

Portland Water District

On the Road to Sustainable Asset Management

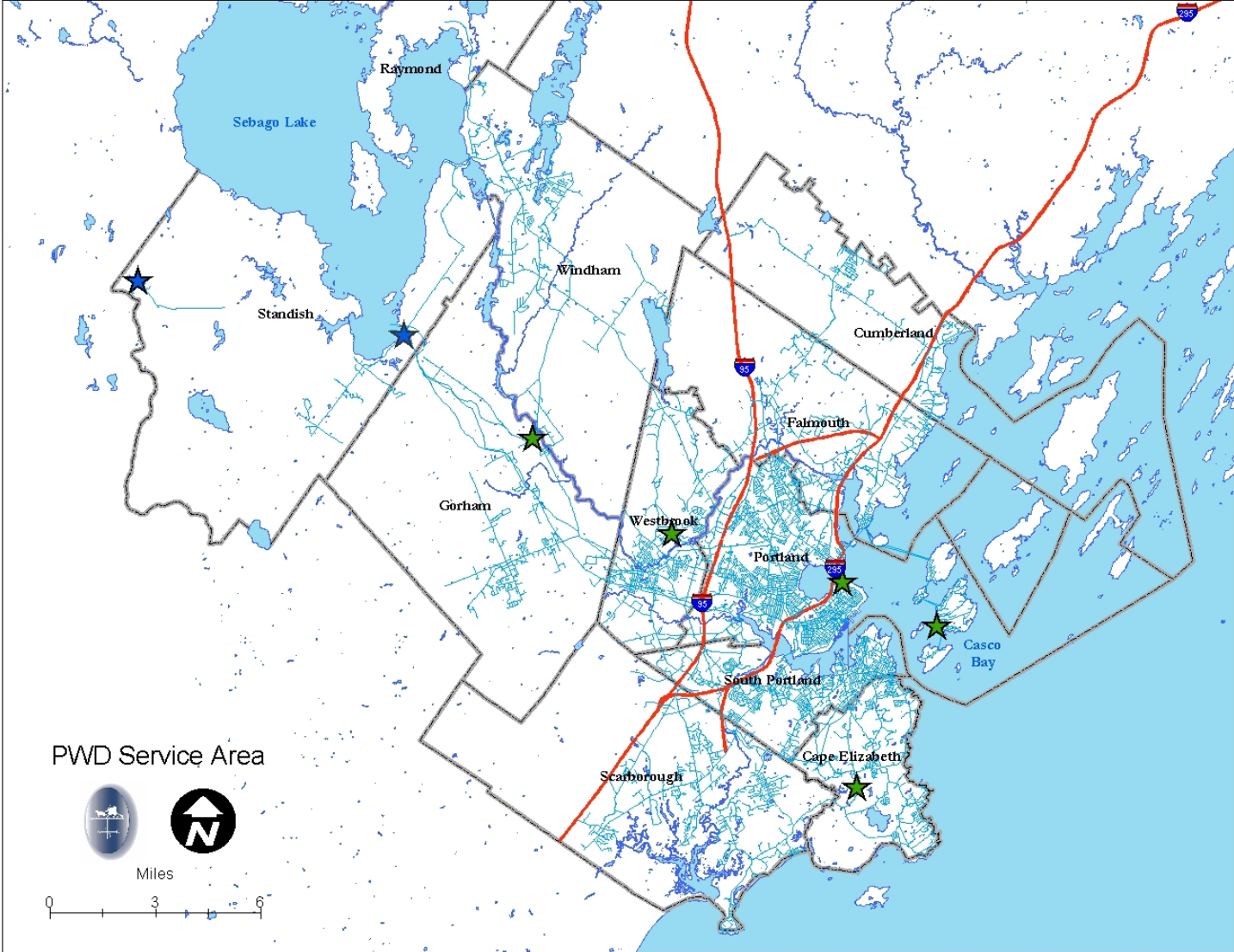


Maine's Aging
Infrastructure
Conference



October 11, 2007

District Service Area



Asset Management

- Asset Management is a globally recognized set of best practices that define the most cost effective rate of reinvestment.
- "a comprehensive and structured approach to the long-term management of assets as tools for the efficient and effective delivery of community benefits" (*American Public Works Association*).

Across North America, water systems represent a vast legacy of public investment entrusted to our care.



