

# Storm Water Quality and Flood Control Asset Management & Sustainable Practices

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# Agenda



- 1. Background**
- 2. Business Drivers**
- 3. Approach**
  - **Asset Management**
  - **Triple Bottom Line**
  - **Watershed-Based Asset Management**
- 4. Results & Findings**
- 5. Next Steps**



# Infrastructure is The Foundation to Sustained Quality of Life



# Consequences of Asset Failure Can Be Severe



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# Approach



## 1. Asset Management

- Flood control and water quality

## 2. Triple Bottom Line

- Evaluate risk using economic, social and environmental factors

## 3. Watershed-Based Asset Management

- Integrate traditional “hard” assets with natural and soft assets



# What is Asset Management?



## *...Way of Thinking*

- **Primary focus on the:**
  - *Long-term life cycle* of the asset
  - Its sustained performance
- **Focus on minimizing overall risk to the organization**



# Risk-Based Planning: A New Focus



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## OLD

### Backward Looking

- Budget based on last year
- Little knowledge of system risks

### Reactive

- Projects determined as problems arise during the year

### Budget Constrained

- Do as many projects as you can afford each year

### Ignores asset and system risks

- Money is spent but overall risk may not have been reduced much

## NEW

### Forward Looking

- Based on asset risk scores and cost

### Proactive

- High risk assets slotted for renewal before failure occurs

### Risk or Budget Constrained

- Budget could be determined based on agreed risk targets for system

### Focused on risk management

- High risk assets addressed first
- Budget may rise or fall to meet risk targets



# Five Core Questions



- **What is the current state of my assets?**
- **What is my required level of service (LOS)?**
- **Which assets are critical to sustained performance?**
- **What is the most strategic allocation of resources?**
- **How can we fund this?**



# Asset Types



## Natural

- Receiving Water\*
- Runoff / Discharges
- City Property\*
- Canyons\*

\* These are assets Storm Water Division does not own. However, the Division may either be partially responsible for them or need them to achieve other LOS.

## Human-Made

### Hard Asset Classes

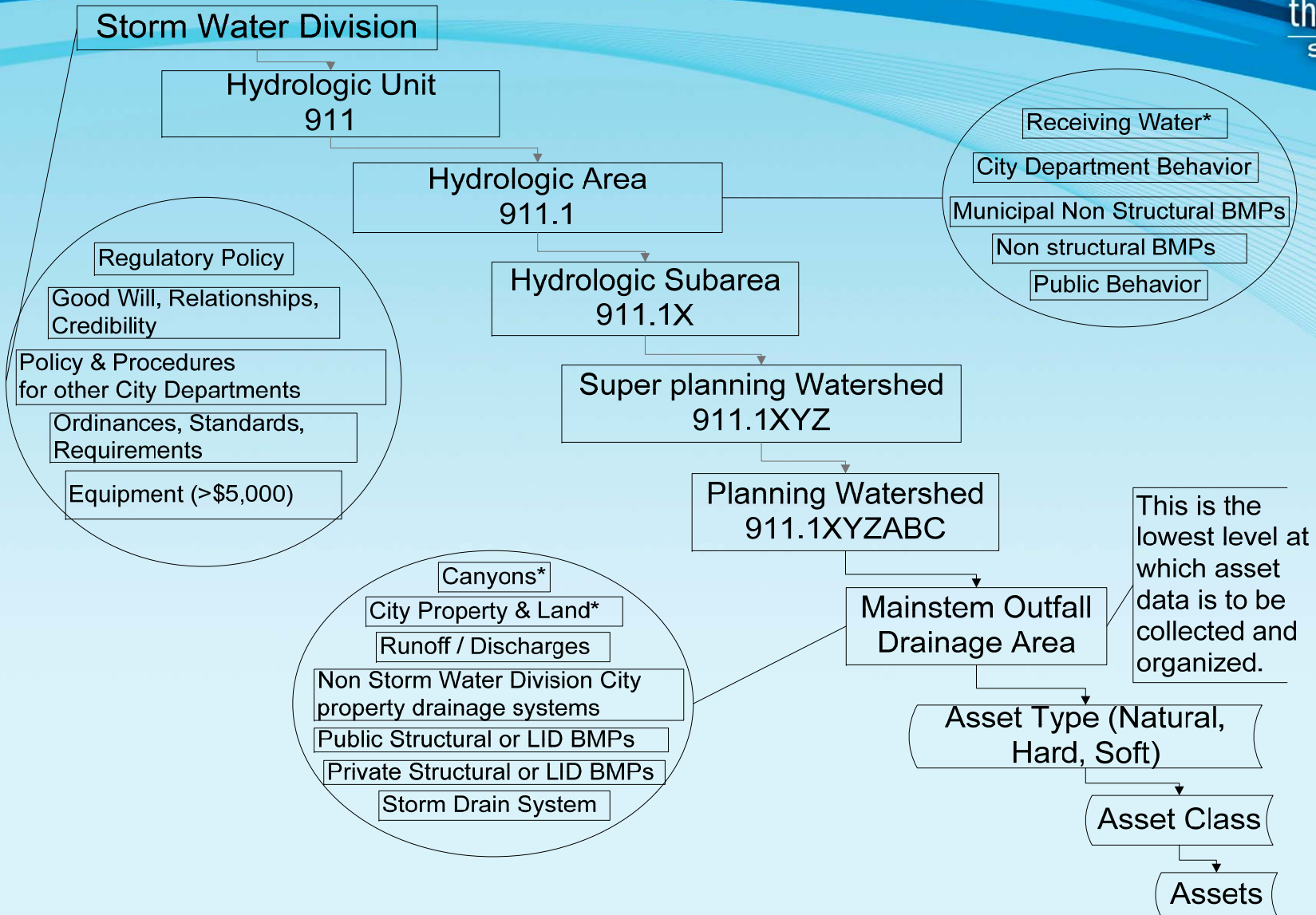
- Storm Drain System
  - Conveyance
  - Structures
  - Pump Stations
- Public Structural or LID BMPs
- Private Structural or LID BMPs
- Equipment (> \$5,000)
- Non Storm Water Division City property drainage systems

