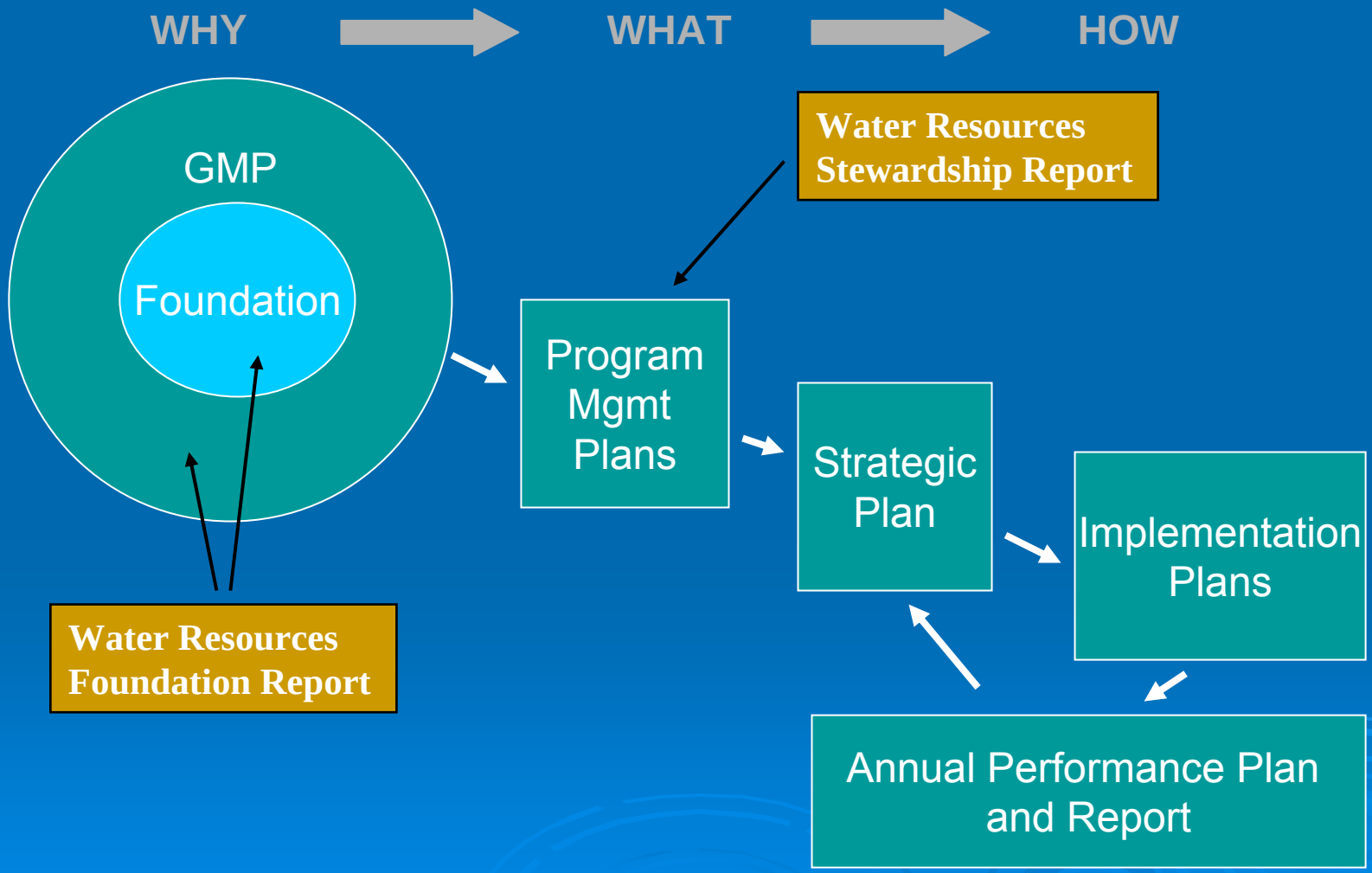

NATIONAL
PARK
SERVICE

Water Resources Planning Program

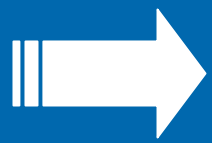
Don Weeks

NPS PLANNING FRAMEWORK



Why is this element in park planning so important?

Foundation Document



GMP

Desired Conditions for fundamental and other important resources and values

Desired Condition (Mason): *A qualitative description of the integrity and character for a set of resources and values that park management has committed to achieve and monitor.*

Foundation Document
Template

Park Purpose

Park Significance

- Fundamental and Other Important Resources and Values
  - Analysis of Fundamental Resources and Values
    - Importance of the Resources and Values
    - Current Conditions and Trends
    - Potential Threats and Issues
    - Interest of Various Stakeholders
    - Laws and Policies that apply to these resources and values

National Park Service
U.S. Department of the Interior

Water Resources Division
Natural Resource Program Center

Technical Report NPS/NRWRD/NRTR-2006/350

EFFIGY MOUNDS NATIONAL MONUMENT

IOWA

WATER RESOURCES FOUNDATION REPORT

National Park Service
U.S. Department of the Interior

Water Resources Division
Natural Resource Program Center

Technical Report NPS/NRWRD/NRTR-2006/348

GOLDEN GATE
NATIONAL RECREATION AREA

CALIFORNIA

WATER RESOURCES FOUNDATION REPORT

Foundation for Park Planning and Management Document

Golden Gate National Recreation Area

Water Resources Foundation Report

- Description of Natural Resources
  - Climate
  - Physiography
  - Geology
  - Soils
  - Hydrology
  - Water Quality
  - Air Quality
  - Biological Resources

GOGA Purpose

To offer national park experiences to a large urban population while preserving and interpreting its outstanding natural, historic, scenic, and recreational values.

