Water System Master Plan

Lockport, Illinois

Third Party Technical Review

November 9, 2011

More ideas. Better solutions.

Background/Purpose

- Introductions
- Technical review previous work
- Goal: assist Council & Staff in decision making
  - Capital Expenditures
  - Operational Considerations
- Assumptions & Limitations
- Outline of Tonight's Presentation
  - Existing System
  - Future System
  - Near-term Comments
  - Open Discussion

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Near-term Decisions

- Wells 2, 5, 8
- Lockport Heights
- Well 11
- Cedar Ridge/Division
- Farrell Road GSR/PS
- Have 2 Plans
- Must make decisions in light of future direction
- Starts with Supply

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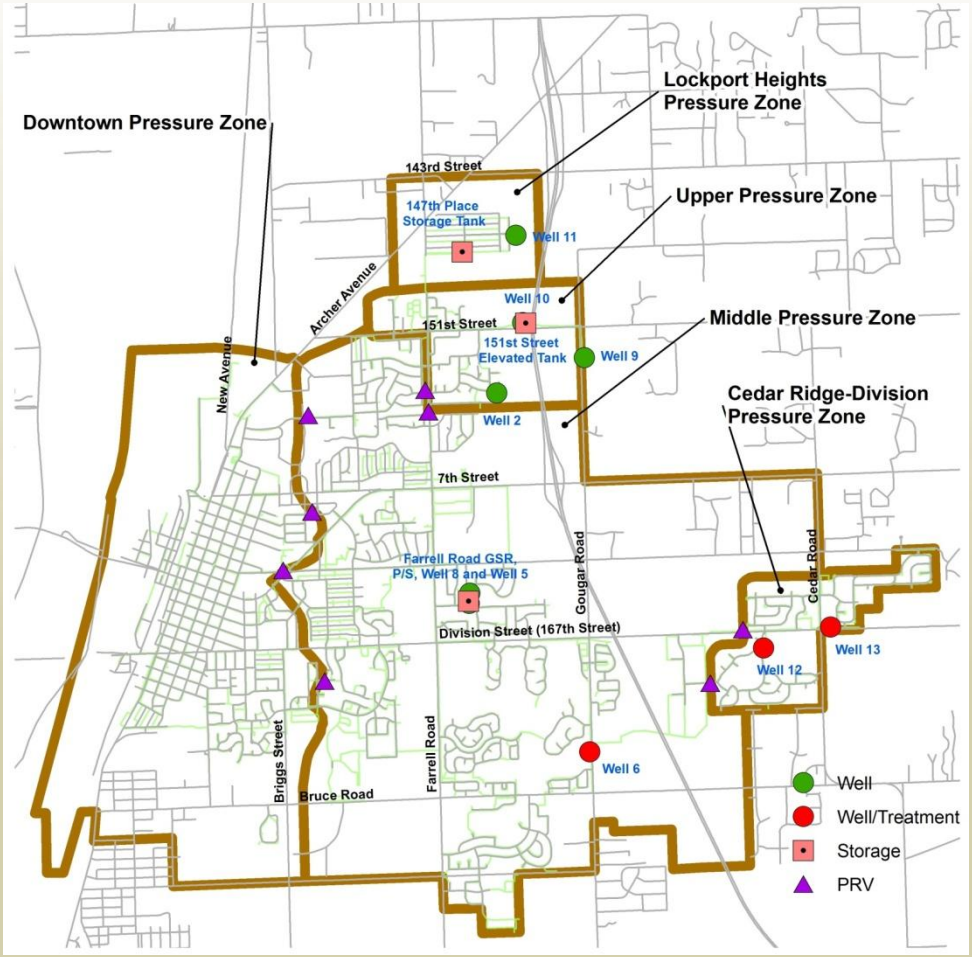
2008 System



