



Goals and Objectives

For Morgan and Little Creeks
Local Watershed Plan

From Charter Tasks for Stakeholders:

- ⇒ “The primary purpose of the Local Watershed Planning Group is to develop watershed improvement and protection recommendations for the watershed area based on a *functional* assessment.”
- ⇒ “Stakeholders will provide input on perceptions of issues and ideas”:
 - To identify “general planning goals and objectives”
 - “At a minimum, to include water quality protection and improvement, flood protection, and habitat protection and improvement .”

Topics for Discussion

- ⇒ Definitions and Concepts
- ⇒ Tasks for Stakeholders
- ⇒ Overview of Objectives
 - ▣ Functions
 - ▣ Stressors
- ⇒ Overview of Indicators, Goals, Tools and Actions
- ⇒ Summary

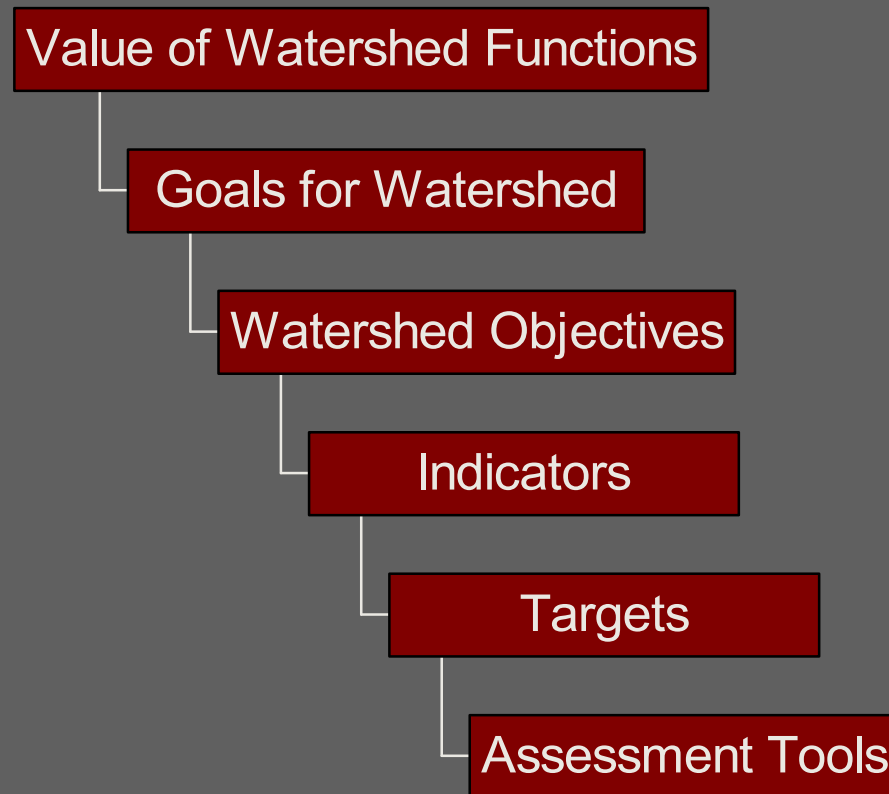
Definitions and Concepts

- ⇒ **Watershed Functions** are the things we want our watersheds to have or provide, such as water quality, baseflow and habitat.
- ⇒ **Goals** express our desires for the watershed, such as improvement and protection of habitat and water quality, and prevention of flooding.
- ⇒ **Objectives** are more specific statements of our preferences, such as maximize protection of habitat or minimize toxicity.

Definitions and Concepts, cont.

- ⇒ *Indicators* are quantifiable parameters that can be used to measure progress toward *objectives*.
- ⇒ *Targets* are numeric values or quantities for the *indicators* that reflect desirable or acceptable conditions for watershed *functions*.