GOGA Significance

Protects an undeveloped remnant coastal corridor of marine, estuarine, fluvial and terrestrial ecosystems that support exceptional native biodiversity and provides a refuge of one of the largest concentrations of rare, threatened, and endangered species in the national park system

Fundamental Resources

(critical to achieving the park purpose and maintaining its significance)

- Importance of the resource and values.
- Current conditions and trends.
- Potential threats and issues.
- Interest of various stakeholders.
- Laws and policies supporting fundamental resources.

The focus in establishing a park's "Desired Conditions" will be centered around the Fundamental and Other Important Resources.

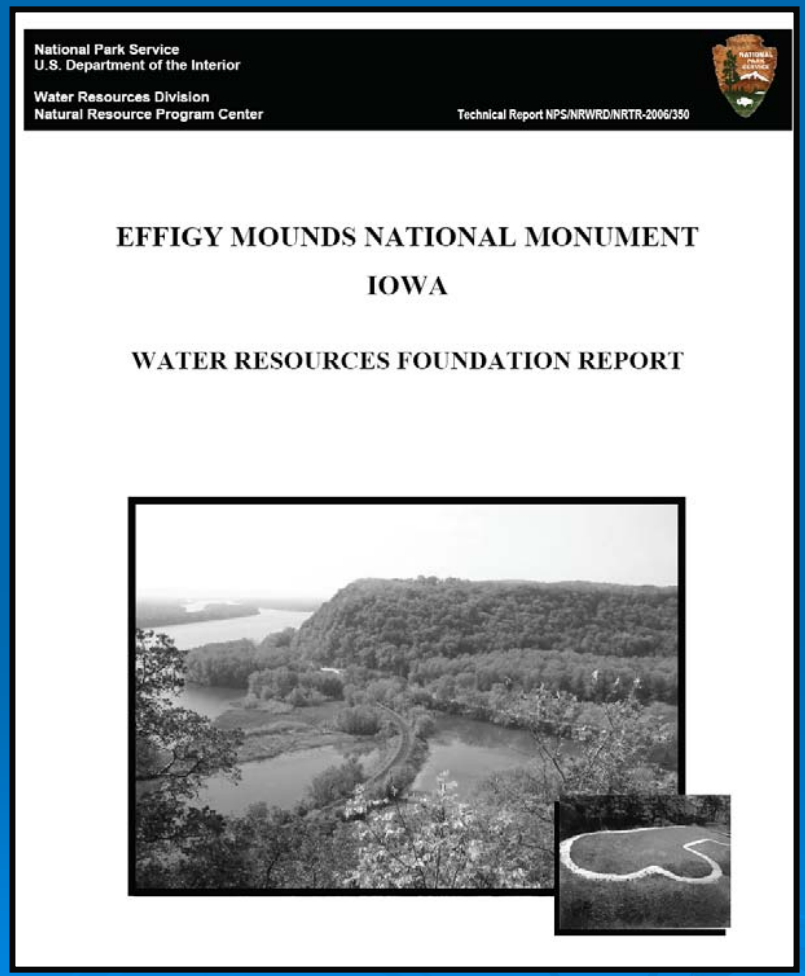
Water Resources Foundation Report

- **Fundamental Water Resources**
  - **Freshwater streams and ponds**
    - **Importance of the resource and values.**
    - **Current conditions and trends.**
    - **Potential threats and issues.**
  - **Groundwater aquifer and springs**
    - **Importance of the resource and values.**
    - **Current conditions and trends.**
    - **Potential threats and issues.**
  - **Wetlands**
    - **Importance of the resource and values.**
    - **Current conditions and trends.**
    - **Potential threats and issues.**
  - **Coastal and Marine water resources**
    - **Importance of the resource and values.**
    - **Current conditions and trends.**
    - **Potential threats and issues.**

Water Resources Foundation Report

- **Watershed stakeholders**
- **Water resources legislation and policy**

Important Resources



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WATER RESOURCES FOUNDATION REPORT

