



**Bow River Phosphorus Management Plan  
Consolidated Terms of Reference  
for Sep 1 2016 to Jun 30 2017**

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Oct 6, 2016

The Bow River Phosphorus Management Plan was initiated because of water quality concerns and elevated levels of phosphorus in the reach of the Bow River between Bearspaw Dam and Bassano Dam. Recent management efforts have resulted in improved conditions. The implementation of this plan is a *proactive* response to maintain these improved water quality conditions.

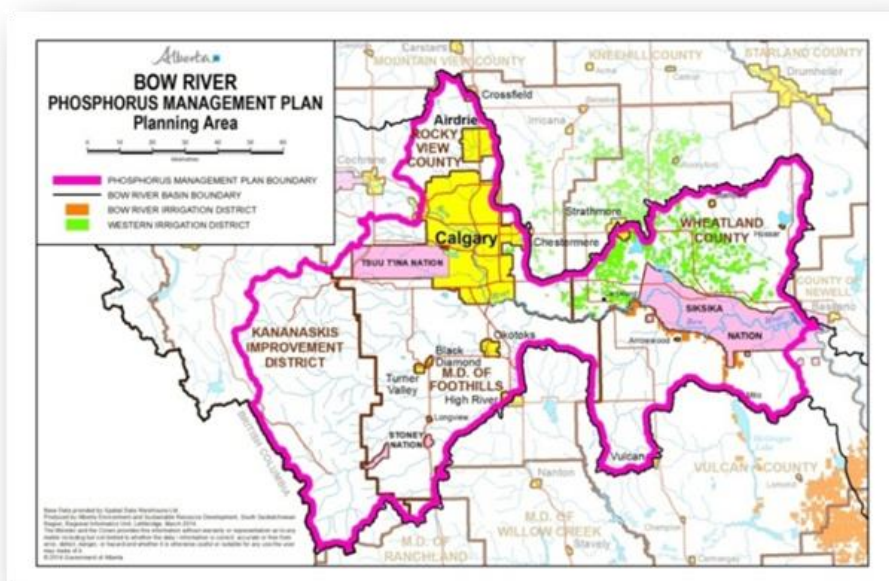
## General

The Bow River Phosphorus Management Plan (PMP) is a strategic plan to address sources of phosphorus in the middle reach of the Bow River between the Bearspaw and Bassano Dams. It is the culmination of work by contributing parties from government and non-government, urban and rural sectors, and a wider constituency of subject matter experts who contributed on task teams to define the issue, establish goals and objectives, and recommend strategies and actions to manage phosphorus in the Bow River. The implementation phase of the PMP will involve taking the PMP’s identified strategies and actions and converting them to specific on-the-ground activities (e.g., an individual or group will do a specific activity by a specific time). These Terms of Reference apply to the implementation phase of the PMP and will be reviewed at a minimum on an annual basis to ensure relevance, or earlier if required.

## Study Area

The planning area includes:

- urban areas of Calgary, Airdrie, Strathmore, Okotoks, High River, Turner Valley and Black Diamond;
- rural municipalities of MD of Foothills, Rocky View County, Wheatland County and Kananaskis Improvement District;
- lands of Stoney Nation – Eden Valley, Tsuu T’ina Nation and Siksika Nation; and
- lands and canals of the Western and Bow River Irrigation Districts.

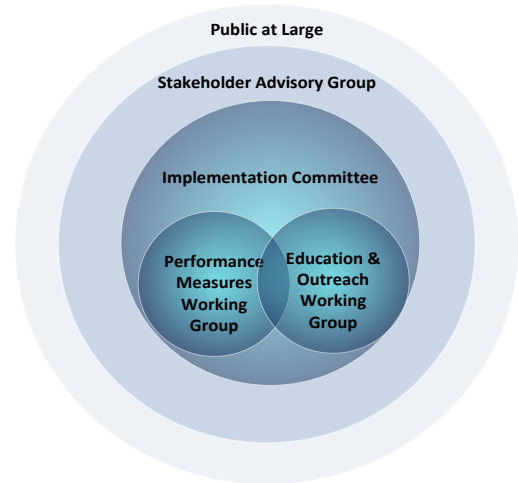


**“The objective of the Bow River Phosphorus Management Plan is to help manage current water quality conditions in the Bow River through control of phosphorus inputs.”**

## Implementation Overview

Three key groups will be largely responsible for the overall implementation of the Bow River Phosphorus Management Plan.