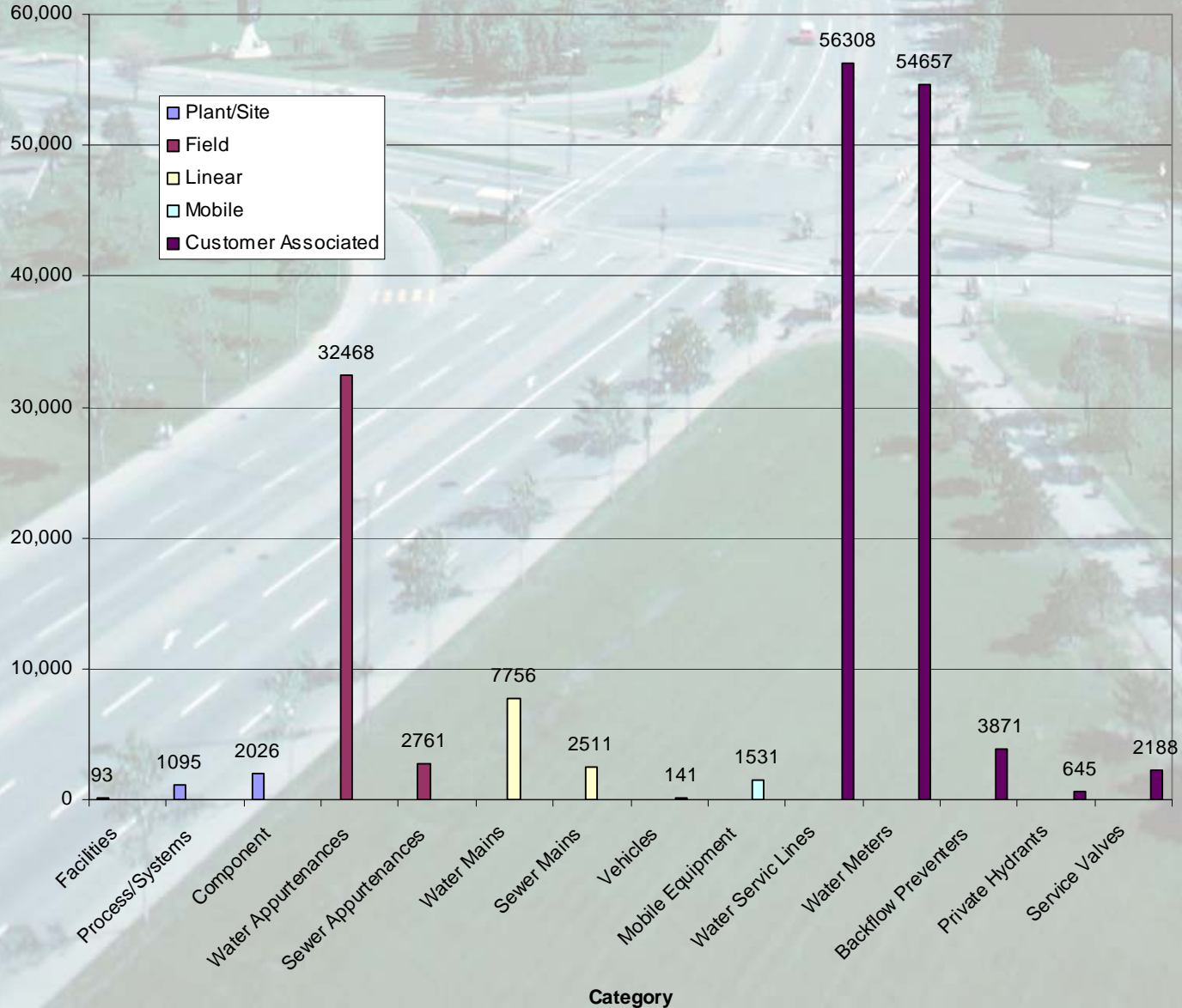
Pipes don't last forever... ultimately, they will need to be replaced – at significant expense.

Five Core Asset Management Questions

1. What is the current state of our Assets?
2. What is the required sustained level of service?
3. Which assets are critical to sustained performance?
4. What are the best minimum “life cycle cost” CIP and O&M strategies?
5. What is the best long-term funding strategy?

1) Assets Owned and Maintained

What do we own? - Hansen System/GIS (AIM) -170,000 assets



■ Work Documentation

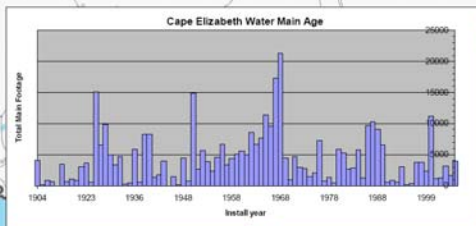
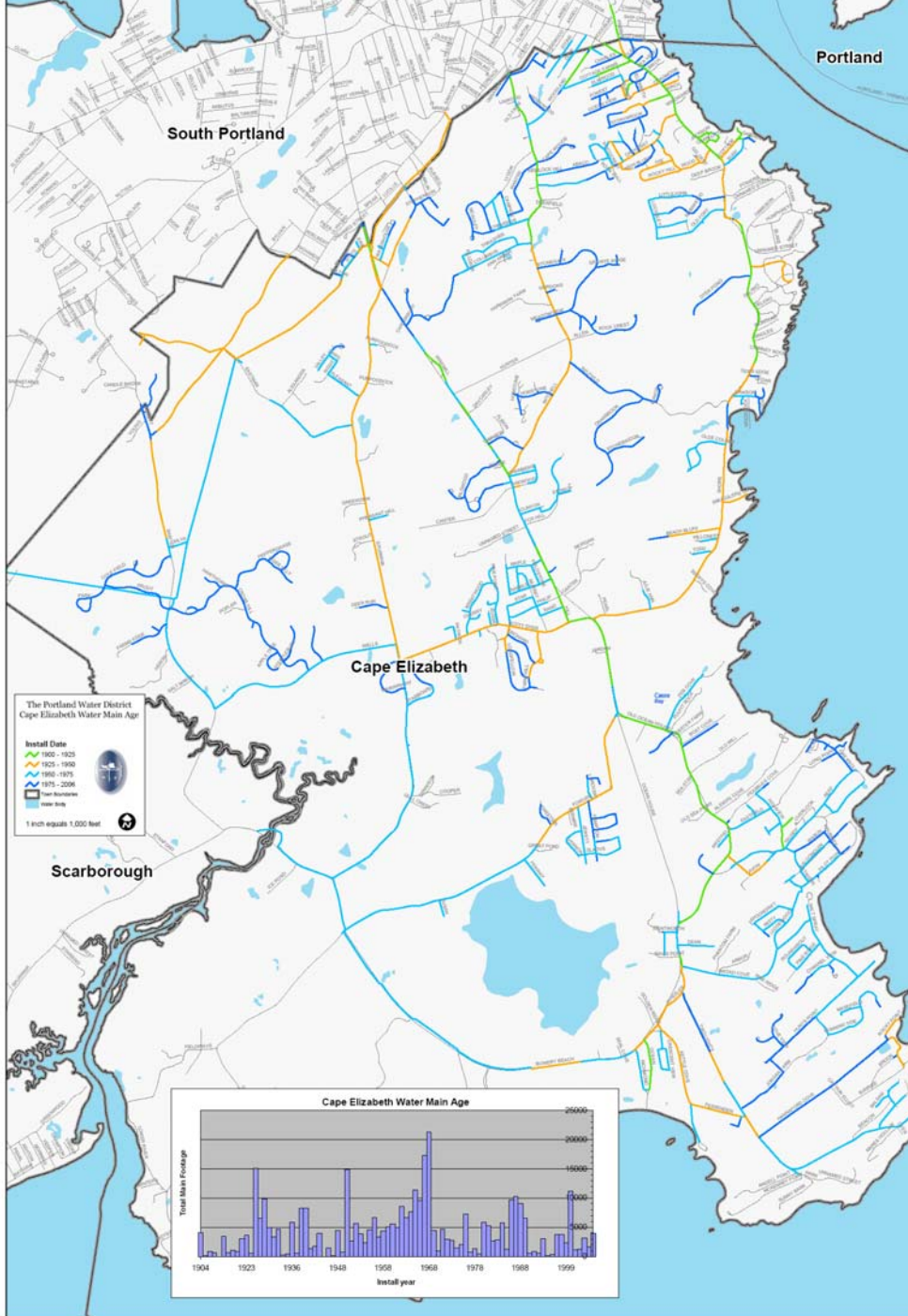
Hydrant ID

