



MINNESOTA UTILITIES MAPPING PROJECT (MN UMP)

FORMED IN AUGUST 2020

Underground Utilities

AGC Construction Summit
January 17, 2024



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A COLLABORATIVE EFFORT

A Public – Private Partnership



CHAIR
Barbara Cederberg
Operational Control



VICE CHAIR
Steve Swazee
Administrative Control



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MN UMP EXPECTED LONG-TERM OUTCOMES

Generation of high-quality, GPS facility operator maps of underground utilities

Maps of these underground facilities may be viewed by accredited designers, locators, excavators and facility operators in relation to a GSOC ticket request for maps or an excavation ticket, supplementing the existing "Click or Call Before You Dig" processes.

Resulting in:

- Safer excavation
- Increased efficiency and cost reduction of construction projects

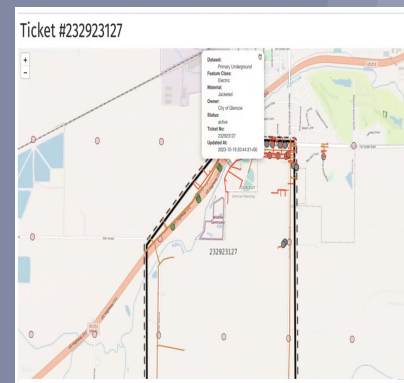


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MN UMP SUMMARY

- Technology exists to enable real time viewing of underground utility maps
- GSOC one-call ticket is control for selecting area for viewing maps
- Viewing access and time by users to be limited
- User and facility operator agreements to be in place
- Pilot system completed: October 2022
- Go-forward plan in place



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COMMON GROUND ALLIANCE (CGA)

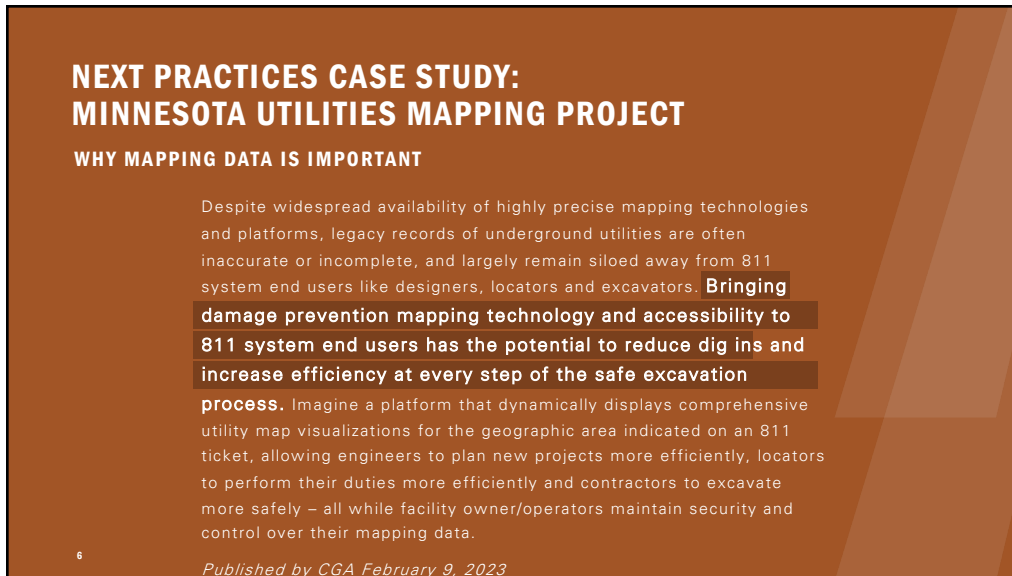
Next Practices Initiative

Next Practices Case Study: Minnesota Utilities Mapping Project

PILOT: Improving Efficiency and Reducing Damages by Providing Ticket-Level Visualizations of Underground Facilities to Designers, Locators and Excavators
Why Mapping is Important

Published by CGA February 9, 2023

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**NEXT PRACTICES CASE STUDY:
MINNESOTA UTILITIES MAPPING PROJECT**

WHY MAPPING DATA IS IMPORTANT

Despite widespread availability of highly precise mapping technologies and platforms, legacy records of underground utilities are often inaccurate or incomplete, and largely remain siloed away from 811 system end users like designers, locators and excavators. **Bringing damage prevention mapping technology and accessibility to 811 system end users has the potential to reduce dig ins and increase efficiency at every step of the safe excavation process.** Imagine a platform that dynamically displays comprehensive utility map visualizations for the geographic area indicated on an 811 ticket, allowing engineers to plan new projects more efficiently, locators to perform their duties more efficiently and contractors to excavate more safely – all while facility owner/operators maintain security and control over their mapping data.

