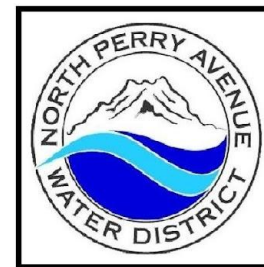


Utilizing GIS to make efficient daily operation decisions

PNWS-AWWA
2025

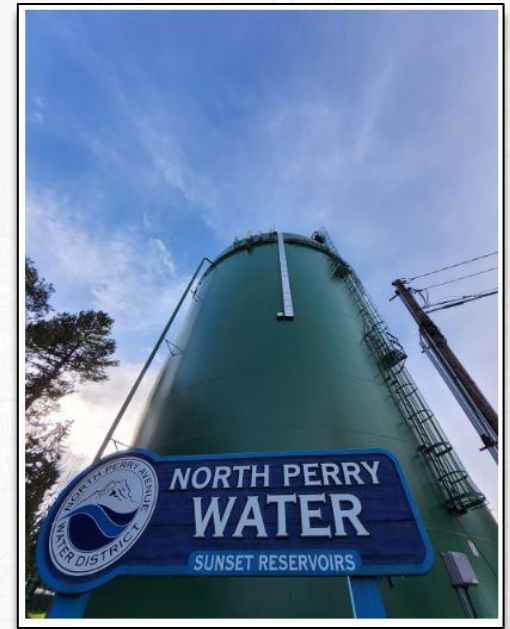


Carlito Tolentino, GISP
Dan Knight
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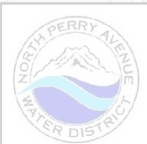
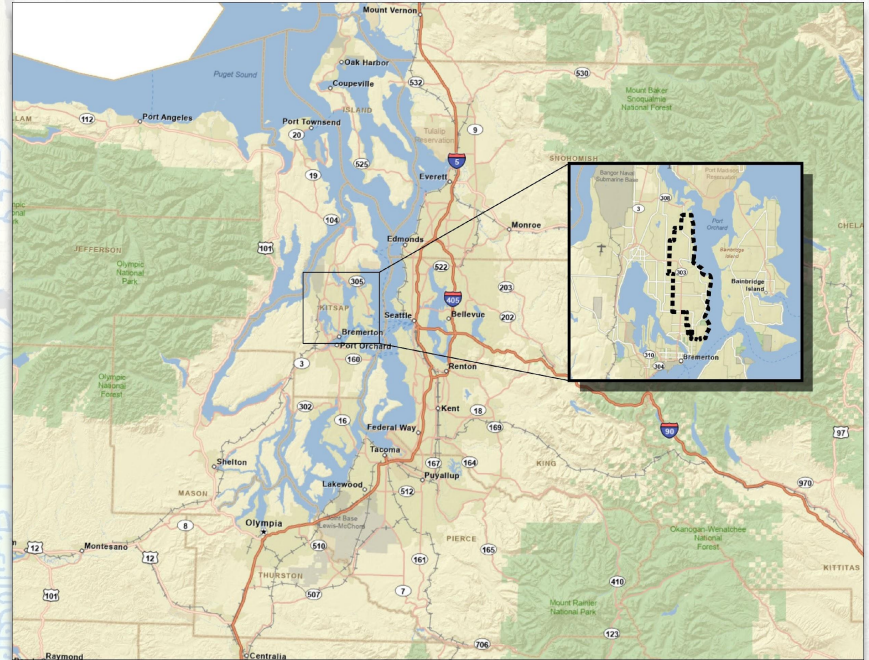
THINGS TO COVER

- District Background
- CAD conversion to GIS
- ESRI ArcGIS mapping software
- Portal Web Maps and Data
- GIS Operations
- Q/A