- Implementation Committee (IC) - Rob Wolfe, Project Coordinator
  - IC provides direction for the overall implementation process
  - Brian Hills is the AEP Project Sponsor
  - Mix of GOA and non-GOA members with skills and expertise and interest to help implement the plan
  - IC will be responsible for implementation of the overall plan and overseeing the work of the EOWG and PMWG.
- Education and Outreach Working Group (EOWG) – Rob Wolfe, Project Coordinator
  - Reports to the Implementation Committee
  - Mix of GOA and non-GOA members with skills and expertise and interest to move the education and outreach strategies and actions forward
  - EOWG will be responsible for implementation of the plan’s education and outreach related activities.
- Performance Measures Working Group (PMWG) – Diana Bingham, Chair; Cecilia Chung - Project Coordinator, Rob Wolfe (Advisor)
  - Reports to the Implementation Committee
  - Mix of GOA and non-GOA members with skills and expertise and/or interest in the evaluation and selection of performance measures
  - PMWG will be responsible for the development and tracking of performance measures (e.g., indicators).



On May 4, 2017, the IC, EOWG and PMWG will host a half-day workshop for Stakeholder Advisory Group members to provide updates and solicit stakeholder feedback on the progress to date. Presentations will also be provided at the BRBC Quarterly Education and Networking Forums as opportunities present.

## Decision Making for Committee and Working Groups

- All Committees and Working Groups will work on a consensus model among active members.
  - “Consensus” means a decision is arrived at with a "high majority support" (between 70% to 80% support) with the following conditions:
    - everyone is satisfied that a sufficient range of options has been looked at, and
    - everyone agrees that the preferred option is capable of achieving the intended outcomes, and
    - all concerns about the preferred choice have been noted along with the decision (as "subject to" statements), and
    - there is a clear mitigation response if these concerns turn out to be significant factors.
- This process depends heavily on good will and a sincere desire by participants to reach decisions.

## **Membership and Committee/Working Group Meetings**

- Membership will reflect the diversity, experience and knowledge needed to ensure appropriate expertise is sufficient to meet the Committee or Working Group mandates.
- Where possible, membership will also include alternate member designations for those occasions when the main designate is not able to participate. Alternates must be informed and ready to participate.
- Once the project has commenced, requests to join the Committee or Working Group will be evaluated on a case by case basis, considering both the current size of the Committee or Working Group and if any gaps in membership remain unfilled.
- The Committee or Working Group may invite guests to the meeting or may grant individuals observer status as appropriate.
- An interested individual or group can be added to the Committee's or Working Group's distribution list as CC's. If these individuals or groups would like to provide comments, they should respond to the appropriate Sector Representative on the Committee or Working Group (as opposed to responding to the entire Committee or Working Group).
- Members (or alternates) are expected to attend meetings, to the best of their ability. If a member (or alternate) misses a number of consecutive meetings without notice, they will be contacted by the Project Coordinator to confirm continuing participation.
- Members who are unable to attend meetings (and cannot send an alternate) can participate via teleconference.
- To the best of their ability, membership is accountable to and from their constituent body.
- In the event that an individual or organization is unable to participate for any reason, a written response outlining the circumstances could be provided to the Project Coordinator for the Committee or Working Group.
- Subject matter experts will be brought in on case by case basis as required.
- Meetings will be cancelled if there is insufficient agenda.
- Meeting notes and action items from the previous meeting will be reviewed at the next meeting.

## **Project Costs for Committee and Working Groups**

- AEP will provide project coordination and cover incidental costs associated with hosting meetings and workshops. Opportunities to find funding for baseline work, pilot projects, proposed programs and the related monitoring, evaluation and reporting will be a collaborative effort amongst members of the IC, EOWG and PMWG.

