**Advanced Meter Infrastructure**

- Towns of Cary and Morrisville, RTP, RDU
- Peak Day Demand of 29.02 mgd
- 64,000 meters
  - Water, Irrigation and Reclaimed Water
- Pit sets at the curb
- 70% residential
- Culture of Conservation
  - Program started 1996
  - Tiered Water Rates
  - Realized GPCD reduction

**Town of Cary Utility System**

![Graph showing number of meters by size](image-url)
Change Was Right for Cary

Cost Benefit Analysis X 3
How We Chose Our Direction

• Hired independent experienced experts
• Prioritized Needs/Preferences
  – Data: Read Frequency, Resolution, Backflow, Reporting
  – Physical opportunities and challenges
  – Risk tolerance
  – Fancy features and big ideas

Advanced Metering Infrastructure (Aquastar)

Council Project Proposal November 17, 2009
Council Proposal Agenda

• Meter Reading Today
• Advanced Meter Infrastructure
• Project Planning & Management
• Project Benefits
• Cost Benefit Analysis
• Council Decision

Meter Reading Today

• Currently manually reading over 57,000 meters per month in Cary and Morrisville
Utility Management in the Future via Aquastar

Regional Collectors on 8 Existing Towers and Tanks

Web Presentment

Water Meters

Town Server

Project Planning

• Collaborative team based effort
• Proposed a performance management approach with Johnson Controls
• Identified the technology best suited for this project
• Developed a turnkey plan for communication, implementation, operation and maintenance
• Finalized costs
Why Performance Management?

- One independent vendor to coordinate multiple providers
- Price guarantee
- Turn key solution

Selection Process

- Selected Johnson Controls to develop and manage project
- Formal bid for meters
  - 5/7/09 - Received bids from 6 providers
- RFP for Technology
  - 5/20/09 – Received proposals from 4 providers
- RFP for Installation
  - 8/4/09 – Received proposals from 5 contractors
Why Johnson Controls?

- Experience with water AMI
- Size – financial strength, vendor relationships
- Shared values for performance excellence and customer service
- Flexible to meet Cary’s needs
- Performance during project development fulfilled high service commitments

Project Management Plan

- Performance Guarantee
  - Meters
  - Technology
  - Installation
    - Customer Service & Communication Plan
- System Verification Plan
- 18 Month Schedule of Work
Advantages of Aquastar

✓ Increased Level of Customer Service
✓ Assist With Water Resource Management
✓ Environmental benefits
✓ Improved Worker Safety
✓ Cost Savings compared to business as usual

Project Cost/Benefit Analysis
(17 year system life)

Net Costs

- Net Benefit = $2.4 M
- Interest Expense
- Operating Costs
- Net Capital Costs

Benefits (Quantifiable)

- Project Revenue
- Meter Maintenance & Replacement
- Water Conservation
- Meter Reading

Net Benefit = $2.4 M
Utility Rate Impacts

FY2022 a customer using 7,000 gallons per month would save:
$3.95 per month
$47.40 per year

Project Budget

Current Budget: 16.7 million
Project Capital Cost: 17.8 million
Additional funding: 1.1 million

• Recognize Revenue from
  • Surplus Material        .3 million
  • Return of sales tax    .8 million
                           1.1 million
Project Summary

✓ Increased Level of Customer Service
✓ Assist With Water Resource Management
✓ Environmental benefits
✓ Improved Worker Safety
✓ Cost Savings compared to business as usual

Questions?

Council Guidance
- Staff recommends project approval
SO THEN WHAT?

- A quick update
  - Financials
  - What we bought
  - What we saved
  - What we got - Data

Money, Money, Money

- Invest $18 Million

+ Benefit $28 Million (17 Years)

Bottom Line Net Benefit: $10 Million
Investment: Technology

Investment: 60,000 Meters and Installation
Investment: Regional Collectors

Antenna:
- 11’ tall

Base Units:
- 5’ High
- 3’ Wide
- 2.5’ deep

Investment: Communications Plans

- Goals, Objectives & Strategy
- Tactics
- Target Publics
- Spokespersons
- Key Messages & General Facts
- Activities (Logos, Hotline, Door hangers, Events, Video, etc)
- Budget
- Timeline
Benefits - Worker Safety

1 Worker’s Comp claim for a trip and fall: $40K

Green: Smaller Fleet, Less Fuel

70,000 miles/year off the road
**Benefit - Water Conservation**

Wise water use increases water supply reliability which could delay or eliminate next WTP expansion

![Graph showing water consumption and expansion](image1)

- **50% chance expansion needed about 2032**
- **With conservation/reuse: just under 50% chance no expansion needed for buildout/2060**
- **Expansion from 40 to 56 mgd**

---

**Benefit - BIG Data**

**After…**

*Images showing before and after comparison*

- **Before…**
- **After…**
Big Data – Can be Complex…

- MDM – Processed Read Data
- RNI – Raw Meter Data
- CIS System - Navilne
- SAS – Analytical Tables
- Customer Portal

Transformational!!! Customer Service Becomes Proactive*

* Most not quantified for cost/benefit analysis
**Aquastar Customer Service***

- High Usage monitored
- Continuous flow monitored
- Highest quality billing
- Customer Call center service
- Same day customer starts and stops

