Using GIS to Support Midwest City's Water Meter Change-Out Project

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Abstract

- Completing a citywide change-out project of over 20,000 water meters
- Upgrading from manual read to automated meter reading and remote disconnect system
- GIS involved from the beginning to the end of the project

Pre-bid → Installation → QA/QC

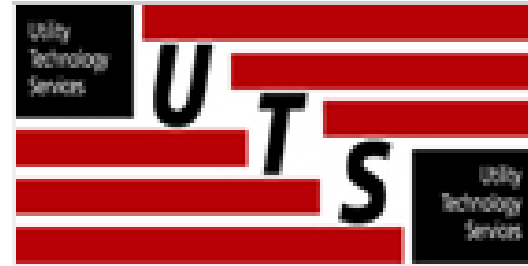- Provided support to Customer Service/Utility Billing and Water Departments

Objective of the Program

- Replace aging, increasingly unreliable water meters throughout the City
- Enhance service to utility customers
  - Improved billing accuracy
  - Alerts for issues such as water leakage or high usage
  - On-demand read capability to respond to issue resolution
- Increase city/staff efficiency
  - Alerts for leak, reverse flow, no flow, low battery, tampering, theft
  - Provide reliable data to citizens and management
  - Have remote shutoff capability
  - Be able to view system and use on maps

