

# Distribution Integrity Management Programs (DIMP)

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American Public Gas Association

# What Is APGA?

- The National Trade Association for Publicly-  
Owned Gas Utilities
- Created in 1961
- Over 700 member utilities

# What is the APGA Security and Integrity Foundation

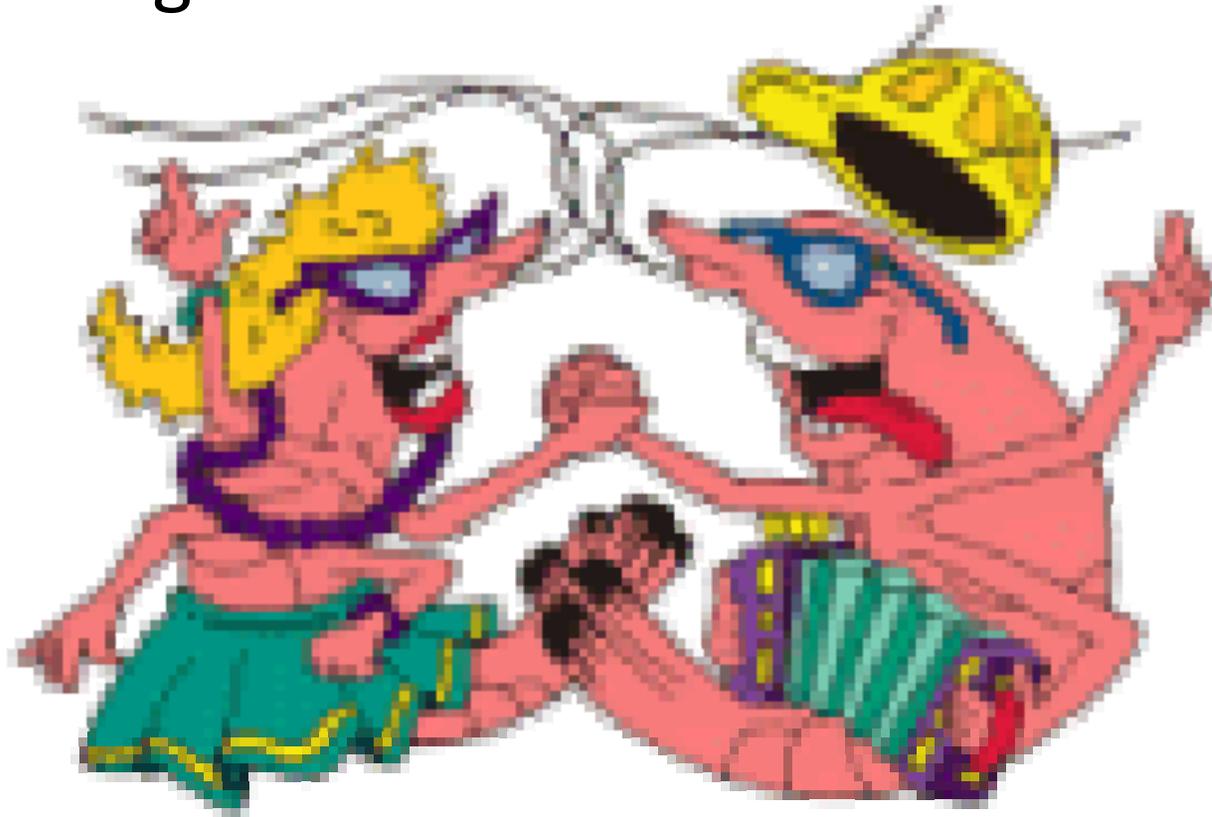
- 501 c3 Non-profit foundation created by APGA in 2005 to assist small operators
- Receives funding from the Pipeline And Hazardous Materials Safety Administration (PHMSA) thru cooperative agreement
- Provides OQ evaluations and O&M procedures, in addition to DIMP

# Distribution Integrity Management Programs (DIMP) Rule

- Proposed in June, 2008
- Reviewed by technical committee December, 2008
- Final rule expected in late 2009
- 18 months to develop written DIMP plan
- APGA SIF is developing a model plan and plan development tool

# Introducing SHRIMP!

- Simple, Handy, Risk-based Integrity Management Plan



# SHRIMP

- On-line software product similar to tax preparation software (TurboTax)
- SHRIMP asks the user a series of questions about the system and its inspection and maintenance history
- Questions change based on answers
- Output will be a nearly complete DIM Plan

# SHRIMP Timing

- Due 6 months after final rule
- GOAL: Have SHRIMP trial version available when final rule is issued (~ Fall, 2009)
- That way utilities can decide whether to use SHRIMP or other means to develop DIMP