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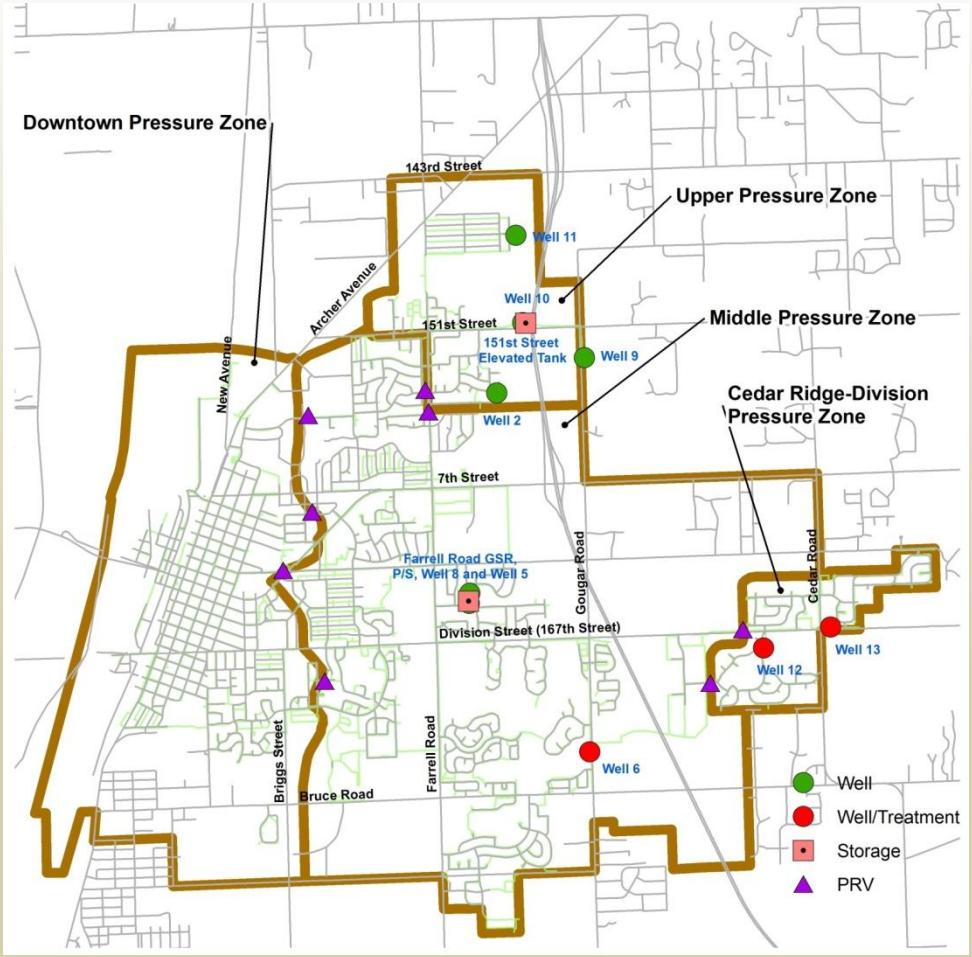
2011 System



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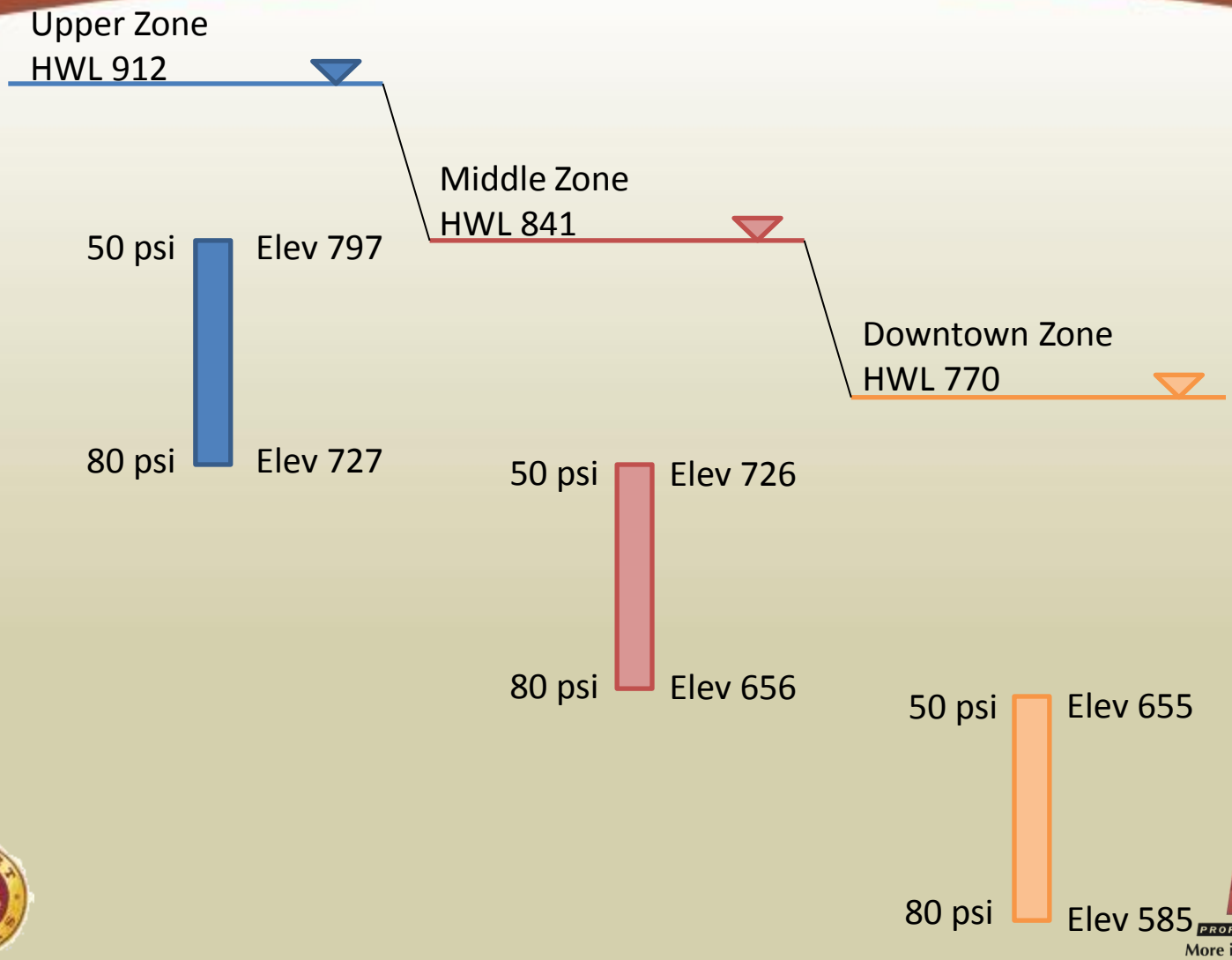
“Pressure Zones”



