Enhanced Metering Project – Phase 1
City of Columbus
Statement of Work (SOW)

Version 3
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HANSENCX

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Issue History

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2.1	02/11/2020	Updates for added Scope; Dev Env & longer UAT	Gwilson
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1 Introduction and Overview

This Statement of Work ("SOW") for The City of Columbus ("Client") outlines the respective obligations of the Parties for services to be provided by Hansen BannerCX ("Hansen") as described in this SOW (the "Services"), and is subject to the Software License Agreement dated September 29, 1994 between Client and Hansen (the "Agreement").

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 and installation via meter exchange of the existing power, sewer, and water meters and all software required to operate the system and to interface with the City of Columbus' systems and applications.

The City of Columbus Customer Service and Billing departments use Hansen's BannerCX 5.1. 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.

The purpose of this SOW is to begin the development of three of the integrations that will be required to support the Enhanced Metering Project (EMP).

Structure and overview of this SOW:

- Hansen will perform the Services as detailed in this SOW as per Section 2, Scope of Work.
- Identification of the Deliverables and acceptance of those Deliverables is in Section 3, Deliverables and Acceptance.
- The scope and Deliverables are based on the Assumptions and Dependencies set out in Sections 4, Assumptions and 5, Dependencies.
- The schedule for the Services and Deliverables and associated Milestones are set out in Section 6, Schedule and Milestones.
- Further general responsibilities of Hansen and Client are detailed in Section 7, Client Responsibilities, employing the Governance approach as set out in Section 8, Governance.
- The charges for the delivery of the Services are set out in Section 9, Price and Payment.

2 Scope of Work

The Work Effort has been divided into major activities as described below

2.1 In Scope

ID	Scope Inclusions
SC01	Hansen to build Development environment on Client provided Hardware with Client provided configuration specifications (e.g., environment naming, etc.)
SC02	Development of a Mass Meter and Communication Device Import (Integration #16 of RD01) to include, but not limited to, design, code development, testing, rework, client support, electronic correspondence (email, phone), status meetings and status reporting.
SC03	Development of an Export of Service Information (Integration #18a of RD01) to include, but not limited to, design, code development, testing, rework, client support, electronic correspondence (email, phone), status meetings and status reporting.
SC04	Development of a Mass Exchange Meters and Communication Devices (Integration #18b of RD01) to include, but not limited to, design, code development, testing, rework, client support, electronic correspondence (email, phone), status meetings and status reporting.

2.2 Out of Scope

The table below describes the scope of work that will not be provided under this SOW.

The Services only include the activities in scope and Deliverables as set out in this SOW. Any features, specifications, tasks, services or requirements not documented in this SOW are explicitly excluded from the Services.

ID	Scope Exclusions
EX01	All efforts other than the activities associated to the research, communication, development and testing of the three integrations included In Scope (Section 2.1).

2.3 Reference Documents

ID	Documents
RD01	Columbus Integration Architecture diagram (Columbus Integrations_DAS.pdf) dated 15 January, 2020 (Schedule 3)
RD02	COL DPU Interface List v0.06_2 edits ESB updates.xlsx (Schedule 3)

3 Deliverables and Acceptance

3.1 Deliverables

The table below identifies each Deliverable under this SOW and established the type of acceptance process (if any) applicable to it.

ID	Description	Is Acceptance Required? If so, reference process
DEL01	Hansen built Development Environment on Client hardware	N/A
DEL02	Mass Meter and Communication Device Import	Software
DEL03	Export of Service Information	Software
DEL04	Mass Exchange Meters and Communication Devices	Software

3.2 Acceptance

This section describes the Acceptance process for the Deliverables which are subject to Acceptance. This process shall be carried out to determine if the Deliverable is acceptable. Deliverables requiring Acceptance will either be subject to Acceptance as a Document, or as Software and the Acceptance process that applies will be as set out below, depending on the deliverables' Acceptance type.

3.2.1 Document Acceptance

For document Deliverables under this SOW which require Acceptance, the following process will apply:

- Client shall have [5] business days (or other time period as agreed by the parties) from receipt of each Deliverables to determine whether it is acceptable;
- If Client reasonably decides that the Deliverable is not acceptable, Client shall provide Hansen with written reasons it is not, including any specific corrections needed;
- In response, Hansen will promptly modify the Deliverable accordingly (provided that such correction is consistent with scope & purpose of the SOW) and resubmit it to Client;
- Upon receipt of the modified Deliverable, Client shall promptly (but in no case more than an additional [5] business days) confirm that the Deliverable is accepted, or identify which of the previously identified deficiencies is still unresolved;
- If necessary, this procedure shall be repeated until Deliverable is accepted by Client;

- In the event that Client does not provide Hansen with written acceptance or notice that it is not acceptable within the [5] business day time allotted (or other time period as agreed by the parties), the Deliverables will be deemed accepted.