Parties Involved

Project Manager

Meter Installation

Customer Service / Utility Billing
IT Department
Environmental Services Department
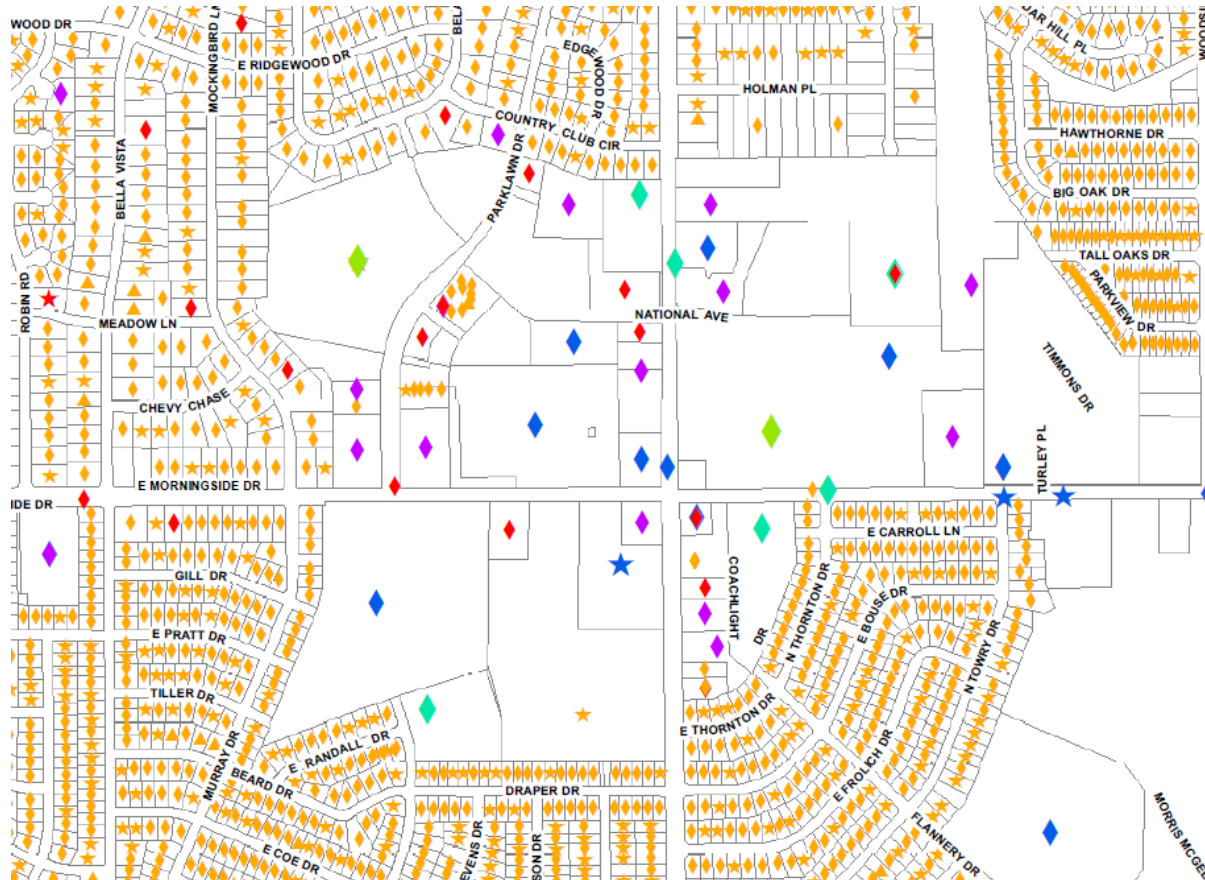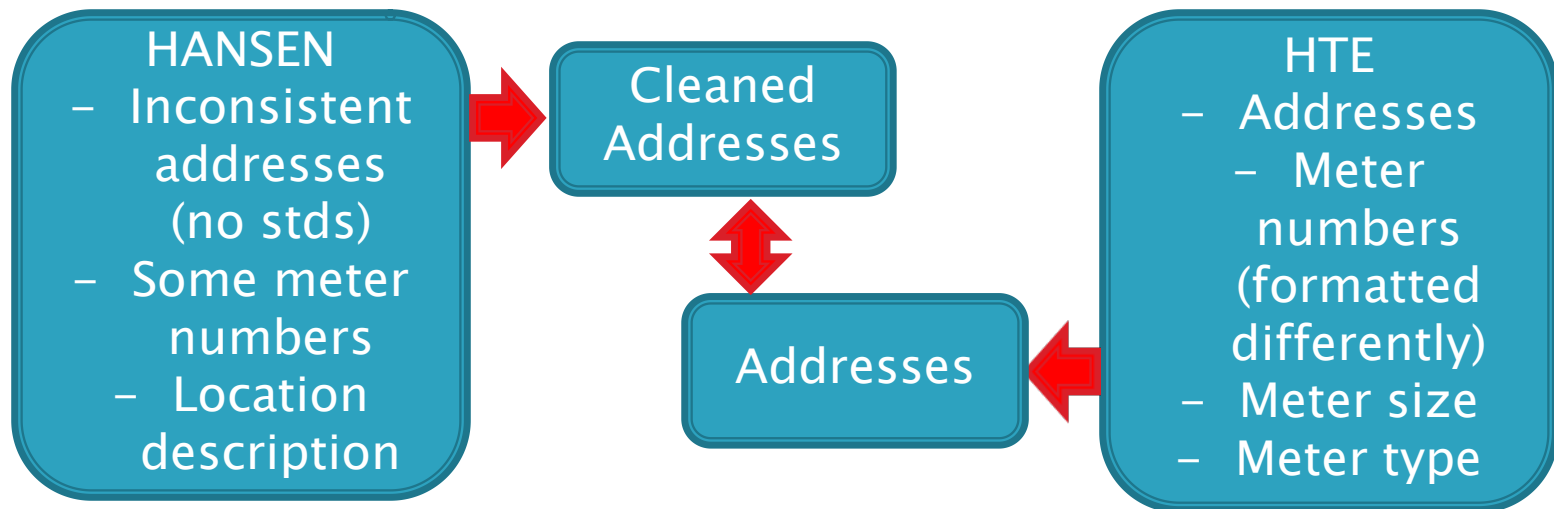Community Development Department
     GIS Division

Meter Manufacturer

GIS Data Provided at Pre-Bid

▸ Map with Location / Type / Size of Meter

GIS Data Provided at Pre-Bid

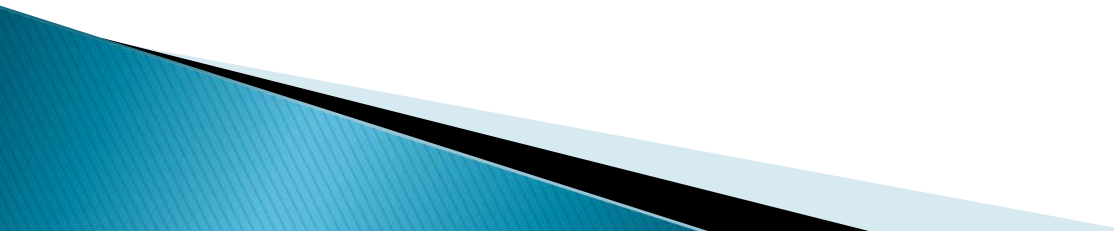▸ Location information from a previous Asset Management System