Published by CGA February 9, 2023

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COLLABORATIONS WITH SIMILAR EFFORTS

- Canada - Subsurface Utility Map Data Exchange (SUMDEx)
- Colorado – Limited to DOT right-of-way
- European Underground Damage Prevention (EUDAP) Group (11 nation consortium)
- Montana - Limited to DOT right-of-way
- National Underground Asset Register (UK)



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THE PLAN

THE FUZIONVIEW ENGINE IS OPEN-SOURCE SOFTWARE

- Consists of a set of APIs for the data communications
- The APIs will allow for easy integration into existing notification center systems, allowing for faster ease of adoption

FUTURE FUZIONVIEW SYSTEM ENHANCEMENTS

- FuzionView being built to support 3D visualizations
- Additional features as identified

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MN UMP UPDATE

Prototype system completed – October 2022

Defined next steps for development of commercial platform

- Open source software, API connected to OCC ITIC
- Have initial raise of \$125,000.
- SharedGeo received \$100,000 PHMSA Grant

Beta test started: MNDOT and WSB

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DEVELOPMENT PLAN AND COSTS OF FUZIONVIEW

1. Develop Core FV Engine
Ability to pull GSOC Ticket area map data from Facility Operators via WFS service and serve to FuzionView
2. Establish connections with 4-5 key Pioneer Partner Facility Operators
3. View maps, authenticate users, create documentation and prepare for release as open-source software
4. Field Markup and Comment Service - input from field locators/excavators about known or unknown infrastructure located in the field

Timeline

July 2023

Milestones 1-3

Milestone 4

15 months

An additional 3 months

Some tasks may be completed in parallel. Expect significant results in 6 months.

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KEY TAKEAWAYS



- Software development contract signed on June 22, 2023 – Eighteen-month clock started. As of September 30, 2023 project is estimated to be 20% complete.
- Anticipated near-term project checkpoints:
 - November 2023 – first live test of Design Engineering access to a Facility Operator data base through FuzionView January 2024
 - December 2023 – first draft of attribute comparison matrix finished January 2024
- Anticipated April 2024 checkpoints:
 - Core FuzionView engine build - release candidate will be undergoing testing by 'Pioneer Partner' Facility Operators, Design Engineering firms, and One Call Concepts
 - User Interface testing will be underway in parallel
 - Onboarding will be proceeding to the extent organizations are willing to voluntarily participate
- On hold pending review of status of April 2024 checkpoints:
 - Field markup capability
 - Development of documentation

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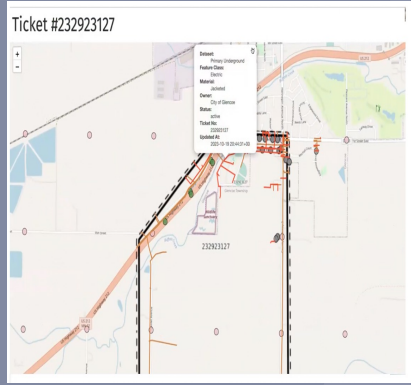
MN UMP Beta Test

