

Disconnected Management of Assets Utilizing Augmented Reality and Productivity Tools

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VB *City of*
Virginia Beach

The City of Virginia Beach:

- Population of 447,021
- Largest City in the State of Virginia
- 39th Largest City in the United States
- The City's Public Utilities Department Maintains:
 - 1,581 Miles Water Mains
 - 1,201 Miles Sewer gravity Mains
 - 85 Miles Raw Water Mains
 - 406 Sewer Pump Stations
- The City Provides Fire, Police, and Rescue Services,
As Well As Storm Water Management and Trash Collection Services.



Common Task to Accomplish

- Effective dispatch of field personnel
- Visualization of hidden assets
- Effective data utilization and capture for future use
- *Problems with the ArcServer web based mapping*
 - Experience level needed to visualize 2D mapping
 - Equipment cost and capabilities
 - Internet connectivity (storm outages)
 - No position awareness possible without add-ons



Looking for a Better Way

The solution would need these characteristics :

- Compact, portable, self-contained, and Position aware
- Internet Aware but not Dependent
- One Click wirelessly Software and data updated
- Low Equipment Cost and with Acceptable Accuracy
- Software must be a reliable off the self product

Does it Exist
and at What Cost

MapText offer to assist in a
co- developed production
product and our pilot project.



- **Effective dispatch of field personnel**
 - Dispatch of assets based on location when a quick response time is critical. (Ocean Front supply line break)
- **Visualization of hidden assets**
 - Hurricane are a fact of life for us (Sand Bridge sand removal)
 - Field communication greatly enhanced with photos (gas line)
 - Blind field crews (location photo vs survey crew???)
 - Fire departments water supply issues (FX fire)
- **Effective data utilization and capture for future use**
 - Plans to the field compact and secure
 - As built drawings are a Utilities memory
 - Fire preplans and building floor plans for Emergency response
 - All of these can be position aware point and click to open plans



