

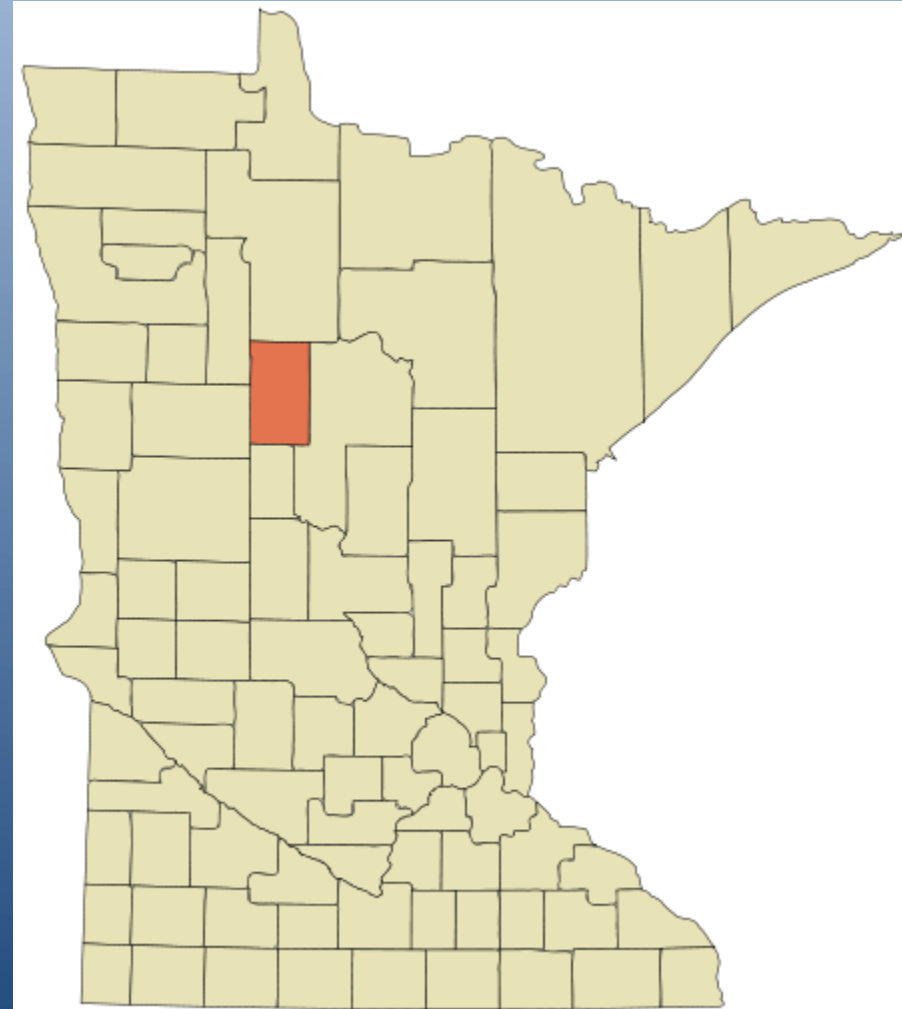
The Search for Clean Groundwater and the Economic Costs Associated

