



American Water Works Association
Pacific Northwest Section

Pipe Bursting Water Mains

Process, Design, Construction,
and Model for Success

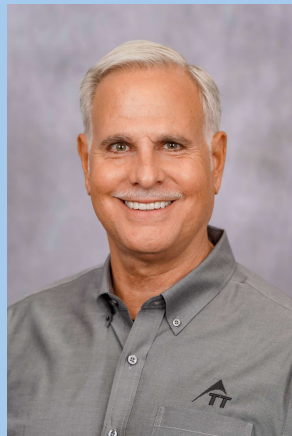
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Today's Discussion...

- What is Pipe Bursting?
- Pipe Bursting Systems
- What does Pipe Bursting look like?
- Why are these Cities and Agencies using Pipe Bursting?
- What are the Cost Savings using Pipe Bursting?
- What is their Model for Success?
- Questions



What is Pipe Bursting?

- Trenchless Replacement Technology – inside existing pipe and ROW
- Fracture Existing Pipe while pulling in New Factory Manufactured Pipe
- Replace Deteriorating and Capacity Deficient Pipelines
- Replace Existing Mains with Same Size or Larger Pipelines



Pipe Bursting Systems

Two Systems for Pipe Bursting

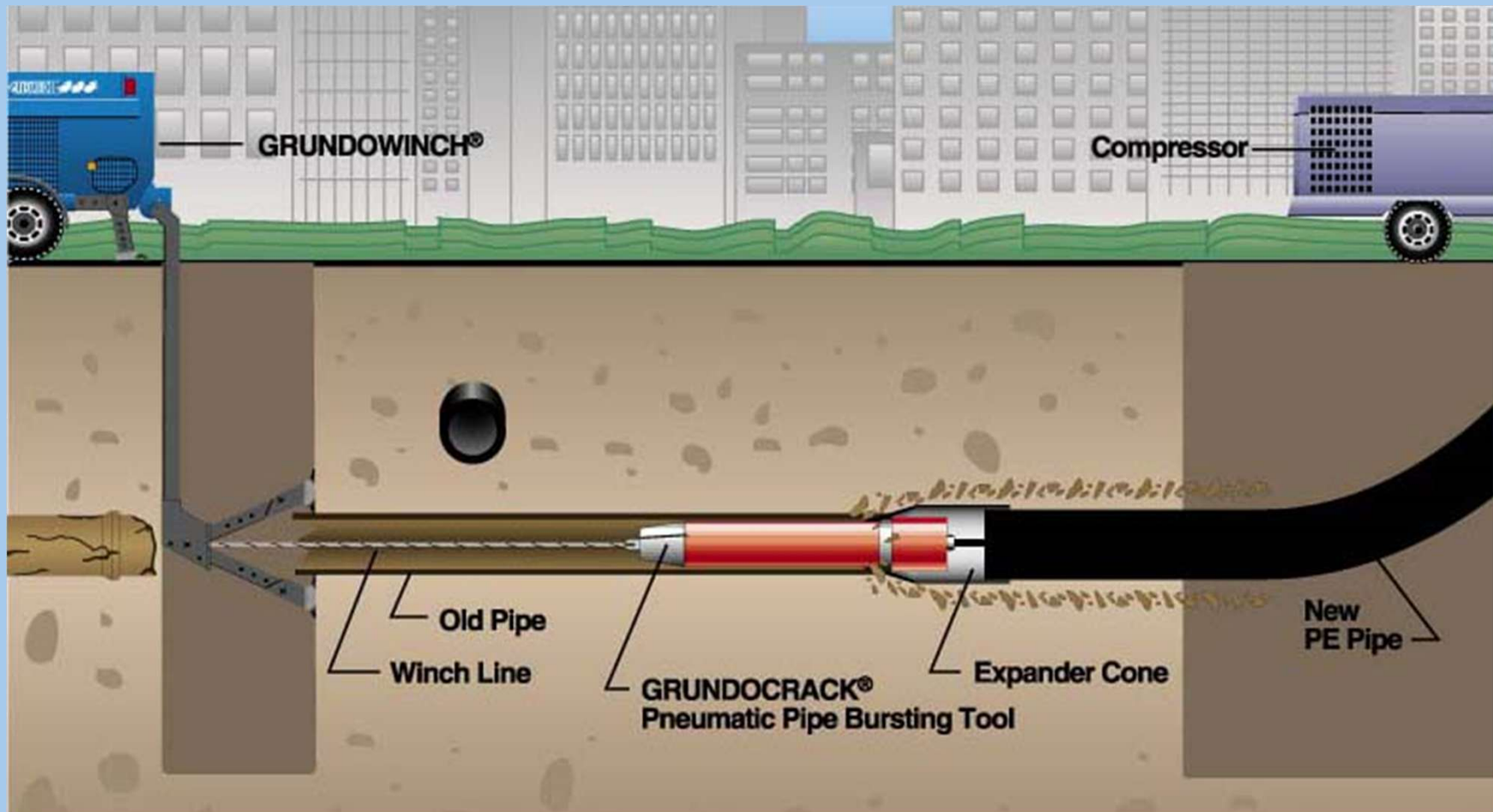
