

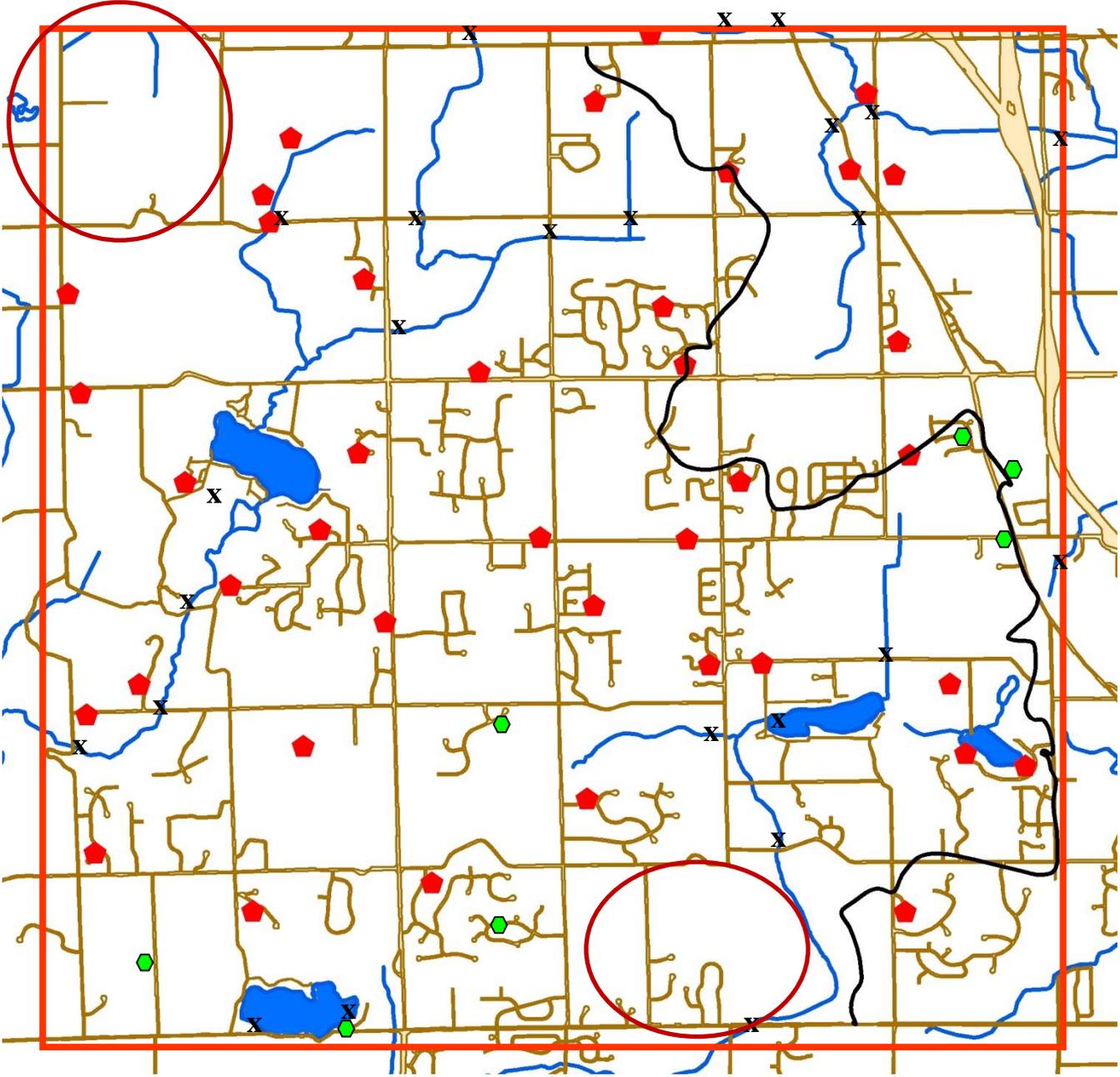
Richfield Groundwater Status Report – March, 2015

