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Canton Water Meter Replacement Program

OPERATOR TRAINING COMMITTEE OF OHIO, INC.

WATER WORKSHOP

March 5, 2014

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YEARS
1912 - 2012

The Canton Water Department

- Est. 1869. We've been in business for 145 years!
- 100% source water from glacial aquifers.
- 2nd largest ground water system in Ohio.
- Pump a total of 19MGD from 3 WTPs.
- Dist. System composed of 600+ miles of pipe and 3 storage water reservoirs.
- \$14.7 million in annual revenue.
 - Completely self funded...



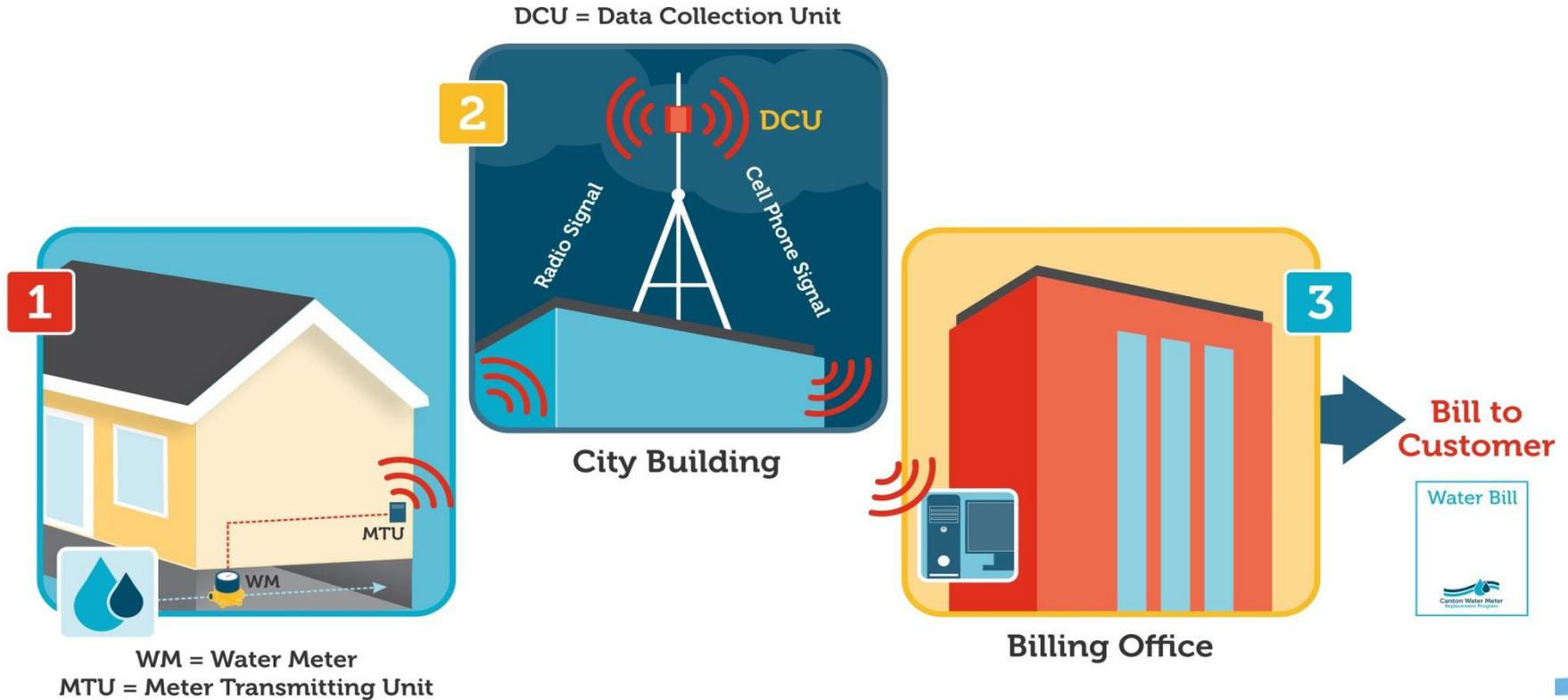
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Metering Overview

- The Canton Water Department serves approximately 41,500 customer accounts. 36,500 are residential customers and the remainder are commercial/industrial accounts.
- All water and sewer bills are generated through these metered accounts.
- Prior to 1997, Meter Readers traveled door to manual read meters.
- **In 1997-98 an Automatic Meter Infrastructure (AMI) system was installed citywide.**
 - *One of the first systems in the country.*

AMI System



MTU Battery Failure History

- 2009: 1,974 MTU's replaced in-house.
 - Only 11-12 years old! *Hmmmm...*
 - In the middle of the \$25M WTP renovation project.



