

# Integrative Water Systems for Urban Developments



# 5 Bottom Line Whole System

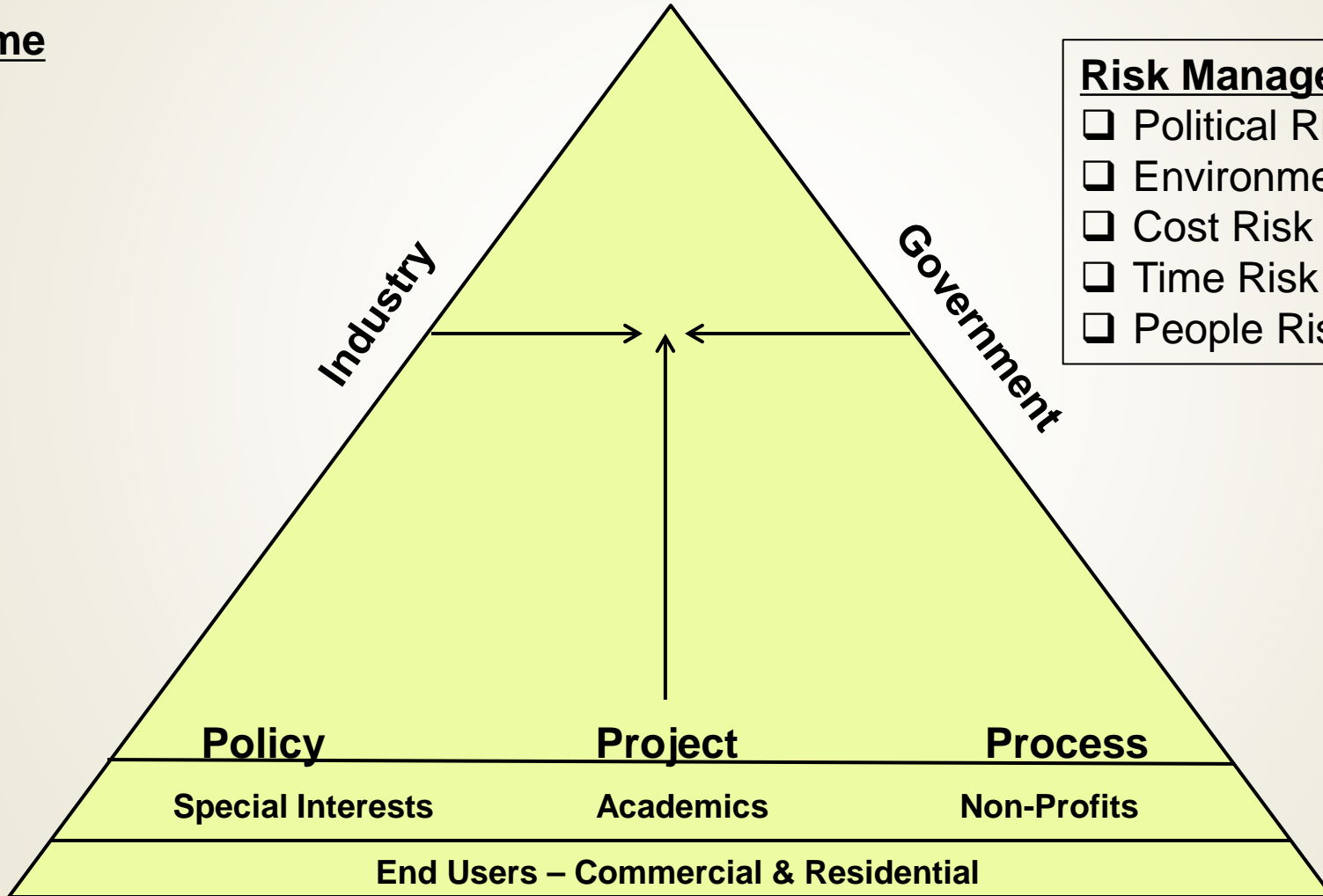


# Overview

- Government collaboration with the developer of the project, companies situating within the project, end users, non-profit organizations & academic groups focused on policy-practice change to result in better standards
- Appropriate location & site requirements
- The identification of different approaches to water re-use and management .