- MnDOT and WSB

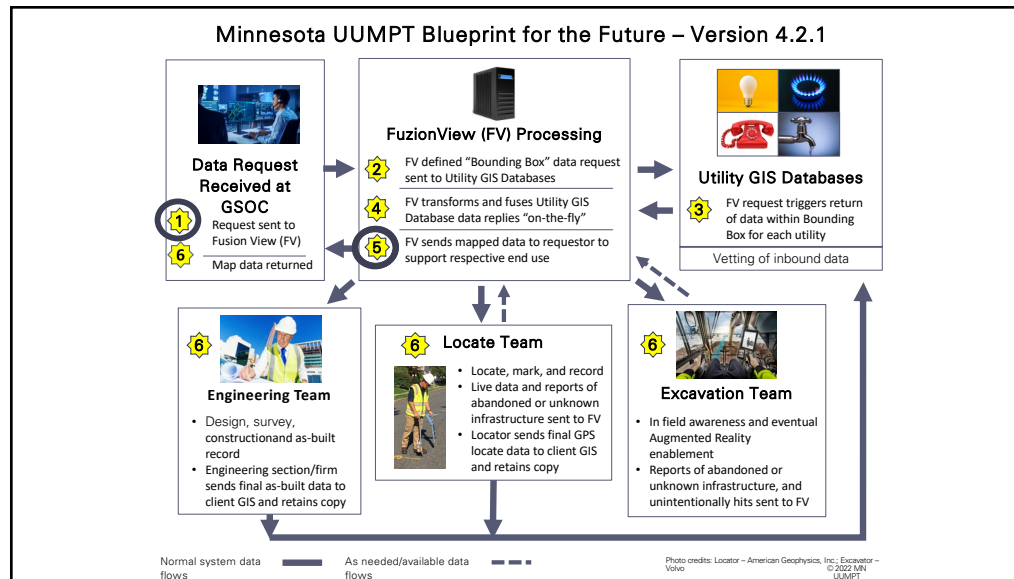
Add stakeholders as we progress

Objectives:

- Document questions, learnings and processes
- Develop success metrics
- Utilize and fine tune Agreements
- Develop data for business case



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AUGMENTING THE GSOC TICKET . . .

GSOC Tickets for the whole state are being loaded live.

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AUGMENTING THE GSOC TICKET . . .

The screenshot shows a GIS application interface. On the left is a sidebar menu with categories like 'Drawing and Markup', 'Overlays (new)', 'Uploads', and 'Grids'. The main area displays a map of a city grid with several utility lines and polygons overlaid. A toolbar at the top includes options like 'Full Extent', 'Measure', 'Print', 'Identify', 'Select Features', 'Search', 'Find Me', 'Start Over', and 'Bookmark'. The bottom of the map shows coordinate information: 'XY: -10480789.4, 5563886.4 USNG 15T VK 08941 56841 L4L4an 44.7592, -04.1505'.

Utilizing a simple Admin interface.

It will also play double duty as the Facility Operator dashboard view.

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THE GSOC TICKET . . .

The screenshot shows a web application for 'SEARCH & STATUS Minnesota'. It displays details for a 'Gopher State One Call' ticket. The ticket information includes: Ticket No: 22030169, Original Call Date: 12/06/23 07:41 am, Work to Begin Date: 12/07/23 08:00 am, Expiration Date: 12/21/23 08:00 am, and Type: CALL. Below this is a 'TICKET ACTIONS' section with an 'Add Public Attachment' button. The 'EXCAVATOR INFORMATION' section lists fields for Company Name, Address, Contact, Company Phone, Email Address, and Type (CONTRACTOR). The 'Excavation Information' section includes Type of Work (INSTALL BOLLARD), Work Being Done (WELLSBORG CHEV), Explosives (N), R.O.W. (N), Tunnel/Bore (N), and Duration (SLURRY). A 'Location Information' section is also present at the bottom.

The initiating GSOC ticket request is linked into the FuzionView report output . . .

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State: IN
 Place: GLENCOE
 Address: [REDACTED]
 Street: [REDACTED]
 Intersecting Street: [REDACTED]
 Area Marked: [REDACTED]
 Location of Work: MARK OFF TO THE EAST OF THE BLDG ON THE EAST SIDE OF THE BLDG BY THE EV STATION AND 6FT NORTH OF THE EV STATION AND 6FT SOUTH OF THE EV STATION.
 Remarks: [REDACTED]
 Map Type: 115N
 Map Type: 115N
 Map Cont: [REDACTED]
 NW Lat: 44.770492
 SE Lat: 44.767697

County: MCLEOD
 Job Number:
 Ring: 27W
 Ring: 28W
 Sect-Ctr: 18-SW-NW
 Sect-Ctr: 13-SE-NE
 Lon: 84.1317019
 Lon: 84.1266467