Address

Work Order #	Activity	Ac	Act Gro	Initiated	Scheduled	Completed	Source	Maint Type
542937	A-INSP		PVMT	10/02/2006	10/02/2006			PVMT
550636	A-REPR		CORR	12/01/2006	12/07/2006	12/07/2006	FORE	CORR
549860	A-REPR		CORR	12/01/2006	12/01/2006	12/01/2006	INSP	CORR
460187	HPWNIN		FLDO	10/06/2005	10/06/2005	04/14/2006		FLDO



Log Type	Log Date	Enter	Comments
WKDOC	01/09/2007	1027	Overspeed w sending false alarm, bypassed by Cummins NE Tech, waiting on quote to replace w/ new.
WKFNL	01/09/2007	958	all invoicing entered, this part of job completed
WKDOC	12/22/2006	1027	Working on fuel lines and govener
WKDOC	12/22/2006	2014	work with Roy
WKDOC	12/21/2006	785	assisted cummins with gen set
WKDOC	12/21/2006	1027	Did full load test on genset w/ two pump run. Needed to swap out fuel lines and adjust linkage from gov. to inj. pump
WKDOC	12/21/2006	1027	Started repairs to leaking gaskets



Map of Systems

Where is it ?

What's the condition?

How much life? (AIM)

The Portland Water District Cape Elizabeth Water Main Age

Install Date

- 1900 - 1925
- 1925 - 1950
- 1950 - 1975
- 1975 - 2006

- Town Boundaries
- Water Body



1 inch equals 1,000 feet



2) Sustained Levels of Service for our customers

Corporate Goals – performance measures

- **What do regulators require?**
 - **Meet SWTR exception to filtration**
 - **No Dry weather overflows**
 - **Meet Permit Compliance**
- **What is the demand for our services by our stakeholders?**
 - **Meet ISO Standard – Fire flows**
 - **40 verified complaints per year**
 - **Minimum pressures of 40 psi**
 - **Critical Services – planning**
- **What is our actual performance?**
 - **Breaks per mile of main**

3) Which assets are critical to sustained performance?