HANSEN		HTE
- Inconsistent addresses (no stds)	Cleaned Addresses	- Addresses
- Some meter numbers		- Meter numbers (formatted differently)
- Location description	Addresses	- Meter size
		- Meter type

MeterNo	Cycle	Route	HTEAddr	Unit	ADDRQUAL from Hansen	LocID	MtrSize
00006	6	50	249 N DOUGLAS BLVD		2FT.FROM SIDEWALK AND ROCK,12FT.OFF CURB,OFF DOUGLAS AT ENTERANCE	45878	100
000060	2	14	2914 S DOUGLAS BLVD		NORTH EAST PROPERTY LINE 4FT OFF CURBIRRIGATION	22380	100
00007	2	14	9201 SE 29TH ST		NORTH WEST SIDE OF PROPERTY 8FT OFF STREET	22314	100
00012	1	1	6601 B SE 29TH ST		LG BLDG ON 29TH 20FT E. OF WEST DRIVE 20FT OFF CURB JOE COOPER IRRIGATION	44868	100
00013	3	24	217 S AIR DEPOT BLVD		2FT.S.OF ENTERANCE,3FT.OFF CURB NEW SONIC	11880	100

GIS Data Provided at Pre-Bid

- Digital Data
  - Contours
  - Location of Water and Cell Towers
  - Location of Businesses
  - Streets
  - Meter Cycles
  - Meter Reading Routes
  - Parcels
  - Zoning (Commercial vs Residential)
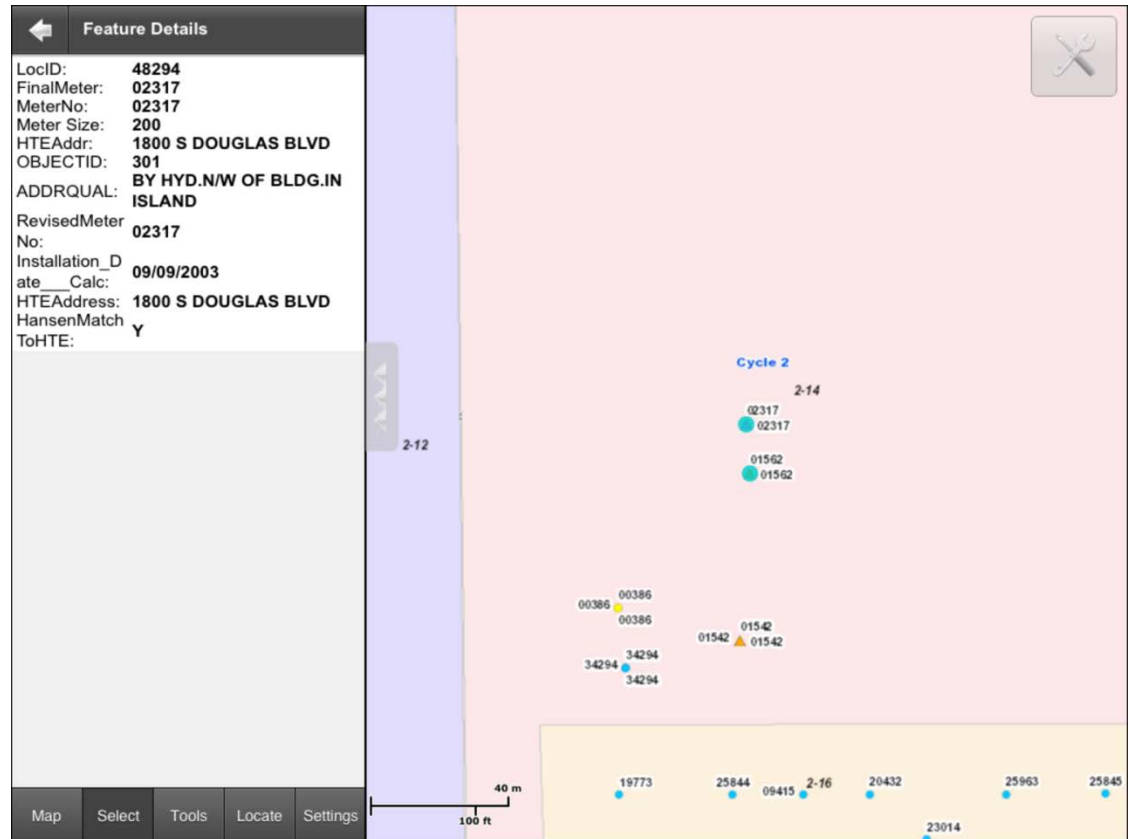
GIS Requirements for Project...