- Pneumatic



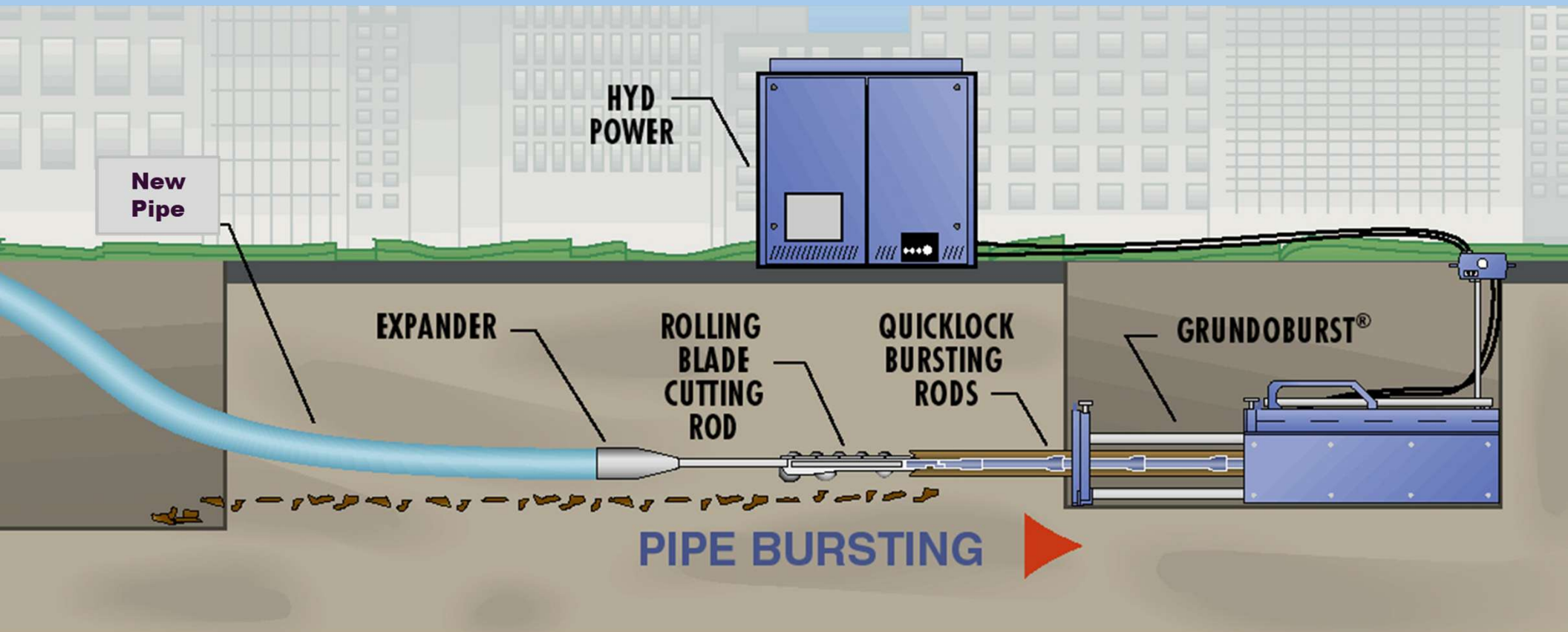
- Static



Pneumatic Pipe Bursting System

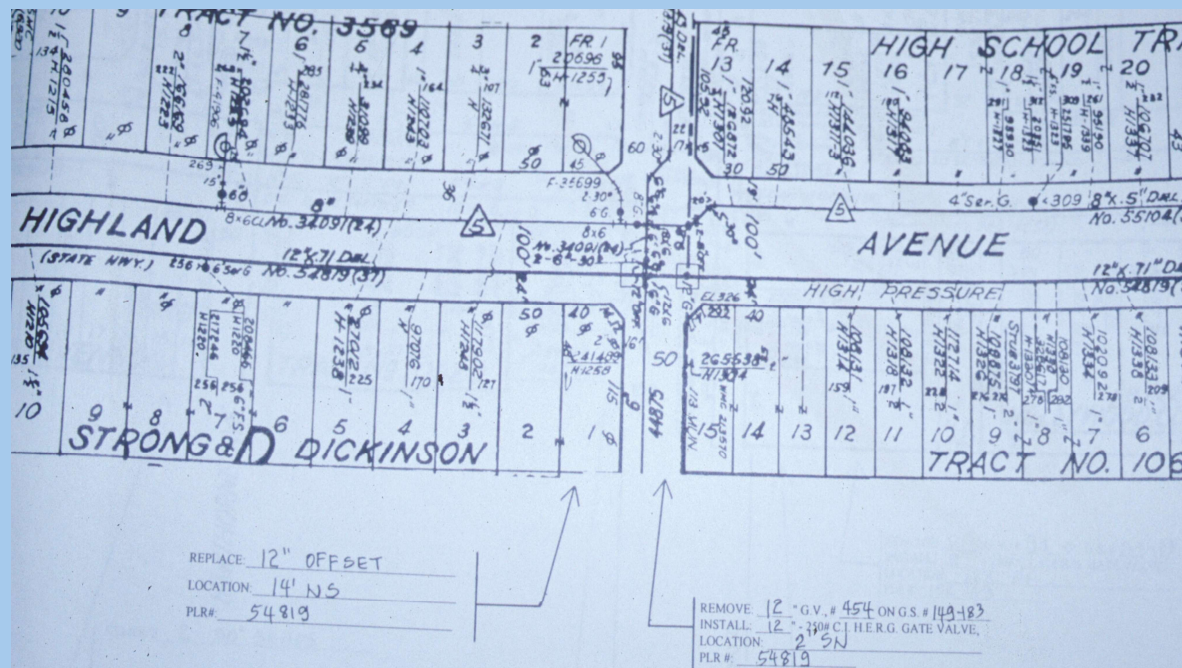


Static Pipe Bursting System



Design

- Simple plan or as-built drawing
- Gate valves, fire hydrants tees, crosses, offsets, point repairs
- Service laterals for bypass – sidelines



What does a Pipe Bursting Project Look Like?

Temporary Bypass Piping
“Sidelining”