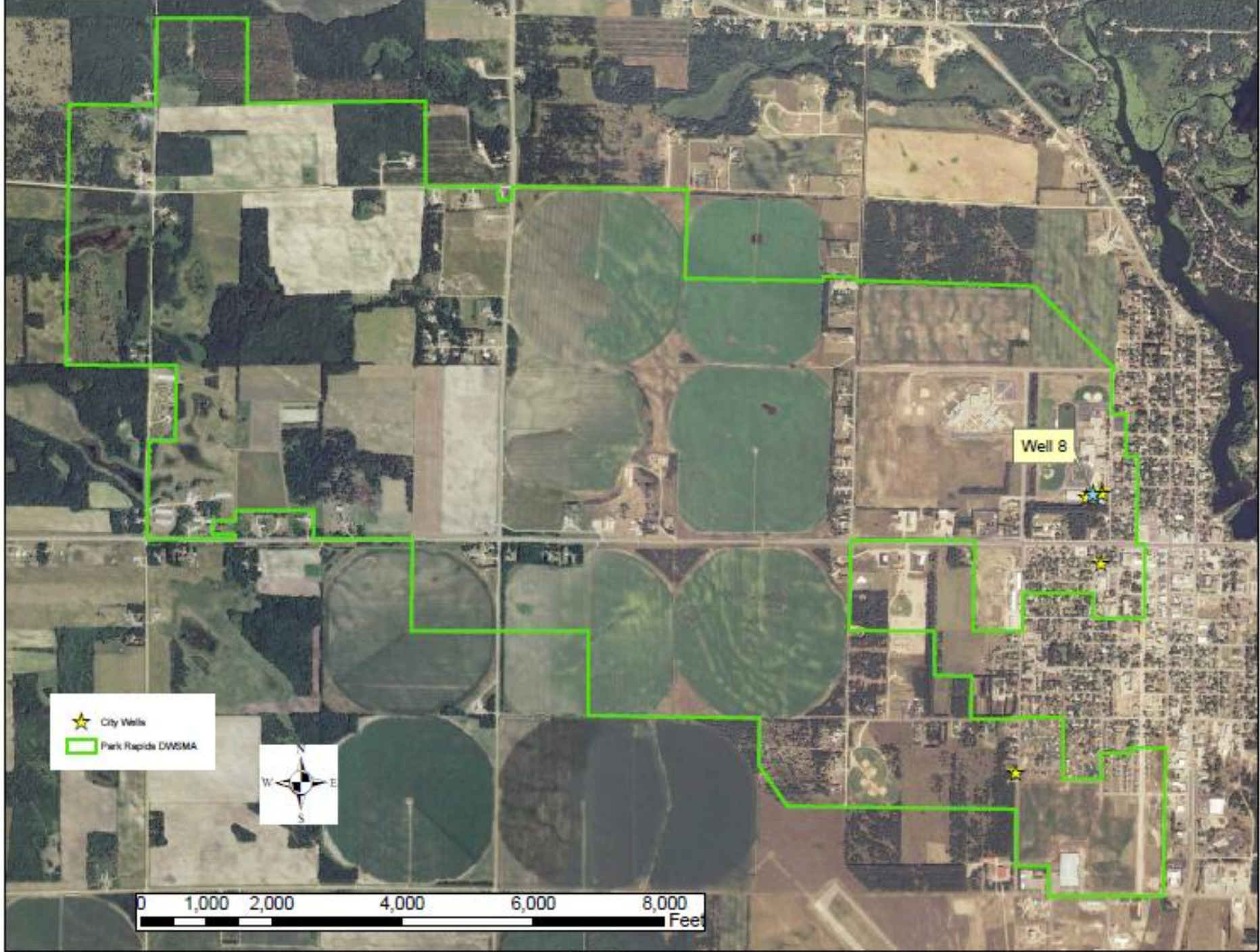
Scott Burlingame, City of Park Raids

Mike Strodtman, MN Rural Water Association

Where is Park Rapids?

- Located in north central MN
- Year round population 3,700
- On the edge of sandy soils used for ag to the west & mixed hardwood and pine forest to the east and north
- Potato country





- ★ City Wells
- ▭ Park Rapids DWSMA



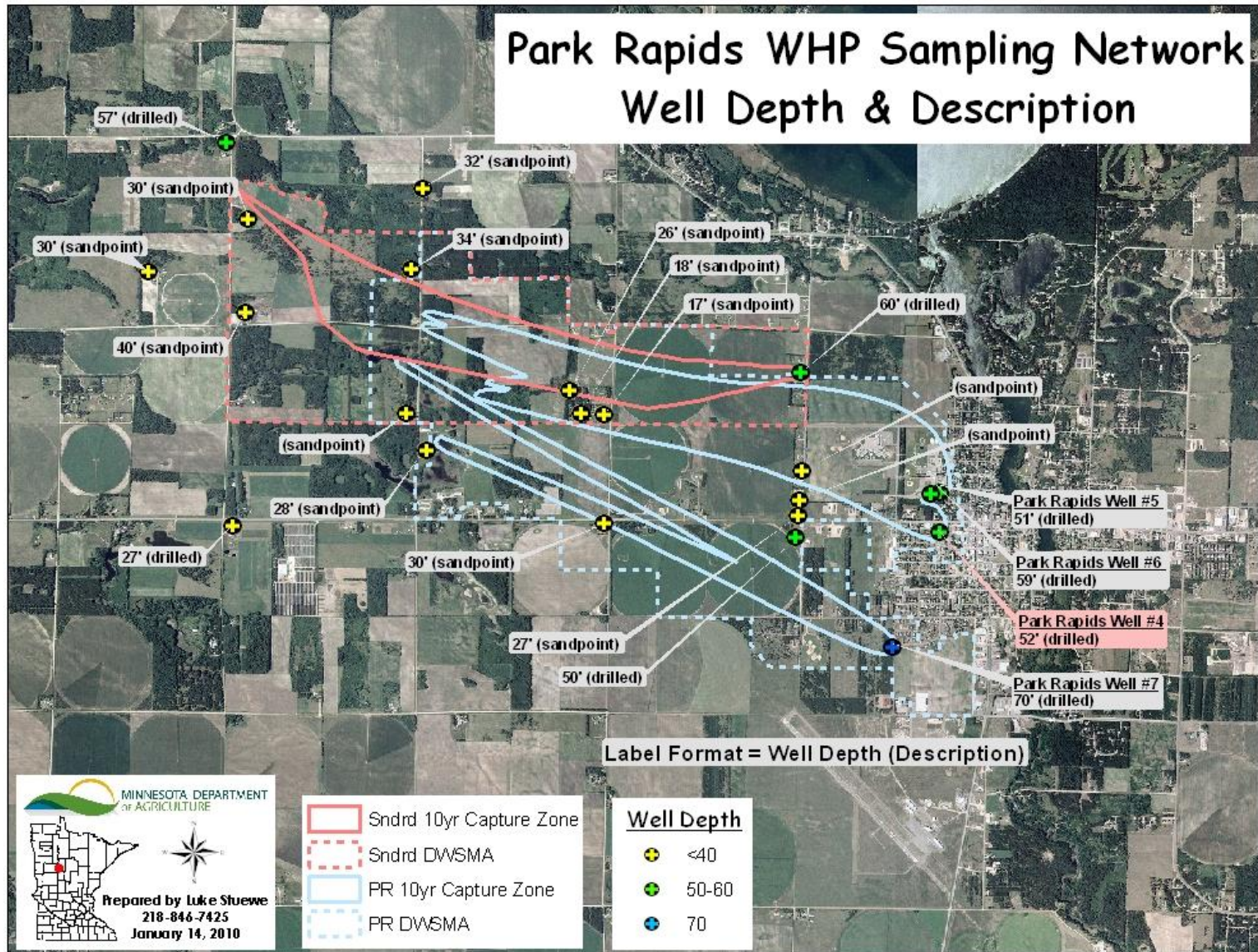
0 1,000 2,000 4,000 6,000 8,000 Feet

Wellhead Protection (WHP) Efforts

- City's WHP Plan approved in November 2004
- City has been working closely with the Producers, MN Dept. of Ag, MN Dept. of Health and MRWA
- Numerous meetings with various groups.