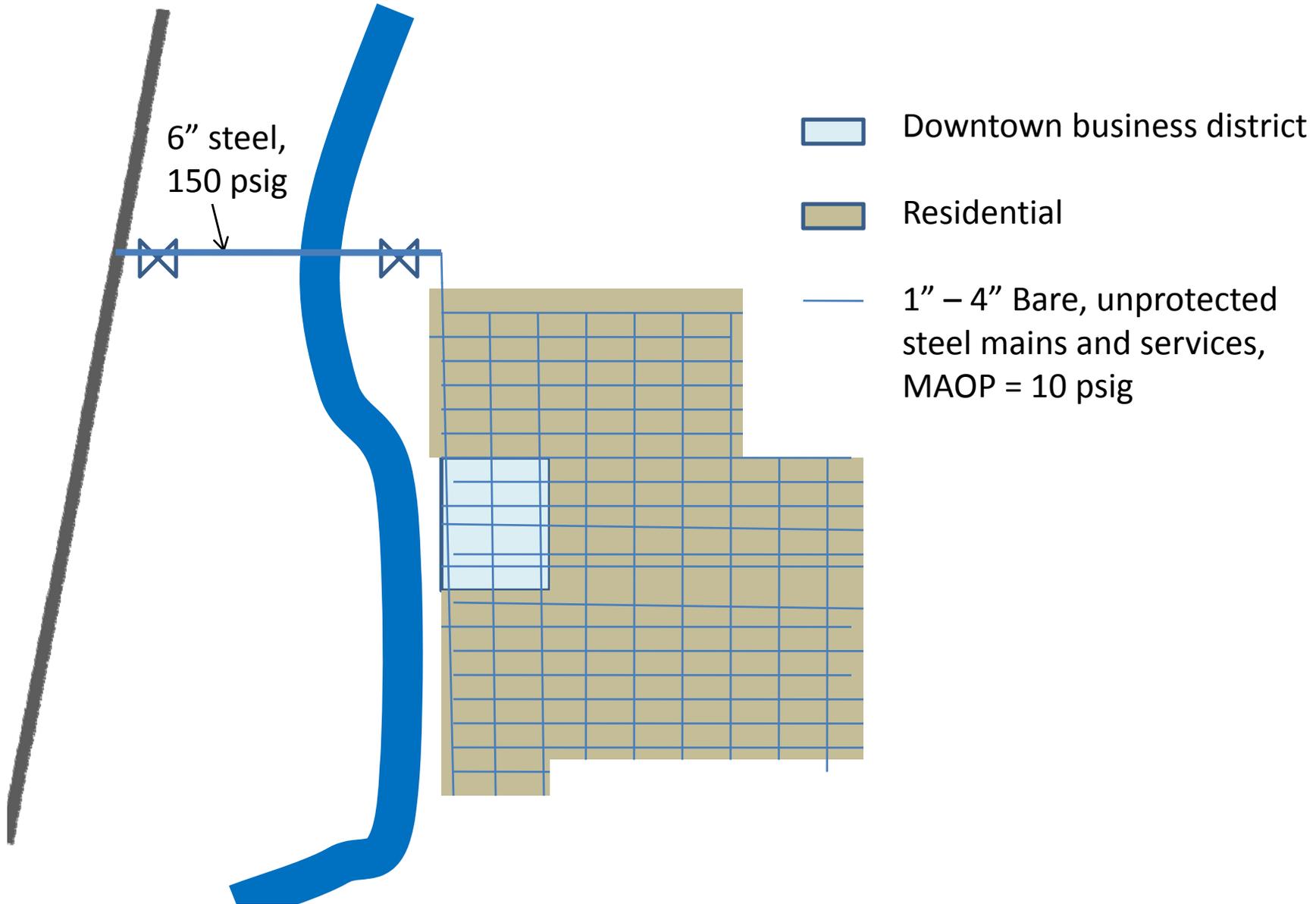
# SHRIMP Development

- Advisory Group made up of state regulators, federal regulators and industry
- Technical Toolboxes is software developer
- Heath and Associates, Technical Consultant
- Viadata, Technical Consultant

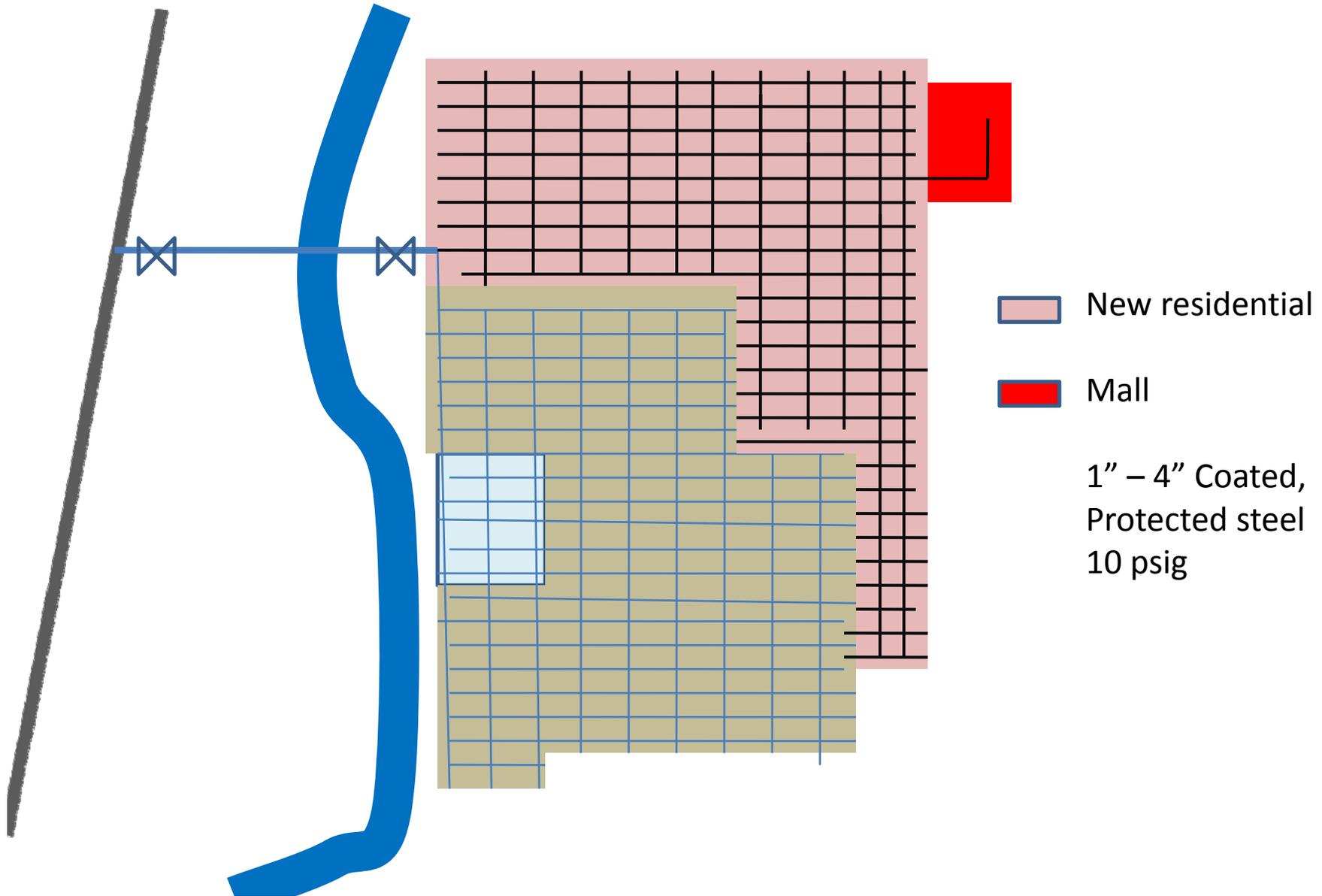
# Hypothetical Case Study

- The following is a case study of how SHRIMP will work to assist a user to develop a DIM plan
- ~~Nash~~
- ~~Kastanideaux~~
- **Kastanideaux!**