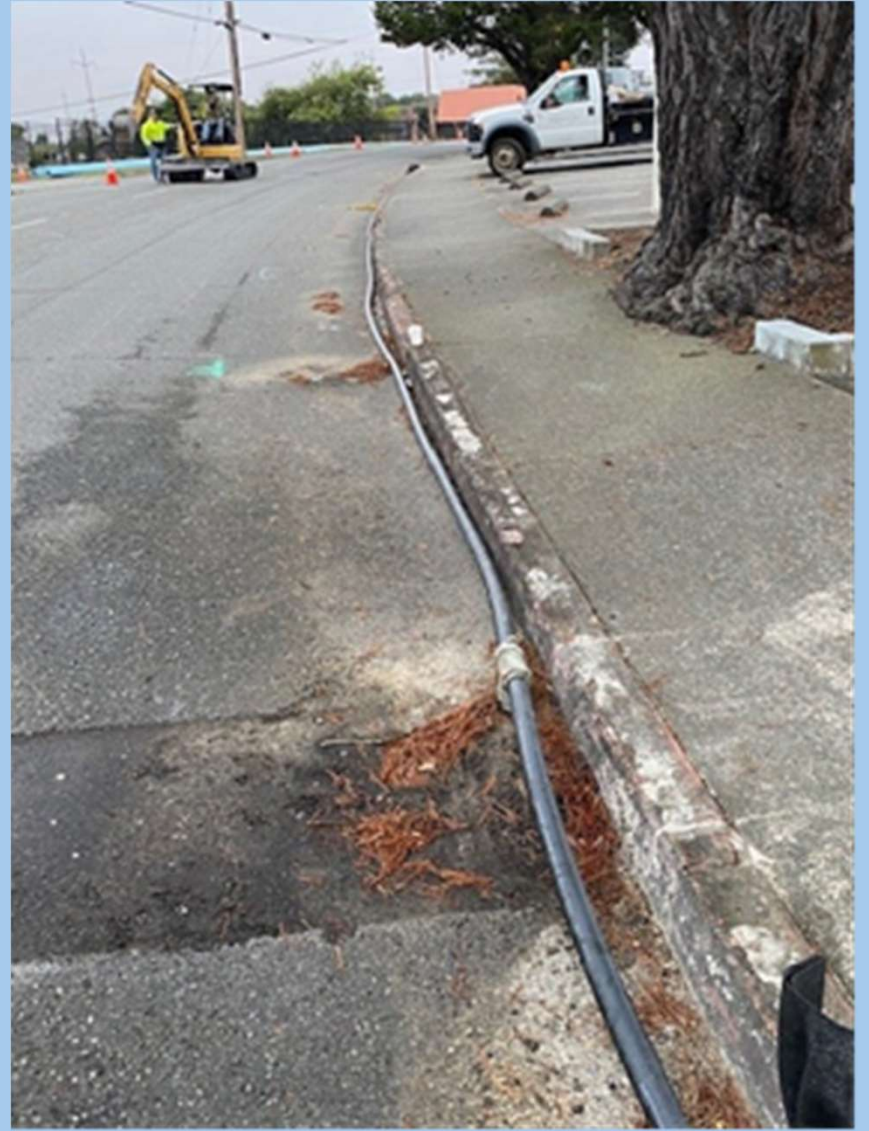






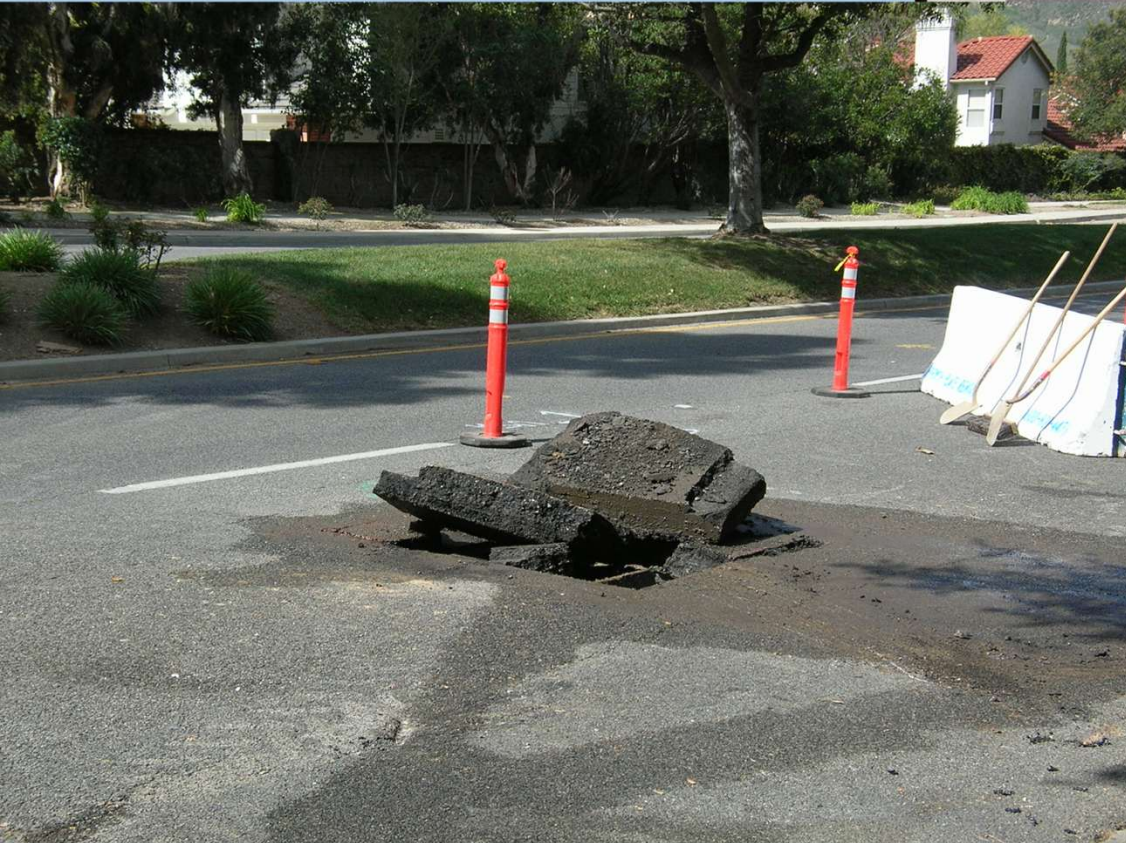














