

Kline's Island Sewer System

Regional Sewer Plan

Presentation to Municipal Officials

November & December 2023

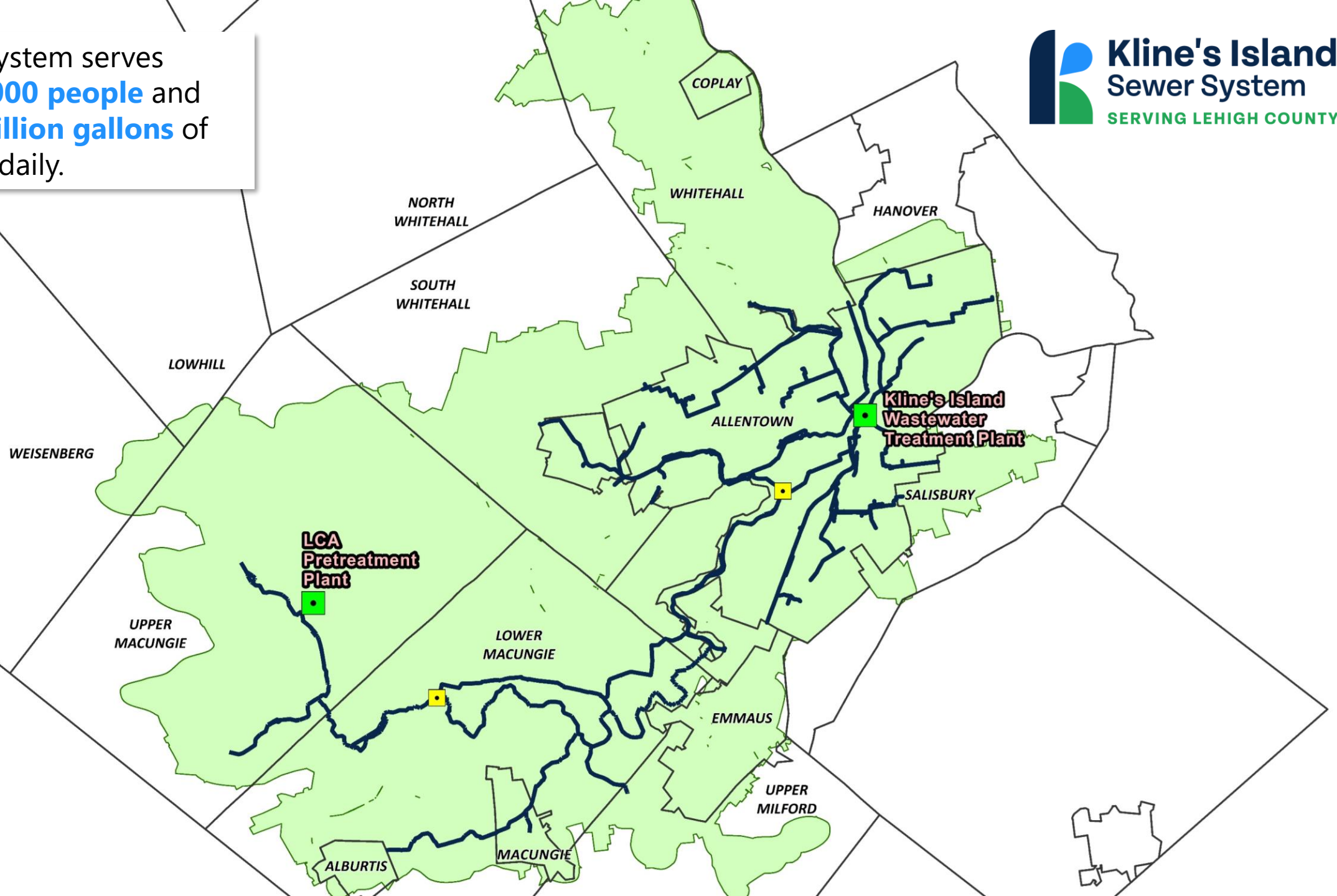
KISS Service Area

- | | | |
|------------------------|-----------------------------|--------------------------------|
| 1. City of Allentown | 6. Upper Macungie Township | 11. Upper Milford Township ** |
| 2. Borough of Emmaus | 7. Lower Macungie Township | 12. Hanover Township |
| 3. Borough of Macungie | 8. South Whitehall Township | 13. North Whitehall Township * |
| 4. Borough of Alburtis | 9. Salisbury Township | 14. Weisenberg Township ** |
| 5. Borough of Coplay * | 10. Whitehall Township * | 15. Lowhill Township ** |

* The Borough of Coplay, Whitehall Township, and North Whitehall Township receive sewer service through an agreement with the Coplay-Whitehall Sewer Authority.

