

Chapter 13

Measuring Watershed Plan Success

13.1 Suggested Milestones

Establishing milestones for the watershed plan is a means of tracking whether or not the recommended management practices or other control actions are being implemented. Milestones are usually organized into three relative time scales:

- Short-term Milestones (1-2 years)
- Mid-term Milestones (2-5 years)
- Long-term Milestones (5+ years)

The difficulty with setting aggressive milestones to expedite implementation of a comprehensive watershed plan is that the staff time and funding needed to implement many recommendations at the municipal level is almost always in direct competition with limited staff and even more limited operating budgets that are needed for day to day operation and maintenance of the traditional municipal infrastructure (the “gray infrastructure” – roads, sewers, etc.)

13.1.1 Public Education/Outreach

13.1.1.1 Tyler Creek Watershed Coalition

Short-term Milestones:

- Summer 2008: Organize a Tyler Watershed Coalition and conduct plan review and refinement meetings with participants at least quarterly.
- Maintain www.tylercreek.org webpage with current information on stakeholder participation opportunities and post watershed plan documents to webpage as revisions are completed.
- Summer 2008: Coalition begins process of securing funding and implementing a more detailed watershed loading model based upon the work completed by the Fox River Study Group and the Illinois State Water Survey for the overall Fox River Watershed.
- Spring 2010: Complete watershed loading model project and revise plan recommendation strategies and development guidelines to achieve desired water quality and stream stability goals.

Long-term Milestone:

- Coalition will keep www.tylercreek.org webpage current and utilize it as a means of connecting with watershed stakeholders about plan progress and participation opportunities.
- Coalition will develop a working relationship with municipal leaders and staff to insure all elements of the watershed protection plan are implemented.

13.1.1.2 Existing Public Education / Outreach Organizations

Short-term Milestones:

- Organize a 1 day conference in 2008 for agencies and organizations who have educational & outreach programs in the watershed. See Plan Section 11.2 for more information.

Long-term Milestone:

- Establish an annual 1 day conference for Education & Outreach organizations.
 - Achieve municipal staff attendance to the conference so they are aware of the programs available to municipal staff, leaders, and their constituents.

13.1.2 Regulatory Milestones

Short-term Milestones:

- By 2nd quarter 2008, each municipality will pass a resolution adopting the practices and principles the Tyler Creek Watershed Plan and pledge to implement the recommendations specified therein as funding for projects becomes available.
- As soon as possible, municipalities will begin working with perspective land developers to incorporate the elements of the Green Infrastructure Plan into future developments in the watershed.
- By end of 2008, each municipality should incorporate revised subdivision and zoning guidelines into their existing ordinances that encourage the use of low impact / conservation techniques in new development proposed in the watershed.

Long-term Milestone:

- All proposed new developments are designed and constructed in an efficient manner that is profitable for local economy without adversely impacting water quality or the existing natural resources in the watershed.

13.1.3 Monitoring

Short-term Milestones:

- Spring 2009: Coordinate with the Fox River Study Group to develop and implement a stream monitoring program to collect the necessary water quality and flow data needed to update the Tyler Creek watershed loading model.

Long-term Milestone:

- Work with the IEPA and USGS to establish and maintain water quality and stream flow monitoring stations at strategic locations throughout the watershed (coinciding with the monitoring locations required to prepare the updated watershed loading model).

13.1.4 Site Restoration

Short-term Milestones:

- Spring 2008: City of Elgin and Kane County Forest Preserve District each submit grant applications for state/federal funding to implement at least one of the Site Restoration Recommendations specified in Section 4.3
- Each year, at least one site restoration project should be completed by each responsible party.
- Spring 2008 Municipalities and/or Coalition members have contacted private landowners identified as potential participants in Site Restoration projects and provide them with information on technical guidance and possible funding sources to assist them with management of their privately owned natural areas along the stream corridor.

Long-term Milestone:

- All site restoration projects completed by 2020 – estimated to be 110 acres of woodland and prairie management and restoration.

13.1.5 Water Quality

Short-term Milestones:

- Fall 2009: City of Elgin completes construction of water quality facility in Valley Creek Subdivision downstream of Royal Blvd. (identified as Recommendation 1-17 in this plan; Site 5 in the Tyler Creek Management Plan)
- Spring 2008: City of Elgin submits IEPA 319 grant application for funding assistance to install up to 5 structural BMP devices to capture pollutants from medium to large storm sewer networks in the Lower Tyler Creek Subwatershed.
- Summer 2009: Kane County Department of Transportation. completes dry-bottom detention basin retrofit project identified in Recommendation 1-28.

Mid-term Milestones:

- 2010: City of Elgin organizes and promotes a rain barrel & rain garden program to encourage private landowners to implement these parcel-scale stormwater conservation practices in areas lacking the proper stormwater detention facilities.
- 2013: City of Elgin completes construction of remaining water quality facilities identified in Recommendations 1-2, 1-5, 1-6, 1-7, 1-8, 1-13, 1-14, 1-27, 1-30.

