

2020 Decennial Flow Monitoring

Presented to MWPAAC
Engineering and Planning Subcommittee
November 7, 2019



King County

Department of Natural Resources and Parks
Wastewater Treatment Division

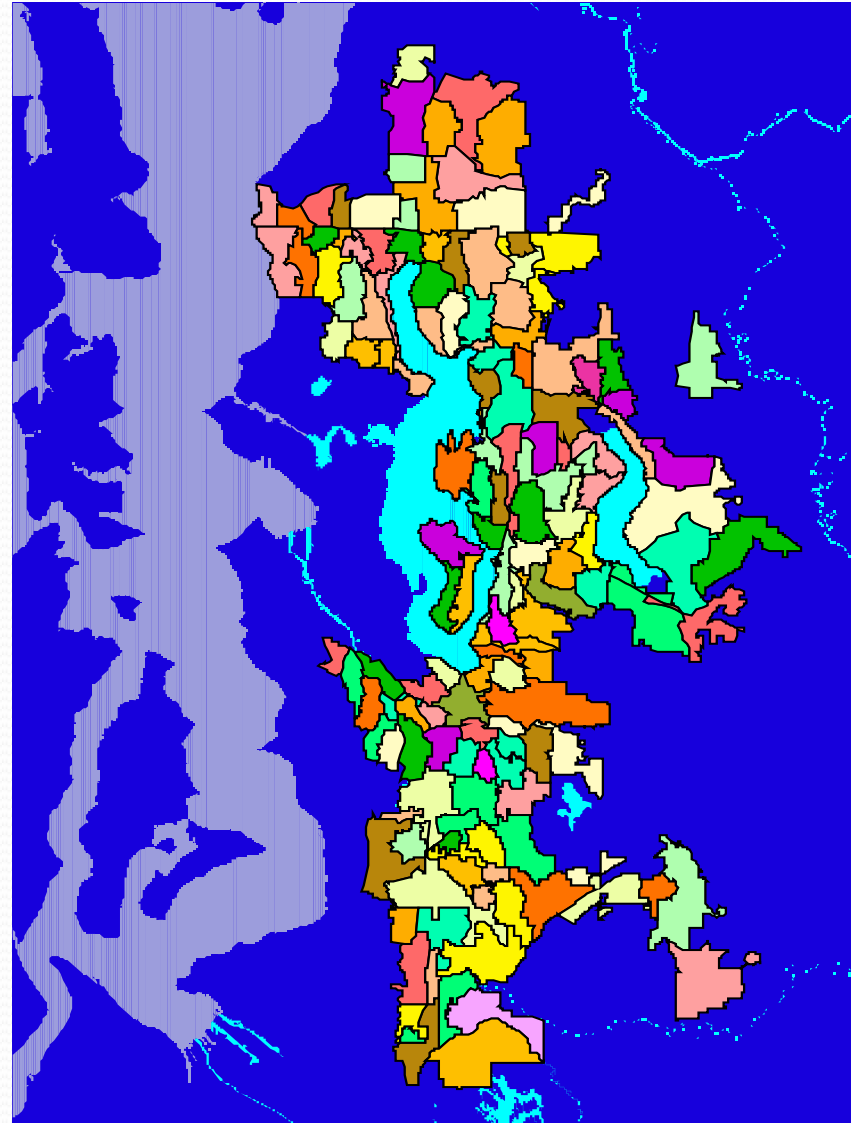
2020 Decennial Flow Monitoring

The 2020 Decennial Flow Monitoring (DFM) project will collect accurate flow data over three wet seasons for use in updating:

- Prioritization/timing of projects for implementation
- Sizing of new conveyance facilities

Monitoring Approach

- 2000 – 2002 I/I Project deployed meters at the Mini Basin level
- 2010 DFM deployed meters at the Modeling Basin level
- 2020 DFM – Deploy meters at the Modeling Basin level, primarily in King County Wastewater Treatment Division pipes



Goals of 2020 DFM Monitoring

- Maintain existing sewer model basins and update for growth and changes in local systems
- Install meters to monitor:
 - new construction/development
 - high priority CSI needs
 - project areas in CIP plan
- Leverage existing sewer model to assess meter locations

