

Natural Asset Inventory & Valuation for Parkland County

Presentation to Council

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FIERA
Biological Consulting



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APPLIED MANAGEMENT INC.

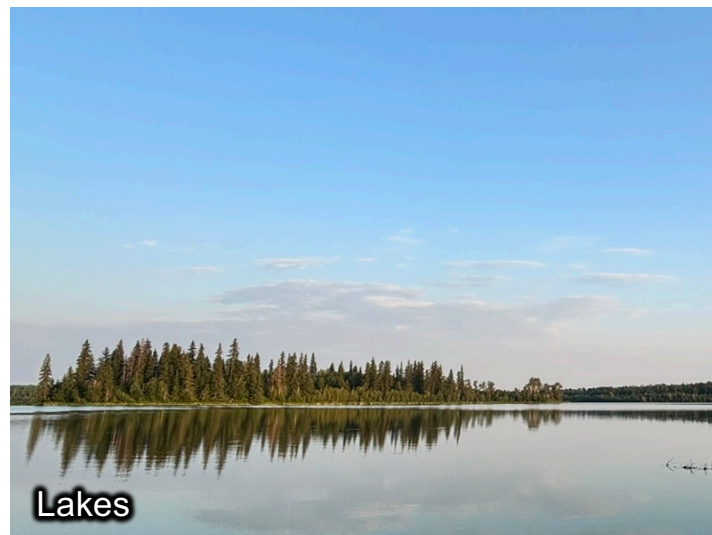
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What are Natural Assets?

Naturally-occurring features, habitats, or ecosystems that provide services that contribute to the health, well-being, and long-term sustainability of a community and its residents

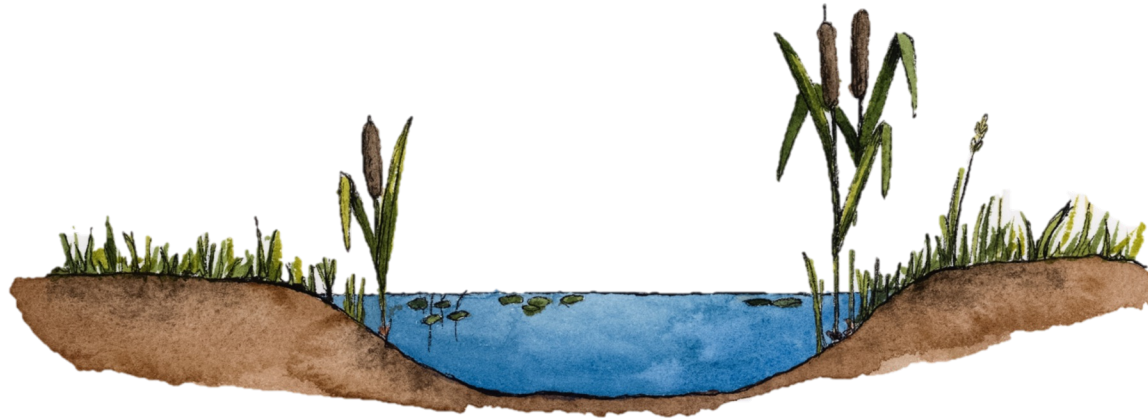


Examples of Municipal Natural Assets



Why Manage Natural Assets?

- Natural assets provide ecosystem services (ES)
- These services are often overlooked since they are provided for “free”
- ES have value to stakeholders (end users) and are often very expensive to replace or restore once they are compromised or lost



What are Ecosystem Services?

An output, condition, or process of a natural system that directly or indirectly benefits humans or enhances social welfare