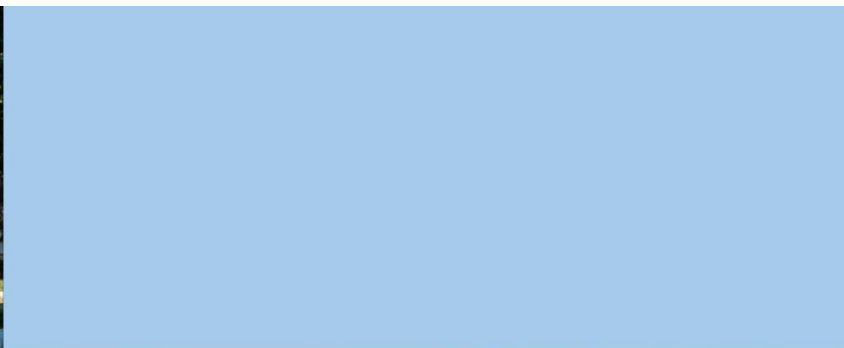
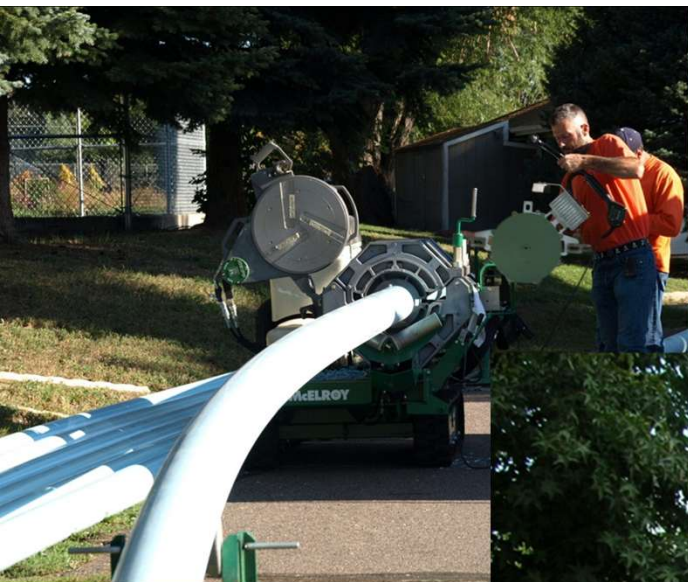
