Equipment – ADS Triton+

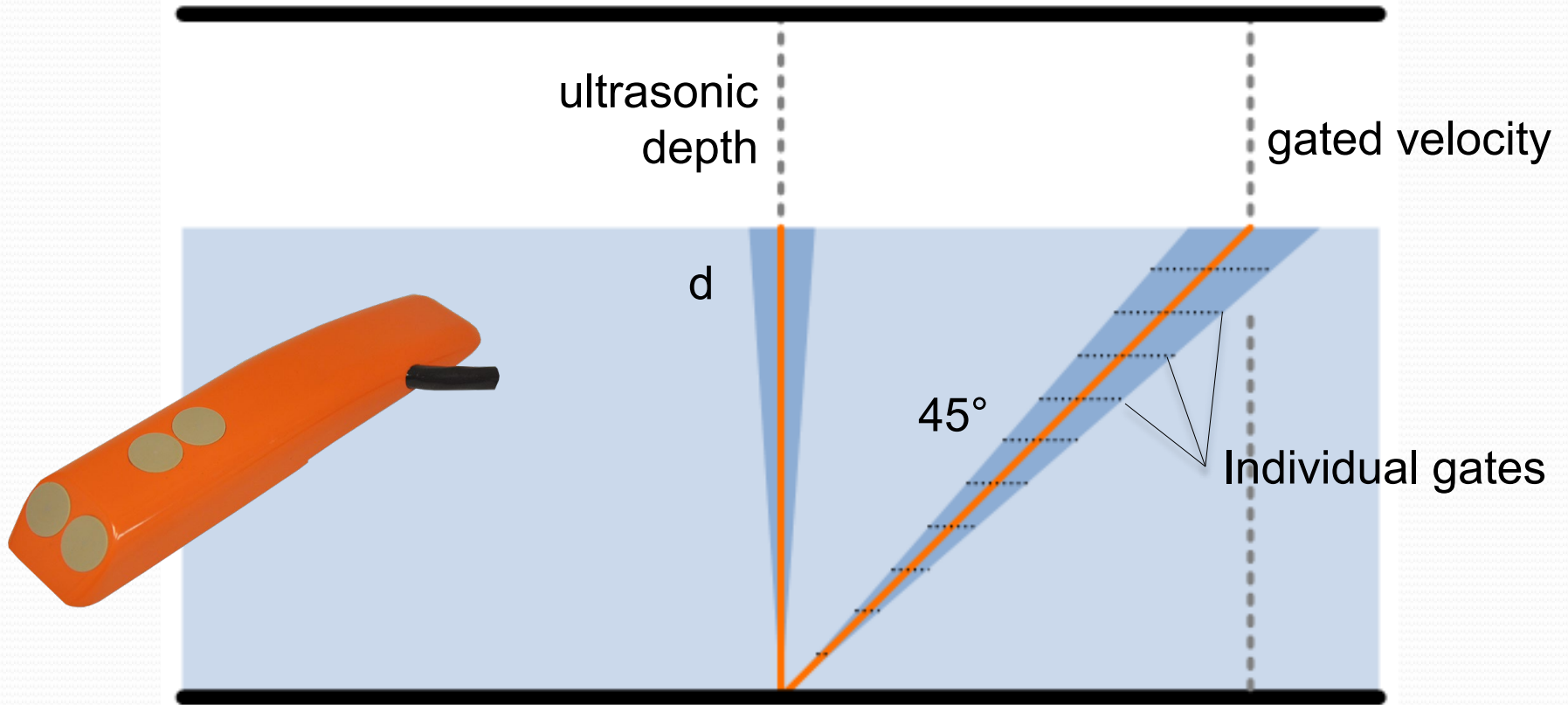
Peak Combo Sensor



Smart Depth Ultrasonic Sensor



Equipment – ADS AVGated Sensor



Equipment – HACH Flo-Dar



Equipment – HACH AV9000/US9000



Area Velocity Sensor



In pipe Ultrasonic Sensor

Typical Installations

