# Figure 5-5. Project Synopsis:
# *Bush Lake Use Attainability Analysis*

A Use Attainability Analysis (UAA) is a scientific assessment of a water body's physical, chemical, and biological conditions. This assessment provides the foundation for a lake-specific best management practices (BMPs) plan that is used to maintain or attain the existing and potential beneficial uses of a lake, such as swimming, fishing, or aesthetic viewing.

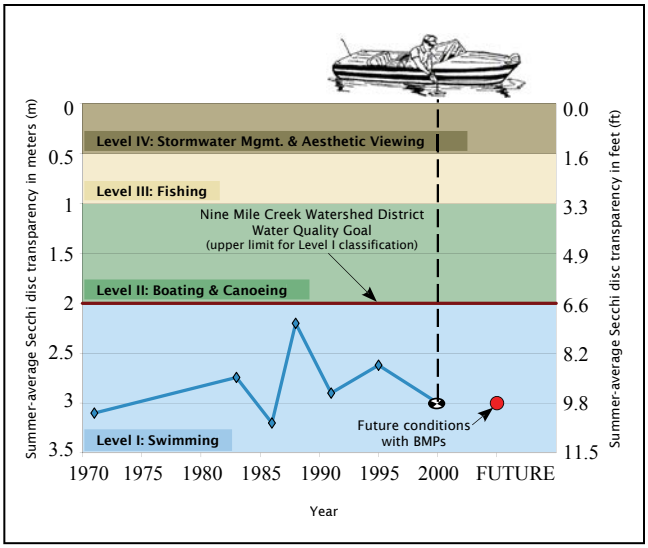
## Goals for Bush Lake

***Nine Mile Creek Watershed District Water Quality Goal:***
Level I Classification—full support of swimmable use and a Secchi disc reading ≥ 2.0 m.

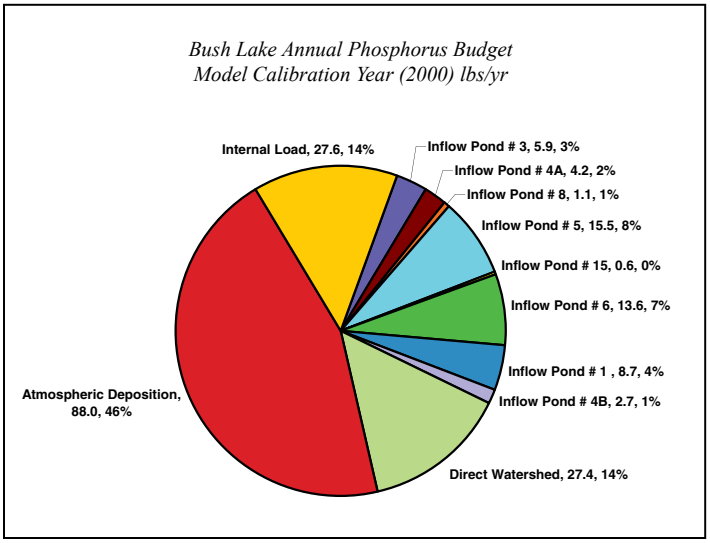
## Investigative Techniques

The Bush Lake UAA includes both a water quality analysis and prescription of protective measures for Bush Lake and its watershed. This analysis and prescription is based on:

- Historical water quality data
- Aquatic plant surveys
- Intensive lakewater quality study
- P8 computer simulation modeling of runoff water quality
- Lake hydrologic and phosphorus budget analyses (see below)
- Best management practices (BMPs) analysis




*This graph illustrates Bush Lake's historic and predicted future summer-average water clarity (transparency). Transparency is measured as the depth at which a black-and-white patterned disc (a Secchi disc) disappears from view as it is lowered into the water.*




*Atmospheric deposition accounts for more than 46 percent of Bush Lake's annual phosphorus load.*


*The land use on a lake's watershed directly impacts the water quality in the lake. Therefore, the Bush Lake UAA assessed existing and ultimate watershed land-use conditions.*

*An invasive aquatic plant, Eurasian watermilfoil adversely impacts aquatic ecosystems by forming dense canopies that often shade out native vegetation. It can "travel" from lake to lake via boat trailers.*

*Curlyleaf pondweed is an invasive aquatic plant that releases nutrients into the water when it dies back in early summer.*

*Purple loosestrife is an exotic species that invades wetlands and lake shorelines. It outcompetes native species and, if left unchecked, will eventually become the dominant plant wherever it appears.*

## Water Quality Problems

***Biological Issues***

Problem: Exotic lake weed species (see left)

Cause: Urban stormwater runoff conveying large amounts of phosphorus to the lake; curlyleaf pondweed, Eurasian watermilfoil, and purple loosestrife

## Recommended Remedial Measures*

***Conventional Runoff BMPs***—No further BMPs are required to meet the district's water quality goals.

***Water Quality Goal Modification***—More stringent goals are recommended to provide greater protection of Bush Lake.

- Total phosphorus concentration $\leq$ 24 micrograms per liter
- Chlorophyll *a* concentration $\leq$ 7 micrograms per liter

***Biological Management Techniques***—

- Aquatic plant management
- Whole-lake fluridone treatment to control Eurasian watermilfoil and curlyleaf pondweed

*Harvesting Eurasian watermilfoil is a biological management technique used on many area lakes.*

*Purple loosestrife can be managed by releasing root-boring weevils onto the plants.*

*Digging loosestrife by hand is another possible management method.*

**Implementation of remedial measures may change based on municipal petitions.*