3.2.2 Software Acceptance (UAT)

For software Deliverables under this SOW, the following Acceptance process will apply:

- The acceptance tests (i.e. the test cases) will be defined and performed by Client, but Hansen will be given the opportunity to review the acceptance test cases prior to the start of UAT.
- The test cases defined by Client will be consistent with the scope of the SOW and be able to be performed within the duration of UAT, including allowing reasonable time for problem investigation, rectification and retesting.
- Defects in the software will be reported progressively as they are discovered, along with sufficient documentation to describe the problem encountered.
- Rectification of problems and retesting will be coordinated by Client and Hansen in the manner that most effectively allows for the progressing of UAT.
- Within the duration allotted for UAT of the Deliverable, Client shall determine whether the Deliverable is acceptable.
- If Client reasonably decides that the Deliverable is not acceptable, Client shall provide Hansen with written reasons of such action, including any specific corrections needed to achieve Acceptance.
- In response, Hansen will promptly correct the Deliverable (provided that such correction is consistent with the SOW) and resubmit it to Client;
- Upon receipt of such corrections, Client shall perform such retests as are necessary to determine whether the corrected Deliverable has resolved the identified defect(s), plus any reasonable level of regression testing of the Deliverable generally.
- The above procedure shall be repeated until Deliverable is accepted by Client.
- In the event that the UAT is not completed within the scheduled time frame, Client and Hansen will discuss the reasons for this and amend the schedule accordingly. Such an amendment will be done via a Change Request unless mutually agreed.

4 Assumptions

The table below describes assumptions provided by or agreed to by Client and used by the Hansen to make planning decisions including estimates of resource, cost, time and quality. In the event that an assumption proves to be incorrect or requires changing, Hansen will continue to provide the services described under this SOW but the Parties will discuss and will follow the agreed Change Request procedure to ensure that the scope and assumptions are updated.

ID	Description
ASU01	The integration development will be performed and tested in a Development Environment on Client hardware, accessible by Hansen resources.
ASU02	There is no travel to Client planned or estimated for this work.
ASU03	Client will be responsible for testing the software in preparation for go-live in production environment and reporting any deficiencies to Hansen for investigation.
ASU04	Client will be responsible for the deployment of the code in each environment as needed to test and deploy into production.

5 Dependencies

The key dependencies upon which the Plan and services under this SOW rely are set out below, or elsewhere in this SOW.

Achievement of the Services is dependent upon Client's timely completion of Client dependencies and responsibilities set forth in this SOW and Client's timely delivery of information and any required deliverables to Hansen.

ID	Description	Area(s) of Impact of any delay
DEP01	Client supplied hardware and configuration information for Hansen to build Development environment for code development, Unit Test, and Factory Qualification Test activities	SC02, SC03, SC04
DEP02	Allround Automations PL\SQL Developer software installed on the Development environment and available for Hansen resources	SC02, SC03, SC04

6 Schedule and Milestones

The table below describes the milestones in relation to this SOW. All milestones are relative to the SOW start date and are subject to the Assumptions being correct and the Dependencies being met. If new requirements are later identified, such as additional product enhancements, interfaces, tasks etc. then the milestones will be revised in accordance with the Change Request procedure.

The work under this SOW will commence after a certified Purchase Order is in place.

ID	Description	Responsible Party	Planned Completion
MIL01	Project Initiation Complete	Hansen	Business Day 10
MIL02	Development Environment Completed	Hansen	Business Day 15
MIL03	Functional Design Documents Complete	Hansen	Business Day 20
MIL04	Code Delivery Complete	Hansen	Business Day 40
MIL05	User Acceptance Test Complete	Client	TBD. Will be dependent on the entire Enhanced Metering Project UAT

7 Client Responsibilities

7.1 General Client Responsibilities

If Client becomes aware of any deviations to the requirements, the schedule or other deviations from the scope of this SOW, these will be confirmed promptly by Client in writing to Hansen and in such event the parties will mutually agree in good faith on how to proceed, in accordance with the Change Request procedure. (See Section 8.4, Change Management for further details.)