A Hierarchy of Goals and Objectives



Protect Intact Watershed Functions or Prevent Functional Losses due to:

Eutrophication in University Lake
or Morgan Creek Arm of Jordan Lake

In-Stream Water Quality
Conditions/Toxicity

Modification
of Floodplain Hydrology

Headwater Stream Stability and
Associated Sediment Loading

Terrestrial
Wildlife Habitat

Riparian Wetlands

Eutrophication



➔ Functions Affected:

- ▣ Drinking Water Supply
- ▣ Aquatic Habitat

➔ Key stressors:

- ▣ Phosphorus Load
(University Lake)
- ▣ Nitrogen and Phosphorus
Load (Jordan Lake)

Stream Erosion/Instability



⇒ Function Affected:
▣ Aquatic Habitat

⇒ Key stressors:
▣ Sediment Loading
▣ Stream Erosion/Instability

In-Stream Water Quality



⇒ Functions Affected:

- ▣ Aquatic Habitat

⇒ Key stressors:

- ▣ Low Dissolved Oxygen

- ▣ Pathogen Loading

- ▣ Toxicity

Terrestrial Wildlife Habitat Quality

⇒ Functions Affected:

▣ Terrestrial Habitat



⇒ Key stressors:

- ▣ Loss of Habitat
- ▣ Loss of Continuity
- ▣ Invasive Species

Change in Floodplain Hydrology

⇒ Function Affected:

- ▣ Flood Attenuation
- ▣ Baseflow

⇒ Key stressor:

- ▣ Flooding Potential
- ▣ Reduced Baseflow



Disruption or Loss of Wetland

⇒ Functions Affected:

- ▣ Aquatic Habitat
- ▣ Terrestrial Habitat
- ▣ Flood Attenuation
- ▣ Baseflow



⇒ Key stressor:

- ▣ Wetland Loss

Summary of Functions Identified

Drinking Water Supply	Aquatic Habitat	Terrestrial Habitat
Baseflow	Flood Attenuation	?

Summary of Stressors Identified

Phosphorus Load	Nitrogen Load	Poor In-Stream Habitat
Low Dissolved Oxygen	Pathogen Load	Poor/Loss of Wildlife Habitat
?	Flooding Potential	Wetland Loss

Indicators, Targets, Tools and Actions

- ⇒ Each *objective* can be represented by one or more *indicators*, which can have a management *target*.
- ⇒ *Targets* are tracked by measurements or predicted by modeling *tools*.
- ⇒ Potential *actions* in the local watershed plan can be evaluated using these *tools*.

Objectives, Indicators, Targets, Tools, and Actions

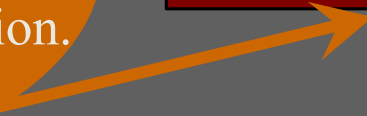
Protect or prevent functional losses
due to **Condition of Objective**