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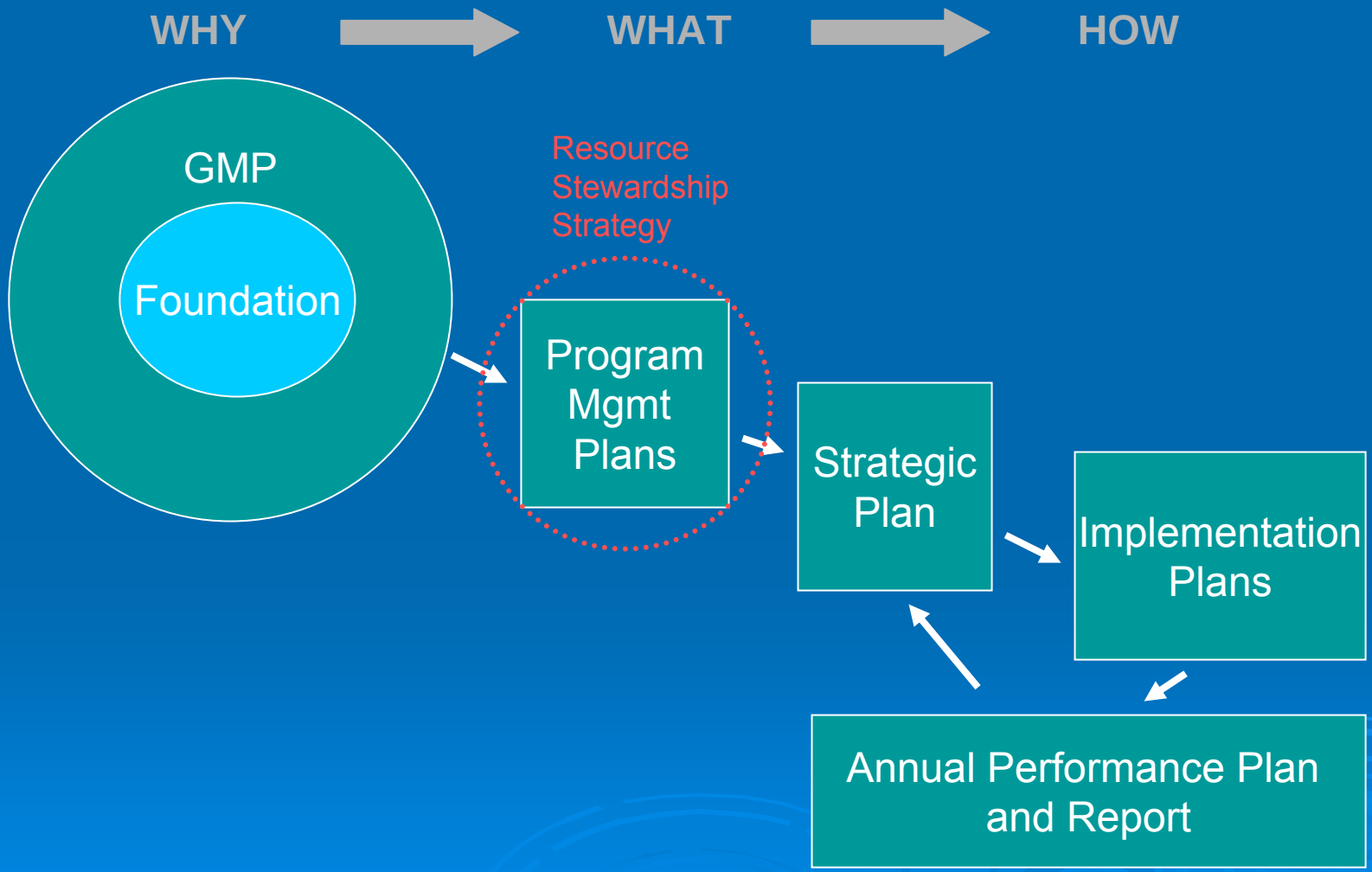
