



Model Updates: 2040 Scenarios and White Bear Lake

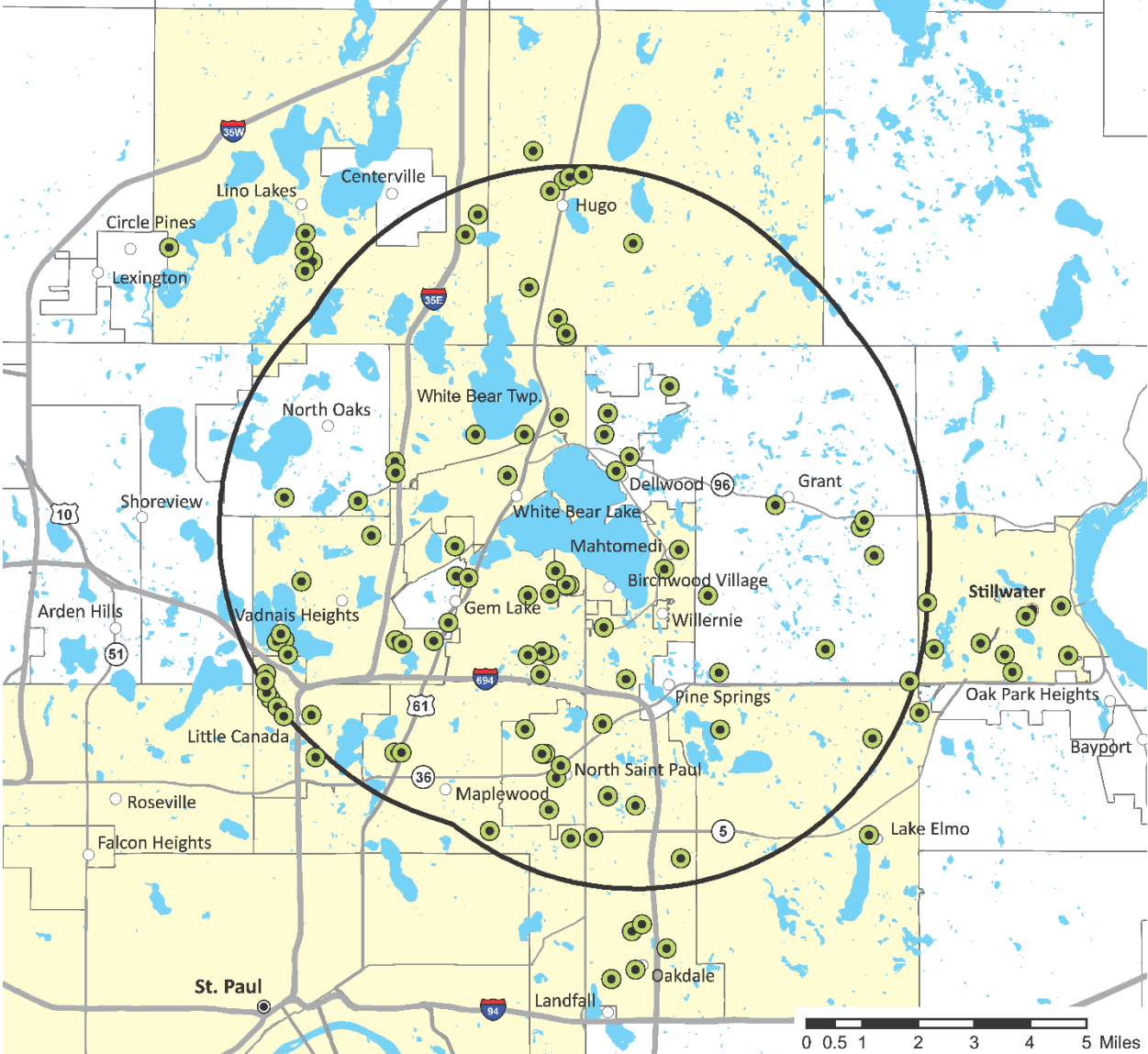
Glen Champion | Hydrologist

- Review previous model analyses
- Evaluated White Bear Lake water levels for a scenario supplying 2040 demands with groundwater
- Provides information for 3M East Metro Settlement Area planning and for all the evaluated communities
- Can evaluate other scenarios to support future planning