- GPS the meter locations

- Integrate the meter reading software with HTE (utility billing software)

- Integrate the meter reading software with Cityworks (work order management software) – unfortunately, this was taken out of the contract during negotiations
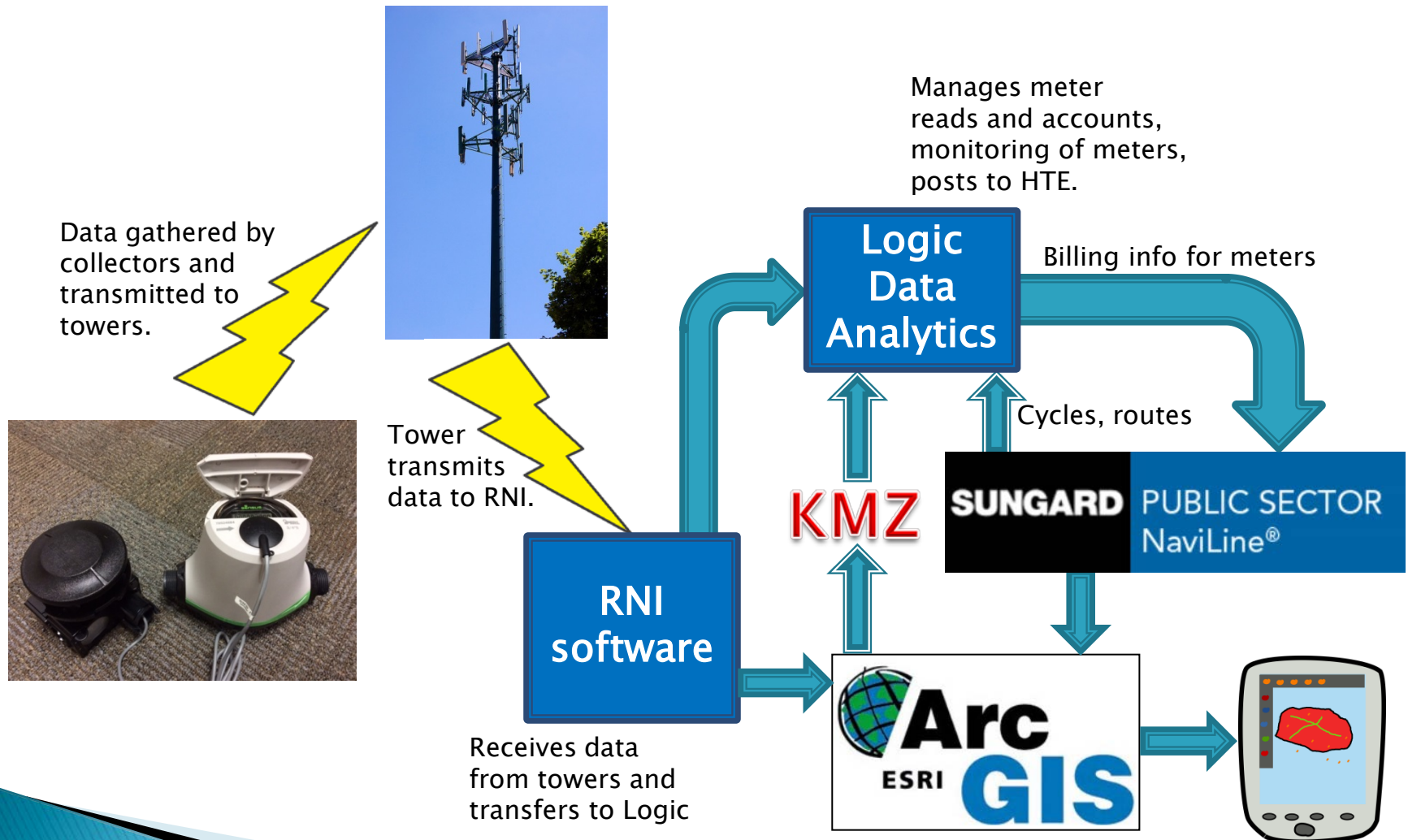
Beginning the Project…

