include maintenance support such as content management services for the website, support costs, backup and archival of data and overall maintenance of the technology solution. This support includes the annual Windows and SQL license fees for the production VM sever, data storage and 10 hours of technical resource support to assist COA WPD to resolve issues as needed. The Hosting & Service Fee also includes SLA performance reporting.

5.2.3. Data Backup Production Server \$7,454

Monthly Hosting/Service Fee – Server Licenses (Windows/SQL) (Recurring) \$850

Annual License Fee – XConnect License (Recurring) \$2,076

Purchase and installation of a backup production VM server. The system would be installed by LCRA on a virtual machine located at the SOCC. The architecture of the system would be designed as “mission critical”, and will be managed as mission critical during severe weather conditions. During normal operations, the system will be managed as “business critical” as described in Appendix B, of the Hydromet Proposal.

Achieving consistent application versioning would enable the following system improvements:

- Server Redundancy
- 2nd Server – Manual transfer of polling to support uninterrupted service during updates
- 2nd Server – Manual failover from the primary server
- 2nd Server – Capability of customized manual polling
- 2nd Server – Short-term testing
- Final testing outside of the primary Production Environment
- Capability to establish a Failover Plan

5.2.4. Historical Data Upload – Not to Exceed \$5,000

Upload Hydromet data records from 1987 to the time of the project go-live date into the COA servers. Uploading the historical data will allow opportunities for COA WPD to have the ability to perform data trending capabilities.

LCRA will upload the following records:

- Upload files from the Edited Series from the COA WISKI Database
- Records starting from 1987 for each sensor
- Data description to include:
 - Precipitation sensor data (in inches) previously saved based upon a rain gauge bucket tip event
 - Level sensor data (in feet) previously saved based upon a rate of rise event (in feet/minute)

The Historical Data Upload Project scope will be clearly defined and a formal quote will be provided prior to acceptance and implementation.

FUTURE PROJECTS BEYOND THE ORIGINAL SCOPE

As the services listed below are requested, the COA shall provide LCRA 3 to 6 month's notification prior to project kick-off to allow LCRA time to adjust technical resources.

5.2.5. USGS Data Integration– Not to Exceed \$60,000

LCRA to integrate the USGS data to be displayed on the COA Hydromet website. LCRA will provide the following services to ensure successful integration:

- Scrape the data from the USGS website
- Script Development
- Identify the USGS sites and add to the COA Hydromet website
- Develop Site Profile
- Upload USGS historical data
- Monitor USGS data for new updates
- QA/QC

The USGS Data Integration Project scope will be clearly defined and a formal quote will be provided prior to acceptance and implementation.

5.2.6. Hydromet System Enhancements– Not to Exceed \$75,000

The COA is in the inaugural phase of implementing the Hydromet System which will have many opportunities for implementation of new features and/or system enhancements. New features and/or enhancements will support major opportunities to strengthening the Hydromet System to publish additional information to the public during severe weather conditions. Project funds will be allocated for new system features and /or enhancements which will benefit the constituents within the City of Austin.

Each system enhancement project scope will be clearly defined and a formal quote will be provided prior to acceptance and implementation.

5.2.7. Junction Boxes (Enclosed) \$47,271.84

LCRA to customize 35x28x14 gauge cabinets out of 1/8" aluminum to include a three point latch, solid steel hinges, vented louvers, stand-off back-off plate and a re-enforced 3/8" stripe. Fee to include 28 cabinets in the amount of \$1,688.28 per unit.

5.3 Payment Terms:

LCRA will invoice the City of Austin for Implementation Services upon COA WPD's acceptance of the project. The Monthly Hosting Fees will be billed in accordance with the Interlocal Cooperation Agreement.

5.4 Additional Fees

If the following circumstances occur, LCRA will invoice the COA WPD for the additional fees as appropriate:

- 5.4.1 In accordance to Google Maps APIs usage limits related to high traffic websites, LCRA may incur charges from Google Map for consistently high amount of traffic. LCRA may be subject to pay Google Map for extra usage during high traffic. In the event this occurs, CITY will be responsible for the amount of extra usage according to the Google Analytics Reports and refund LCRA upon receipt of Invoice.
- 5.4.2 LCRA will create an informative and easy-to-use custom public website, branded for CITY, for the display of CITY's flood early-warning data with the functionality of LCRA's own Hydromet website. Functionalities requested by the CITY above the LCRA's current state of its Hydromet System will be at an additional fee to the CITY.
- 5.4.3 The normal service hours are between the hours of 8AM to 5PM Central Standard Time, excluding LCRA Holidays (non-business). Technical support during normal service hours will be applied towards the monthly 10 hours. If assistance is requested beyond the 10 hours within the month, the technical support will be billed at the rate shown in Table 10.

