



Smart Management for
Small Water Systems



Kevin's Tips for Asset Management

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This program is made possible under a
cooperative agreement with EPA.

- General advice on starting and advancing AM
- Some specific examples of applied AM
- Concluding tips for moving forward

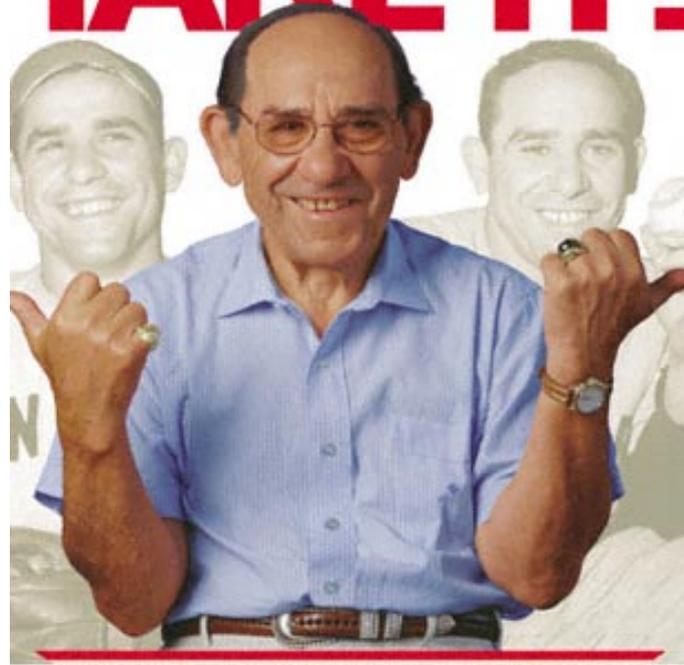
- General “tips” on starting (and advancing)
- Some specific examples of applied AM
- Concluding tips

Tip #1

- Start!

“When it comes to asset management, the best thing to do is to do something.” – Jeff Leighton

When You Come to a Fork in the Road,
TAKE IT!



YOGI BERRA

“If you don't know where you're going, you'll wind up somewhere else.”

-- Yogi Berra



“We might be lost, but we're making
great time!”

-- Yogi Berra

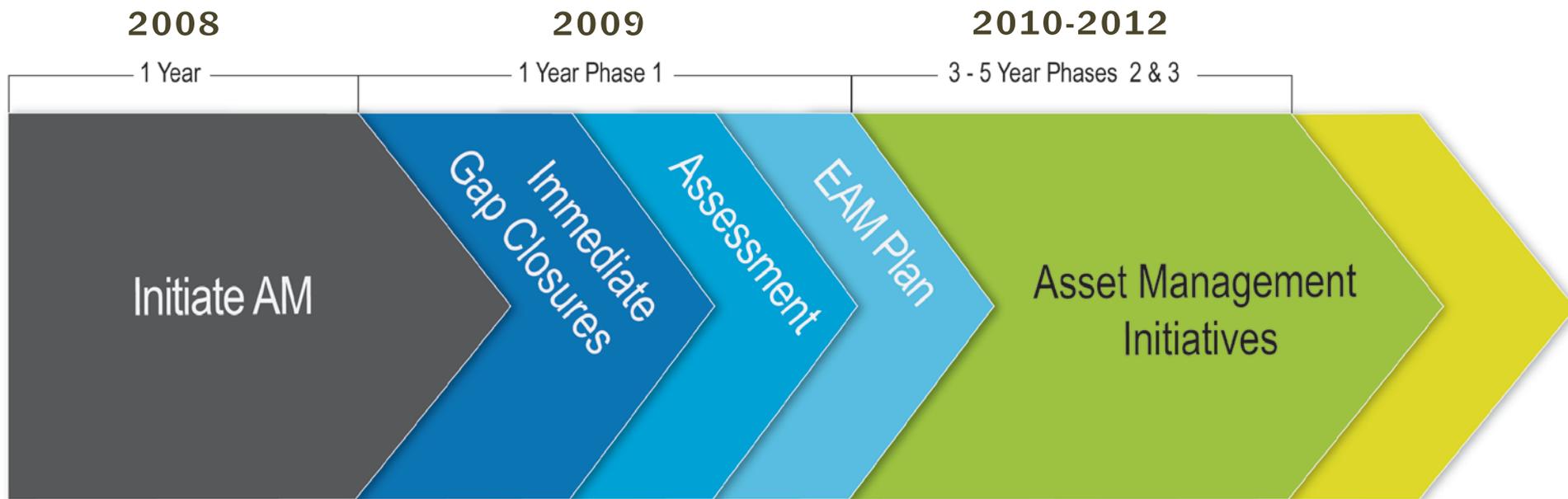
Tip #2

- Start!
- **Start with a Plan**

We can get our costumes back. We just have to know where to go. Who do we ask for help when we don't know where to go? Map!