** Lehigh County Authority (LCA) owns and operates the sewer systems serving Upper Milford, Weisenberg, and Lowhill townships.

The sewer system serves about **270,000 people** and treats **32 million gallons** of wastewater daily.



Kline's Island Sewer System Faces Major System Challenges



Aging Infrastructure

Most KISS communities struggle with deteriorating infrastructure that is 50 to 100 years old, causing leakage and sewer overflows



Capacity for New Connections

Many system components are at capacity today, regardless of the wet weather challenges, stalling potential economic development and growth



Size of Existing Infrastructure

Our infrastructure is not designed for wet weather events that leak rainwater into the system, making sewer overflows worse



Regulatory Oversight

System overflows and permit violations have increased regulatory oversight, restricted new connections, compelling us to take action



Inflow ...

Our hydraulic model shows that **160 million gallons of water per day** enter the sewer system during wet weather.

The treatment plant can only process about half of that. When there's no place for the water to go, overflows happen.

... and Infiltration

On a regular dry-weather day, **10 million gallons of groundwater** enters the sewer system each day.

This excess flow takes up capacity in the pipes and treatment plants, increasing costs for everyone.





Why We Need a Regional Plan

- Our systems are **interconnected and interdependent** – we're in this together
- Sewer service is critical to the health and well-being of every community in our region
- Aging infrastructure is a universal challenge and best to address collaboratively to get the best value for our investments
- Our quality of life, vibrant regional economy, and beautiful natural resources depend on well-planned utility services