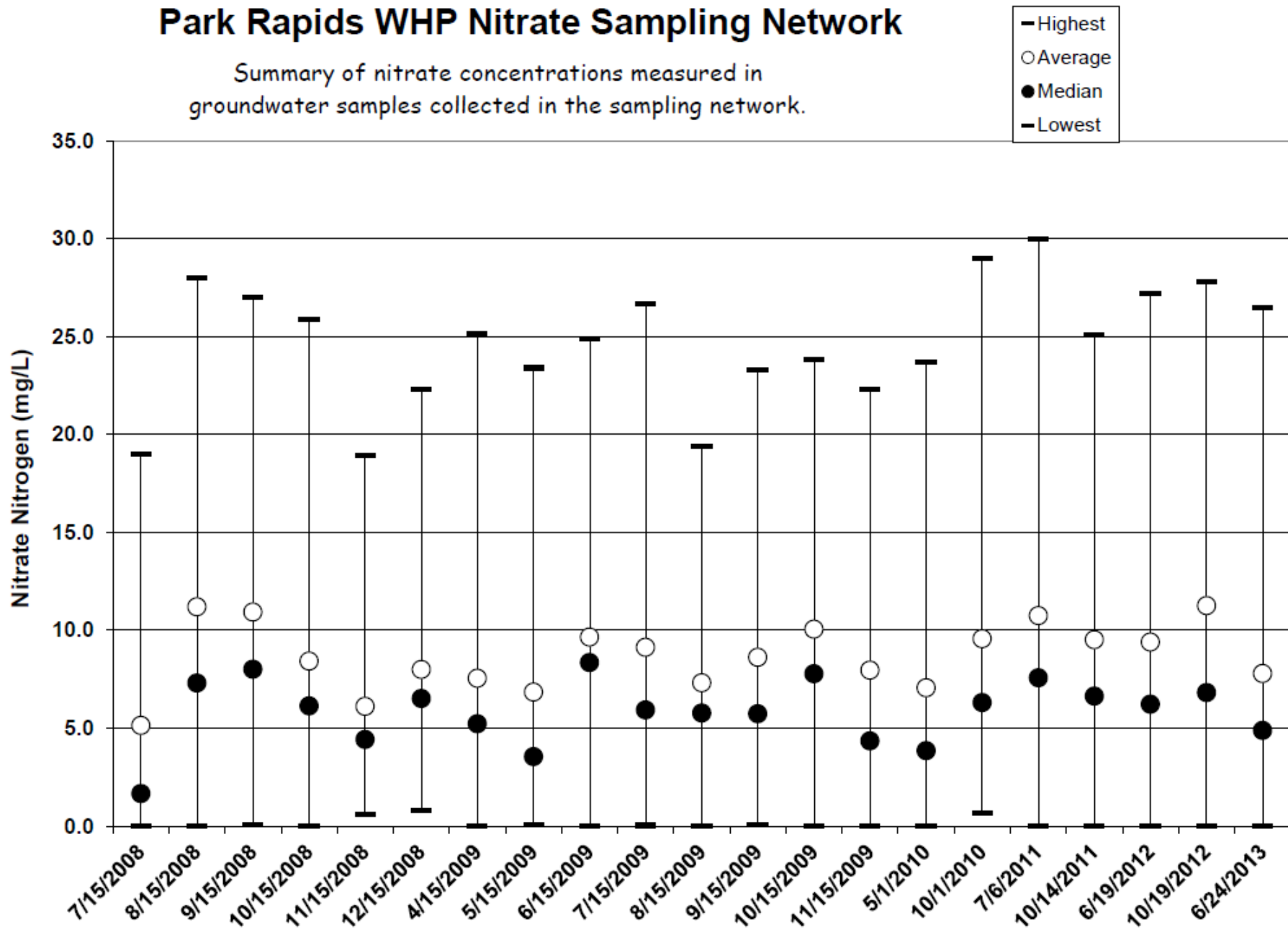


Park Rapids- Nitrates



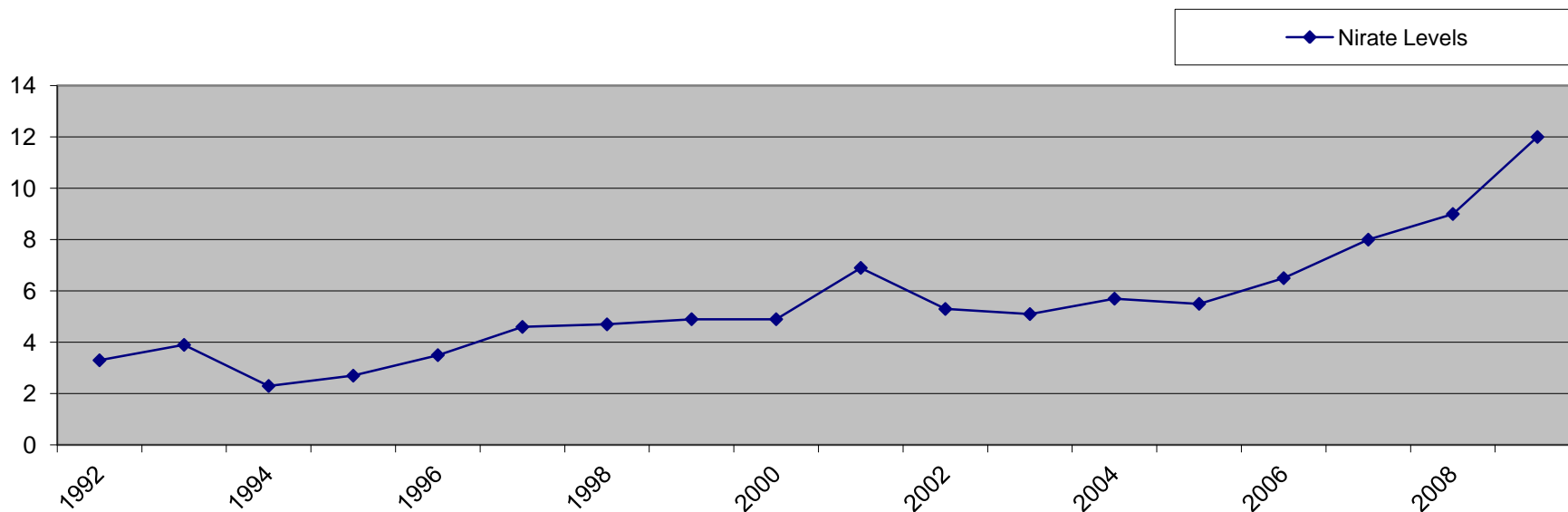
Park Rapids WHP Nitrate Sampling Network

Summary of nitrate concentrations measured in groundwater samples collected in the sampling network.