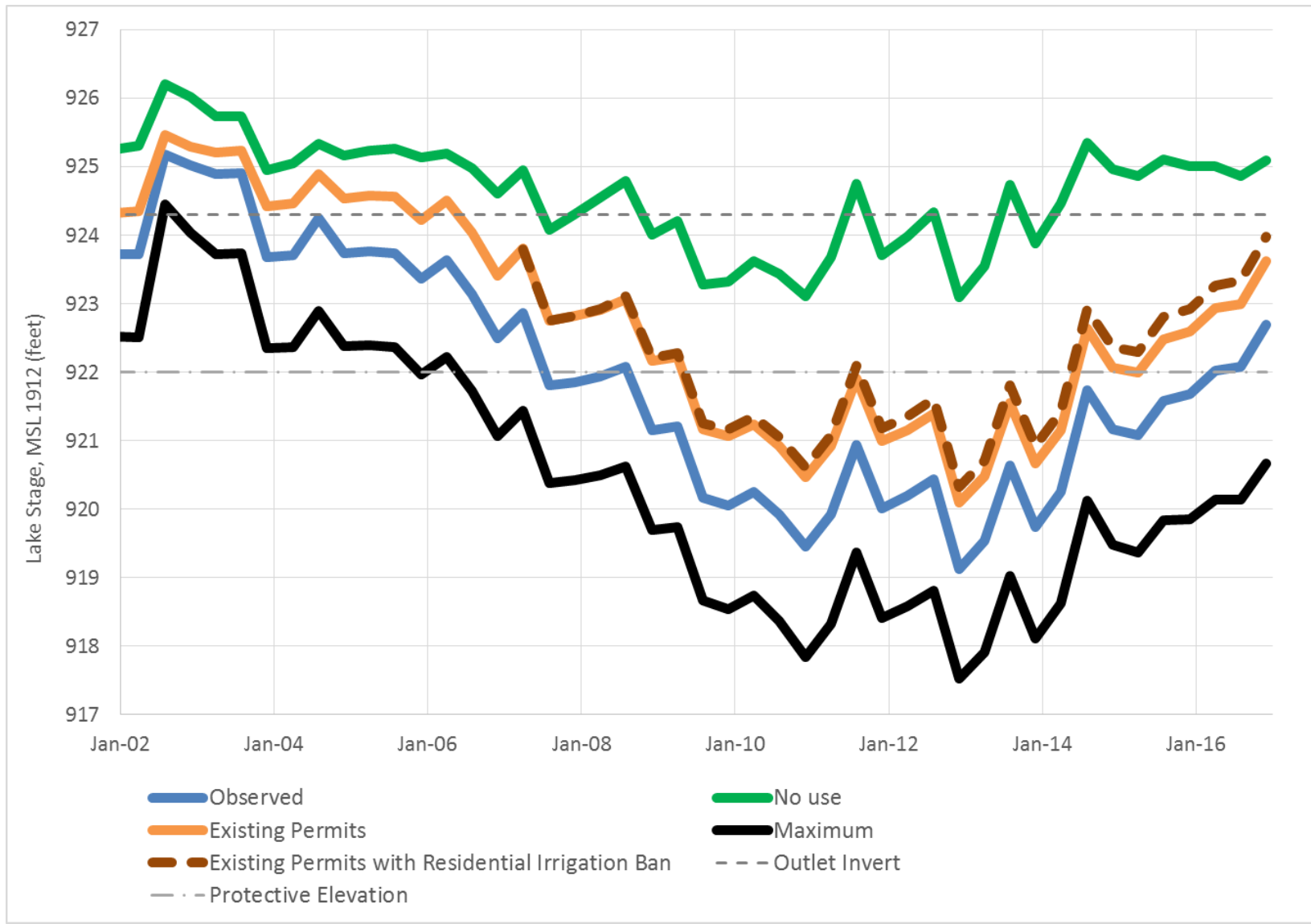
Scenarios Modeled – Previous Work

- Permits with groundwater sources within five miles of White Bear Lake
 - No use – starting in 1988 as “reference”
 - Maximum authorized – starting in 1988
 - Existing use (2008-2017 average) projected backward from 1988-2007
 - Individual shut off scenarios relative to existing-use scenario
 - Existing w / irrigation ban triggered at 923.5’
 - Raise outlet by one foot, existing use
 - Percentage reduction from existing use
 - Targeted reduction and alternate source scenarios relative to existing use
- Extended to selected large use permits beyond 5-mile radius and through 2018
 - No use, existing use, individual