Planning Assets Reinvestments

Treatment Plants

CPE

- Portland Pump Stations
- Annual Pump Station Condition Reports

Collection systems

- CWWSP Plan
- Water Storage Evaluation Plan

Facilities and Equipment

Pump Stations

CPE

- EEWTF
- WGWWTF

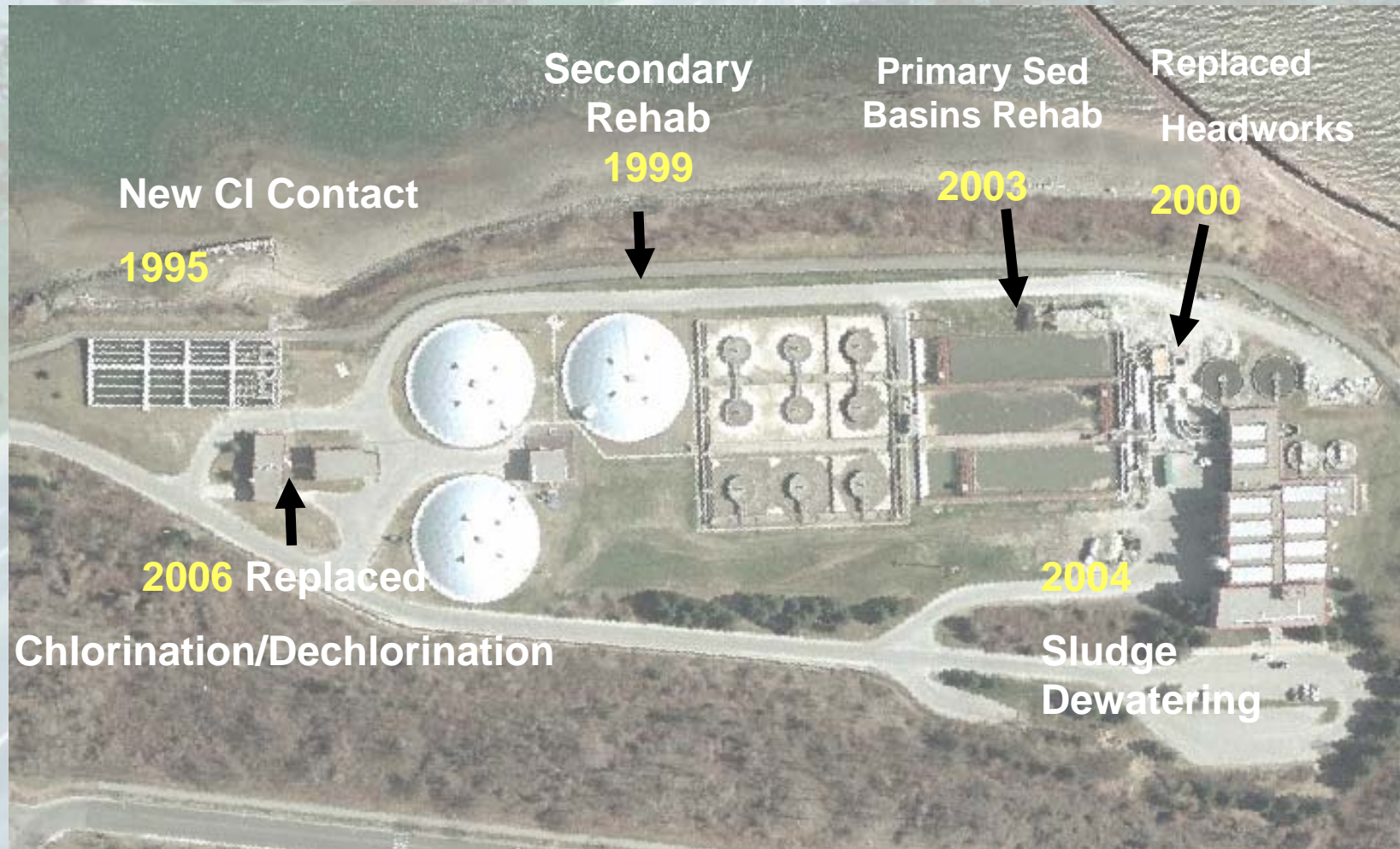
- Gorham/Windham WW Master plans
- Ongoing evaluations of systems
- CSO Master Plans

Water Distribution

- Technology/Scada Plans
- Douglass Street Facility plan
- Vehicles Repl.

EEWWTF – (30 Years Old) Planned Rehab/replacement

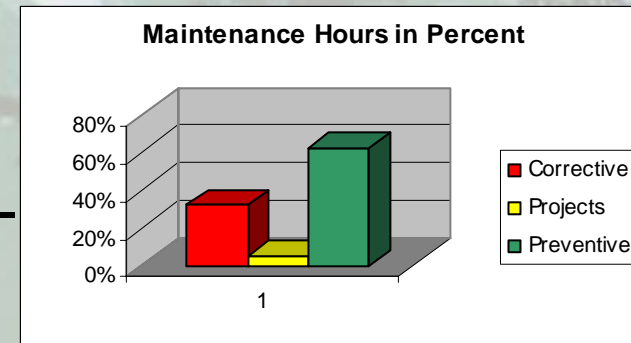
Executing the Plan



4) What are the best minimum “life cycle cost” CIP and O&M strategies?

- Look at capital and operating expenditures **together** to get the most value over the life of the asset, while delivering high-quality, reliable service

- 75/25 preventive vs. reactive –




- Run to failure approach on some components

5) What are the best Long term funding strategies?