Indicator
Can be Measured
or Predicted by Model

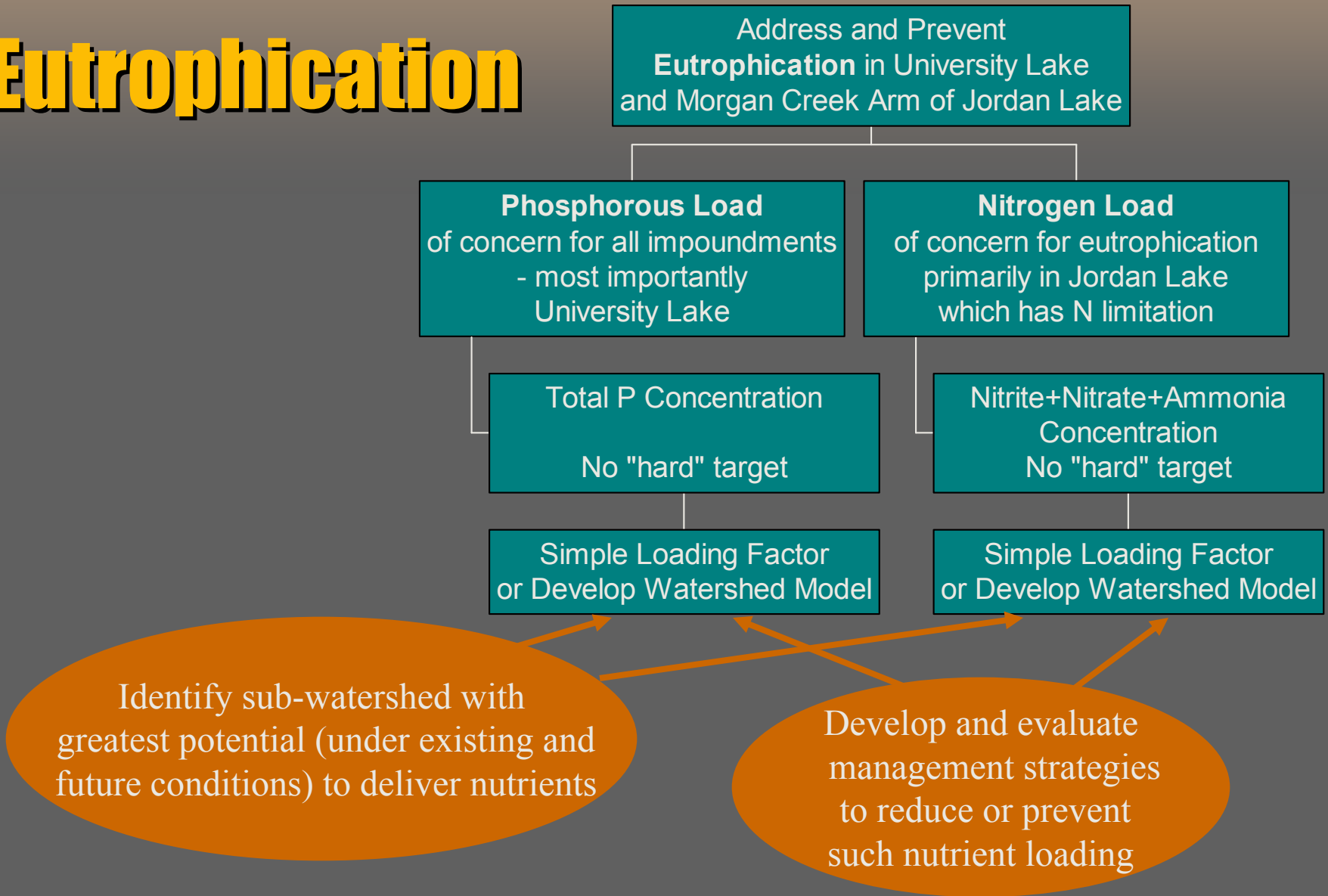
Indicator Value
or Management Target

Tool
Such as Model
or Measurement

Assessment and evaluation activities
conducted to identify opportunities and
priorities for restoration and protection.



Eutrophication



Stream Erosion/ Instability

Address and Prevent
Stream Erosion/Instability
and the associated Sediment Loading

In-Stream Habitat

Summary Scores (SVAP)

BEHI type measures; bank erosion

Substrate Embeddedness

Buffer Condition

Peak Run-off and Stream Power Analysis

Hydraulics Modeling, Rational Method or TR-55
Use Impervious Cover Fraction for Initial Scoping

Identify sub-watershed and stream segments
exhibiting erosion and instability under
existing conditions and prioritize for restoration

Develop and evaluate
management strategies
to reduce or prevent
degradation in future

Improve and Protect
In-Stream Water Quality Conditions

Toxicity

Pathogen Loading
risk of disease
most stations appear to have some

Low Dissolved Oxygen
may be major cause of
sub-optimal benthos

Fecal Coliform
State WQ Criteria
Choose Target Frequency

Dissolved Oxygen
State WQ Criteria
Choose Target Frequency

Apply Watershed Model

Model Land Use and BMP

Anomalies may indicate
Illicit discharges or spills

Identify Problem Areas

Do Source Assessment

May be leaking sewers
or special local conditions

In-Stream Water Quality

Identify sub-watershed with greatest potential to deliver pathogens and develop and evaluate management strategies to reduce loads

Identify causes of low DO levels recorded in some stream segments and develop management strategies to alleviate

