

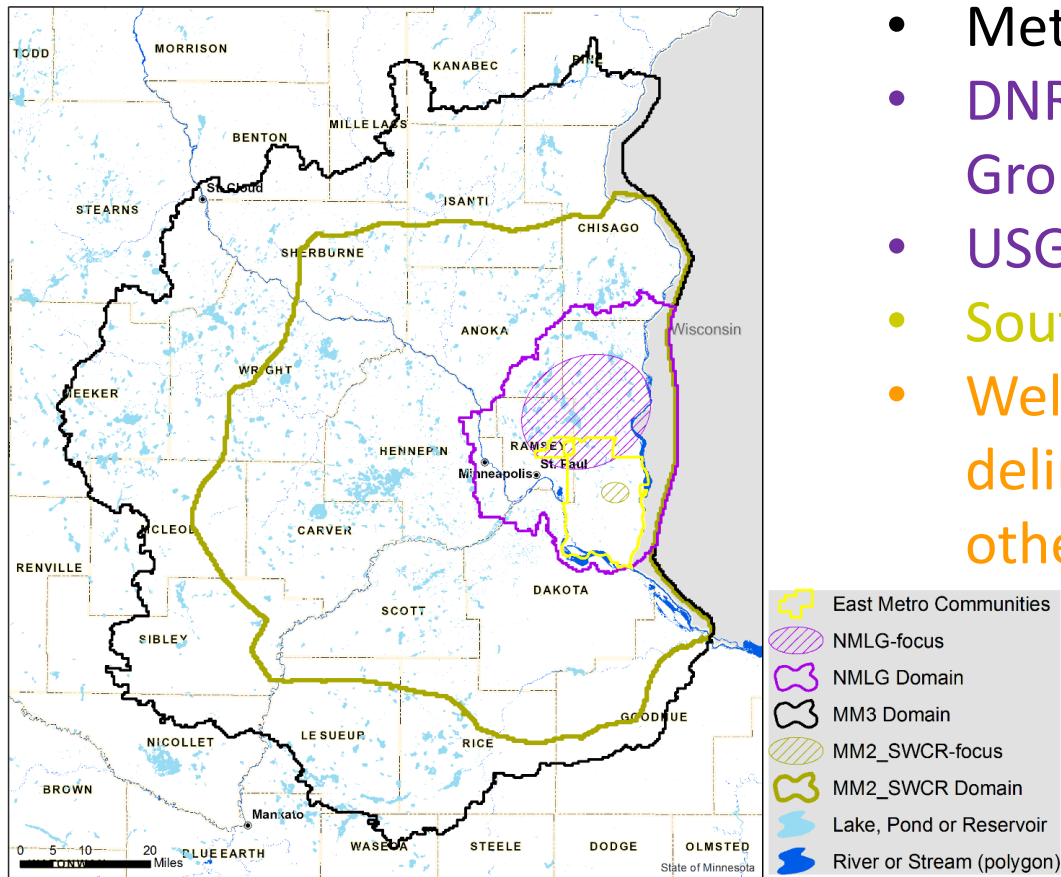


Overview of Existing Groundwater Models in East Metro Area

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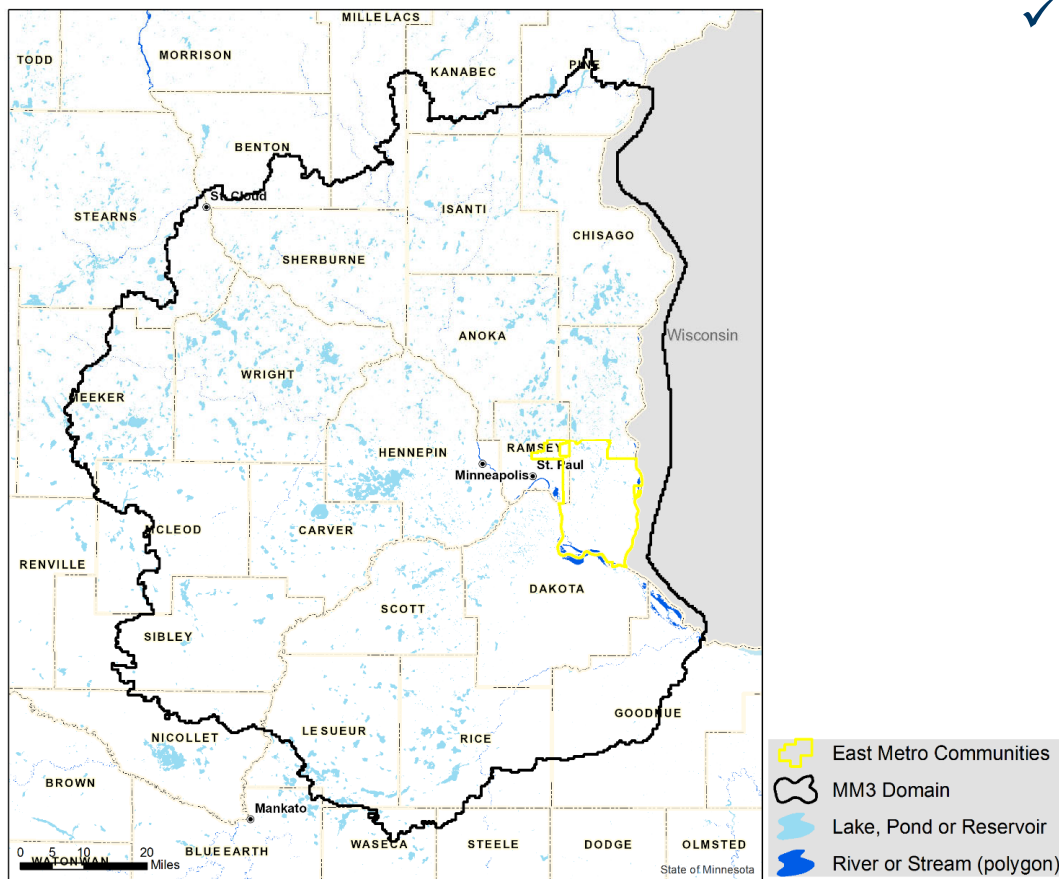
April 3, 2019

Overview of Available Models



- Metro Model 3 (MM-3)
- DNR Northeast Metro Lake-Groundwater (NMLG) Model
- USGS NMLG Model
- South Washington County
- Wellhead Protection Areas (WHPA) delineations (various models and other approaches)