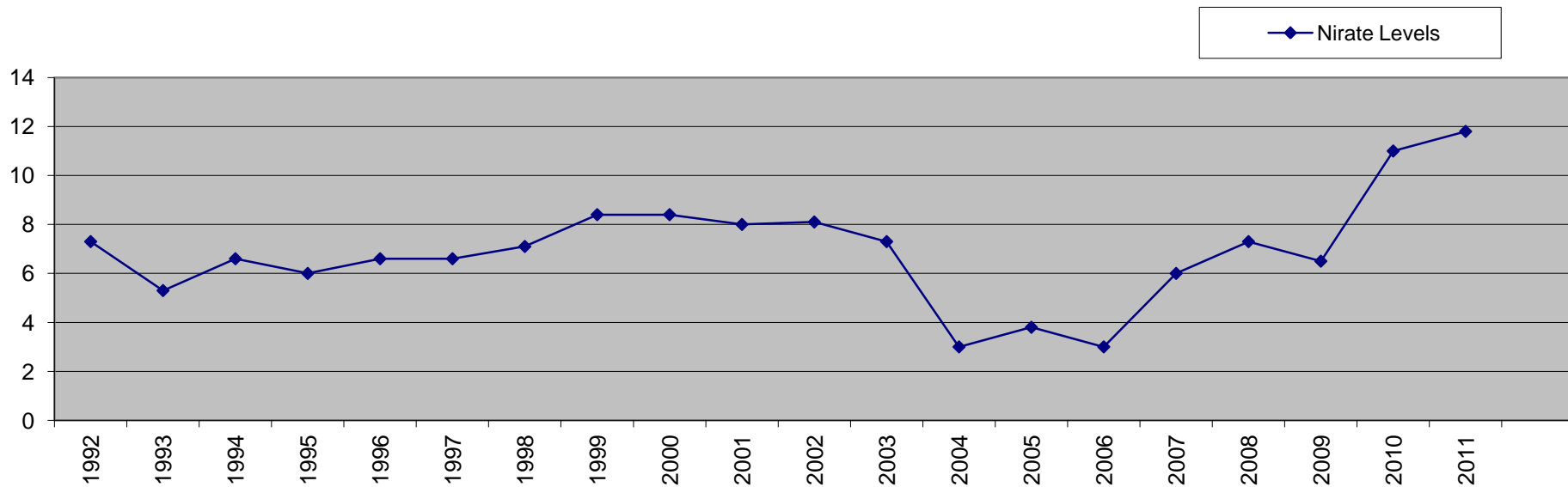


Source: MN Dept. of Agriculture

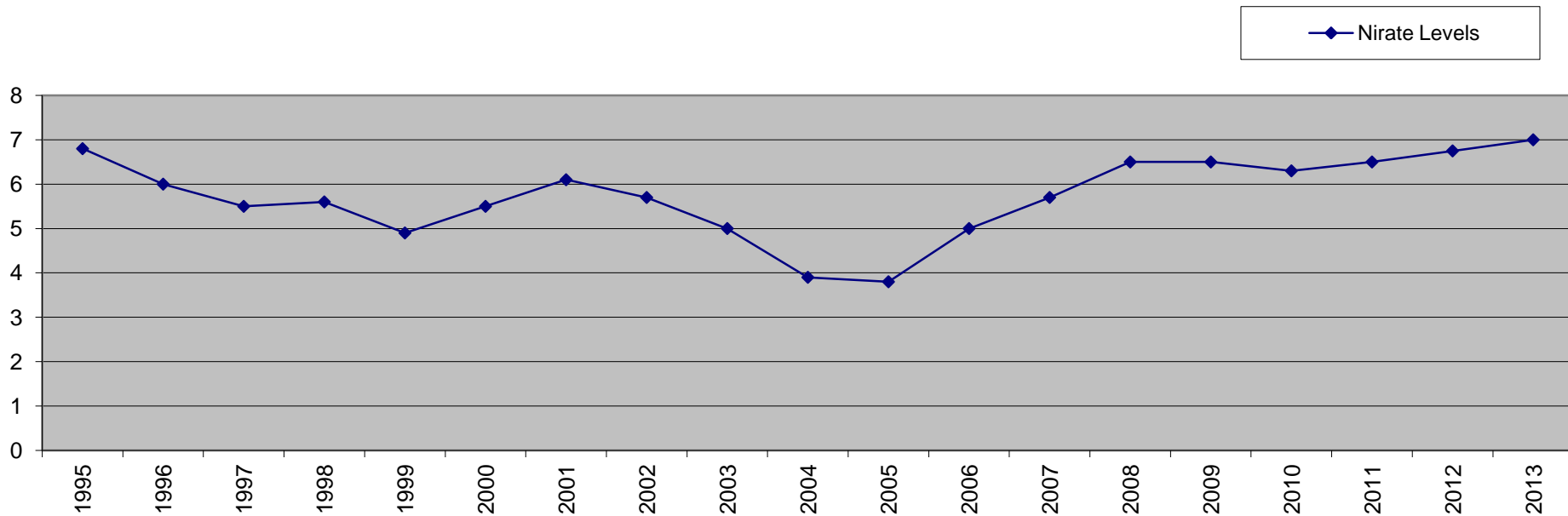
Nirate Levels in Well #4



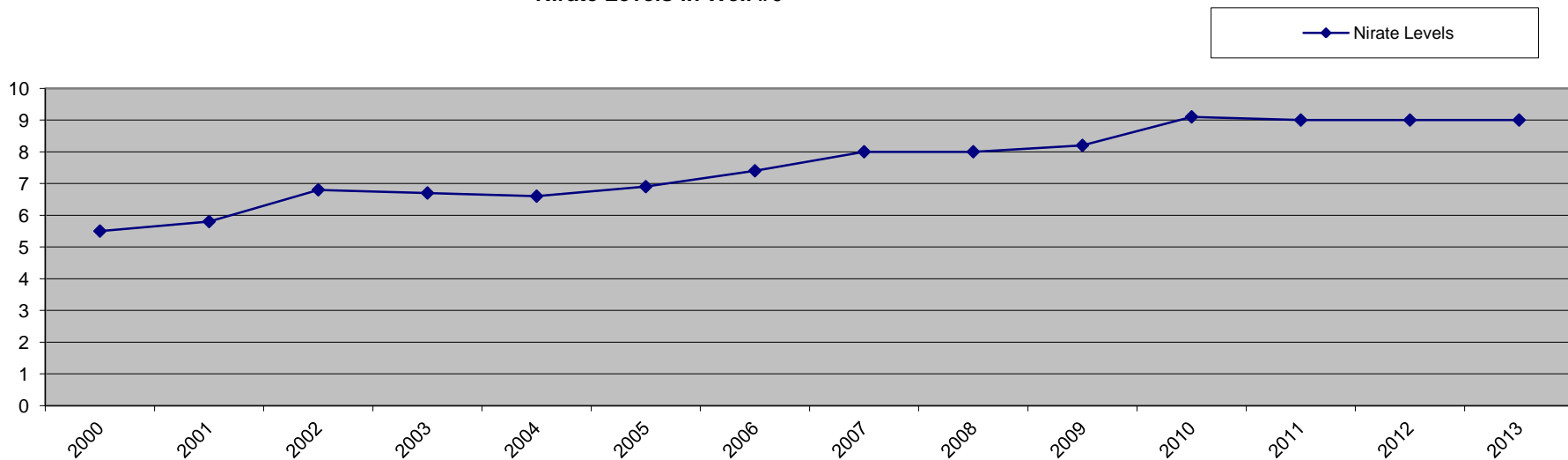