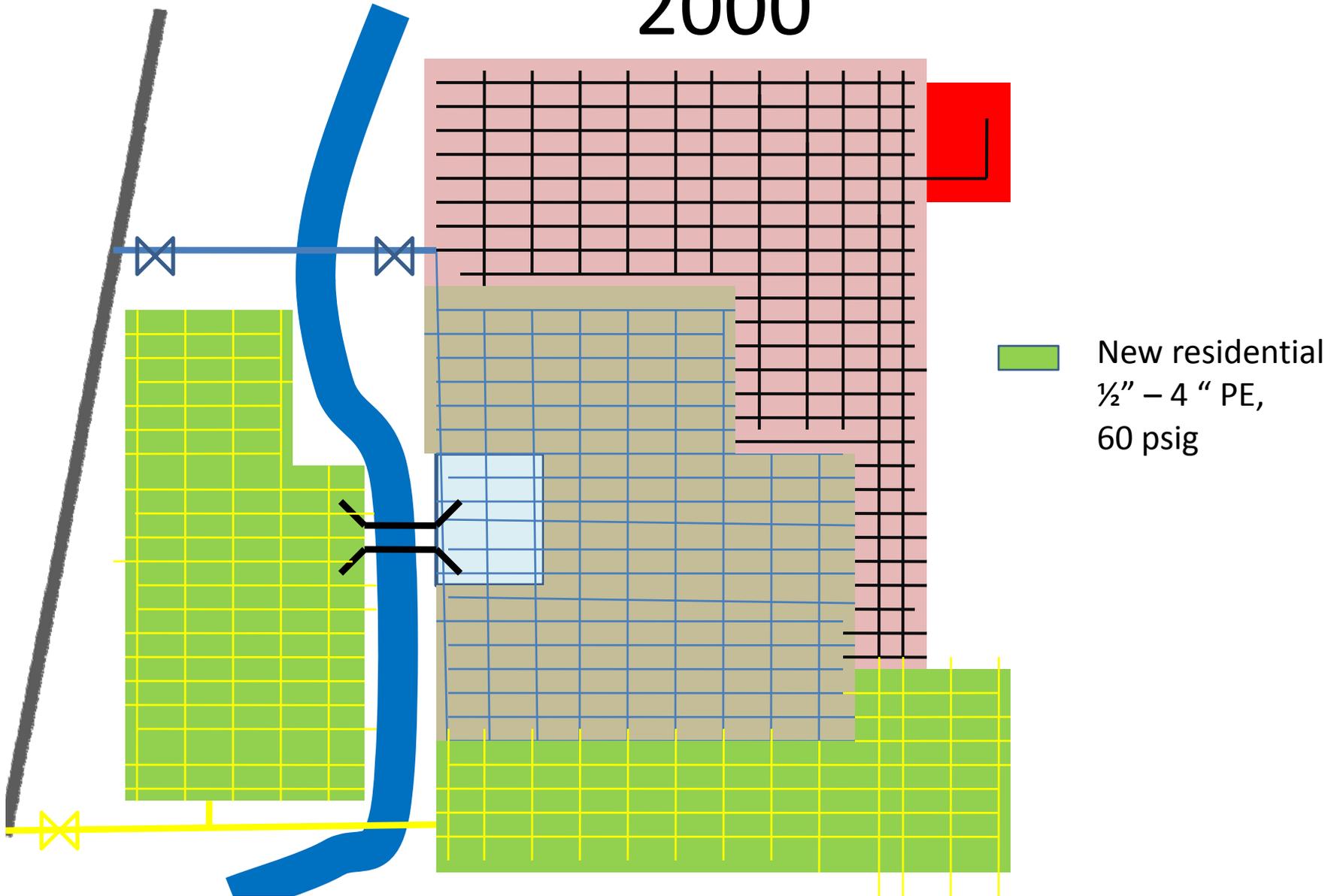
# Welcome to Kastanideaux, 1950



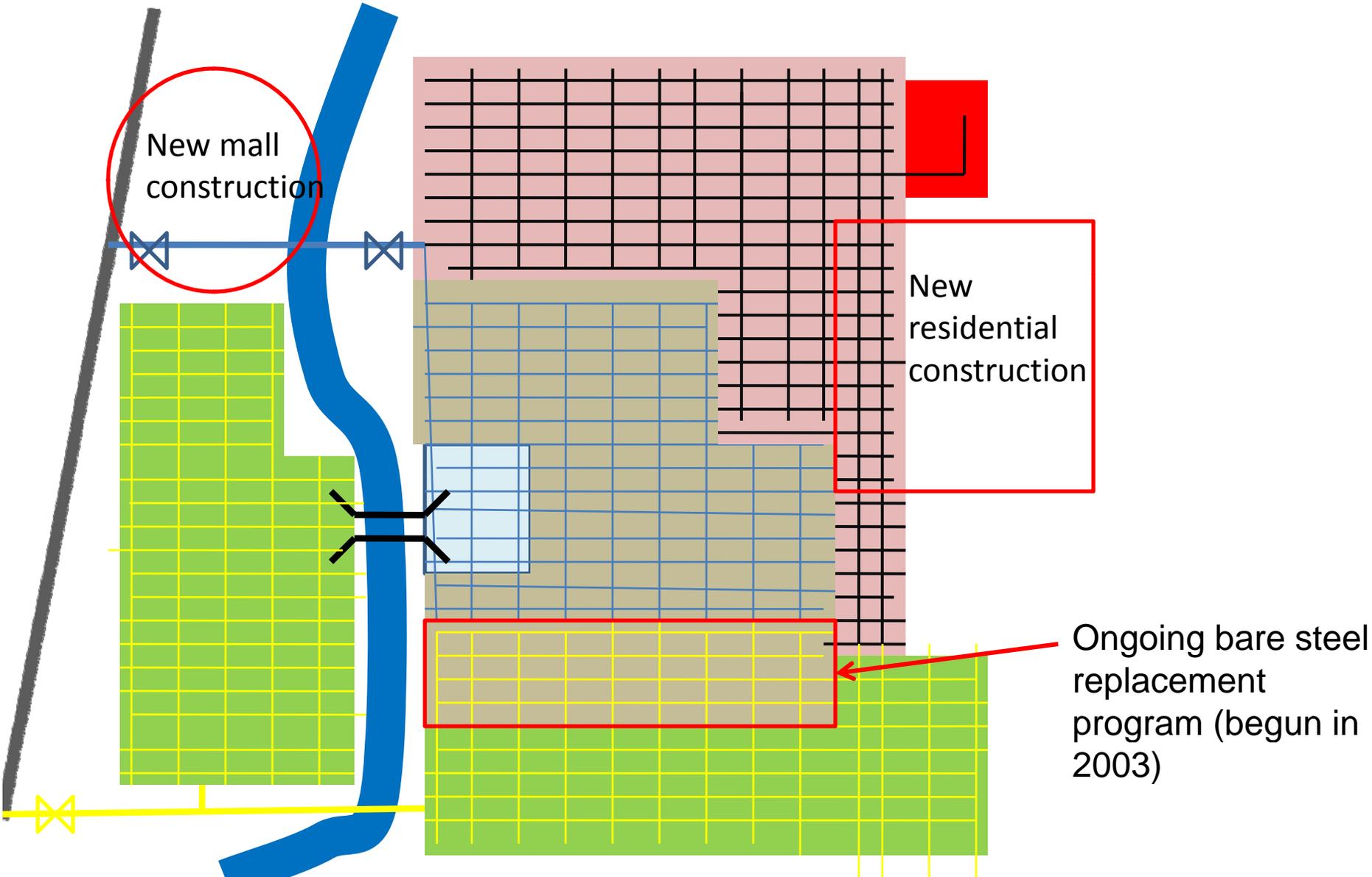
# Kastanideaux Expands, 1975



# Kastanideaux Expands Further, 2000



# Kastanideaux, today



# Running SHRIMP

- Go to the website <http://shrimp.gas-distribution.com/>
- Enter OPS ID or pick your state
- Pick your system from list or enter name
- SHRIMP is pre-loaded with OPS Annual Report Data
- User is asked to verify it is correct