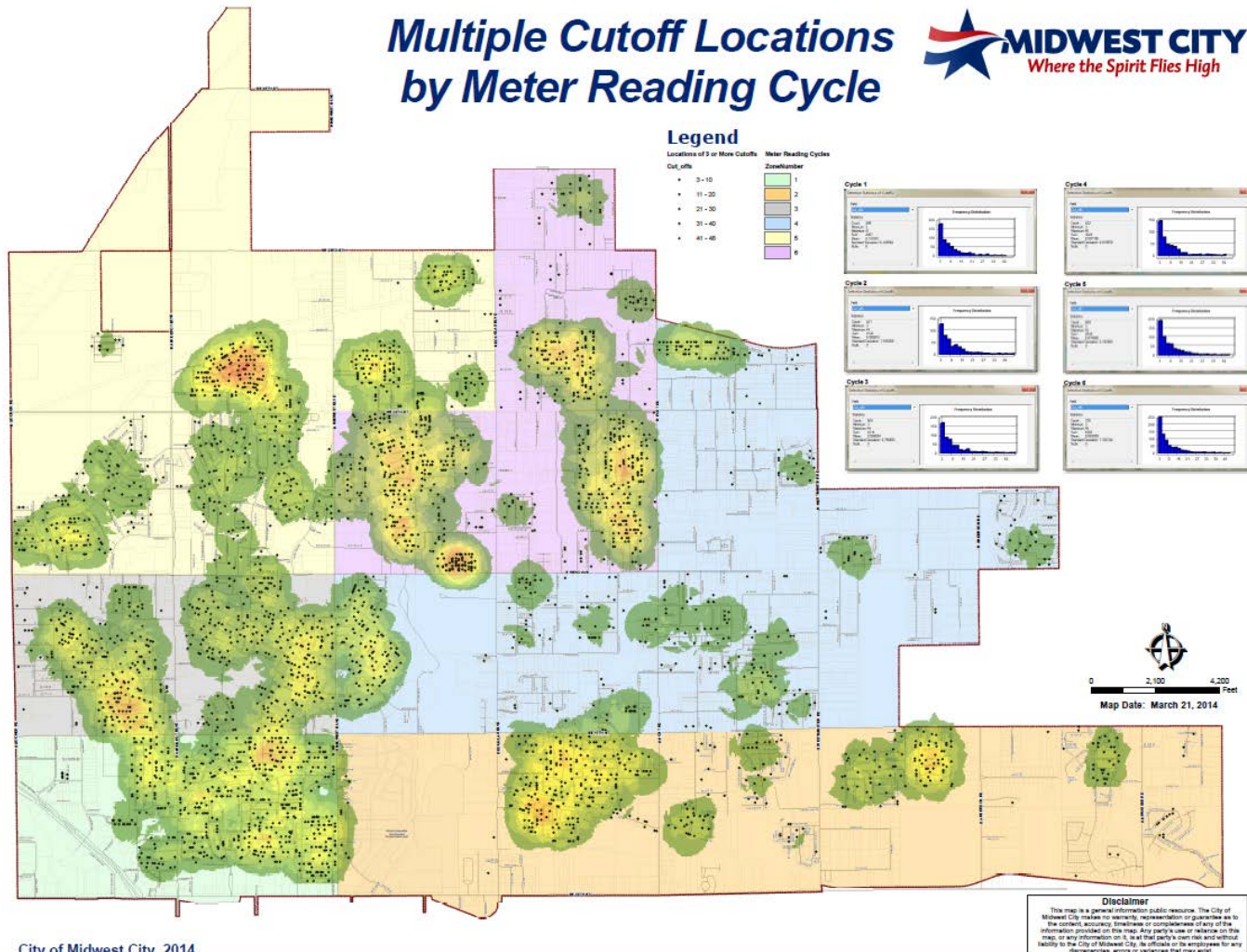▸ Map of existing meters on iPad with location description linked

Project Software Setup…

Data gathered by collectors and transmitted to towers.

Tower transmits data to RNI.

Manages meter reads and accounts, monitoring of meters, posts to HTE.

Logic Data Analytics

Billing info for meters

KMZ

Cycles, routes

SUNGARD PUBLIC SECTOR NaviLine®

RNI software

Receives data from towers and transfers to Logic

Arc ESRI **GIS**

Support Through Project...

▸ Help determine multiple cutoff locations

Support Through Project...