### Soft Asset Classes

- City Department Behavior
  - Municipal Non Structural BMPs
- Public Behavior
  - Non structural BMPs
- Regulatory Policy
- Good will, Relationships, Credibility
- Policy & Procedures for other City Depts
- Ordinances, Standards, Requirements



# Asset Hierarchy



# Levels of Service



**Cost of Service**

**Customer Expectations**

**Risk**

**Levels of Service**

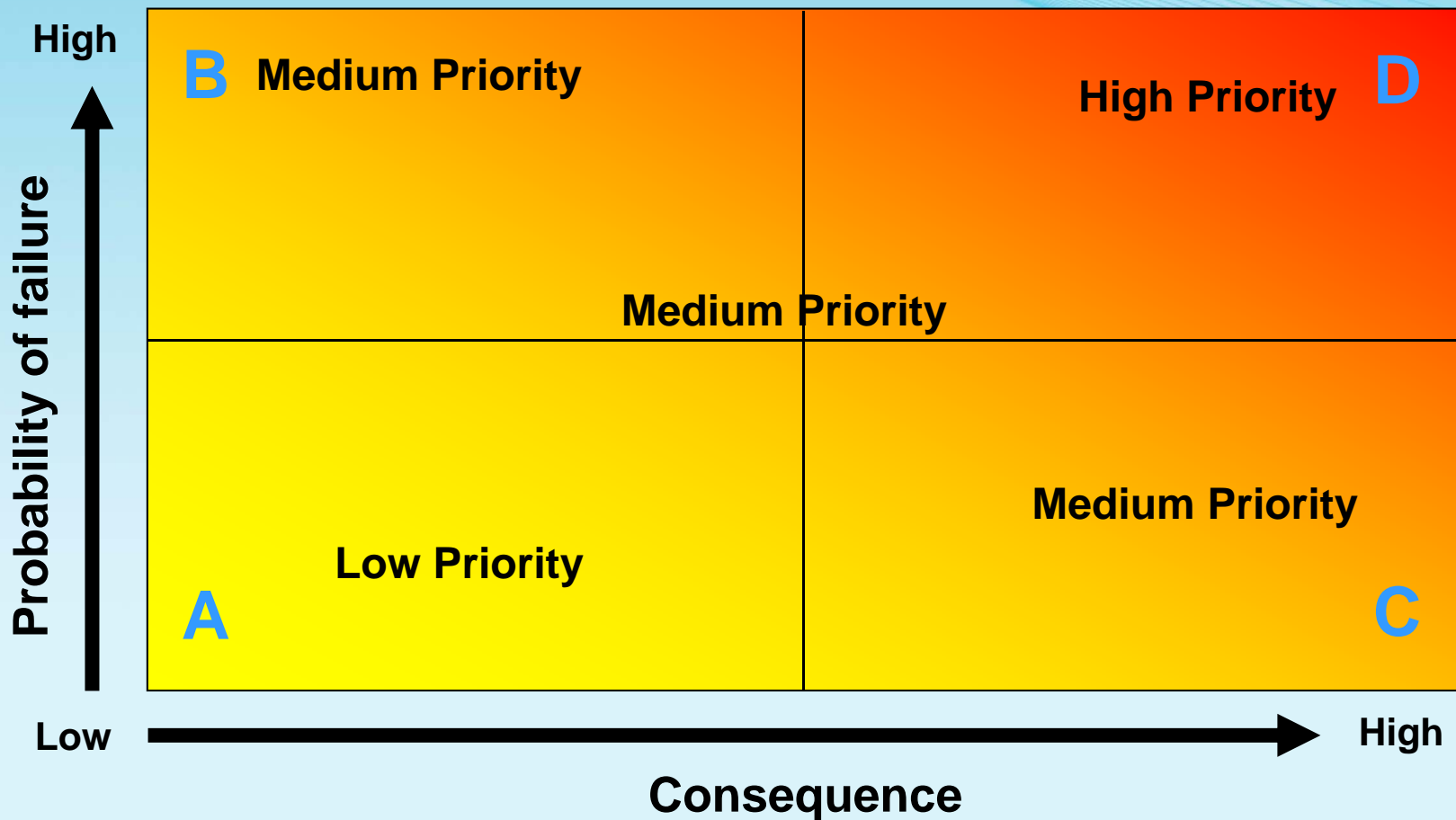


# Business Risk Exposure Helps Set Priorities



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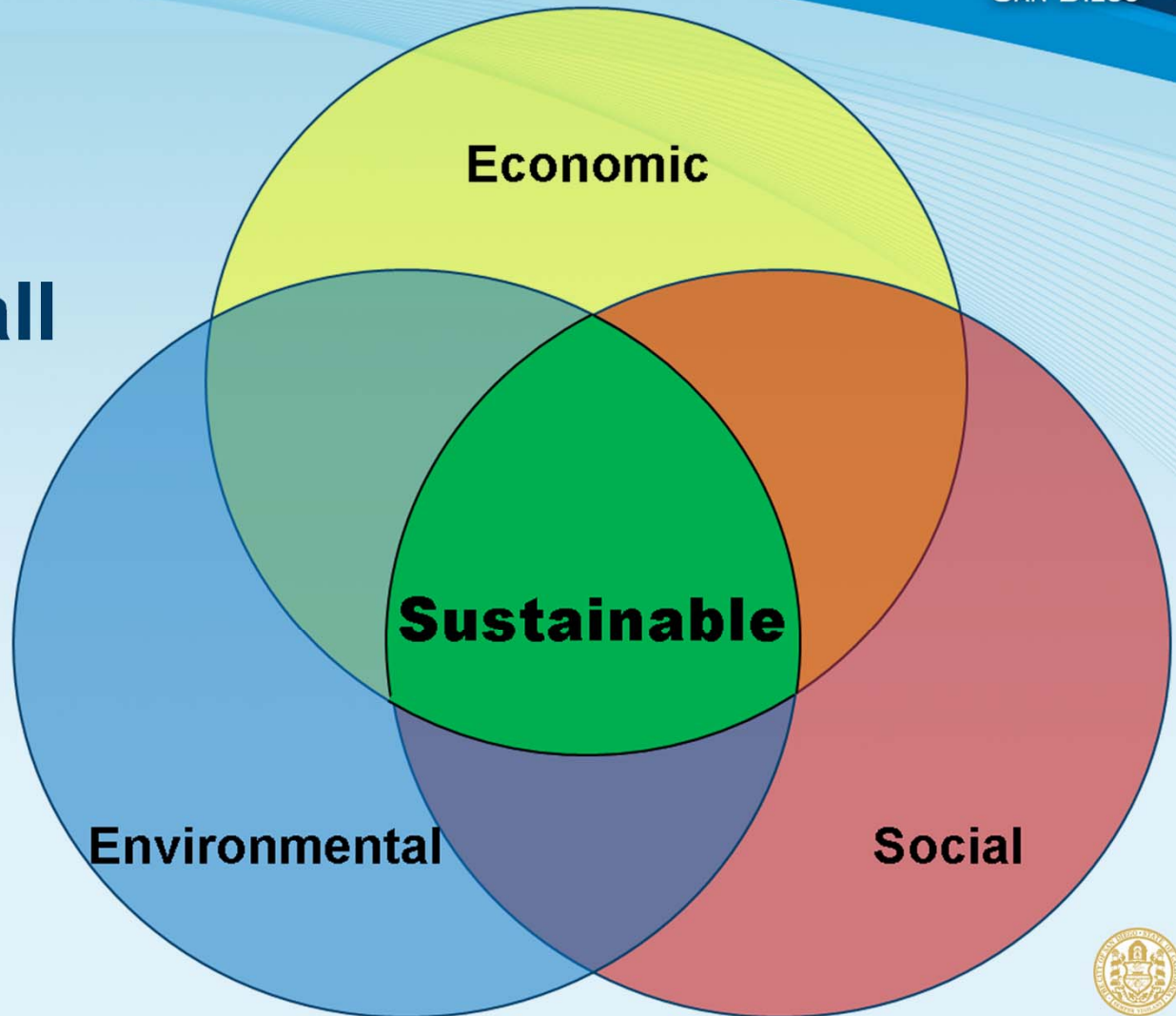
$$\text{PoF} \times \text{CoF} = \text{BRE}$$



# Triple Bottom Line for CoF



- **Balanced**
- **Transparent**
- **Recognizes all concerns**
- **Doesn't borrow from future generations**



# Results



## Mission and Goals



# Results



## Draft Levels of Service

Goals	Primary Asset	LOS for Primary Asset	Secondary Asset	LOS for Secondary Asset