Executing the Plans

5-10 year Financial Models

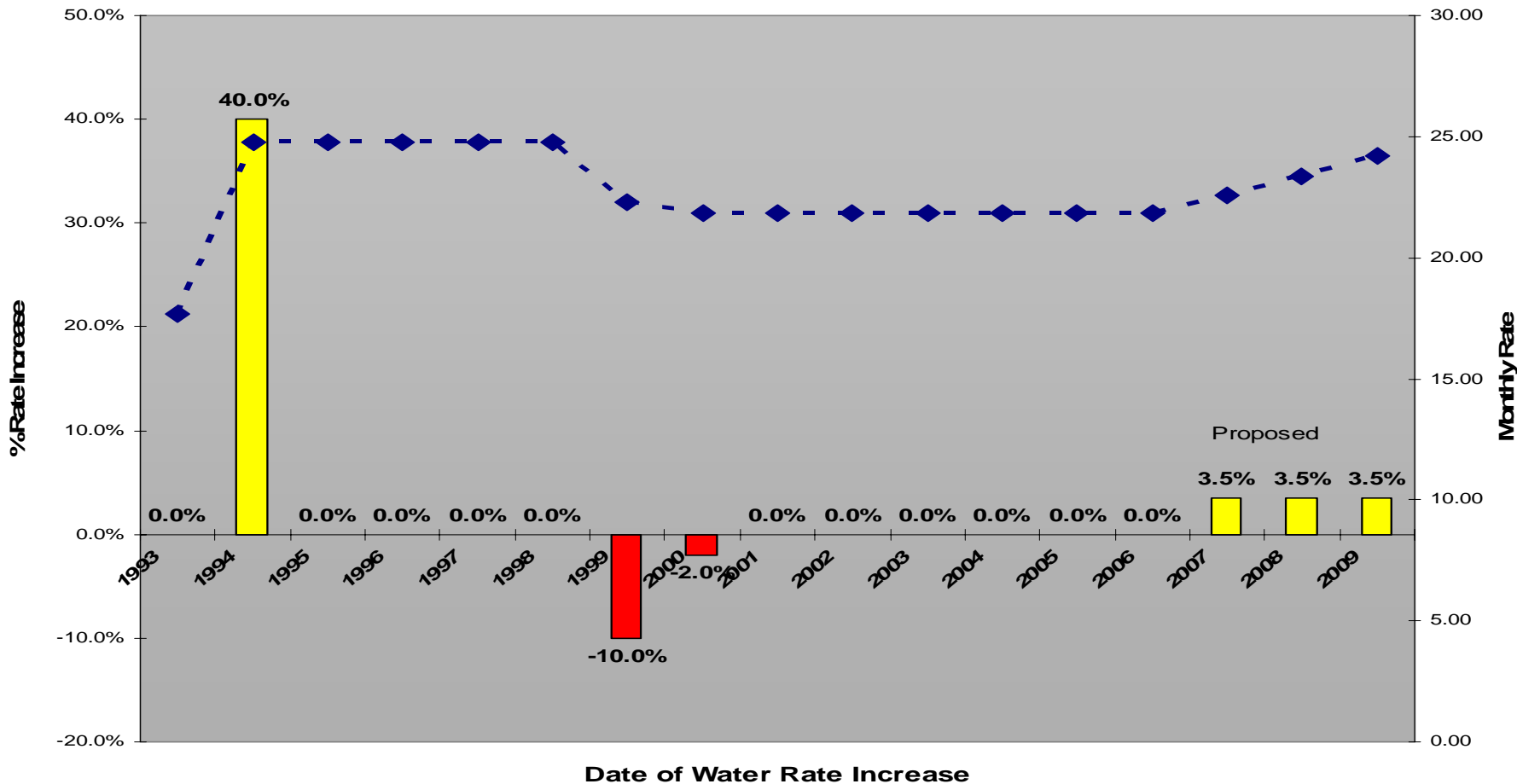
- CWSSP rate model
- Portland assessment model
- Westbrook/Gorham assessment model
- Cumberland rate model
- Cape Elizabeth assessment model
- Windham assessment model

- 
- Continue to rebuild our infrastructure at an affordable pace.

How are we doing that? ...

Linking Rates to Long-Term Sustainability of our Infrastructure

Water Rate Increases



Choices to make about how to manage assets

Avoid the issue and risk...

- emergency repairs
- business interruption
- public health impacts
- regulatory problems
- higher long-term costs



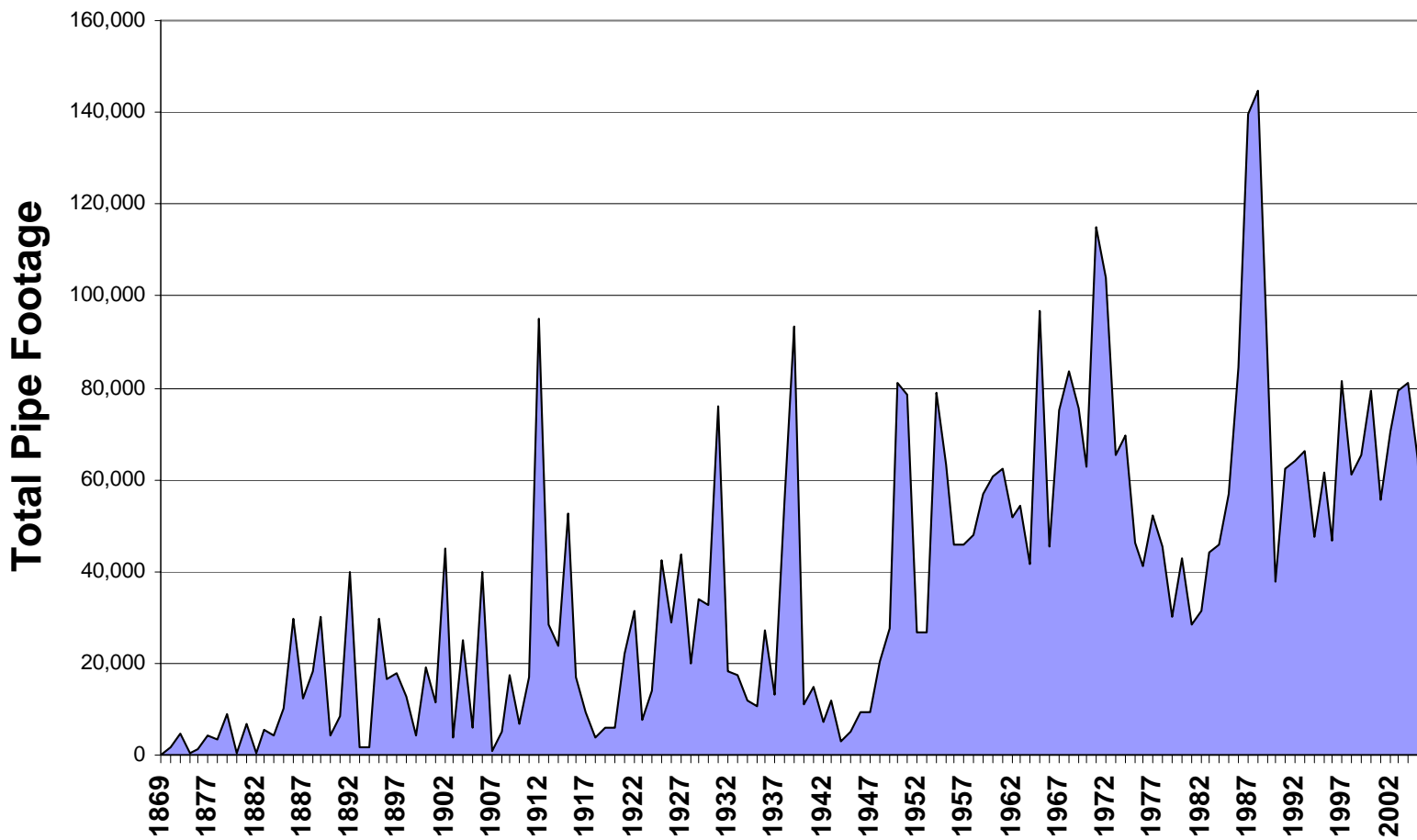
OR...