Columbus DPU's AM Plan



- Establish AM Office
- Present AM Overview
- Develop Ph. 1 Scope
- Consultant Selection

- WAM Enhancements
- BCE Pilots
- Levels of Service
- Charter Teams

- Blue Ribbon Panel
- Aquamark Assessment

- Gap Analysis Report
- Framework
- Roadmap
- Training Plan

1. Risk Framework
2. Levels of Service
3. Organizational Development
4. Strategic Plan
5. Project Delivery
6. Asset Management Plans
7. Procedures/Standards
8. Procurement Process

9. Operations Optimization
10. Strategic Maintenance
11. Efficiency Improvements
12. Performance Management
13. Technology Systems
14. Business Plans
15. Quality Management
16. Knowledge Management

Tip #3

- Start!
- Start With a Plan
- **Your Drivers Should Drive the Plan**

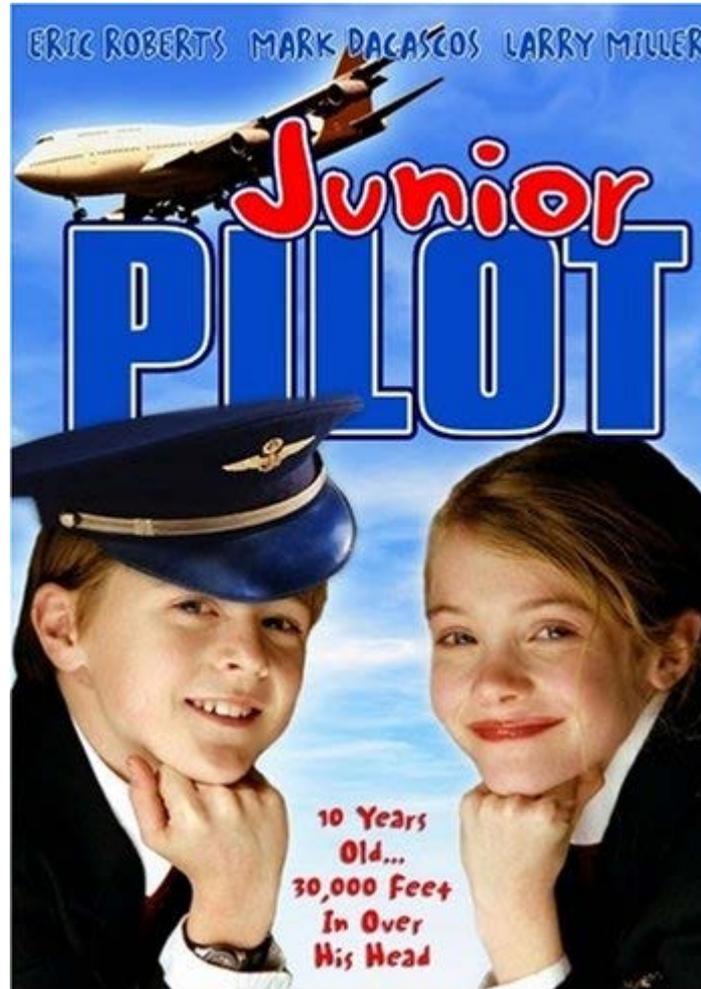
How do I start/advance? Know your drivers!

- Aging infrastructure: Replacement planning
- Lots of new infrastructure: Preventive maintenance practices
- Regulations or growth driving capital projects: How to perform simplified BCE's
- Operational costs: Optimize chemicals and energy usage
- Inconsistent project goals: Define LOS's

Tip #4

- Start!
- Start With a Plan
- Your Drivers Should Drive the Plan
- **Pick 1 Thing – Do It Well and Complete It**

Start Small: Pilot, Perfect, Implement



- General “tips” on starting and advancing AM
- **Some specific examples of applied AM**
- Concluding tips

Tip #5

- Start!
- Start With a Plan
- Your Drivers Should Drive the Plan
- Pick 1 Thing – Do It Well and Complete It
- **If Cost is the Driver, Follow the Money**