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Hydrogeologist**

Richfield's groundwater protection plan

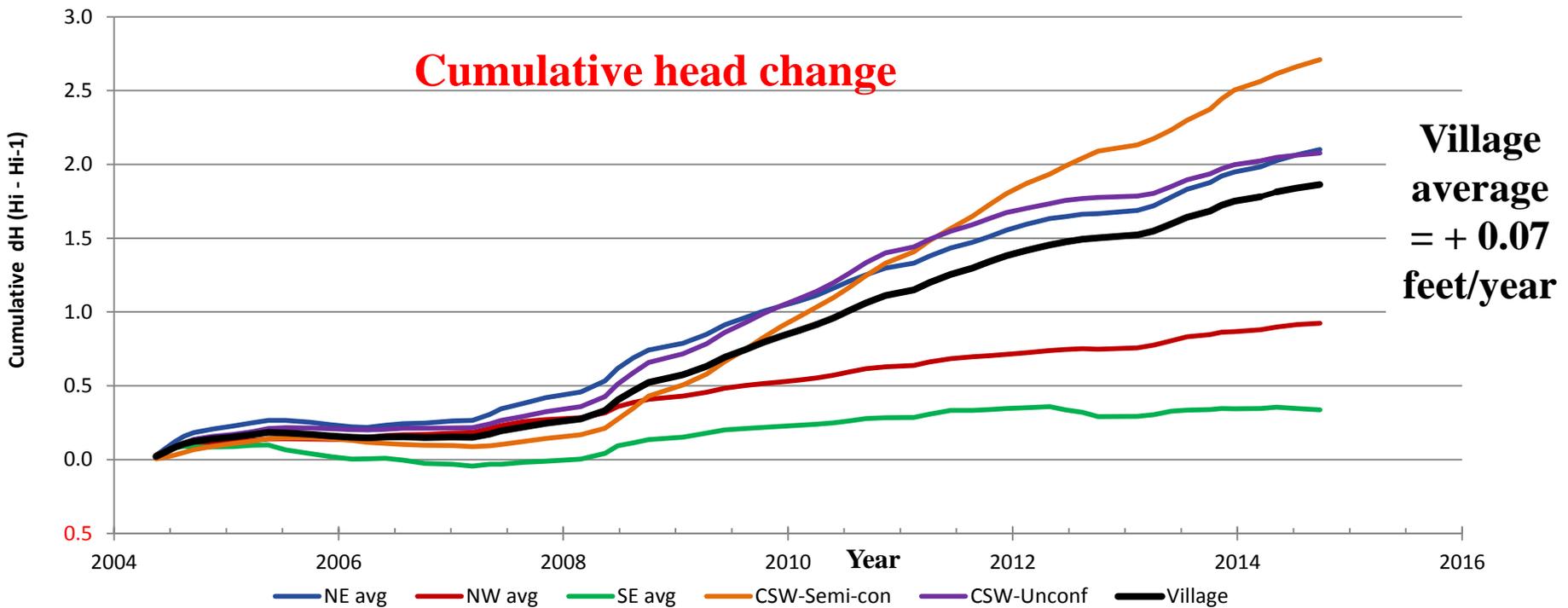
- **Develop and adhere to land use plan that lives within natural water supply**
- **Make groundwater protection part of development with groundwater protection permit**
- **Monitor groundwater system**
 - levels measured bimonthly (43 wells & 24 surface sites)
 - wells tested for bacteria biannually

Richfield Monitoring Array



- Wells in 2008
- Wells added post 2010
- x Stream/lake sites
- Subcontinental divide