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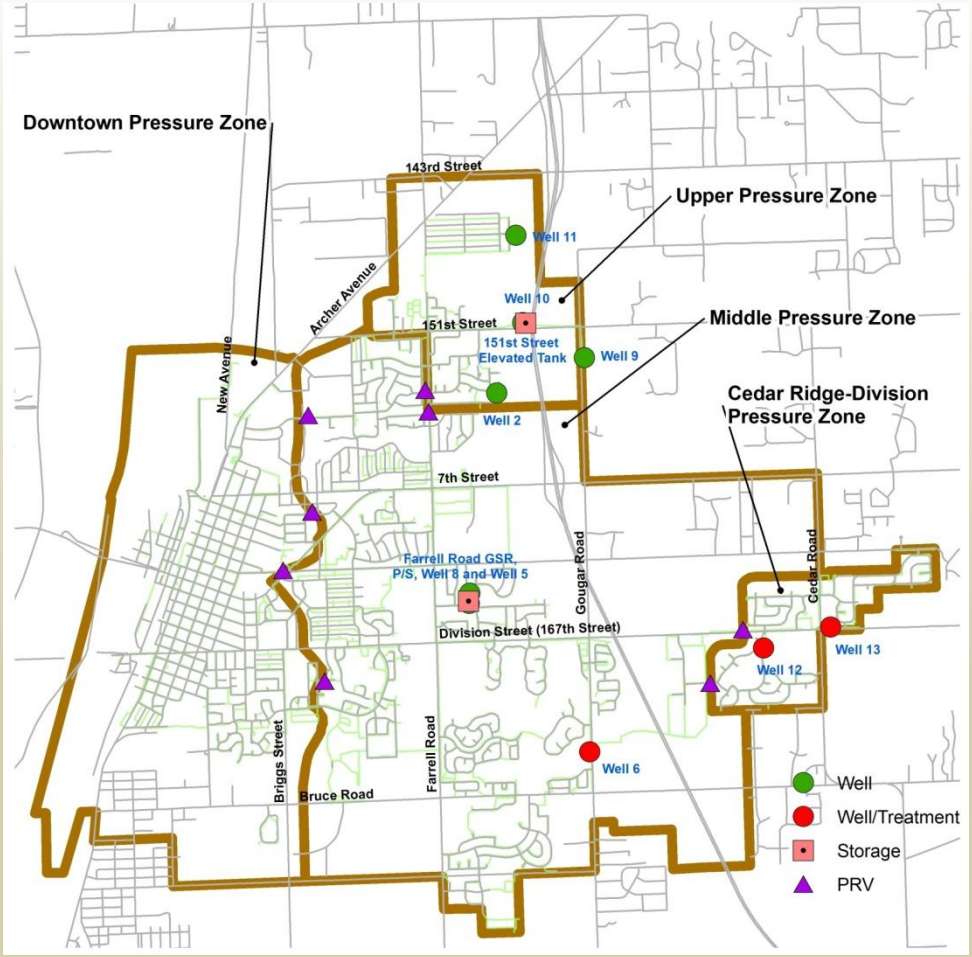
2011 System



