William Busch SR/WA

IRWA Instructor, Course Developer

and International Speaker

Bardstown, KY

Developing a Management Plan

Developing a Management Plan

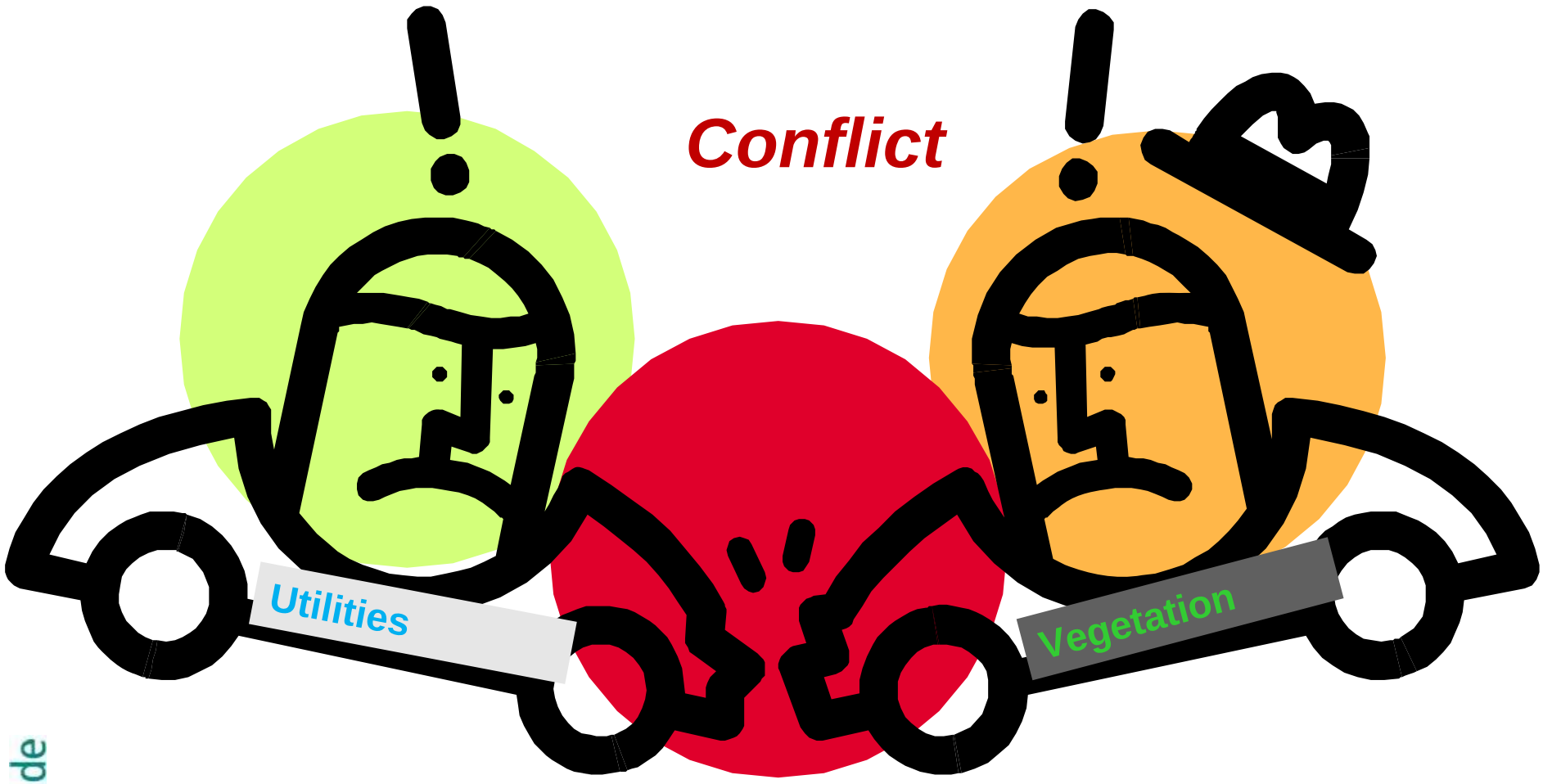
It is not enough to understand the best way to manage infrastructure; one must be able to convince key decision makers.