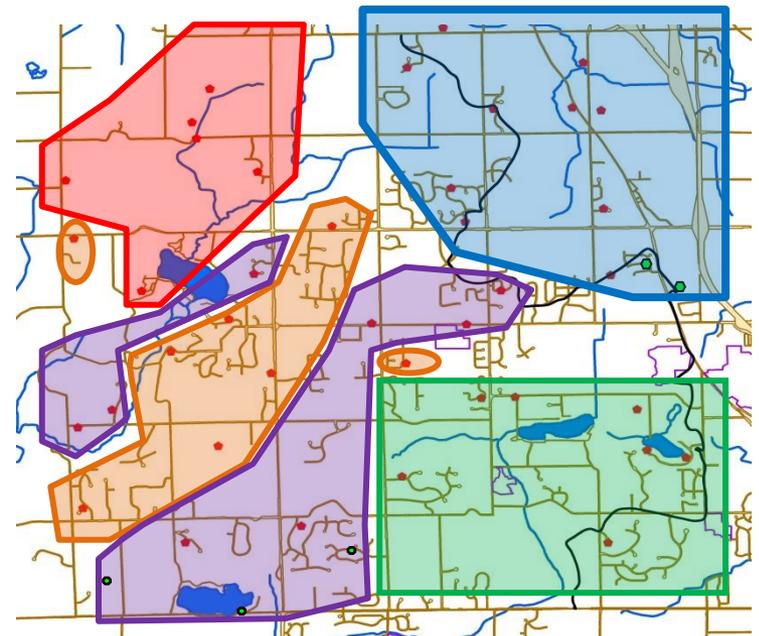
2015 statistics:
43 wells
20 stream sites
4 lake sites