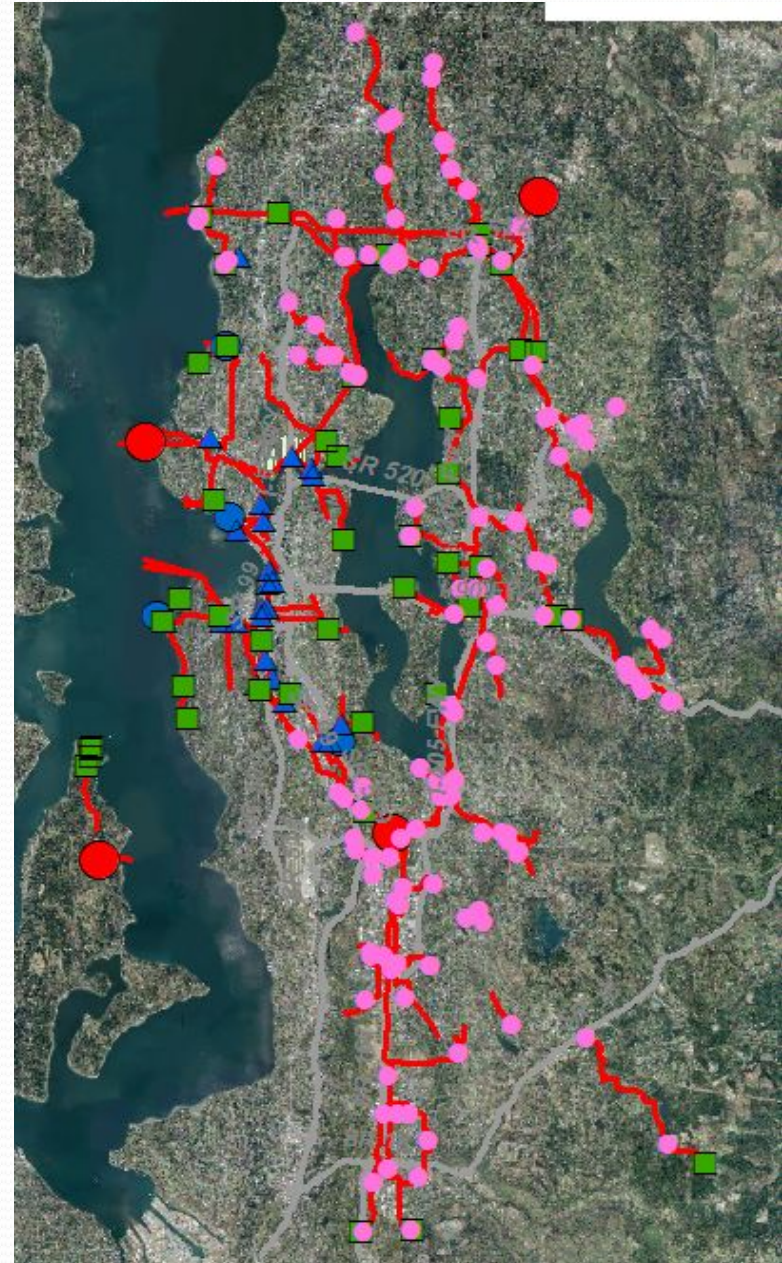


Flo-Dar Installation



Triton+ Installation
with Peak combo and
smart depth sensors

2020 DFM Site Locations



Current Status

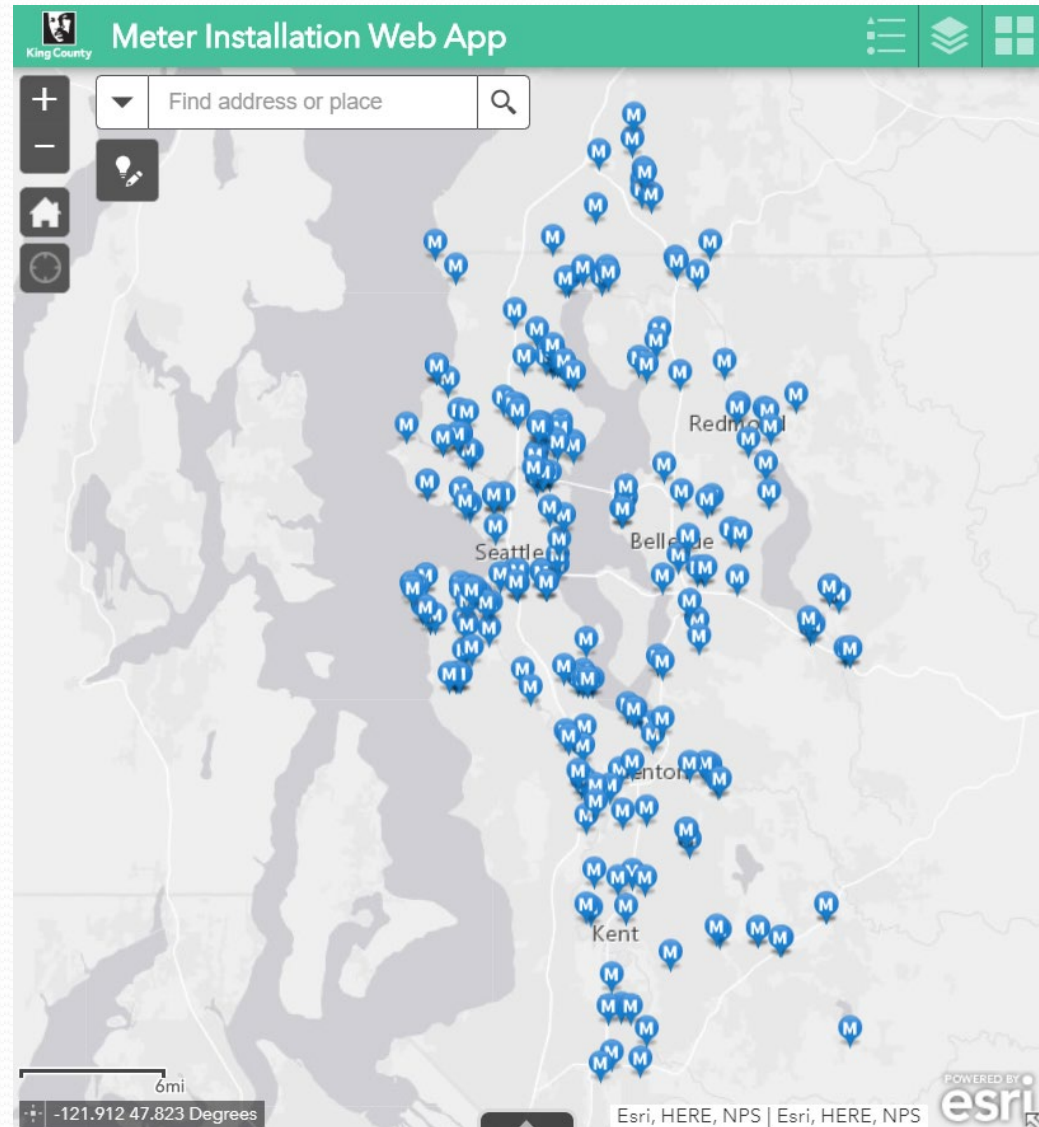
- 122 of 132 installed sites
- 10 sites to be installed