Nirate Levels in Well #7



Nirate Levels in Well #5



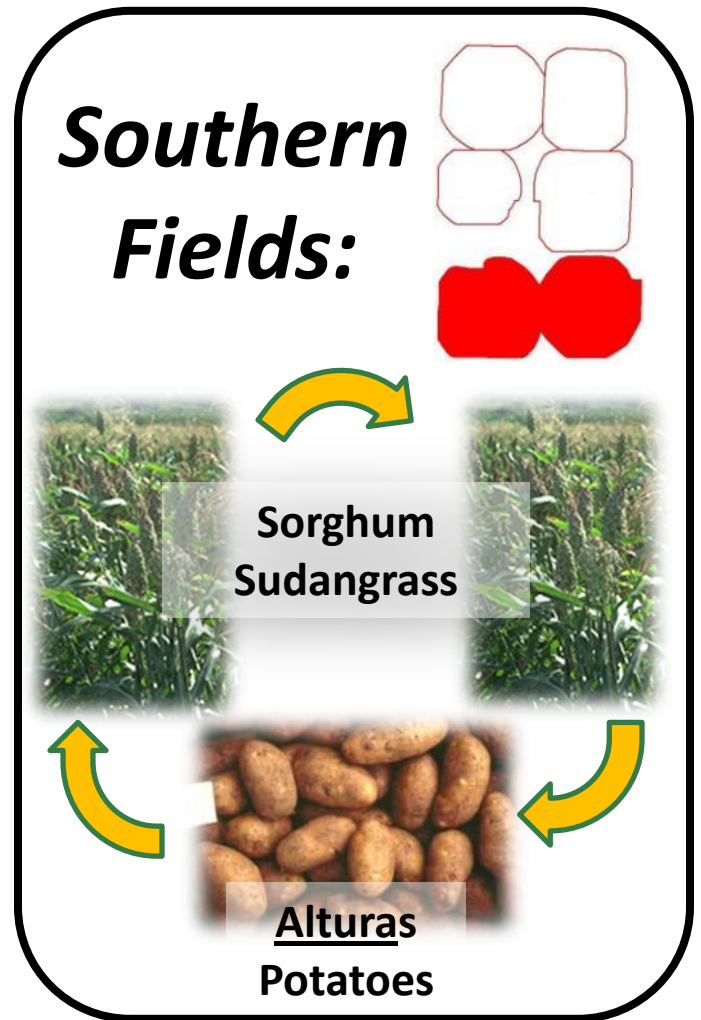
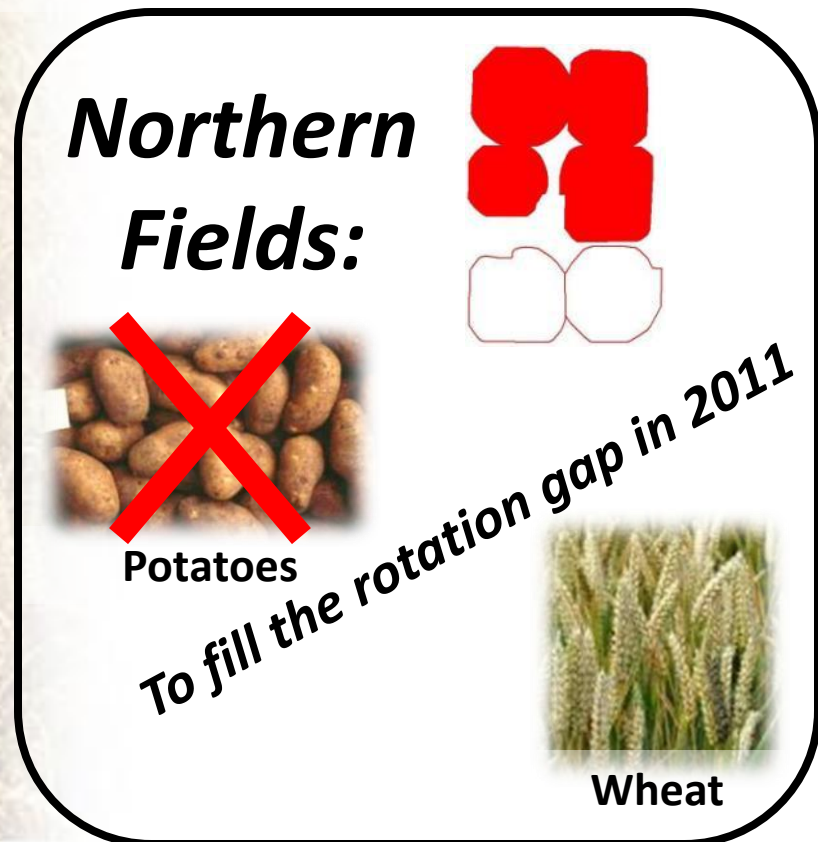
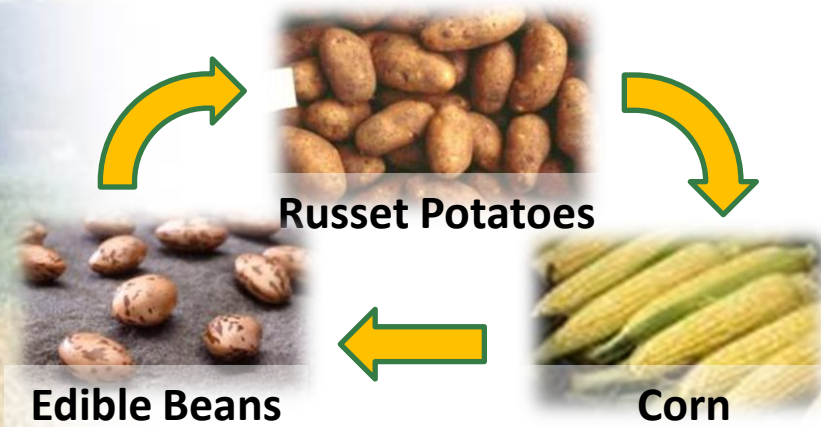
Nirate Levels in Well #6