# Coordination & Collaboration to Create CHANGE

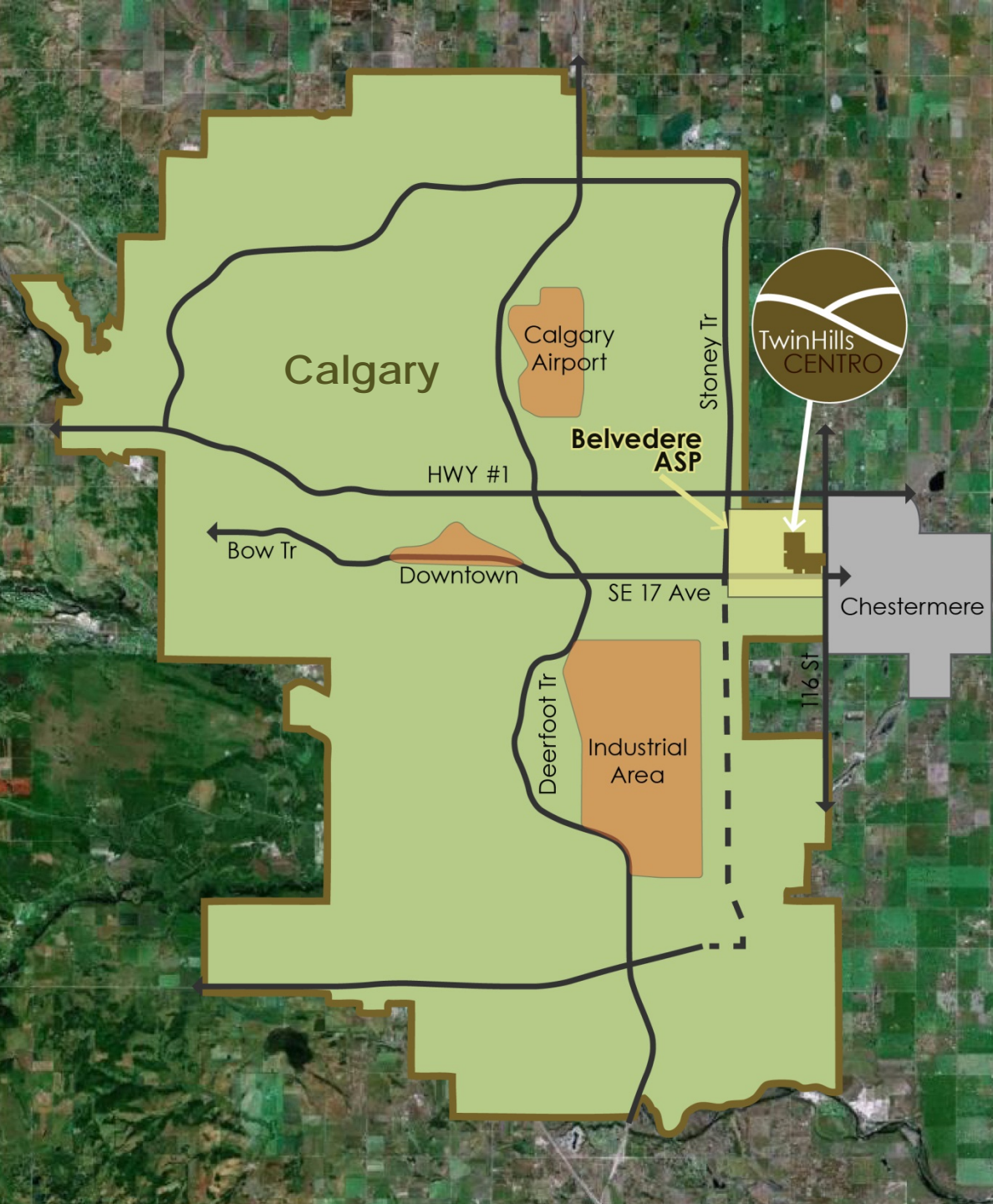
Time



## Risk Management

- Political Risk
- Environmental Risk
- Cost Risk
- Time Risk
- People Risk

# Confluence of Water Flows in River Valleys & Urban Growth



TwinHills Calgary has high elevation of land and has established a ditch system for moving water throughout site