Operations Optimization

- Three WTPs, Two WWTP's Studied
 - Focused on chemical and energy savings

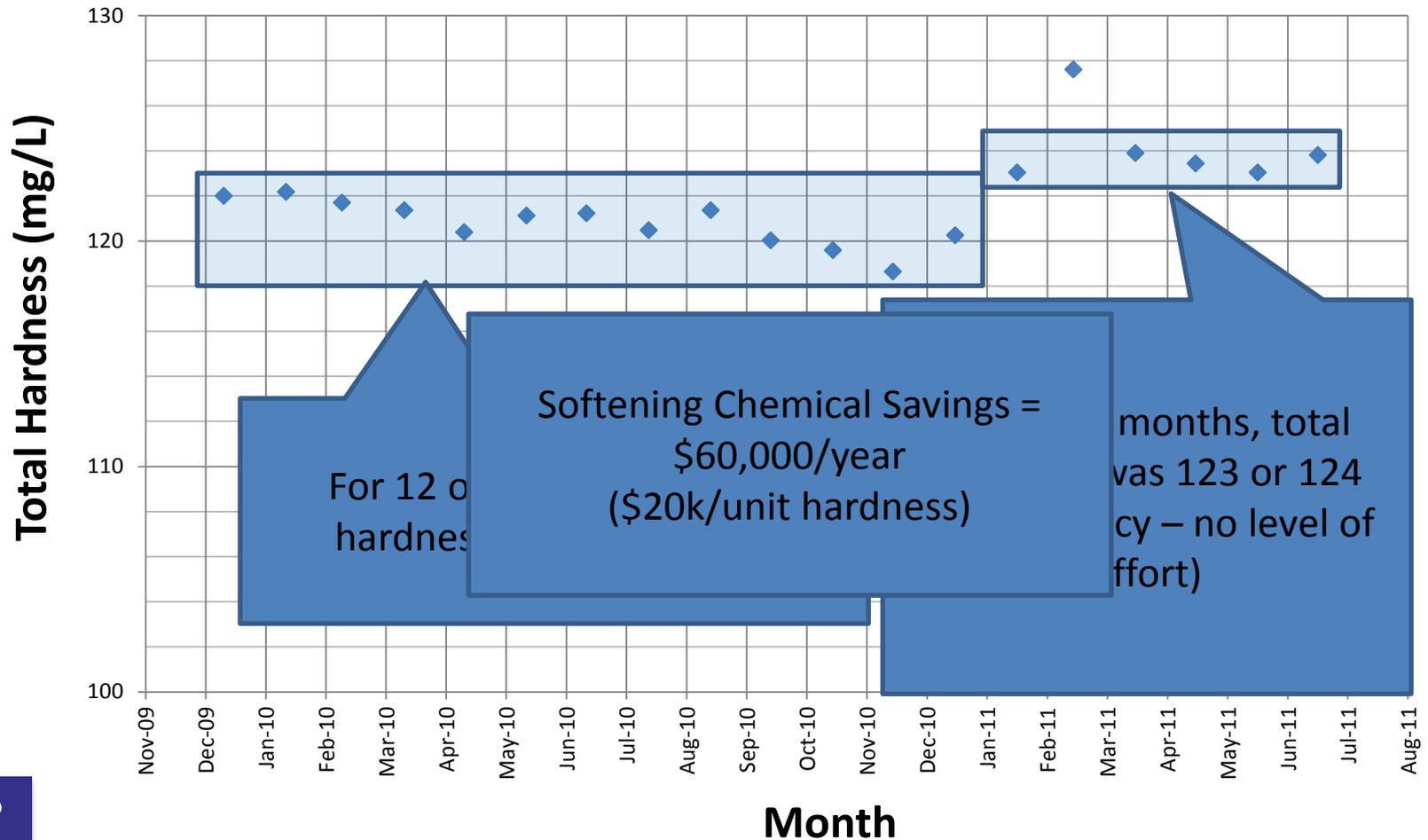


Filter Backwash Optimization

- Backwash process was highly conservative
- Backwash water reduced
 - Time between backwashes increased by 12 hrs
 - Duration of backwash reduced from 10-15 minutes to 8-10 minutes
- Backwash savings: \$50,000/year
- Annual savings may be increased in the future as plant staff gains comfort



Savings from Controlling Finished Water Total Hardness



Tip #6

- Start!
- Start With a Plan
- Your Drivers Should Drive the Plan
- Pick 1 Thing – Do It Well and Complete It
- If Cost is the Driver, Follow the Money
- **Get the Most From What You Have**

90-Percent of Asset Life = Maintenance!

- Repair, replacement, and expansion are costly
 - Increased capacity = More assets to maintain
 - Advanced technology = Maintenance is complex
 - More stringent standards = Less downtime
- Modernize you maintenance program
- Get the most out of existing assets

Treatment Plant Findings

- Tend to over-maintain mechanical assets
 - Manufacturer's recommendations designed to warranty period, and ignore operating context
- Most failures are not traditional “wear and tear” time-bound failures; they are random (e.g. electrical/SCADA)
 - Preventive tasks were not effective at preventing failure = replaced too soon (high \$) or too late (failure)
 - Predictive Maintenance would be more effective

Findings (continued)

- Do the “right” maintenance
 - Balance PM and CM (2:1 ratio)
- Identify the right critical assets
 - Inventory not reflective of critical spares
- Don’t overlook safety PM’s
 - Testing of protective devices needed to be ramped up

