

# Project Collection and Monitoring Plan Development

Lake Tohopekaliga Nutrient Reduction Plan Meeting  
July 29, 2011

# Project Collection Process

# Project Collection Process

- To achieve the total nitrogen (TN) and total phosphorus (TP) reductions, each participating stakeholder will provide projects and programs that reduce nutrient loads.
- Completed projects and projects planned in the next five years will be eligible for credit.
  - Start date for completed projects will be determined based on the model selected.
- Credit is only applied to projects that have treatment above and beyond any permitted requirements.
- All projects must be within the Lake Tohopekaliga basin.

# Types of Projects

- Retention best management practices (BMPs);
- Wet detention ponds;
- Treatment trains;
- Dry detention;
- Baffle box (1<sup>st</sup> generation);
- Nutrient (2<sup>nd</sup> generation) baffle box;
- Catch basin inserts/inlet filters;
- Swales;
- Alum injection;
- Stormwater reuse;
- Stormceptor;
- Continuous deflective separation (CDS) units;
- Floating islands;
- Public education and outreach efforts;
- Street sweeping; and
- Low impact development (LID) practices.

# Retention BMPs

- The efficiency for retention BMPs depends on whether the BMP is on-line or off-line and the inches of retention provided.
- Credit will be assigned for TN and TP as follows:
  - Off-line Retention 0.25 treatment volume – 40%
  - Off-line Retention 0.50 treatment volume – 62%
  - Off-line Retention 0.75 treatment volume – 75%
  - Off-line Retention 1.00 treatment volume – 84%
  - On-line Retention 0.25 treatment volume – 30%
  - On-line Retention 0.50 treatment volume – 52%
  - On-line Retention 0.75 treatment volume – 65%
  - On-line Retention 1.00 treatment volume – 74%

# Wet Detention Ponds

- Credit for wet detention ponds will be based on the mean annual residence time of the pond.
- The residence time will be used in the equations in Figures 13.2 and 13.3 of the Draft Stormwater Treatment Applicant's Handbook.
- This handbook can be accessed at:  
[http://publicfiles.dep.state.fl.us/dworm/stormwater/stormwater\\_rule\\_development/docs/ah\\_rule\\_draft\\_031710.pdf](http://publicfiles.dep.state.fl.us/dworm/stormwater/stormwater_rule_development/docs/ah_rule_draft_031710.pdf).

# TP Removal for Wet Detention Ponds

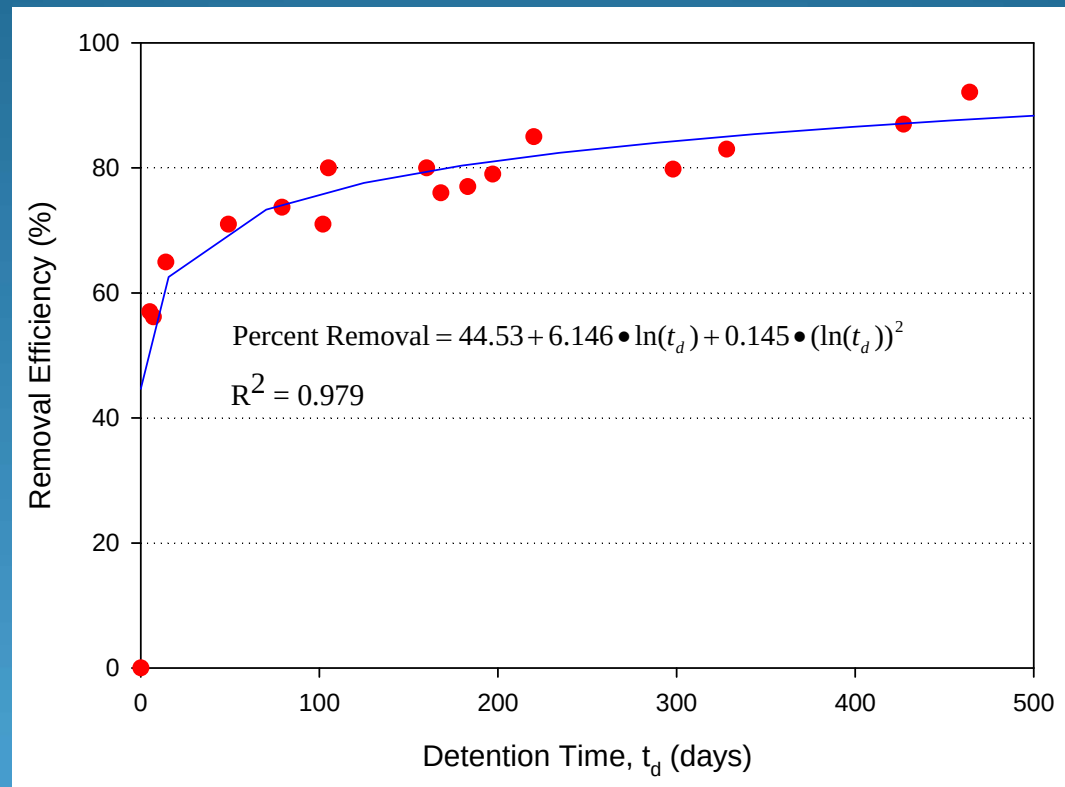


Figure 13.2 Removal Efficiency of Total Phosphorus in Wet Detention Ponds as a Function of Residence Time