# Appropriate Location



*Geotechnical, Soil Absorption, & Elevations Characteristics of Land*

# Appropriate Water Management Location Criteria

Land Elevations, soil composition & geotechnical characteristics

Seasonal and Weather Incident Impacts

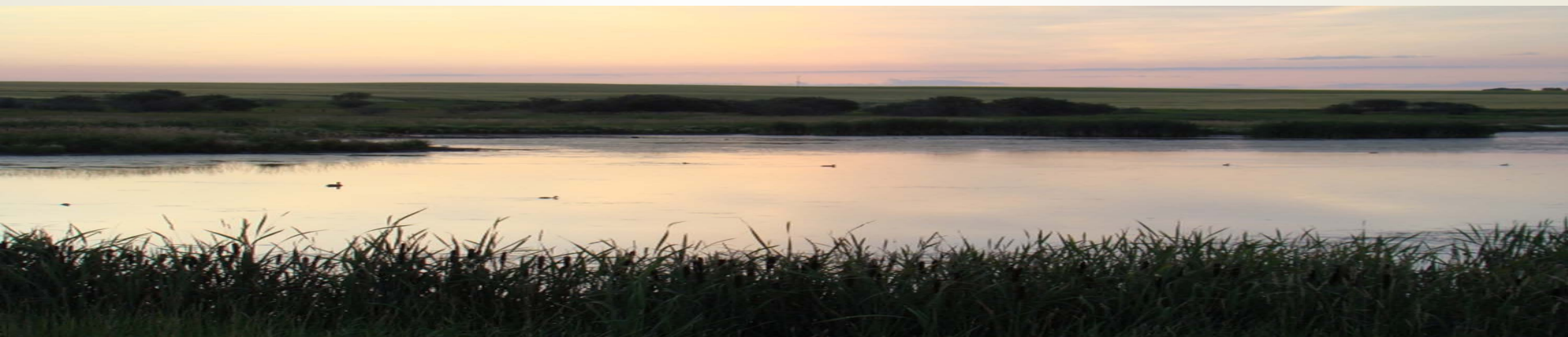
Adjacent land composition and uses.

Barriers to overland & ground water movement

## Best Practice Urban Land Water Management Considerations

# Integrative Water Management Approach

- Connecting natural spaces within the urban environment to result in water management and special places
- Water management planning deals with freeze & thaw; spring thaw & flooding situations
- Water Reuse results in better water quality & quantity management



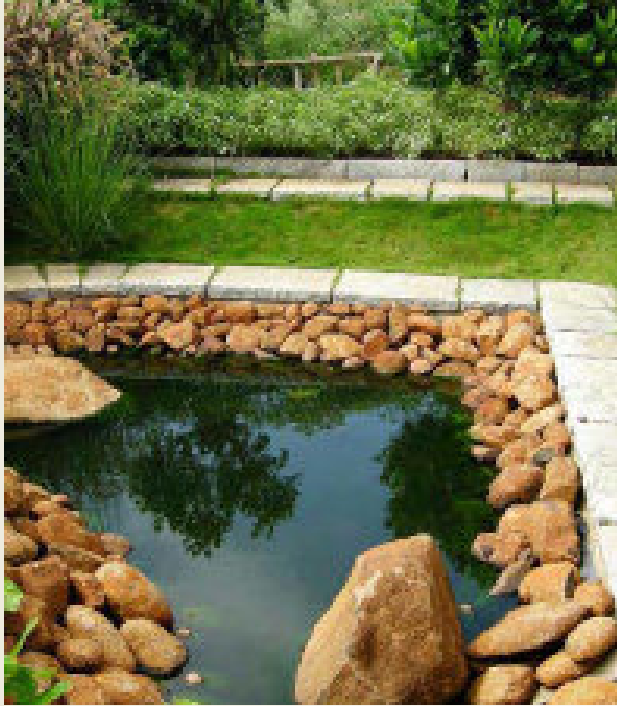
*Integrative Planning benefits Wildlife, People & Incidents*



