NANEUM, WILSON, CHERRY CREEK WATERSHED ASSESSMENT

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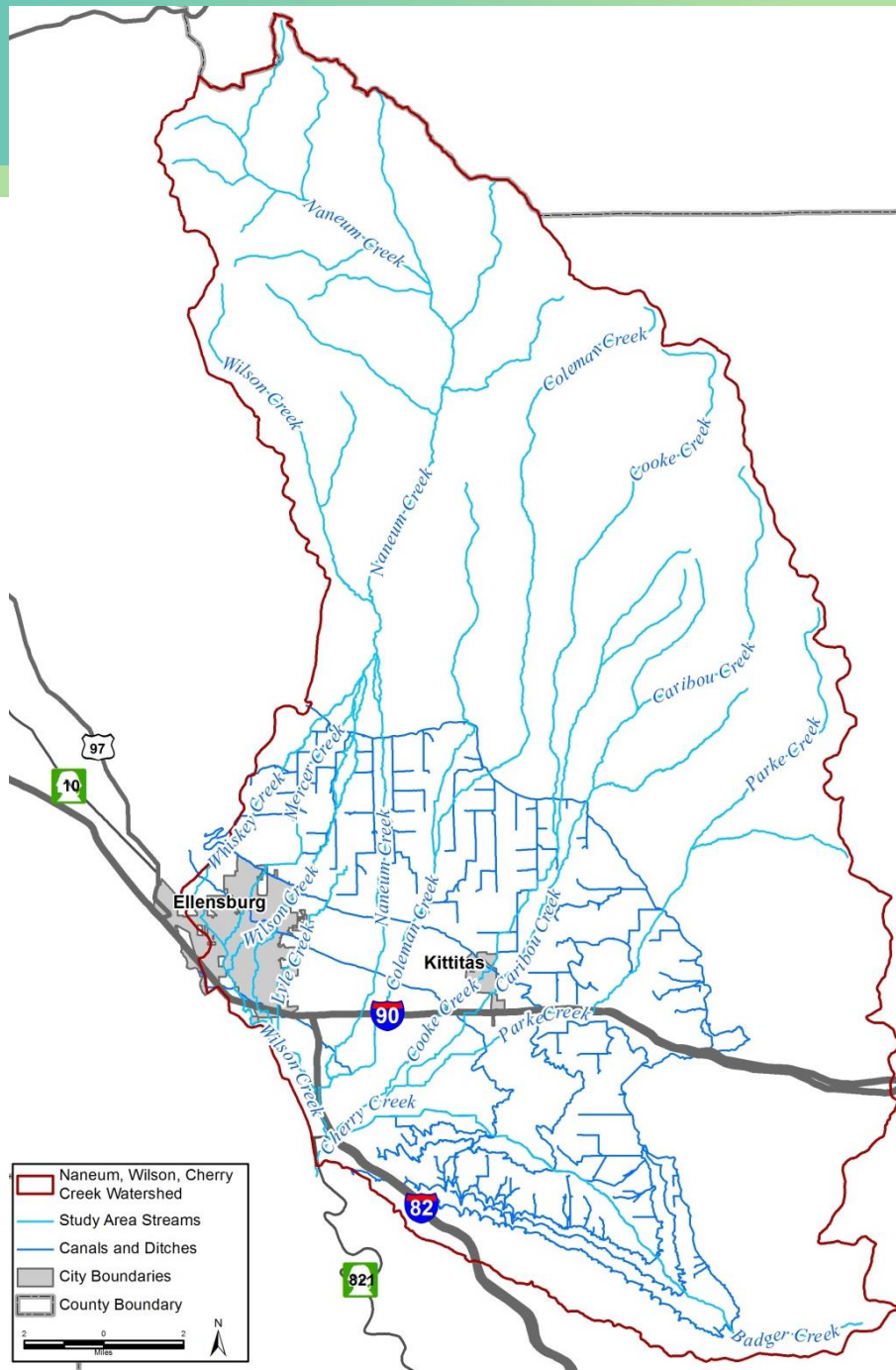
WATERSHED ASSESSMENT

Study Watershed

- 394 square miles
- 270 stream miles
- Study Streams:
  - Wilson Creek
    - Lyle Creek
    - Mercer Creek
    - Whiskey Creek
  - Cherry Creek
    - Parke Creek
    - Caribou Creek
    - Cooke Creek
  - Naneum Creek
    - Coleman Creek



Watershed Assessment

This Watershed Assessment is intended to develop a partnership between stakeholders to identify and study watershed issues, related to:

- Flooding
- Irrigation
- Infrastructure
- Water Quality
- Fish and Aquatic Habitat

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Summary of Phase 1 Objectives

- Facilitate communication with landowners, stakeholders, and decision makers
  - Landowner Advisory Group
  - Technical Advisory Group
  - Advisory Committee
- Data collection
  - Develop a plan to collect critical data
  - Review existing information for the Naneum, Wilson and Cherry Creek watersheds
  - Use the results of the review to identify data gaps and information needs
- Locate and map accurate stream, habitat, water use, and infrastructure locations
- Develop a hydrologic and hydraulic model for priority locations