- Create commercial meter atlases for field team
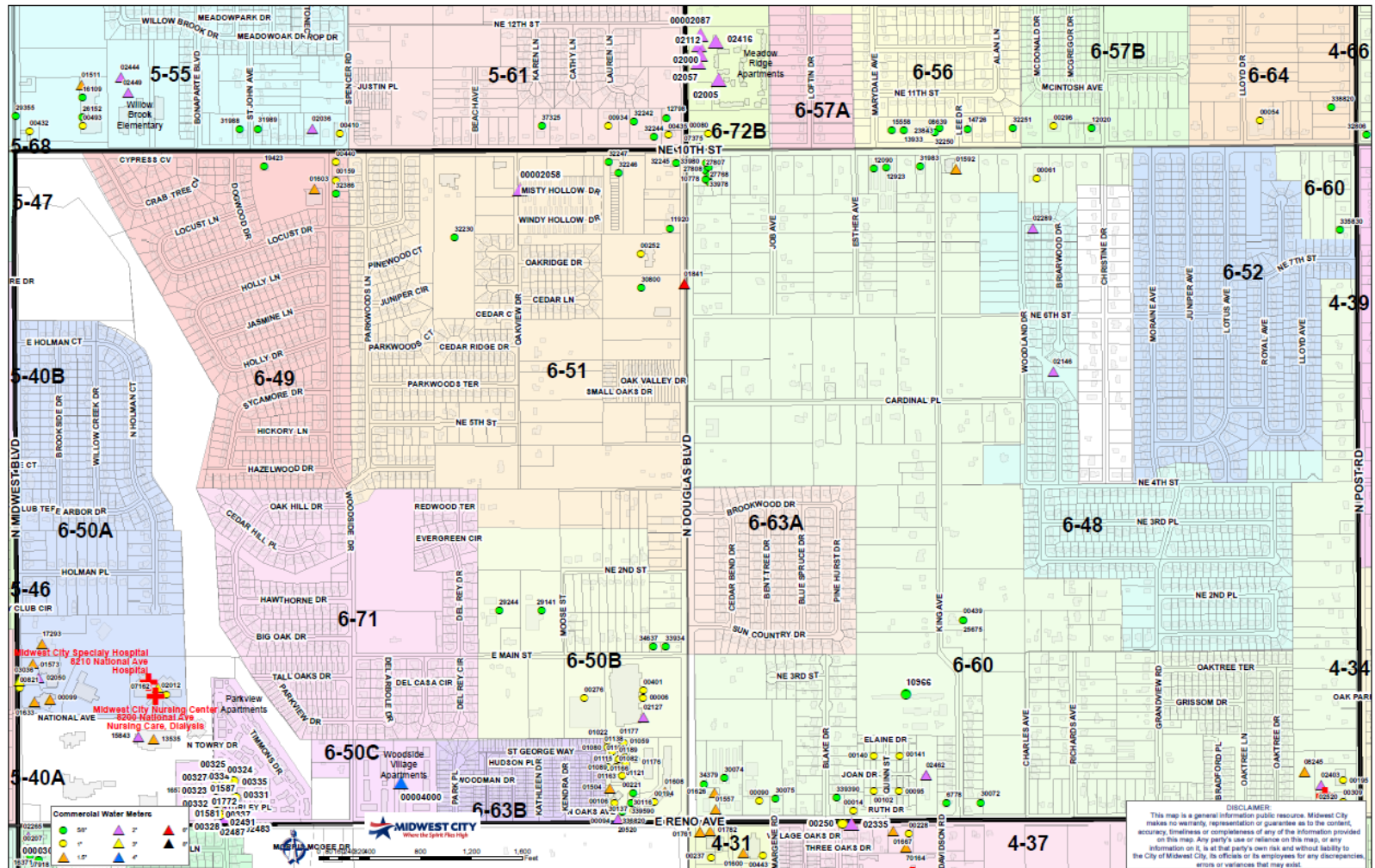
Support Through Project…