Invest proactively in sustainable management of infrastructure assets to continue providing high-quality, reliable service.



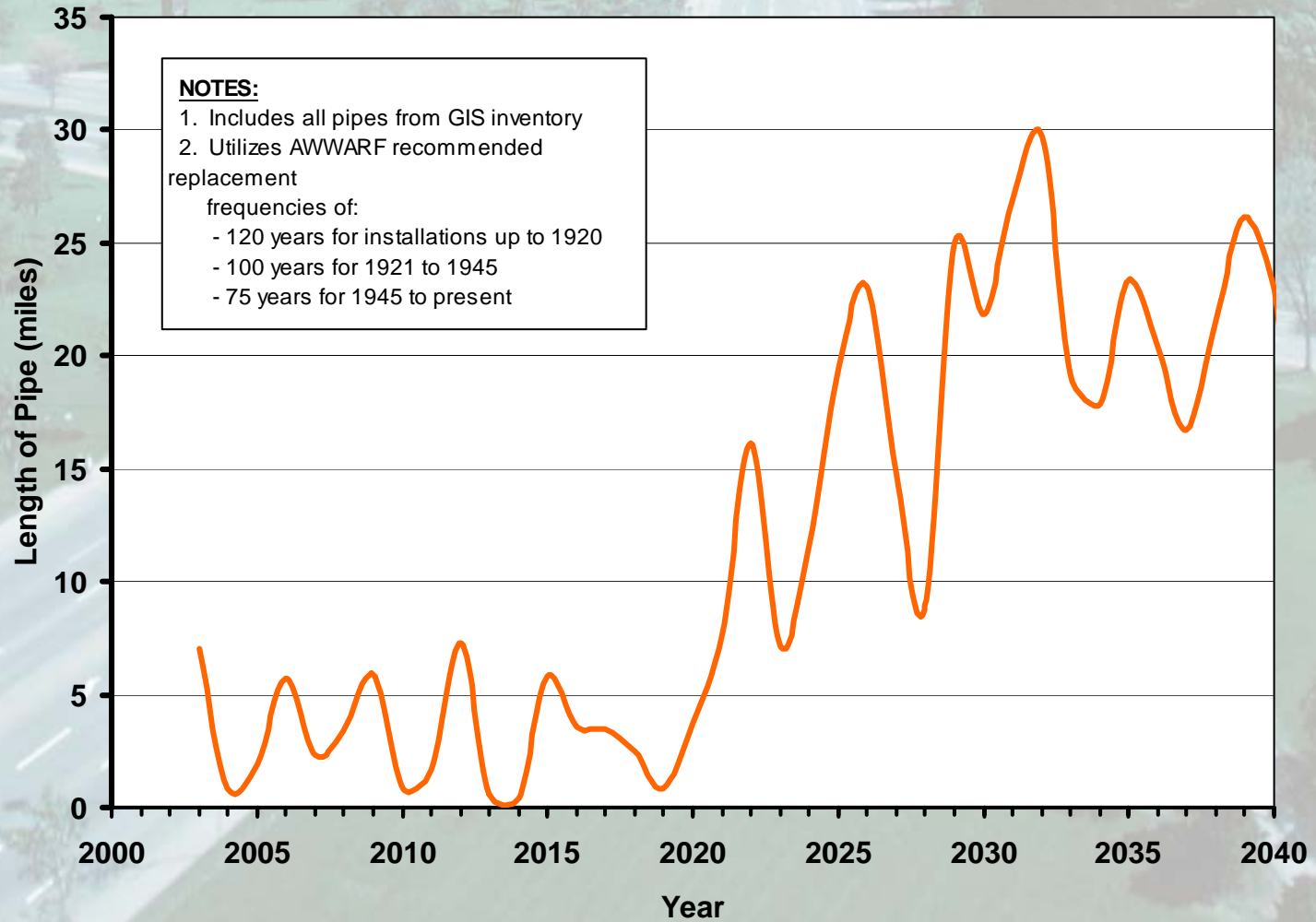
But pipes keep getting older — they were built in waves to address the needs of growing populations