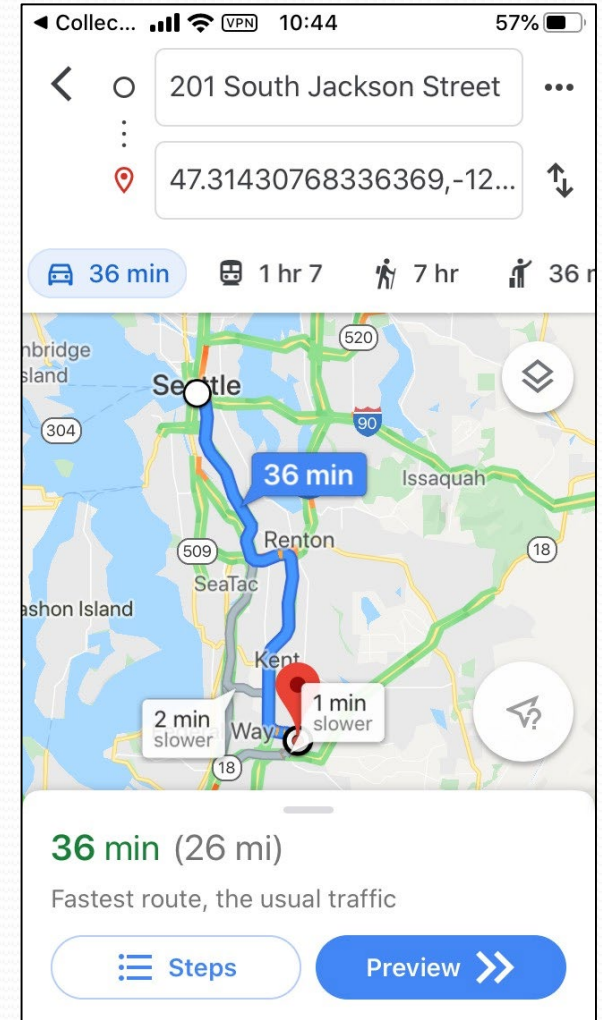
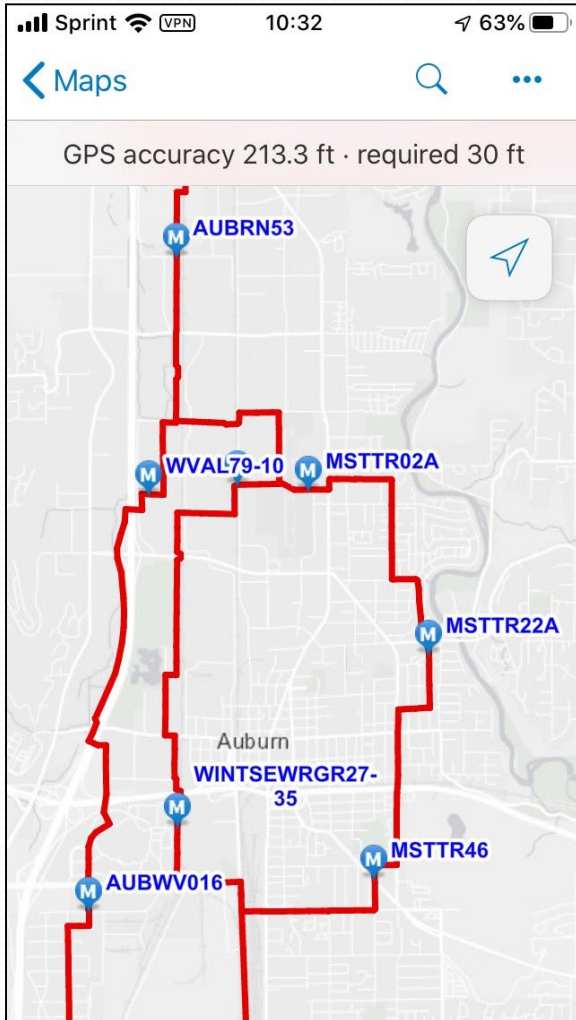
Collector App

- Site Investigation and Meter Installation App
- Desktop Version →

<http://kingcounty.maps.arcgis.com/apps/webappviewer/index.html?id=c83dc2ocddc549f98379328c1122dad1>



Collector App – Mobile Version



Data Review and Verifications

- Review data twice a week
- Verifications of flow meter at:
 - At Installation
 - “2 weeks” after installation
 - Dry & wet season
 - At Removal