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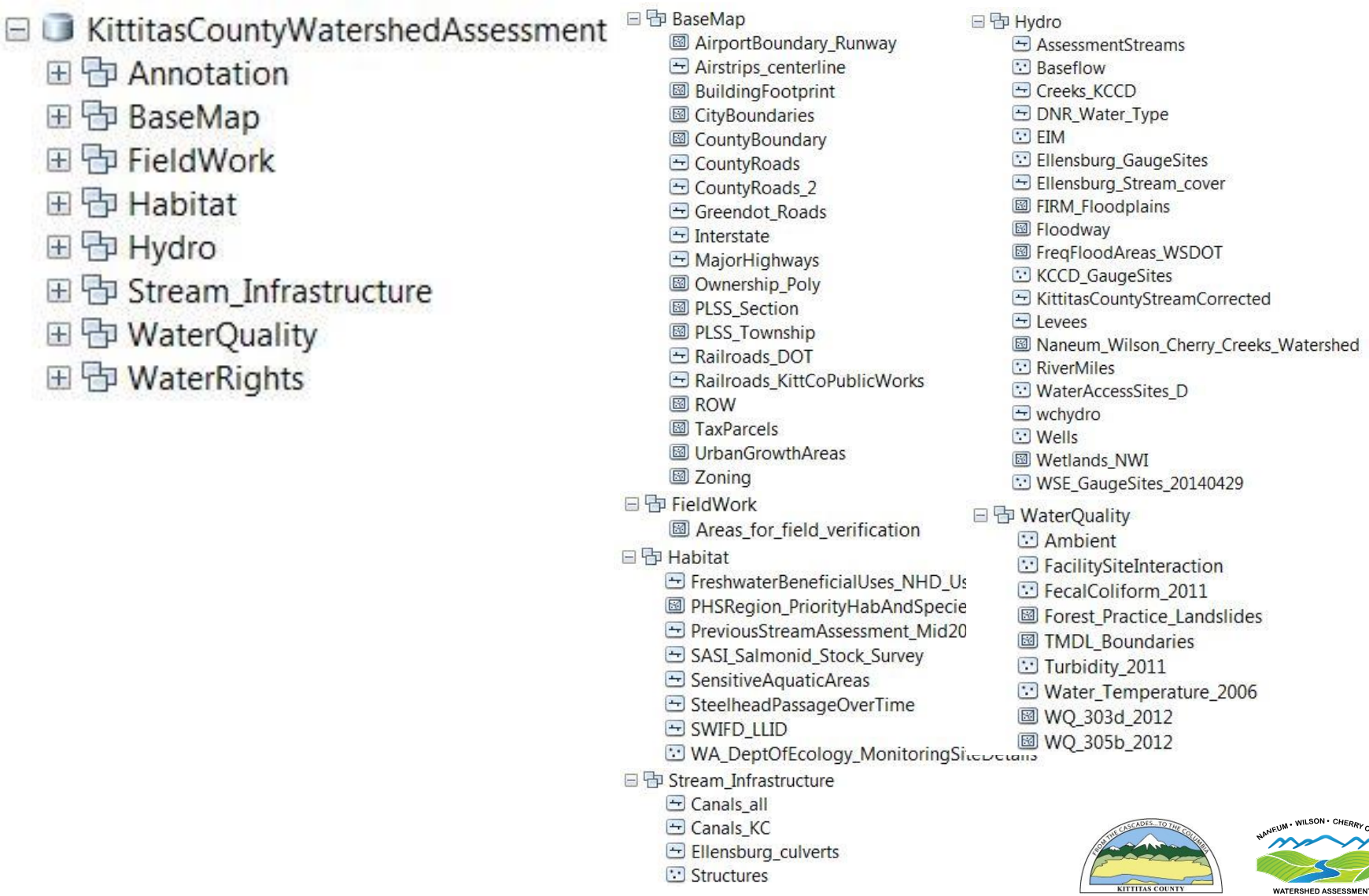
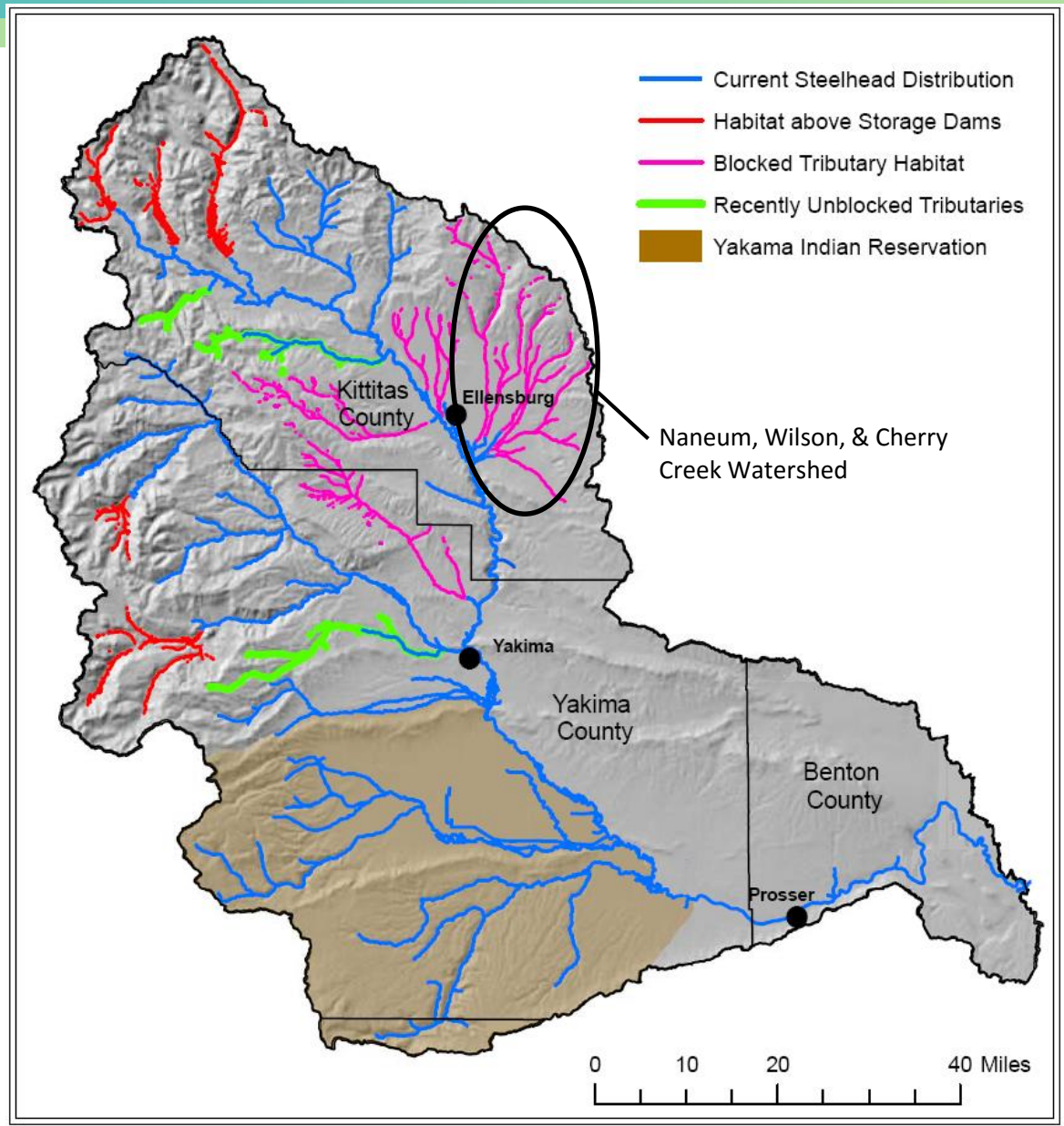
Project Geodatabase



Fish and Aquatic Habitat Needs

This watershed is one of the key blocked areas within the basin needed to meet the steelhead spatial structure standard



Flood Events

1894 — "Wilson and Nanum creeks played havoc in Ellensburg." Parts of the Valley flooded for two months

1906

1917 — Ellensburg floods

1921 — Ellensburg floods

1933 — Major Yakima River flood. About 7,000 acres inundated near Ellensburg

1948 — Worst Yakima river spring flood in history

1956 — Major flooding in Ellensburg and valley creeks

1965

Wenas St. & 5th Ave.

1971
1972 — Ellensburg floods

1977

1979
1980 — Ellensburg, Reecer, Cooke, and Caribou flooding

1990

1996 — University and Chestnut

1999 — Major Yakima river flood. Wettest Nov. on record.

2006 — Naneum Floods

2009

Wenas St. & 5th Ave. 2009

2011 — Cooke Creek at Brickmill Rd

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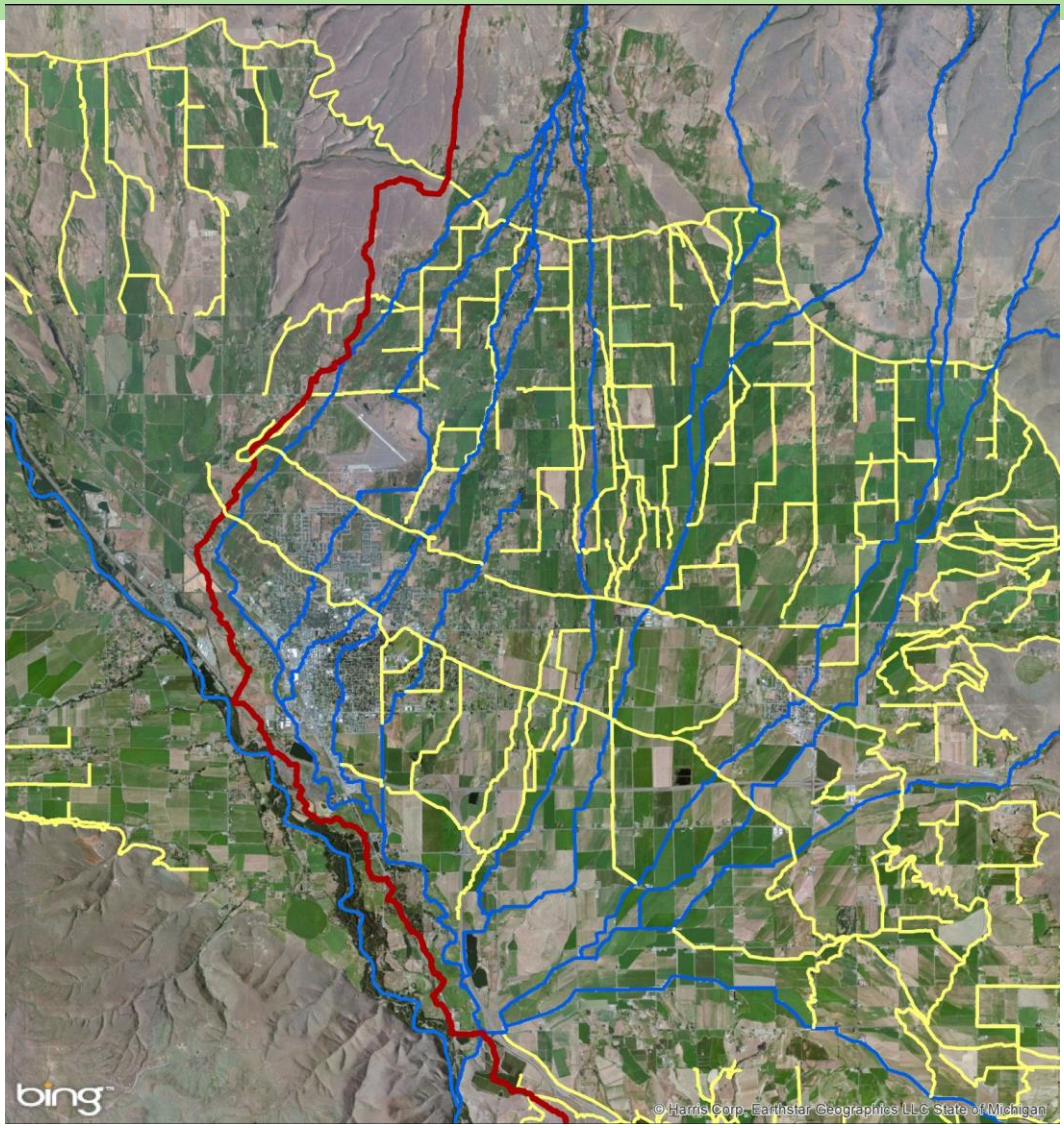
Irrigation Network