PWD Water Main Age

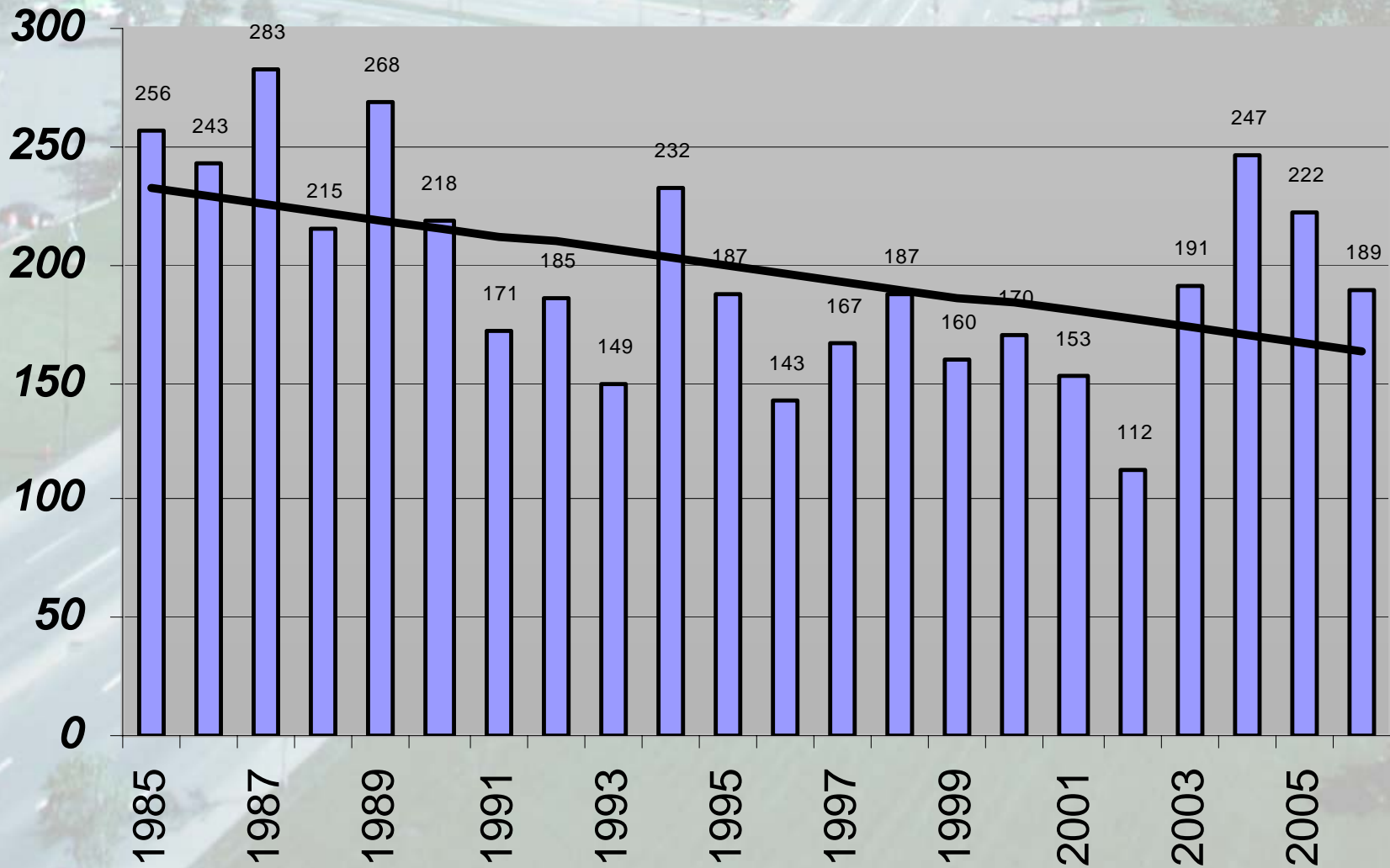


What is it remaining useful life?