| FACILITY OPERATORS NOTIFIED | | | | | | |
|-----------------------------|-----------------------------|------------------|--------------|------------------|---------------|---|
| District | Company Name | Marking Concerns | Damage | Customer Service | Utility Types | Status |
| ACSMSP01 | ARWG | 218-346-6500 | 218-346-6500 | 218-346-8248 | TV,FQ,TEL | Clear/No conflict |
| ARWIND1 | ARWG | 218-346-6500 | 218-346-6500 | 218-346-8248 | TV,FQ,TEL | Clear/No conflict |
| COLENC01 | CITY OF GLENCOE | 320-610-0367 | 320-610-0367 | 320-864-6586 | | Not yet responded |
| CTLAN01 | CENTURYLINK - CTQL | 800-778-9140 | 303-390-4929 | 877-396-8344 | TEL | Marked |
| GLNMUC01 | LIGHT & POWER COMMISSION | 320-864-8184 | 320-864-8184 | 320-864-8184 | | Marked |
| HUTTEL02 | N.MGRA | 763-692-9514 | 763-692-9514 | 507-354-4111 | TEL | Not yet responded |
| HUTTEL03 | N.MGRA | 763-692-3514 | 763-692-3514 | 507-354-4111 | TEL | Not yet responded |
| MCCTY01 | MCLEOD COUNTY | 320-484-4321 | 320-484-4321 | 320-484-4321 | TEL | Clear/No conflict. Map and work description indicates work is outside of R.O.W. Utility is across R.O.W. from work. |
| MCLCP01 | MCLEOD COOP POWER | 320-864-9148 | 320-864-9148 | 320-864-9148 | E | Not yet responded |
| MICBL07 | MIDCONTINENT COMMUNICATIONS | 605-271-0202 | 605-271-0202 | 800-898-1300 | TV | Clear/No conflict |
| MINGAS01 | CENTER POINT ENERGY | 612-321-4421 | 612-321-5300 | 800-722-9326 | G | Clear/No conflict (GAS_ALL clear) |
| MNSDOT01 | MNDOT | 651-366-5750 | 651-366-5750 | 651-366-5750 | E | Clear/No conflict |

THE GSOC TICKET . . .

The initiating GSOC ticket request is linked into the FuzionView report output . . .

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Interactive Map
 Legend: GSOC notification polygon

Advanced/Alternate Search

Search Map:

Lat/Lon: 44.766977 -84.121809

THE GSOC TICKET . . .

The initiating GSOC ticket request is linked into the FuzionView report output . . .

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AUGMENTING THE GSOC TICKET . .



Old and new reports are both being populated from the same API services.

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AUGMENTING THE GSOC TICKET . . . All API driven from the FuzionView Engine.

Ticket Number: 233390163
[View GSOC Ticket](#)

Owner (infra description)

Communication, Cable, Conduit

- City of Glencoe
 - Copper - CenturyLink: 40
 - Fiber - CenturyLink: 17

Electric

- City of Glencoe
 - Primary Underground: 16
 - Secondary Underground: 22

Reference

- City of Glencoe
 - Streetlight: 13
 - Work Orders: 9
- MnDOT
 - 2017 Lightpoles: 4
 - SIG Signal Systems: 1

Sewers, Drains

- MnDOT
 - Structures: 9

Survey

- McLeod County
 - Monuments: 1

Request Polygon Location Map (WMS)

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Ticket # 233390163

THE FUZIONVIEW TICKET . . .
The initiating GSOC ticket request is linked into the FuzionView report output . . .

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Ticket # 233390163

| | |
|----------------|-----------------------------|
| Outwork: | Copper - CenturyLink |
| Feature Class: | Construction_Cable, Conduit |
| FeatureID: | 616046_25_25 |
| Owner: | City of Glenview |
| Status (GSOC): | active |
| Ticket No.: | 233390163 |
| Workorder No.: | 2023-10-13-09-32-40 |

THE FUZIONVIEW TICKET . . .
The initiating GSOC ticket request is linked into the FuzionView report output . . .

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🔍 Ticket Info
✕

Facility Operators Notified

| District | Company Name | Marking Concerns | Damage | Customer Service | Utility Types | Status |
|----------|--------------------------|------------------|--------------|------------------|---------------|--|
| GLENC01 | CITY OF GLENCOE | 320-510-0367 | 320-510-0367 | 320-864-5586 | | Not yet responded |
| CTLMN01 | CENTURYLINK - CTLDL | 800-776-9140 | 303-260-4029 | 877-866-8344 | TEL | Clear/No conflict (2023%270%2711 7303 Ticket reviewed) |
| GLNMUC01 | LIGHT & POWER COMMISSION | 320-864-5184 | 320-864-5184 | 320-864-5184 | | Clear/No conflict |
| HUTTEL03 | MIDVERA | 763-682-3514 | 763-682-3514 | 503-354-4111 | TEL | Marked |
| MCCT001 | MCLEOD COUNTY | 320-484-4321 | 320-484-4321 | 320-484-4321 | TEL | Clear/No conflict (Map shows no conflict with fiber line based on location information.) |
| MINGAS01 | CENTER POINT ENERGY | 612-321-4421 | 612-321-5200 | 800-722-9296 | G | Clear/No conflict (GAS_ALL LOCATE COMPLETE, NO CONFLICT) |