For Emergency support during non-business or extended hours (5PM to 8AM) and not during a rain event, technical support will be billed at the rate shown in Table 10.

Optional Services

6.0 Optional Services & LCRA Capabilities:

If additional services beyond this scope are requested by the City of Austin, these will be provided in accordance with LCRA's current hourly rate schedule as outline below, or on a negotiated basis. Typically rates are adjusted on an annual basis starting on July 1. The current schedule listed below is relevant from June 01, 2015 – June 30, 2016. The new hourly rate schedule will be provided to the COA as published on an annual basis.

Table 10 – LCRA T&M Rates

Level	Straight Time / hr	Emergency Support*/ hr
Additional reports		
Database Administrator	\$115.00	\$173.00
Business Systems Analyst	\$74.00	\$111.00
Process Improvement Specialist	\$97.00	\$145.00
Additional website features		
IT Service Desk Representative	\$49.00	\$73.50
Application Administrator	\$79.00	\$119.00
Software Developer	\$105.00	\$157.00
Network Systems Administrator	\$91.00	\$136.00
Other		
Controls Systems Administrator	\$80.00	\$120.00

*Emergency support refers to call-out support during non-business or extended hours

Appendix A: SLA Definitions

A.1 Systems Classifications

LCRA has developed a methodology for classifying each of LCRA's supported systems into one of these defined categories:

1. Mission Critical
2. Business Critical
3. Business Operations
4. Administrative Support

The classification of each system requires the review and approval of the business asset owner, and determines the many service levels and features contained in this document. Detailed definitions of the categories of criticality are shown in Table A.1.

Table A.1 – Critical Service Levels

Classification	Definition	Criteria
Mission Critical	Service requires continuous availability. Breaks in service are intolerable and immediately and significantly damaging. Availability required at almost any price	<ul style="list-style-type: none">• The asset's failure could directly affect human health/safety of employees or general public, i.e., death or dismemberment.• The asset's failure could result in public, wide-spread damage to reputation.• The asset's failure would directly affect revenue generation.• An existing Mission Critical asset relies on this service and its failure would result in the Mission Critical asset not meeting the above criteria
Business Critical	Service requires continuous availability, though short breaks in service are not catastrophic. Availability required for effective business operation.	<ul style="list-style-type: none">• The asset's failure could indirectly affect a mission critical service from meeting its SLA.• The asset's failure could directly result in a compliance or regulatory violation.• The asset actively communicates emergency situations to the general public or to employees.
Business Operations	Service contributes to an efficient business operation but is out of direct line of service to the customer. A service outage reduces efficiency and increases cost of operations.	<ul style="list-style-type: none">• The asset passively communicates emergency situations to the general public or to employees.• The asset passively communicates emergency situations to employees.• The asset's failure could result in moderate employee productivity degradation.
Administrative Support	Service includes productivity tools for business to operate but do not affect customers and do not justify additional expense for higher availability.	<ul style="list-style-type: none">• If the service does not meet any of the above criteria, the asset is classified as Administrative Support.

A.2 Incident Priority Levels

The level of response to reported incidents are driven by the priority of the impact of that incident to the business.