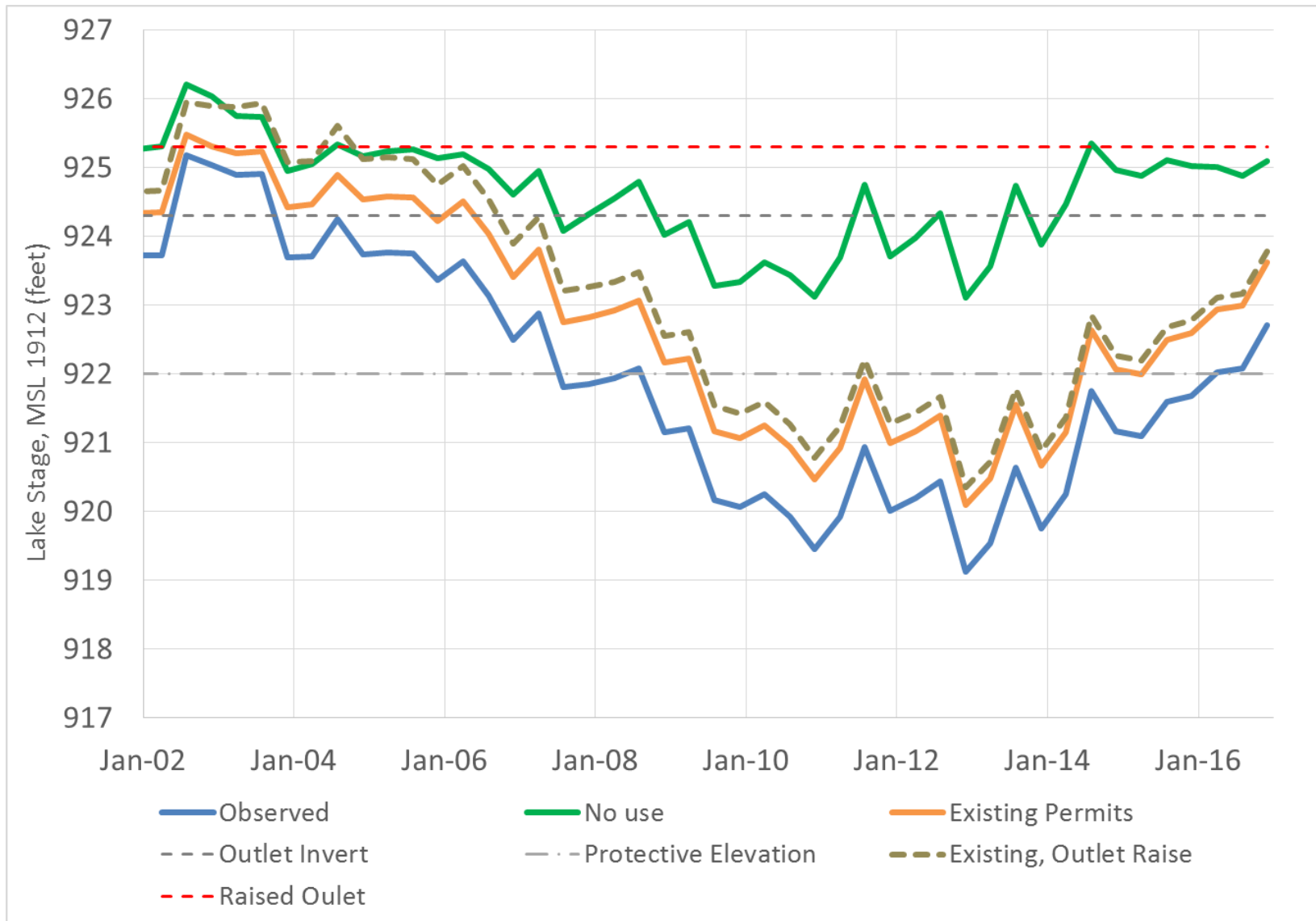
Permits and Wells w/in 5-Mile Area



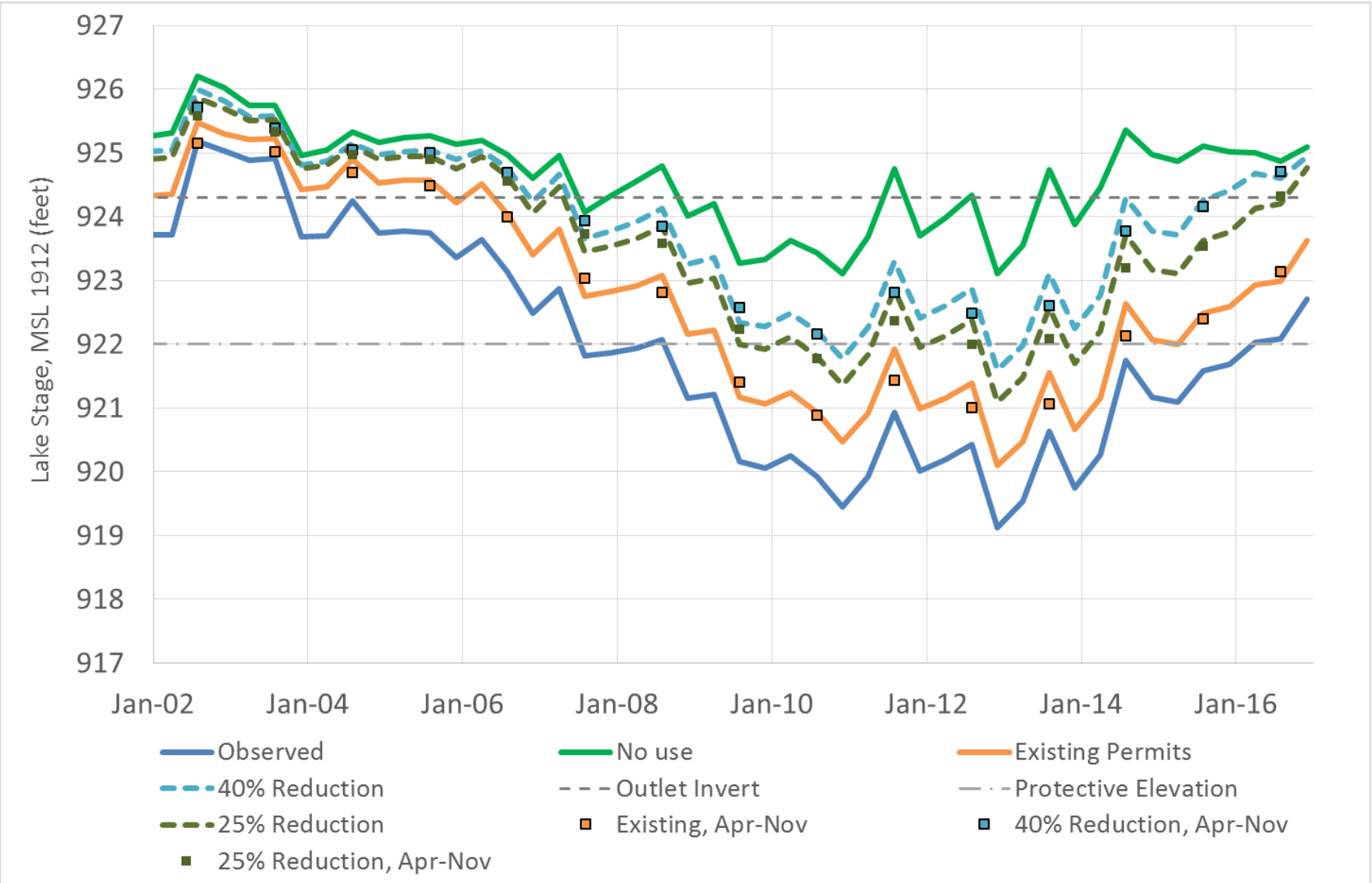
Review



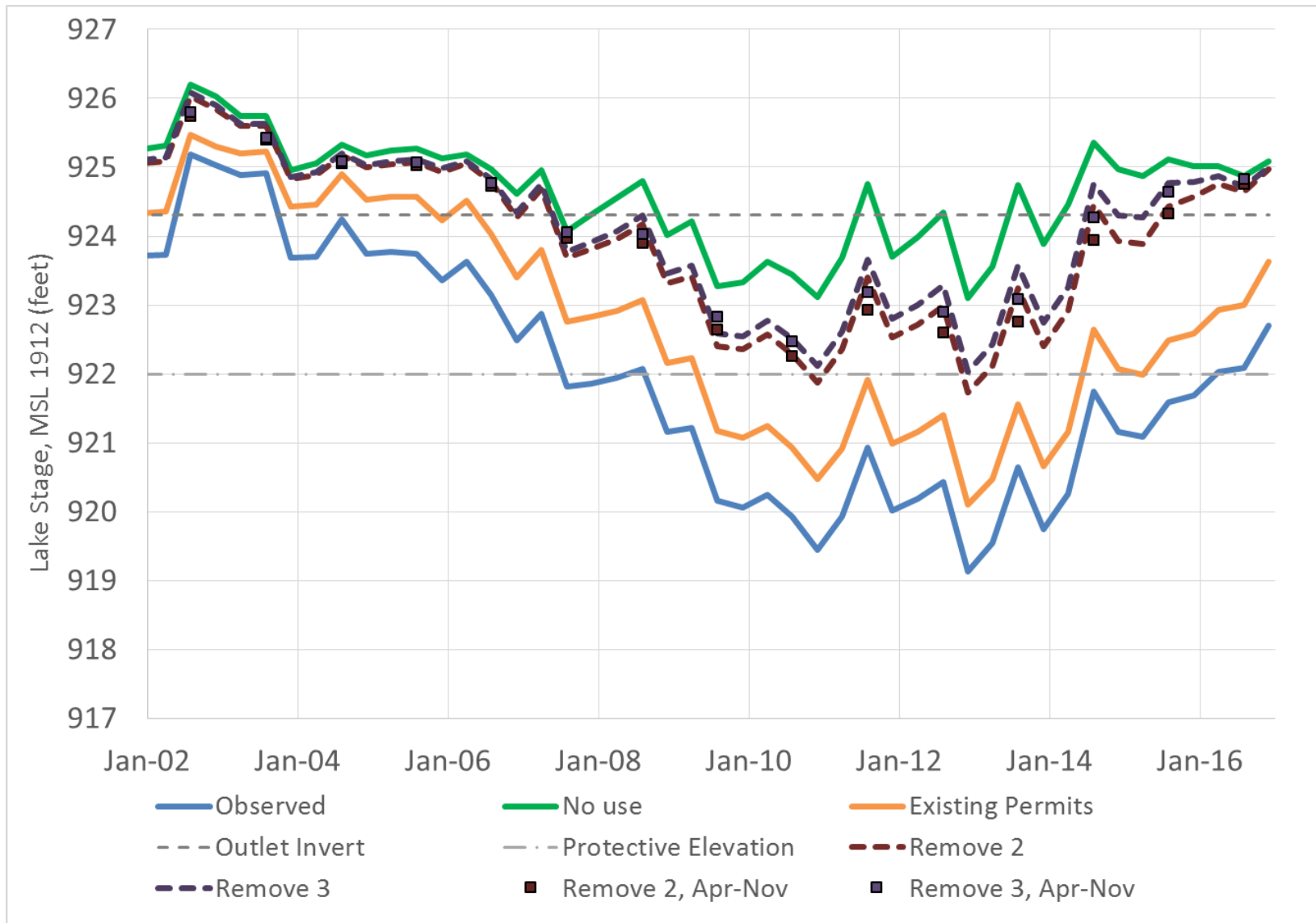