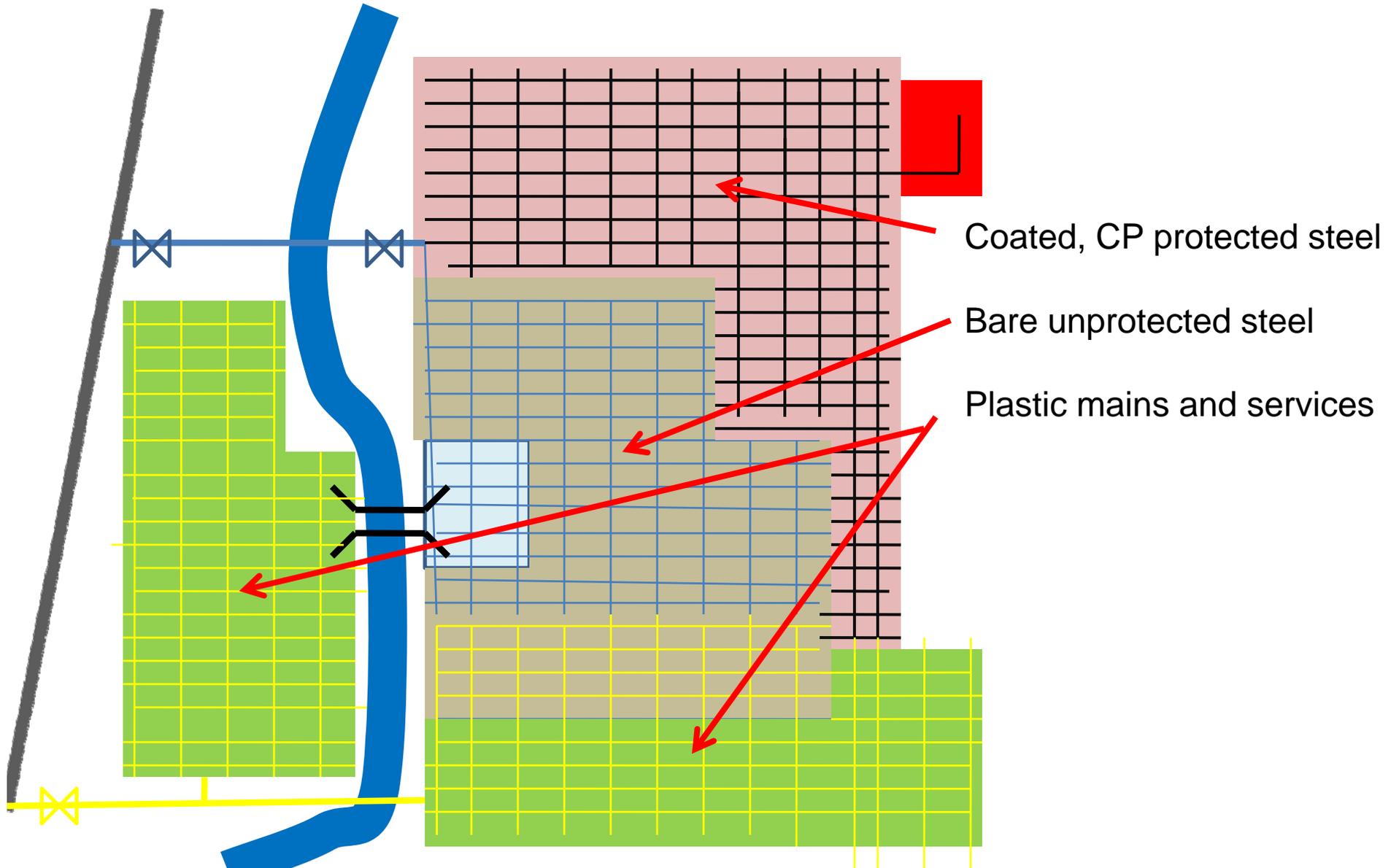
# 1<sup>st</sup> Step: Threat Assessment

- Asks questions to assess the probability of each of 8 threats to distribution integrity:
  - Corrosion
  - Excavation
  - Natural Forces
  - Other Outside Force
  - Equipment Defect/Failure
  - Material Defect/Failure
  - Inappropriate Operations
  - Other

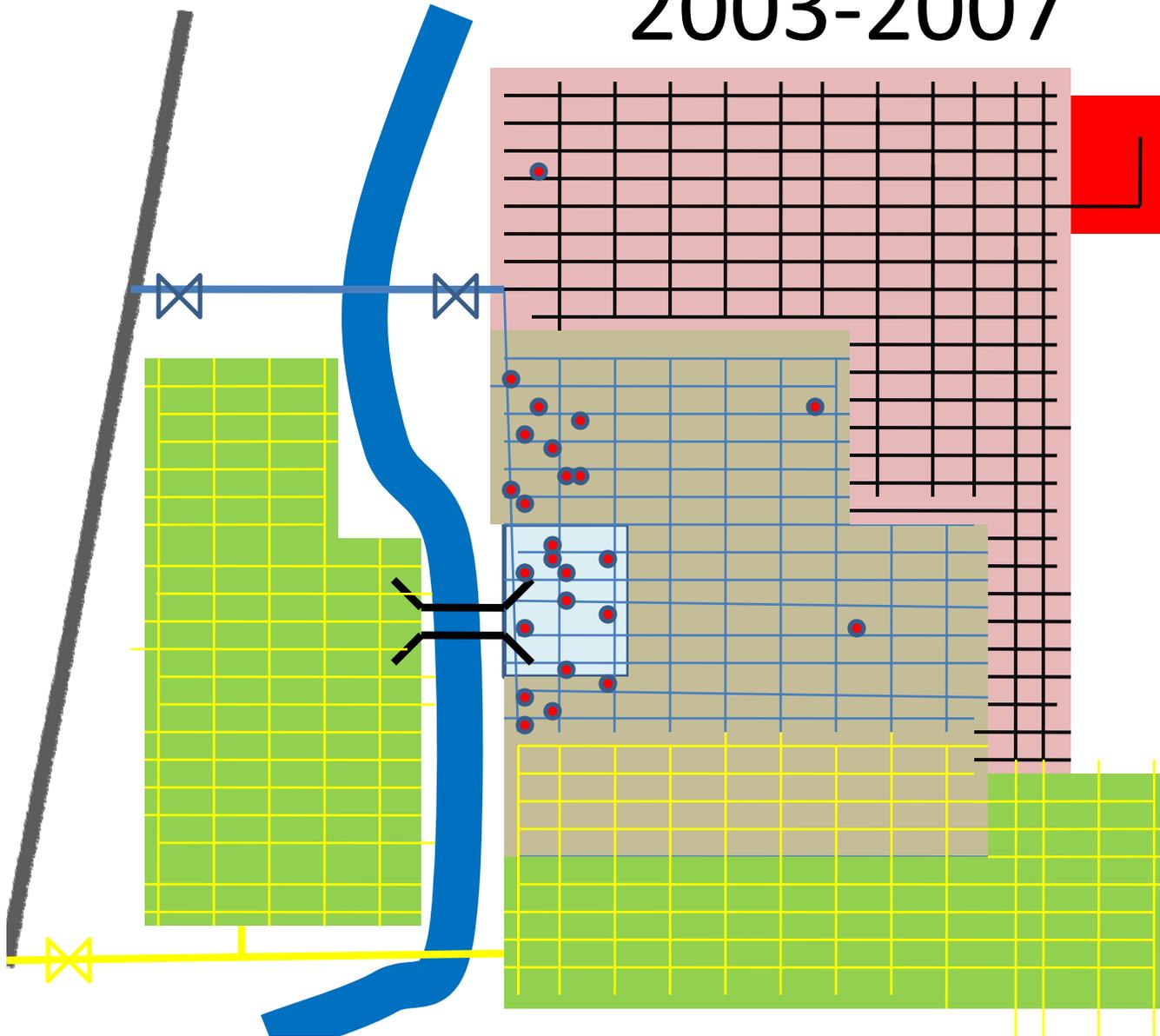
# Know Your Infrastructure

- Involve your “Subject Matter Experts” – the people who inspect and maintain the system
- Assemble your construction, inspection and maintenance records
- SHRIMP provides a list of suggested records at the beginning of each threat assessment