MTU Battery Failure History

- 2010: 1,500 MTU's replaced in-house.
 - **Huh? What plan?** *Getting people up to speed...*



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Choosing the Technology

- 2011: Visited ACLARA's corporate facility to meet their staff and tour their facility.
 - Reviewed technology options: Manual read; drive by; AMI system.
 - Entered into contract with ACLARA to upgrade to the latest 3000 series MTUs.
 - *Freebies and discount incentives.*
- ***4,291 failures this year. Here we go!***
 - *The Bell Curve...*

The Transition

- 2012: Must upgrade servers, software and all Data Collection Units (DCU's) before proceeding.
 - Estimated to take 2-3 months. *Took 9-10 months!*
 - ***Until complete, we can't replace any MTU's!***

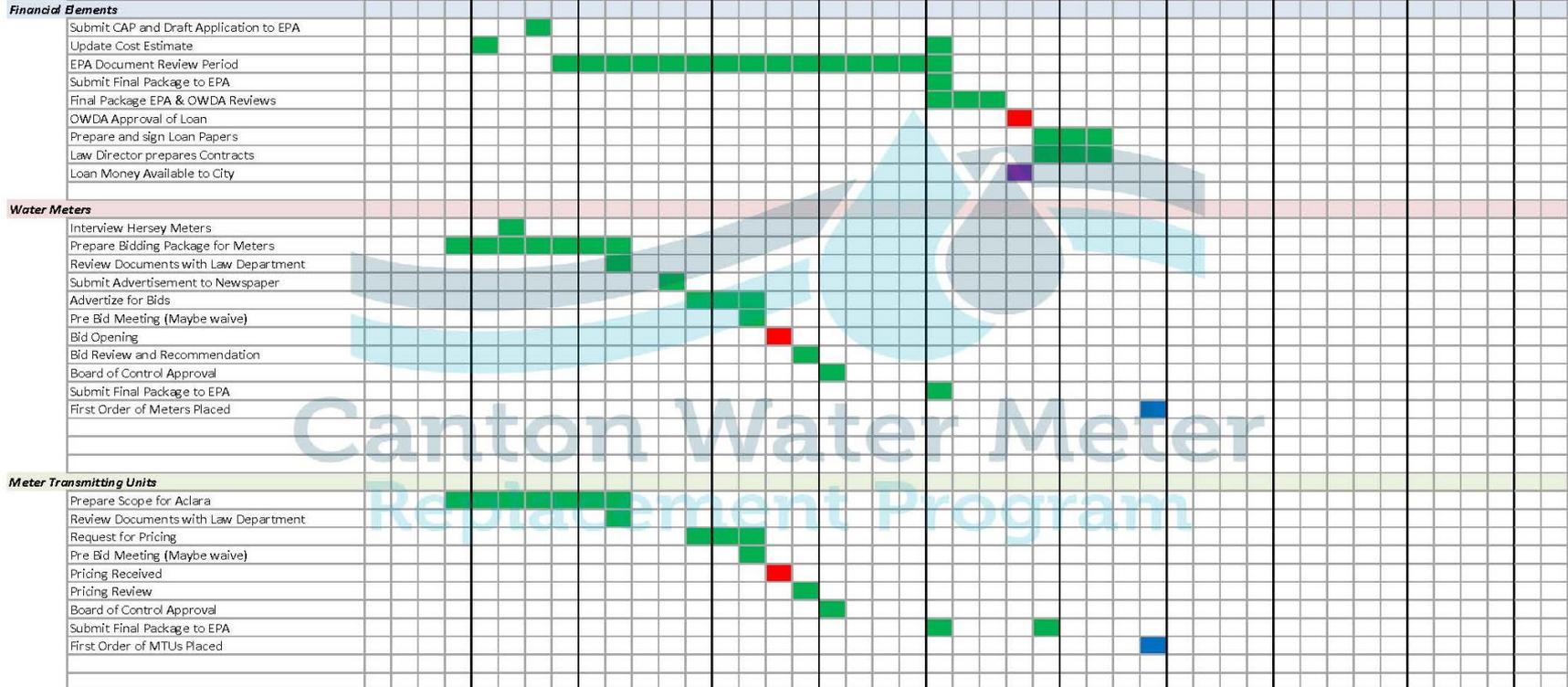


Project Timeline – Planning Phase

Week beginning with Monday

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----------|----------|----------|---------|----------|----------|----------|---------|---------|----------|----------|----------|--------|---------|---------|---------|--------|---------|---------|---------|--------|---------|---------|---------|---------|--------|---------|---------|---------|--------|---------|---------|---------|--------|--------|---------|---------|---------|--------|---------|---------|---------|--------|---------|