Review – Raise Outlet 1 foot



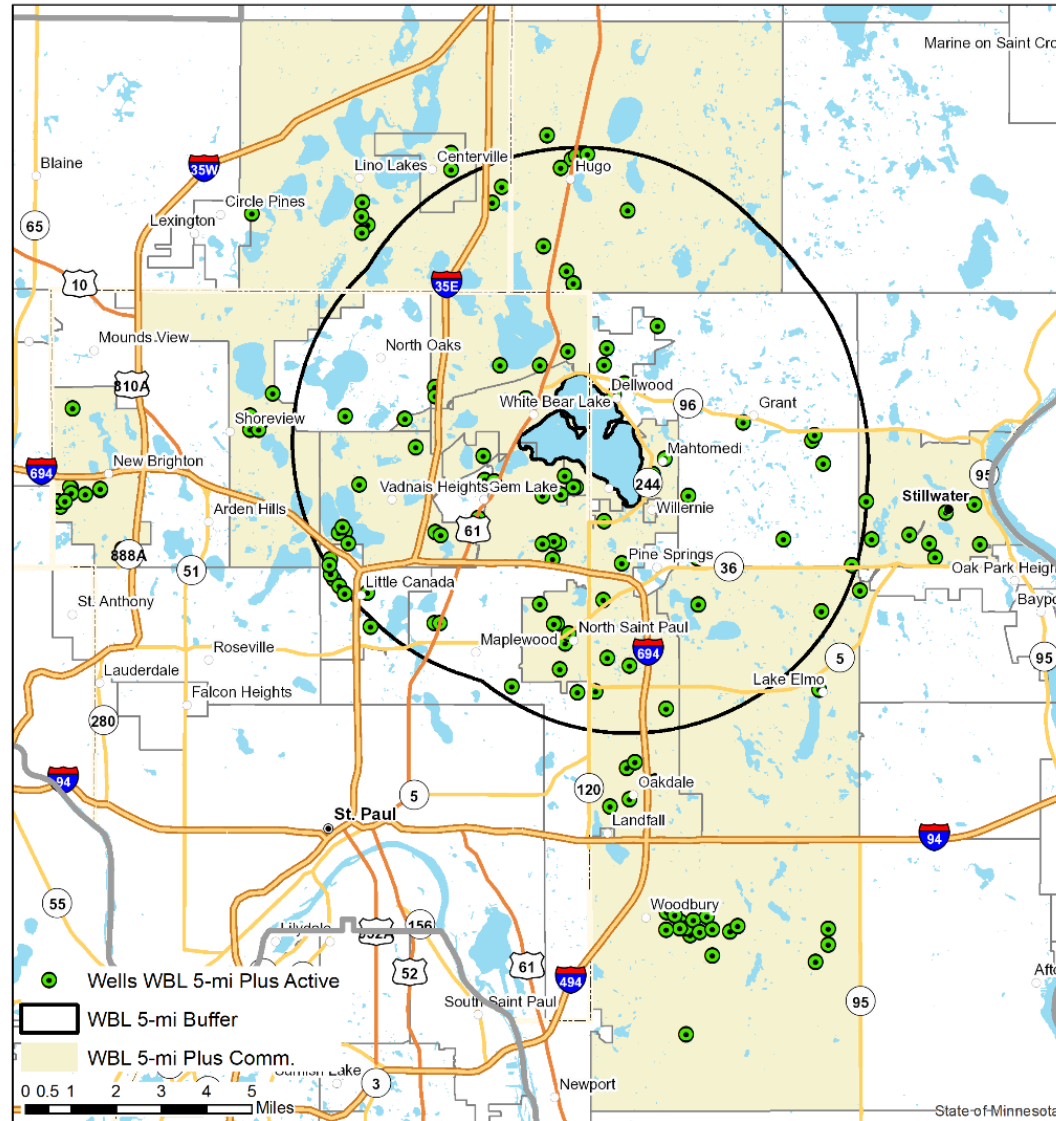
Review – Percent Reduction



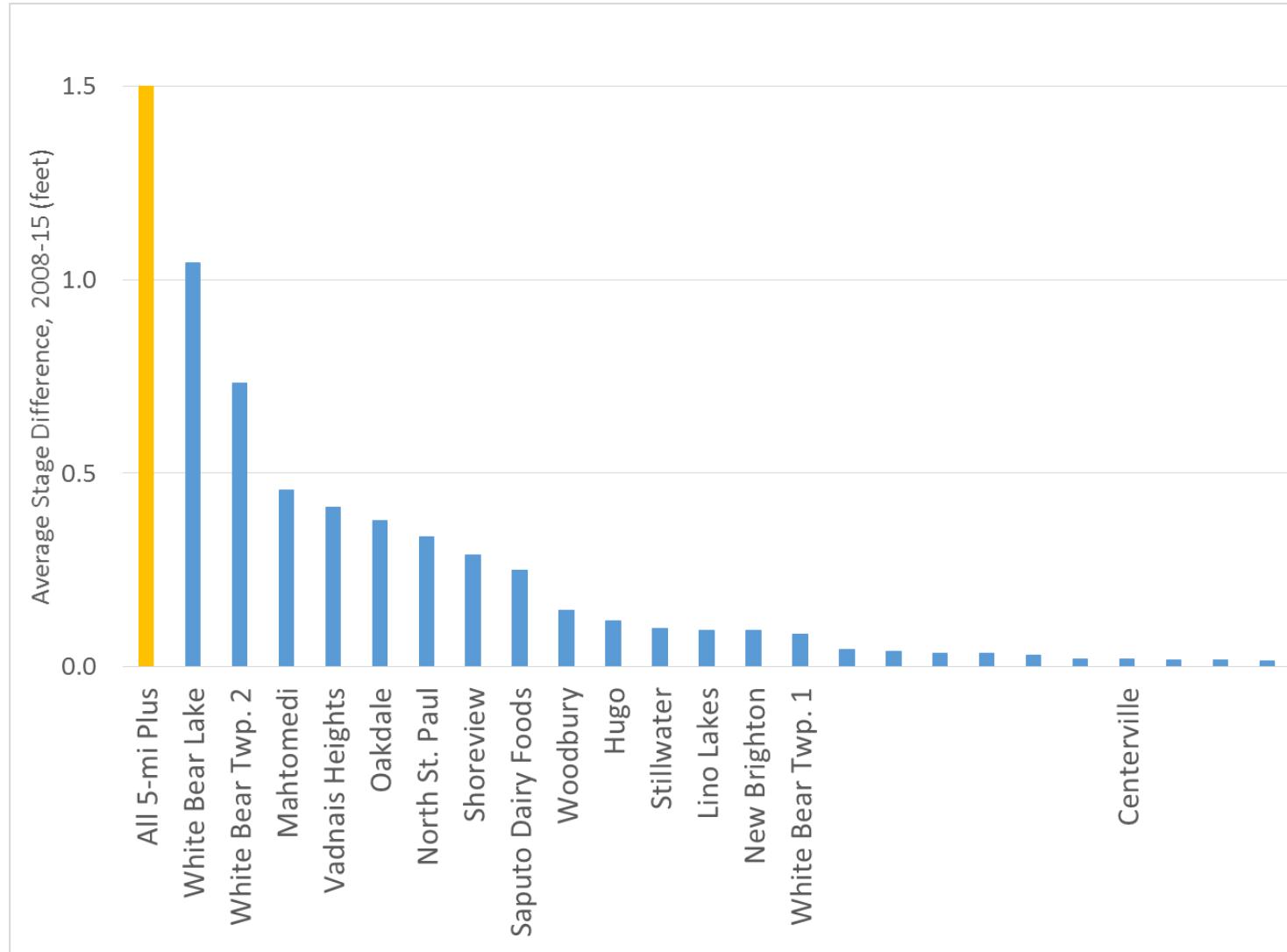