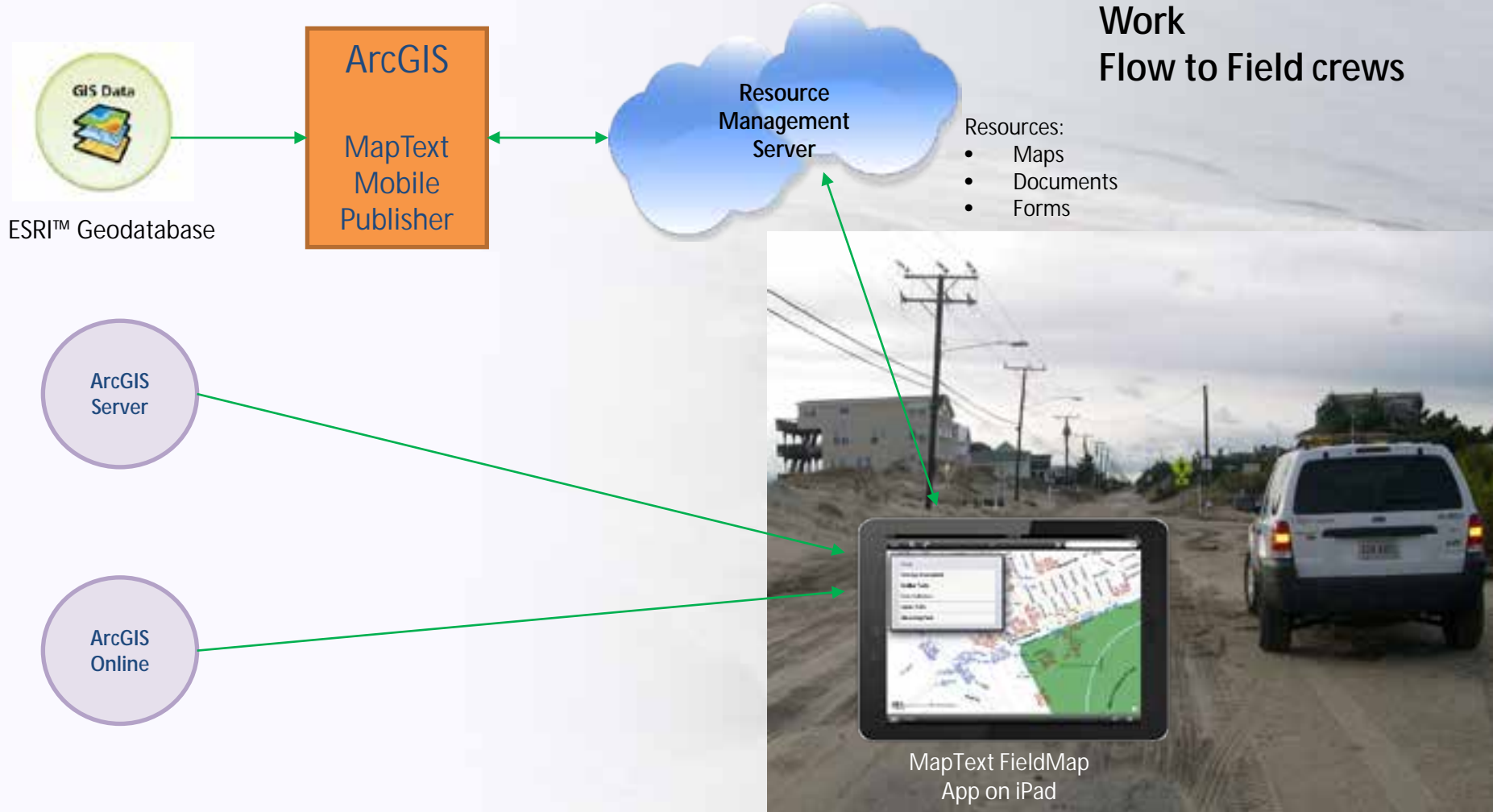
iPad Advantages

- Standard screen size and operating system
- Built-in internet access, phone, and camera
- Large selection of free applications
- Government leasing options from Apple
- Low overhead manpower and unit price
- Low over head no requiring IT support (no push)
- We manage changes in-house changes

MapText Advantages

- Established firm with and effective product line
- We have been using their software since 2006
- Fast map display with great effective labeling
- Fast update and upload of stand-a-lone map features
- Augmented reality very effective and intuitive display
- Because of the position awareness identifying fractures is quick and easy low learning curve.
- Documents to the field a big plus for field crews
- Position aware plans and markups a real win win

Work Flow to Field crews



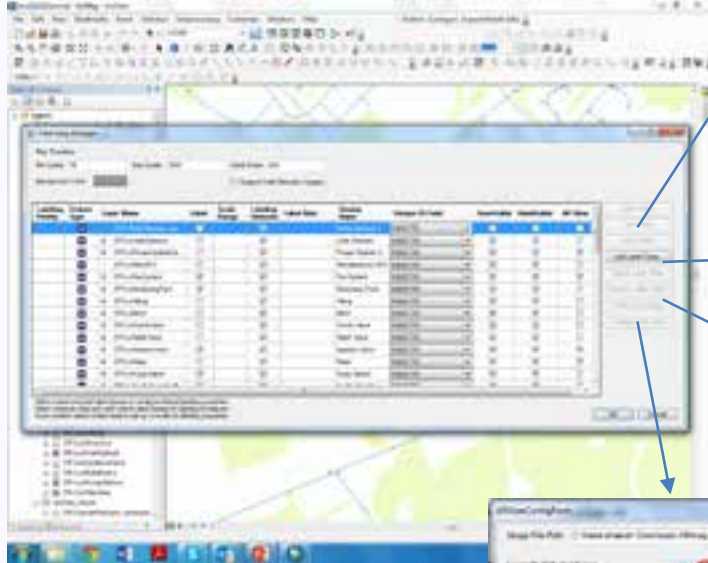
Publishing from ArcGIS

- Symbology
- Scale Ranges
- Coded Domains
- Editable Attributes
- AR enablement
- Labeling styles and rules