Long-term Milestone:

- All water quality recommendations implemented by 2020.

13.1.5 Permanent Habitat Protection

Short-term Milestones:

- High quality wetlands on Camp Big Timber Boy Scout property permanently protected from encroachment or water quality impacts from adjacent future development.
- Not-for-profit land protection organizations successfully negotiate easements for protection of at least one ADID High Quality wetland each year beginning in 2008.

Long Term Milestones:

- By year 2017, all ADID High Quality wetlands are protected through either public ownership or private conservation easements.

13.2 Water Quality Monitoring Plan and Assessing BMP Performance

A monitoring plan for the Tyler Creek watershed is important is providing the following information:

- Base line data-both biological and chemical where there are none. The data are useful for identifying changes in the watershed.
- Data for updating the FRSG modeling effort for the Tyler Creek sub-watershed. The product of this effort can be used by local agencies to plan and evaluate various water resource initiatives (or BMPs) in the watershed-including flooding, land use conservation, stormwater management and evaluation of point-sources.

The review of the current water quality and biological monitoring in the watershed presented in Section 2.2.3 suggests that an enhanced monitoring effort driven by the goals of the watershed plan would complement decision making, plan implementation and updating both in the short term and in the future. Biological monitoring is important for assessing the actual progress of the pollutant load reduction strategies and the overall ecological health of the watershed. Field data would enable the effectiveness of BMPs to be evaluated and appropriate adjustments to the plan to be determined.

There are indications that there are could be low-flow problem reaches in Tyler Creek and its tributaries that may be exacerbated by on-going and future capital improvements in the existing WWTP. It is important that such locations be identified for appropriate restorative action. Based on the above considerations, the following Table summarizes the recommended minimum monitoring program for the watershed.

Table 13.1 Water Quality Monitoring Plan Recommendations

Location	Type of Monitoring	Resources & Program	Objectives and Recommendations	Annual Monitoring Costs
DTZP01 DTZP02 DTZP04	Existing Water Quality Stations.	IEPA	On-going. <ul style="list-style-type: none"> Increase frequency of monitoring to include dry and wet weather Monitor D/S of Gilbert WWTP at low-flow Monitor Fecal Coliform to establish sources	N/A It is anticipated that IEPA will continue monitoring Fecal coliform to confirm basis for listing and isolating sources
Stream Stations (10)	Grab Sampling at: Low-flow Wet-flow Constituents: nutrients, DO, TSS, Chlorides Min: 5 samples/season/storm	FRWMN	Expand Stations to 14 to include: <ul style="list-style-type: none"> Upper Pingree Creek Sandy Creek Central Tyler Creek D/S of Gilberts WWTP: Upper Pingree Creek Biological monitoring at all sites, once/year	\$2,500 per station (Based on 5 samples in dry season 5 samples in wet season) Total Cost for 4 stations = \$10,000
Main stem Outlet Tyler Creek	Weather, Flow Include Water Quality at low-flow & High flows: Constituents: nutrients, DO, TSS, Chlorides Minimum 5 samples/season/storm	USGS FRSG	Continue collecting data to refine FRSG-Tyler Creek Model	\$2,500 for single station (Based on 5 samples in dry season and 5 samples in wet season)

A monitoring plan will help determine trends in pollutant loadings resulting from BMP implementation. The main pollutants of concern were fecal coliforms, nutrient, and sediment loads. The proposed monitoring plan includes these parameters in addition to biological indicators... Depending on the available resources, modeling using monitoring data is the most comprehensive procedure for determining pollutant load reductions.

Trends in pollutant load reductions can be detected by factors such as:

- Reduction of stream bank erosion
- Reduction in frequency of exceedences or concentration of fecal coliform bacteria
- Reduction of algae blooms indicating reduced nutrient enrichment
- Reduction of TSS concentrations, signaling reduced sediment loads
- Reduction of phosphorus and nitrogen concentrations
- Improvement in biological indicators

Sediment loads is by far the most critical parameter for assessing BMP performance.

Monitoring eroding stream banks is an indirect means of quantifying soil loss by erosion. Historical aerial photographs allow a comparison between channel with discrete points in time and translating changes into an average annual rate can provide an estimate of the rate of sediment loading due to instream sources. Erosion rates can be measured directly by installing and monitoring bank pins in the reaches of interest. Pins or stakes are driven into the channel banks flush with the surface. The amount of pin exposed due to erosion is the amount of change at the streambank erosion site between the times of observation. Sediment loading reductions can be quantified by comparing the erosion rates with the rates for a stable reach.

Reduction in TSS is a measure of decreasing sediment loads. Reduction of sediment loads is also an indirect indicator of reductions in nutrient loads since a significant amount of nutrient loads is carried by sediments. Since nutrient enrichment results in algae blooms and excessive growth in streams and lakes, absence or reduction of algae blooms is an indirect way of assessing reduction of nutrient loads.

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