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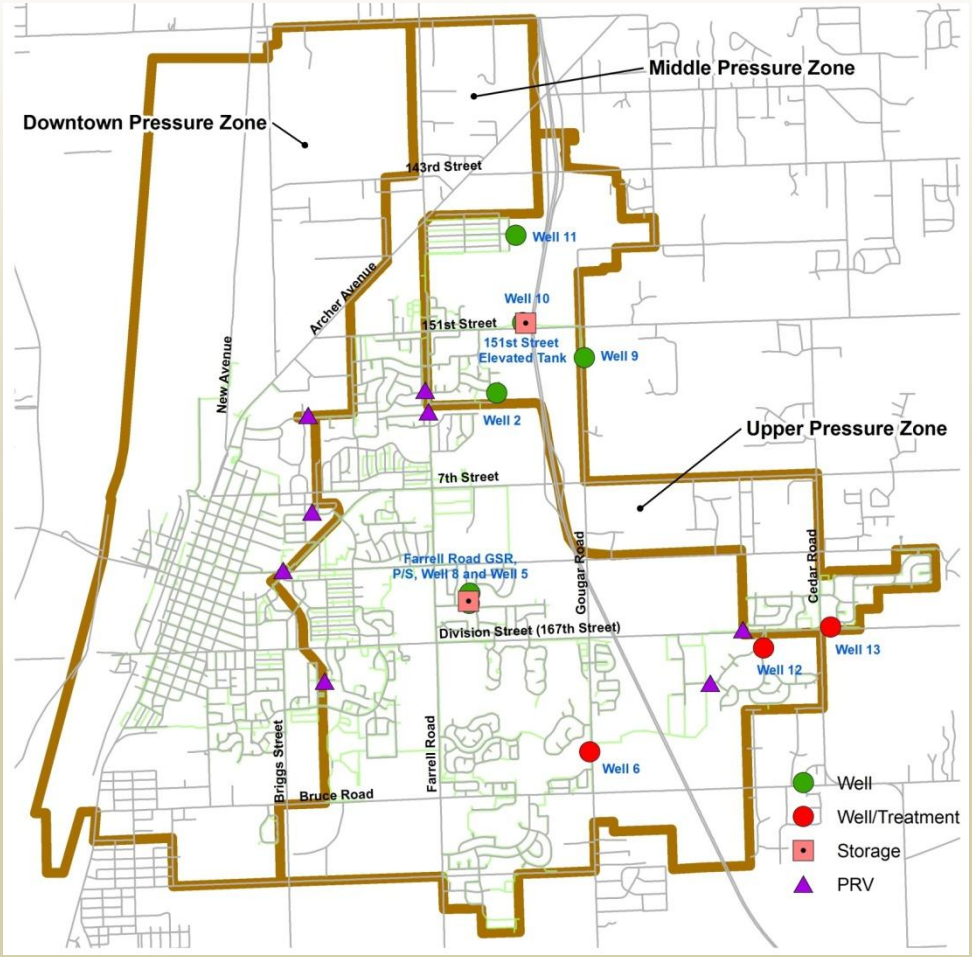
Design Year 2030 System



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2030 System

- Demand: Increase from 5.6 MGD to 12 MGD,
- Served population from 24,000 to over 40,000
- Supply
  - At least 7 additional wells
- Treatment
- Additional Storage
- Distribution System
  - Pressure Zone Modifications
  - System strengthening

More ideas. Better solutions.