| 10/7/13 | 10/14/13 | 10/21/13 | 10/28/13 | 11/4/13 | 11/11/13 | 11/18/13 | 11/25/13 | 12/2/13 | 12/9/13 | 12/16/13 | 12/23/13 | 12/30/13 | 1/6/14 | 1/13/14 | 1/20/14 | 1/27/14 | 2/3/14 | 2/10/14 | 2/17/14 | 2/24/14 | 3/3/14 | 3/10/14 | 3/17/14 | 3/24/14 | 3/31/14 | 4/7/14 | 4/14/14 | 4/21/14 | 4/28/14 | 5/5/14 | 5/12/14 | 5/19/14 | 5/26/14 | 6/2/14 | 6/9/14 | 6/16/14 | 6/23/14 | 6/30/14 | 7/7/14 | 7/14/14 | 7/21/14 | 7/28/14 | 8/4/14 | 8/11/14 |
|---------|----------|----------|----------|---------|----------|----------|----------|---------|---------|----------|----------|----------|--------|---------|---------|---------|--------|---------|---------|---------|--------|---------|---------|---------|---------|--------|---------|---------|---------|--------|---------|---------|---------|--------|--------|---------|---------|---------|--------|---------|---------|---------|--------|---------|

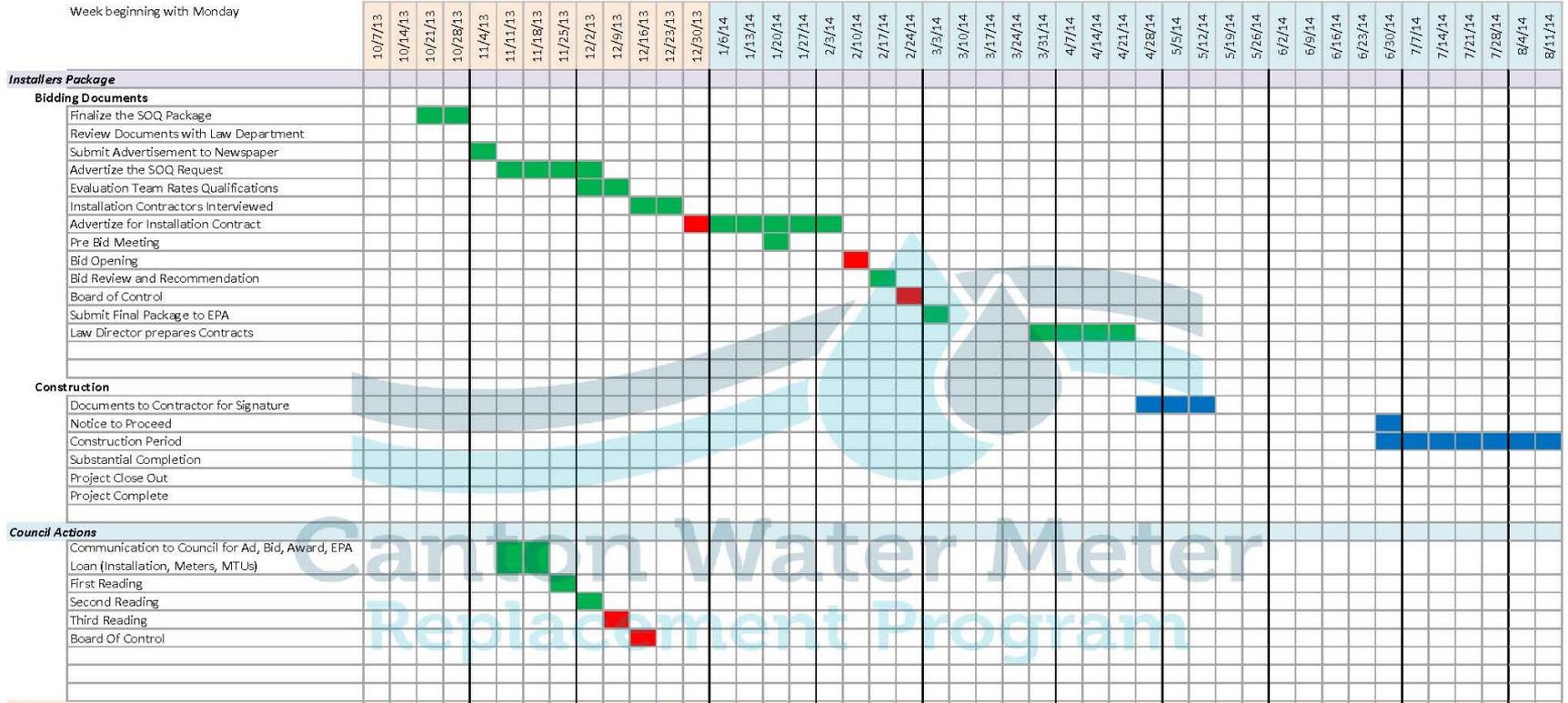
Schedule Item



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Project Timeline – Design, Bid, Construction