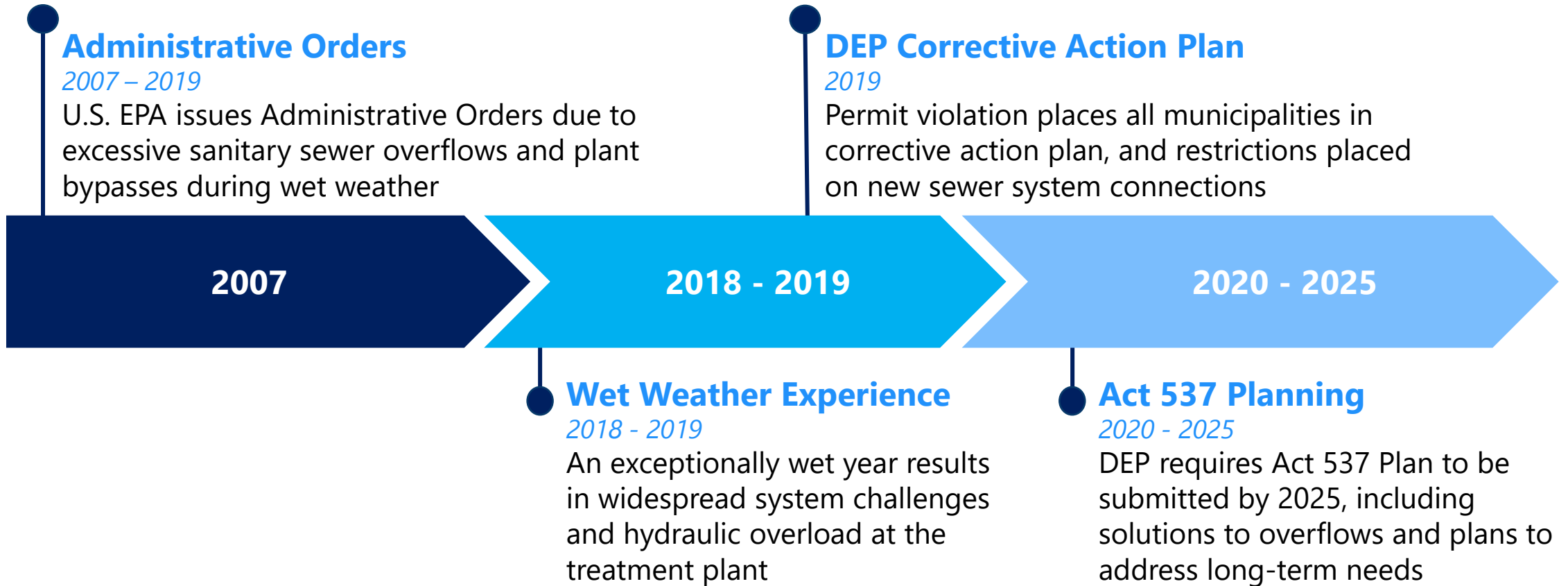
LCA's Role

- Manage the system's regional components (treatment plants, interceptors, pump stations)
- Work closely on this plan with all municipalities
- Focus on meeting DEP's Act 537 requirements
- This is not LCA's plan – **this is your plan!**
- LCA approval not required for DEP submission
- Commitment to the communities we serve



Regulatory Action

Regulatory Action: A Brief Overview



DEP's Expectations & Act 537 Requirements

Timeline

The KISS Act 537 Plan must be submitted to DEP by March 2025, which means review and approvals must start in 2024. The plan must include a 10-year implementation schedule (2026-2035).

Inflow and Infiltration

Our plan must include details of how each municipality will address leakage into the sewer collection system, and how the regional system will be expanded to address sewer overflows that occur in wet weather.

Long-Term Needs

Each community must provide details on expected new connections to the system, and the regional projects must be designed to address this.

Implementation & Financing

In addition to developing technical solutions, our plan must include practical implementation details and a plan to pay for it.

What Happens if We Don't Take Action?



Environmental Damage

Sewer overflows continue, and environmental damages get worse



Continued Aging

Our system keeps aging, and eventually the solutions will cost more



Regulatory Actions

Harsh regulatory actions, such as a consent decree and fines



Stalled New Connections

In communities that are still growing, new connections will not be allowed to continue





Planning Approach

Work Completed to Date (2019-2023)



Regional Flow
Monitoring and
Hydraulic
Modeling



Detailed Analysis
Of Each
Municipality's
System Leakage



Municipal Growth
Projections
Provided By Each
Municipality



Plans For Sewer
System Rehab
Provided By Each
Municipality



Engineering
Analysis Of Project
Alternatives For
Regional System
Components



Preliminary Cost
Estimates

GISS Projects: Kline's Island Wastewater Treatment Plant

- Expanded pumping capacity to treat wet weather flows
- Treatment enhancements to improve performance during periods of highest flows
- Regular repair, replacement, and upgrades – some plant components are 100 years old!
- **2026-2035 Cost Estimate: \$51 Million**



KISS Projects: Industrial Pretreatment Plant

- Plant treats high-strength waste from large industries
 - Creates significant economic support for the region
 - Pretreatment service lowers overall regional cost for wastewater treatment
- Plant is overloaded and aging, requiring major upgrades
- **2026-2035 Cost Estimate: \$267 Million (under review)**



KISS Projects:

Little Lehigh Interceptor



- Current 30-42" diameter interceptor is already overloaded
- Relief facilities and pump stations installed in the 1980s
- Overload condition creates risk of major sewer overflows in environmentally sensitive areas
- New 54-72" diameter interceptor needed to convey today's flows and plan for tomorrow
- **2026-2035 Cost Estimate: \$23-30 Million**