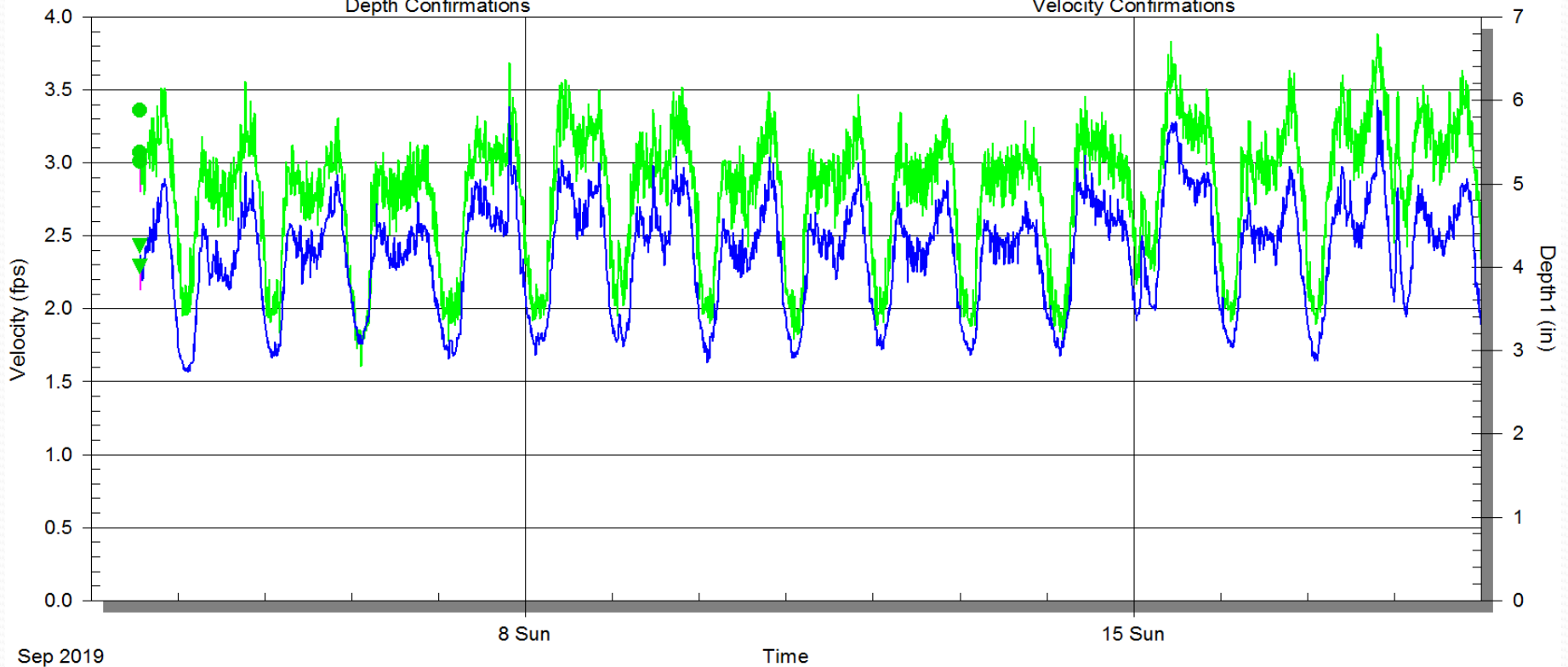
Hydrograph

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