Complicated system of intersecting streams and ditches within the watershed

Streams
Irrigation

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Infrastructure

Naneum/Wilson flow splitter

Wilson Creek in Ellensburg

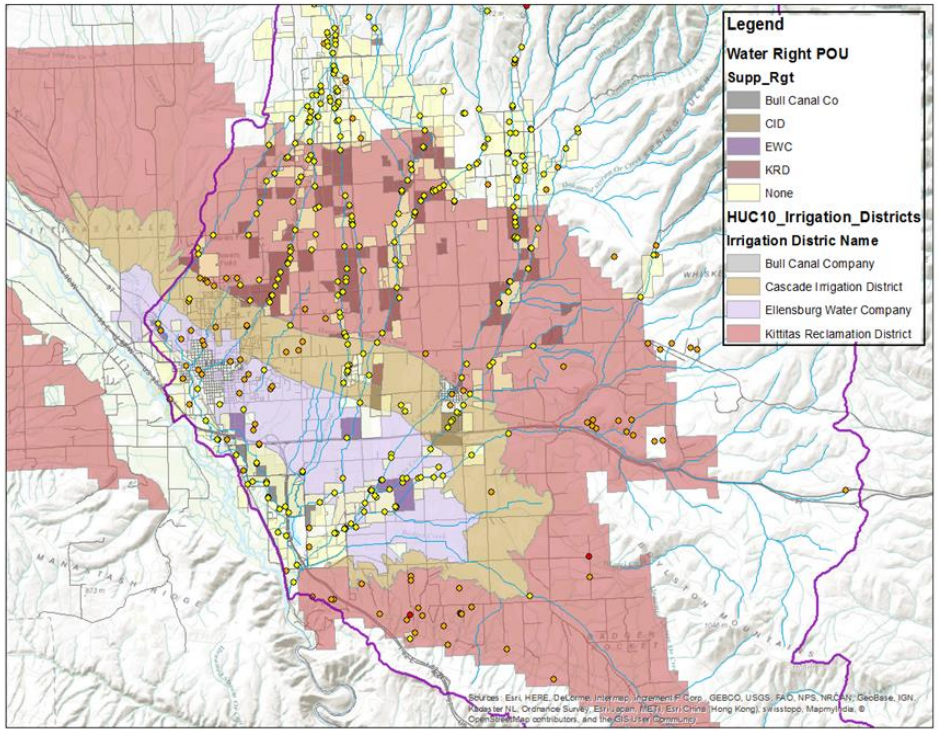
Coleman Creek at EWC

- In stream barriers that prevent fish passage and affect habitat may include:
  - Undersized culverts and bridges
  - Roads
  - Developed lands
  - Utilities
- Much of this infrastructure is aging or has been continually damaged by floods, long-term plans for replacement and upgrades need to be identified, coordinated, funded, and implemented
- Partnership opportunities for infrastructure improvements need to be identified and maximized

Complicated Water Rights Issues

Washington Water Trust

- Overlapping Rights
- Place of use vs. Point of diversion



CLAIMANT NAME:	**WA State Department of Ecology** COURT CLAIM NO. 01746
Certificate Number:	S4-85136-J
Subbasin:	10 Kittitas
Source:	Schnebly Creek
Use:	Instream flows
Period of Use:	April 1 through October 15
Quantity:	Primary Reach - 0.015 cubic foot per second (cfs), 3.12 acre-feet per year Secondary Reach - 2.19 acre-feet per year, to be distributed as follows: 0.0 cfs, 0.0 acre-feet in April; 0.003 cfs, 0.21 acre-foot in May; 0.008 cfs, 0.47 acre-foot in June; 0.011 cfs, 0.65 acre-foot in July; 0.008 cfs, 0.52 acre-foot in August; 0.005 cfs, 0.29 acre-foot in September; 0.001 cfs, 0.04 acre-foot in October
Priority Date:	**June 30, 1881**
Point of Diversion:	N/A
Place of Use:	The primary reach begins at a point 1400 feet south and 1500 feet east from the northwest quarter corner of Section 11, T. 18 N., R. 19 E.W.M., and ends at a point 2130 feet north and 80 feet east of the southwest quarter corner, of Section 11, T. 18 N., R. 19 E.W.M. The secondary reach begins at a point 2130 feet north and 80 feet east of the southwest quarter corner, of Section 11, T. 18 N., R. 19 E.W.M. and continues down Schnebly Creek to the confluence with Coleman Creek, Naneum Creek, Wilson Creek, and the Yakima River to the USBR Gage at Parker at river mile 106.7, in the SW¼SW¼ of Section 17, T. 12 N., R. 19 E.W.M.
Limitations Of Use:	Water that is not being used to mitigate for new uses will remain instream past the USBR Parker Gage on the Yakima River, to the confluence with the Columbia River and continuing to the Pacific Ocean, Pacific County, Washington. This Trust Water Right is subject to The Williams Family Trust Water Right Agreement between Jerry Williams and Ecology, signed on December 8, 2011.
Comments:	This water right reflects changes approved pursuant to Water Right Change Application No. CS4-01746CTCLsb10(b).

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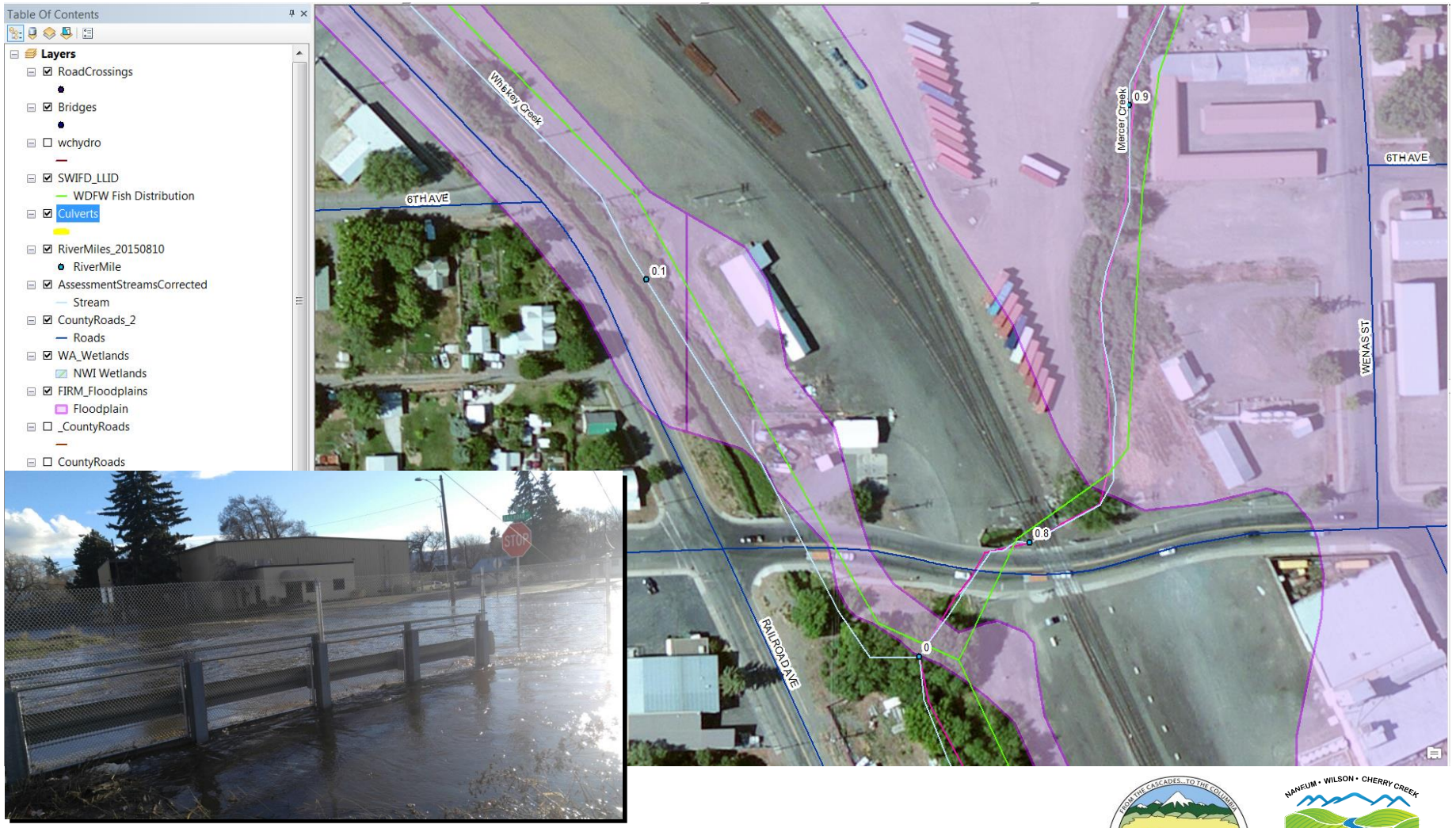
WATERSHED ASSESSMENT