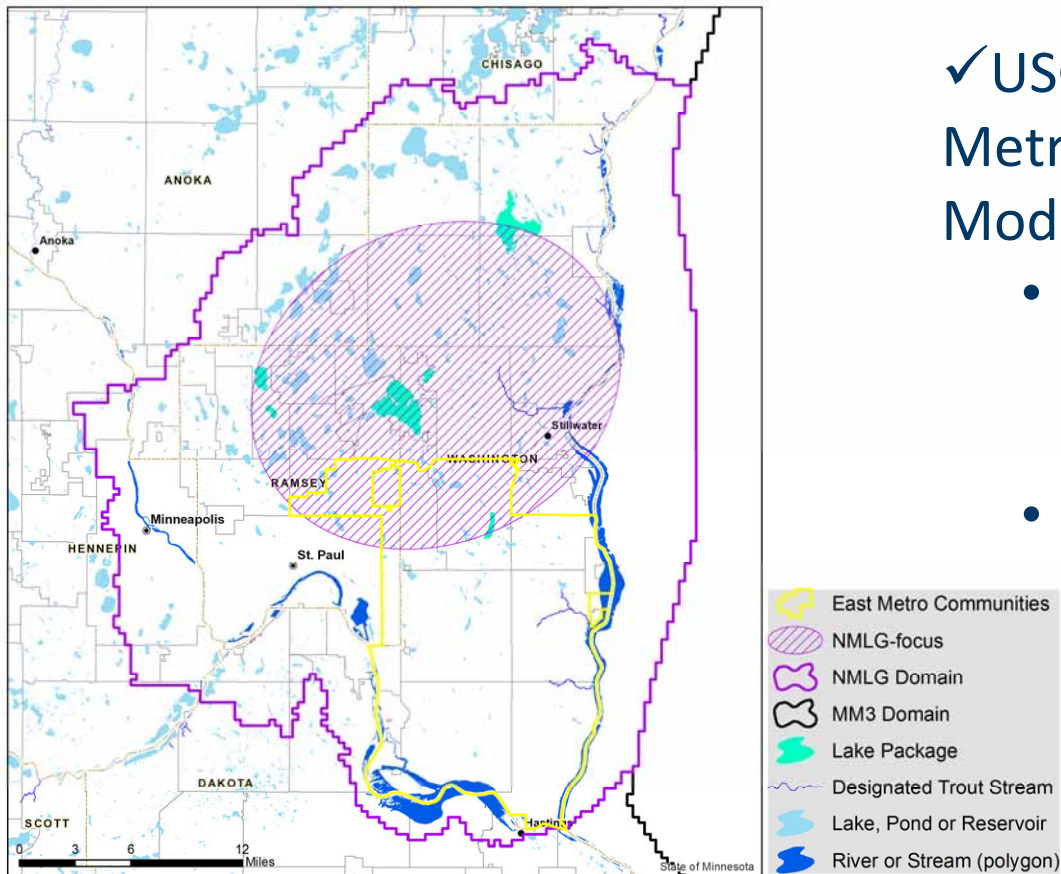
Overview of Available Models



✓ Metro Model 3 (MM-3)

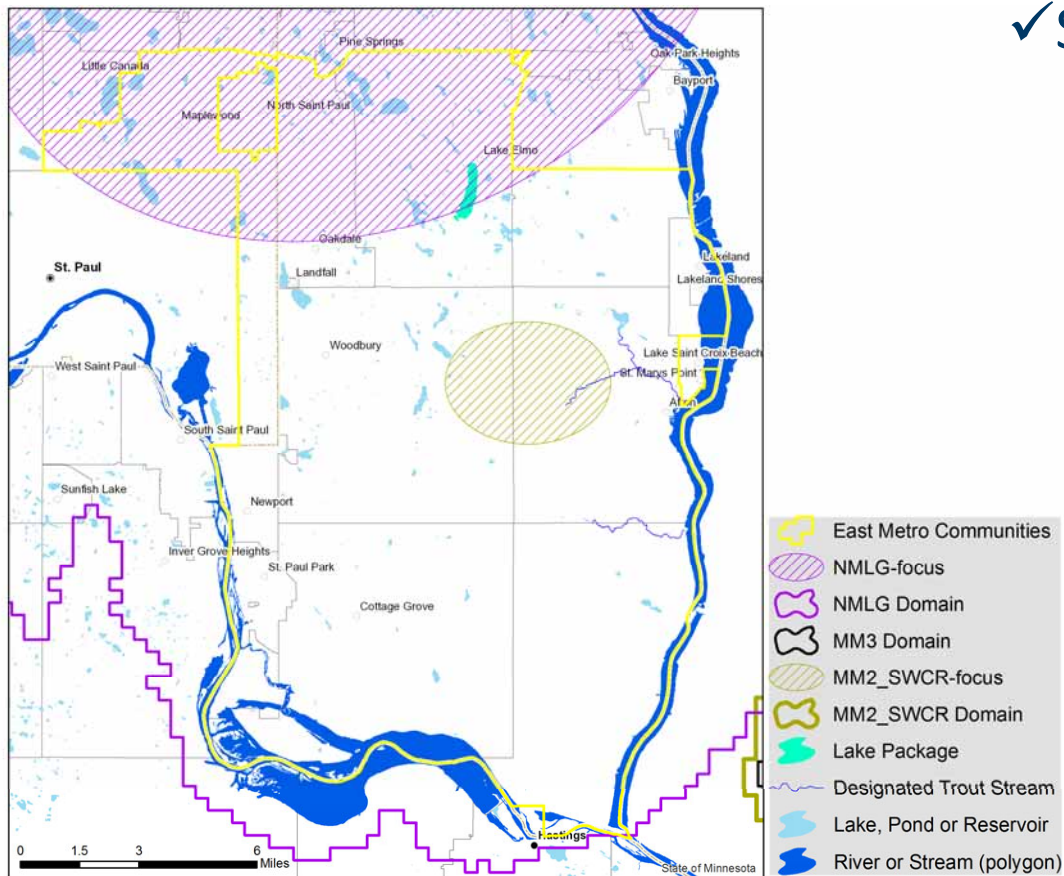
- Regional scale applications with a focus on potential drawdown in the bedrock aquifers
- Enhancements to previous regional models
- Basis for some locally refined models
- Coarse lateral and vertical grid and simple representation of lakes and wetlands
- Not based on most recent geological mapping in Washington Co.

