Hennessey and Milliken Watersheds Study

March 28, 2019

Topics

1. Background
2. Study Elements
3. Next Steps

Background

- City preparing a Master Plan for Reservoir and Watershed Operations
- City and County have shared interests in the Hennessey and Milliken watersheds
- County Strategic Plan Action 12F
- City and County entered into an MOU in June 2017
- County issued an RFP and retained Systech Water Resources in September 2017

Scope of the Study

- Create “tools” to evaluate water quality
- Develop and calibrate models of the two watersheds
- Watershed Analysis and Risk Management Framework (WARMF) software
- Model Documentation Report
- Water Quality Sampling and Analysis Plan

Model Components

Start with known physical parameters:

- Topography
- Land Use
- Soils
- Vegetation
- Streams

Model Components

Combined with historic weather data:

- Precipitation
- Wind

Model Components

Develop watershed hydrology:

- Stream flow volume
- Depth
- Velocity

Model Components

Combine with known water quality from prior sampling:

- Nitrogen
- Dissolved solids
- Pesticides
- Coliforms
- Many other parameters

Model Outcomes

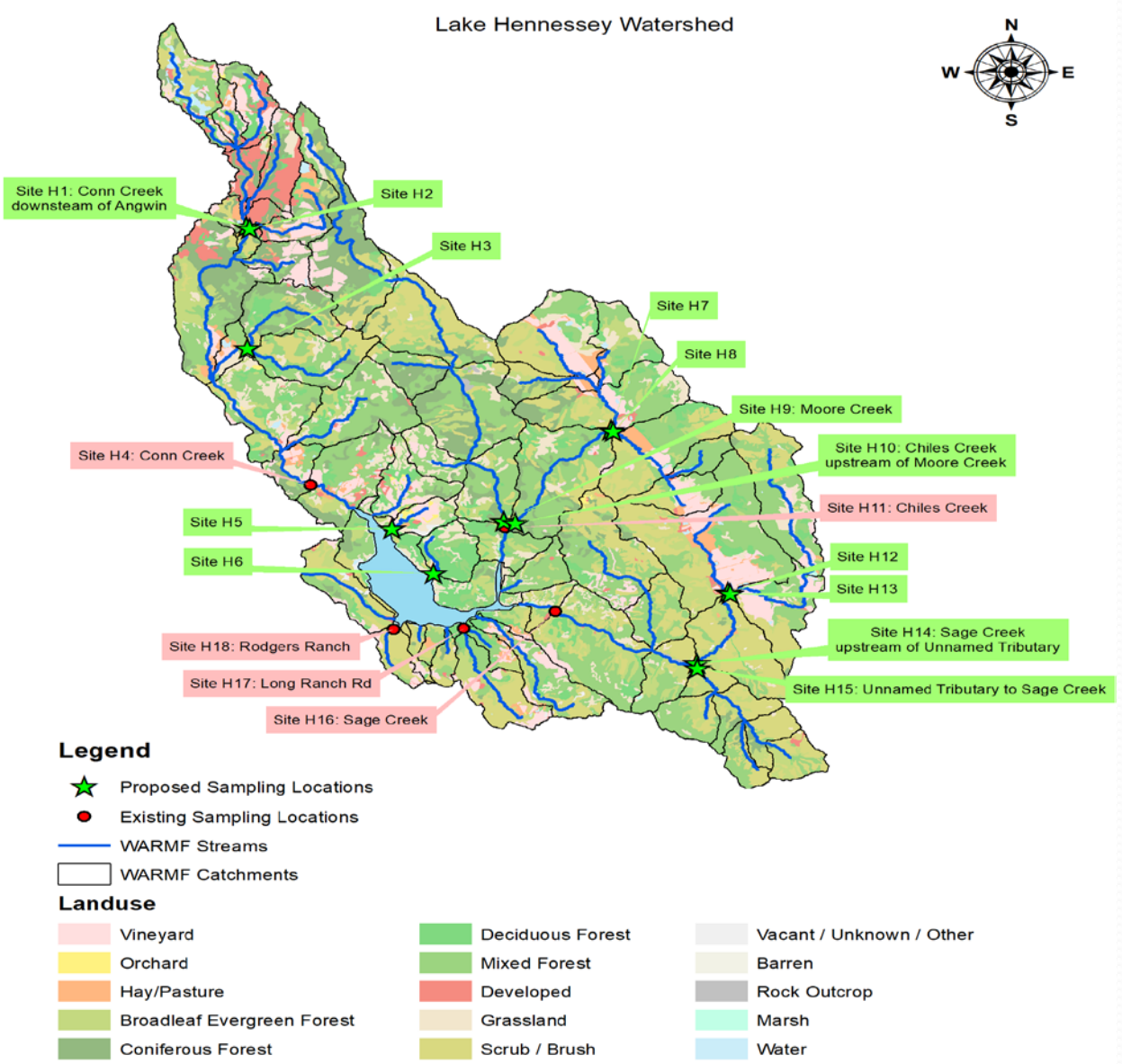
Calibration:

- Run model and compare results to verify model accuracy

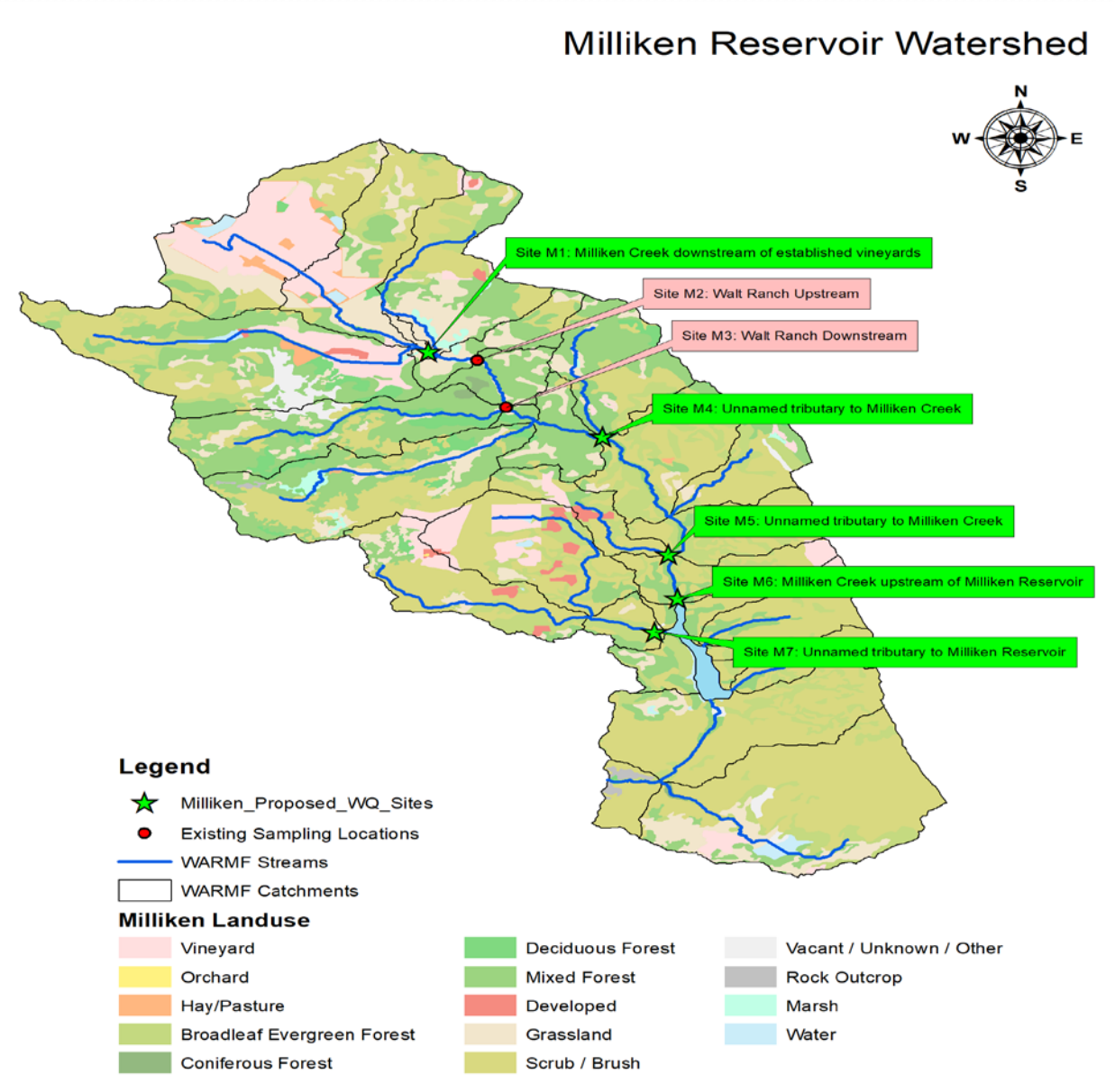
Analyses:

- Run model to predict water quality entering reservoirs in future scenarios
- Evaluate changes in land use, climate etc.
- Informs evaluations of the reservoirs

Hennessey Watershed



Milliken Watershed



Model Outcomes

- Existing water quality data is very limited
- So model uncertainty is too high
- Model will not be ready for detailed analyses for several years

Next Steps

- Implement enhanced monitoring and data collection in wet weather
- Increase frequency of sampling at existing sites and add new ones
- Strategically locate new sites – various land uses, soil types etc.
- New site access, sample collection and flow measurement

Next Steps

- City and County to consider development of an MOU for additional joint participation
- Ongoing adaptive management of model and data collection

Questions?