Data Challenges Whiskey Creek



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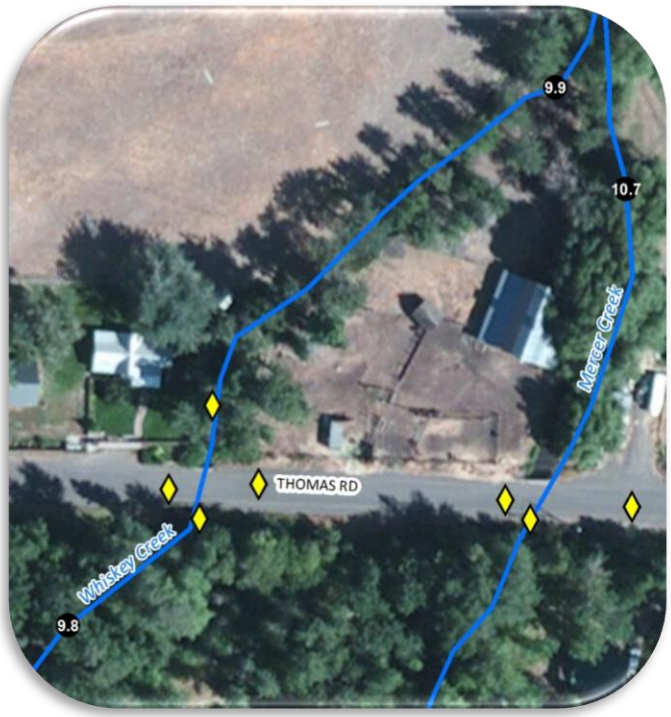
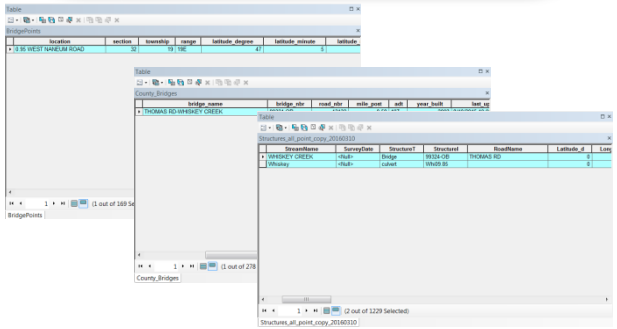
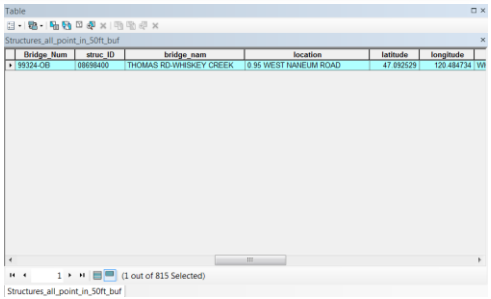
Infrastructure Data Merge

Before

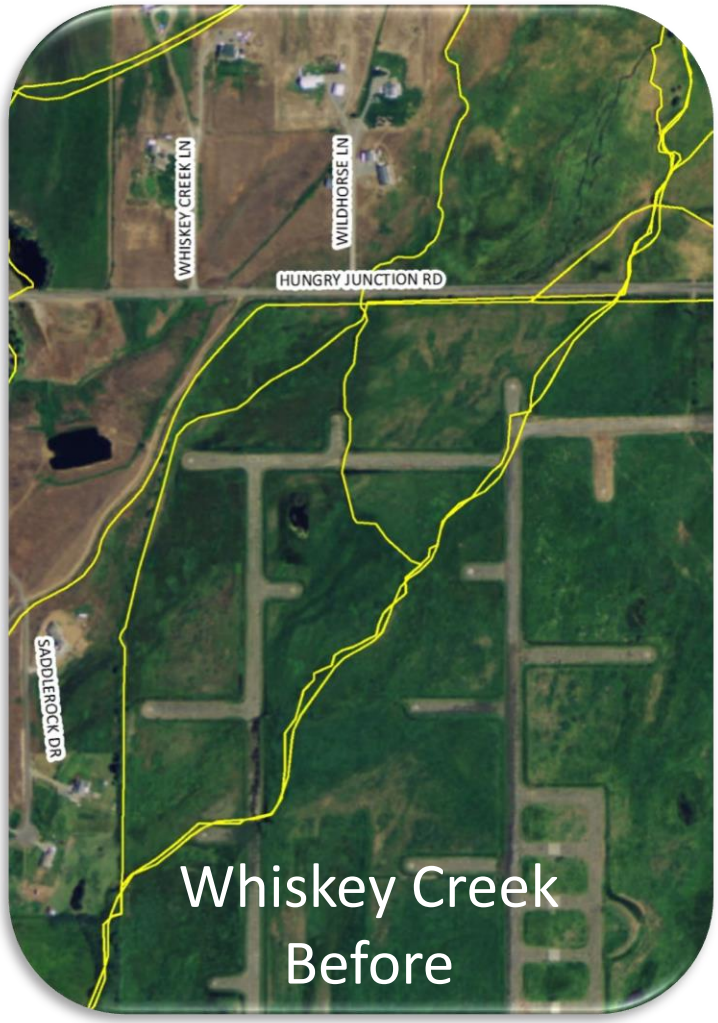




After



Stream Data Cleanup



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Community Benefits

Implementation of the plan in subsequent phases helps to:

- Protect homes, businesses, and agricultural lands from flooding
- Minimize public expenditure on repair of facilities and infrastructure such as utilities, streets and bridges;
- Improve fish habitat
- Protect irrigation reliability
- Improve safety- minimize the need for rescue and relief efforts associated with flooding
- Increase public access
- Improve economic security

Next Steps

- Plan the field work and acquire remaining priority data (summer/fall 2016)
- Develop alternative screening and evaluation criteria
- Use criteria to identify priority projects
- Meet with Advisory Committee and LAG
- Provide Phase 1 report outline to TAG for review
- Extend project through spring 2017 and Complete Phase 1 report
- Identify future funding opportunities
- Move to Phase II project identification and implementation

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WSE Hydrologic Analysis

- Data
  - Historic observations
  - Pressure transducer
  - Crest stage
  - Field observations
    - Photos
    - High water marks
- Hydrology
  - Low flow
    - Mapping
  - High flow
    - HEC-RAS 2D modeling