Overview of Available Models



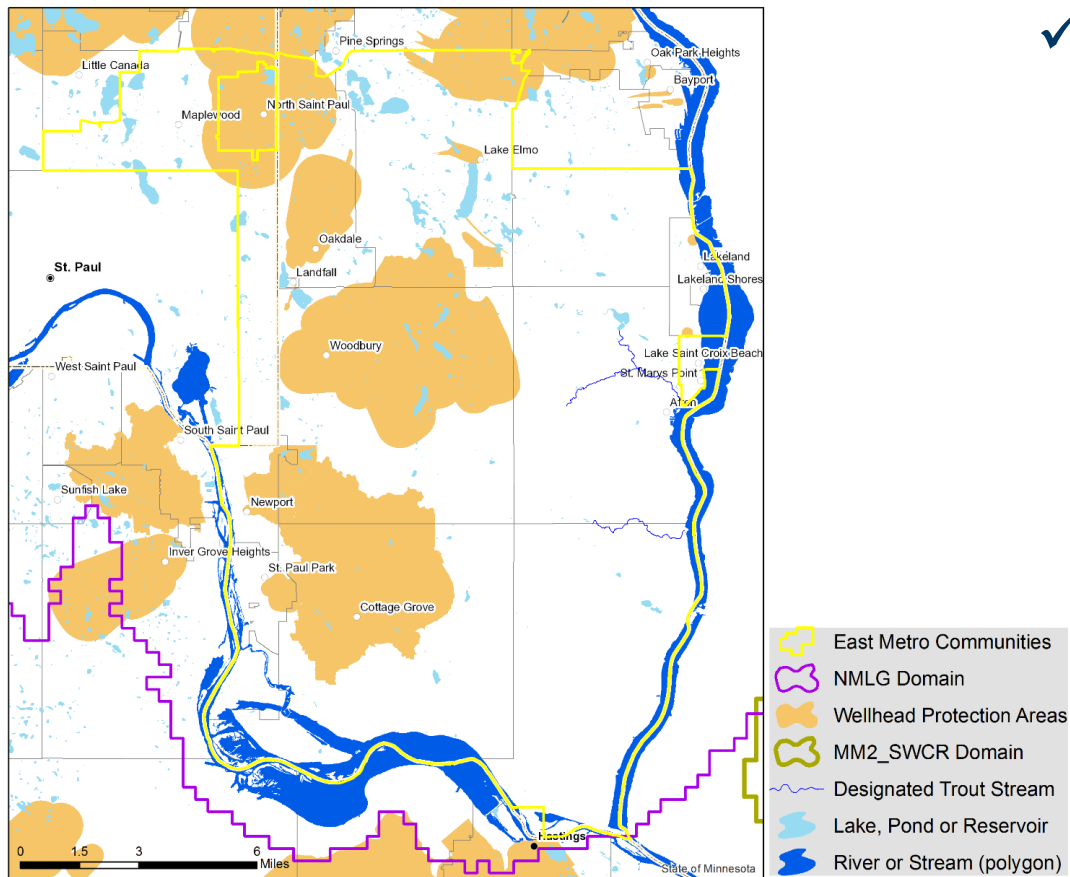
- ✓ USGS and DNR modified Northeast Metro Lake-Groundwater (NMLG) Models
 - Borrow much from MM3 with finer grid, added layers, and input and parameter differences
 - Water budget/levels for several lakes
 - Initial focus of transient DNR version on White Bear Lake

Overview of Available Models



- ✓ South Washington County Model
 - Last version was a local refinement of Metro Model 2
 - Built to evaluate potential impact of Woodbury's East well field on base flow in Valley Creek

Overview of Available Models



- ✓ MDH Wellhead Protection Areas
 - Delineation of 10-year capture zones
 - Local refinements of MM3 or other models
 - Pros and cons vary

Why a new Model?

- Existing models have limitations due to intended purpose and scale .
- Specific local applications may require more than minor adjustments.
- New model will incorporate the latest data from the recently published Washington County Geologic Atlas.
- In addition to the new hydrogeologic data, the effort will borrow heavily from the existing models—integration of all available data and information to produce the best overall model.
- It will increase our level of confidence in the models and in our understanding the hydrogeologic system.