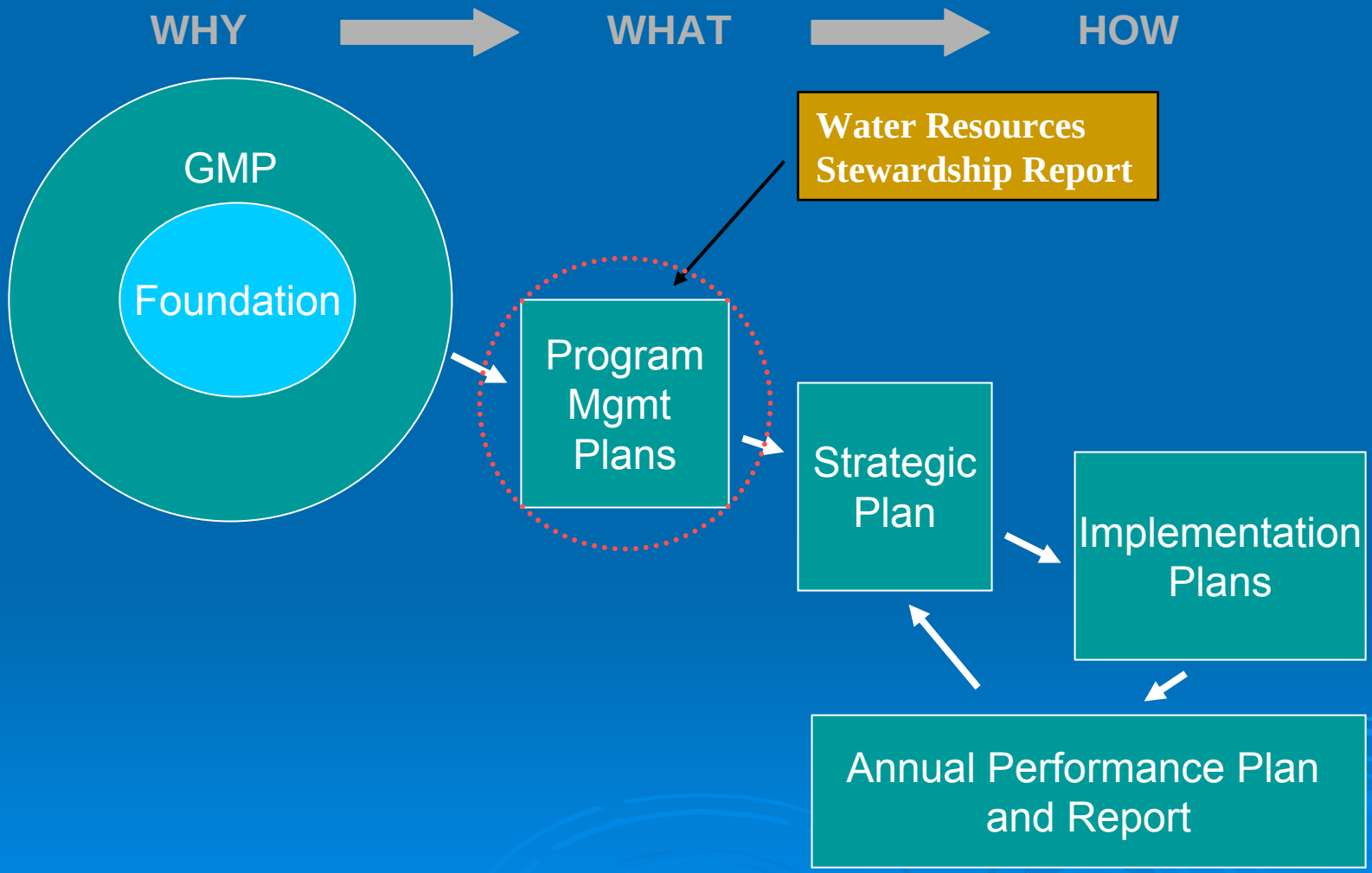
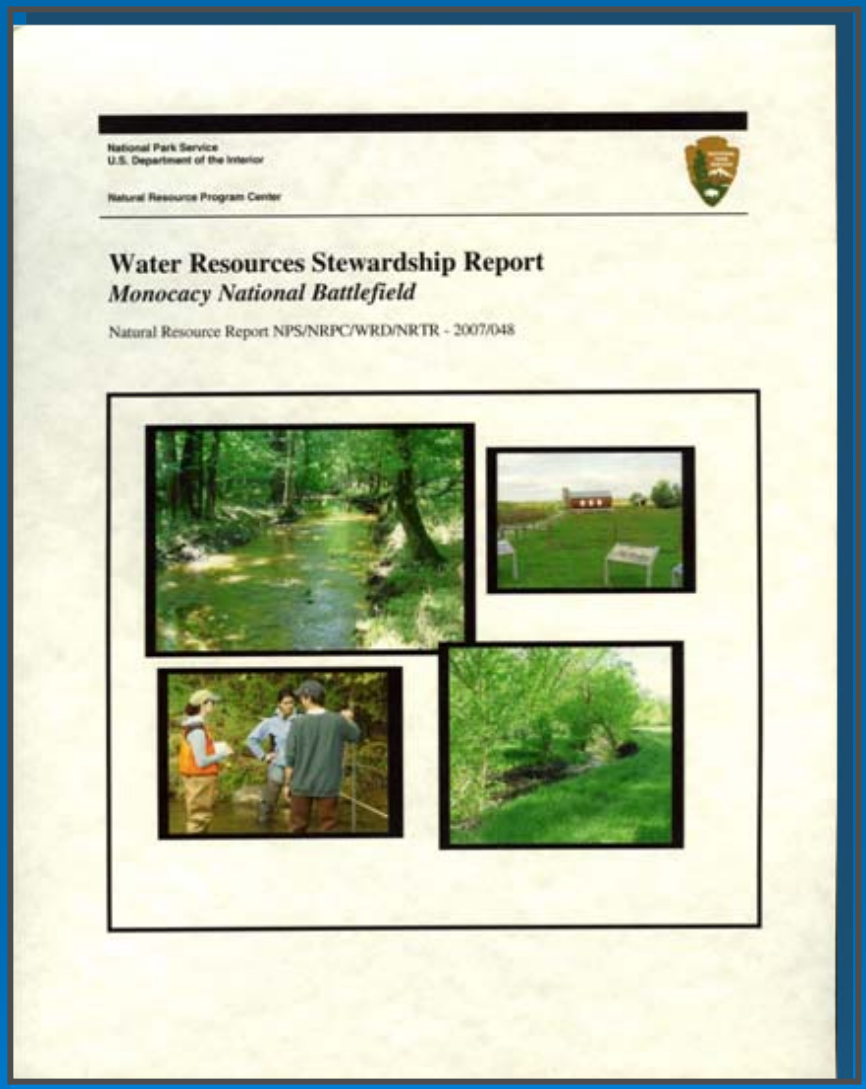