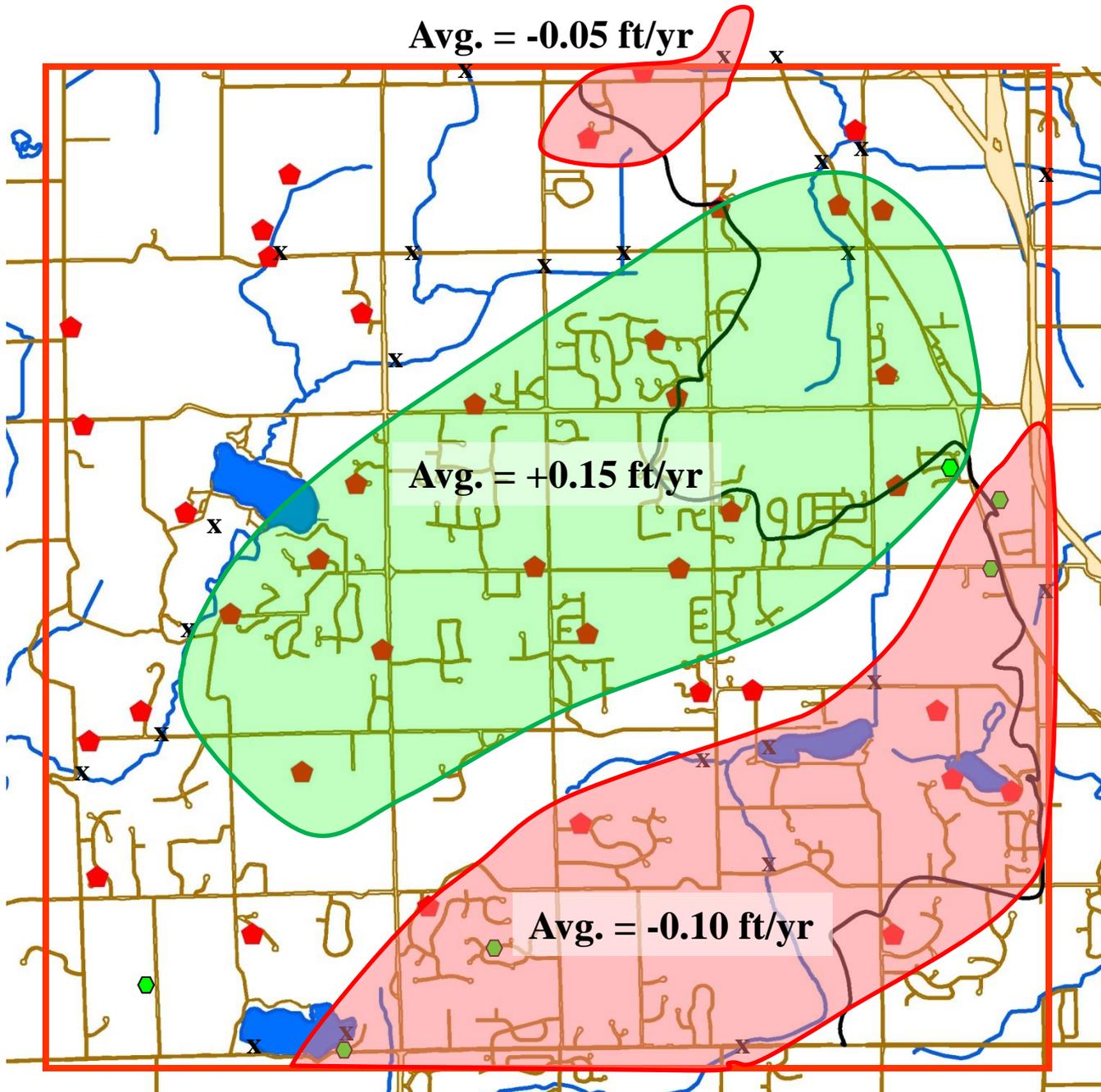


Monitoring began in November, 2003

All parts of the Village show rising levels, but at different rates.