## **Linkages**

- PMP IC, PMWG and EOWG need to ensure strong connections with GOA's Watershed Resiliency and Restoration Program and implementation of the South Saskatchewan Regional Plan.

## **Implementation Committee (IC) Terms of Reference**

### **IC Roles and Responsibilities**

- The IC Project Coordinator (Rob Wolfe) will be responsible for moving the process forward, facilitating all meetings, preparing all necessary materials for the meetings (e.g., agendas, discussion papers, Implementation Workplan, implementation progress reports, coordinating related AEP contracts, etc.). Other specific tasks may be requested by the IC as the project evolves. Brian Hills (AEP) will serve as the Project Sponsor.

- The PMP IC will also be responsible for overseeing the activities of the PMWG and EOWG. It is anticipated that a fair bit of autonomy will be provided to allow PMWG and EOWG to develop their own TOR and structure to accomplish the assigned tasks. PMWG and EOWG will present to the IC at key points in the process or at any time when further direction from the IC is required.
- Combined with a facilitated session to identify specific topics for further emphasis, the IC will continue to use the Implementation Workplan to guide their activities over the subsequent year. The Implementation Workplan will be instrumental to managing and coordinating activities given the number of implementers and phases of work.
- Development of the Implementation Workplan involves identifying: 1) the sequence of tasks to be done; 2) who will do them and by when; 3) possible funding and technical support; 4) setting up a process to measure implementation progress by the proposed implementers and 5) reporting on progress by the proposed implementers. The Implementation Workplan is a living document which is continually updated as progress towards the plan's outcomes is achieved. Alternative methods of tackling key priorities will also be identified in Year Three.
- The IC will serve as a catalyst for moving the plan's actions forward. At a minimum, annual progress reports will be prepared. In addition, the IC will be responsible for:
  - Working closely with PMWG and EOWG to help fulfill its mandate.
  - Working with PMWG and EOWG, providing information to, and soliciting advice from the Stakeholder Advisory Group.
  - Forming ad-hoc Working Groups (WGs) as required to complete short-term project priorities. With the exception of PMWG and EOWG, ad-hoc Working Groups are generally short term and will be disbanded once their task is completed.
  - Reviewing materials and providing input by the required timelines.
  - Identifying resource needs and forwarding these requests to the IC Project Coordinator for further action.
- The IC Project Coordinator and AEP Project Sponsor will meet regularly to ensure that the overall direction of the Implementation Phase aligns with the AEP business plan. The Project Sponsor will provide advice and specific input on the work proposed at key stages in the process. To the extent possible, the Project Sponsor will provide resources to support the work of the IC, PMWG and EOWG. To compliment this effort, opportunities to find funding for baseline work, pilot projects, proposed programs and the related monitoring, evaluation and reporting will be a collaborative effort amongst members of the IC, EOWG and PMWG.
- Consideration will be given to aligning this process with the review period of the South Saskatchewan Regional Plan, which requires annual progress reporting, a five-year formal report and ten-year renewal. Reporting should allow some flexibility in approach but should be directed to all agencies identified for the implementation of strategies and actions, and other interested parties.
- The overall success of the IC and the two working groups will be dependent on the collective action of all contributing parties.

## **IC Meetings and Key Deliverables**

- The IC will take a phased approach to tackling the proposed actions. In some cases, it is acknowledged that the on-going work associated may continue for years to come, depending upon the action.
- Meetings will generally be held on the first Thursday of each month from 1:00 PM to 3:45 PM at the AEP Deerfoot office. If the meeting is scheduled on a holiday, the meeting will be rescheduled to the second Thursday of each month. When deemed necessary, occasional full-day meetings (first Thursday of the month) may be held with agreement by all members of the IC.

- The first phase on implementation was completed in June 2015 with the second phase completed in June 2016. Going forward, the PMP IC will be using a focused presentation-based approach followed by discussion. Each meeting should result in clearly defined actions in order to make meaningful progress.
- A progress summary report for year three will be provided to the Project Sponsor by June 30, 2017.