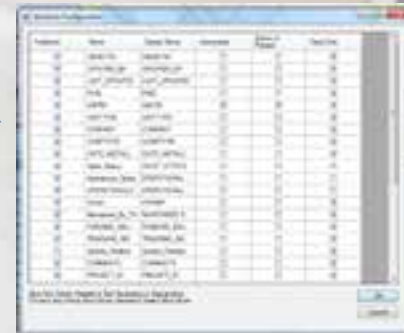
Labeling Rules



Label Style

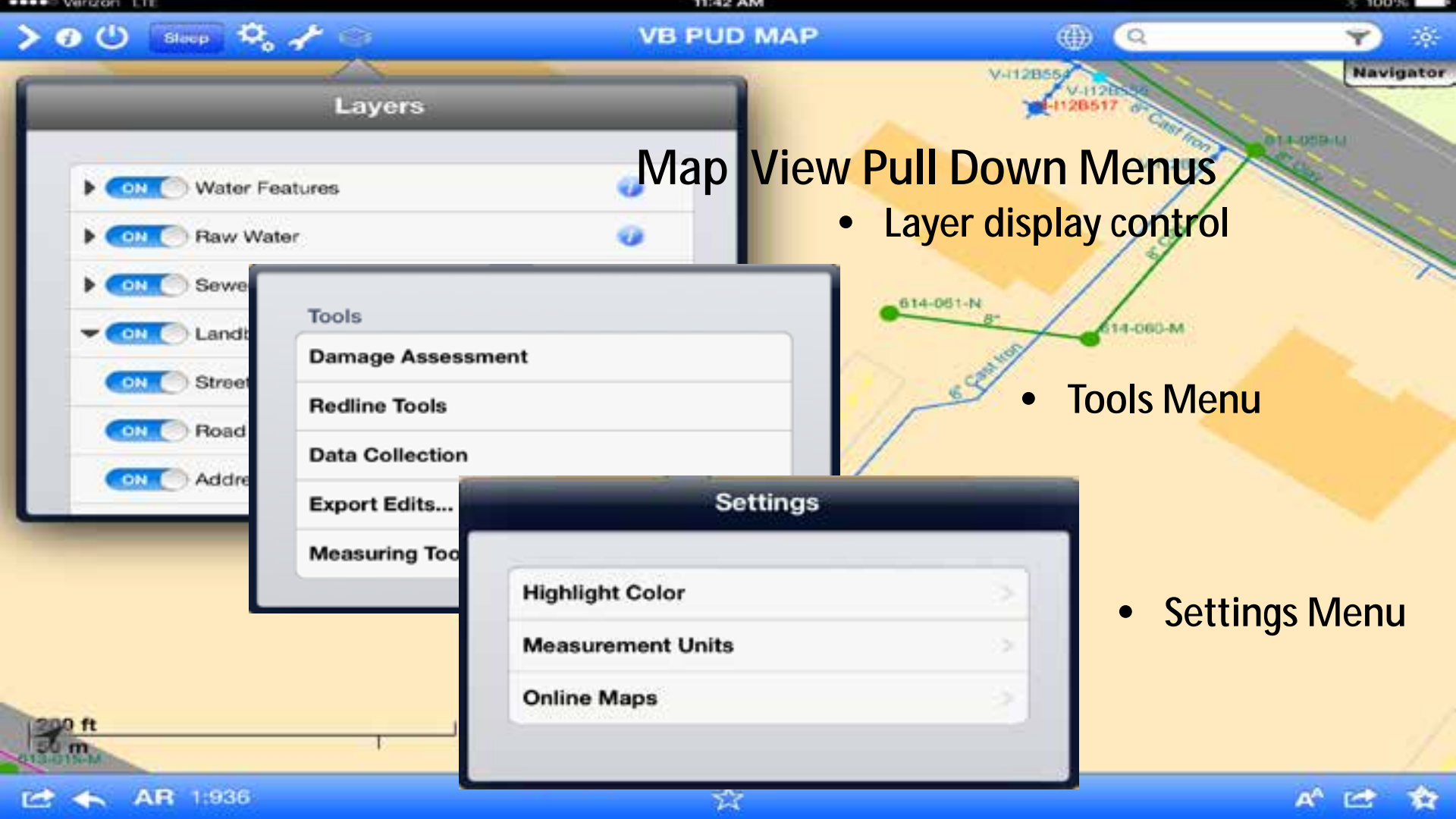


AR Symbol



Attributes Configurability

- Publish
- Editable
- Searchable



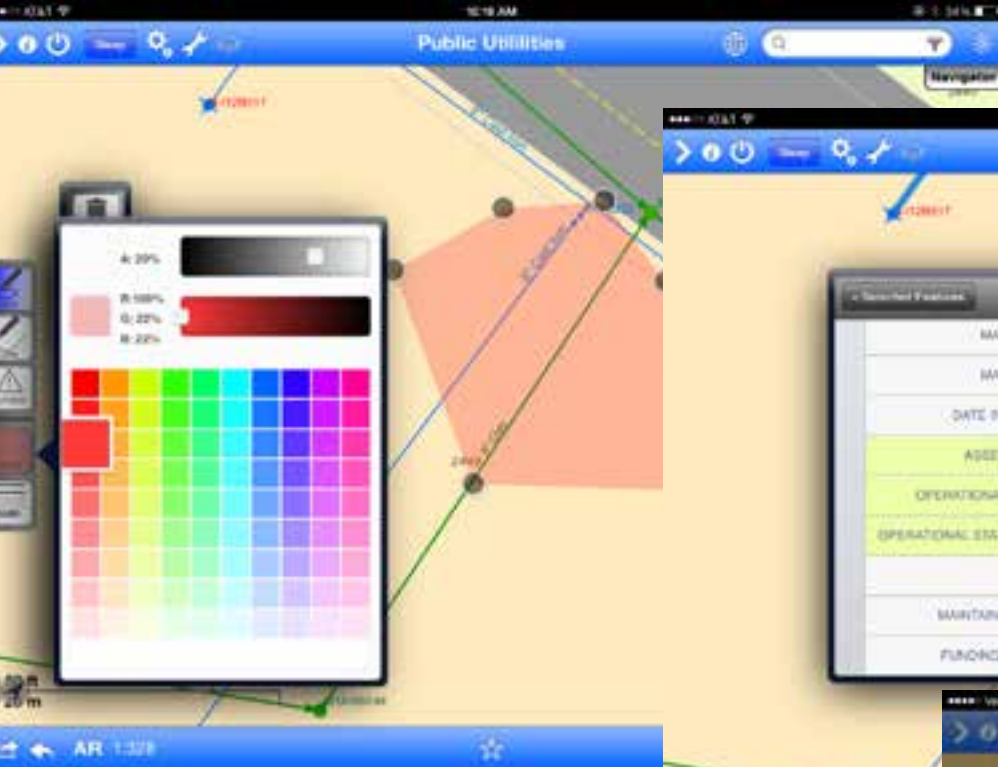
Map View Pull Down Menus

- Layer display control
- Tools Menu
- Settings Menu

Redlining and editing in the field

