



Minimal Impact Design Standards Timeline and Summary

Upcoming Events/Connections to Minimal Impact Design Standards (MIDS)

Center for Watershed Protection webcast on July 13, 2011, from 11:00 a.m.-1:00 p.m. at the Minnesota Pollution Control Agency (MPCA) topic is: Top actions that Local Governments can take to address numerical goals.

Green Infrastructure for Clean Water Conference – Trees, Roots and their role in Stormwater Management: September 8, 2011 at the University of Minnesota Arboretum.

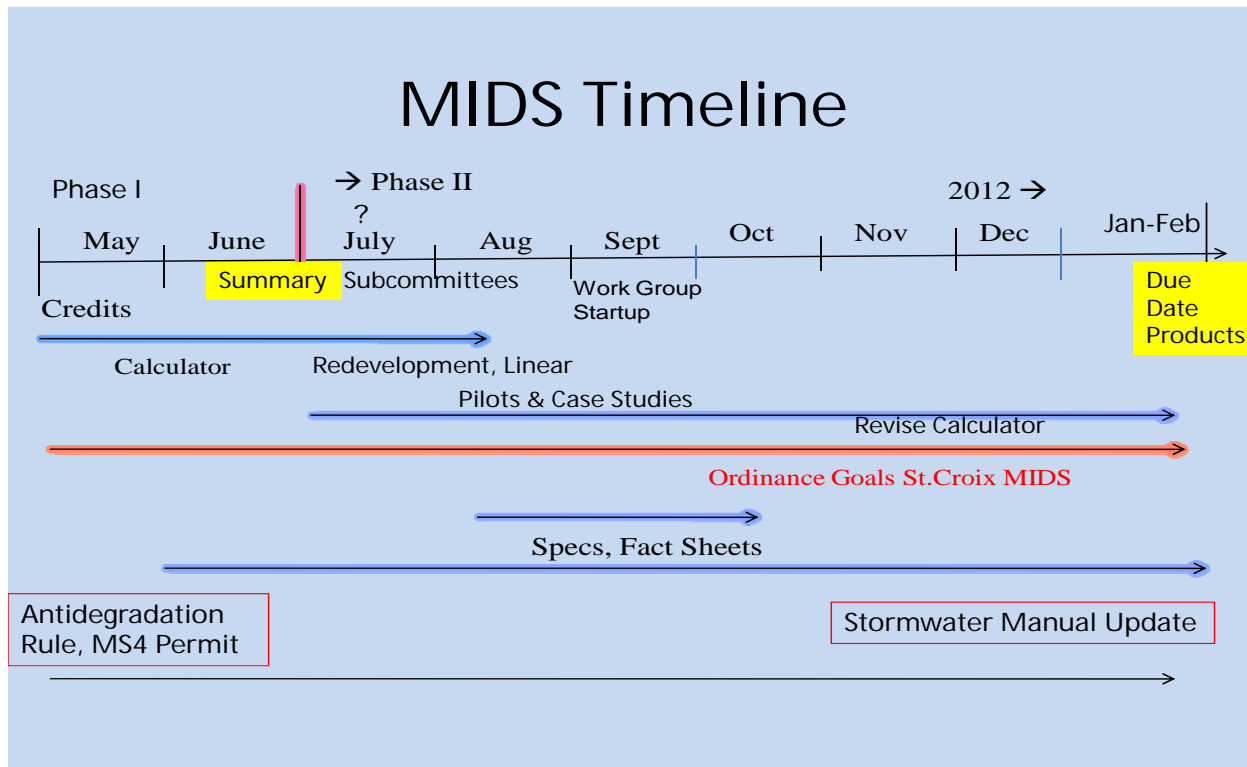
Water Resources Conference: October 18-19, 2011 - at RiverCentre, St. Paul

Metropolitan Council Stormwater Reuse Project Draft Report: August 2011

St. Croix MIDS Pilot Project Events: St. Croix Workshop: June 29, 2011 - Hinckley, July 21, 2011 - Mora, July 26, 2011

Best Management Practices (BMP) Credit Subcommittee: Fall 2011

Next MIDS Work Group September 2011



MIDS Work Group Summer Assignments

MIDS Summer 2011 Schedule. No July MIDS meeting, next planned meeting September 16, 2011.