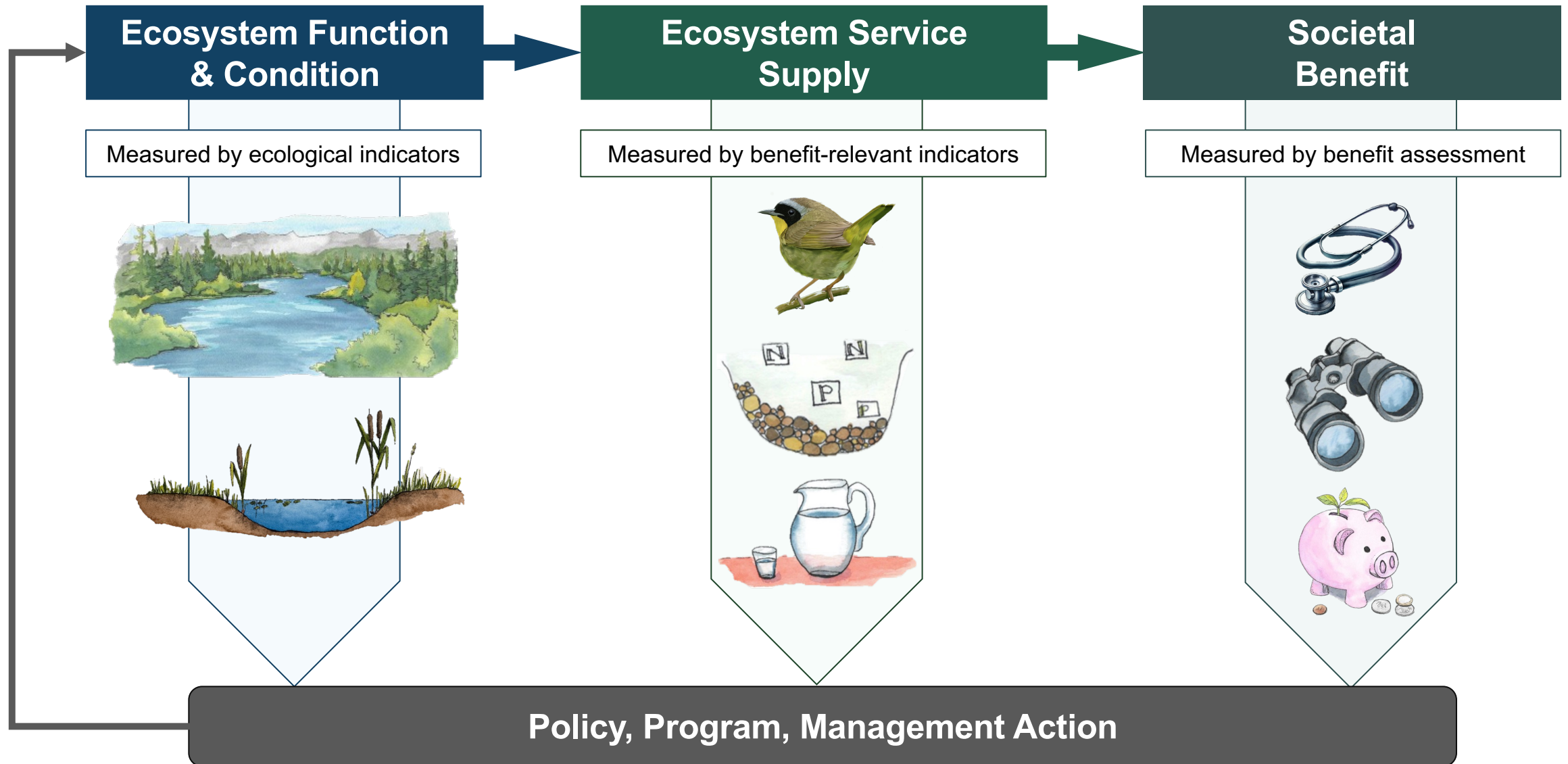


Assessing Benefits of Natural Assets

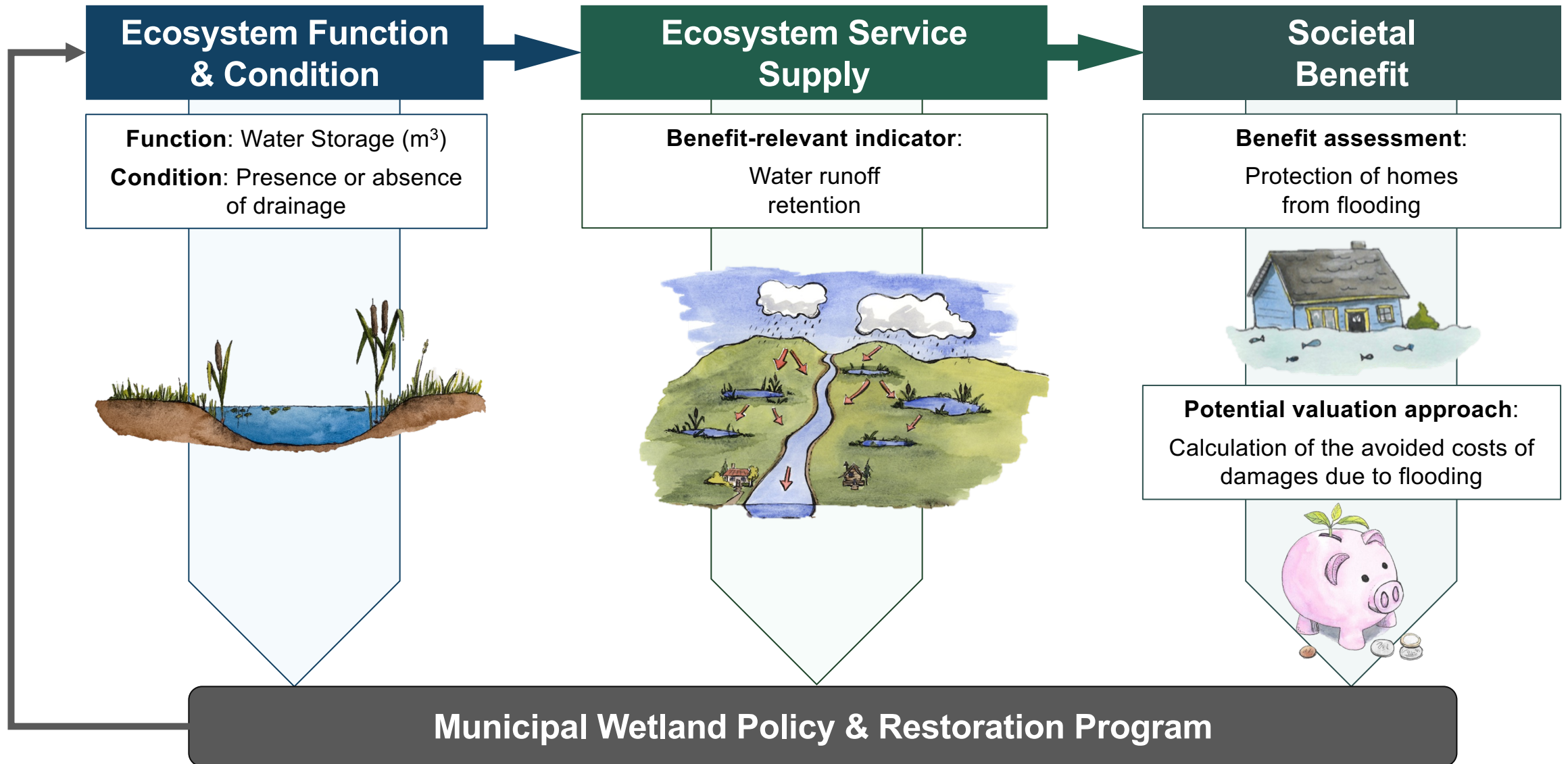
- The *benefits* gained by an end-user from the ecosystem services provided by a natural asset is what we consider to be that asset's value
- Valuation typically includes an assessment of total economic value, which includes both use values and non-use values