REDLINING

Field
Data
EDITING



EMAIL



Range: 440ft

Visible: 3 Places

25

Visible Layers... >

Augmented Reality an Asset Saver

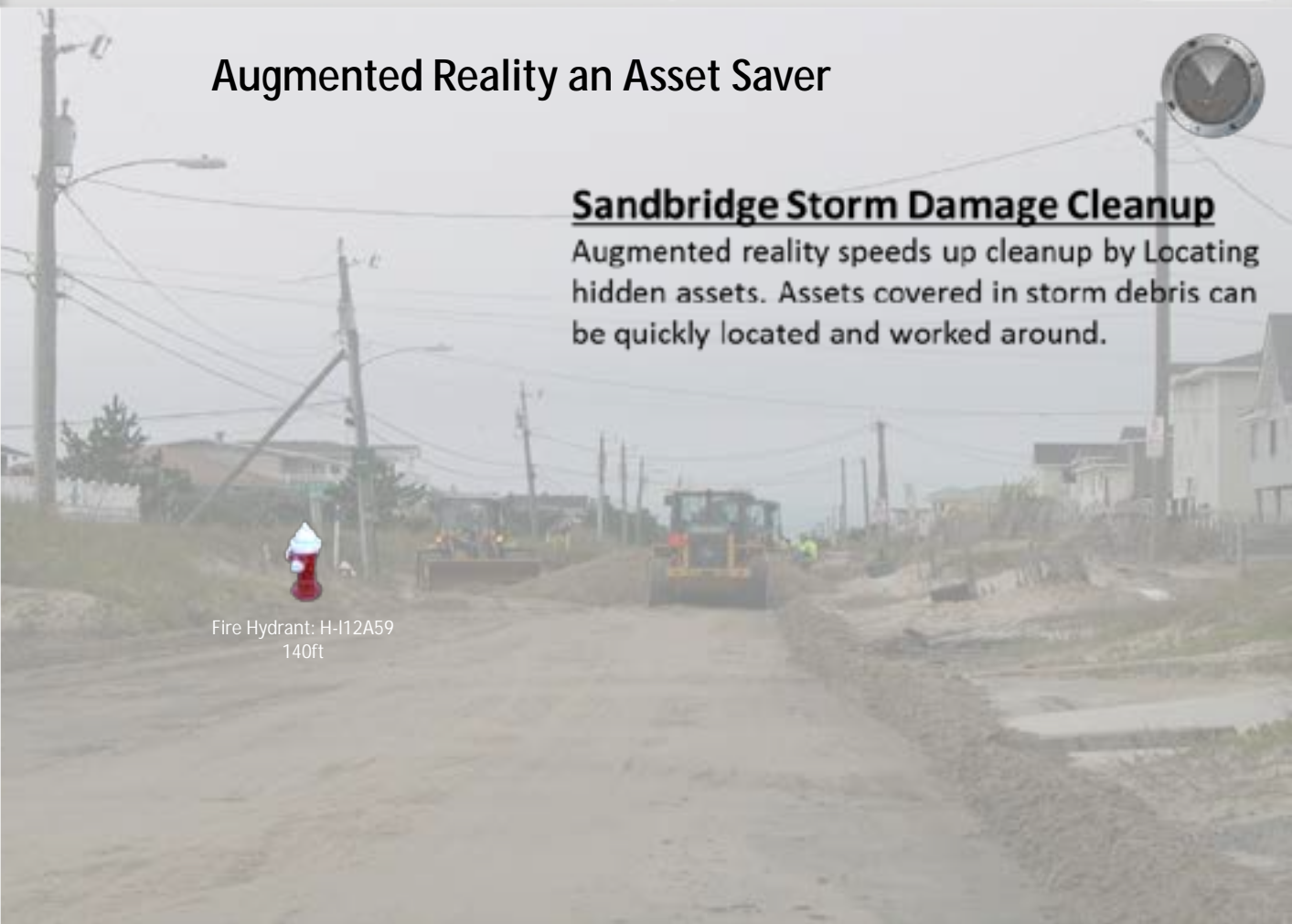


Sandbridge Storm Damage Cleanup

Augmented reality speeds up cleanup by Locating hidden assets. Assets covered in storm debris can be quickly located and worked around.