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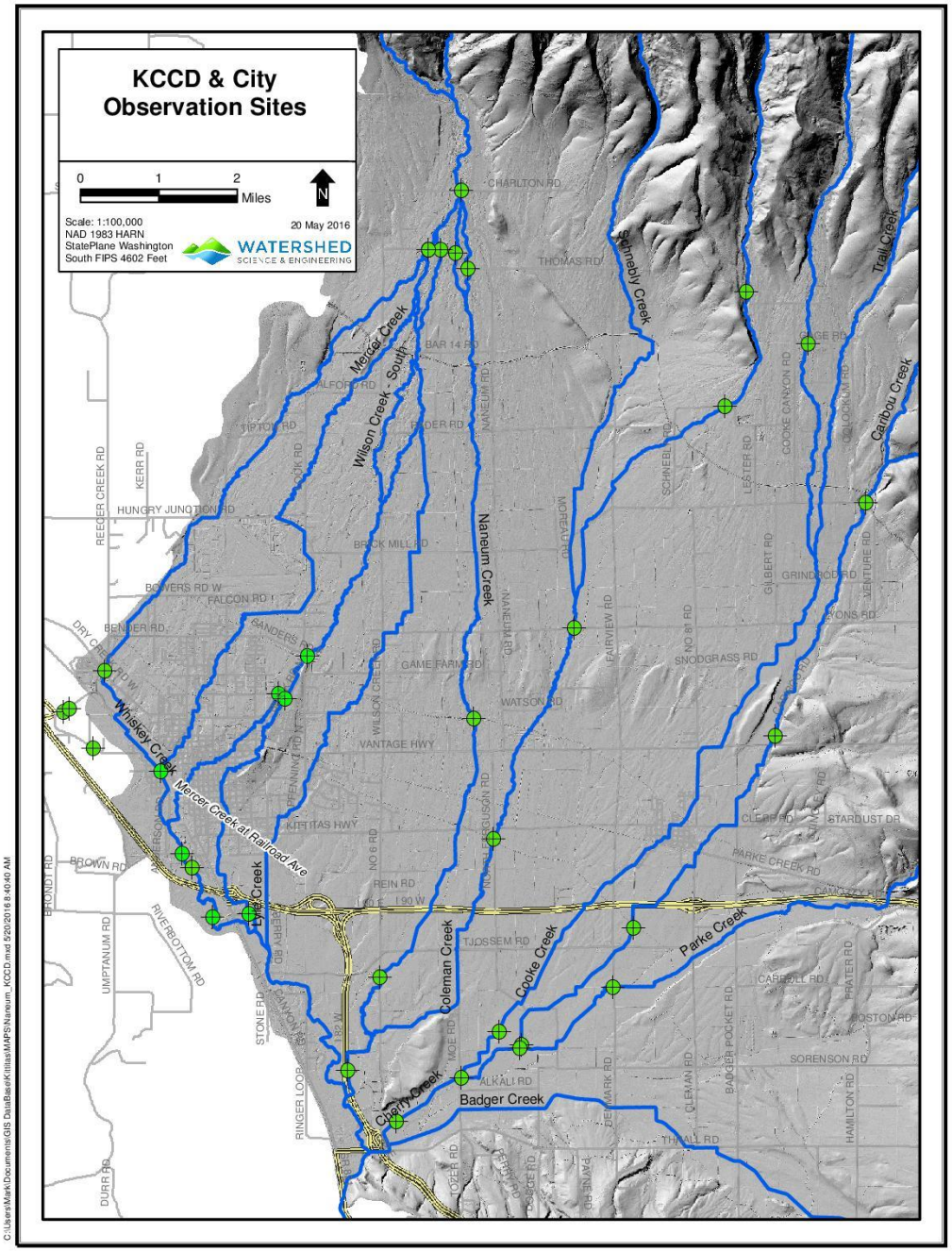
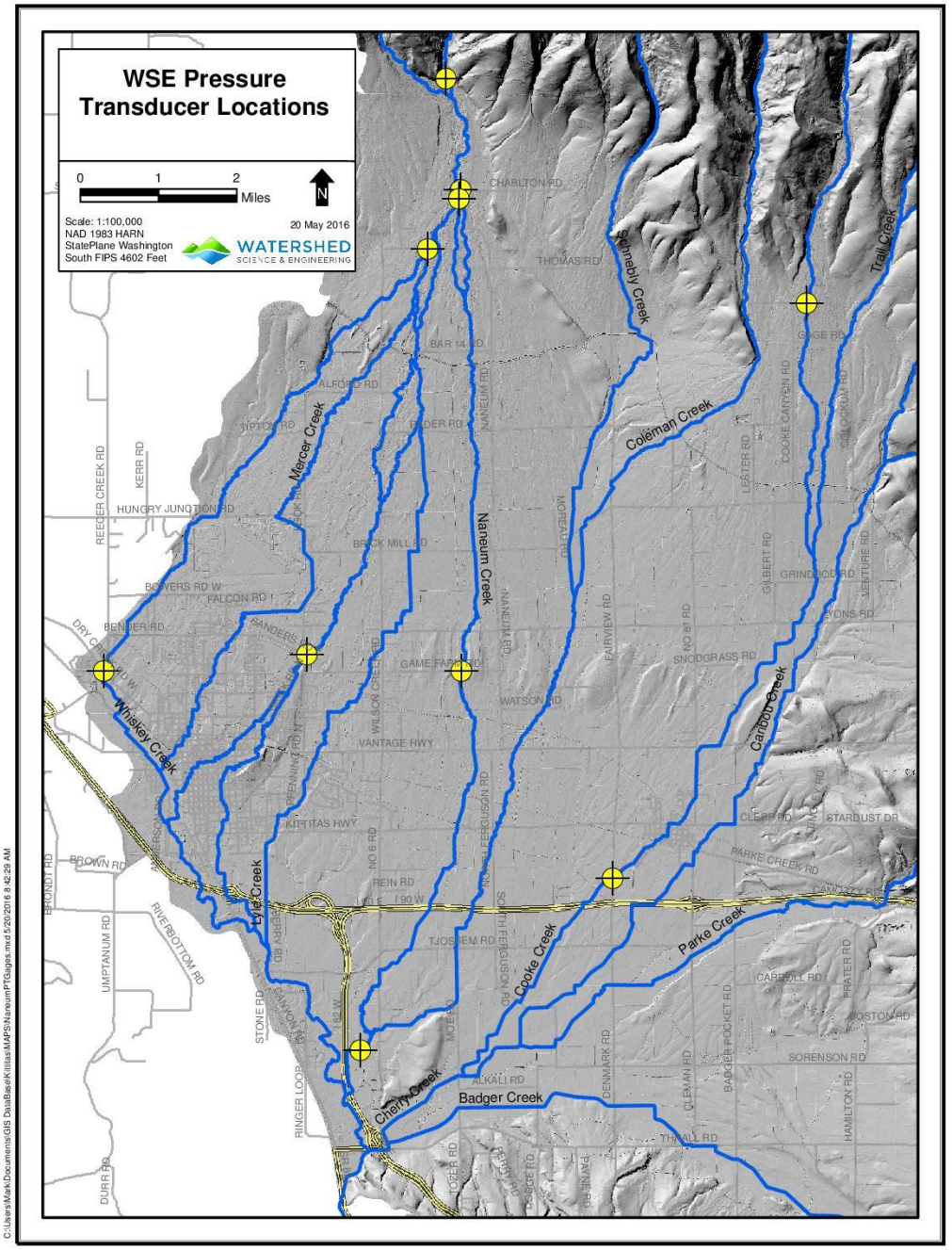
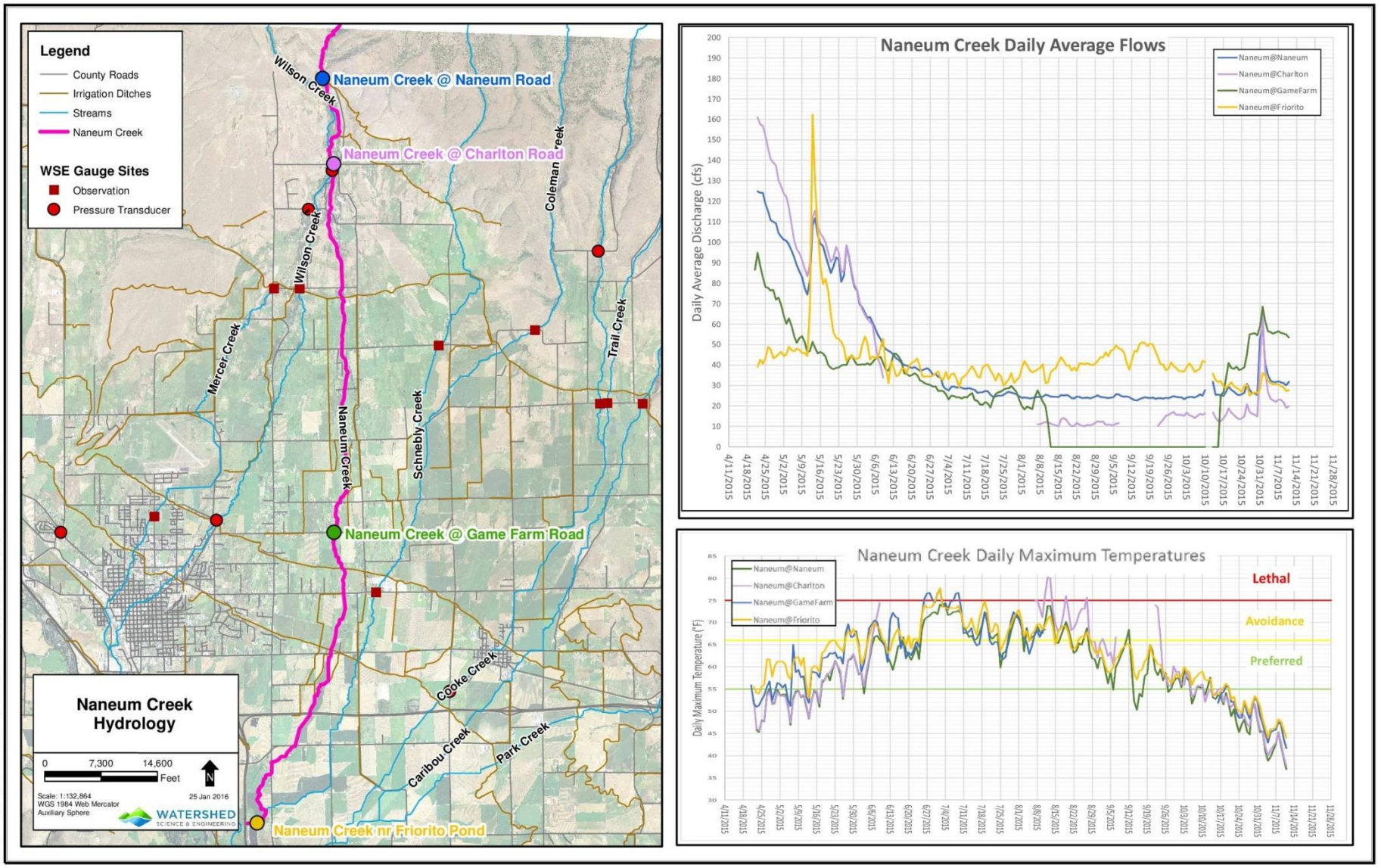
Previous Observations – KCCD & City