Table A.2 - Priority Category Levels

Term	Business Impact	Category	Definition
Priority 1 Incident	Critical Business Impact	Urgent	<p>An Incident shall be categorized as a "Priority 1 Incident" if the Incident:</p> <ul style="list-style-type: none"> • Renders a Mission Critical or Business Critical Service degraded or unavailable to users with no workaround available. • IT Incident Manager or CIO may declare any Incident, regardless of service criticality, a Priority 1 incident based on impact to business.
Priority 2 Incident	High Business Impact	High	<p>An Incident shall be categorized as a "Priority 2 Incident" if the Incident:</p> <ul style="list-style-type: none"> • Renders a Service unavailable or degraded to more than 10%. Certain functions may be unavailable, there may or may not be a workaround. • Significant disruption or degradation of Service. • Renders a Business Service unavailable to a single site or user group. • IT Incident Manager or CIO may declare any Incident, regardless of service criticality, a Priority 2 incident based on impact to business.
Priority 3 Incident	Moderate High Business Impact	Moderate	<p>An Incident shall be categorized as a "Priority 3 Incident" if the Incident:</p> <ul style="list-style-type: none"> • Impacts a group or individual but there is a workaround and/or does not prohibit the execution of productive work.
Priority 4 Incident	Low Business Impact	Low	<p>An Incident shall be categorized as a "Priority 4 Incident" if the Incident:</p> <ul style="list-style-type: none"> • May require an extended Resolution Time, but does not prohibit the execution of productive work and a reasonable workaround is available.

A.3 Definitions

Table A.3 - Definitions

No.	Term	Definition
1.	Availability	Ability of an IT service or other configuration item to perform its agreed function when required. Availability is determined by reliability, maintainability, serviceability, performance and security. Availability is usually calculated as a percentage. This calculation is often based on agreed service time and downtime.
2.	Business Continuity Planning (BCP)	The documentation of a predetermined set of instructions or procedures that describe how an organization's mission/business processes will be sustained during and after a significant disruption.
3.	Disaster Recovery	The act of restoring operability to an information system, application, or computer facility infrastructure to an alternate site after an emergency.
4.	Disaster Recovery Architecture	A multi-instance configuration of an Information System designed to make it available at two or more geographic locations.
5.	Disaster Recovery Plan (DRP)	A written plan for recovering one or more information systems at an alternate facility in response to a major hardware or software failure or destruction of facilities
6.	Escalation Procedures	An Activity that obtains additional Resources when these are needed to meet Service Level Targets or Customer expectations.
7.	Failover (FO)	The capability to switchover automatically (typically without human intervention) to a redundant or standby information system upon the failure or abnormal termination of the previously active system.
8.	High Availability (HA)	An architecture based on redundancy or clustering and designed to maintain system availability during failure of one or more of its components.
9.	Incident	(Service Operation) An unplanned interruption to an IT Service or a reduction in the Quality of an IT Service.
10.	Incident Management	(Service Operation) The Process responsible for managing the Lifecycle of all Incidents. The primary Objective of Incident Management is to return the IT Service to Users as quickly as possible.
11.	Recovery Point Objective (RPO)	RPO is the point to which data must be recovered after an outage.
12.	Recovery Time Objective (RTO)	RTO is the overall length of time an information system's components can be in the recovery phase before negatively impacting the organization's mission or mission/business processes.
13.	Redundancy (Fault Tolerance)	The ability of an IT Service or Configuration Item to continue to Operate correctly after Failure of a Component part.
14.	Resolution Time	Resolution time is the average time to resolve or mitigate an incident.
15.	Response Time (TTR)	The time taken to answer the phone, or to start Diagnosis.
16.	Support Hours	Timeframe that support personnel are available.

**Interlocal Agreement with LCRA, FEWS Data Hosting Services and Material
MA #**

Description	year 1	year 2	year 3	year 4	year 5	year 6
implementation	100,000.00					
redundant server b/u	7,454.00					
historical b/u	5,000.00					
syst op costs, annual*	86,352.00	86,352.00	86,352.00	86,352.00	86,352.00	86,352.00
optional serv**		60,000.00	121,271.84			
additional gauges, 5/yr***			6,000.00	6,000.00	6,000.00	6,000.00
Yearly totals	198,806.00	146,352.00	213,623.84	92,352.00	92,352.00	92,352.00
Estimated contract total****						835,837.84

* monthly maintenance costs @ \$6,850 x 12 mo = \$82,200 + annual Sutron s/w maint @ \$2,076/license * two licenses = \$4,152

** optional services, estimated occurrence-- year 2: USGS data integration @ \$60,000; year 3: Hydromet System Enhancements @ \$75,000 + Junction boxes @ \$47,271.84

*** estimated addition of 5 stations in each of years 3, 4, 5, and 6 @ \$6,000/year

**** Total contract amount per RCA = \$1,128,000 so will have available \$292,162.20 to use in addition to the costs in this chart before returning to Council.