# Corrosion Threat Groups

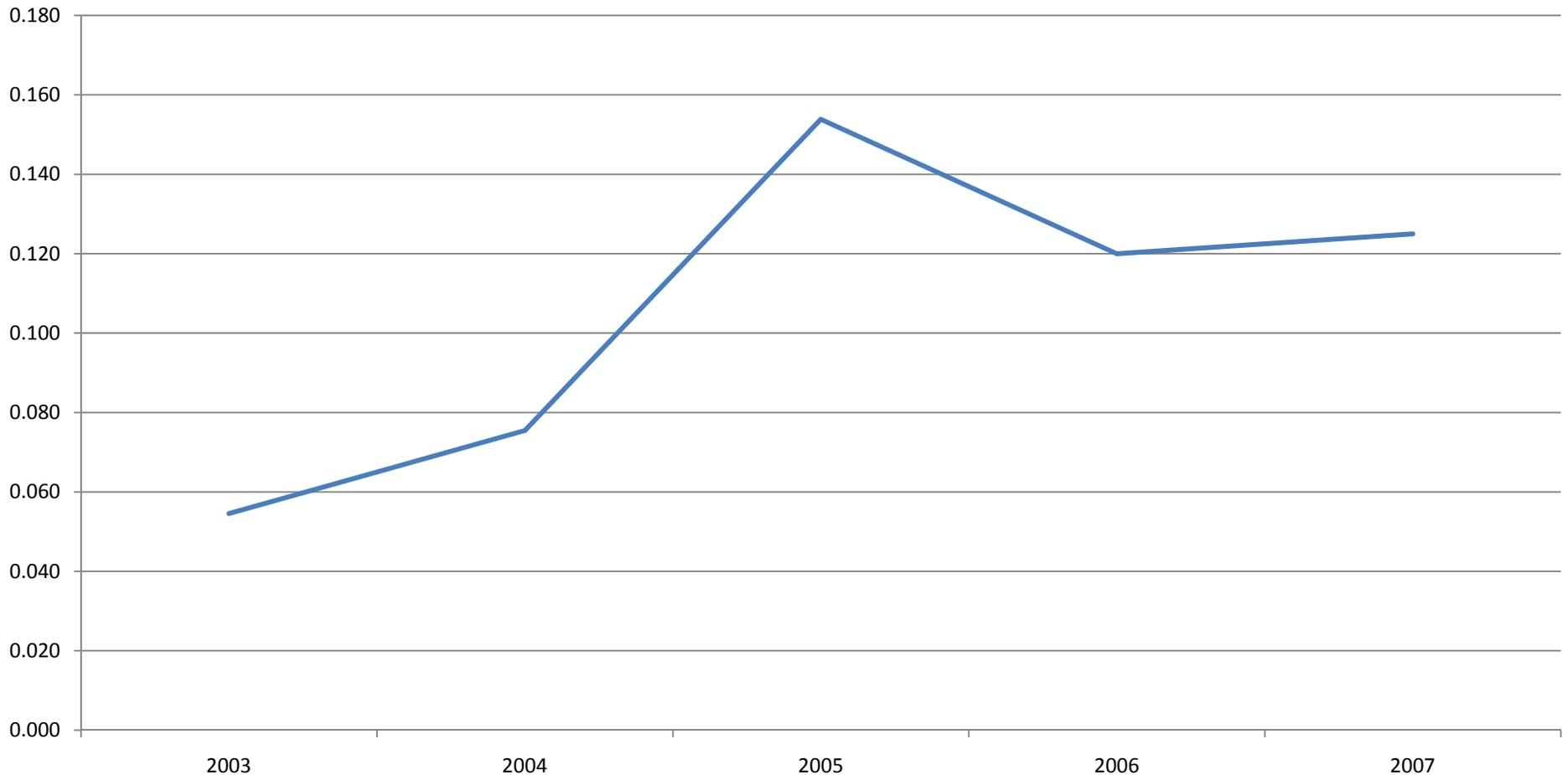


# Corrosion Leaks Repaired 2003-2007

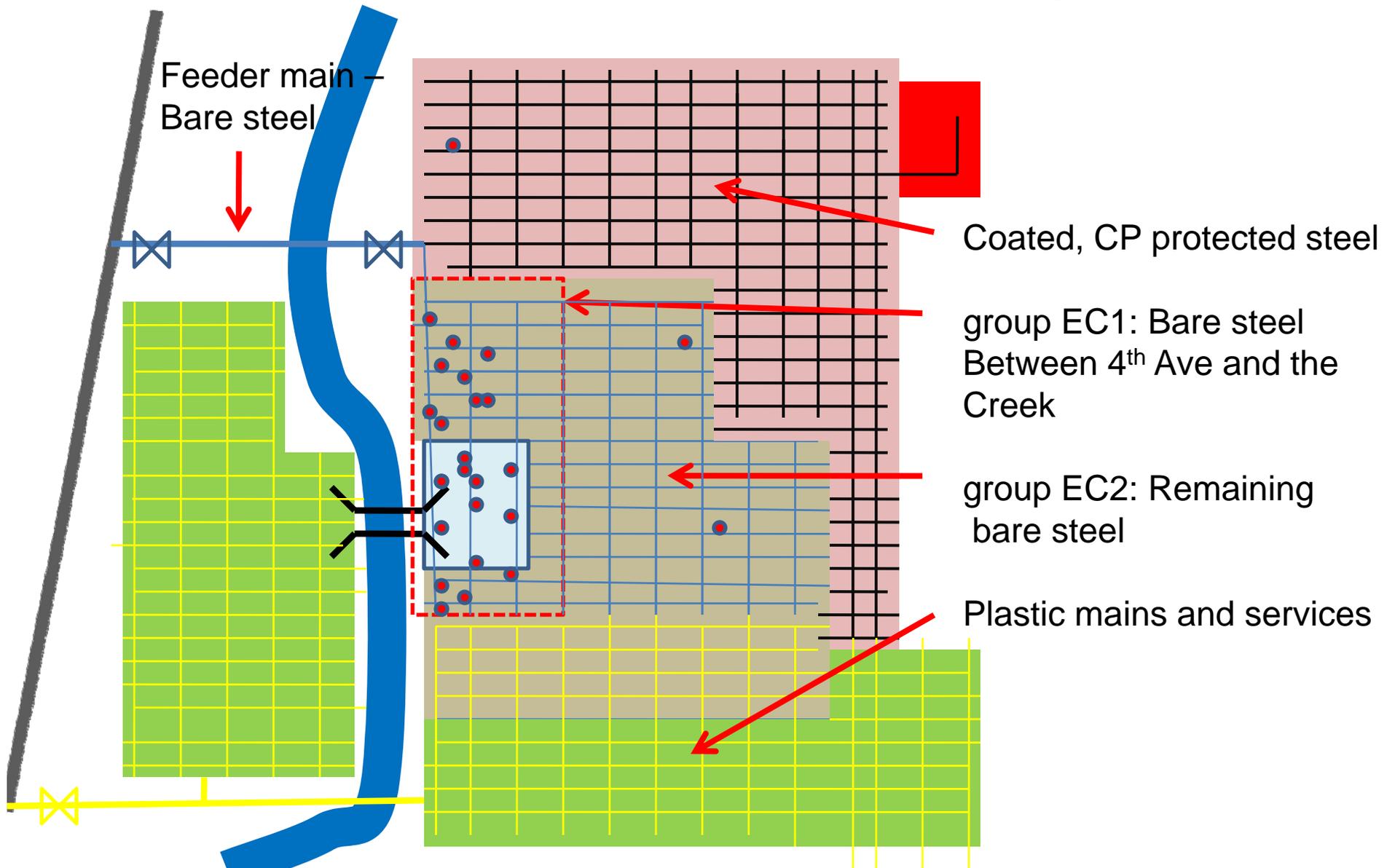