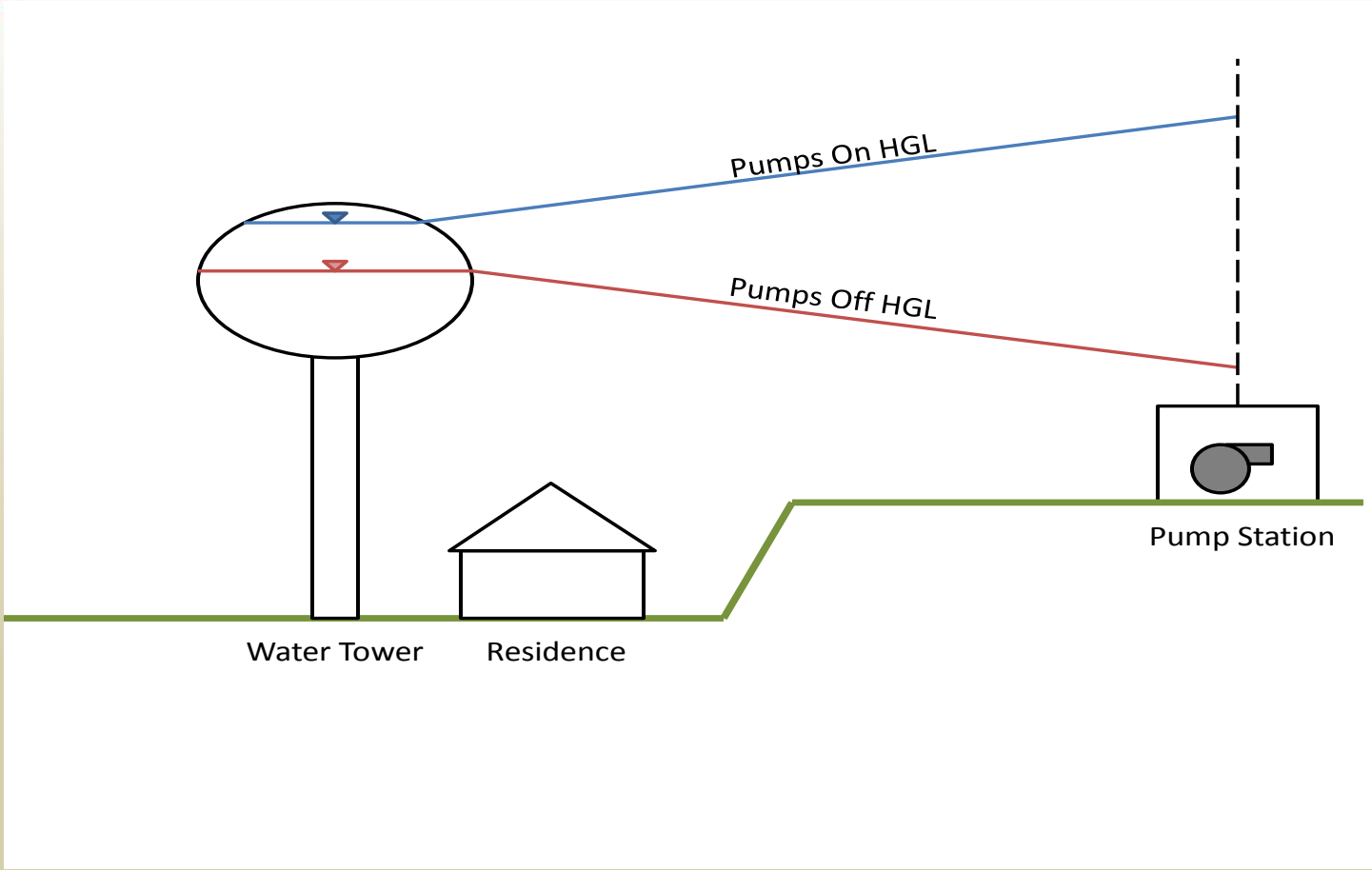
Supply/Treatment Issues

- Potential Sources
  - Silurian Dolomite
  - Ironton-Gallesville
  - Lake Michigan
- Well Siting
  - Where to drill?
  - Potential for contamination?
- Plan for Treatment (Coliform bacteria, iron, radium)
- Consider iron removal

Storage Issues

- Quantity
  - Ten States Standards
  - Water Quality
  - Freezing
  - Cost (capital & repainting)
- Location
  - Distributed
  - Centralized
- Farrell Road GSR/Pumping Station

Supply – Storage Relationships



Distribution System Issues

- Carefully set pressure zone boundaries
- Model and design system based on Supply, Treatment, and Storage decisions
- Extend strong pipe network from supply to storage and to customers

Near Term Decision

- Abandon Wells 2, 5, 8
- Treat Wells 2, 5, 8
- Lake Michigan?
- *Drill replacements for Wells 2, 5, 8?*

More ideas. Better solutions.

Abandon Wells 2, 5, 8

- Well 11 Improvements
- Field test filling of Farrell Rd GSR
- Well Siting Study
- Begin Well 14 (preferably in Middle Zone, preferably near GSR)
- Standby generator for Farrell Rd PS
- Model & field test distribution system for supply from Upper Zone
- Establish Pressure Zone Boundaries
- Connect Cedar Ridge to storage
- Begin planning for additional storage

Treat Wells 2, 5, 8

- Well 11 Improvements – wait until next pump pull
- Well Siting Study
- Begin WTP near GSR
- Consider future expansion in WTP design
- Standby generator for Farrell Rd PS/WTP
- Model distribution system with all of Middle Zone supply from Farrell Rd. WTP
- Establish pressure zone boundaries
- Connect Cedar Ridge to storage
- Begin planning for additional storage