1. Please clean your computer hard drives and references for assistance in summarizing the latest and best in BMP designs, specifications, Operating and Maintenance requirements for the following BMPs. Send to bruce.wilson@state.mn.us, 651-757-2828 (work), 651-246-9039 (cell). The BMP list attached.
2. Work group member specialties for identifying specs, methods and crediting concepts.
 - a. Pervious pavement industry – advancing industry defined standards, specifications and training needs.
 - b. Landscaping – trees, turf, soil decompaction and site protection specifications and training needs.
 - i. Trees and turf – September conference summary
 - 1) Request U.S. Forest Service to provide specifications and summary recommendations
 - c. Developers – site protection and phasing credit options and considerations including training needs.
 - d. Metropolitan Association of Watershed District (MAWD): to what degree can we advance Metropolitan-wide unified development and redevelopment ‘triggers’?
 - e. MIDS/Stormwater Manual/Minnesota Department of Transportation (MnDOT): can we link efforts for advancing/updating standardized specifications? (Dry channels with check dams etc.)
3. Linked efforts
 - a. St. Croix Minimal Impact Design Standards Pilot Project
 - i. NonPoint Education for Municipal Officials (NEMO) workshops in June/July
 - ii. Compiling ordinances
 - iii. Selecting pilot communities
 - iv. Developing and testing MIDS “package” with pilot communities
 - b. Met Council Stormwater Reuse project – expect report by the end of the summer 2011.
 - c. Will send summary from University of Minnesota Low Impact Development (LID) performance study, case studies and modeling summaries (August 2011 completion).
 - d. Will send summary from Local Research Board (LRB) sponsored University of Minnesota Swale study when available.
 - e. Bruce Wilson/Mike Findorff/Anne Gelbmann review of Michigan’s Stormwater Manual (SEMCOG), California’s stormwater manual, Center for Watershed Protection products for specifications.
4. Re-establish work group subcommittee to examine redevelopment and linear (reconstruction and new construction) over the summer of 2011, with summary recommendations/options at September meeting.
 - a. Contract for technical support with Tom Schueler being developed, effective after state budget resolution.
 - b. Work order for linear work tasks being prepared, effective after state budget resolution.
5. MIDS Contractor to develop enhanced rate control and pollutant treatment options for subcommittee based on modeling.
6. September – form work group subcommittee to define Flexible Treatment Options.
 - a. The diversity in aquatic ecoregions and geology can present major challenges that require flexible and enhanced rate control and pollutant treatment options.
 - b. Encourage innovation
 - i. Contractor to develop likely scenarios and options for work group that allow municipalities to work within the watershed approach.
 - ii. Contractor - develop alternative mitigation approaches for work group?

Looking for great infiltration, filtration, enhanced treatment BMP case studies including design, construction, Operation and Maintenance specifics to Bruce Wilson and/or Anne Gelbmann.

Phase II Work Effort Gaps from Phase I

- Redevelopment and Linear developments
 - Standardized ‘triggers’
- Urban forestry and turf management: Urban landscape management
 - Soil decompaction and compost augmented soil metrics for use by landscaping industry
- Disconnecting Institutional Control options and metrics for municipal and landscaping use
 - Applicable for ~2.5 inch storms or less
- Safe conveyance of runoff from the Big Storms – options (diversions, ponding, protecting infrastructure and public safety, estimating effects upon BMP performance)
- Reuse of Harvested Stormwater
- Pilot testing and case studies
- MIDS Calculator upgrade
- Municipal Separate Storm Sewer Systems (MS4) community wide calculator development – for structural and nonstructural practices
- MIDS Model Ordinance Goals and examples

Transition of Phase II Work Efforts into Stormwater Manual Update

BMP specifications, MIDS performance goals including ordinance goals.