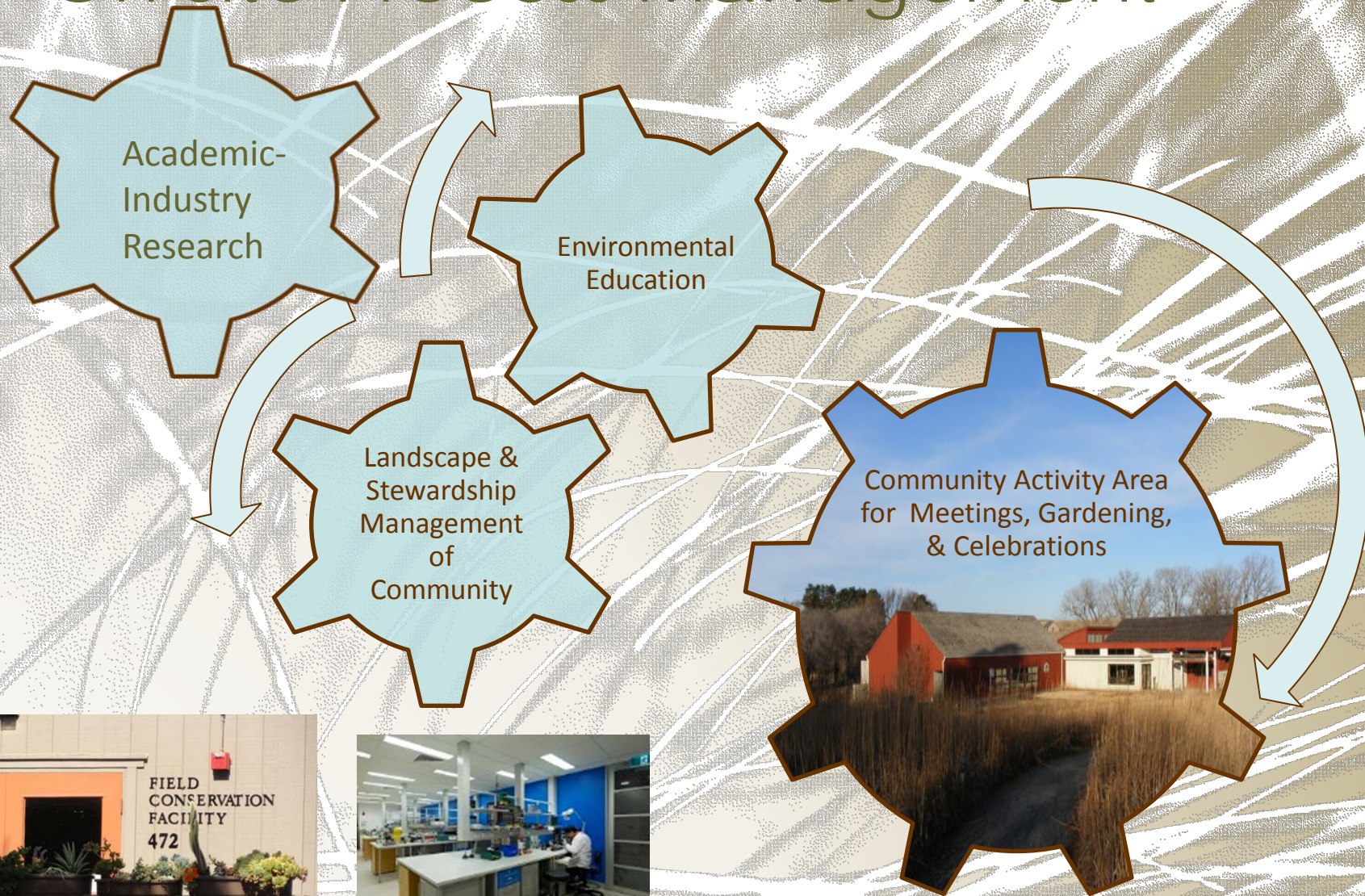
# Cumulative Effects of LID as a System



# Water Reuse Throughout Urban Areas



# On Site Process Management



TwinHills' Prairie Preserve