Client will provide staffing reasonably sufficient to meet its responsibilities (the "Client Responsibilities") outlined in this section and as otherwise needed to meet Client's responsibilities in this SOW, in order to achieve the timelines of this SOW.

7.2 Specific Client Responsibilities

- Client will provide functional and technical resources as needed throughout the life of the project that will serve as core team members, subject matter experts and project execution resources.
- Client will be responsible for the provision and installation of all hardware, third party software and connectivity to other systems. Any other activity not described as a responsibility of Hansen in the SOW including installation, setup, configuration, integration or ongoing support of hardware and third-party software or other activity will be the responsibility of Client.
- Client will purchase one (1) copy of Allround Automations PL/SQL Developer to be installed on the Development environment for use by Hansen personnel for any code development or debugging needs.
- Client will ensure all Hansen software installed on Client premises is installed on appropriate hardware and provided with a permanent and consistent supply of both power and Internet connection.
- Client will ensure all hardware that is necessary for any UAT, training, or other activity required in support of this SOW is available and operational and that the Hansen software is housed in a suitable environment to support 24-hour access and is available to Hansen as required for the conduct of UAT.
- Client will ensure Hansen support resources are able to gain secure remote access at all times to any hardware on Client's premises which is running Hansen software.
- Client will be responsible for, with Hansen assistance, production go-live planning.
- Client will be responsible for the go-live activities such as organization change management, business process change, audits, readiness of production platform approval, etc.
- Client will be responsible for defining user roles, creating and managing user access.

- Client will be responsible for all logistics and user communication relating to deployment related activities.
- Client will arrange for test systems from third parties to perform integrated system testing and user acceptance testing.
- Client will be responsible for all testing of Client components that are not specifically designed and developed by Hansen (e.g. Client developed web pages, interfaces that call Hansen APIs etc.).
- Client will be responsible for the integration of any external systems or products except where specifically stated to the contrary in this SOW.
- Client will complete testing of all Client developed components prior to the beginning of, or as a component of, the execution of UAT.
- Client will use the Hansen-provided mechanism to log tickets for defects or enhancements. All defect requests should include detailed steps to reproduce the issue.
- For work to be performed at Client's facility, Client will provide adequate office facilities in close proximity to the designated members of the Client staff assigned to work with Hansen on this project. Facilities for each consultant will include Internet access for accessing Hansen intranet using Hansen laptop computers.
- The Client will be responsible for all aspects of the end user training component of the upgrade, with support from Hansen
- Client is responsible to setup and maintain all remote communications to accommodate remote Training attendees. In the event of a failure of the communications, Hansen will continue with the existing Training schedule as is unless requested by Client to delay. Any delay could prompt the creation of a Change Request to this SOW.
- Client will be responsible for the development and execution of Acceptance Testing test plans, test cases and other testing artifacts, with support from Hansen.

8 Governance

8.1 General

Both Hansen and Client will use commercially reasonable efforts to implement the Services as detailed in this SOW. Any updates or changes to the schedule will be managed as part of the Change Request procedure in Section 8.4, Change Management.

Both Hansen and Client will provide a project management Point of Contact (POC) with an appropriate level of technical and project management skills. See Section 8.2, Representatives (POCs).

The Hansen project management POC will prepare and deliver weekly status reports that include milestones completed and scheduled. This report will also track the deliverables, dependencies, issues and risks, along with key action items.

The Client POC will have the available time to co-ordinate the Services with all parties involved throughout the SOW.

Hansen will provide the resources required to perform the Hansen Services detailed in this SOW, in a timely manner and according to the schedule for this work.

Client acknowledges that delays by Client regarding deliverables, approvals, feedback, etc. which Client is required to provide may delay the SOW timeline and may impact SOW costs.

Client's project management POC will have the authority to provide approvals and acceptance for SOW milestones, deliverables, acceptance testing, etc. The POC will also have the authority to negotiate Change Requests on behalf of Client, and ensure all necessary parties execute approved Change Requests in a timely manner.

8.2 Representatives (POCs)

Client and Hansen points of contact for this SOW are as set out below.

Client:	
Name:	Brian White
Title:	
Phone:	
Mobile:	614-288-8661
Email:	BRWhite@Columbus.gov
Hansen:	
Name:	Greg Wilson
Title:	Sr. Project Manager
Phone:	
Mobile:	803.319.0407
Email:	Greg.Wilson@HansenCX.com

8.3 Location of Services and On-site Requirements

All Services-related tasks will be performed on various Hansen premises.