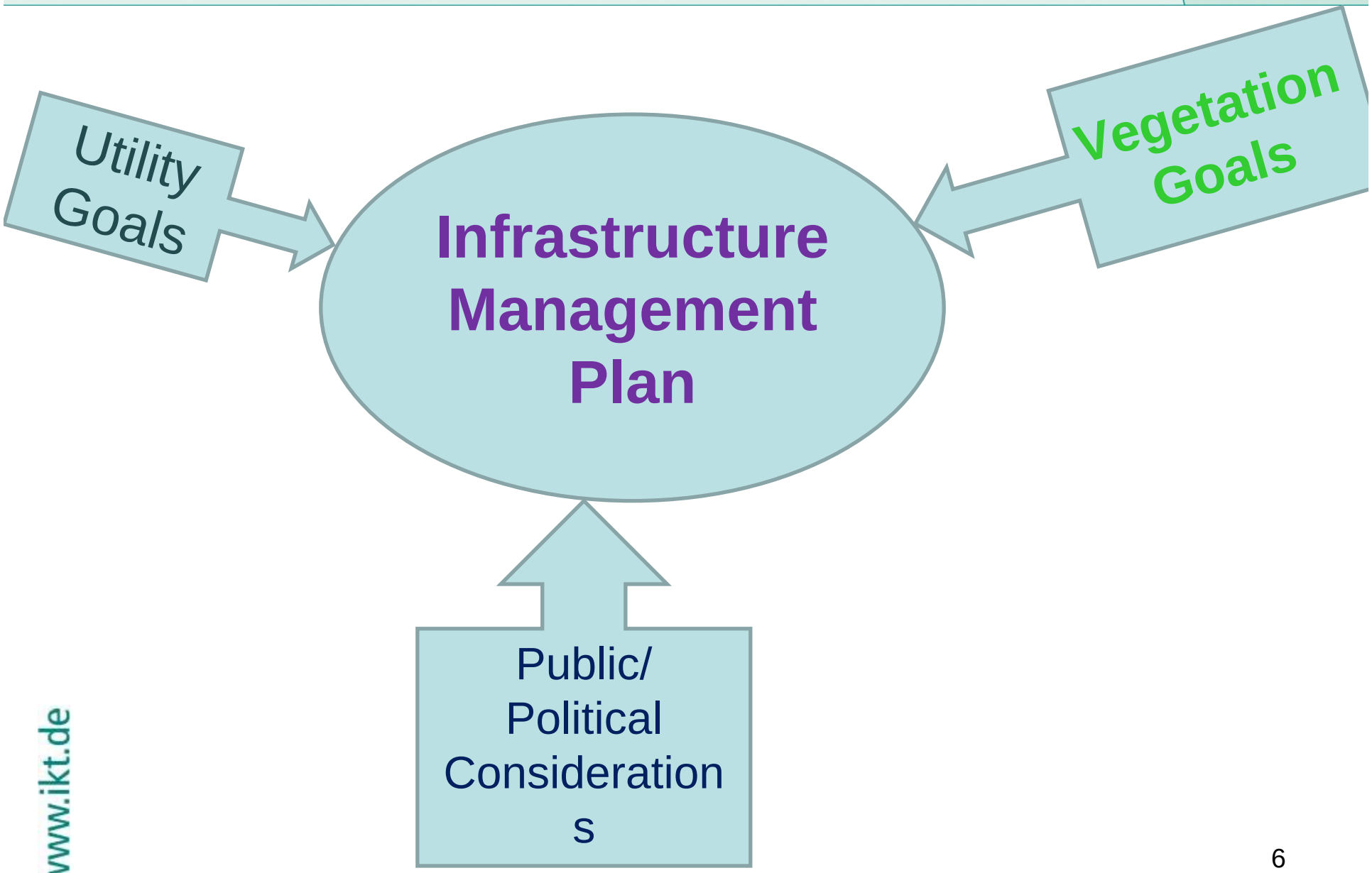
Keys to Developing a Successful Infrastructure Management Plan - GLUE