Benefits of Better PM program

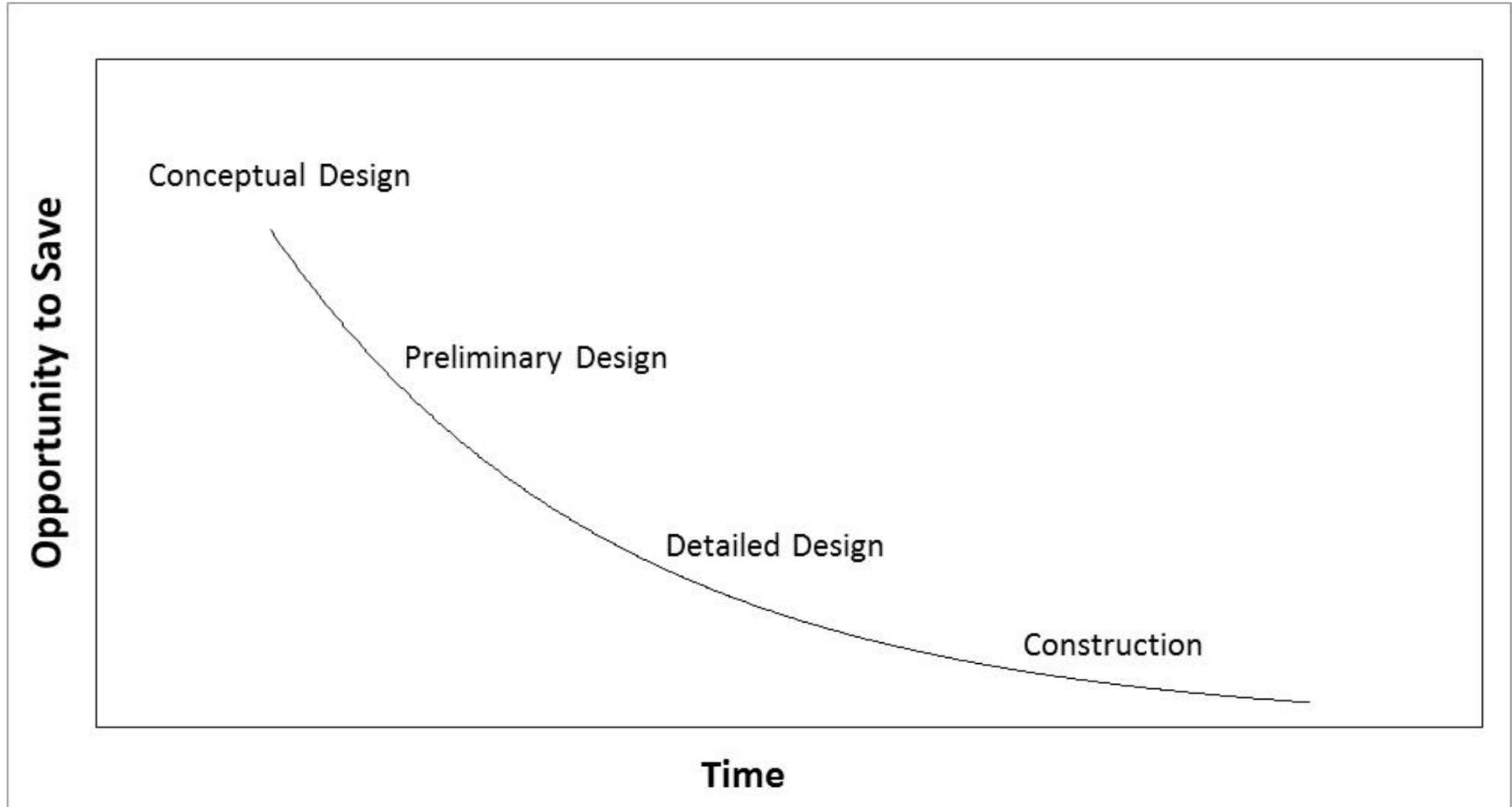
- Optimized PM Plans
 - 60-percent reduction in PM tasks on 2 pilots
 - 41 new safety preventive maintenance tasks
 - \$110,000 annual savings
- Increased Reliability and Availability
- Increased Safety