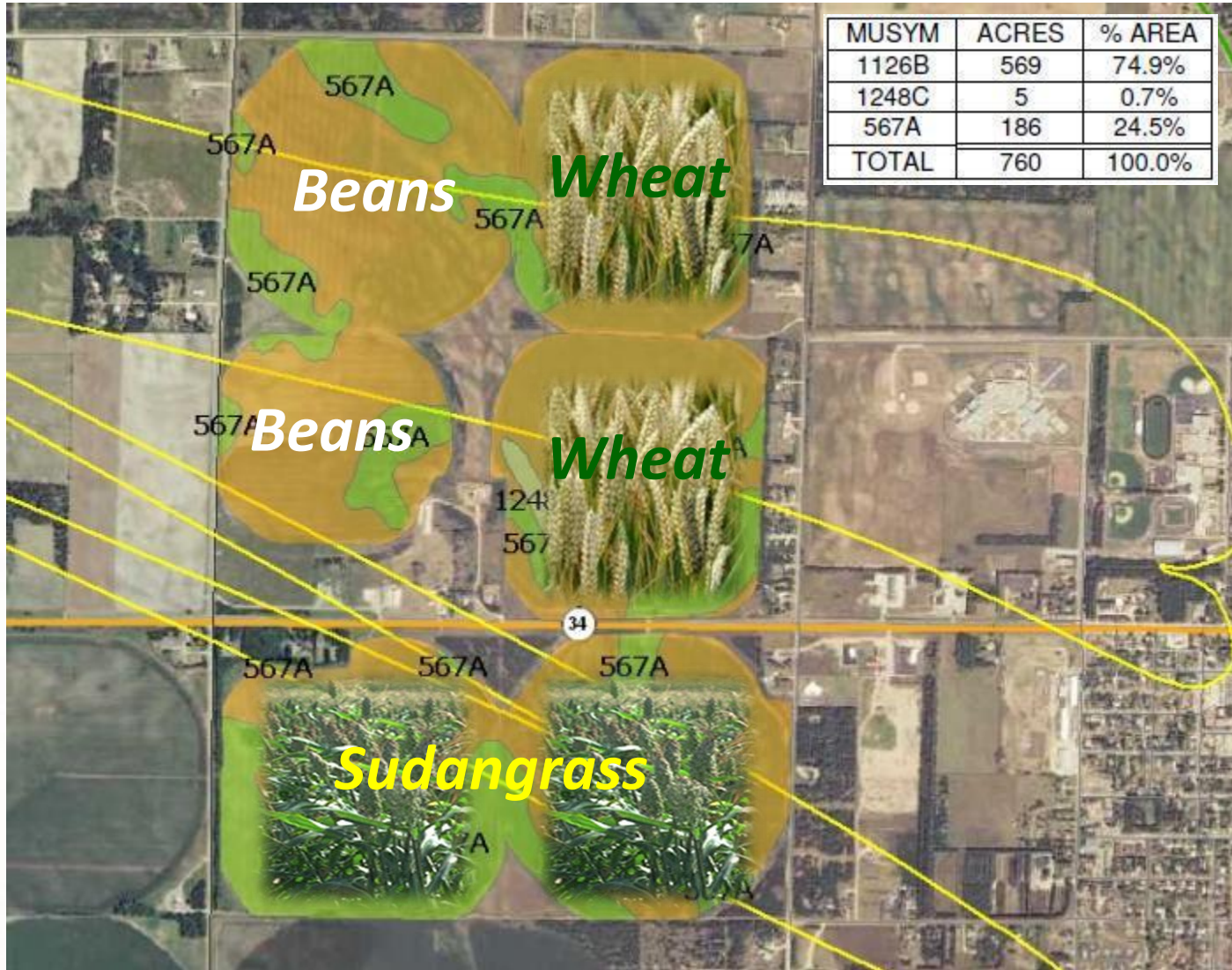
Loss of Production Wells

- 2008 – Well #4 required to be taken offline
- 2010 - Well #7 required to be taken offline
- City has concerns of their ability to provide needed volume of water during peak usage.
- Rising nitrate levels in remaining two wells
- City issues water ban
- Began exploring options for new source of water
- Additional meetings with producers