# Trend in Corrosion Leaks Repaired

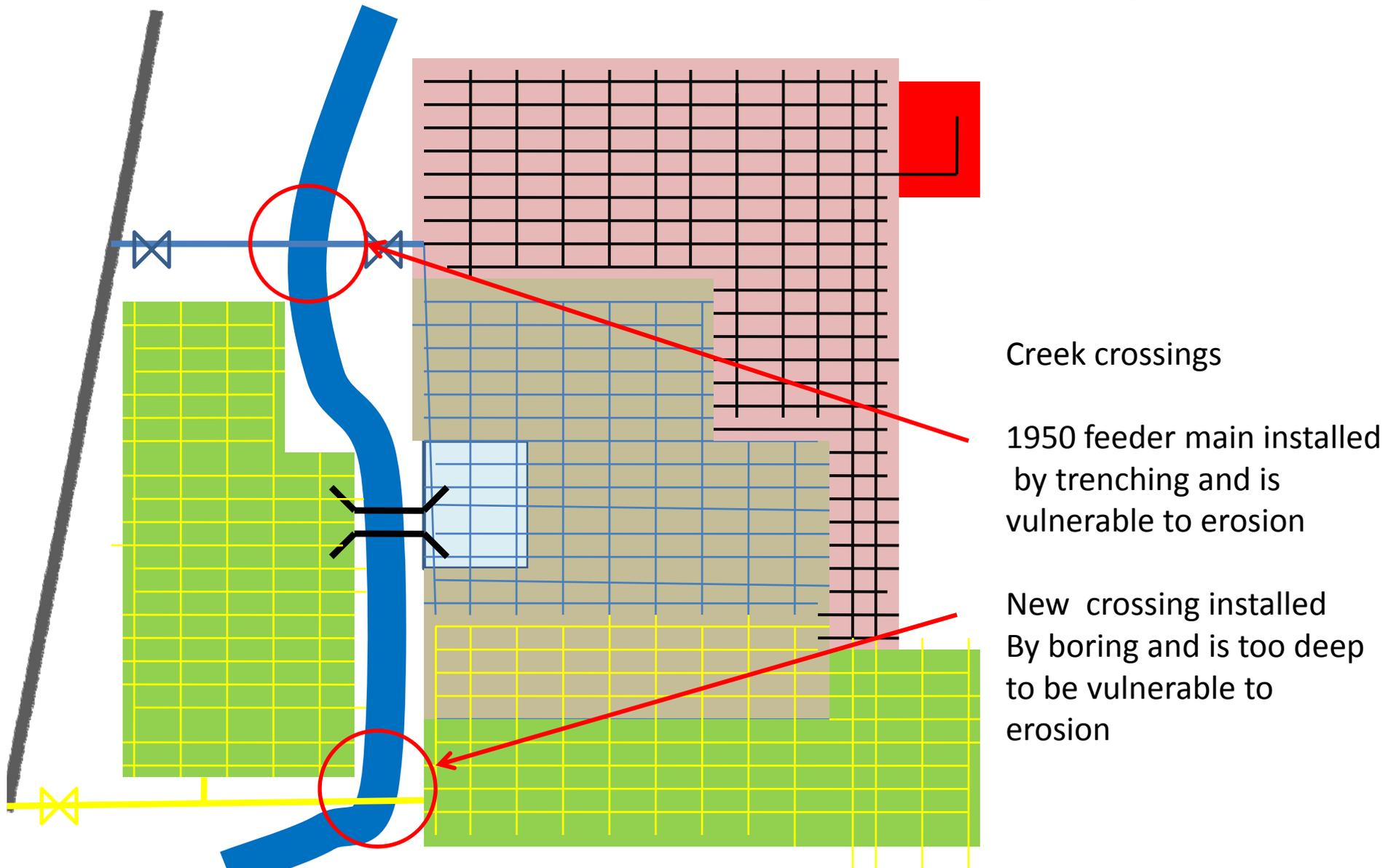
Corrosion Leaks Repaired/mile of metal main