WSE Pressure Transducers



Pressure Transducer Data



WSE Crest Gages

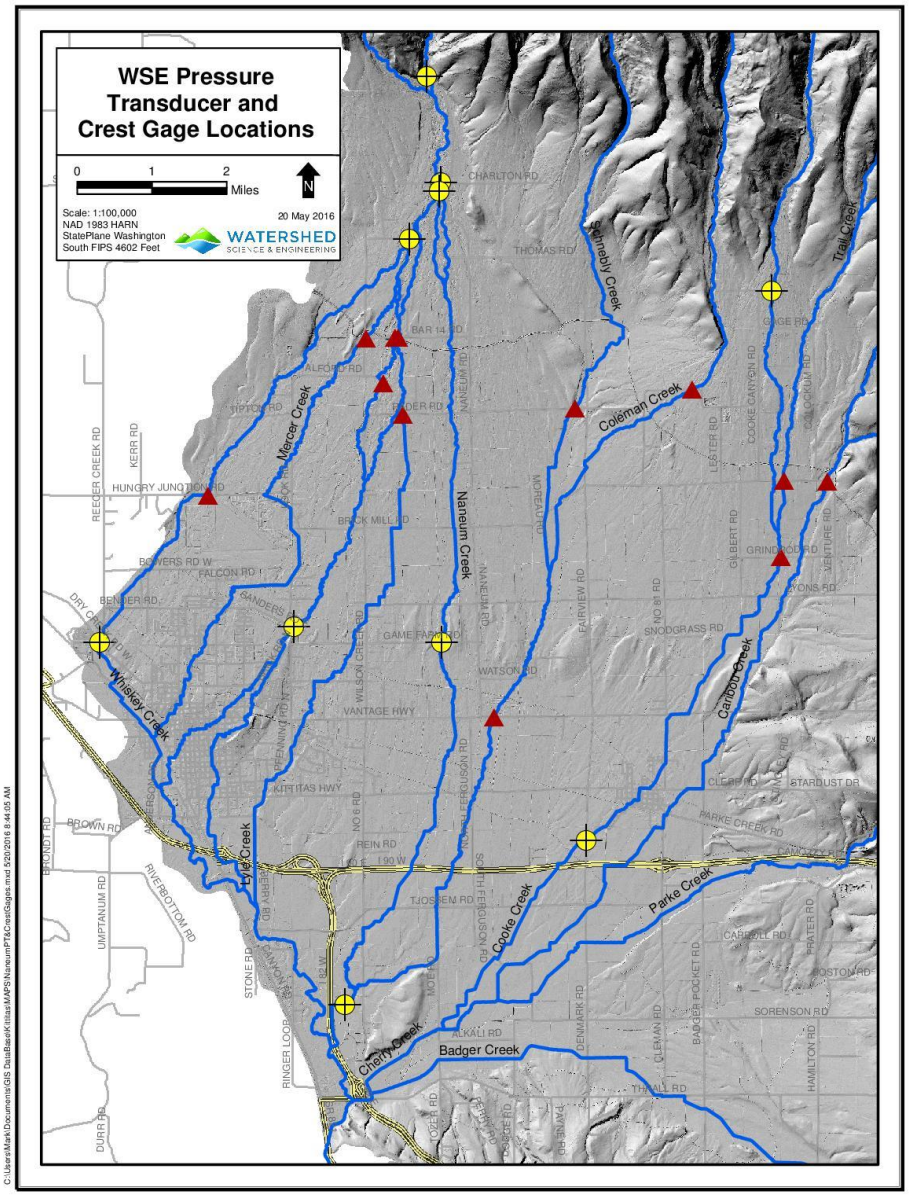
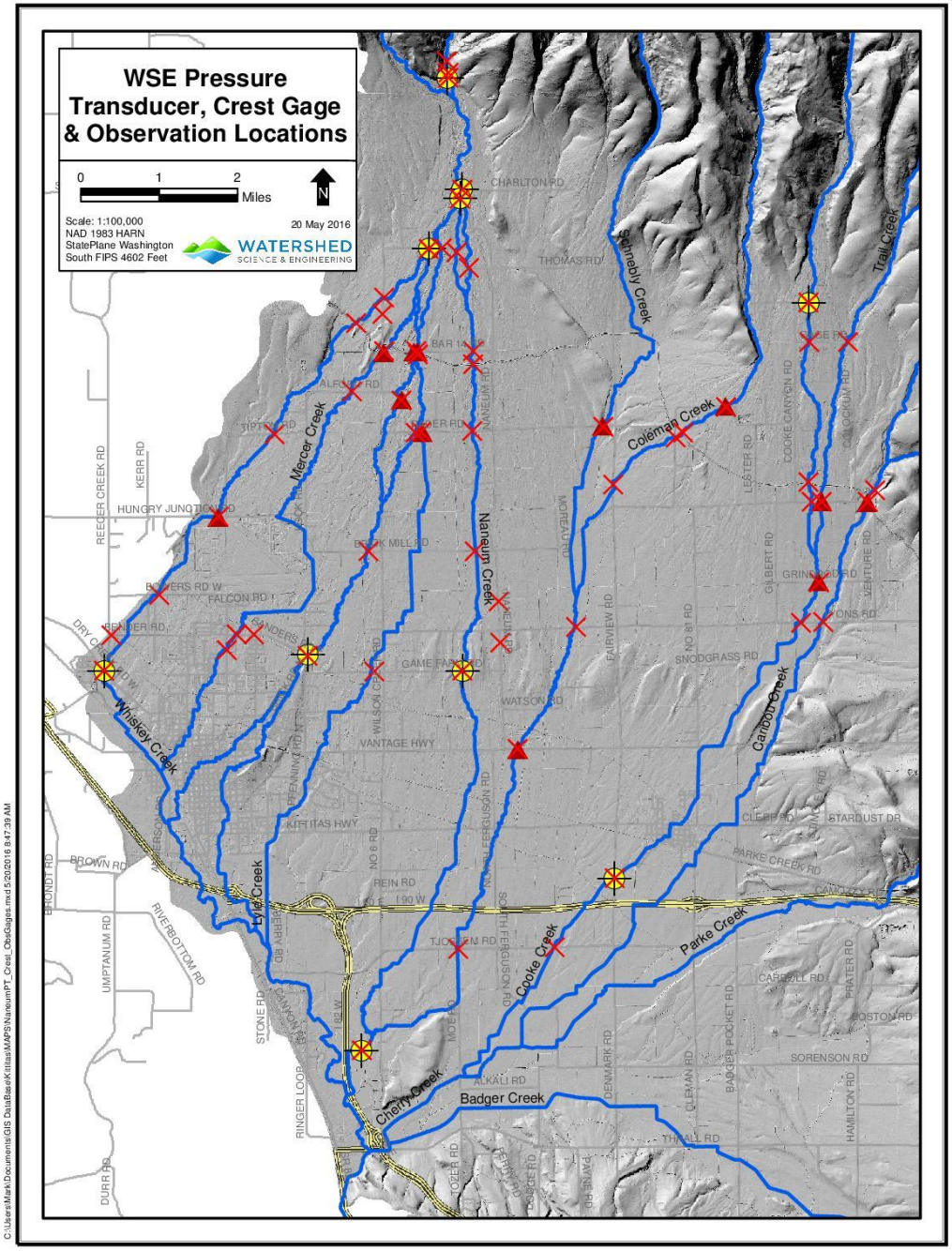
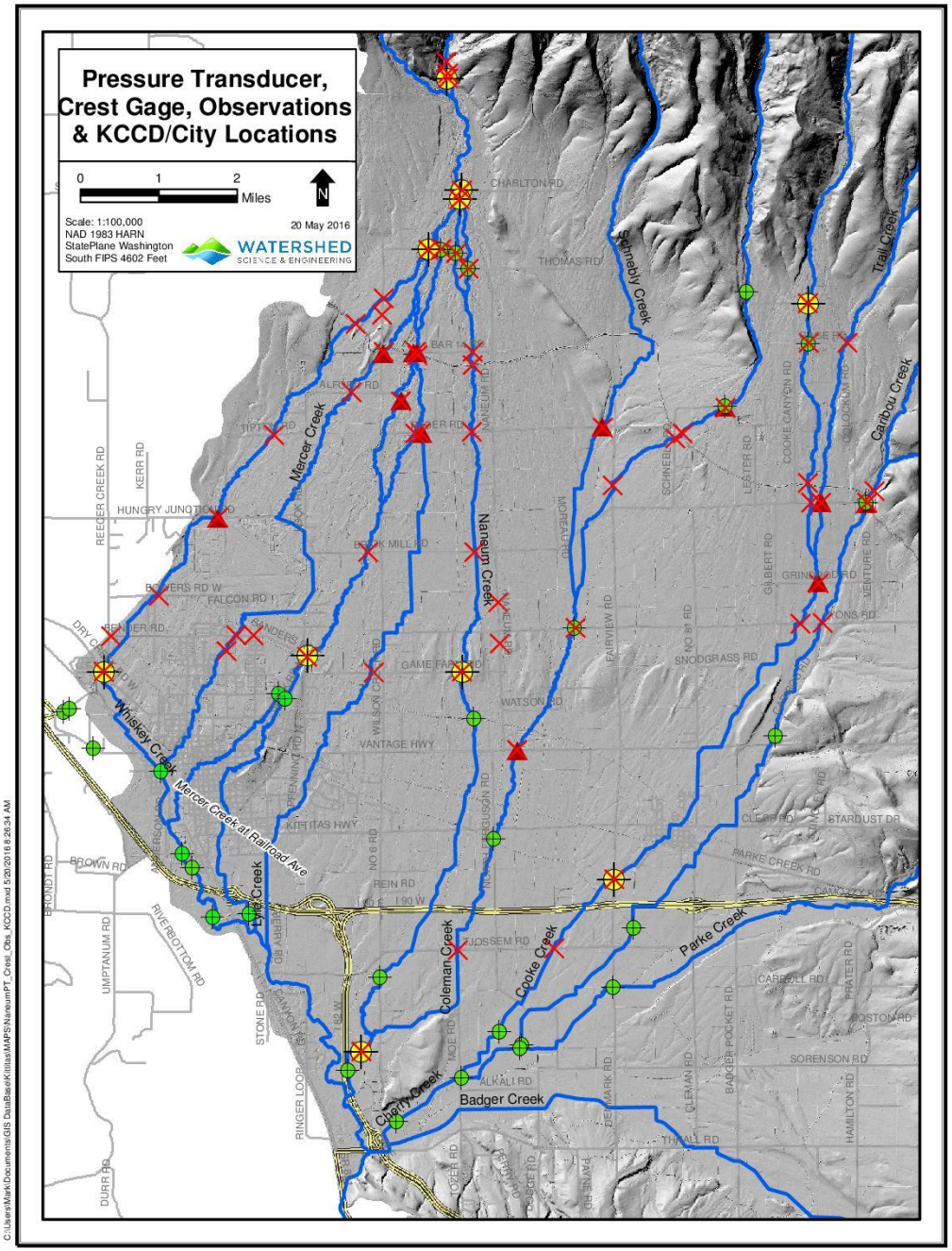