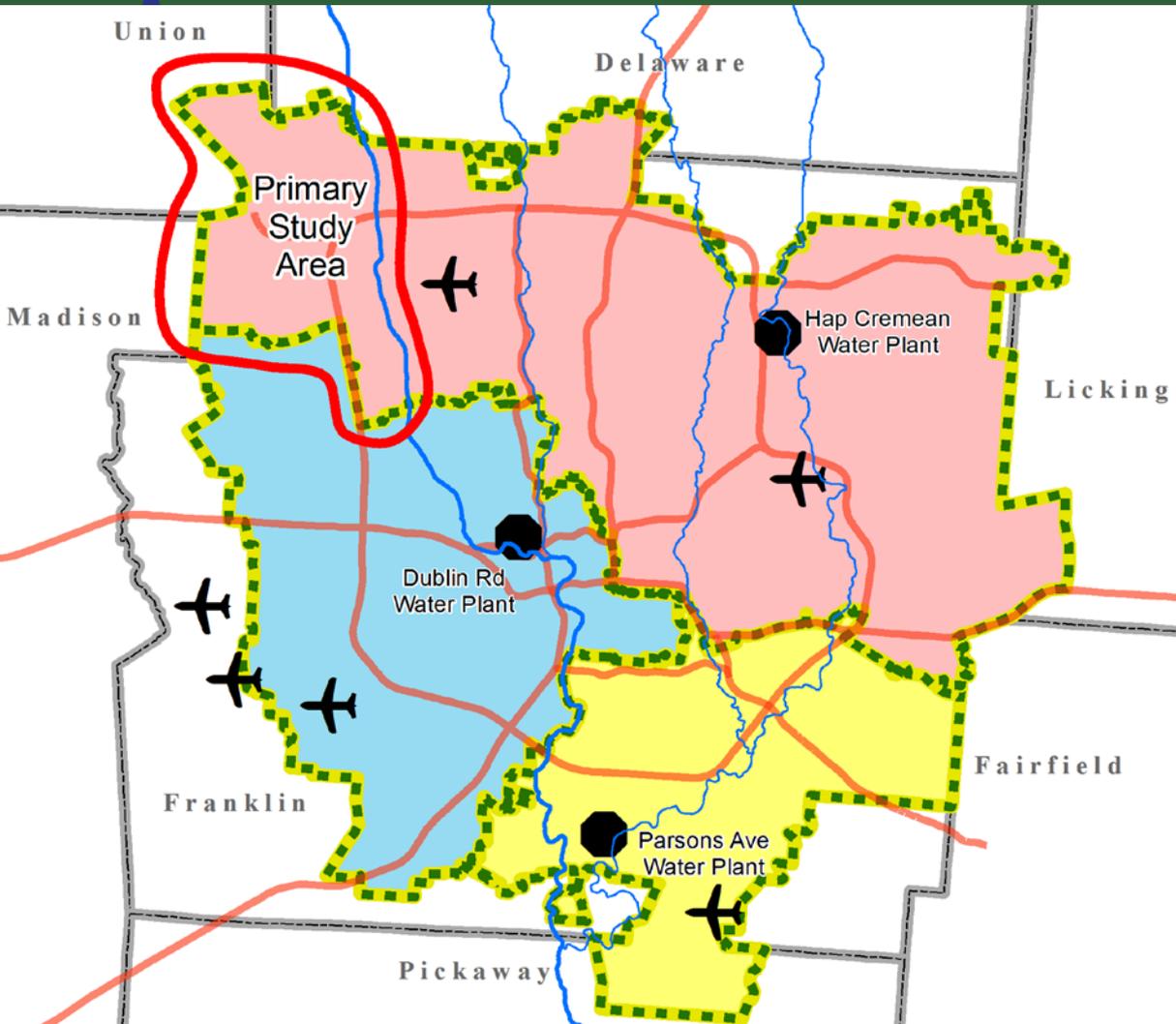
Tip #6a

- Get the Most From What You Have
 - Don't be a firefighter, be a fire preventer
 - Focus on assets giving you headaches or high consequence assets
 - Look at your preventive maintenance program and make common sense adjustments to stretch your resources and preserve assets