- Goals – Clarify
- Location - Survey Underground
- Understand Existing Pipe Conditions
- Evaluate – Assess Risks

Keys to Developing a Successful Infrastructure Management Plan

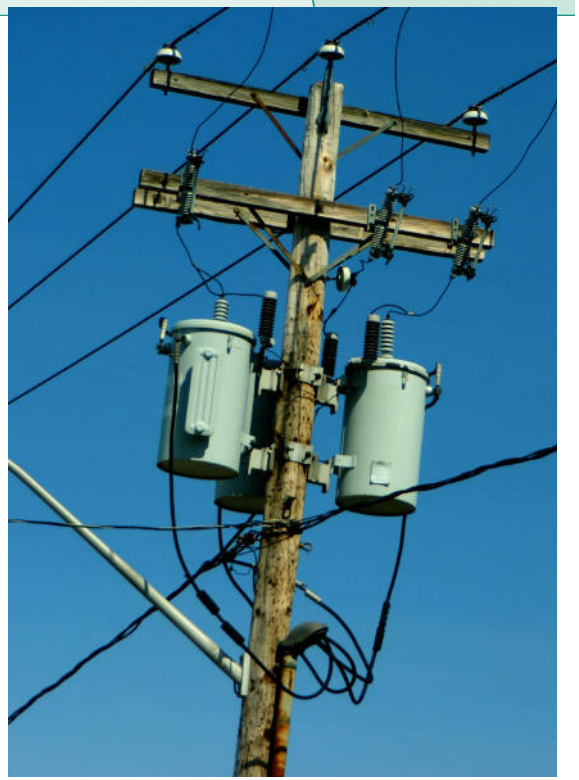
- **Goals** – Clarify
- Location - Survey Underground
- Understand Existing Pipe Conditions
- Evaluate – Assess Risks


Conflict
Utilities
Vegetation


Utility Goals
Vegetation Goals
Infrastructure Management Plan
Public/ Political Considerations

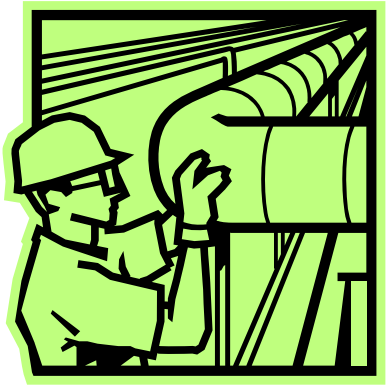
Vegetation Goals

- Reduce noise
- Improve the visual landscape
- Meet a specific mandate for green-house gas reduction



Utility Goals

- Safe supply
- Reliable supply
- Reasonable cost



Public/Political Pressures

Current Events
Party Platforms
Special Interests
Public Policy

Developing a Management Plan

It is not enough to understand the best way to manage infrastructure; one must be able to convince key decision makers.