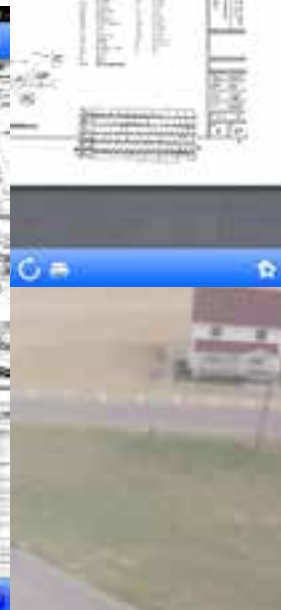
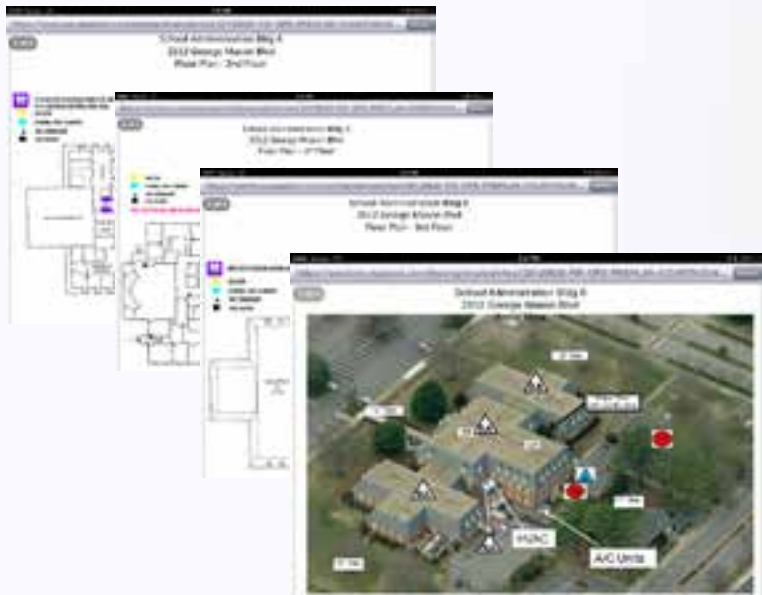


Fire Hydrant: H-112A59
140ft



Built-in Document Viewer and Mark-Up

- View and markup hyperlinked and non hyperlinked documents
- Project planning documents and user manuals can be accessed in the field
- Fire preplans accessed from map, AR, and document view