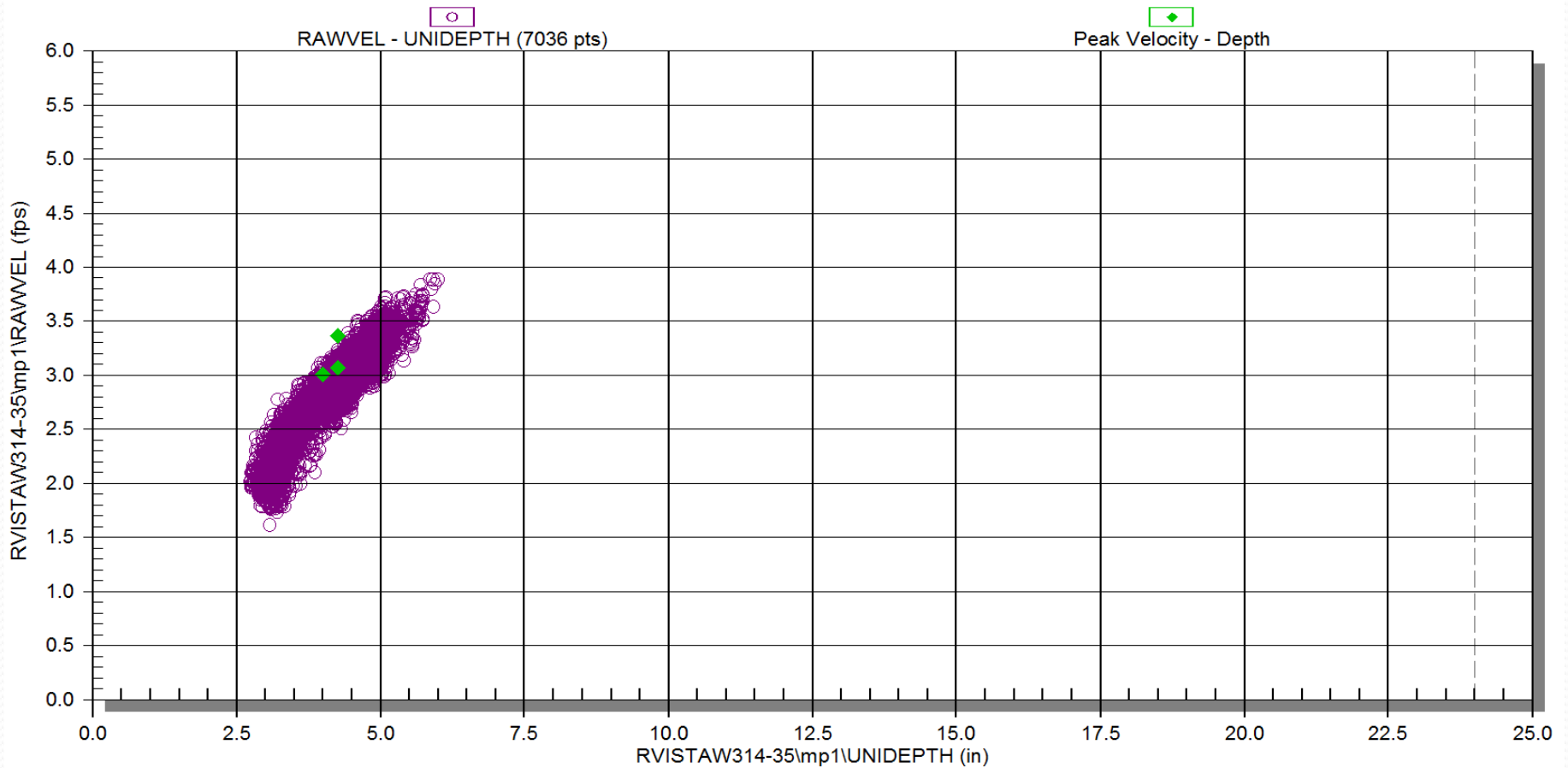
Depth Confirmations