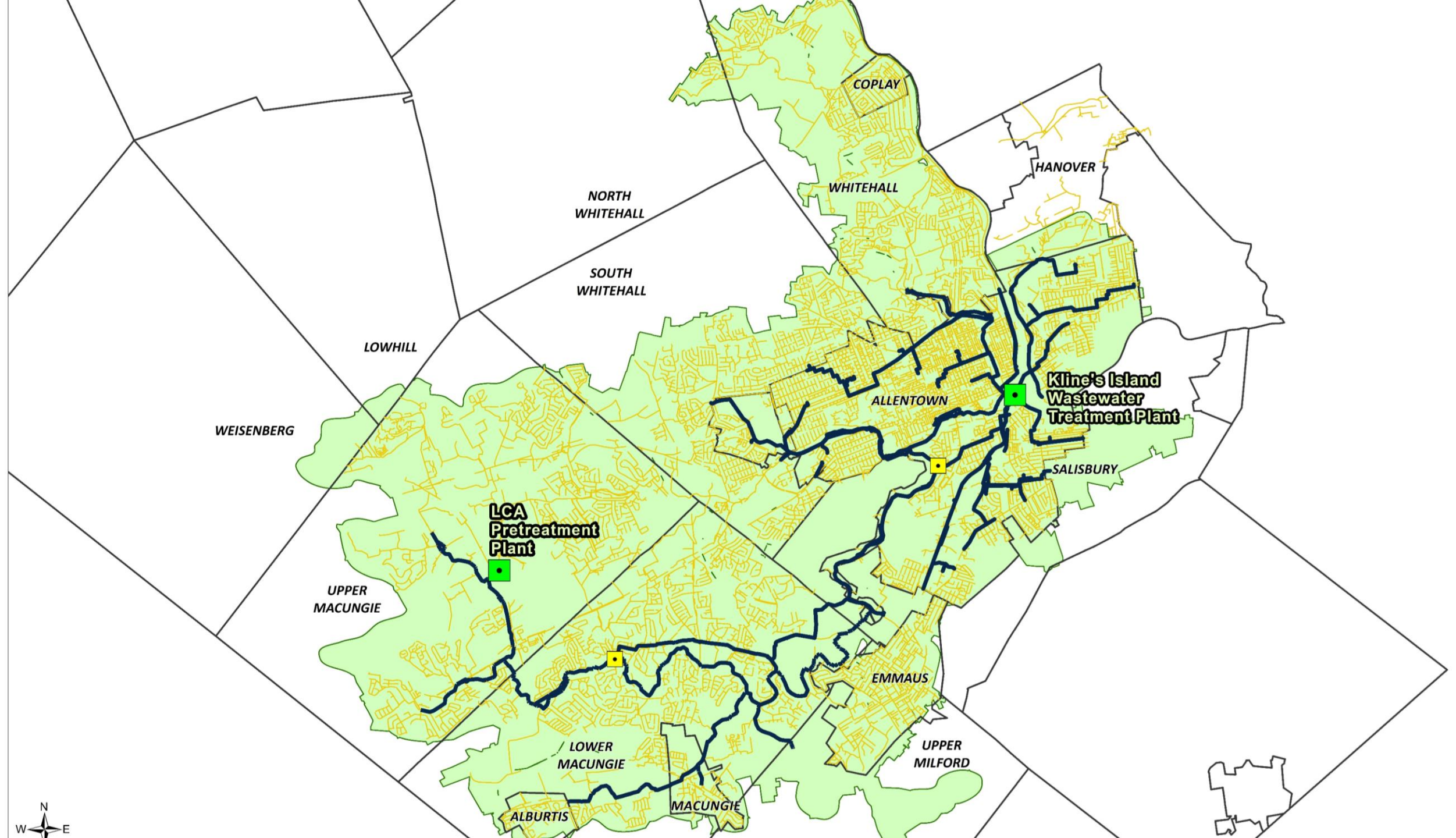
KISS Projects:

Western Lehigh Interceptor

- Current 27-36" diameter interceptor is already overloaded
- Relief facilities and pump station installed in the late 1990s
- Overload condition creates risk of major sewer overflows in environmentally sensitive areas
- New 24-54" diameter interceptor needed to convey today's flows and plan for tomorrow
- Second pumping option being explored
- **2026-2035 Cost Estimate: \$76-98 Million**







KISS Projects:

Municipal Sewer Rehab Programs

Each municipality has provided their expected work plan for address aging infrastructure and ongoing sewer rehab.

Result of your work will ensure success of regional projects. Result of projects completed by 2031 will determine future needs for additional larger projects.

2026 - 2035 Cost Estimate: \$90 million

KISS Projects:

Other Municipal Interceptors

Some municipalities have their own trunklines and interceptors that overflow (either now or in the future) during wet weather events.