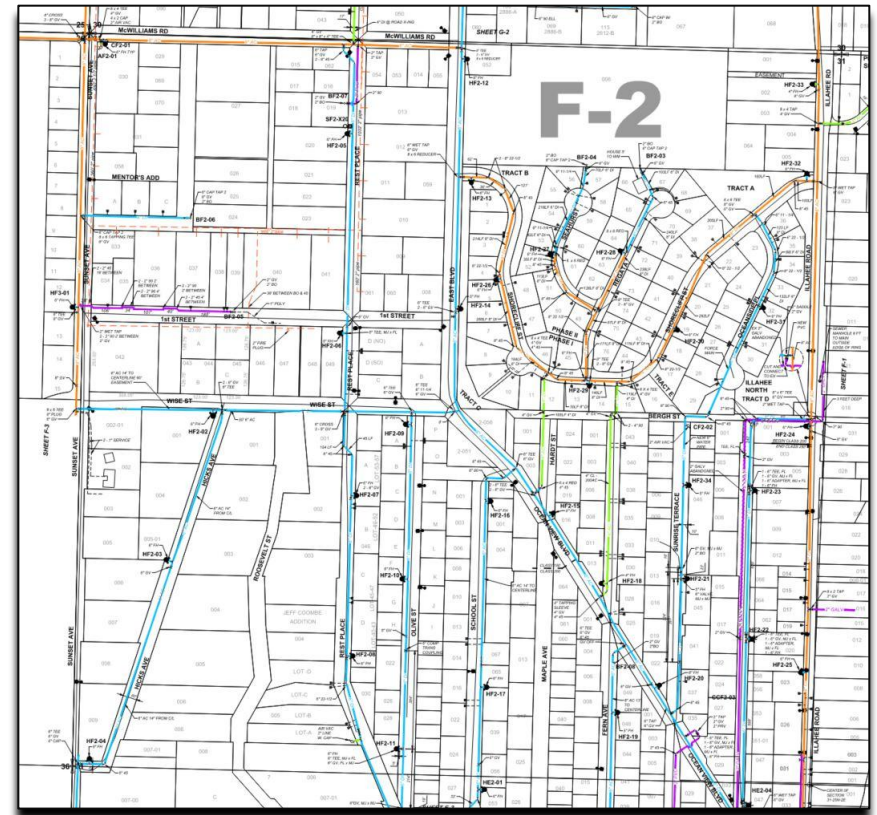
North Perry Avenue Water District

- Located in Bremerton, Washington
- Formed in 1942
- Today, it has grown to 12 sq miles of service
- Serves 21,000 customers
- 9 production wells with 5 million gallons capacity per day
- 7 Reservoirs and 4 pressure zones
- 122 miles of pipeline



From CAD to GIS

- Paper design drawings
- CAD based drawing files
- Conversion from DWG to GIS
- ESRI was brought on to convert all CAD based dwg files to GIS





(Environmental Systems Research Institute)

- ESRI is a company that specializes in Geographic Information System (GIS) software, spatial analytics, and mapping solutions
- The District uses a combination of ESRI tools in its operations
 - **ArcGIS Pro:** desktop GIS application that enables users to visualize, analyze, and manage spatial data
 - **ArcGIS Enterprise (Portal):** a self-hosted web-based platform that allows organizations to securely manage, share, and analyze GIS data, enabling collaboration through interactive maps, apps, and dashboards.



Portal Web Maps & Data



The District leverages ArcGIS Enterprise in three primary ways:

- **Web Maps:** Interactive, shareable maps in ArcGIS Portal that integrate layers and real-time data for visualization and decision-making.
- **Web Apps:** Customizable applications built using ArcGIS tools to provide tailored GIS functionality without coding.
- **Dashboards:** Dynamic, data-driven interfaces that display real-time metrics, maps, and charts to support monitoring and analysis of spatial information.

GIS Operations

- Water system flushing & valve management
 - GIS mapping used for valve ID and location. Program is setup to utilize the facility ID allowing crew to input the identifier for which valve(s) need operated for each step creating redundancies in the system ensuring accurate records
 - Every pressure zone is flushed – larger zones (like 490) are split up into pieces
 - Commercial areas done at night
 - Flushing involves using hydrants and strategically turning valves on/off to ensure clean water movement between steps, using Facility IDs to locate the correct valves
- Hydrant Inspections
 - Annual hydrant inspections using a dashboard to keep up to date
- GIS Integration in the Field
 - Transition from paper-based processes to GIS-based tools (like Field Maps on tablets) helps with locates especially during night operations or inclement weather
- Emergency Response
 - In events like a main break (e.g., Christmas Eve), staff can use GIS tools to identify the exact pipe segment and determine which valves to shut off quickly
- Site Visualization
 - For specific sites like the Olympus Reservoir, users can click on attachments/design drawings within the GIS system to view infrastructure details such as wall depth and pipe specifications
 - Design drawings are added as attachments to important facilities so field operations staff can access detailed information in the field



Demo

- ArcGIS Pro



- Portal Web Maps & Dashboards



- Field Maps



Q & A