## IC Membership

- Membership is composed of the following individuals (alternate in brackets):
  - Rob Wolfe (Project Coordinator - AEP), Brian Hills (Project Sponsor - AEP);
  - Trevor Wallace, Janna Casson, Jennifer Kerr (AAF);
  - Chelsi Menyes, Scott Fediow (City of Airdrie);
  - Ron Axelson (Intensive Livestock Working Group);
  - Quincy Brown (Calgary Regional Partnership);
  - Khizar Mahmood (City of Calgary);
  - Leta van Duin, Robin McLeod (ALIDP);
  - Gerry Guy (Agriculture and Agri-Food Canada);
  - Medini Prasai (Bow River Basin Council);
  - Bryce Mackan (Town of Strathmore);
  - Sharon McKinnon, Elaine Bellamy (Crop Sector Working Group);
  - Kristyn Smigelski, Michael French, Michele Habrylo (Rocky View County);
  - Shirley Pickering (Watershed Stewardship Groups);
  - Steph Neufeld, Brent Leinan (Town of Okotoks);
  - Bill Snow, Marie Kootenay (Stoney Nakoda First Nation);
  - Susan Solway, Lars Duck Chief (Siksika First Nation);
  - Tonya Crowchild (Tsuu T'ina Nation);
  - Mike Oka, Mike Tailfeathers, J.J. Shade (Blood Tribe, Kanai First Nation)
  - Jeff Porter (Municipal District of Foothills);
  - Tracy Scott (Ducks Unlimited Canada);
  - Erwin Braun, Richard Phillips (Bow Basin Irrigation Districts);
  - David Churchill (Wheatland County)
  - Angus Chu (University of Calgary)
  - Jerry Brunen (Western Sky Land Trust).

## Implementation Committee Project Milestones

Date	Key Milestone or Action Required
Sept. 8, 2016 (Note: Second Thursday of Month Exception)	<input type="checkbox"/> <b>Regular Business</b> <input type="checkbox"/> <b>Consolidated Terms of Reference</b> <ul style="list-style-type: none"> <li>○ Review and finalize consolidated terms of reference (includes PMP IC, EOWG &amp; PMWG).</li> </ul> <input type="checkbox"/> <b>Presentations - Waste Water Treatment Plants</b> <ul style="list-style-type: none"> <li>○ City of Calgary Bio-Solid Reuse (Myron Flexhaug – City of Calgary)</li> </ul>
Oct. 6, 2016	<input type="checkbox"/> <b>Regular Business</b> <input type="checkbox"/> <b>Presentations - Water Quality</b> <ul style="list-style-type: none"> <li>○ Alberta Surface Water Quality Framework Overview &amp; Baseline Data Discussion (Wendell Koning, Cecilia Chung)</li> <li>○ Summary of Study Area Creeks and Rivers Currently Monitored (or with Recent Data) &amp; Discussion on Monitoring Gaps in the Area – (Jason Kerr &amp; Eric Camm)</li> <li>○ Bow River Assimilative Capacity Study Update Part One (Nancy Martin)</li> </ul>