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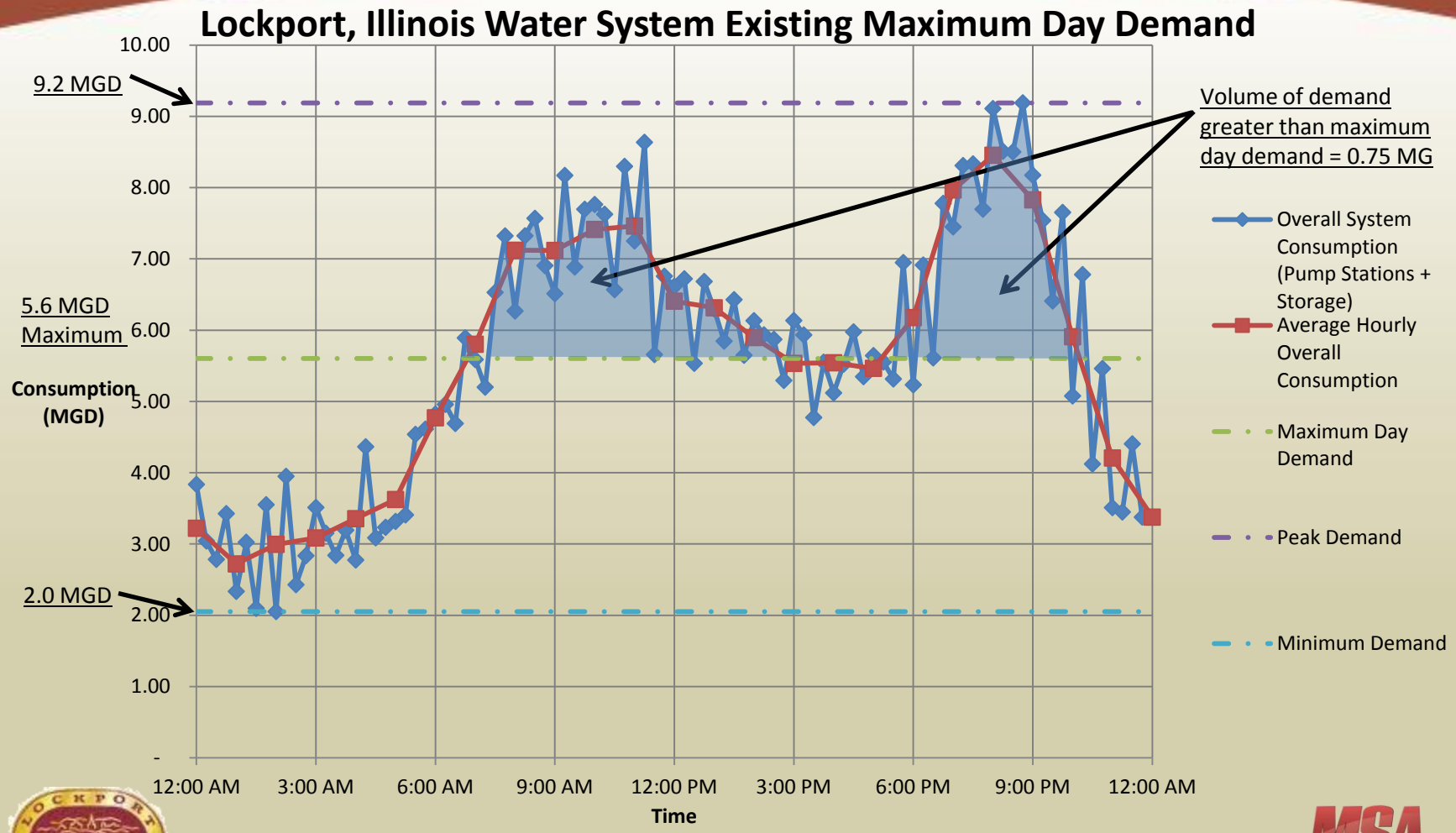
Summary

- Begin planning for all future wells and treatment
- Field test and model GSR fill mode
- Adjust pressure zone boundaries – including interim condition for Cedar Ridge
- Begin additional storage
- Begin new water plant or new wells