These projects are still under review to determine if they need to be included in the KISS Act 537 Plan.

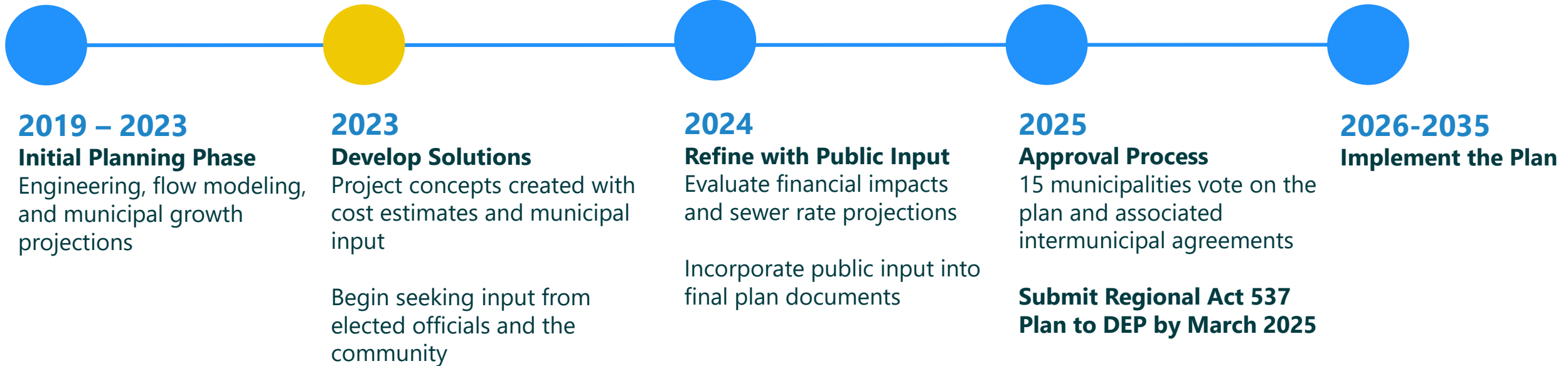
2026 - 2035 Cost Estimate: \$54 - 59 million

KISS Act 537 Projects to be Completed 2026-2035

Major Plan Component	Cost Estimate
Kline's Island WWTP	\$51 Million
Pretreatment Plant (under review)	\$267 Million
NEW Little Lehigh Interceptor	\$23-30 Million
NEW Western Lehigh Interceptor	\$76-98 Million
Cost Estimate for Regional Components	\$417-446 Million
Municipal Sewer Rehab Programs	\$90 Million
Other Municipal Interceptors	\$54-58 Million
Cost Estimate for Municipal-Specific Components	\$144-148 Million
Total Cost Estimate	\$561-595 Million

Act 537 Plan Timeline

2019 - 2035



How will We Refine the Plan?



Regional project concepts being refined now



Each municipality must finalize their sewer rehab programs and evaluate interceptor projects within their systems



Pretreatment Plant costs still under detailed review, with input from industries



Deep collaboration to refine costs and determine how costs will be shared with all municipalities



Financial analysis, including rate projections for each community is expected in early 2024



Key Takeaways

The time is now

The region has been working on sewer planning **since 2007**.

Pa. DEP has sent a clear message – addressing these system challenges is no longer optional.



This Plan is an Investment

To complete work through 2035, we estimate project costs to be **\$600 million**.

This is the largest ever investment our region has made in protecting public health and safeguarding the environment.

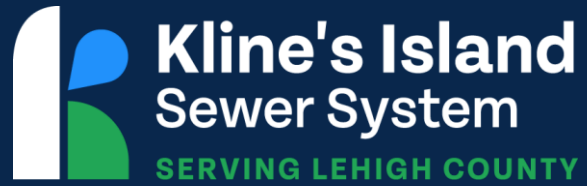


Public Input Starts Now

We're starting with municipal officials.

Broader public information sessions are expected to begin **Spring 2024**.





Thank you!

Learn More: lehighcountysewer.org

Contact: Liesel Gross
lieselgross@lehighcountyauthority.org