MIDS Request for Proposals (RFP) Work Element Gaps

Subtask 1.4. Recommend procedures for measuring and alleviating urban soil compaction that can be incorporated into MIDS practices and calculator.

Recent research has underscored the significance of compacted soils and turf management on urban runoff. Hence, the purpose of this subtask is to develop and recommend strategies and methods that avoid, minimize and alleviate soil compaction.

1. Research, summarize and recommend soil compaction field measurement methods that can be used for MIDS pre and post construction evaluations. The emphasis is to produce simplified assessment methods that may be widely used by developers, builders and public work departments.
2. Define and describe infiltration/volume control from attributable to soil decompaction and amendment methods and recommend methods for (1) Maintaining predevelopment soil conditions, (2) Avoiding and minimizing, and (3) De-compacting soils compressed during development. Products will be incorporated into MIDS practices and calculator.
3. Work products will be proposed and detailed by the contractor, including timeline for completion and then finalized in the work order.

Subtask 1.5. Impervious Cover Disconnection Effects

The contractor will research and recommend procedures for defining the runoff reduction achieved by impervious cover disconnection and other non-structural practices.

1. Research, summarize, develop and recommend methods and procedures, as needed for MIDS Performance Goal(s) associated typical engineering and modeling use, which incorporate the effects of disconnecting impervious areas. The connected impervious summaries from Wisconsin Department of Natural Resources (WDNR, 2008) are included by reference. Work products will be proposed in a work plan with a cost proposal and detailed by the contractor, including timeline for completion and then finalized in the work order.

Subtask 1.6. Develop procedures for safely handling conveyance of runoff in MIDs

Develop procedures for safely handling conveyance of runoff in MIDs system during larger storm events and methods to adjust curve numbers to reflect runoff reduction achieved.

1. Research and summarize effects of higher intensity and duration storm events on reconnecting impervious surfaces that may affect application of the Performance Goal(s) and MIDS practices. Contractor will propose storm event intensity and duration values, based on review of the scientific data, for these analyses.
2. Research and summarize effects of MIDS volume control practices on reducing runoff from larger storm events and propose methodology to adjust curve numbers to reflect runoff reductions achieved. Work products will be proposed in a Work Plan with a Cost Proposal and detailed by the Contractor, including timeline for completion and then finalized in the Work Order.

Subtask 1.13. Test Performance Goals in Pilot Communities

The emphasis is testing of the MIDS performance goals and obtaining feedback as soon as possible.

1. Contractor will test performance goal(s) with pilot communities and projects. The number of developments, regions, sectors and type of cities (growing, established and ultra-urban municipalities) will be proposed by Contractor to the MPCA project manager and the MIDS work group. Summary scoring sheets or similar methods will be used to evaluate use of the performance goal(s) based on evaluation of performance goal subtasks or as proposed by contractor and the MIDS work group.
2. Contractor will summarize conclusions and efficacy of the performance goal(s). Contractor will produce a draft summary technical memo detailing conflicts, deficiencies, 'what worked well' and suggested modifications. It is anticipated that three to four meetings (each of about four hours) will be required with the MIDS Work Group and partnering user groups and professional engineering services.

Additional Deliverables: Provide MPCA project manager with draft and final summary technical memo with scoring sheets and associated user group comments.

Subtask 2.4. Recommend specific MIDs credits for urban forestry and landscape management

Research has recognized urban forestry and landscape management as significant stormwater management factors. It is proposed to incorporate urban forestry measures into MIDS Credits for volume and pollutant reduction. Urban forestry and landscape management will also be important to future carbon, energy and economic crediting purposes (e.g. stacking of credits).