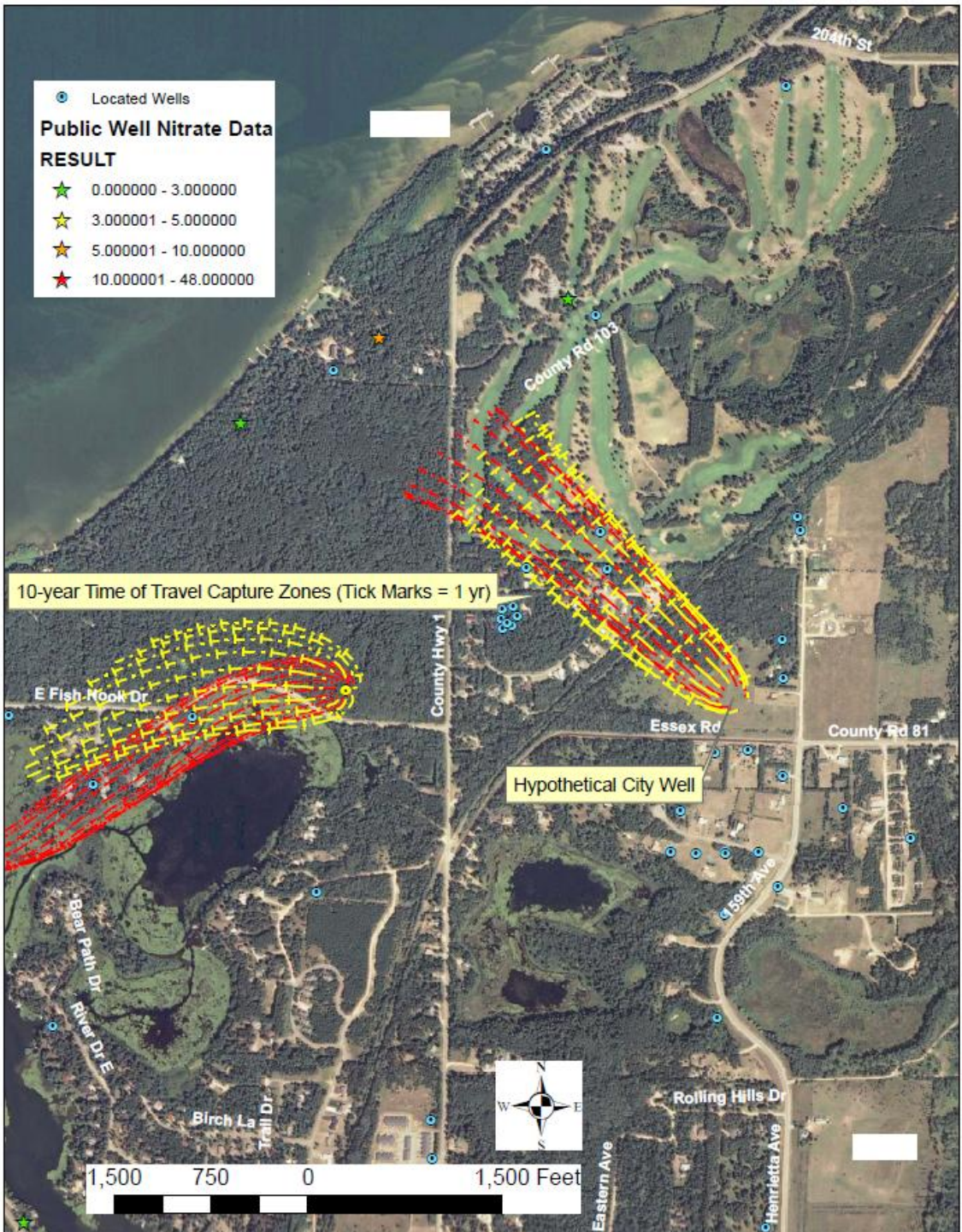
Traditional Rotation:



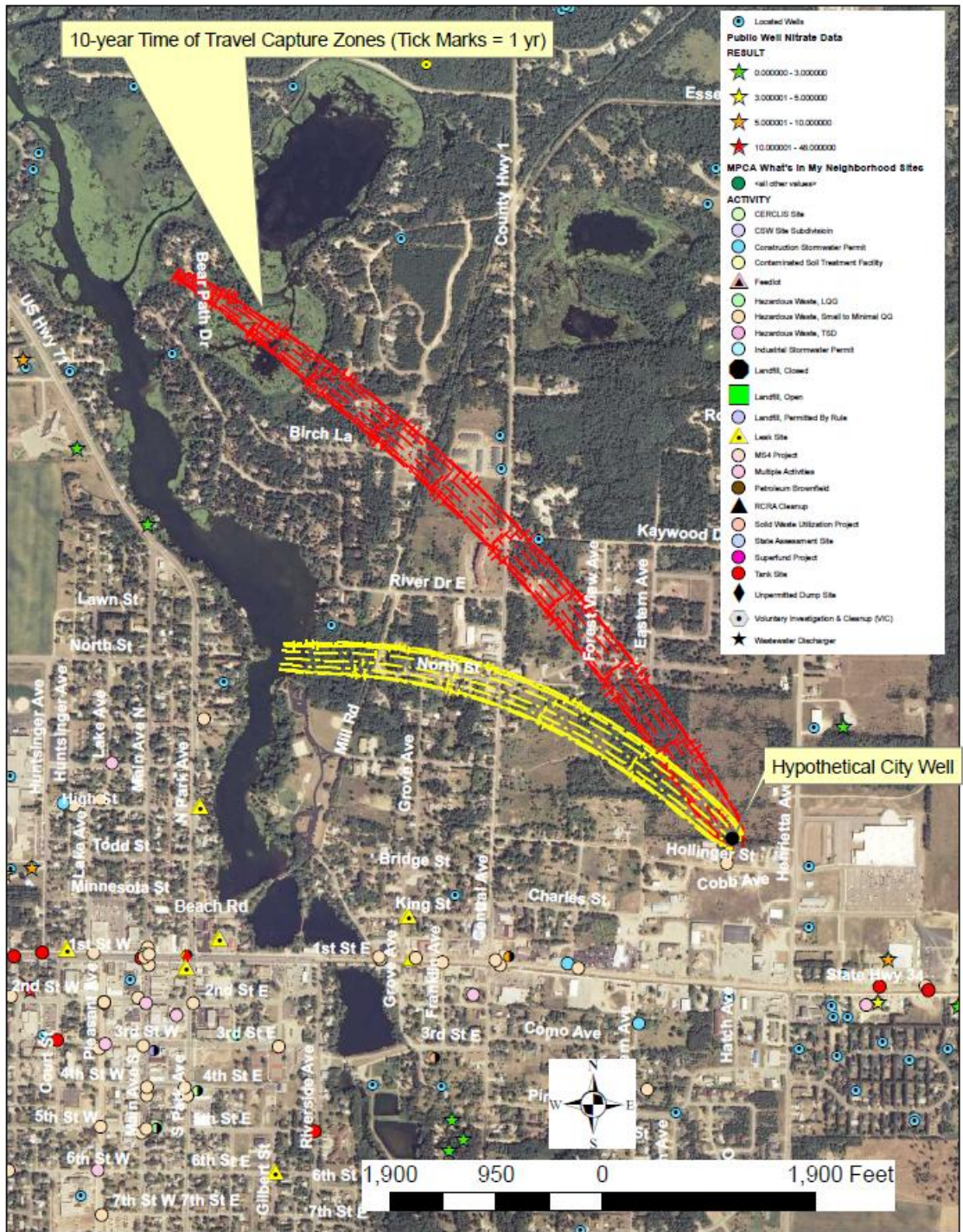
....Proposed planting in 2011

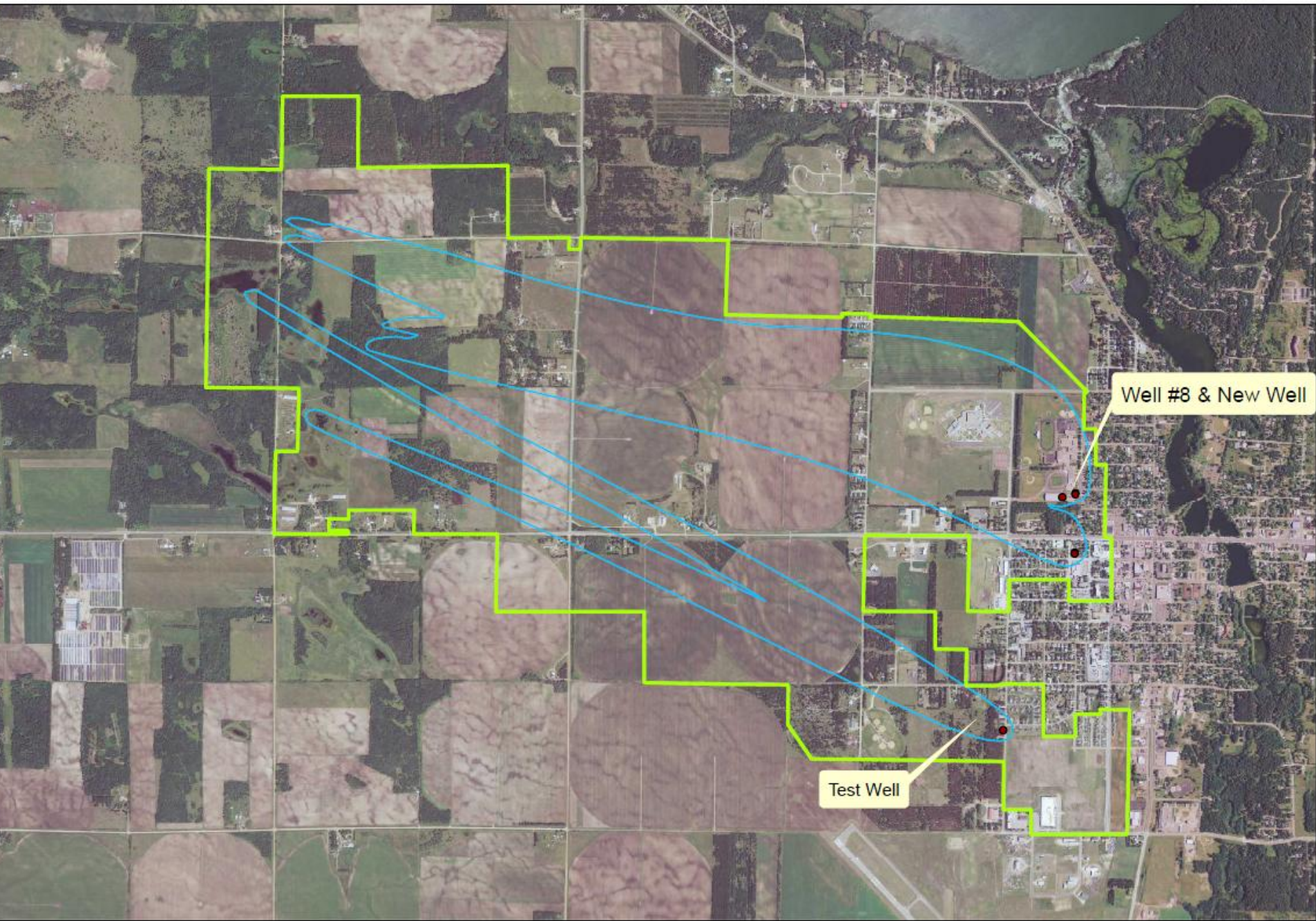


 Located Wells
Public Well Nitrate Data
RESULT
 0.000000 - 3.000000
 3.000001 - 5.000000
 5.000001 - 10.000000
 10.000001 - 48.000000



10-year Time of Travel Capture Zones (Tick Marks = 1 yr)





Well #8 & New Well

Test Well



What to do?



Cost for project \$2,600,000

"Sunrise On Fish Hook River" by Nels Peterson