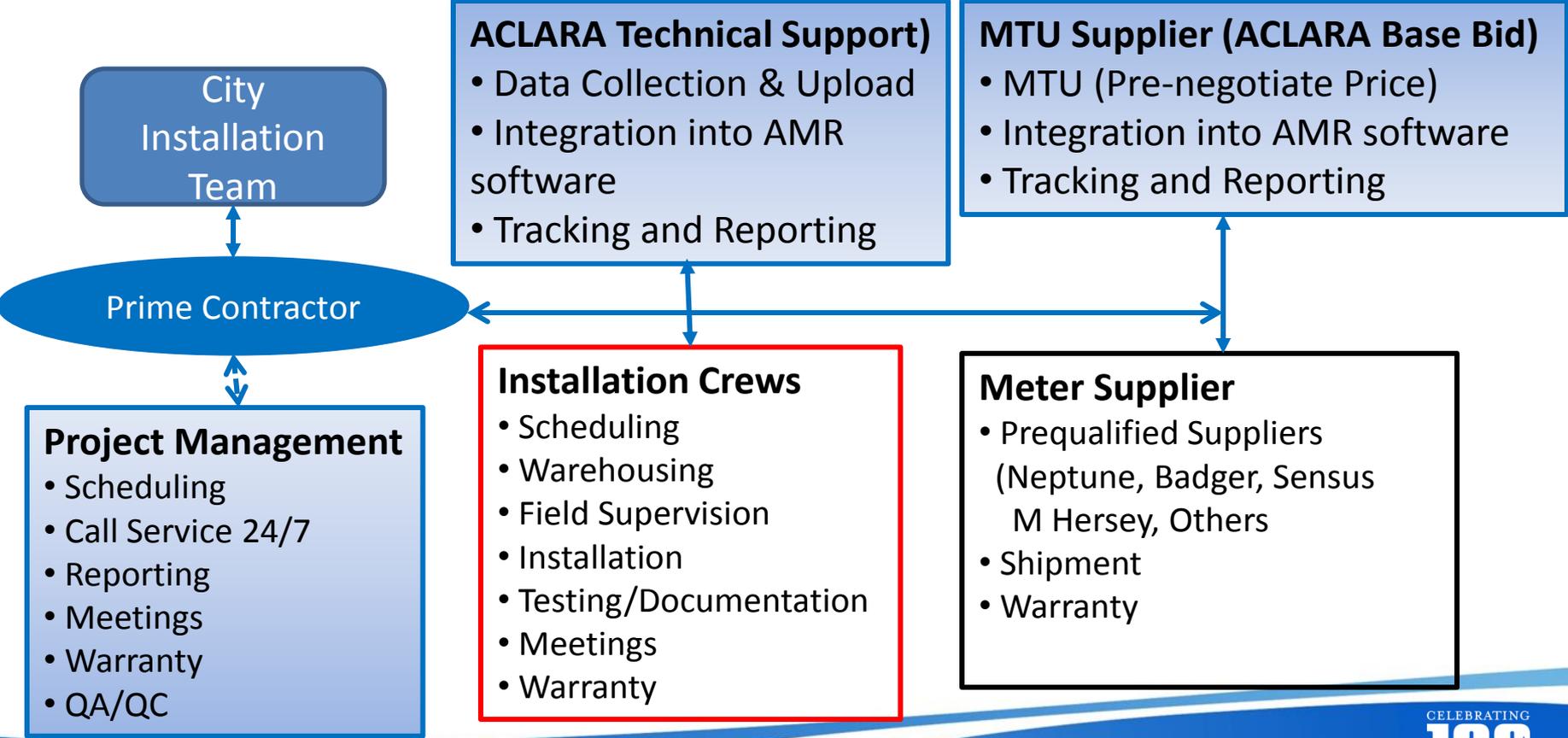


Canyon Water Meter Replacement Program

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AMR/Meter Supplier as the Prime Contractor