Keys to Developing a Successful Infrastructure Management Plan

- Goals – Clarify
- **Location** - Survey Underground
- Understand Existing Pipe Conditions
- Evaluate – Assess Risks

Location of Infrastructure

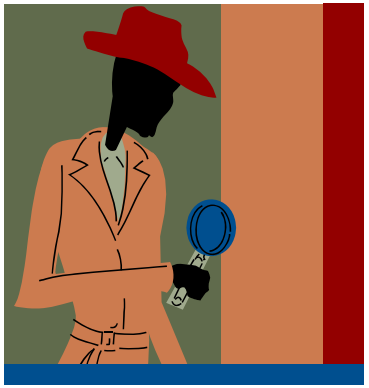
No Assumptions
Surveys,Maps & Locators
Plats
3D Mapping

Keys to Developing a Successful Infrastructure Management Plan

- Goals – Clarify
- Location - Survey Underground
- **Understand Existing Pipe Conditions**
- Evaluate – Assess Risks

- **Understand Existing Pipe Conditions**

Historical records
Knowledge of field crews
Internal Inspections
Remote sensing (e.g. fiber optic monitoring)

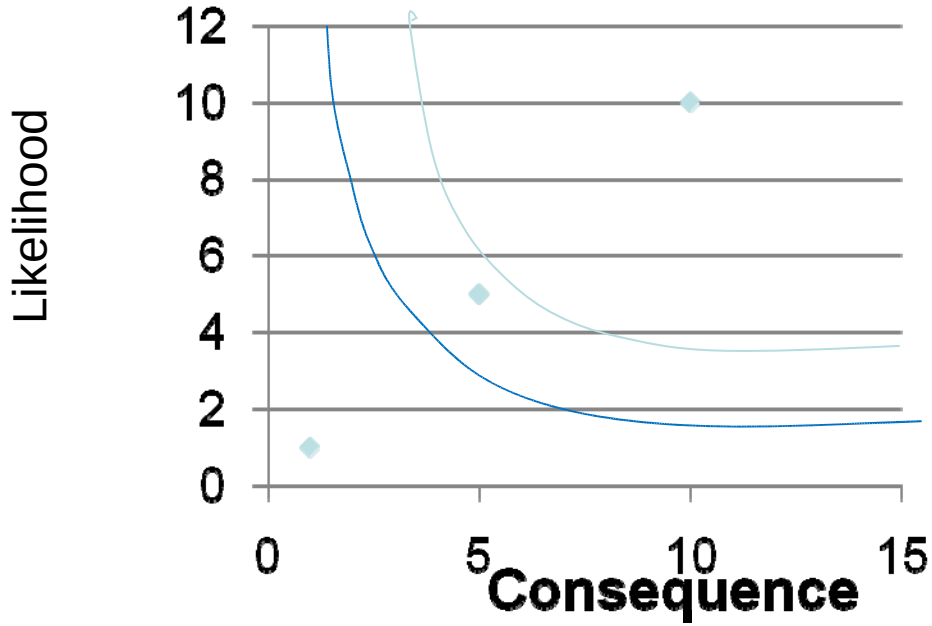


Keys to Developing a Successful Infrastructure Management Plan

- Goals – Clarify
- Location - Survey Underground
- Understand Existing Pipe Conditions
- **Evaluate – Assess Risks**

Risk Assessment

Likelihood
Consequence



Bands of Action

Solution?

Implement Standards of

“Best Practices”

The End

Questions/Comments?

Case Study

From the San Diego County Water Authority

Case Study- San Diego

- Goals – Clarify
- Location - Survey Underground
- Understand Existing Pipe Conditions
- Evaluate – Assess Risks

Complicity? The Way It Was

neutral
unabhängig
gemeinnützig

Complicity? The Way It Is


HistoricAerials.com - Windows Internet Explorer
HISTORIC AERIALS
From The Past To The Present
HISTORIC MAPS / COVERAGE
Purchase This Image
Aerials
2005
2003
1989
1980
1968
1964
1953
1947
WE'VE GOT PLENTY OF HANDS TO TAKE CARE

1980


HistoricAerials.com - Windows Internet Explorer
HISTORIC AERIALS
From The Past To The Present
HISTORIC MAPS / COVERAGE
Purchase This Image
Aerials
2005
2003
1989
1980
1968
1964
1953
1947
WE'VE GOT PLENTY OF HANDS TO TAKE CARE

1964

County Hwy S5
Bounty Way
Harrow Ln
Harrow Pl
Sandhill Rd

Unauthorized Structures

Structure Removed

Case Study- San Diego

- **Clarity of Goals-Define the Problems**
- Location of Assets
- Condition Assessment
- Risk Assessment


Tree Roots?