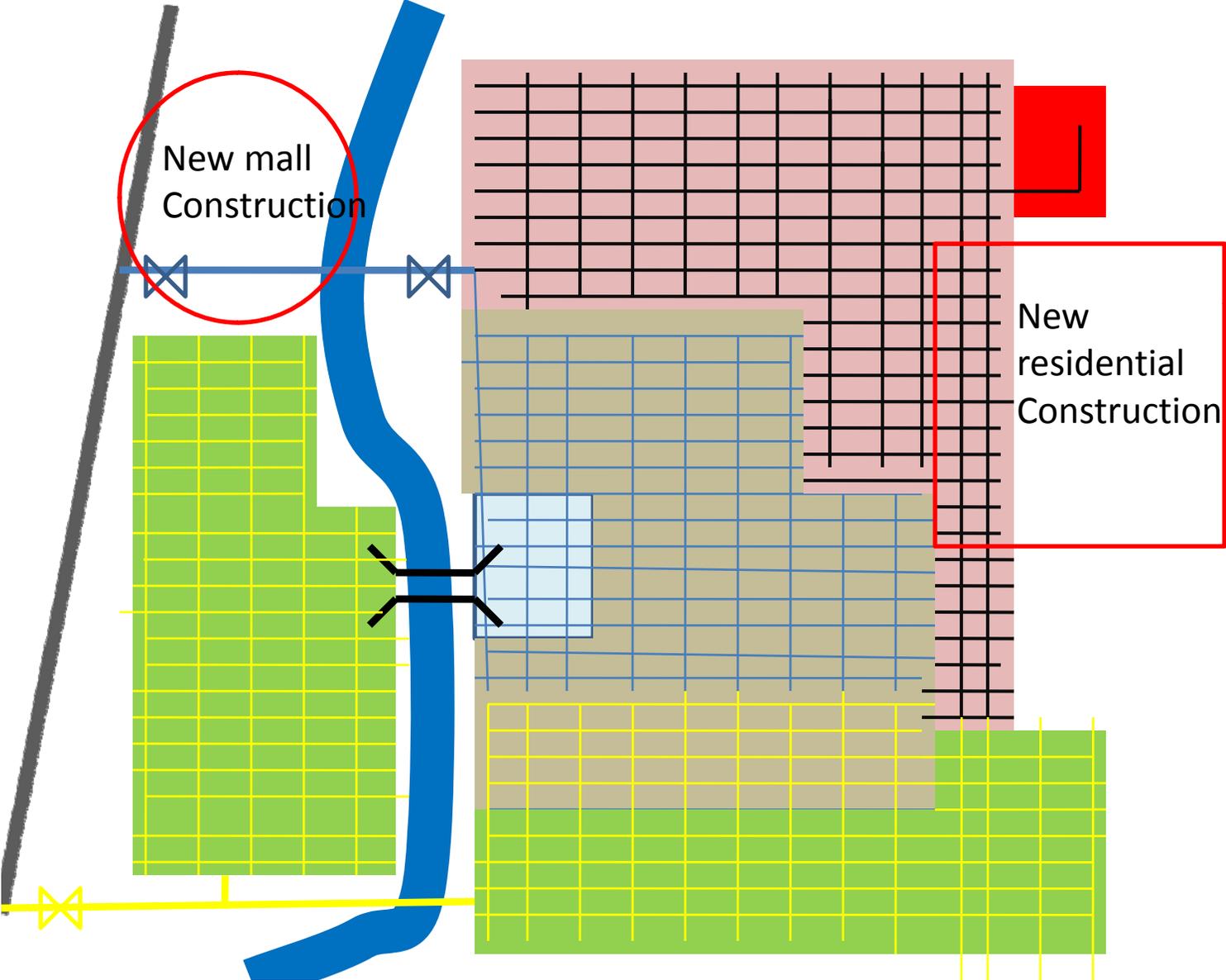
# Corrosion Threat Groups



# Natural Forces Threat groups



# Excavation Threat Groups



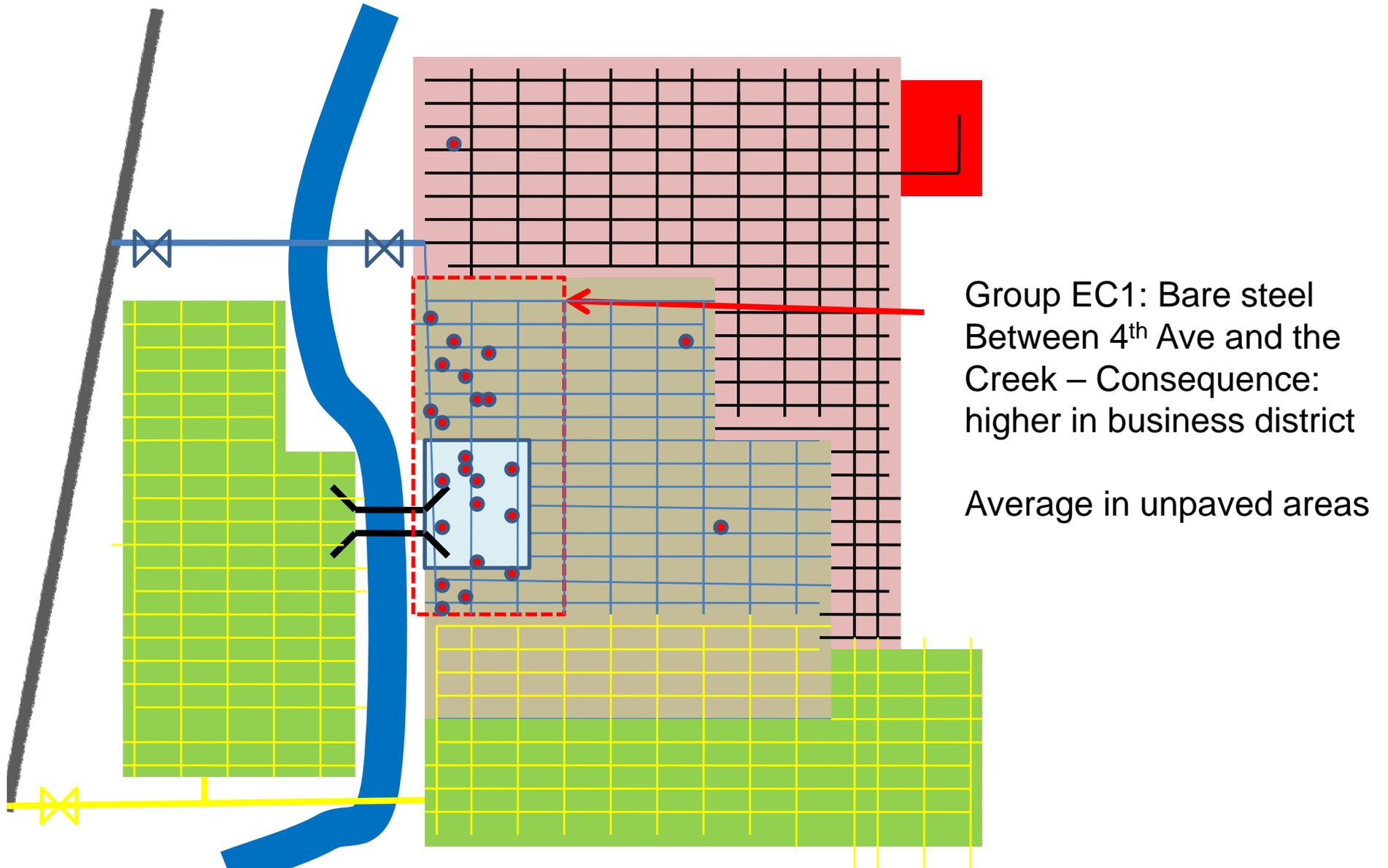
## 2<sup>nd</sup> Step: Factoring In Consequences

- Risk = Probability times consequences of a failure
- Transmission IMP focused on identifying high consequence areas
- DIMP avoids this – because almost all areas served by distribution are populated, therefore all areas are high consequence
- SHRIMP does consider consequence, however