Tip 7: Best Opportunity to Save is Early



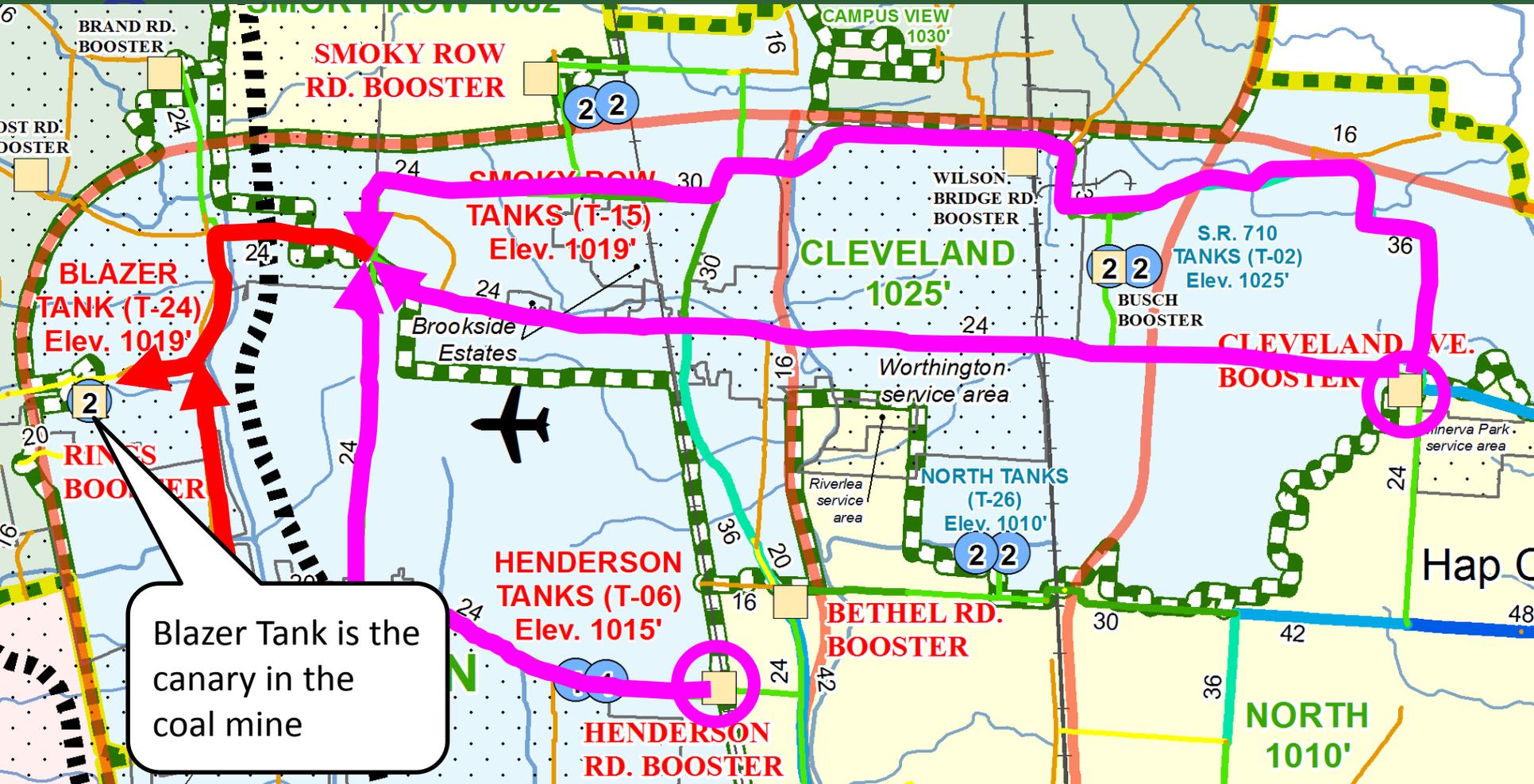
Background – DOPW Service



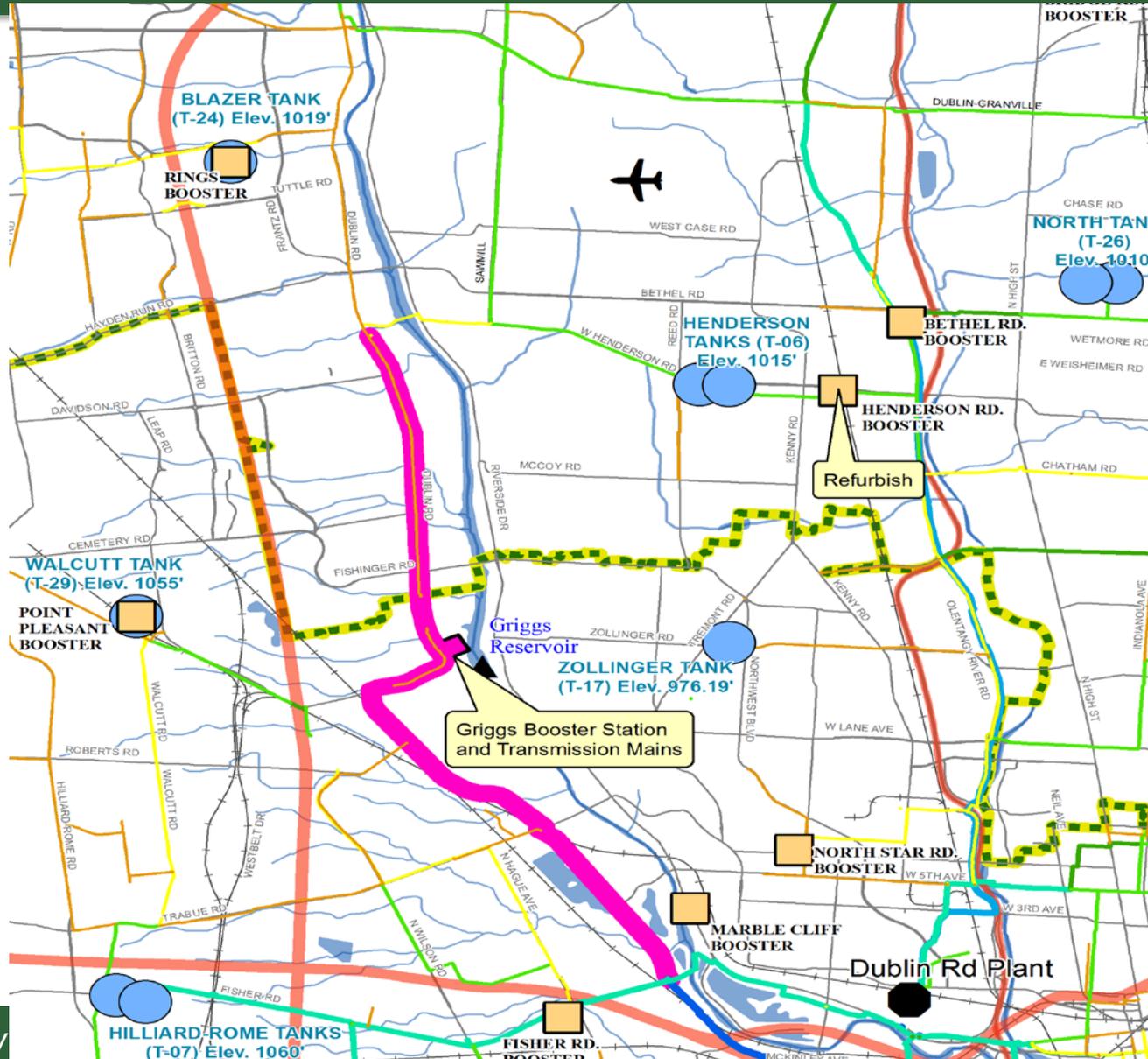
significant growth
experiences across Scioto