Terrestrial Wildlife Habitat

Improve and Protect
Terrestrial Wildlife Habitat

Condition of Habitat

Acreage Lost

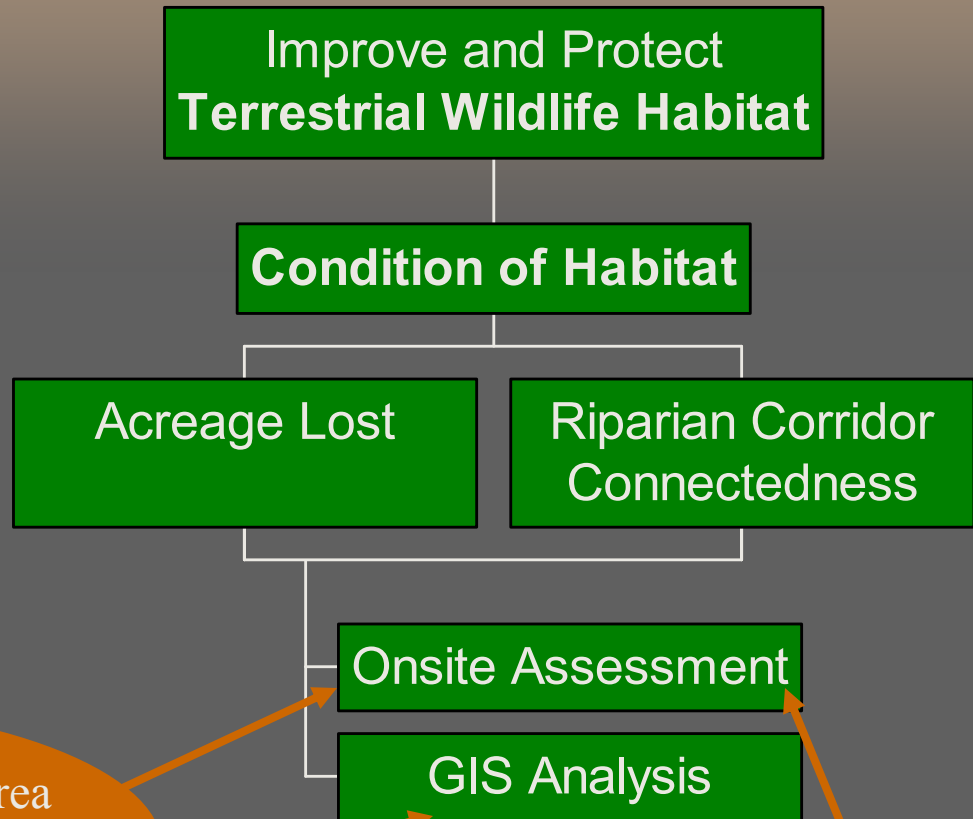
Riparian Corridor
Connectedness

Onsite Assessment

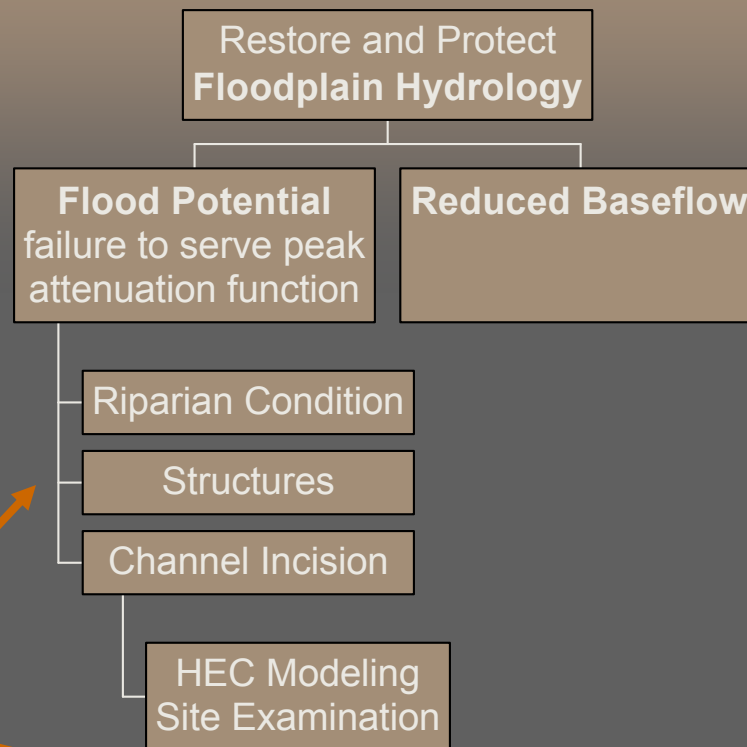
GIS Analysis

Identify portions of study area
with highest quality wildlife habitat
and prioritize for preservation