# TN Removal for Wet Detention Ponds

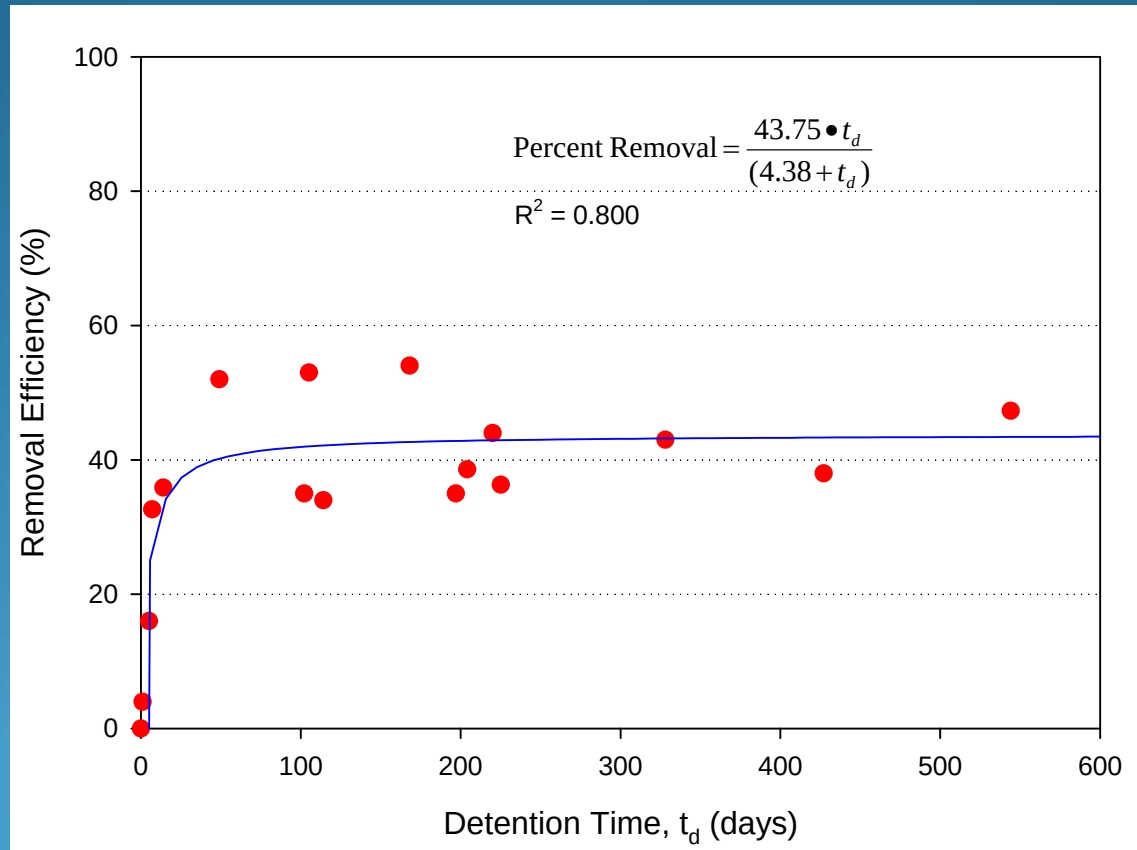


Figure 13.3 Removal Efficiency of Total Nitrogen in Wet Detention Ponds as a Function of Residence Time