The rise shows a gaining water budget – due to recycling & natural recharge



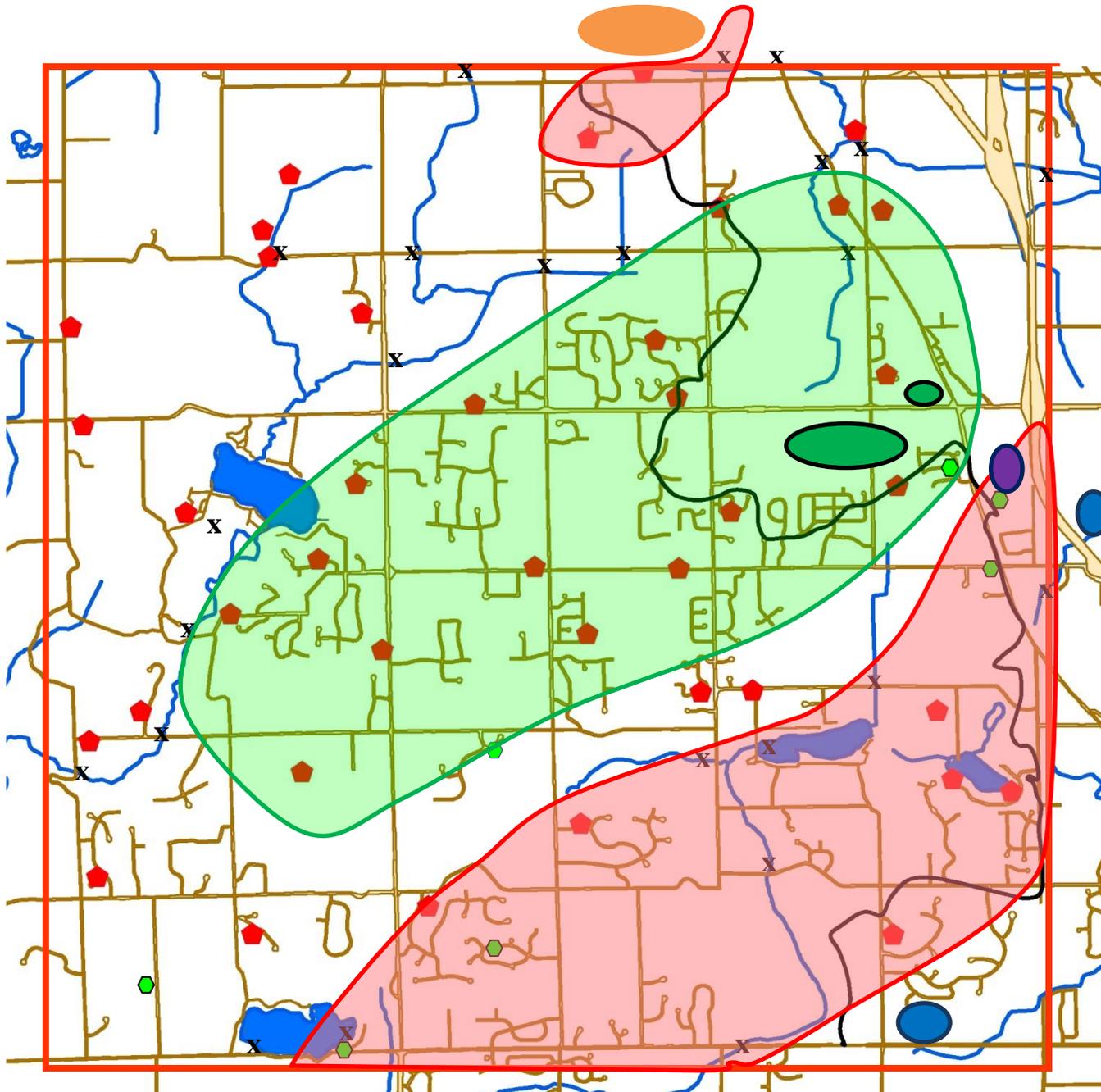


**Spatial
Distribution
of Rate of
Water Level
Change**

**Change of water
level per year
2004* to 2014**

Winter to winter

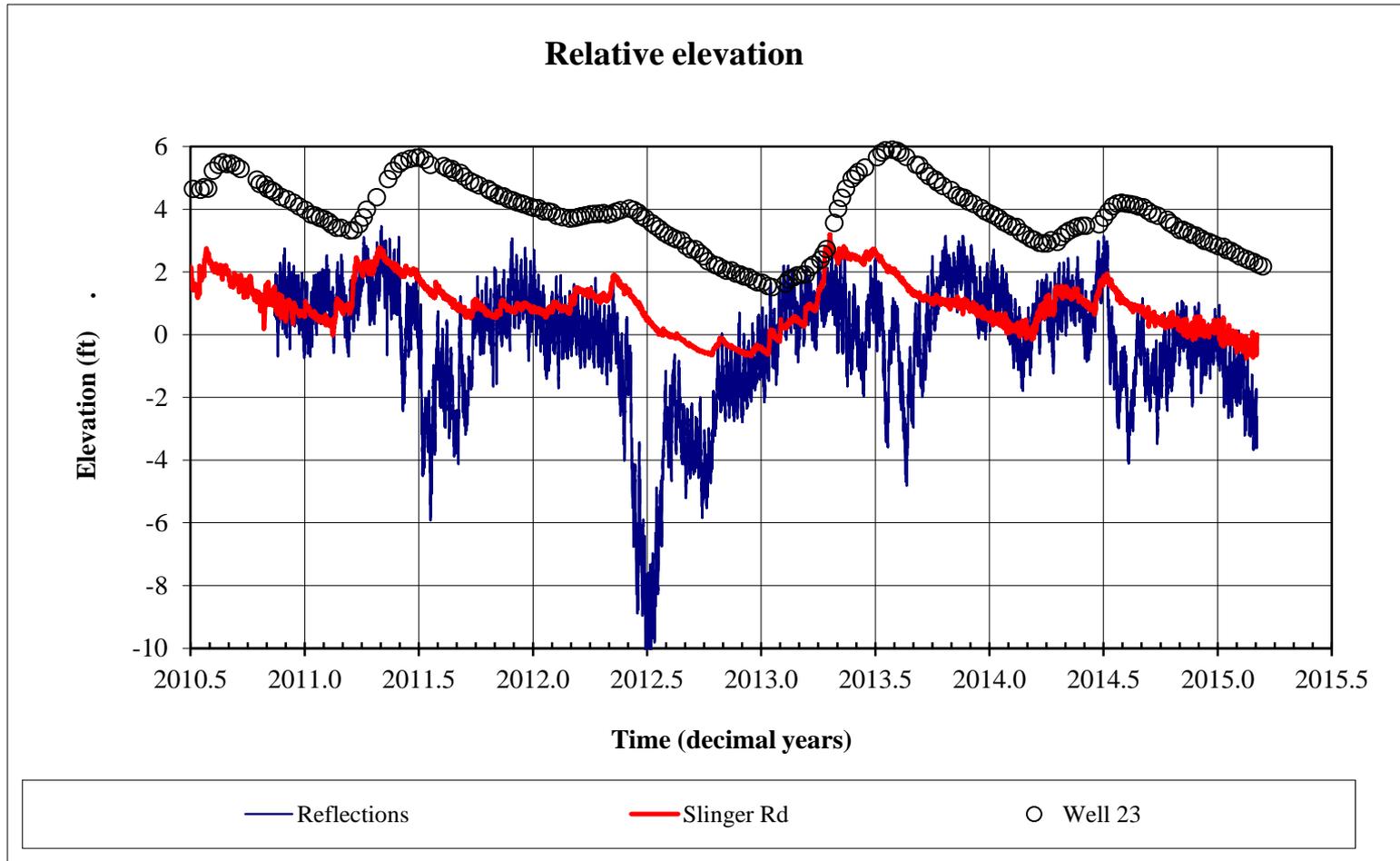
**Relation
to Large
Seasonal
Water Users**