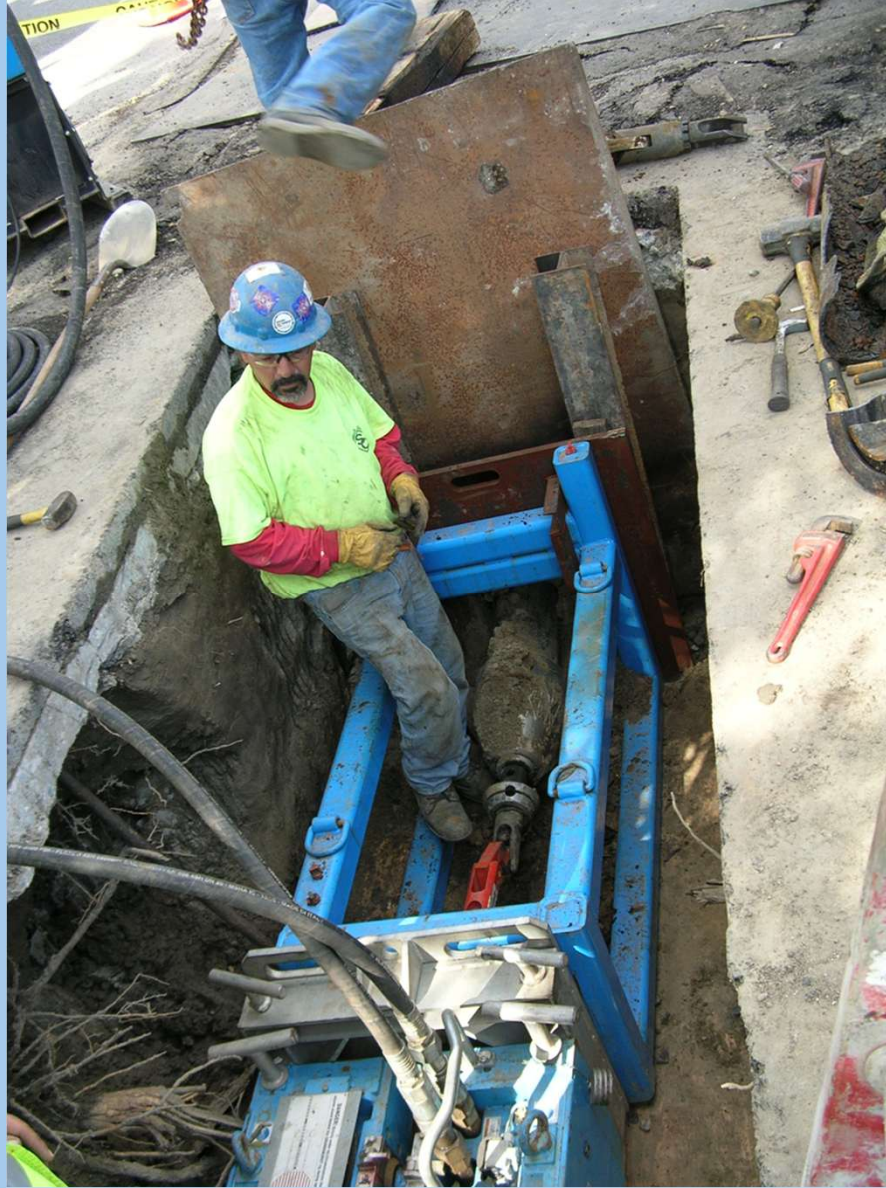














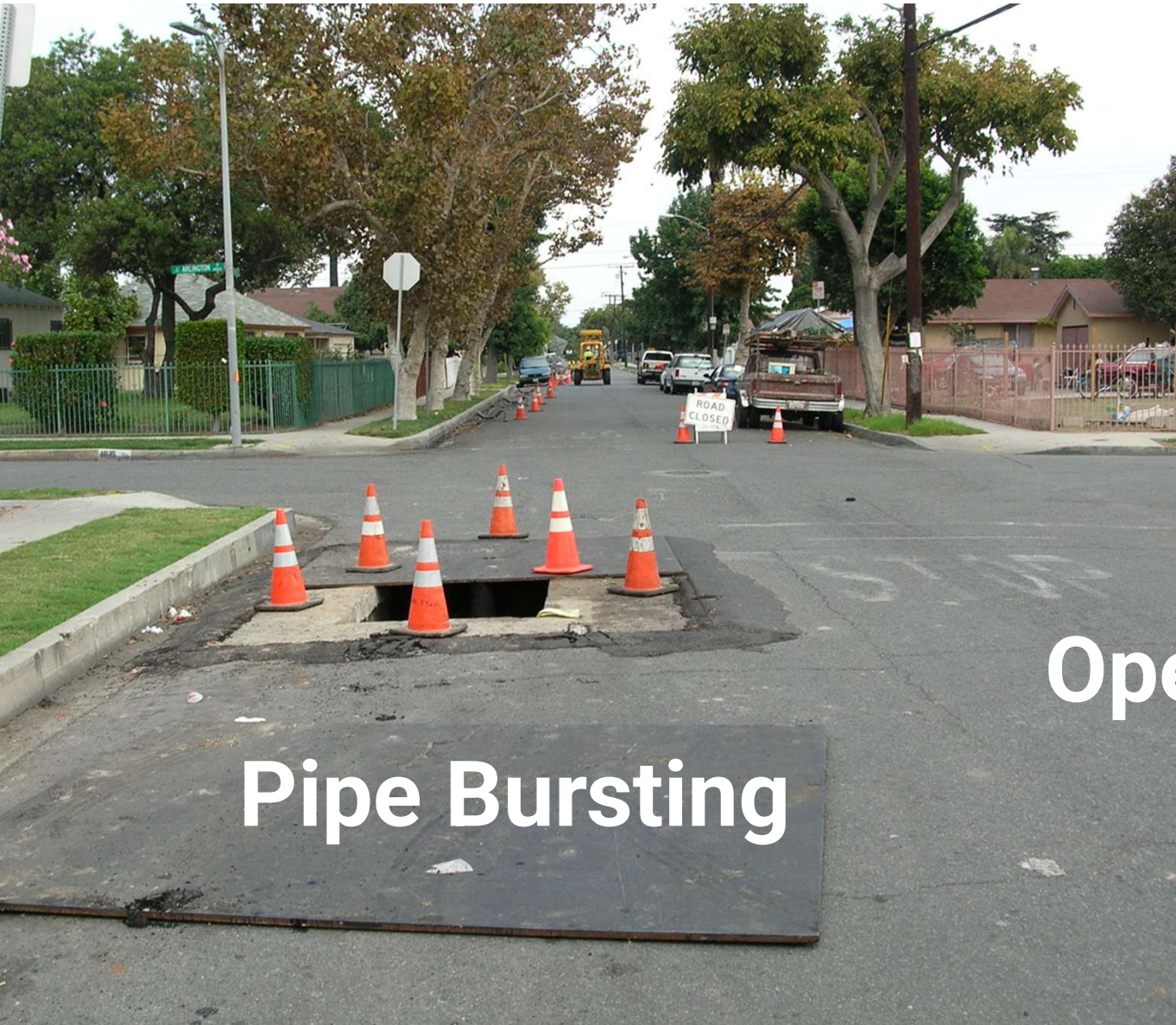












Pipe Bursting



Open Cut

- **Water Main - resurfacing**



Why are these Cities Using Pipe Bursting?

- Stop Leaks
- Improve Water Quality
- Improve Flow Characteristics
- New Mains & Appurtenances
- Save between 20% - 50% over open cut costs
- Minimize social impacts (traffic, dirt, dust)
- Reduce export and import of materials by 80%
- Reduce Carbon Emissions by 75%



Examples of Pipe Bursting Savings vs. Open Cut...

	<u>City of Billings, MT</u>	<u>Consolidated Water, CO</u>	<u>Cheyenne Water, WY</u>	<u>Lee's Summit, MO</u>	<u>Greensboro, NC</u>
Approx. Footage thru 2014	18,215	167,740	20,990	43,100	38,080
Existing Pipe Diameter	4-8"	4-8"	4-8"	4-8"	2-8"
New Pipe Diameter	8-12"	4-8"	8-12"	6-8"	6-8"
Savings over Open Cut	50%	50%	20%	23%	20% +