# Removal Efficiencies for Other BMPs

| BMPs                                                 | TP % Reduction                                                                                                                   | TN % Reduction                                                                                                                  |
|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| BMP treatment trains using a combination of BMPs     | Use BMP Treatment Train (TT) equation:<br>BMP TT Efficiency = $Eff_1 + ((1 - Eff_1) * Eff_2)$                                    | Use BMP Treatment Train (TT) equation:<br>BMP TT Efficiency = $Eff_1 + ((1 - Eff_1) * Eff_2)$                                   |
| Dry detention                                        | 10                                                                                                                               | 10                                                                                                                              |
| Baffle box                                           | 2.3                                                                                                                              | 0.5                                                                                                                             |
| Nutrient baffle box (2 <sup>nd</sup> generation)     | 15.5                                                                                                                             | 19.05                                                                                                                           |
| Catch basin inserts/inlet filters                    | Determine kg of materials removed and multiply by 300.8 mg/kg (commercial), 423.4 mg/kg (residential), or 536.97 mg/kg (highway) | Determine kg of materials removed and multiply by 467.2 mg/kg (commercial), 773.8 mg/kg (residential), or 785.4 mg/kg (highway) |
| Street sweeping                                      | Determine kg of materials removed and multiply by 381.2 mg/kg (commercial), 374.9 mg/kg (residential), or 349.7 mg/kg (highway)  | Determine kg of materials removed and multiply by 429.6 mg/kg (commercial), 832.4 mg/kg (residential), or 546.4 mg/kg (highway) |
| Grass swales with swale blocks or raised culverts    | Use on-line retention BMPs above                                                                                                 | Use on-line retention BMPs above                                                                                                |
| Grass swales without swale blocks or raised culverts | 50% of value for grass swales with swale blocks or raised culverts                                                               | 50% of value for grass swales with swale blocks or raised culverts                                                              |
| Alum injection                                       | 90                                                                                                                               | 50                                                                                                                              |
| Stormwater reuse                                     | Estimate amount water not discharged annually because used for irrigation.                                                       | Estimate amount water not discharged annually because used for irrigation.                                                      |
| Stormceptor                                          | 13                                                                                                                               | 2                                                                                                                               |
| CDS units                                            | 10                                                                                                                               | Not applicable                                                                                                                  |
| Floating islands                                     | 20                                                                                                                               | 20                                                                                                                              |
| Public education                                     | 1-6, depending on extent of program                                                                                              | 1-6, depending on extent of program                                                                                             |
| Low impact development practices                     | Cannot quantify                                                                                                                  | Cannot quantify                                                                                                                 |

# Street Sweeping and Catch Basins

- Credit is assigned for street sweeping and catch basin based on the material collected times the median concentration in the Florida Stormwater Association Study (FSA) report.
- The material collected needs to be dry weight; however, we can convert total material collected to dry weight if not available.
- The FSA report includes median values for nutrients for residential areas, commercial areas, and highways.
  - The medians are presented for both street sweeping and catch basins.

# Public Education Activities

- Up to a 6% credit from the TN and TP baseline loads for:
  - Participation in Florida Yards and Neighborhoods (FYN);
  - Local ordinances for fertilizer, irrigation, landscaping, and pet waste management;
  - Public service announcements (PSAs);
  - Informational pamphlets and presentations;
  - Websites; and
  - Illicit discharge program and call-in number.

# Public Education Credit

- A form has been provided to the stakeholders for details on their educational activities.
- Credit will be calculated as follows:
  - When all six types of activities are conducted, entities receive the full 6% reduction credit.
  - If there are only PSAs, websites, brochures, and illicit connection program, this is 1% reduction credit.
  - Only FYN is a 3% reduction credit.
  - All four ordinances is a 2% reduction credit.
  - Other combinations are analyzed on a case-by-case basis for credit.

# Project Spreadsheet

- Each entity must fill out the project spreadsheet with requested details.
- The table must be completed to the extent possible for each project.
- Projects that are part of a treatment train should be noted in the appropriate columns.
- For those permitted projects, permit numbers must be provided.

# Project Spreadsheet, continued

- The location of the project area is needed for structural BMPs.
- The map can be submitted as a Geographic Information System (GIS) file, Computer Aided Design (CAD) file, or hard copy.
- This information must show the project location and area treated.
- The map file name must indicate the project number from the project spreadsheet.

# Project Spreadsheet, continued

- Review project spreadsheet:
  - [Project Collection Template 072911 Distribution.xls](#)
- Projects are due by August 26<sup>th</sup>.



# Questions





# Monitoring Plan

# Purpose of the Monitoring Plan

- The NRP requires a monitoring plan.
- The purpose of the monitoring plan is to identify sources and to track water quality trends.
- The monitoring plan is a key component of the NRP because it will help to show reductions in nutrients from project implementation.

# Existing Monitoring in the Basin

- The first step in developing the monitoring plan is to identify current monitoring in the basin.
- The existing monitoring locations will be compiled into maps for discussions on which stations are key for the NRP monitoring plan and where there are gaps in the monitoring network.
- A spreadsheet was provided to submit monitoring station information.

# Existing Monitoring, continued

- Review the monitoring collection sheet:
  - [Existing monitoring station collection 072911.xlsx](#)
- Information on existing monitoring stations is due by August 12<sup>th</sup>.



# Questions