8.4 Change Management

Any requests for delivery of additional features, specifications, services, or requirements not authorized within the scope of this SOW or other changes to the scope of this SOW (collectively, the "Additional Services") are explicitly excluded from the SOW.

In the event that Client requests Additional Services during the implementation or the course of this SOW, the Hansen Project Manager will develop a Change Request to this SOW to identify the requested services, corresponding costs and fees payable by Client and the impact of the change on the SOW. Said Change Request will become effective only when signed by both parties (the "Change Request"). Email approval of Change Requests is permitted when the email approval is made by relevant POC or other person approved by Client.

9 Price and Payment

The fixed fee charges for this SOW are **$136,000.00**. These charges are based on the detail provided in this SOW including the scope, assumptions, dependencies, and Client responsibilities.

Hansen will invoice Client for the Deliverables in accordance with the schedule at the completion of the payment milestones listed in the table that follows. Client shall pay the full amount of the invoice upon receipt of each invoice. If any Deliverable for a milestone is broken into phases or split up, the Hansen and the Client Project Managers will mutually agree to a more detailed payment schedule within the Payment Milestone based on the deliverable breakdown.

Payment Milestone / Provided Service	Cost	Payment Date (approximately)
I. Project Initiation Complete	$15,000	Business Day 10
II. Development Environment Completed	$13,000	Business Day 15
III. Functional Design Documents Complete	$34,000	Business Day 20
IV. Code Delivery Complete	$52,000	Business Day 40
V. User Acceptance Test Complete	$22,000	TBD. Will be dependent on the entire Enhanced Metering Project UAT

9.1 TCP+ Increase

At the completion of this SOW, an additional **$8,025.00** will be added to the annual TCP+ support cost to support the included three BannerCX 5.1 custom screens for the Client.

10 Signatures

This Statement of Work is agreed to and accepted on behalf of:

[Client name] reference, if applicable]	Hansen [entity] [reference, if applicable]
Authorized Signature	*Authorized Signature*
Officer's Name & Title	*Officer's Name & Title*
Date	*Date*

11 Schedule 1 – Definitions

All capitalized terms used and not defined herein shall have the same meanings given them in the Contract.

(a) **"Additional Charge"** means a charge in accordance with Hansen's Standard Rates in effect from time to time.

(b) **"Additional Services"** means any services which are not included in the Services set out in Section 2 Scope of Work.

(c) **"Business Days"** means the calendar days of Monday, Tuesday, Wednesday, Thursday, and Friday excluding weekends and federal holidays.

(d) **"Critical Issue"** means the entire BannerCX Development, Test, or Production environment is (a) either (i) non-operational; or (ii) cannot be accessed by any users; and (b) no mutually acceptable workaround exists and testing cannot continue until the correction or avoidance procedure is in place. The issue affects mission-critical functions or information in testing and may include, but not be limited to, data loss or corruption, system crash or missing major functionality.

(e) **"Customizations"** mean the Modifications made by Hansen at the direction of Customer under this SOW.

(f) "**Development Environment**" means an instance of the BannerCX on Client provided hardware to be used solely by Hansen for development and testing efforts.

(g) "**Factory Qualification Test**" means testing conducted by Hansen of the migrated custom application software to verify the functionality performs as expected and can be made available for deployment and site integration testing. Also referred to as "FQT".

(h) **"Hansen Project Manager (PM)"** means the person appointed by Hansen to manage this project. Also referred to as "Hansen PM."

(i) "**Low Issue**" means the BannerCX Development, Test, or Production environment is operational with problems or errors, which have little impact on system operations. These issues shall include, but are not limited to, documentation errors or a minor or cosmetic error in the functionality of the Baseline Target Release or Customized Target Release. Issues assigned this priority level cause no delays in testing or prevent Customer from moving into Production Cut-Over.

(j) **"Medium Issue"** means the BannerCX Development, Test, or Production environment is operational with functional limitations or restrictions that are not critical to the overall system operation, and the issue has a moderate impact on the functionality of the application. However, the Baseline Target Release or Customized Target Release remains available for testing by all groups. A functional error exists for which there is a mutually acceptable workaround. Issues assigned this priority level cause no delays in testing or prevent Customer from moving into Production Cut-Over.

(k) "**Production Environment**" means an instance of the BannerCX on Client provided hardware to be used by client as their production environment.