Identify portions of study area
with greatest riparian buffer
disturbance/degradation and
prioritize for restoration

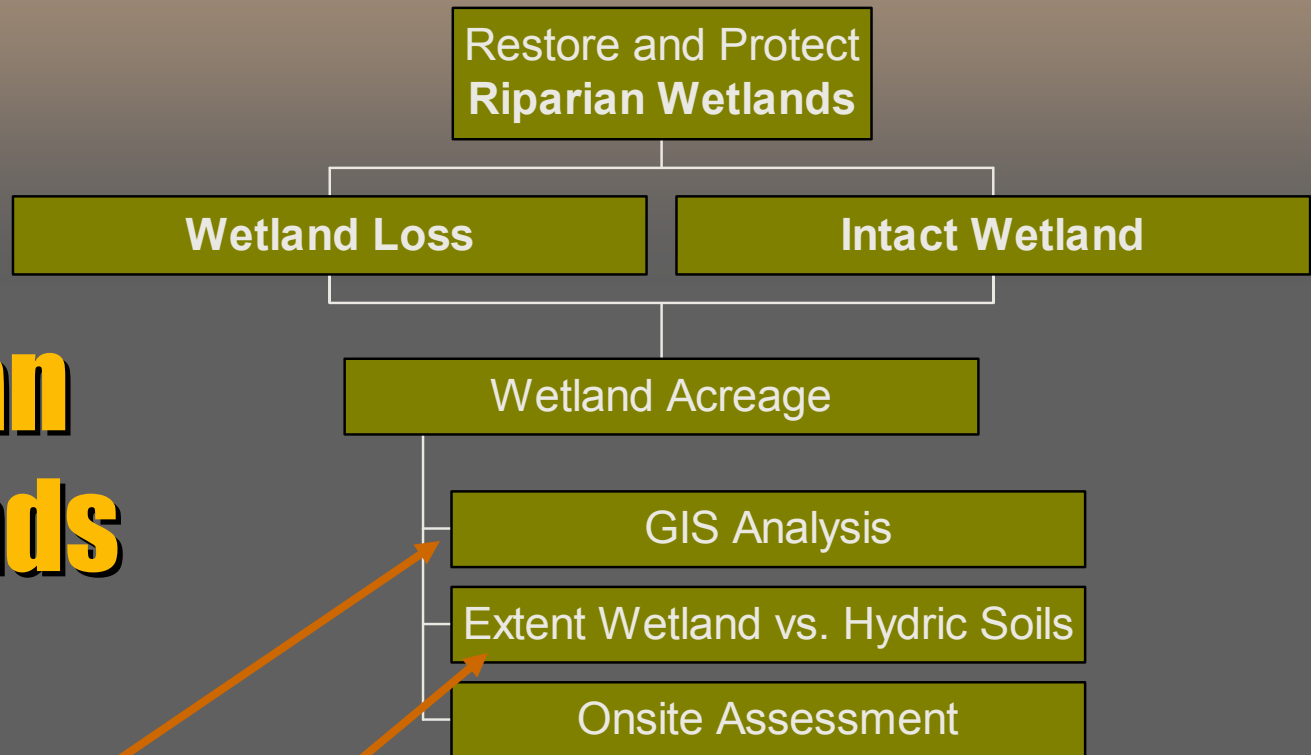


Floodplain Hydrology



Identify sub-watersheds and stream segments where floodplain attenuation capacity has been lost due to modification or disconnection from stream channel and prioritize those areas for restoration

Riparian Wetlands



Identify sub-watersheds and stream segments where riparian wetlands have been lost or degraded due to disruption or disconnection from stream channel and prioritize those areas for restoration

Summary of Objectives

Address and Prevent Eutrophication	Address and Prevent Stream Erosion/Instability
Improve and Protect In-Stream Water Quality	Improve and Protect Terrestrial Wildlife Habitat
Restore and Protect Floodplain Hydrology	Restore and Protect Riparian Wetlands