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Velocity Confirmations

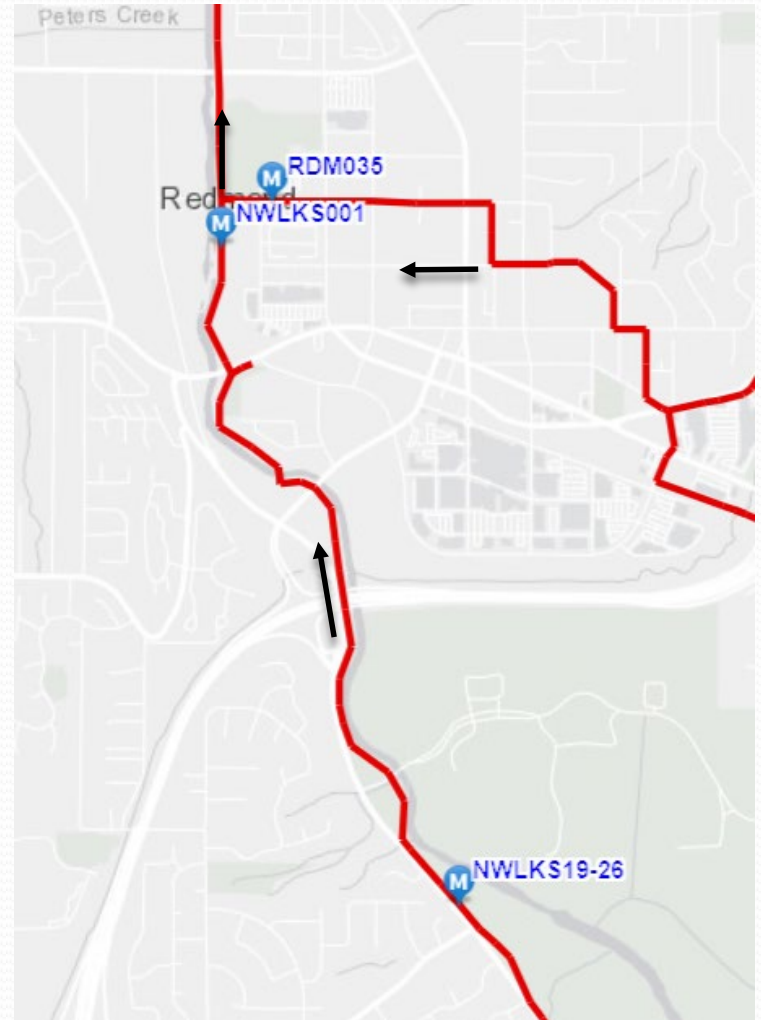


Scatter graph



Upstream / Downstream

Data Analysts to perform upstream / downstream comparison where applicable in the system



Data Assurance Indicators

- Uptime
- Work order completion duration



Modeling Coordination



- Modeling to review data before end of the project
- Incorporate modeling lens on data

Data Sharing – External Portal

- Portal in development
- Web-based with similar look to Collector Portal
- Planning to incorporate:
 - Flow data
 - Site information
 - Site photos

Schedule Estimate

- Planning Phase: September 2017 – September 2018
- Development Phase: October 2018 – July 2019
- Implementation Phase: August 2019 – May 2022
- Closeout Phase: June 2022 – June 2023

Questions?

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