Link between Ecosystem Function, Supply & Benefit



Example: Wetlands & Water Flow Regulation



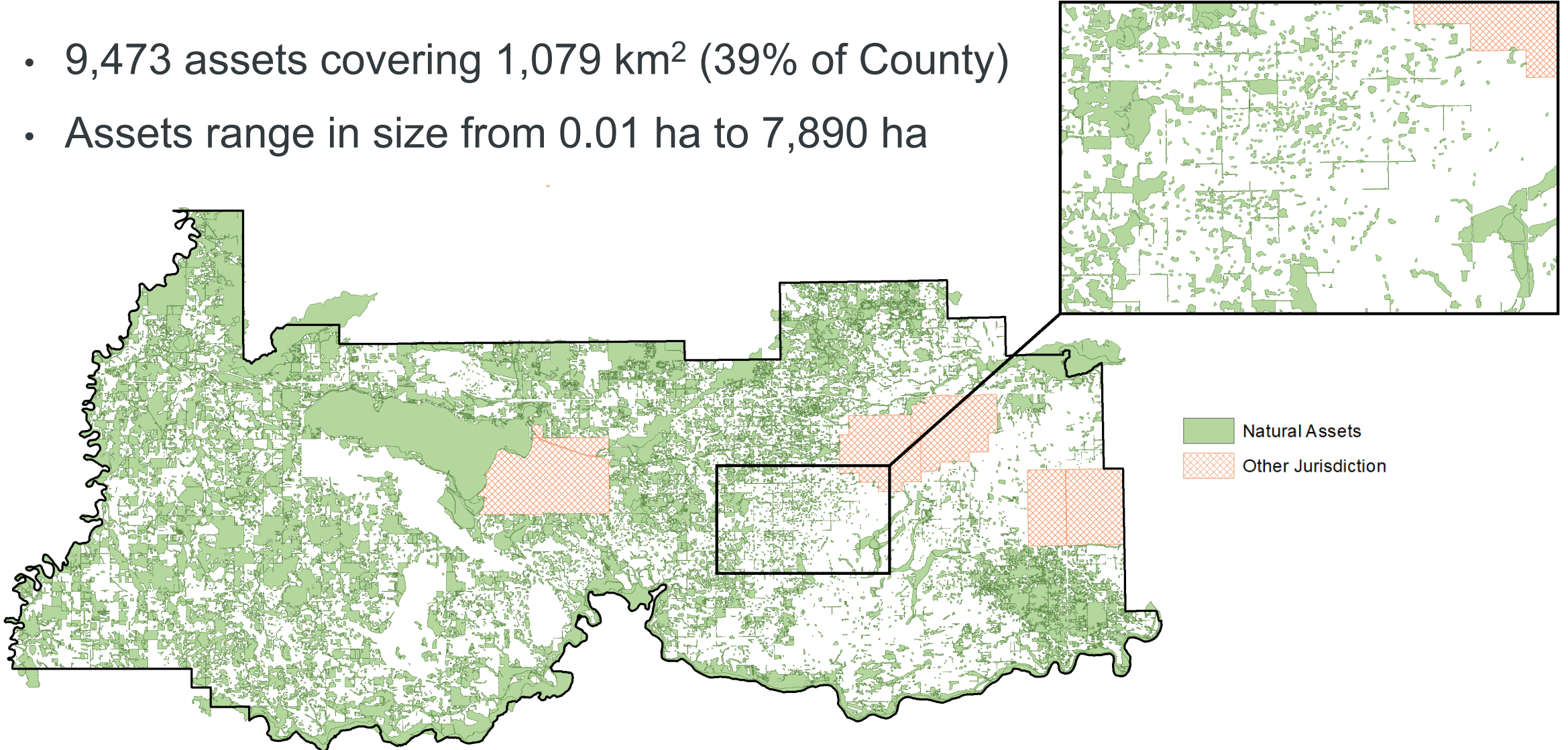


Natural Asset Inventory & Valuation for Parkland County - Results -



Identify, Map & Assess Condition of Natural Assets

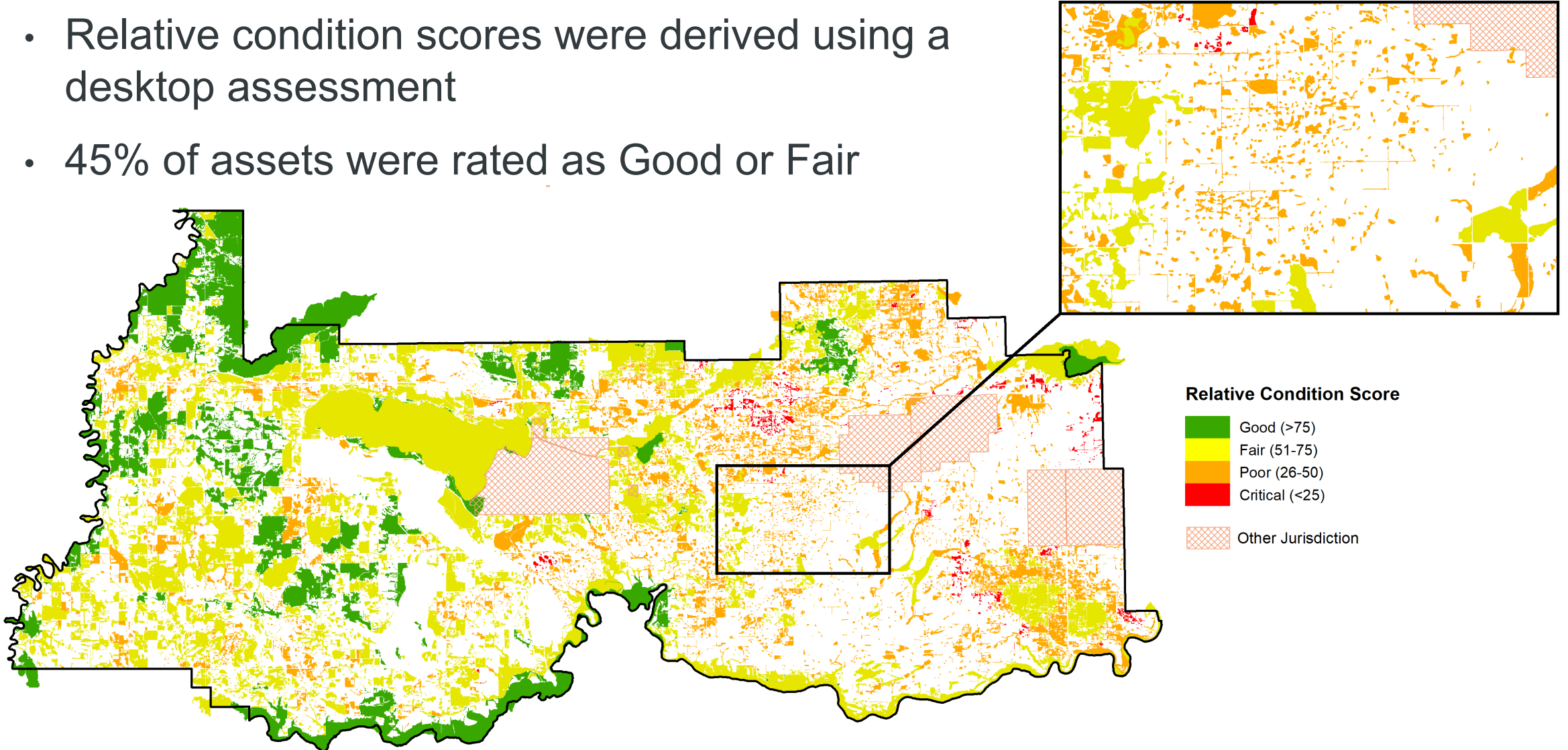
- 9,473 assets covering 1,079 km² (39% of County)
- Assets range in size from 0.01 ha to 7,890 ha





Identify, Map & Assess Condition of Natural Assets

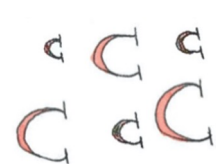
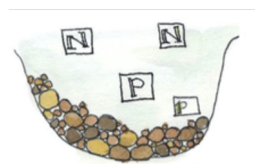
- Relative condition scores were derived using a desktop assessment
- 45% of assets were rated as Good or Fair





Identify Priority Ecosystem Services & Estimate Supply

Category	Ecosystem Service	Benefit to End-Users
Regulation & Maintenance Services	Control of soil erosion	Reduced damages/costs of sediment in water
	Water flow regulation	Avoided/mitigated damages from flooding
	Water quality regulation	Reduced damage costs of nutrient runoff from agricultural operations
	Atmospheric regulation	Avoided damages from climate change
	Temperature regulation	Increased thermal comfort, decreased heat stress for crops and other vegetation
Cultural Services	Nature-based recreation	Improvements in physical & mental health (e.g., lower blood pressure, reduced anxiety & stress, improved sleep, etc.)