Date	Key Milestone or Action Required
Nov. 3, 2016	<input type="checkbox"/> <b>Regular Business</b> <input type="checkbox"/> <b>Presentation Environmental Performance Plans</b> <ul style="list-style-type: none"> <li>○ WWTPs, Environmental Performance Plans and Meeting with EPP Holders (Kate Vasicek – AEP)</li> </ul> <input type="checkbox"/> <b>Presentations Wetlands</b> <ul style="list-style-type: none"> <li>○ Wetland Policy Implementation (Matt Wilson)</li> </ul> <input type="checkbox"/> <b>Presentations – First Nations Perspective on Water Quality</b> <ul style="list-style-type: none"> <li>○ Siksika and/or Blood Tribe Elders – A Historical Perspective of Water Quality and Headwaters Landscape Changes (Susan Solway (Siksika), Mike Oka (Blood Tribe))</li> </ul>
Jan. 5, 2017	<input type="checkbox"/> <b>Regular Business</b> <input type="checkbox"/> <b>Presentations - Innovative Use of Water</b> <ul style="list-style-type: none"> <li>○ Water Reuse in Alberta – Policy Perspective (Joey Hurley, AEP) (To be released in Dec. 2016.)</li> <li>○ Water Reuse in Alberta - Guidebook Perspective (Dr. Mike Dixon, Alberta WaterSMART)</li> </ul>
Feb. 2, 2017	<input type="checkbox"/> <b>Regular Business</b> <input type="checkbox"/> <b>Presentations - Total Loading Management</b> <ul style="list-style-type: none"> <li>○ City of Calgary Updated Total Loading Assessment (Khizar Mahmood)</li> <li>○ Load Allocation Policy (Arshad Ali) (To be released in Dec. 2016.)</li> </ul>
Mar. 2, 2017	<input type="checkbox"/> <b>Regular Business</b> <input type="checkbox"/> <b>Presentations - Industry Source Control</b> <ul style="list-style-type: none"> <li>○ Industrial Facility Monitoring Programs (Roger Garcia-Smith – City of Calgary)</li> <li>○ Industrial Facility Monitoring Programs (Elizabeth Gamble - City of Airdrie)</li> </ul> <input type="checkbox"/> <b>Presentations - Water Quality</b> <ul style="list-style-type: none"> <li>○ Bow River Assimilative Capacity Study Update Part Two (Nancy Martin)</li> </ul> <input type="checkbox"/> <b>Presentations – Research</b> <ul style="list-style-type: none"> <li>○ To Be Determined (Trevor Wallace to Summarize)</li> </ul>
May 4, 2017	<input type="checkbox"/> <b>Stakeholder Advisory Group Session in AM</b> <input type="checkbox"/> <b>PMP IC Meeting in PM</b> <input type="checkbox"/> <b>Regular Business</b> <input type="checkbox"/> <b>Review What Heard from SAG Workshop</b> <input type="checkbox"/> <b>EOWG and PMWG Detailed Updates</b> <input type="checkbox"/> <b>Outstanding Items</b> <input type="checkbox"/> <b>Strategic Planning for Subsequent Year</b>

## Presentation Topics for 2017/18 (Or Earlier Schedule Permitting)

### Agriculture

- Nutrient Targets for Small Agricultural Watersheds (Trevor Wallace – New project with substantial scope and funding.)
- Irrigation Comparison Project (Trevor Wallace)
- Canada Farm Census Mapping Results (Trevor Wallace)
- INFFER Rural Non-Point Project (Trevor Wallace or Roger Bryan)
- Mitigation of Phosphorus Contributions to Surface Water in Agriculture Watersheds (Janna Casson)
- Erosion & Agriculture Presentation (Janna Casson)
- Pheasant Habitat and Agricultural Best Management Practices (Mike Church suggested by Robin McLeod)

## **Source Water Protection**

- City of Calgary's Proposed Source Water Protection Plan and the Source Watershed Assessment and Risk Characterization (George Roman)
- Upstream Source Water Protection – Jumpingpound Creek Watershed Management Plan & Implementation (Sandi Riemersma or Municipal Rep)

## **Waste Water Treatment Plants**

- Future Significant Upgrades to Bonneybrook WWTP in 2017 (Brenda Casella and Valerie Moore)

## **Education & Outreach Working Group Terms of Reference**

### **EOWG Roles and Responsibilities**

- The EOWG Project Coordinator (Rob Wolfe) will be responsible for moving the process forward, facilitating all meetings, preparing all necessary materials for the meetings (e.g., agendas, discussion papers, Implementation Workplan, implementation progress reports, coordinating related AEP contracts, etc.). Other specific tasks may be requested by EOWG as the project evolves.
- EOWG will serve as a catalyst for moving the plan's education and outreach strategies and actions forward. In addition, the EOWG will be responsible for:
  - Working closely with the IC and PMWG to help fulfill its mandate.
  - Identifying resource needs and forwarding these requests to the IC for further action.
  - Reporting milestones to the IC.
- The IC will provide guidance and direction to EOWG to ensure alignment with IC priorities. It is likely this will occur at key stages in the process (e.g., draft EOWG work plan, final work plan, progress summary reports, etc.).