**1. Small area in
north is
probably
related to
Wissota S&G**

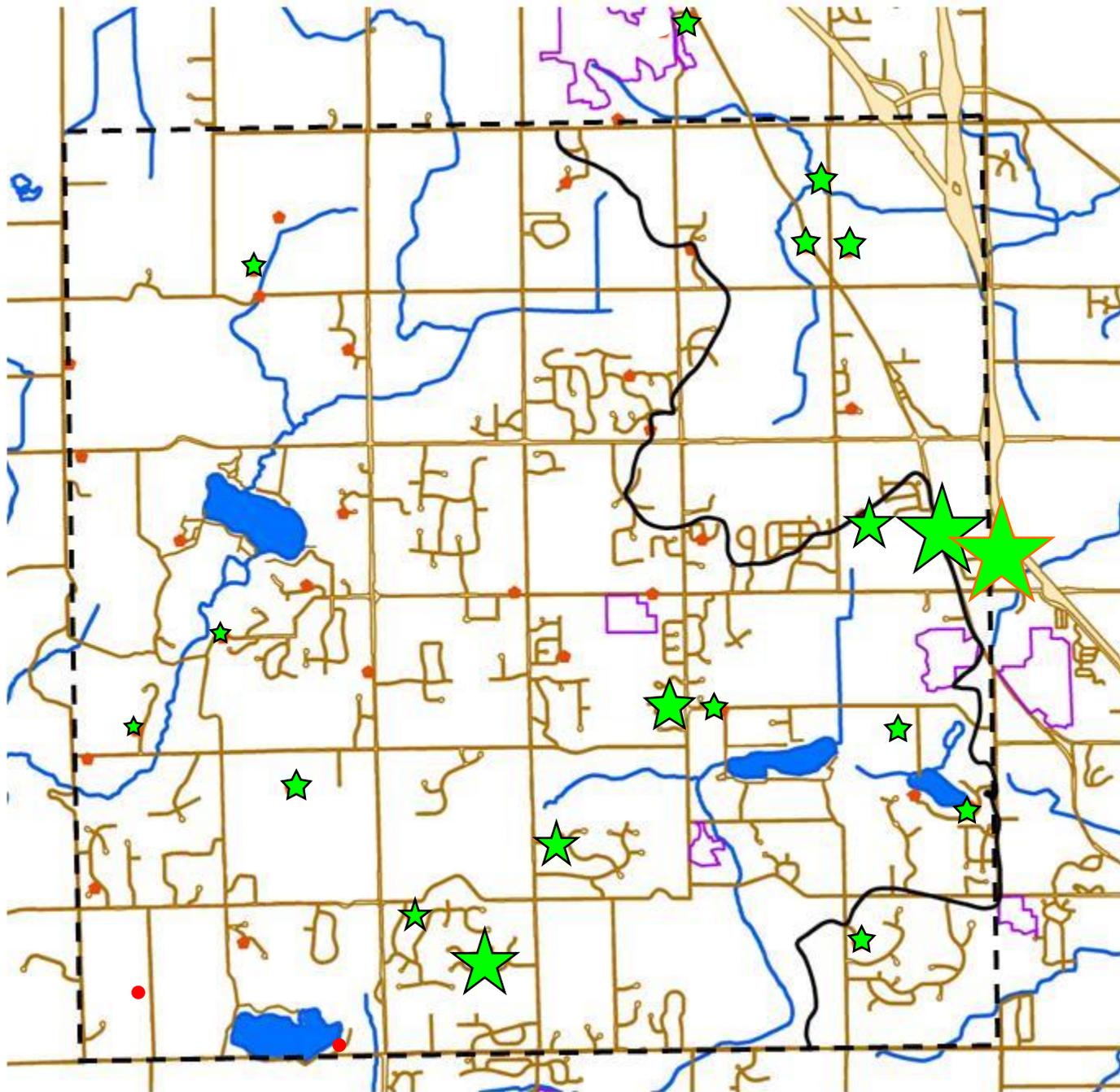
**2. SE area of
decline
not related
to major
local users**

Update on Reflections Village



Water levels recorded every 2 hours since late 2010.