PROGRAM MANAGEMENT PLANS

Translates qualitative desired condition statements established in the GMP into measurable or objective indicators that can be monitored over time to assess the achievement of the desired conditions

NPS PLANNING FRAMEWORK





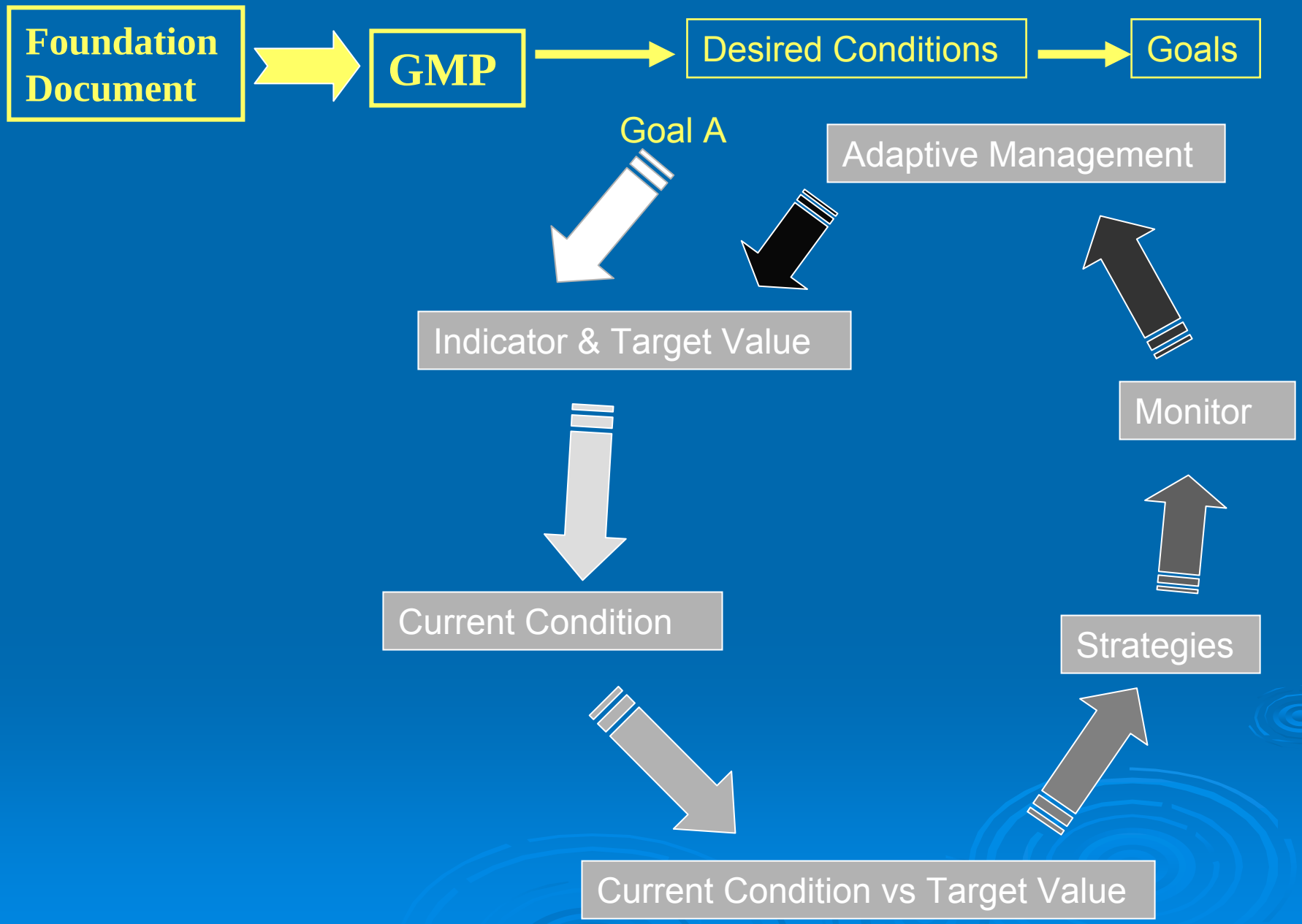
Water Resources Stewardship Reports

Fundamental Resource: Monocacy River

Important Resources: all other surface and ground water resources

Monocacy National Battlefield Desired Condition

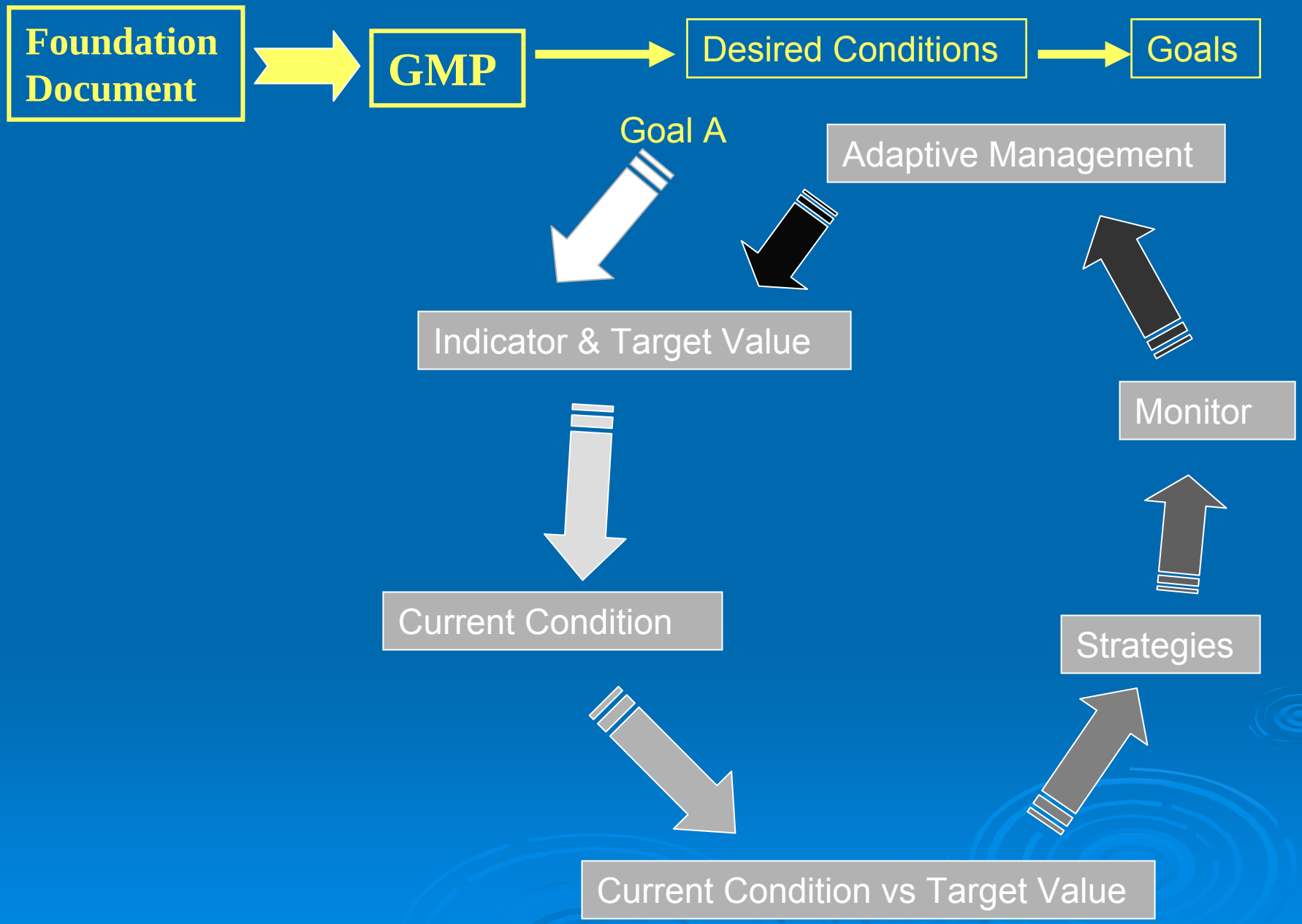
Natural resources would be maintained in as natural a state as possible, given cultural resource preservation needs.


Foundation Document
GMP
Desired Conditions
Goals
Goal A
Adaptive Management
Indicator & Target Value
Monitor
Current Condition
Strategies
Current Condition vs Target Value

Water Resource Goals

- Goal A: Chemical integrity of park waters (surface and ground waters) is improved and/or maintained to support all native life and to meet or exceed designated use standards.
- Goal B: Hydrologic integrity of park waters (surface and ground waters) is improved and/or maintained to support natural geomorphic processes of fluvial and aquifer systems and to support native life.

These water resource goals should be applied across all five management zones at MONO since influences to water resources in one zone impact water resources in another zone.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Water Quality Health

Indicators	Target Value	% not meeting Target Value	Number of samples
Water Temperature	≤ 75ºF (23.9°C)	17%	178
Dissolved Oxygen	≥ 5.0 mg/L	36%	166
pH	6.5 – 8.0	37%	171
Acid Neutralizing Capacity	> 600 µeq/L	0%	44
Nitrate (interim)	< 3.0 mg/L	32%	182
Nitrite (interim)	< 0.010 mg/L	60%	5
Ammonia (interim)	< 0.05 mg/L	36%	22
Orthophosphate (interim)	< 0.010 mg/L	60%	5