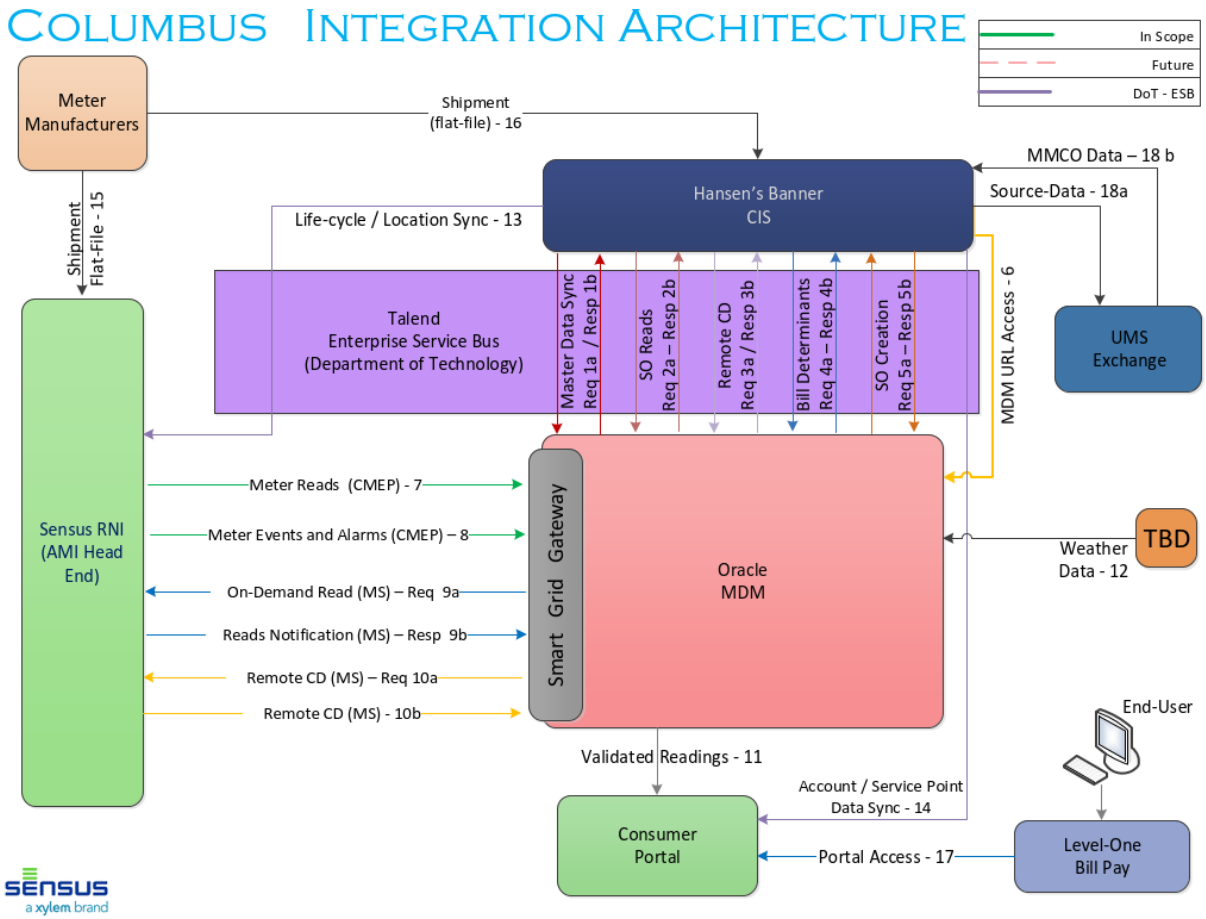
(l) **"User Acceptance Test Environment"** means an instance of the BannerCX on Client provided hardware to be used by Customer to verify that the Customizations meet the user acceptance criteria in accordance with the acceptance test plan. Also referred to as "SAT Environment."

(m) **"Urgent Issue"** means the BannerCX Development, Test, or Production environment is operational with functional limitations or restrictions but there is

minimal test impact. The issue will have a large impact on the functionality of the application, but does not require that the resolution or fix be immediately released into the test. This issue allows continued use of the application, but there is a known compatibility or operability disruption with no known mutually acceptable work-around.