Purchasing Alternatives

▪ **Single Prime Contractor**

- Meter Vendor
- AMR Supplier
- Installation Contractor

**HIGHER
COST**

▪ **Performance Guarantee Contract**

**HIGHEST
COST**

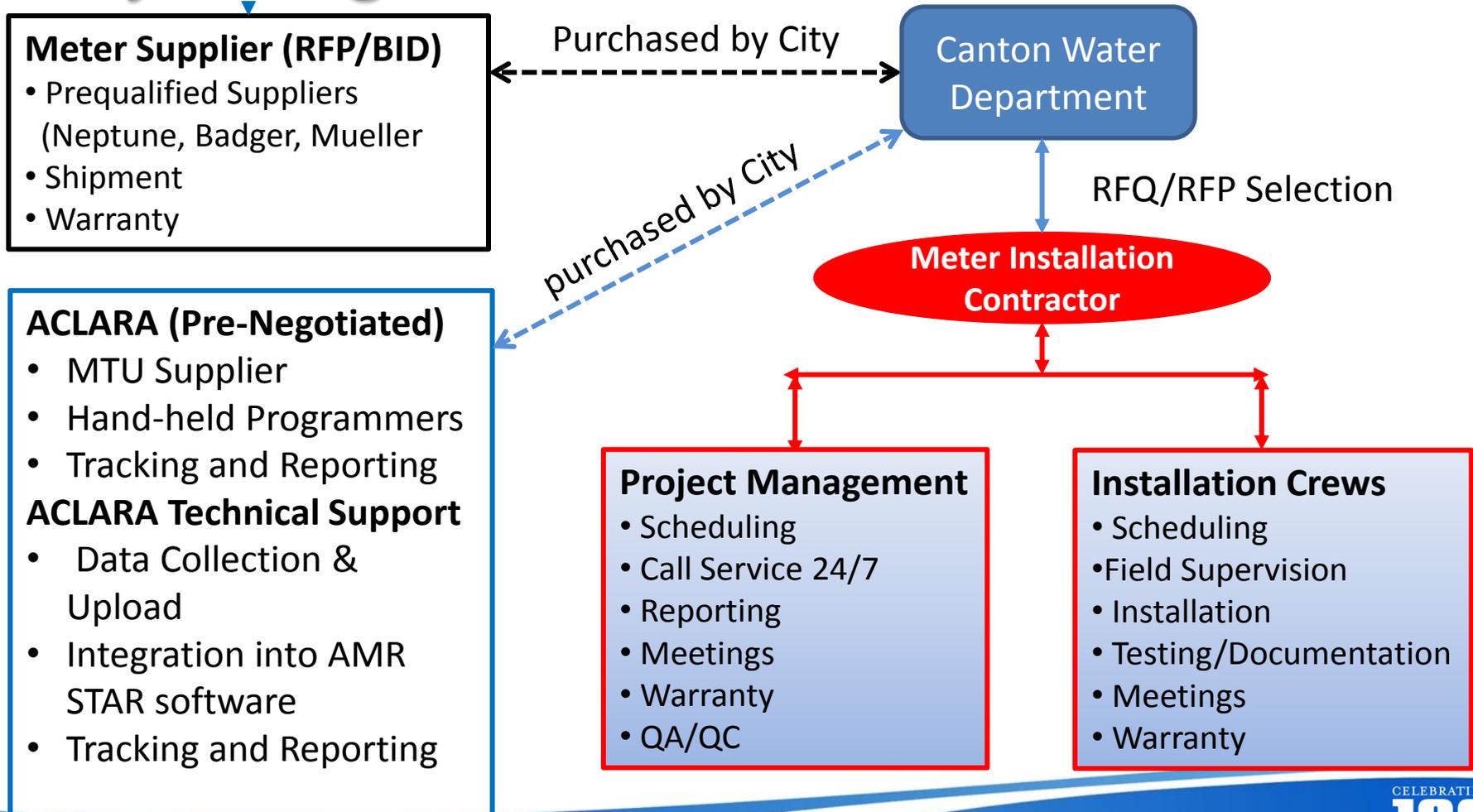
- Ohio Revised Code: Savings Due to Increased Meter Accuracy
- Single Source Responsibility
- Guarantee Savings for 15 years
- Annual Verification
- Select Meters and MTU

Multiple Contracts – COORDINATION BY CITY

- Contract A: Competitive Bid of Water Meters
- Contract B: Quals-Based Bid for Installation
- ACLARA Sole-Source Negotiation
- Burgess & Niple – Construction Services

**LOWEST
COST**

Project Organization



Minimize Risk and Reduce Capital Cost

- Evaluate Procurement Alternatives
- Total AMR Replacement
 - HIGH RISK and COST
- Leverage Existing ACLARA Investment
 - Workshops with ACLARA
 - ACLARA MTU: Upgrade Allows Sole-Source Procurement
 - Resolve Software/Hardware Issues
 - Evaluate Reuse of 16,800 Existing MTUs
 - Validate Interface with New Water Meters Data Transmission
- Use RFP Process for Water Meter Purchase
- Use Quals Based Procurement for Selection of Meter Installation Contractor

Technology Projects are:

- *High Risk*
- *Costly*
- *Lose Prior Investment*
- *Extended Schedules*
- *Disruptive*

ACLARA MTU



42 Data Collection Units (DCU)

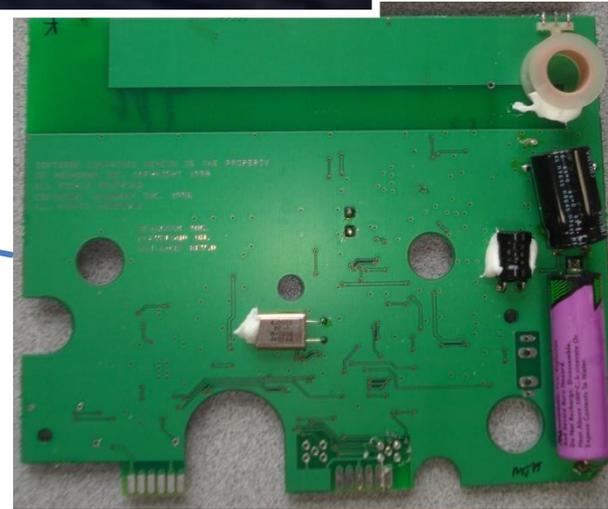
Cell Phone Back Haul



ACLARA
STAR AMR
Software
and Central
Database

450 MHz Radio

Meter
Transmitter
Unit (MTU)