THE FUZIONVIEW TICKET . . .
Ticket Information View

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🗨 Layers
✕

Feature Layers

- Communication, Cable, Conduit (0)
- City of Glencoe (57)
- Electric (38)
- City of Glencoe (38)
- Reference (2)
- City of Glencoe (22)
- Sewers, Drains (5)
- MNDOT (4)
- Survey (0)
- McLeod County (1)
- Oil, Gas, Steam (0)
- Potable Water (0)
- Reclaimed Water (0)

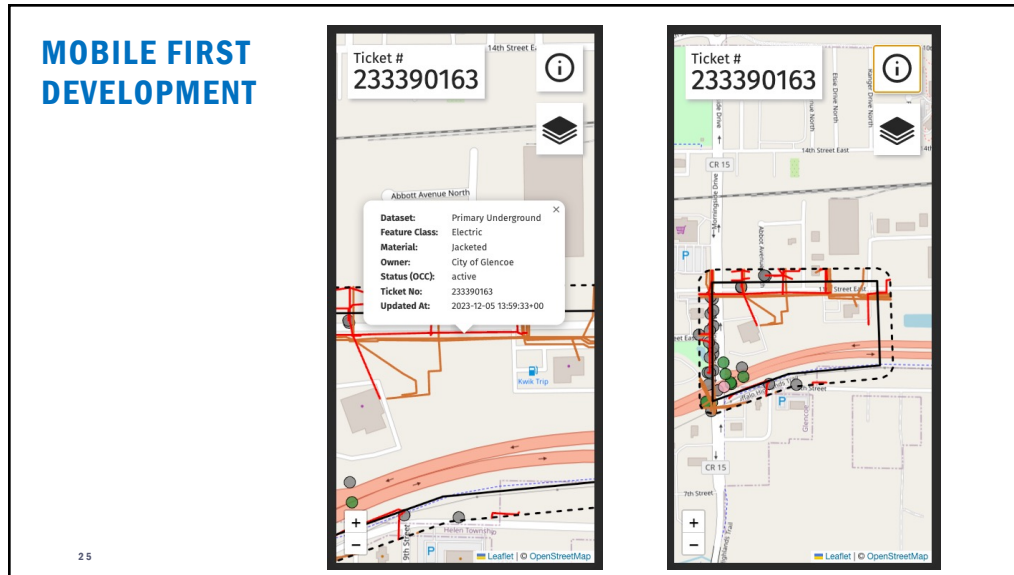
Basemaps

- OpenStreetMap
- Aerial

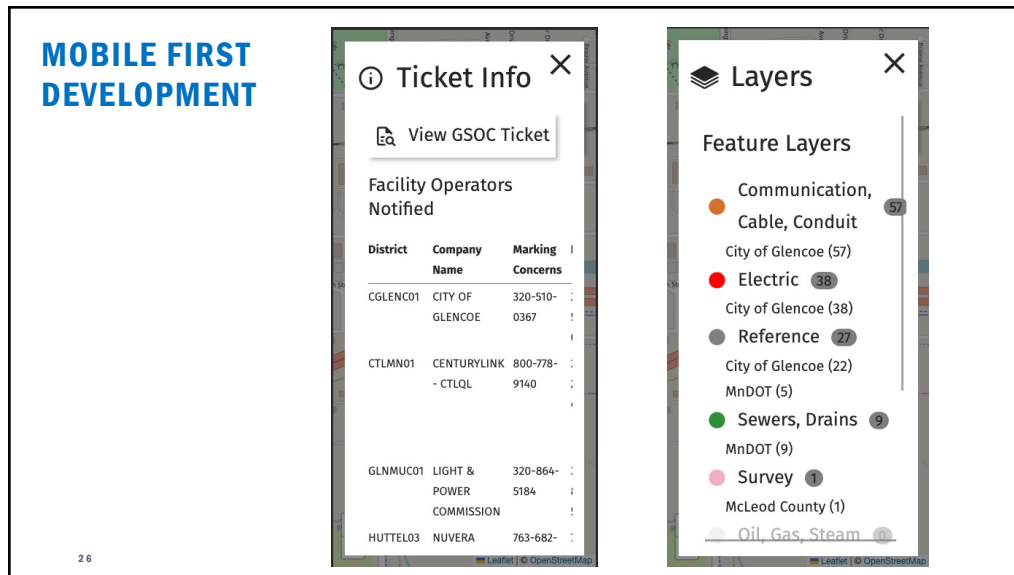
THE FUZIONVIEW TICKET . . .
Ticket Information View