Examples of Pipe Bursting Savings vs. Open Cut...

City of Eureka, CA - 2020

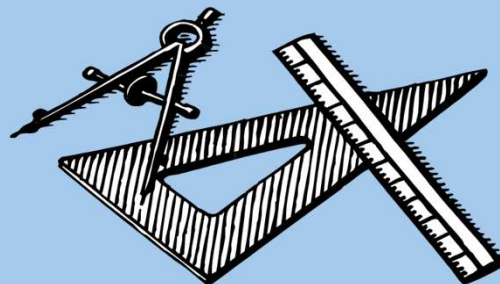
- 5,000' of existing 8" Cast Iron pipe pulling in new 8" FPVC

	Pipe Bursting	Open Cut	
	<u>Low Bidder</u>	<u>Bidder #2</u>	<u>Bidder #3</u>
8-inch <u>water</u> per lf	\$75	\$158	\$178

50% savings over open cut

What are these Cities Model for Success?

- Replace Existing Cast Iron, Asbestos Cement and Steel Pipes
- Projects of 2,000 linear feet or larger
- Residential Distribution Systems (Neighborhoods)
- Replace size to size or one upsize (4", 6", 8", 10", 12" mains)
- New pipe - HDPE, Restrained Joint PVC, or FPVC
- Allow Agency Crew or Contractor to do ALL work
- Internal "Champion" – leader to drive new program and personnel





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Questions?

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