Existing Demand Variations



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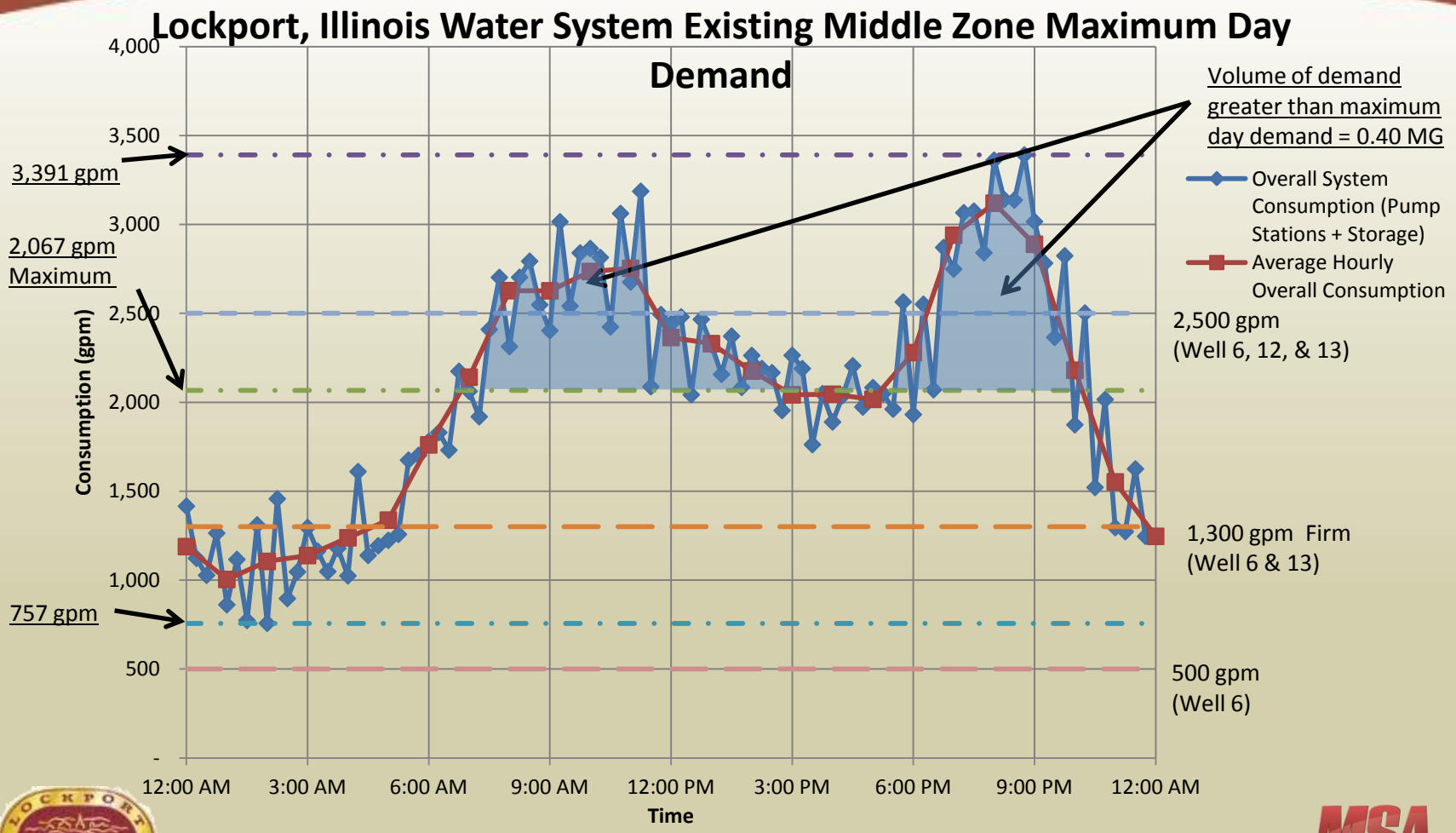
Existing Middle Zone Demand



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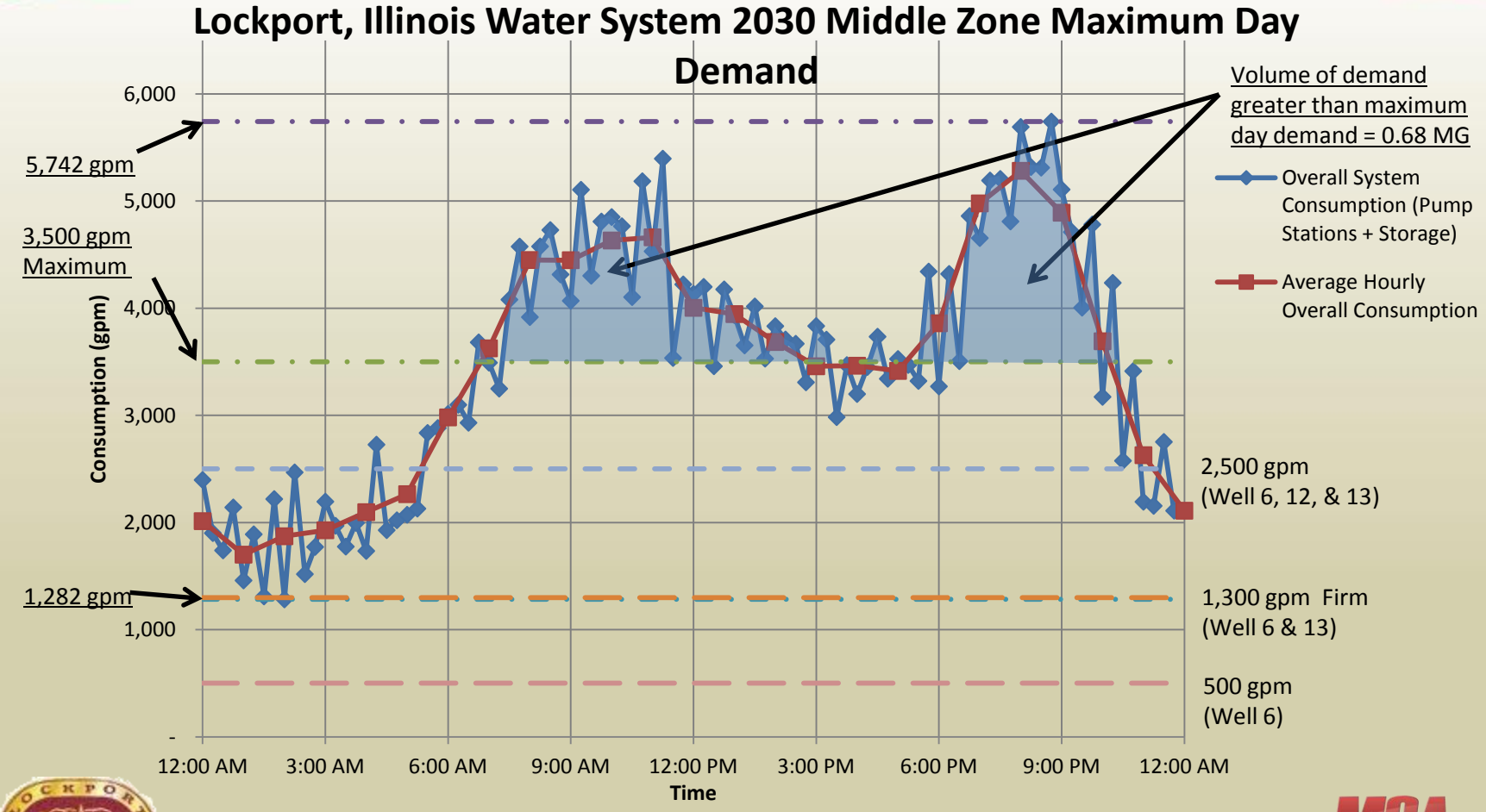
2030 Middle Zone Demand