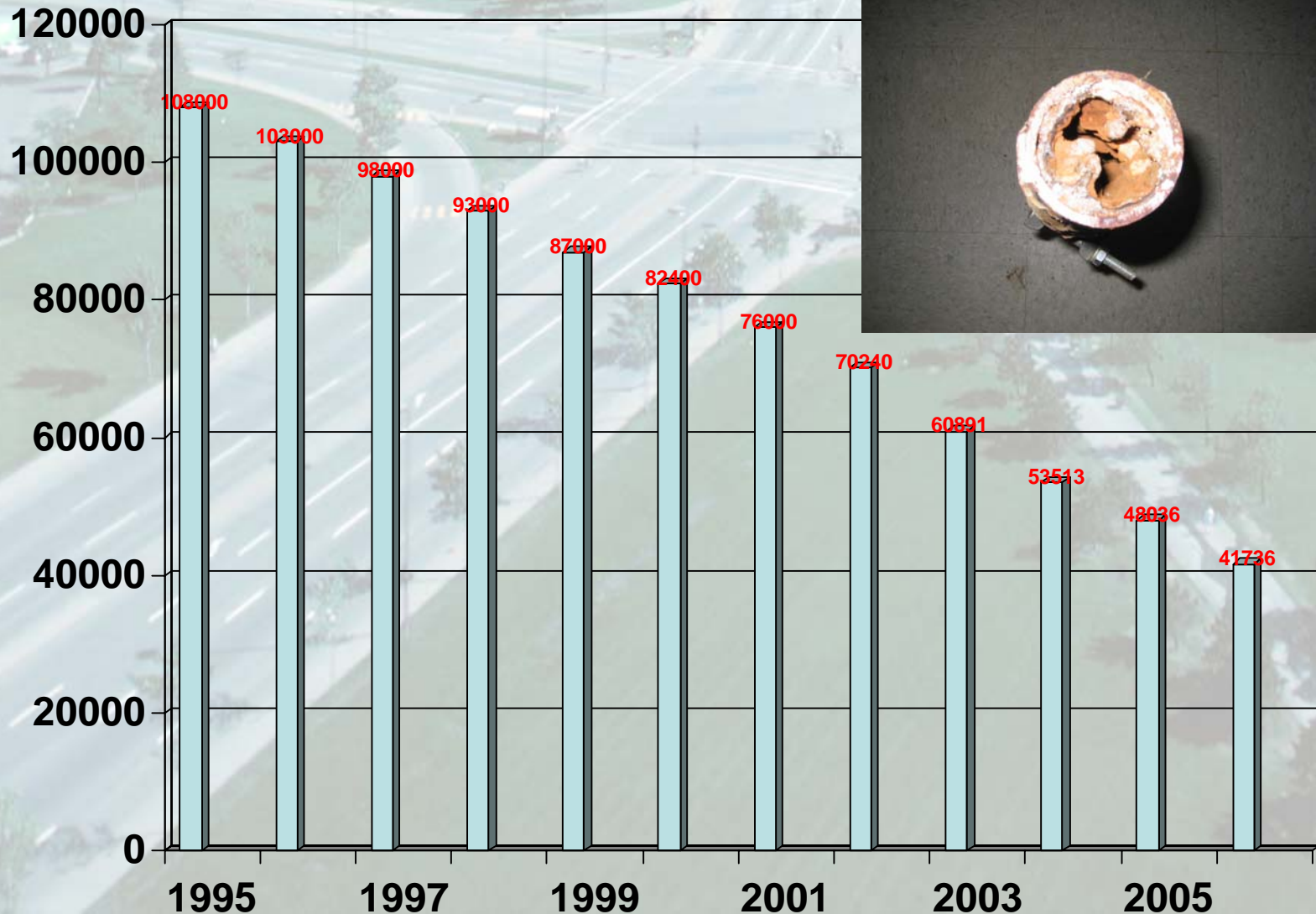
PWD echo curve



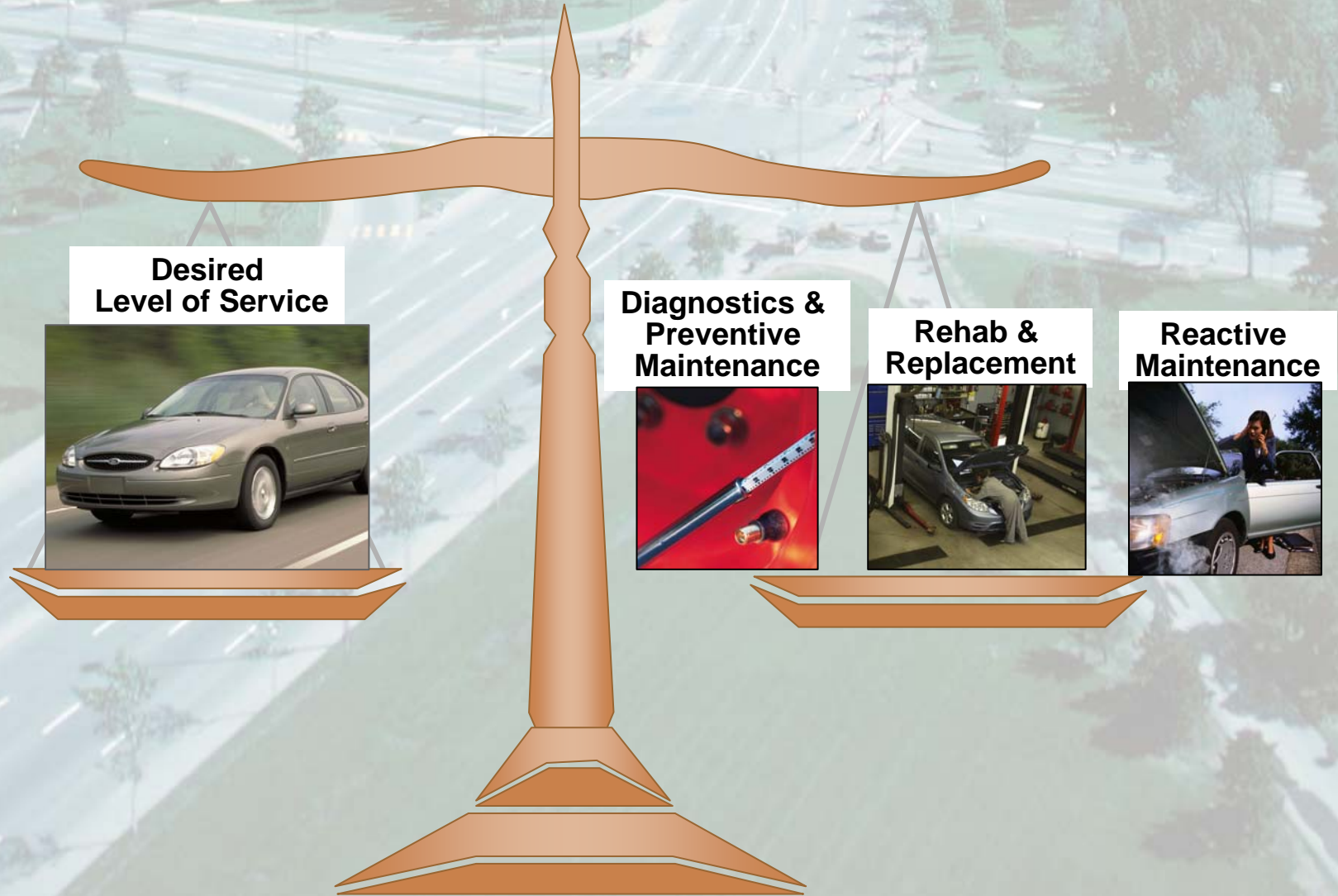
Leaks per year (1985-2006)



Galvanized Pipe in System



Asset Management balances expenditures to attain the desired level of service at the least cost



District's Checklist for taking an Asset Management approach.

- ✓ Funding depreciation and setting up Renewal and Replacement funds
- ✓ Inventory of Assets well underway
- ✓ Goal of 75/25 preventive maintenance
- ✓ CIP/Operating Budget – Financial Plan
- ✓ Investment in tools are in place (AIM) Hansen, GIS and SCADA
- ✓ Utilize “life cycle cost”
- ✓ Cost of Service approach

www.epa.gov/ow-owm.html/assetmanage/index.html

Questions?