Photo Observations



Hydrologic Observation Set



Varied Flows

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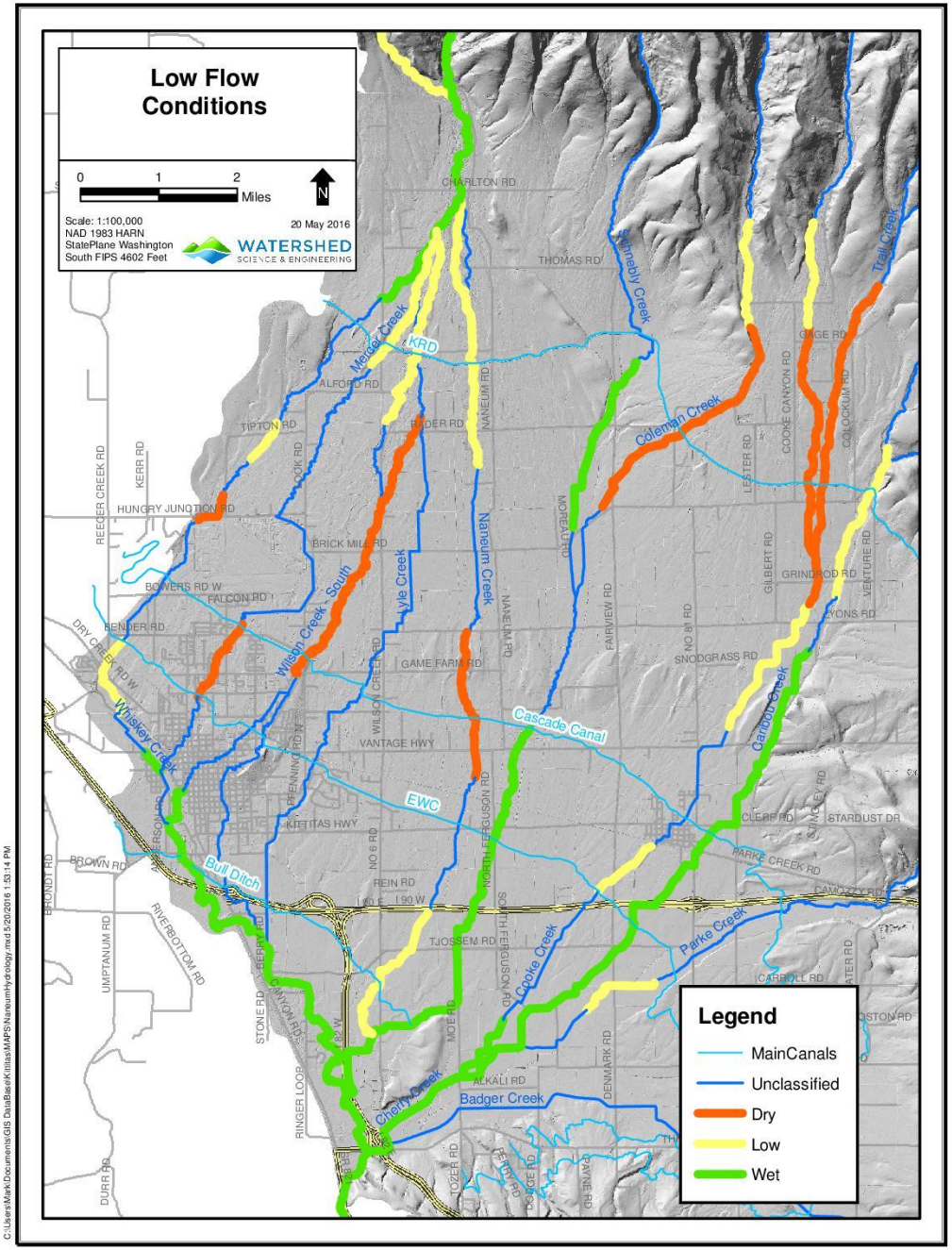
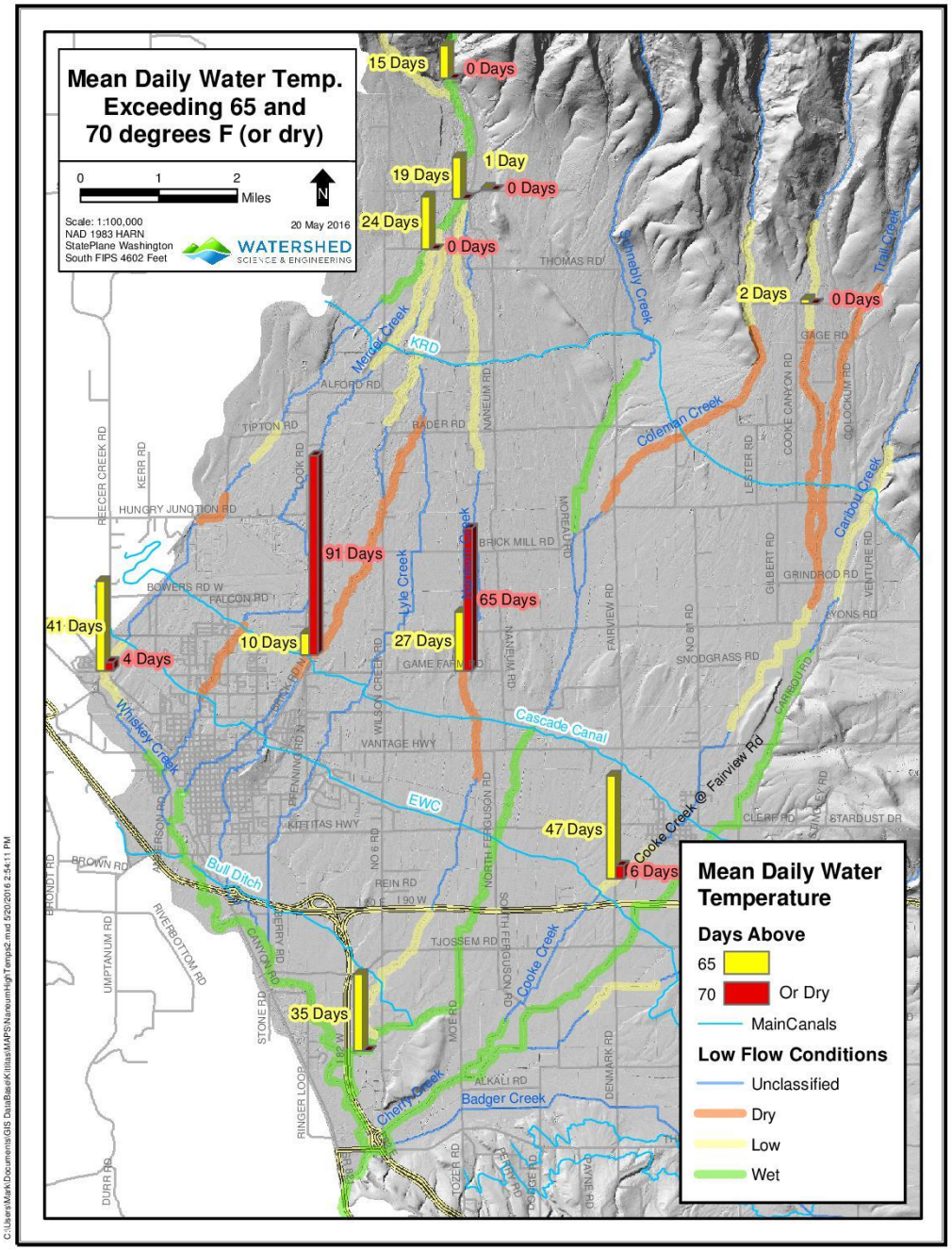
Low Flow Conditions