12 Schedule 2 – Reference Documents

1) Reference Document 01 (RD01)



2) Reference Document 02 (RD02)

#	Interface Number	Source System	Target System	Description	Direction	Interface Type	Integration Technol	Notes	Comments
1	INT001a	CUBS (Banner	Oracle MDM	Master Data Synchronization Request	Two-Way	Real-Time	Web-Servic	CUBS synchronizes Meter, Service Point, Meter Installation, Person, Service Agreement,	
	INT001b	Oracle MDM	CUBS (Banner)	Master Data Synchronization Response				MDM response provides positive or negative acknowledgement.	In Scope for ESB
2	INT002a	CUBS (Banner	Oracle MDM	Service Order Reads Request	Two-Way	Real-Time	Web-Servic	CUBS requests a read for service order completion such as move-in/move-out	
	INT002b	Oracle MDM	CUBS (Banner)	Service Order Reads Response				MDM responds with a validated read or failure if a read is not available	In Scope for ESB
3	INT003a	CUBS (Banner	Oracle MDM	Remote Connect/Disconnect	Two-Way	Real-Time	Web-Servic	CUBS requests a Remote Connect/Disconnect.	
	INT003b	Oracle MDM	CUBS (Banner)	Remote Connect/Disconnect				MDM responds with success or failure	In Scope for ESB
4	INT004a	CUBS (Banner	Oracle MDM	Bill Determinants Request	Two-Way	Real-Time	Web-Servic	CUBS sends Bill Determinant Request to MDM for each Service Agreement. Same web-service is used to receive en-masse nightly billing requests and one-off adhoc	
	INT004b	Oracle MDM	CUBS (Banner)	Bill Determinants Response				MDM responds with bill determinants upon success or error message on failure. Same web-service is used to process en-masse nightly billing requests and one-off adhoc responses.	In Scope for ESB
5	INT005a	Oracle MDM	CUBS (Banner)	Service Orders Creation	Two-Way	Real-Time	Web-Servic	MDM requests a service order be created in CUBS	
	INT005b	CUBS (Banner	Oracle MDM	Service Orders Completion				CUBS responds with service order completion details such as comments	In Scope for ESB
6	INT006	CUBS (Banner	Oracle MDM	MDM URL navigation	One-Way	Real-Time	http	HTTP URL integration to navigate from CUBS to MDM (eliminating redundant	
7	INT007	Sensus RNI	Oracle MDM	Meter Data Upload	One-Way	Batch	Flat File	Upload of interval and register reads	
8	INT008	Sensus RNI	Oracle MDM	Meter Events and Alarms	One-Way	Batch	Flat File	Meter Alerts/Alarms received from	
9	INT009a	Oracle MDM	Sensus RNI	On-Demand Read Command Request	Two-Way	Real-Time	Web-Servic	MDM requests an on-demand read command	
	INT009b	Sensus RNI	Oracle MDM	On-Demand Read Command Response				Sensus responds with a meter read	
10	INT010a	Oracle MDM	Sensus RNI	Remote Connect/Disconnect	Two-Way	Real-Time	Web-Servic	MDM requests an connect/disconnect command request	
	INT010b	Sensus RNI	Oracle MDM	Remote Connect/Disconnect				Sensus responds with a completion or failure message	
11	INT011	Oracle MDM	Consumer Portal	Meter Data Export	One-Way	Batch	Flat File	Export of validated meter reads to be	
12	INT012	TBD	Oracle MDM	Weather Data	One-Way	Real-Time	Web-Servic	Import of temperature and precipitation. Weather Source is TBD	
13	INT013	Banner CIS	Sensus RNI	Life-Cycle Sync	One-Way	Web Services	Web-Servic	Hansen will initiate the sync real-time / daily	In Scope for ESB
14	INT014	Banner CIS	Customer Portal	Account/Service-point	One-Way	Batch	Flat File	Hansen CIS will initiate the sync daily	In Scope for ESB
15	INT015	Manufacturer	RNI	Meter Inventory	One-Way	Batch	Flat File	Initiated from the meter shipment	
16	INT016	Manufacturer	CUBS (Banner)	Meter Inventory	One-Way	Batch	Flat File	Initiated from the meter shipment	
17	INT017	Level-One	Customer Portal	Customer Portal Access	One-Way	Real-Time	http	Initiated via user action	
18	INT018a	CUBS (Banne	UMS Exchange	initial work order creation and updates for installation purposes	Two-Way	Batch	Flat File	Different file types to 1) send new work orders, 2) update work order previously sent; 3) cancel work orders the Installation Contractor no longer needs to perform	
	INT018b	UMS Exchang	CUBS (Banner)	Completed work order with installed meters and endpoints as a result of an installation	Two-Way	Batch	Flat File	Different file types to 1) Completed work order of various work types (REPLACE, UPGRADE, RETROFIT) 2) update previous sent completed work due to errors or warranty 3) send work orders that were not completed for DPU resolution.	