### **Project Meeting Organization**

- Meetings are scheduled on the third Tuesday morning of every second month at the Deerfoot Square Environment and Parks office. If the meeting is scheduled on a holiday, the meeting will be rescheduled to the following Tuesday morning.
- EOWG work plan will outline deliverables and anticipated timelines. As EOWG progresses through its work plan, they will adjust their meeting frequency as appropriate with guidance from the IC. EOWG will also recommend solutions to the continued day-to-day education and outreach requirements of the Plan's implementation over the long-term.

### **EOWG Membership**

- Membership is composed of the following individuals:
  - Rob Wolfe – (Project Coordinator - AEP)
  - Mike Murray (BRBC)
  - Kristina Wantola (Cows and Fish)
  - Patty Munkittrick (Calgary River Valleys Committee)
  - Janna Casson (AAF)
  - Trevor Wallace (AAF)
  - Tracy Scott (Ducks Unlimited Canada)
  - Shirley Pickering (WSGs)
  - Alyssa Cumberland, Sarah Schumacher (Wheatland County)



- Lynn Robb (Trout Unlimited)
- Susan Solway (Siksika First Nations)
- Jennifer Makar (City of Calgary)
- Ron Axelson (Intensive Livestock Working Group)
- Quincy Brown (Calgary Regional Partnership)
- Katie Pearson (Friends of Fish Creek)
- Wendy Aupers (AEP)
- Bob McAlpine (Consultant)
- Leta van Duin, Robin McLeod (ALIDP)
- Resource contacts include the following individual(s):
  - Monique Dietrich (AEP Watershed Resiliency & Restoration Program)

### **Draft Workplan (Sept. 1, 2016 to June 30, 2017)**

- EOWG will coordinate the SAG workshop on May 4, 2017.
- EOWG will develop a strategy for distribution of the PMP short-video series.
- EOWG (in conjunction with PMP IC & PMWG members) will continue to give presentations as opportunities present (e.g., BRBC Quarterly Forum (Sept. 14, 2016), Treaty Seven Water Table (Sept. 20, 2016), Western Canada Water Conference (Oct. 7, 2016), North American Lake Management Society Conference (Nov. 2, 2016).
- EOWG will review and provide comments on the Alberta Low-Impact Development Illustrated Guide (if requested by ALIDP).
- EOWG will prepare a series of two-page fact sheets targeted at municipalities (reeves, mayors, councillors, planners, outreach staff, etc.) as the primary audience. These will be used as foundational documents for the proposed municipal workshops in 2017/2018. The fact sheet series may include topics such as:
  - Agriculture Best Management Practices and Nutrient Transport
  - Riparian Guidelines (Stepping Back from the Water) Overview
  - Riparian Health and Nutrient Transport
  - Other topics to be determined...
- EOWG will maintain the PMP website, examine opportunities to promote the site, and enhance the site as new information becomes available.
- EOWG will review the PMWG and WRRP survey results with the specific goal of identifying and acting on potential educational and outreach-related opportunities.
- Specific requests that arise from the work of the PMP IC (as time and resources permit).

### **Workplan Items for 2017/18**

- With new Councils being elected in the fall of 2017, EOWG will coordinate two to three municipal workshops in the study area. These workshops will consist largely of municipal staff but will also include other key groups (e.g., local watershed stewardship groups, staff from related programs) or individuals. The workshop will:
  - To be determined...