High Temperature Conditions



2D Hydraulic Modeling - Overview

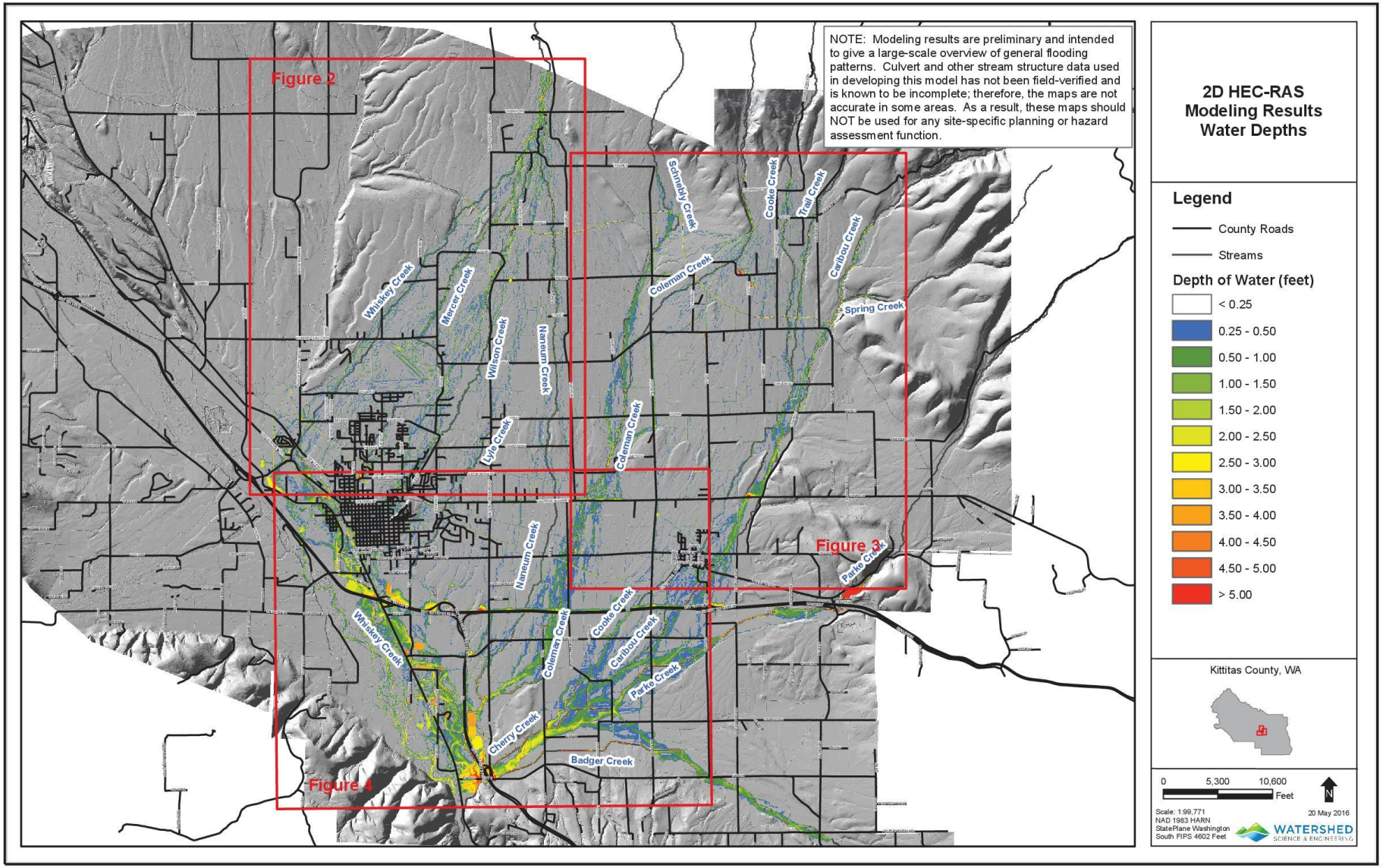


Figure 1

2D Modeling Example

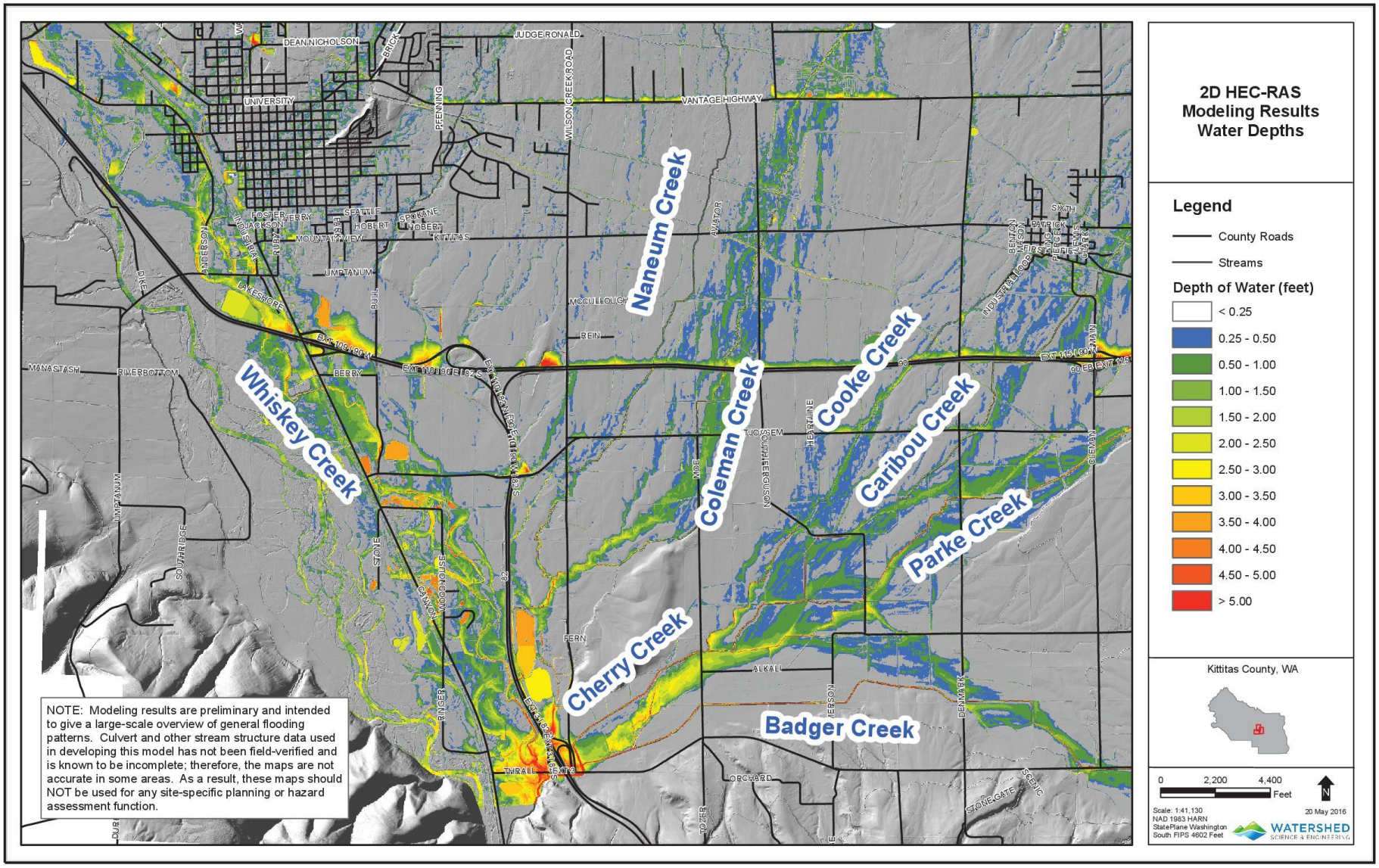


Figure 4

Questions?


FROM THE CASCADES...TO THE COLUMBIA
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