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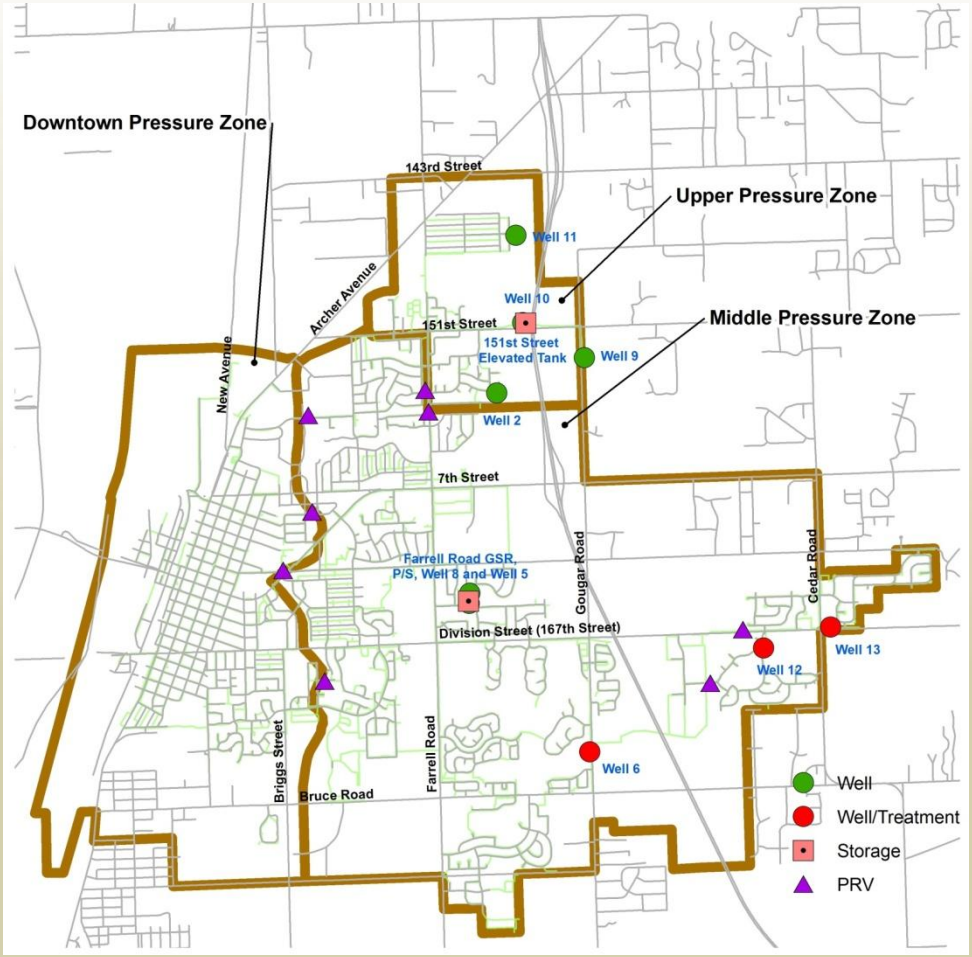
Interim System



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