

ESTIMATE OF WORK

City of Columbus Enhanced Metering Project

Summary	
Client	City of Columbus
Banner SOW Number	BSOW-207
Subject	Enhanced Metering Project PH2
Date	02/25/2020

Detail	
Description of Request	<p>The City of Columbus is undertaking a project to enhance its water, sewer, and power metering. The project will consist of the implementation of an automated meter infrastructure system to provide meter readings from water, sewer, and power meters. The project will include the installation, via meter exchange, of the existing power, sewer, and water meters and all the software required to operate the system, and to interface with the City of Columbus' systems and applications.</p> <p>BannerCX will be the key system of record for the Enhanced Meter project and will issue work orders to the AMI vendor for all work to be performed. As such, several interfaces will need to be developed for use during and after the AMI installation project.</p> <p>This OOM is being developed to supply the City of Columbus with budgetary estimates to complete the three identified required interfaces;</p> <ol style="list-style-type: none"> <li>1) 2-way, real time, integration between BannerCX and Oracle MDMS (INT001 – INT005),</li> <li>2) 1-way, real time integration from BannerCX to Sensus RNI (INT013), and</li> <li>3) 1-way, batch integration from BannerCX to Customer Portal (INT014)</li> </ol> <p>All integrations will utilize the City of Columbus' enterprise service bus architecture. This estimate has been expanded to include the new details obtained in discussions with the City of Columbus and other vendors and will continue to be refined once the detailed design sessions are conducted.</p>

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<p>Proposed Solution</p>	<p><b>Approach:</b></p> <p>Develop three new interfaces for the City of Columbus identified here:</p> <ol style="list-style-type: none"> <li>1) Oracle MDMS: Implement five distinct integrations between BannerCX and Oracle MDMS. The five features to be developed are;             <ol style="list-style-type: none"> <li>a. Master Data Synchronization Request/Response; BannerCX synchronizes Meter, Service Point, Meter Installation, Person, Service Agreement and a response from MDMS (INT001a/b).</li> <li>b. Service Order Reads Request/Response; BannerCX requests a read for service order completion such as move-in/move-out, MDMS responds with a validated read or failure if a read is not available (INT002 a/b).</li> <li>c. Remote Connect/Disconnect Request/Response; BannerCX requests a Remote Connect/Disconnect, MDMS responds with success or failure (INT003 a/b).</li> <li>d. Bill Determinants Request/Response; BannerCX sends Bill Determinant Request to MDMS for each Service Agreement. The same web-service is used to receive en-masse nightly billing requests and one-off ad-hoc requests, MDMS responds with bill determinants upon success or error message on failure. The same web-service is used to process en-masse nightly billing requests and one-off ad-hoc responses (INT004 a/b).</li> <li>e. Service Orders Creation/Completion; MDM requests a service order be created in BannerCX, BannerCX responds with service order completion details such as comments (INT005 a/b)</li> </ol> </li> <li>2) Sensus RNI – Implement a one-way integration from BannerCX to Sensus RNI to update Sensus RNI with the service point setup and changes to those attributes in BannerCX have to be updated to the RNI via MultiSpeak v4.1. The Meter Add/Remove/Exchange/Retire as well as service location changes in BannerCX will trigger the corresponding interfaces to update the RNI (INT013).</li> <li>3) Sensus' Customer Portal – Implement a one-way batch integration to the Sensus Customer Portal with account and service information for use within the customer portal for customer viewing (INT014).</li> </ol>
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# HANSEN TECHNOLOGIES



## ESTIMATE OF WORK

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<p>Assumptions</p>	<ul style="list-style-type: none"> <li>• The integration development will be performed and tested in a development environment on Client hardware, accessible by Hansen resources.</li> <li>• The project will use the same development environment as built and used in Phase 1 of the Enhanced Metering Project.</li> <li>• Hansen resources will have VPN access to the development environment to perform the necessary development and test tasks.</li> <li>• Hansen will be expected to customize its integration artifacts (APIs) to match the Oracle MDMS requirements</li> <li>• Hansen is expected to accommodate the Sensus integration architecture using MultiSpeak (not currently supported by Hansen).</li> <li>• There is no travel to Client included in this OOM estimate.</li> <li>• Client will be responsible for testing the software in preparation for go-live in production environment and reporting any deficiencies to Hansen for investigation.</li> <li>• Client will be responsible for the deployment of the code in each environment as needed to test and deploy into production.</li> <li>• The City of Columbus will acquire and install on the development environment a copy of Allround Automations PL\SQL Developer for Hansen use.</li> <li>• The City of Columbus will acquire and install on the development environment a copy of JetBrains IntelliJ for Hansen use.</li> <li>• The cost of license for MultiSpeak will be included in the price charged to City of Columbus.</li> </ul>
<p>Exclusions</p>	<p>N/A</p>
<p>Guidelines</p>	<p>This Estimate of Effort is a high-level cost estimate based on the request and is designed to give an approximation of the size of work. It is non-binding and further in-depth investigation and analysis of the subject may lead to variations of this estimate. Please note that the estimate does not necessarily imply any timeline for delivery.</p>
<p>Estimate</p>	<p><b>Fixed Price Cost: \$560,000.00 to \$1,060,000.00</b></p> <p>Individually each integration is estimated as follows;</p> <ol style="list-style-type: none"> <li>1. MDMS - \$360,000 to \$680,000 <b>(64%)</b></li> <li>2. Sensus RNI &amp; Customer Portal - \$200,000 to \$380,000 <b>(36%)</b></li> </ol> <p><b>TCP+ Increase:</b> At the completion of this SOW, an additional <b>\$61,864</b> will be added to the annual TCP+ support cost to support the these custom integrations for the Client.</p>