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Meter Transmitter Units – Issues Resolution

- 42 Data Collection Units
- Battery Failures in over 27,000 units
- 8,000 MTUs purchased
- 8,800 MTUs 3300 Series Support 2-way
- Resolve Hand-held software programming
- Technical Workshop to Resolve Issues by BID
 - Communications Engineer
 - MTU Product Development Engineer
 - Regional and Local Sales Reps

ACLARA Justification

- 40,000 Units in system
 - 16,871 reused
 - 1,000 Long Range Units
 - 23,200 new
 - 724 Spares (3300 Series)
 - 360 Extended Range Spares
 - 776 Future Industrial Meter RTUs
- Add Commercial Meters
 - Fire Flow Check Detector Meters
 - Sewer Deduct



Water Meter Selection Process

- Meter Accuracy Tests
 - Bench Test of Old Meter showed -3% to +2% after 15 yrs.
 - No Significant Errors that would drive up water bills!
- Meter Vendor Presentations
 - Positive-Displacement Nutating Disk
 - Positive-Displacement Piston
 - Magnetic Flow Meters
 - Others
- Final Selection of Prequalified Vendors

Meter Sizes and Quantities

| Description | Meter Sizes | | | |
|---|-------------|------|-----|--------|
| | 5/8" x 3/4" | 3/4" | 1" | 1-1/2" |
| Residential | 35,977 | 79 | 165 | 6 |
| Potted | 60 | 5 | 25 | 0 |
| Commercial | 2,192 | 66 | 753 | 291 |
| | 38,109 | 145 | 918 | 297 |
| TOTAL # of Meters to be Installed = 39,469 | | | | |
| Spares | 581 | 20 | 37 | 8 |
| Total Meters Purchased w/Spares = 40, 175 | | | | |

Schedule Development

- 1st Month Mobilization
- 2nd month – Pilot Program
- 1 - 2 Field superintendents
- 12 - 15 Installers (weekdays)
- 8-10 meters/day per Installer
- 500 - 750 meters/week
- Average = 2500/month – 16 months
- Hours (2 shifts/day): 7 am – 4 pm, 11 – 8 pm,
Saturday 8 am -5 pm



Installation Contractor – Scope of Work

- Financial Resources and Bonding Capability
- Experience with 5 projects >20,000 meters
- Experience with PLA and Ohio Prevailing Wages
- Project Manager – Local Presence
- Local Warehouse and Fleet
- Field Supervision and Training
- Work Order Tracking System
- Call Center and Scheduling
- Installation and 1-year Warranty



Project Kickoff

- Review Staffing and Project Labor Agreement
- Review Project Schedule and Work Plan
- Review Notification Process and Call Center Operations
- Establish Data Transfer between Contractor and AMR
- Review QA/QC for Meter Data Collection, Scrubbing and Account Data Upload Methods
- Hire and Train Licensed Plumbers for Installation
- Initiate Pilot Program
- Demonstrate Work Order System to Schedule and Track Work
- Provide Copies of Report Templates
- MBE and DBE Utilization

Pilot Test Program

- Establish Local Warehouse and Offices
- Identify Pilot Test Area
- Initiate Call Center and Scheduling of Appointments
- Hold ACLARA Training Programs
- Contractor Training Program for Installation Crews
- Pilot Program Rollout to Field
- Random Checks of Installations
- Expand Program and add New Installation Crews

Installation Data

- Verify Account Information & Address
- Meter and MTU Serial Number
- Photos of Old and New Installation
- GPS Coordinates
- Description of Water Meter Location
- GPS Coordinates
- Description of MTU location
- Test communications, signal read and transmit.
- Describe Non-standard Work and Authorizations
- Customer Sign-off

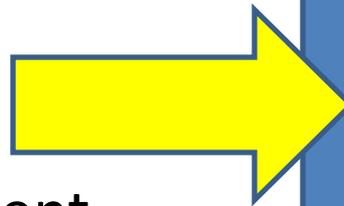


Bid and Award Schedule

| TARGET DATE | ACTIVITY |
|-------------------------------------|--|
| November 15, 2013 | RFQ for Meter Installation Contractor |
| December 12, 2013 | SOQ Submittal |
| December 16, 2013 – January 8, 2014 | Score SOQs of Short-list Service Contractors to Attend Interviews. |
| January 9 –10, 2014 | Evaluation Team Interviews shortlisted Service Contractors |
| January 24, 2014 | Issue RFP for Water Meters and Installation Contractors |
| February 19, 2014 | Bid Opening. Bids tabulated and checked. Final scoring |
| February 26, 2014 | Board of Control Awards to Meter Purchase, Installation Contract, ACLARA Purchase Agreement, and B&N Construction Services Contract. |
| February 28, 2014 | Submit to OEPA/WSLRA for OWDA Loan |