1. Review, summarize, and recommend Urban Forestry BMP credits. Review will include, at a minimum, the following resources: Midwest Community Tree Guide by McPherson et al, 2006; iTree website, Tools for Assessing and Managing Community Forests (<http://www.itreetools.org>); City Trees, Sustainability Guidelines and Best Practices (Urban et al, 2007); and Urban Forestry Best Management Practices (Minnesota Department of Natural Resources, 2005).
2. Define volume and pollutant reduction associated with urban forestry BMPs, including consideration of design specifications for planting, materials, species, abstraction, infiltration, operation and maintenance, evapotranspiration, and deicer (chloride) tolerance.
 - a. Research, summarize, and recommend urban forest volume control credit factors such as species, number/density, age, and vigor.
 - b. Research, summarize, and recommend operation and maintenance needs and costs including residential and commercial leaf and yard waste management and (frequency of) municipal street sweeping.
 - c. Include consideration of the challenges and opportunities for management of urban forests presented by changing climate (intense rainfalls and ice storms, variability (dry/wet cycles) and longer growing seasons) and resulting infestations (e.g. emerald ash borer).
 - i. Research, summarize, and recommend easements, long terms agreements or other considerations needed for sustainable volume reductions.

Additional Deliverables: Prepare draft and final technical memos for each of the subtasks.

Subtask 2.5. Modify Credits for Linear Development Projects

Consultant shall modify Credits for Linear Development projects based on state-of-the-art review of scientific literature, including Mn/DOT and Local Research Board (LRB) studies, and studies from the United States and Europe.

1. Modify MIDS credits to include grassed swales. Grassed swales within medians often are a primary structural stormwater treatment system for highway projects where there is a lack of right-of-way. Nonstructural stormwater treatment approaches such as impervious disconnection, soil decompaction, or other alternative nonstructural volume control techniques may also be applicable. Contractor will review the scientific literature, summarize and proposed draft recommendations for modifying MIDS Credits relating road and highway BMPs.
 - a. Where infiltration may not be feasible due to hazardous material transport and/or soil constraints, define volume and pollutant reduction credits for biofiltration (e.g. grassed swales with and without underdrains).
2. Estimate infiltration and evapotranspiration losses from grassed swales equipped with:
 - a. Using literature, quantify the performance and longevity of a typical ‘standard’ grassed swale (various slopes, lengths, berms, vegetation, and vegetation heights) for pollutant and volume control with associated operation and maintenance expectations.
 - b. Review and incorporate information from “Effects of Disconnected Impervious Cover” subtask above, to develop and document typical ranges of average/representative impervious area (or connected impervious area) for highway areas within Metropolitan and outstate Minnesota. For each, select three highway capacity types. Connected impervious information is included from Wisconsin (Wisconsin Department of Natural Resources, 2008).
 - c. Examine and develop relationships between drainage area, impervious area, and swale performance for volume control and pollutant loading reduction. Incorporate infiltration options with ground water protection strategies.
 - i. Define the feasibility of the use of porous pavement technologies for different types of roads including use for overlays and shoulders (as used northern Europe) and for secondary roads and trails/sidewalks. Summarize information by different types of porous pavement- longevity, operation and maintenance, capital costs and performance.
 - ii. Review California’s linear stormwater permit and others and compare/contrast to typical Minnesota construction permits (permanent stormwater treatment requirements, volume reduction requirements, and BMPS).
 - iii. Review, summarize and recommend linear project volume control credits and link with associated changes in total phosphorus loading and total suspended solids loading.
 - iv. Determine how the Performance Goal(s), and related BMPs required to meet the Performance Goal(s), may be applied for a typical range of Total Maximum Daily Load (TMDL) Waste Load Allocations. Review recent Metropolitan TMDLs for nutrient eutrophication, biological indicators and turbidity and compare to load reduction ranges assigned to Mn/DOT (examples to be provided by the Mn/DOT).
 - v. Incorporate the effects of reducing upland water drainage effects for a ‘typical range’ of regional linear projects along with upland volume education strategies.

Additional Deliverables: Prepare draft and final technical memos for each of the subtasks.