Review – Alternate Source



Expanded Permits and Wells



Review – Individual Permit Analysis



Scenarios Modeled

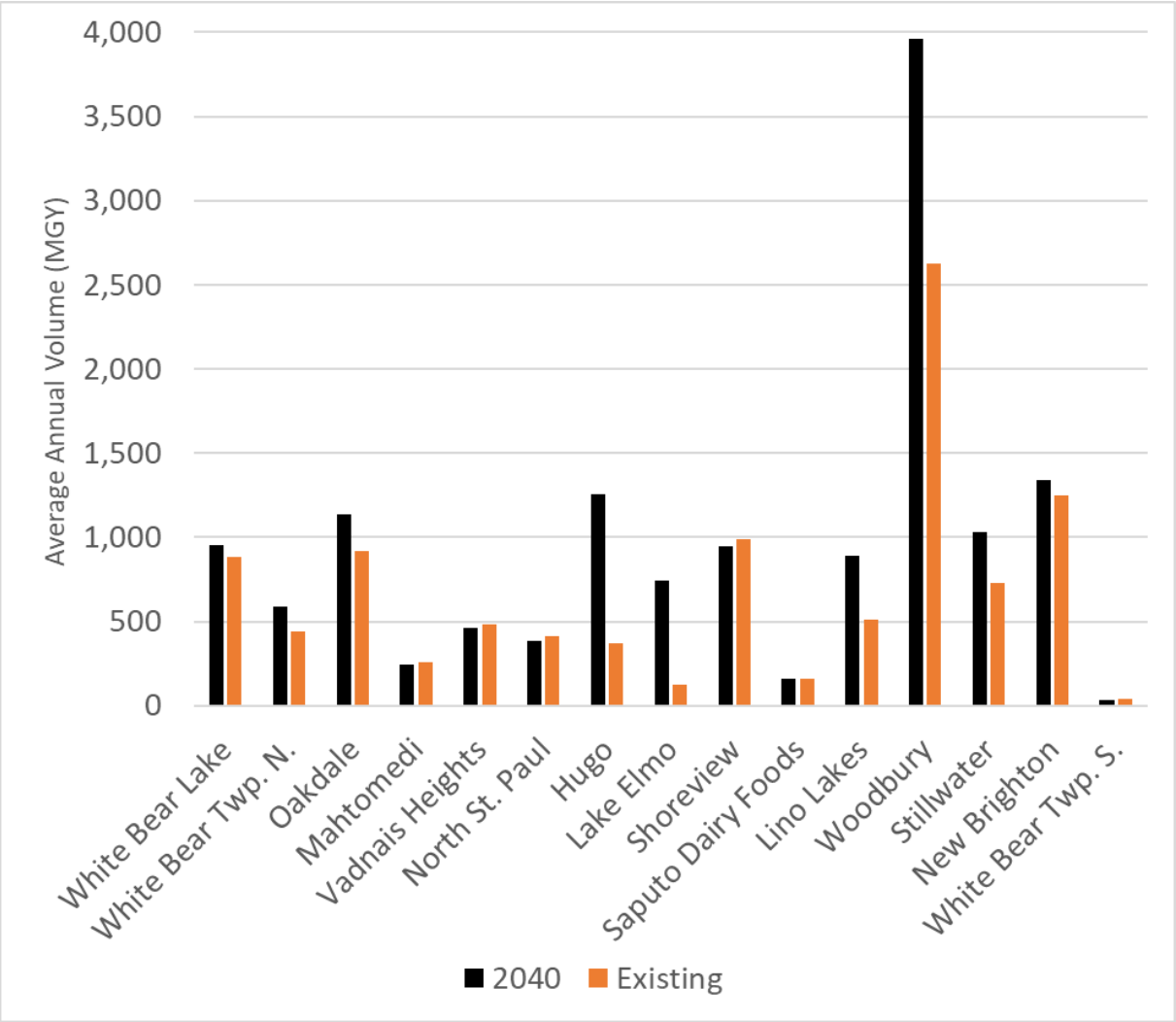
- Projected 2040 demand, supplied by groundwater, applied to 1988-2018
- Individual shut-off scenarios relative to 2040 baseline