D Provide Flood Control for the Protection of Public Safety, Property, and Infrastructure	Storm Drain System	D.1 Channels have capacity to convey 100 year storm.	Channels	D.1.1 Where under capacity, channels are improved within a reasonable time frame and without causing impacts to water quality or hydromodification.
			Equipment – Monitoring, Maintenance ≥ \$5K	D.1.2 Channels are maintained annually to meet conveyance and water quality requirements.



# Results



## Draft Levels of Service

Goals	Primary Asset	LOS for Primary Asset	Secondary Asset	LOS for Secondary Asset
A Restore and Maintain Clean Beaches, Streams, and Bays	Receiving Water	A.1 Receiving water quality achieves waste load allocations for current and future total maximum daily loads within implementation schedules.	Public Structural or LID BMPs	A.1.1 Public structural BMPs achieve pollutant load reductions that modeling predicts, in conjunction with other BMPs in watershed, will achieve waste load allocations for current and future TMDLs.
			Private Structural or LID BMPs	A.1.2 Private structural BMPs achieve pollutant load reductions that modeling predicts, in conjunction with other BMPs in watershed, will achieve waste load allocations for current and future TMDLs.



# Findings



- **Asset Management is an essential (but underutilized) tool in storm water**
- **City is realizing efficiencies integrating storm water quality and flood control**
- **Business Risk Exposure helps prioritize work, communicate consequences and risks**
- **Triple Bottom Line enables truly sustainable decision making**
- **Change in organizational culture is critical to success**
- **Potential opportunity to use BRE for basin planning**



# Next Steps



- **Watershed Asset Management Plans**
  - TMDL planning
  - Drainage CIP planning
  - Drainage O&M planning
  - NPDES program planning
- **Municipal permit re-issuance**
- **Budgeting**