RFQ Format

- Compile List of National Meter Contractors
- Prepare RFQ
 - Corporate Background
 - Financial Resources/Bonding
 - References
 - Experience
 - Methodology
 - Project Management
 - Qualifications
 - Call Center and Scheduling
 - Field Supervision
 - Data Collection Requirements



Scoring of Statement of Qualifications and Pricing

1. Project Management
2. Qualifications
3. Call Center and Scheduling
4. Field Supervision
5. Data Collection Requirements
6. Bid Proposal

STATEMENT OF QUALIFICATIONS

Format – 75 Page Maximum

Maximum 250 Points Score Based on the Following Evaluation Criteria and Scoring:

- Corporate History and Financial Capability - 30 points
- Project References - 30 points
- Project Management Plan - 40 points
- Implementation Plan - 30 points
- Public Relations, Communications and Scheduling Plan - 20 points
- Cost Competiveness - 100 points

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Project Management

- Project Manager (Full-time and Local)
- Warehousing and Office
- Project Vehicles (no personal autos)
- Identification
 - (Truck Logo, Badges, Background Check, Drug-Free)
- Inventory Control
- Information Technology Infrastructure

Scheduling

- Public Relations
- Notification Process
 - Door Hangers, Phone Calls, Web Site
- Call Center Operations (Location and Staffing)
- ***UTC – “Unable to Complete”***
 - Turn Back to City
 - Water Shutoff Notification by City

Field Supervision

- Coordinate with Project Manager
- Training of Installation Plumbers (and Apprentices) Licensed with City
 - Proper Installation of Meter
 - ACLARA MTU Programming
 - Wiring installation 8-10 Meter Installs per Day
- Quality Control
 - Trainee and Journeyman Plumbers for 1 week
 - Inspect all installs for 1 week, 10% of installs for 2nd week
 - Inspect 5% of ALL installs
- Schedule Work (8-10 meters per day)
- Assist Installers on Problem Installations
- Confirm Accuracy of Installation Data

Project Management

| | |
|-----|--|
| 1.0 | PROJECT MANAGEMENT |
| 1.1 | Mobilization including Contract Bonds, Local Office and Warehouse Facilities |
| 1.2 | Project Management including Project Manager, Meetings, Networking and IT Support, and Contract Administration |
| 1.3 | Operations Manager for Data Collection Management, Work Order Management, Scheduling, and Reporting |
| 1.4 | Call Center Operations and including Appointment Schedulers |
| 1.5 | Warehouse and Inventory Control Operations |
| 1.6 | Field Supervision of Installation Crews |
| 1.7 | Project Vehicles, including Fuel and Maintenance Costs |
| 1.8 | Contingency for Project Management |

Standard Installation

| | | | |
|------------|---|--------|------|
| 2.0 | STANDARD METER INSTALLATION | | |
| 2.1 | 5/8" x 3/4" Water Meter and MTU | 38,100 | Each |
| 2.2 | 3/4" Water Meter and MTU | 200 | Each |
| 2.3 | 1" Water Meter and MTU | 900 | Each |
| 2.4 | 1-1/2" Water Meter and MTU | 300 | Each |
| 2.5 | 5/8" x 3/4" Water Meter and MTU in Water Meter Pit | 60 | Each |
| 2.6 | 3/4" Water Meter and MTU in Water Meter Pit | 10 | Each |
| 2.7 | 1" Water Meter and MTU in Water Meter Pit | 25 | Each |
| 2.8 | 1-1/2" Water Meter and MTU in Water Meter Pit | 5 | Each |
| 2.9 | 5/8" x 3/4" Fire Line Detector Check Water Meter and MTU for Installation in Water Meter Pit or Vault | 25 | Each |
| 2.10 | Contingency for Standard Work | 1 | LS |

Non-Standard Work

| | |
|------------|---|
| 3.0 | NON - STANDARD WORK METER INSTALLATION |
| 3.1 | Relocated Standard MTU with New Extended Range MTU |
| 3.2 | Install new Customer Service Valve |
| 3.3 | Freeze Customer Service Line and Install new Valve |
| 3.4 | Replace 5/8" x 3/4" through 1" Meter Setters |
| 3.5 | Replace 5/8" x 3/4" through 1" Meter Tail Couplings (2 per meter) |
| 3.6 | Run Wire in Concealed Space over 30-feet from Meter to MTU |
| 3.7 | Route Wire in Attic Space for Installations with Slab Foundations |
| 3.8 | Meter Installation Setting in Crawl Space |
| 3.9 | New Non-Metallic Pit Lid |
| 3.10 | Replace Defective Grounding Strap |
| 3.11 | CREDIT for Salvage Value |
| 3.12 | \$200,000 Contingency for Non-Standard Work |