East Metro, 3M Settlement

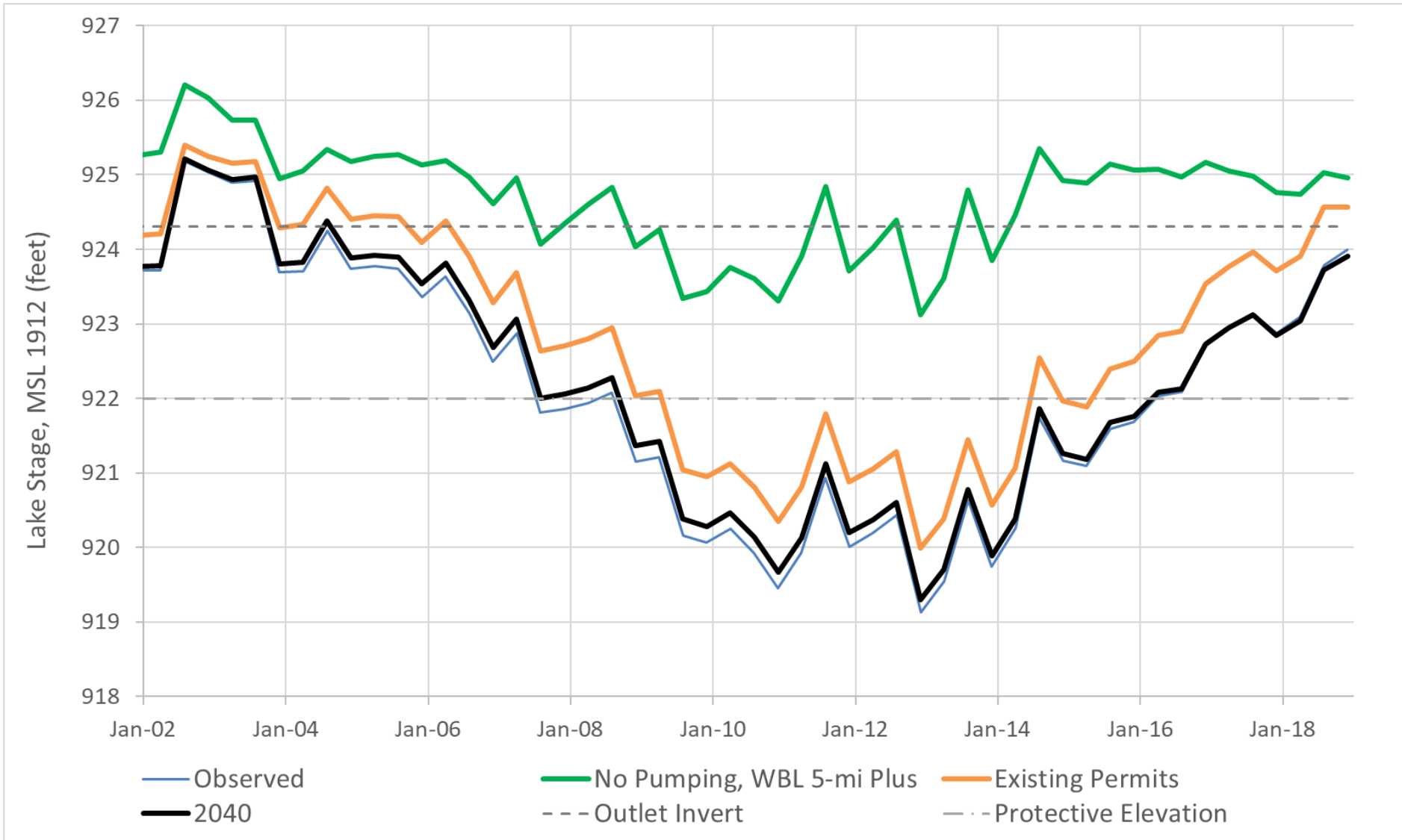
- Conceptual Drinking Water Supply Plan for the East Metro, 3M Settlement Area
- Looking at options for supplying projected 2040 demands
- How might these options affect White Bear Lake?