- Map newly installed meters
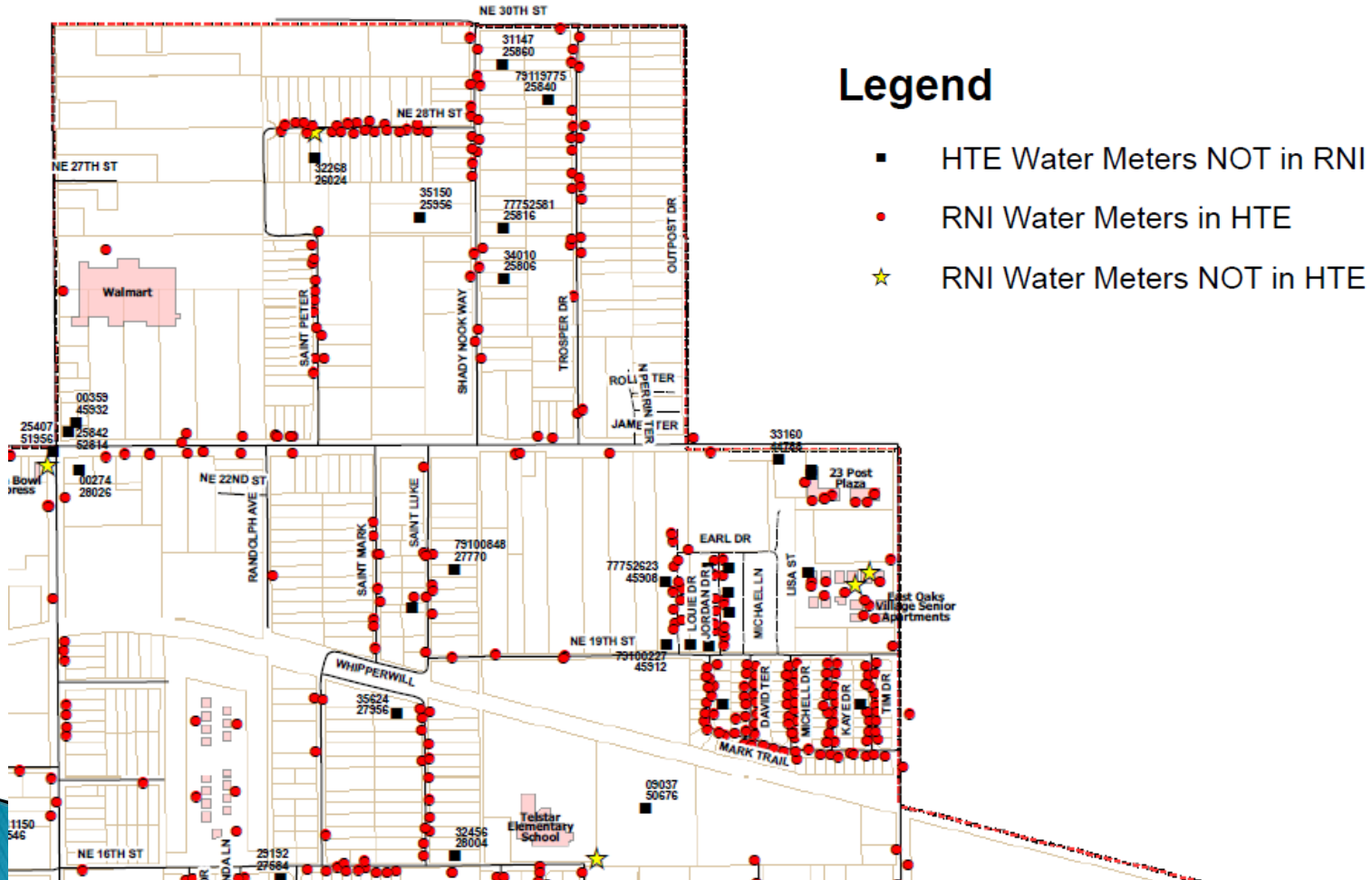- Confirm trans-ferred into HTE
- Support field crews