1. Corporate Background and Financial Condition (Max. 30 Pts.)

- A. Length of Time the Contractor has been in Business Installing Water Meters, AMI, and AMR systems.
- B. Annual Sales Volume Last 3 years
- C. Current Work Backlog
- D. Bonding Capability
- E. Financial Condition
- F. Outstanding Legal Claims (Attach Detailed Explanation)

2. Project References (Max. 30 Pts.)

- A. Minimum of five references regarding similar projects completed by the Contractor. References shall include contact names, telephone numbers, and project completion dates, Contact amount and change orders. Indicate whether contract was performed using Federal or State Prevailing Wage Regulations. (20 points)
- B. Provide evidence of past budget compliance and ability to meet project schedules. (5 points)
- C. Identify at least two projects that were completed where a Project Labor Agreement with local trade unions was utilized. (5 points)

3. Project Management Plan (Max. 40 points)

- A. Experience of proposed Project Manager and other key staff.
- B. Provide overview of Project Management Plan including meetings, reports, invoicing, and Quality Control Programs
- C. Describe Local Project Facilities, Operations, and Equipment,
- D. Discuss Warehousing and Inventory Control Procedures
- E. Discuss Training and Field Supervision of Installation Subcontractors
- F. Explain Procedures to handle 24/7 Emergency Calls
- G. Discuss Warranty Program for correcting defects in workmanship
- H. Outline Quality Control and Quality Assurance Plan

4. Implementation Plan (*Continued*)

(Max. 40 Points)

- A. Describe the project implementation plan including material management for installation vehicles.
- B. Describe Contractor's Meter and MTU installation methodology including meter reading verification, MTU communication signal verification, and other quality control measures used in field.
- C. Discuss method to manage late hour and Saturday installation times without overtime or premium pay.

4. Implementation Plan (*Continued*) (Max. 30 Points)

- E. Describe training programs for proper installation and data entry for licensed plumber installers
 - Method to achieve goals for Local MBE (10%),
 - OEPA/WSLRA DBE Utilization Goals: 3.8% MBE and 2.8% WBE
- F. Describe procedure to download for account and check field installation data for completeness and accuracy
- G. Describe how field data is managed and uploaded to City Billing Department AMR software.

5. Public Relations, Communications, and Scheduling Plan(Max. 20 points)

- A. Describe Materials and Methods used to create public awareness and communicate roll-out of program and benefits to the customer.
- B. Describe Experience, Resources, and Staff responsible for Marketing, Communications, and Scheduling Operations
- C. Describe Methodology for Scheduling Installations
- D. Describe Web-based scheduling capabilities

6A. Evaluation of Construction Cost - Project Management & Standard Installation

A. Cost for Base Bid (80 Points)

| | |
|--------------------------|---------------------|
| A. Project Management | \$ 1,250,000 |
| B. Standard Installation | <u>\$ 3,250,000</u> |
| C. TOTAL LOW BID AMOUNT | \$ 5,000,000 |

1. \$ 5.00 Million LOW BIDDER = 80 Pts. (Maximum)
2. \$ 5.25 Million 2nd low bid = $(\$5.0/\$5.25) \times 80$ Pts.
= 76.2 Pts.

6B. Evaluation of Construction Cost Non-Standard Installation

- **B. Optional Non-Standard Alternates (20 points):**
 1. LOW BIDDER: \$0.5 Million for Total All Alternates
= 20 pts.
 2. Second Low Bidder: \$1.00 Million
= $\$0.5/\$1.00 \times 20 \text{ Pts.} = 10.0 \text{ Pts.}$
- **C. (Total Score for Item 1 is sum of 1.A and 1.B)**

Project Cost

| | |
|--|---------------------|
| ▪ Engineering Planning and Design | \$ 350,000 |
| ▪ Contract A – Water Meter Purchase | 2,100,000 |
| ▪ Contract B – Water Meter & MTU Installation | 5,100,000 |
| ▪ MTUs and Technical Services | 2,050,000 |
| ▪ Engineering Construction Services | <u>350,000</u> |
| Total Project Cost | \$ 9,950,000 |

[Does not include Interest or OWDA/OEPA WSLRA Fees]

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Lessons Learned

- Define Project Requirements and Budget in CIP
- Evaluate Meter Types (types, functionality, accuracy, battery life, O&M)
- Understand existing problems with Billing and account management
- Evaluate Types of Data Collection Systems
 - AMR Meter Reading Systems, (walk-up, drive –by, fixed).
- Evaluate options and develop budgets during Planning Phase
- Review compatibility of Billing System and AMR Software
- Update Account Phone Numbers and email addresses
- Taking on Risk can save 10-20% of project cost
- Plan to dedicate full-time staff during construction.
- Detailed Specification of Notification Process
- Meters have salvage value of \$1 - \$5 each
- Plan for 20 year replacement plan for MTU.



Thank You!



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Any Questions?

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