Delayed Access


Response Time?

It is expressly agreed that the Grantor shall have the right, at his own risk, to use the surface of the right of way hereby granted, for agricultural uses except for the planting and growing of trees; and the right to cross or make use of the installation, construction, operation, inspection, repair, maintenance, or to any other purposes and uses as are or may be necessary or incidental to the construction, maintenance and operation of the Grantee's proposed line or pipe lines.

Enforcing Property Rights?

Grantor cannot grow trees

And the Grantor hereby agrees for himself, his successors or assigns, that he will not be constructed and maintained any buildings or structures of any nature or kind; or use upon said right of way any blasting supplies or explosives commonly used for blasting.

Grantee must avoid unreasonable interference

And the Grantee hereby agrees that it will avoid unreasonable interference with the use by Grantor and his successors of said right of way, and agrees not to fence the same, and agrees that the Grantor may enjoy the surface use of the land herein described, subject to the conditions above stated, and agrees to permit the installation by the Grantor of water pipes reasonably required for Grantor's use on his said property over and across the right of way in a manner which will not interfere with the Authority's pipe lines and operations, provided, if the location is to be under Grantee's pipe line, it must be installed subject to Grantee's supervision and approval, and the Grantee agrees, after the installation of its pipe lines, to restore the surface grade above the pipe lines near the original elevation as practicable. All present installed untilities will be interfered with as little as possible and if interrupted will be promptly restored to use at the expense of the Grantee.

Witness our hands this 23rd day of March, 1954.

James M. Harvey X

Witness X

Joan B. Harvey

Witness

Notaries: Use proper form on back.

Case Study- San Diego

Clarity of Goals-Define the Problems?

What was the problem with trees?

Initial thoughts:

- Root damage to pipelines
- Weight damage
- Devaluation of property rights

Solution?

Initial Thoughts…..

They must be removed


Remove all trees!

Clarity of Goals –Define the Problem(s)

The urban manager must understand the goals of:

Vegetation

- Reduce noise
- Improve the visual landscape
- Meet a specific mandate for green-house gas reduction

Utilities conflicts/cost caused by tree root intrusions and incorporating landscape