* Most not quantified for cost/benefit analysis

**What Did We Tell our Customers?**

- Cary communications plans
  - Strict rules
  - Guidelines
  - Timing
  - Assistance from PIO
Communication Plan Components

- Communication Plan for the Project:
  - Purpose
    - Support installation and implementation of system
  - Goals
    - Timely, accurate and complete information
    - Create and maintain positive opinions

Communication Plan Components

- Objectives (Measurable)
  - Respond to 100% of inquiries within 1 business day
  - Respond to service problems within 4 hours
  - Receive less than 1% “did not know”
  - Achieve a mean project satisfaction score of 7 or higher on survey
  - No more than 8 negative letters published in paper
  - No more than 8 negative comments about the project at Council meetings
Communication Plan Components

- **Tactics**
  - TV, internet, bill newsletter, speakers bureau, direct mail, door hangers, board meetings, brochures, advertising etc.
- **Target Publics**
  - Customers, elected leaders, property managers, utility companies, surrounding jurisdictions, institutions

Communication Plan Components

- **Spokespersons**
  - NOT contractors
- **Key Messages**
  - Quality, innovative, town values
- **General Facts**
  - 35 details
Communication Plan Components

- Primary activities
  - Name, logos, fact sheets, speeches, newsletter plan, video plan, website, envelope messages, special events, letters, project hotline, door hangers, contractor shirts, vehicle magnets, static displays, advertising
- Budget - $95,700
  - Details
- Timeline by month and day, staff – 18 months

NOW WHAT?

- How do we communicate now that the installation is over?
  - Utility bill newsletter stories
    - Keep your meter box clear
  - Seek awards for news release content
  - Speak to people
  - Council updates (snow)
  - Call customers – Wait, WHAT?
### Catching Leaks

- Consumption Report from MDM (Meter Data Management System)
- Single Family Residential Customers with usage over 1,000 gallons per day
- Broad Brush Approach

![Bar Chart]

### When Should We Contact Customers?

- Balance between being helpful and being a nuisance
- “Best” way to contact customer
- Minimize truck rolls

<table>
<thead>
<tr>
<th>Site Source</th>
<th>Consumption Level</th>
<th>Day 1</th>
<th>Day 2</th>
<th>3-30 Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Activity</td>
<td>High (1,000+ gpd)</td>
<td>Call Contact</td>
<td>Call</td>
<td>Monthly, bill</td>
</tr>
<tr>
<td></td>
<td>Low Constant (100-1,000 gpd)</td>
<td>Call Contact</td>
<td>Call</td>
<td>Monthly, bill</td>
</tr>
<tr>
<td></td>
<td>No Constant</td>
<td>Call Contact</td>
<td>Call</td>
<td>Monthly, bill</td>
</tr>
</tbody>
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<th>Call</th>
<th>Monthly, bill</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Usage Meter Tag</td>
<td>High usage not consistent of a source that should be notified via a notice on meter tag.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Town of Cary
Catching Leaks

Tracking Results
Self Serve, PLEASE!

Utility Billing Online and Aquastar Water Consumption Data

Customer Webportal

Aquastar allows you to view up to 13 months of your water consumption data.

Get Started

Hover your mouse over the bars in the graph to see your consumption in gallons or select one of the bars to get more information about your usage for that period. Need more help? Check out our How to guide for using Aquastar.
Self Subscribed Email and Text Alerts

My Tiered Information
Last Read Date: 2016-04-17
Last Read Date: 2016-04-17
Total Usage this month in Billing Cycle: 27089.30
Average Usage per day in Billing Cycle: 906.00
Days Remaining in Billing Cycle: 17
Estimated Total Usage for Billing Cycle: 77980.00

Hello,

You requested the Town notify you when your water usage exceeded 50.0 gallons per day. Yesterday, your actual usage was 109.00 gallons.

Please sign into the Aquastar web portal if you would like to view your usage or to update your alert.

Webportal Communication Plan

• Same components
  – Less intense
  – Smaller scale
• Budget - $6,500
• Timeline – 4 months
Customer Webportal Statistics

Number of Alerts Sent Daily

Timeline
• 2002 Consultant evaluation of AMI
• 2006 Consultant evaluation and AMI bid
• 2009 Council approval of project & approach
  – 9 month contract development
• 2011 Meter installation kickoff
  – 5 month network installation
• 2012 Meter installation final
  – 15 month field work
• 2013 Web portal launch
  – 12 month web development
Key Ingredients to Project Success

• Through the lens of the customer
  – Custom Cary project
    • Extensive research and shared lessons from other utilities
    • Shaped by our values for customer service, safety & privacy
  – Comprehensive communication plan
    • Project identity
  – Defined target dates and timelines
  – Clear vision of success & definable outcomes
    • Including customer satisfaction

Key Ingredients to Project Success

• Through the lens of Council:
  – Support and commitment
    • Council
    • Management
    • Staff
  – Sufficient financial resources
  – Sufficient staff resources
  – Treated employees fairly
  – Partnership and involvement with vendors
  – Risk management through thorough contracts
Investment: Staff Time & Stress

Investment: Commitment

Everything turns out fine in the end.

If it isn’t fine, it isn’t the end.
Questions?

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