**Summer water levels at Reflections drop, but only partly due to local pumping.
June 2012 was very dry (<1") and many wells in array also declined a lot.**

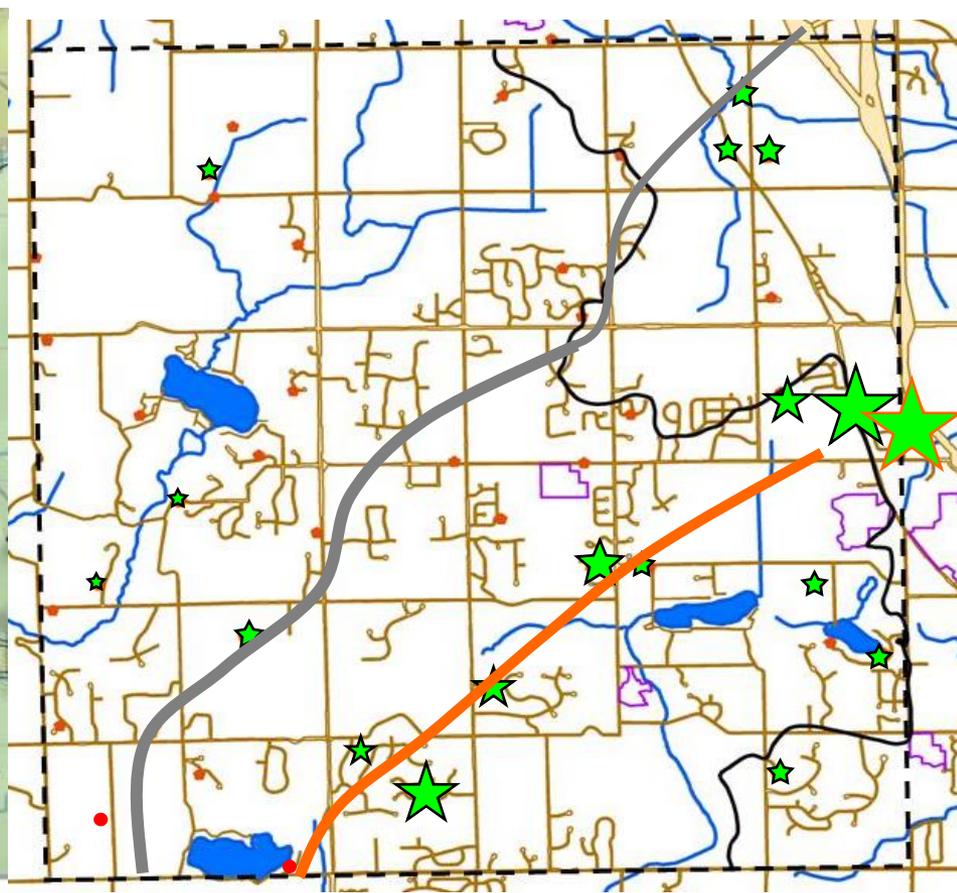


**Distribution
of sites
where head
dropped
> 1 foot
between
May 2 &
June 22, 2012**

**Size of
marker
proportional
to magnitude
of decline**



Bedrock map (WGNHS)



Location of abrupt head declines

The abrupt head drops in Spring 2012 don't coincide with the bedrock valley mapped from WCRs.

Monitoring data seem to indicate a tributary channel which allows local drainage to deep sandstone

Summary

- **Since 2004, Richfield's groundwater levels have shown an average annual rise of 0.07 ft/yr, a water budget balance.**
- **The only major water user showing a measureable (but small) impact is Wissota S&G to the north**
- **Areas to watch:**
 - **The southeastern part of Village**
 - **Reflections Village as it builds out.**
 - **New developments with high water demand**

Questions?