Those who set the Goal

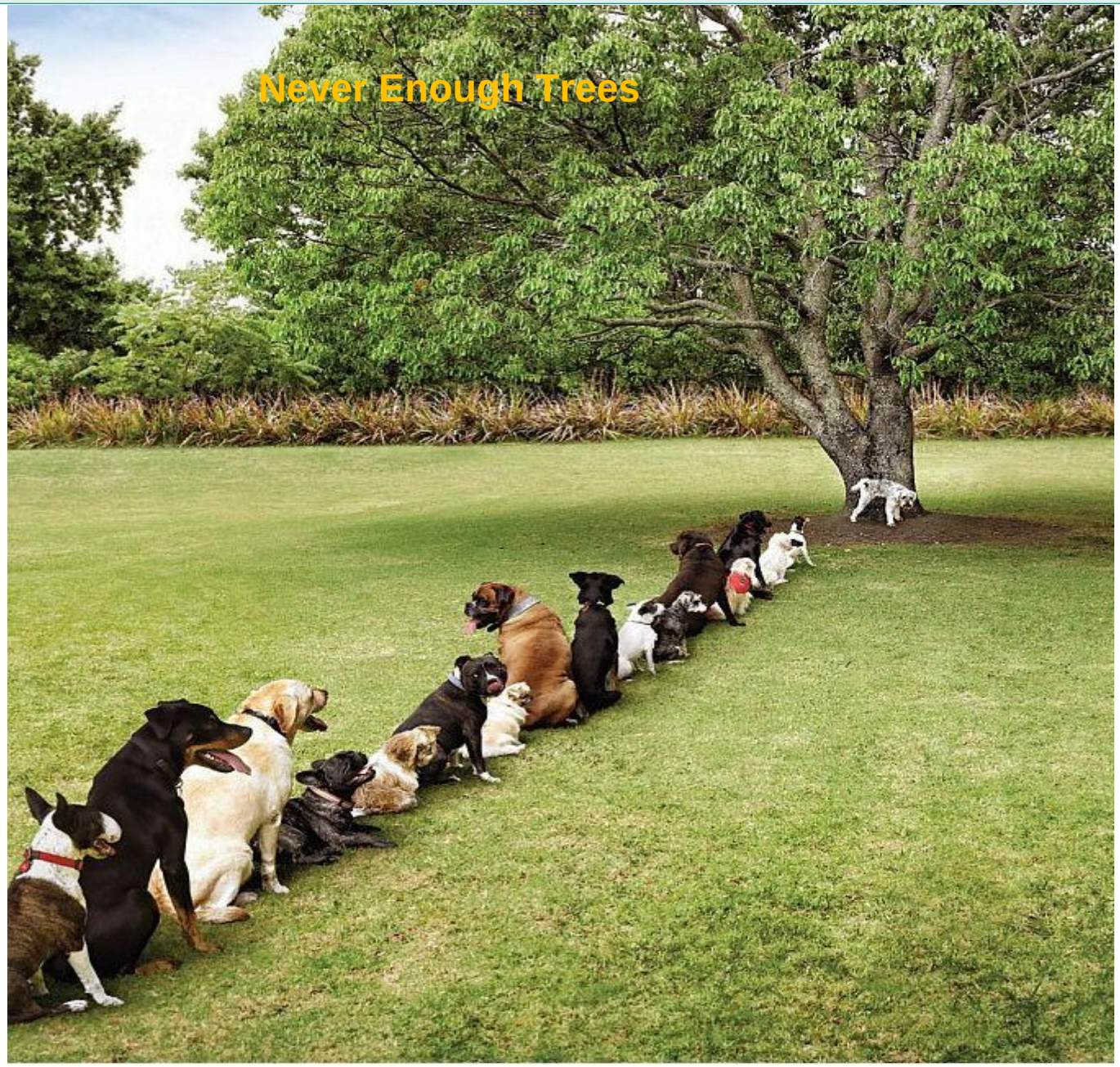
Controversy Index

Solution?

Consequences?

- Public uproar - trees have become part of property ambiance.
- Political backlash –
- Lack of sound reasoning to defend "remove them all" policy.

Never Enough Trees



What is the problem with trees?!

IKT Root Research - Many trees are shallow rooted, roots are more of an issue with rubber joints

Little research on large diameter steel welded pipes

Historical Records - no known breaks due to roots

Internal Inspections - no root intrusion

Pipe excavation – no root penetration

Crew Knowledge – Slows response time

Case Study- San Diego

What was the problem with trees!

Conclusions:

- Some risk of root invasion on RCC pipe
- Increased response time in emergency repair scenarios

Developing a Policy to Manage Trees

- Inventory
  - Pipeline condition
  - Tree factors
- Rank and Prioritize
- Implement Policy

High Priority for Removal
Multiple Issues – High Risk Pipe

Moderate Priority for Removal
Deep Rooted Tree Over Reliable Pipe

Lower Priority Tree
Reliable Pipe, Easy to Remove

Back to the Future

Challenge

- Increased pressure to accommodate trees

vs.

- Increased intolerance for traffic delays and cost to maintain infrastructure

Solution?

Implement Standards of

“Best Practices”

The End

Questions/Comments?

Location

Components to an inventory of affected infrastructure/resources:

- Accurately locate physical assets
- Perform Condition Assessment
- Perform Risk Assessment