Maryland Department of Natural Resources

Biological Health

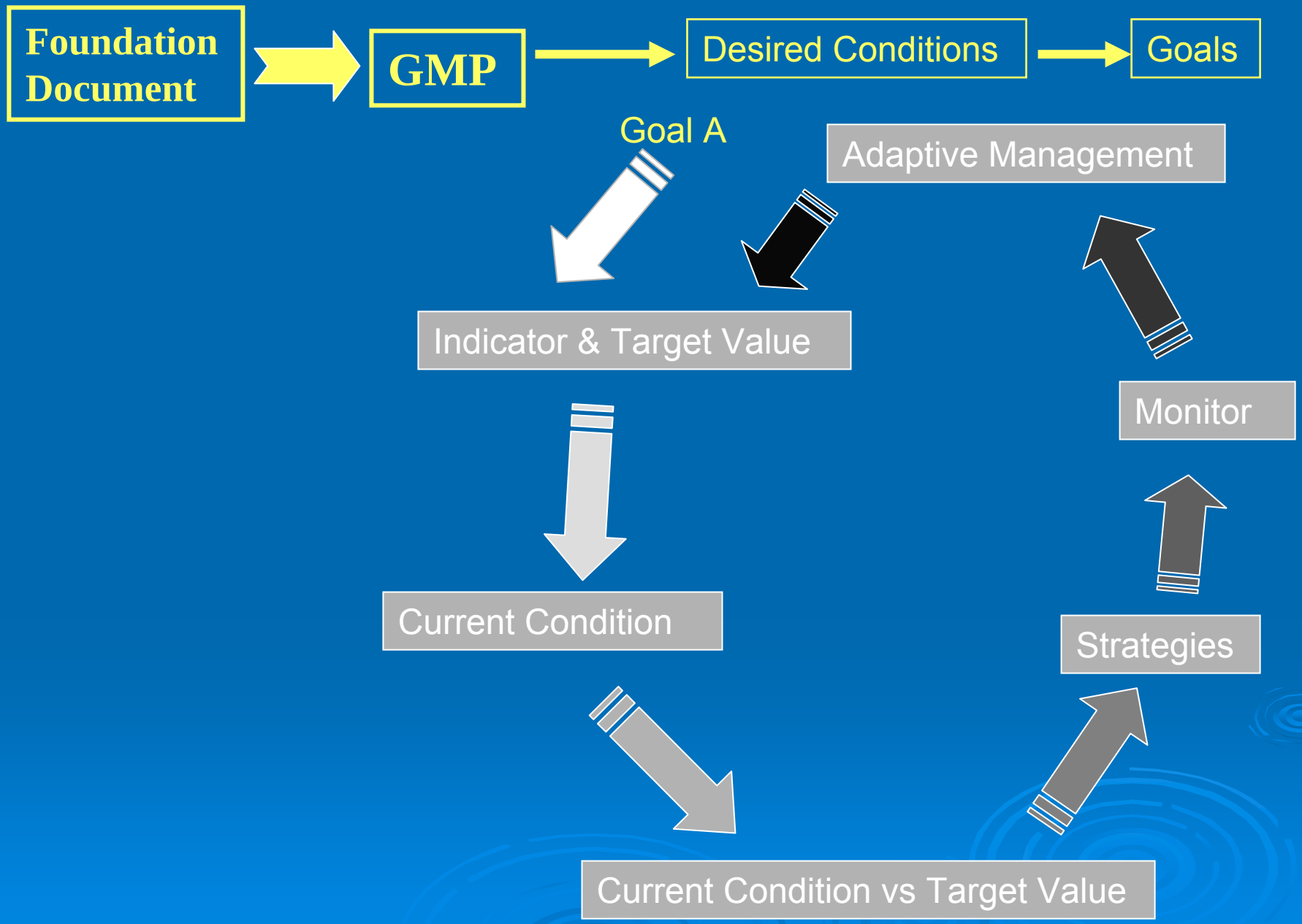
Fish Index of Biological Integrity

Benthic Index of Biological Integrity

Physical Habitat Health

Physical Habitat Index

Hilderbrand, et al. (2005) applied these approaches on MONO streams to define current condition.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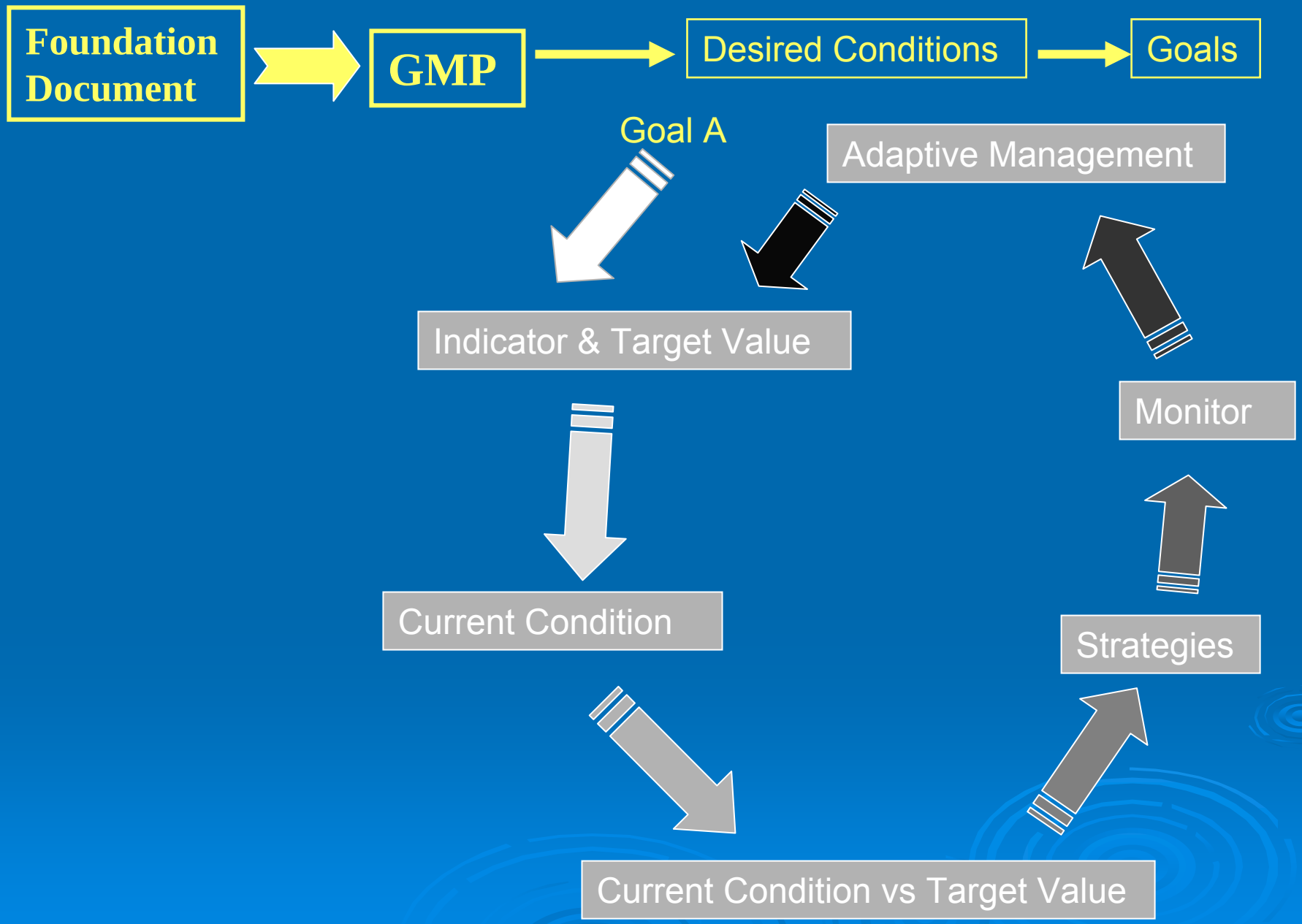
Stressors