- Water Supply Plans project 2040 populations served and per capita demands.
 - Adapted these projections to model groundwater pumping
- East Metro Communities (Oakdale, Lake Elmo, Woodbury)
 - Used 2040 average-day demands applied in CDWSP analysis

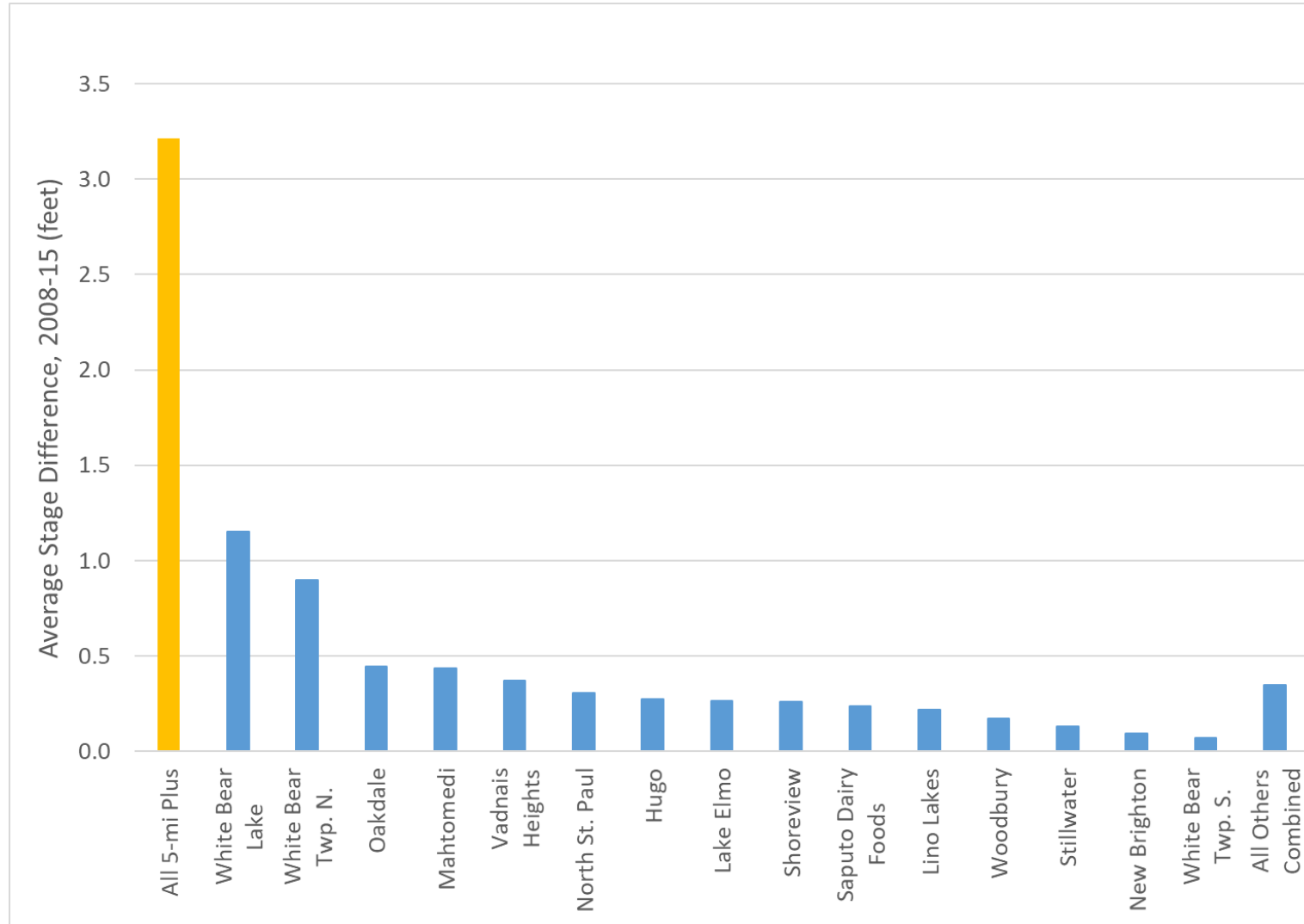
2040 Scenario



2040 Scenario Results



2040 Scenario Results – Individual Permits



Thank You!

Glen Champion

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