Support Through Project...
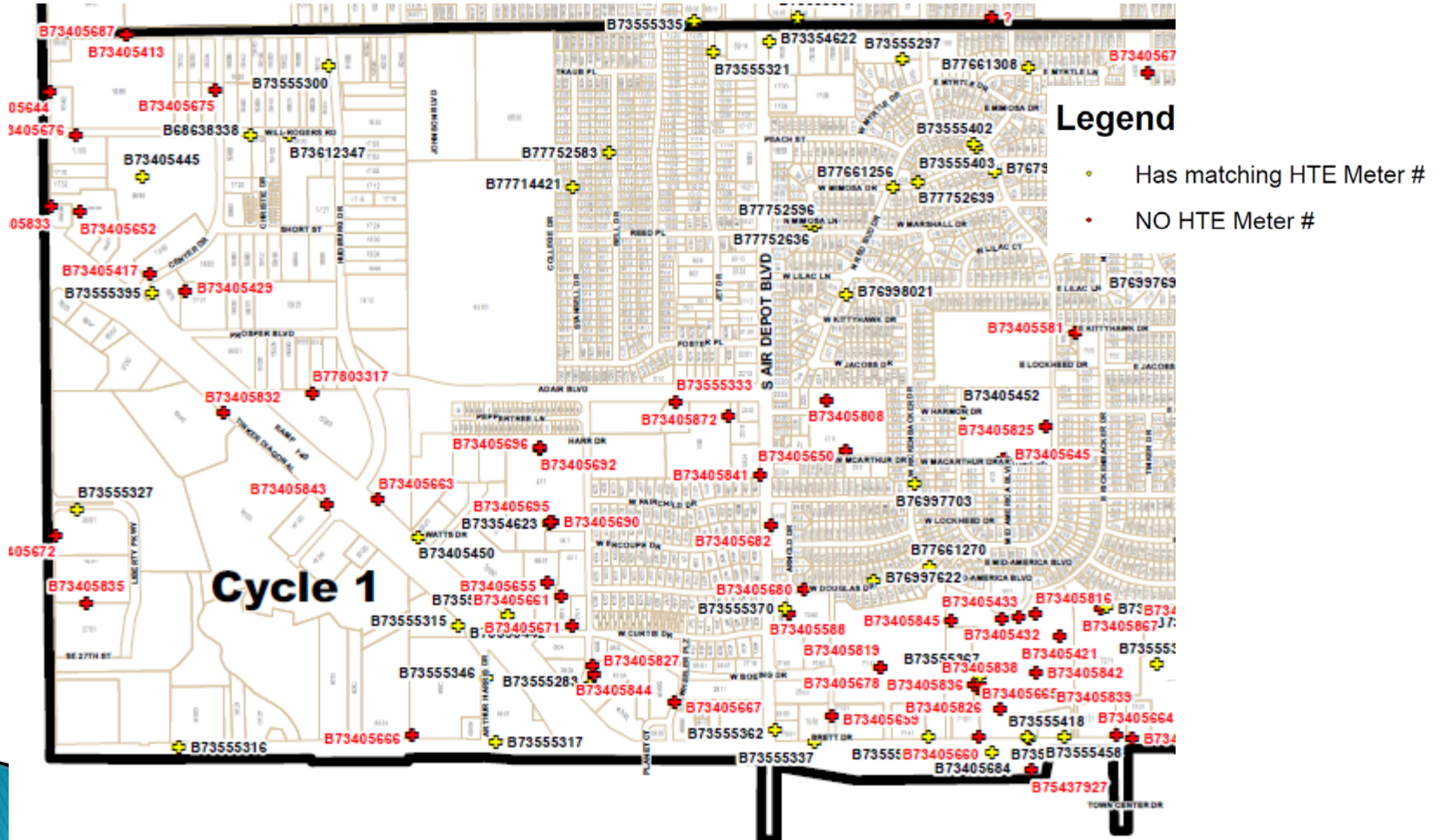
▸ Animation of Installation

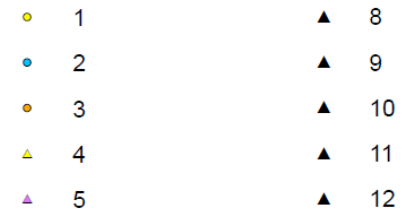# QA/QC of Project...

▸ Confirming transfer routines worked

Legend

- ▪ HTE Water Meters NOT in RNI
- ● RNI Water Meters in HTE
- ☆ RNI Water Meters NOT in HTE

Support Through Project…

- Helping clear out bad meter numbers

Support Through Project…

▸ Decide which are going to be remote shutoff

2014 Water Meter Cutoffs

Legend

2014 Meter Cutoffs
# of Cutoffs

○	1	▲	6
○	2	▲	7
○	3	▲	8
○	4	▲	9
○	5	▲	10
		▲	11
		▲	12

Still to do on Project...

- Create KMZ layers to work in Logic

- Get meters loaded into Cityworks

Recommendations

- Always pay for integration between systems as part of the project

- Be explicit in RFP <u>and</u> when reviewing actual proposal – will be doing markups in the field to clean up GPS