Challenges and Obstacles

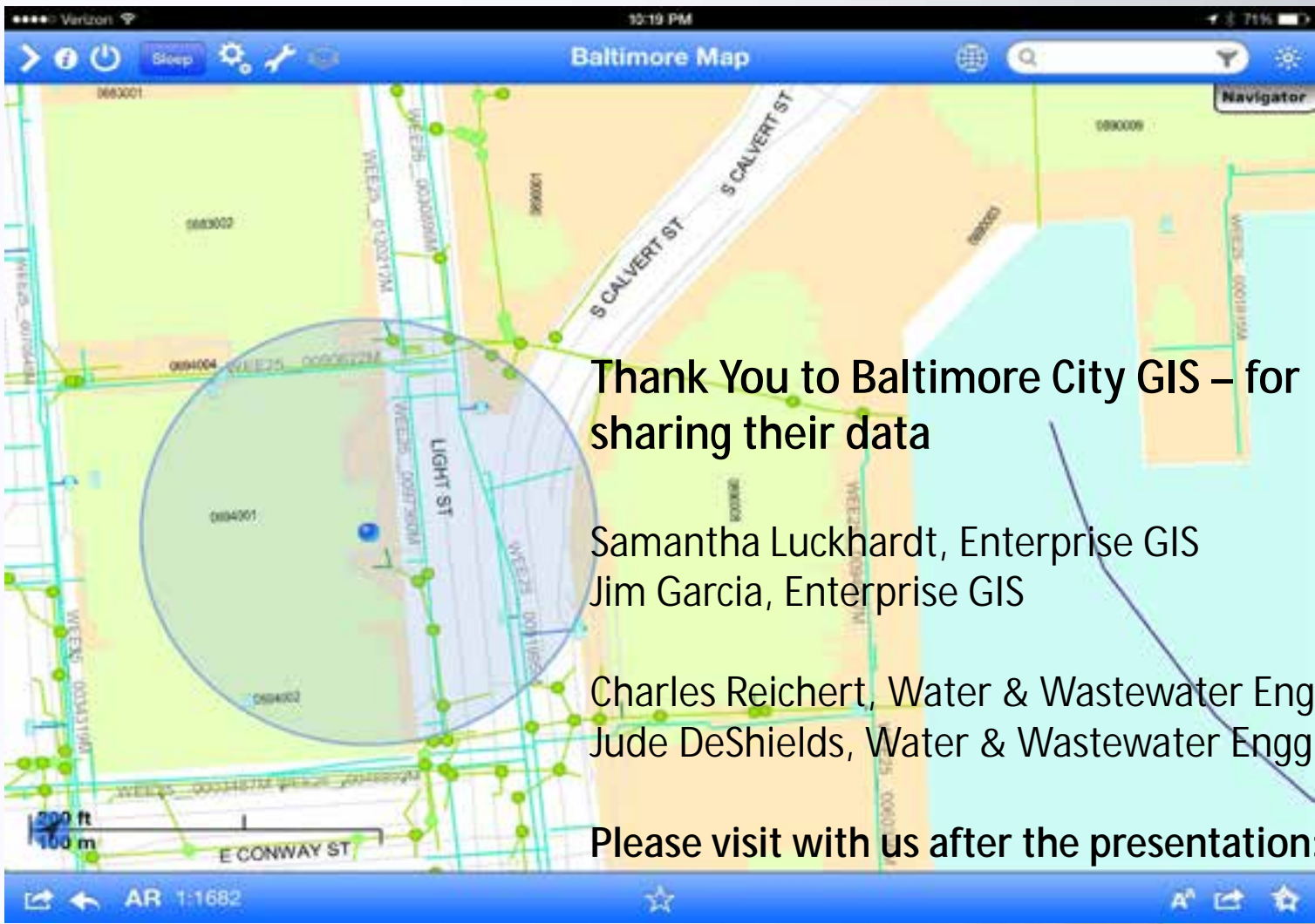
- Location Accuracy
- Data Security
- Data Server / Cloud Services

Completed Mile Stones

- Software selected
- Hardware Platform selected
- Harden enclosures selected
- Development schedule set
- Units purchased and deployed
- Field testing began last month

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Thank You to Baltimore City GIS – for sharing their data

Samantha Luckhardt, Enterprise GIS
Jim Garcia, Enterprise GIS

Charles Reichert, Water & Wastewater Engg
Jude DeShields, Water & Wastewater Engg

Please visit with us after the presentation:



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7/8/2002

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