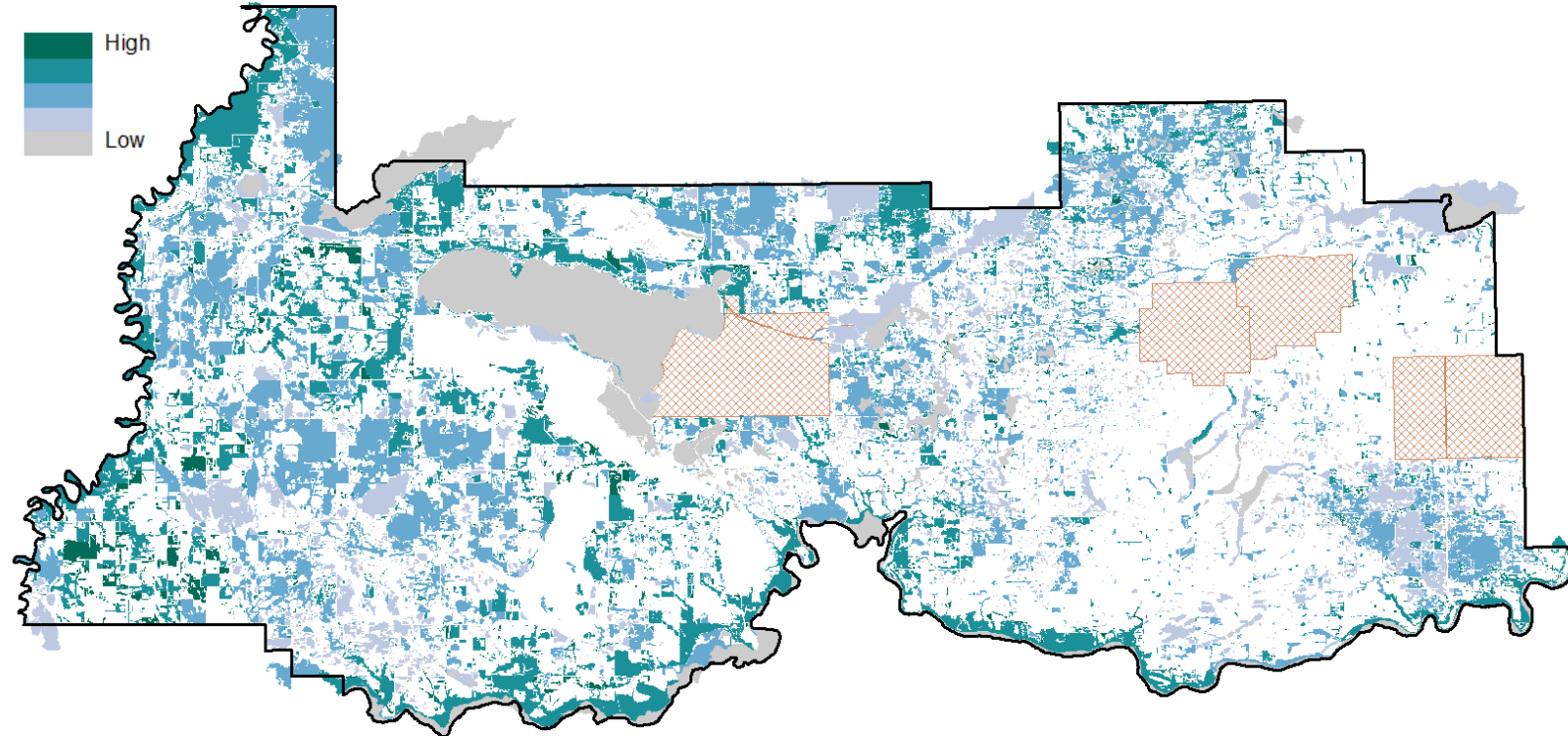




Estimate Supply: Atmospheric Regulation

Benefit Relevant Indicator:
Carbon Sequestration

Cover Type	Carbon Sequestration Rate (tonnes CO ₂ e/ha/year)
Grassland	0.8
Wetland	2.5
Forest	5.7
Open Water	0.5