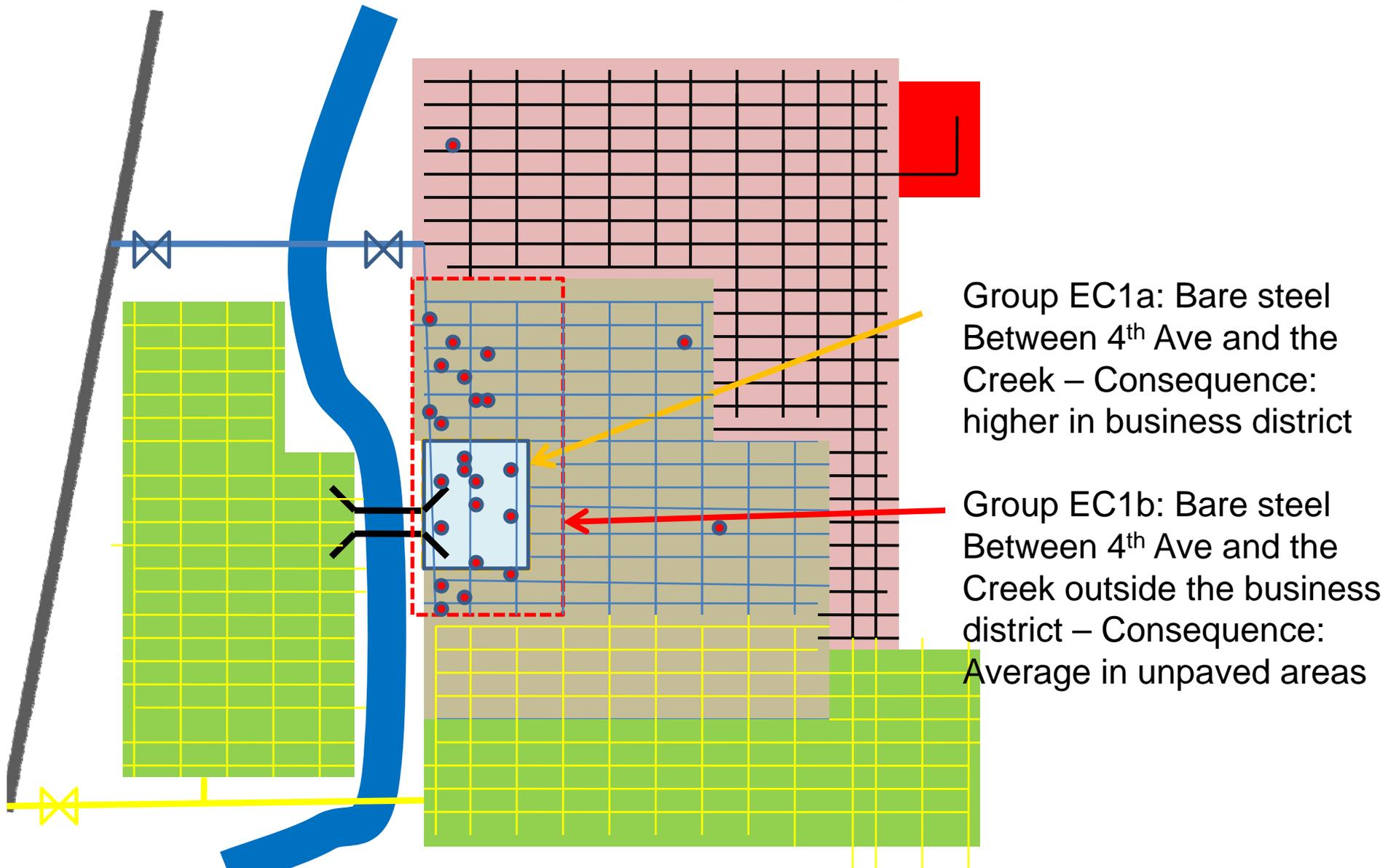
# Consequence Factors

- User is asked for each group would a failure here have greater consequences than average because of:
  - Larger diameter/higher pressure than most
  - In the business district under wall-to-wall pavement
  - The significance of the facility, and/or
  - The response time to get crews to it should it fail

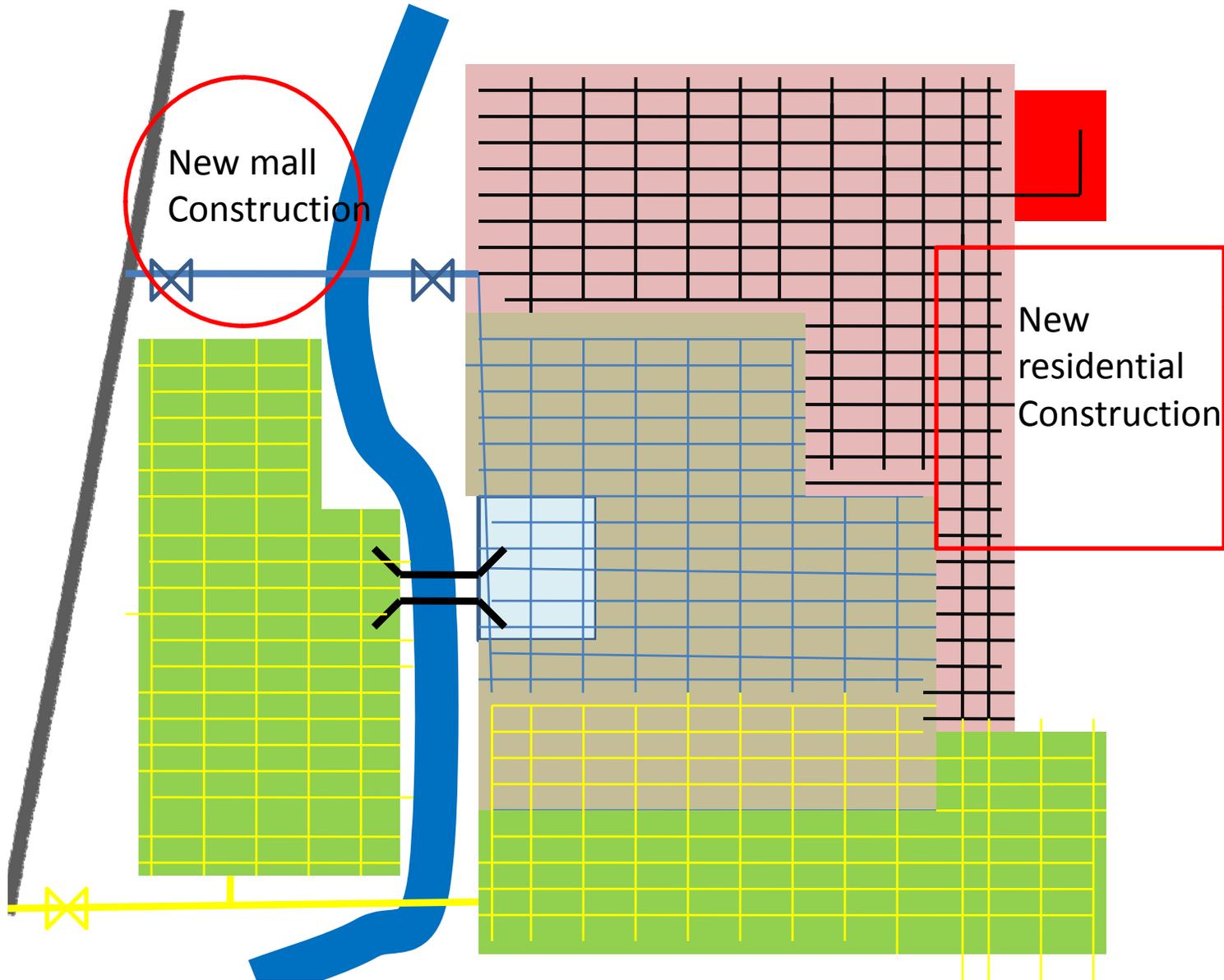
# Corrosion Threat groups



# Corrosion Threat groups



# Excavation Threat Groups



## 3<sup>rd</sup> Step: Risk ranking

- Threat groups are ranked from highest lowest by SHRIMP
  1. Corrosion on bare steel in the business district
  2. Excavation near the feeder main
  3. Excavation on the Northeast side
  4. Corrosion on bare steel near the creek outside the business district
  5. Natural forces on 1950 creek crossing
- User can change the order, and enter an explanation why

## 4<sup>th</sup> Step: Select Additional/Accelerated Actions

- Starting with the highest relatively ranked threat, SHRIMP asks the user to choose actions to reduce the risk
- SHRIMP offers suggestions (from GPTC Guide)
- If user is already doing something about any threat, that can be written into the DIM Plan

# Additional/Accelerated Actions

Corrosion on bare steel in  
business district

Replace 5% per year

Excavation near the feeder  
main

Inspect at least once per day

Excavation on the Northeast  
side

Increased public awareness

Corrosion on bare steel outside  
the business district

Increase leak surveys to once per year

Natural forces on two creek  
crossings

Inspect after heavy rains

## 5<sup>th</sup> Step: Select Threat-Specific Performance Measures

- For each Additional/Accelerated Action, SHRIMP asks the user to select a performance measure
- SHRIMP uses the GPTC list for each threat
- The selected A/A Action will affect SHRIMP's recommended performance measure

# Performance Measures

Corrosion on bare steel in business district	Replace 5% per year	Corrosion leaks repaired/mile and /service
Excavation near the feeder main	Inspect at least once per day	# of excavation damages
Excavation on the Northeast side	Increased public awareness	# of excavation damages
Corrosion on bare steel outside the business district	Increase leak surveys to once per year	Corrosion leaks repaired/mile and /service
Natural forces on two creek crossings	Inspect after heavy rains	# of natural force damage leaks repaired

# Step #6: Create Written DIM Plan

- Summarizes significant decisions made in previous steps
- Addresses all seven required elements
- Will include required provisions on LEAKS, EFVs and possibly (likely) mechanical coupling failure reporting

# Potential audience

- Intended for small systems – will be free
- Could be used by larger utilities for isolated distribution systems (e.g. cities and towns with essentially stand-alone distribution systems)
- There will be a nominal fee for larger systems to support improvements and technical support

Questions?