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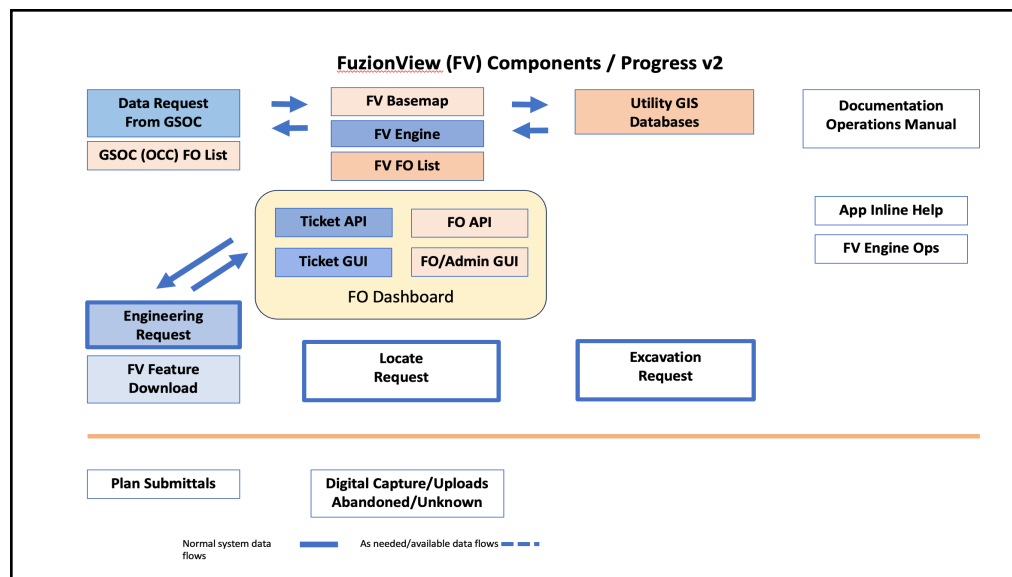
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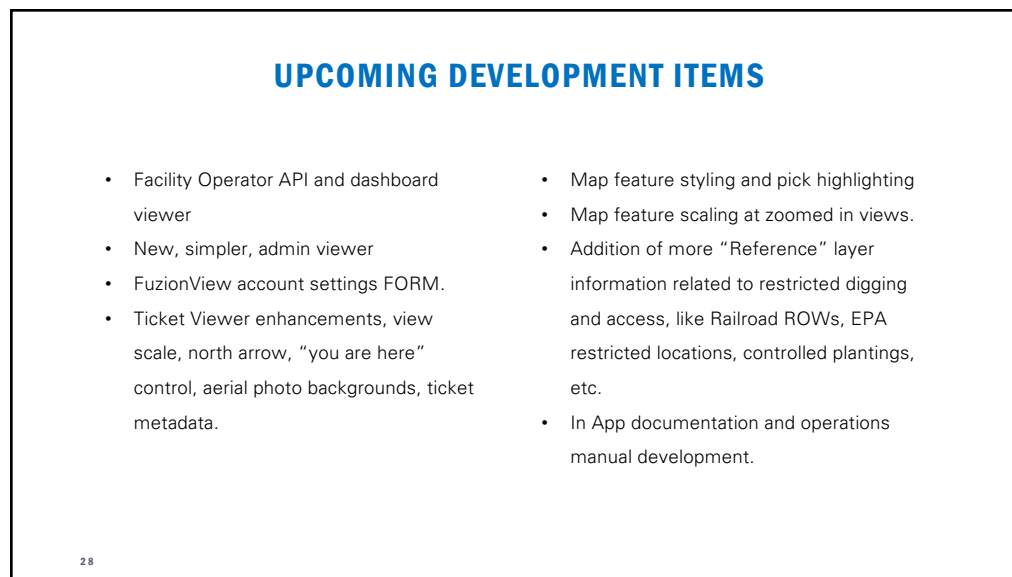
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SECURITY AND REGULATORY ISSUES

- No laws prevent data sharing
- A chance to establish the standards
- ASCE standards on exchanging utility infrastructure data are generally non-binding – guidelines only
- Federal Geographic Data Committee 2005 Guidelines

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AGREEMENTS TO VIEW DATA

Parties

Facility Operators and Data End Users

Terms Would Include Access Controls

Facility Operator Approves End User Access Purpose / Use Limitations

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THANK YOU

Barbara Cederberg

Barbara.Cederberg@gopherstateonecall.org

Bob Basques

bbasques@sharedgeo.org

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