Assess Benefits: Atmospheric Regulation

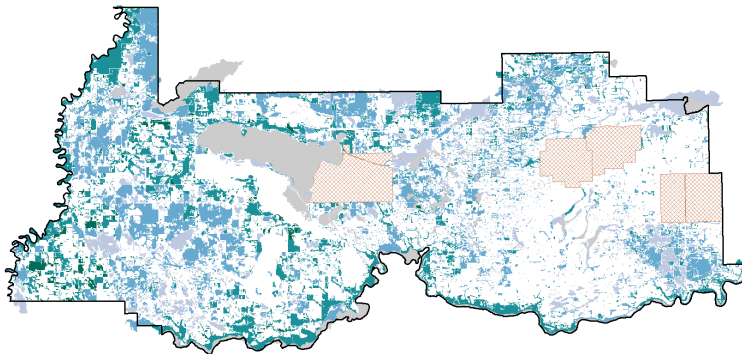
Benefit Relevant Indicator:
Carbon Sequestration



Ecosystem Service Value:
Social Cost of Carbon

Cover Type	Carbon Sequestration Rate (tonnes CO ₂ e/ha/year)
Grassland	0.8
Wetland	2.5
Forest	5.7
Open Water	0.5







Cover Type	Carbon Sequestration Value (\$/ha)
Grassland	\$3,700
Wetland	\$6,200
Forest	\$18,200
Open Water	\$41,400






Monetary Estimate (\$2023):
\$2.9 billion



Assess Benefits: All Priority Services

Ecosystem Service	Monetary Estimate (\$2023)	Confidence in Estimate
Atmospheric Regulation	\$2.9 billion	
Water Flow Regulation	<i>Captured in Atmospheric Regulation</i>	
Temperature Regulation	<i>Captured in Atmospheric Regulation</i>	
Nature-based Recreation	\$1 billion	
Water Quality Regulation	\$60 million	
Control of Soil Erosion	\$12 million	
Total Quantified Monetary Estimate		\$4.0 billion

Confidence Estimate Notes:

-  Some assumptions/estimation was used to derive estimate, but the value is considered uncontroversial.
-  Some assumptions/estimation was used to derive estimate, which may be open to question. Accuracy of estimate is better than +/- 50%.
-  Estimates are in the right order of magnitude (e.g., for an estimate of 5 the real value is within the range of 0.5 to 50).

Integrating Natural Assets into an Asset Management Framework



ASSESS

- Develop a **Natural Asset Inventory** ✓
- Assess asset management practices to identify opportunities for including natural assets

PLAN

IMPLEMENT

Integrating Natural Assets into an Asset Management Framework

ASSESS

- Develop a **Natural Asset Inventory** ✓
- Assess asset management practices to identify opportunities for including natural assets

PLAN

- Create an **Asset Management Policy** that commits to the management of natural assets
- Develop **Asset Management Strategy** that identifies the role of natural assets in service delivery and recognizes connections to other municipal plans, processes, and policies
- Include considerations of natural assets in long-term financial planning, including recognition of the financial value of the ecosystem services provided by natural assets

IMPLEMENT

- Implement policies, strategies and actions to understand, maintain or enhance natural assets
- Regularly measure and report on the condition and status of natural assets, including how risk is being managed and the benefits of maintaining natural assets

Implementation



2025



Identify Practical Function Indicators



Natural Asset Protection Goals Incorporated into Nature Policy Framework



Natural Infrastructure Design Standards

2026



Asset Strategy and Tracking in Asset Management System



Connectivity and Floodplain Mapping for Conservation Priorities



Collaborate with Finance on Natural Asset Investment Planning and Financial Reporting

- Secured WRRP Grant Funding and 2025 budget to support:
 - Engineering Design Standards
 - Function Indicators
- Plan to apply for additional grant funding through next WRRP intake

Thank you!



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