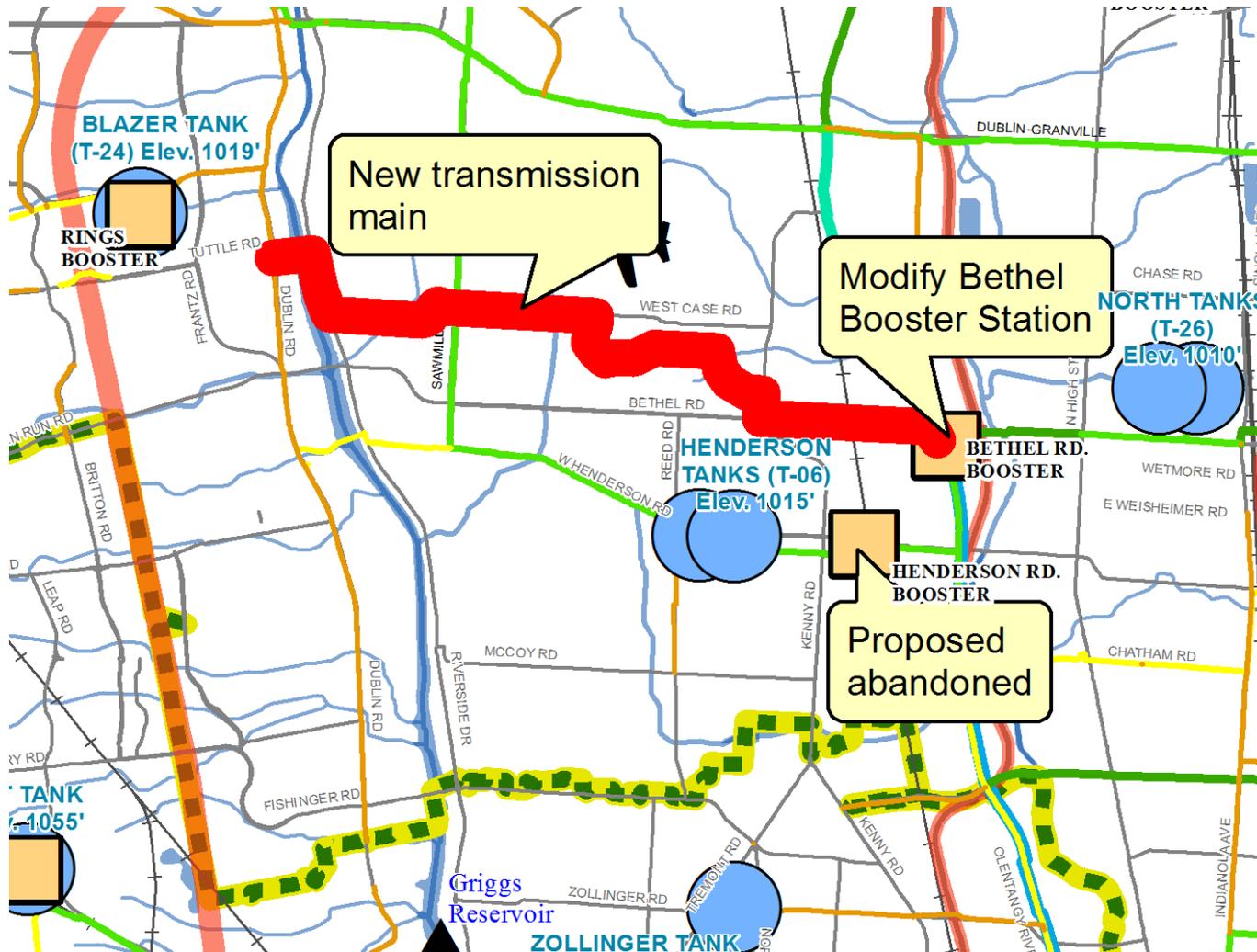
Background – Transmission



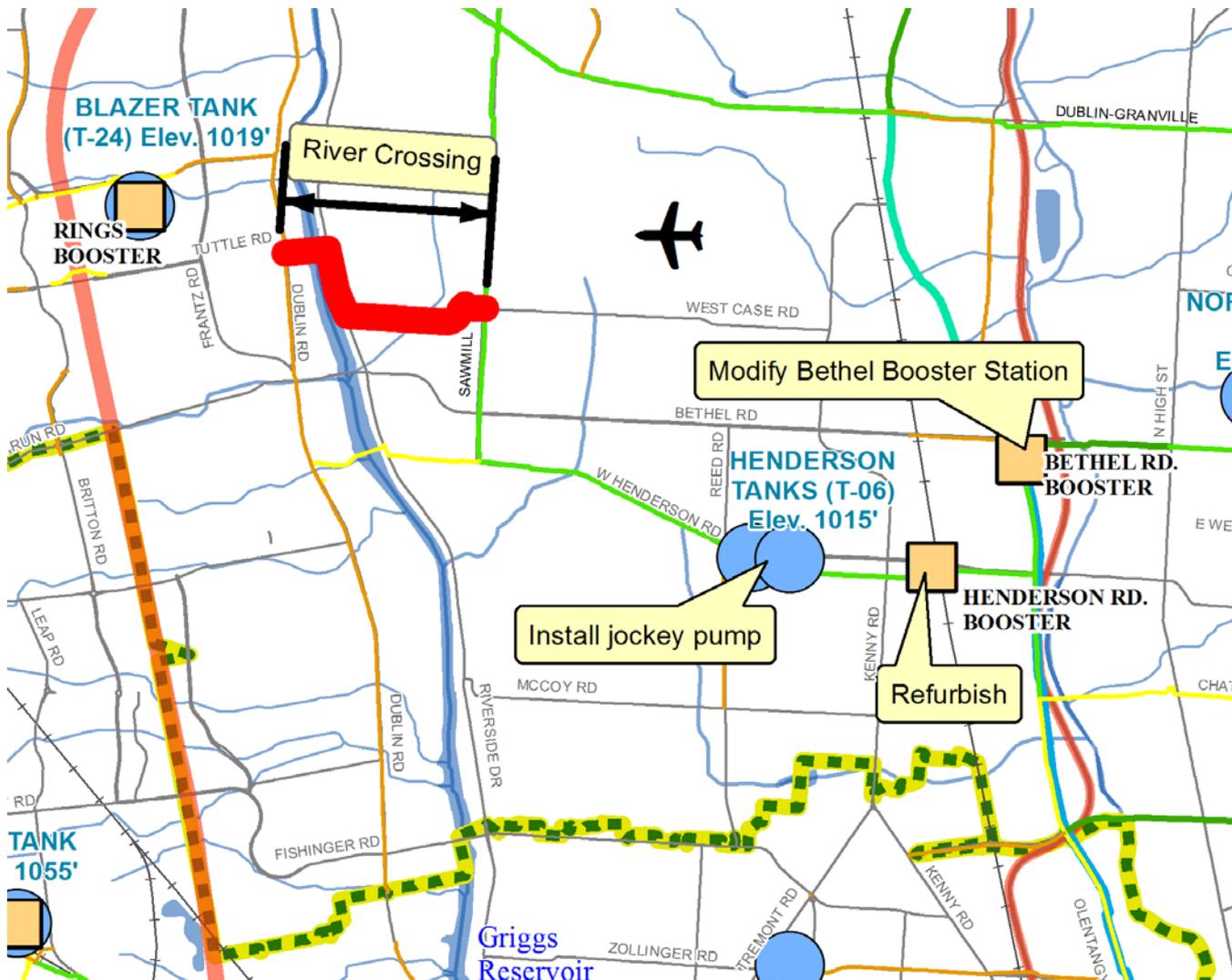
Focused In on a Solution Too Quickly



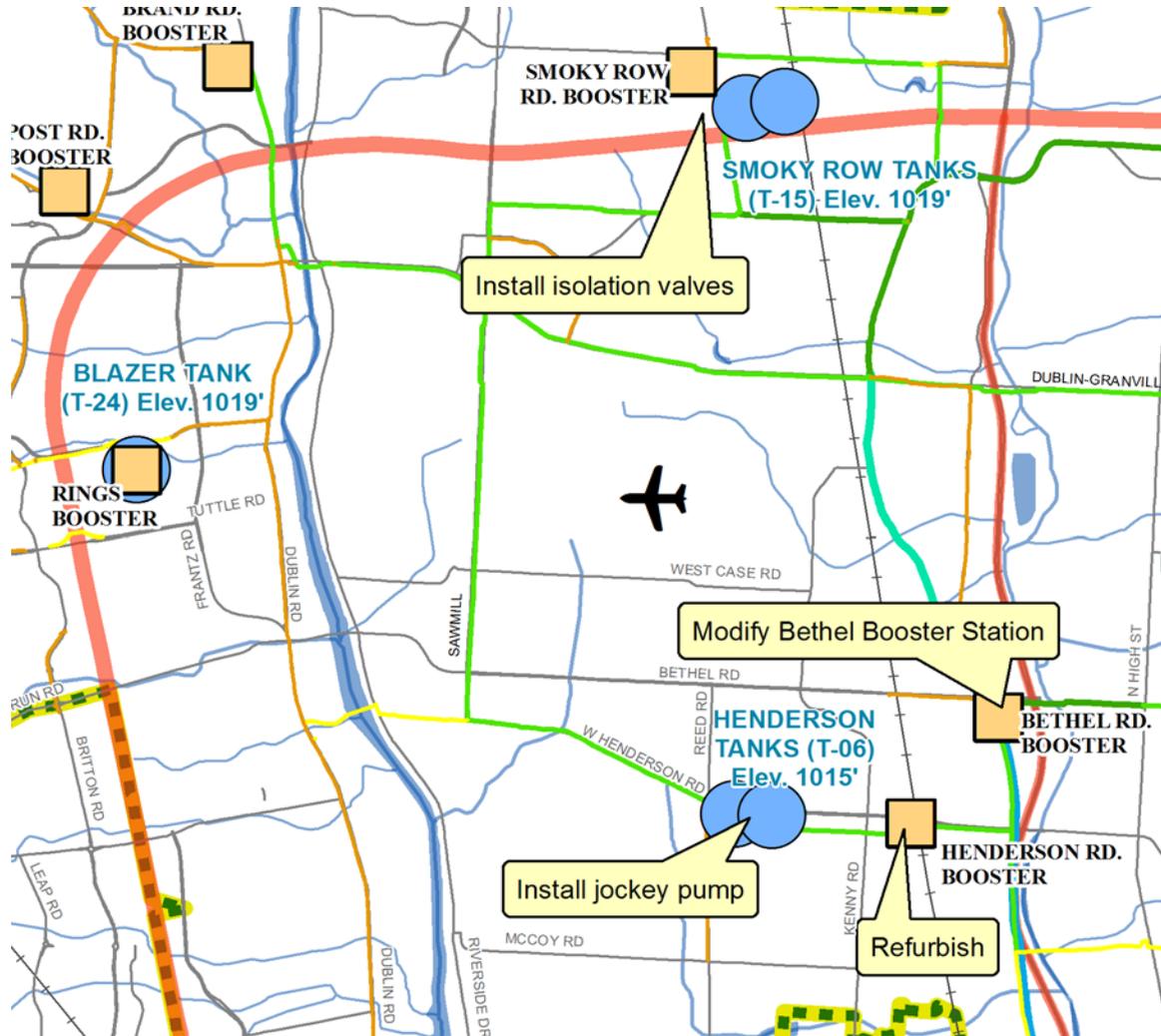
Chose 2nd Solution Too Quickly



Chose 3rd Solution and Studied It



Study Led to a 4th (The Best) Solution



Tip from John Wooden

- “If you don’t have time to do it right the first time, when will you have time to fix it and then do it again.”

- General advice on starting and advancing AM
- Some specific examples of applied AM
- **Concluding tips for moving forward**

Summary of Tips

- Start!
- Start With a Plan
- Your Drivers Should Drive the Plan
- Pick 1 Thing – Do It Well and Complete It
- If Cost is the Driver, Follow the Money
- Get the Most From What You Have
- Do the Right Project the First Time

Final Tip

- **Steal ruthlessly from others!**
 - EFCN has a lot of resources
 - AWWA, WEF, and other professional societies
 - Other utilities
 - Other industries
 - Consulting firms



Thank you!

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