- Influences from crop and livestock management.
- Lack of adequate riparian buffer along streams.
- Failures in wastewater treatment systems.
- Increased regional population growth and increasing water demands (surface and ground water).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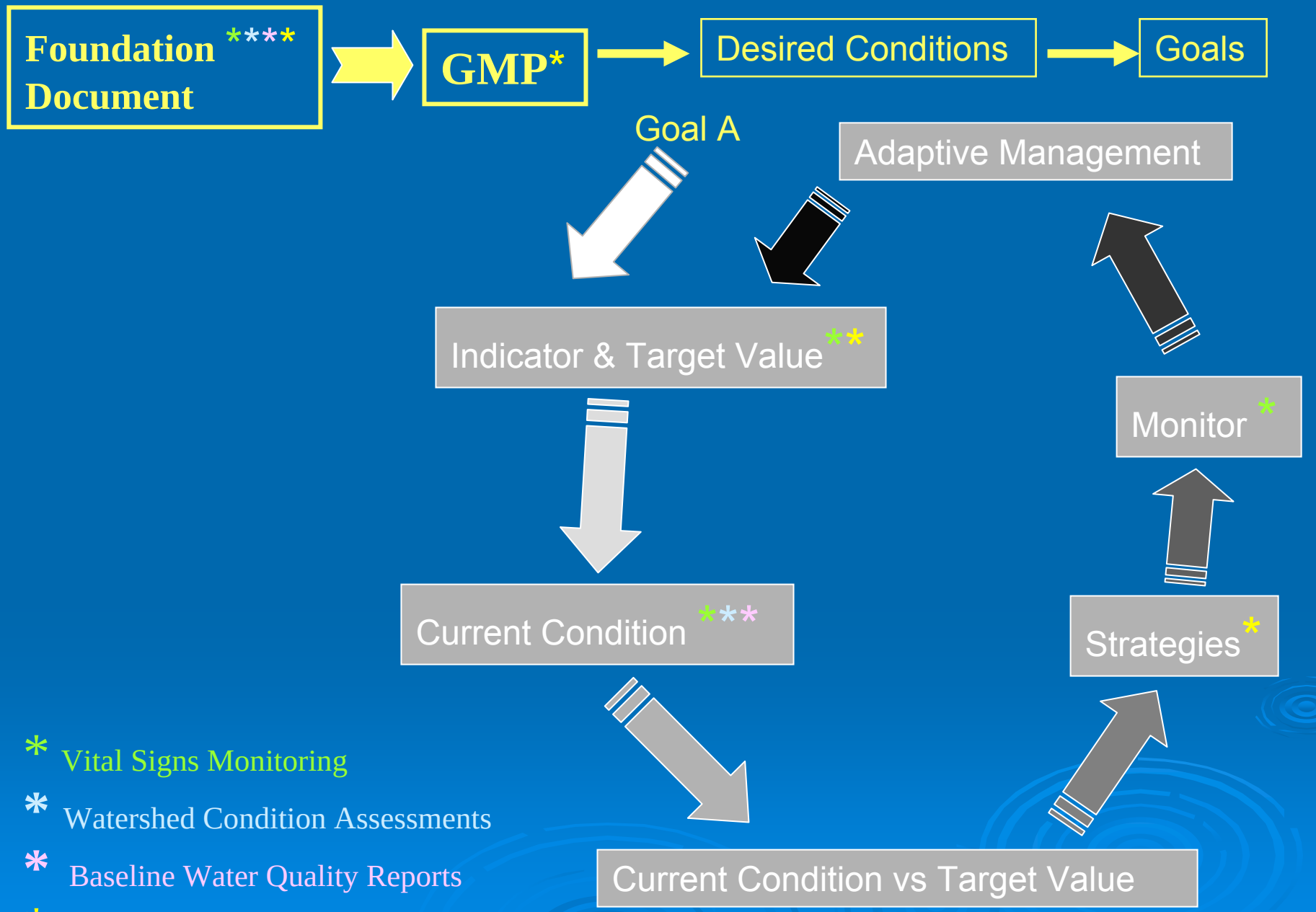
Strategies

- Coordinate MONO and NCRN sampling efforts.
- Collect nutrient samples concurrently with biological assessments to examine statistical relationships.
- Maximize riparian buffers along stream corridors.
- Manage agricultural and livestock activities through nutrient management plans, fencing riparian areas and wetlands construction.
- Water rights needed to meet requirements for park operations and protect the water-dependent environments.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* Vital Signs Monitoring
* Watershed Condition Assessments
* Baseline Water Quality Reports
* Climate Change


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