### **Project Milestones**

<b>Date</b>	<b>Key Milestone or Action Required</b>
Sept. 14, 2016	<input type="checkbox"/> <b>PMP Presentation at BRBC Quarterly Forum</b>
Sept. 20, 2016	<input type="checkbox"/> <b>PMP Presentation at Treaty Seven Water Sub-Table</b>

Date	Key Milestone or Action Required
Sept. 20, 2016	<ul style="list-style-type: none"> <li>❑ <b>Regular Business</b></li> <li>❑ <b>Workplan Discussions</b> <ul style="list-style-type: none"> <li>○ Upcoming presentations</li> <li>○ Short-video project distribution</li> <li>○ Review of PMWG &amp; WRRP survey results and potential actions</li> <li>○ Development of PMP fact sheets series for municipalities</li> <li>○ PMP website update</li> </ul> </li> </ul>
Oct. 7, 2016	❑ <b>PMP Presentation at Western Canada Water Conference in Calgary</b>
Nov. 2, 2016	❑ <b>PMP Presentation at North American Lake Management Society Conference in Banff</b>
Nov. 15, 2016	<ul style="list-style-type: none"> <li>❑ <b>Regular Business</b></li> <li>❑ <b>Workplan Discussions</b> <ul style="list-style-type: none"> <li>○ Upcoming presentations</li> <li>○ Short-video project distribution</li> <li>○ Review of PMWG &amp; WRRP survey results and potential actions</li> <li>○ Development of PMP fact sheets series for municipalities</li> <li>○ PMP website update</li> </ul> </li> </ul>
Jan. 17, 2017	<ul style="list-style-type: none"> <li>❑ <b>Regular Business</b></li> <li>❑ <b>Workplan Discussions</b> <ul style="list-style-type: none"> <li>○ Upcoming presentations</li> <li>○ Planning for SAG workshop on May 4, 2017</li> <li>○ Development of PMP fact sheets series for municipalities</li> </ul> </li> </ul>
Mar. 21, 2017	<ul style="list-style-type: none"> <li>❑ <b>Regular Business</b></li> <li>❑ <b>Workplan Discussions</b> <ul style="list-style-type: none"> <li>○ Upcoming presentations</li> <li>○ Planning for SAG workshop on May 4, 2017</li> <li>○ Finalize PMP fact sheets series for municipalities</li> </ul> </li> </ul>
May 4, 2017 (SAG Workshop)	❑ <b>SAG Workshop Coordinated by EOWG</b>
May 16, 2016	<ul style="list-style-type: none"> <li>❑ <b>Regular Business</b></li> <li>❑ <b>Workplan Discussions</b> <ul style="list-style-type: none"> <li>○ Overview of SAG workshop</li> <li>○ Strategic planning session</li> </ul> </li> </ul>

## Performance Measures Working Group Terms of Reference

The PMWG was created to support the selection of indicators to monitor the success of the PMP, and also to contribute to the development of a system to sustain the on-going monitoring, evaluation and reporting of the indicators selected. This working group reports to the IC and is made up of members from the Government of Alberta as well as non-government sectors.

Performance measurement involves assessing and tracking progress towards a desired outcome and is often measured using a full suite of indicators including condition, pressure and response indicators.



## PMWG Roles and Responsibilities

- The PMWG Coordinator will move the process forward, plan and facilitate working sessions, prepare material for working sessions and liaise with the IC and EOWG Coordinators. Cecilia Chung will serve as the PMWG Coordinator from Sept. 1, 2016 through June 30, 2017. Diana Bingham will serve as the PMWG Chair from Sept. 1, 2016 to June 30, 2017.
- The workplan may be amended from time to time as work evolves and new information becomes available.
- Progress reports or presentations to the PMP IC will be provided at key points in the process.

## Project Duration

- Working sessions will be scheduled every second month from Sept. 2016 through June 2017. Working sessions may be teleconference, in person, or a combination of both.

## PMWG Membership

- Membership is composed of the following individuals:
  - Diana Bingham – PMWG Chair (AAF)
  - Cecilia Chung – PMWG Coordinator (AEP)
  - Ron Axelson – Intensive Livestock Working Group
  - Robin McLeod – Volunteer
  - Trevor Wallace – AAF
  - Wendy Aupers – AEP
  - Eric Camm – City of Calgary
  - Brenda Casella – City of Calgary
  - Rob Wolfe – AEP
  - Angus Chu – University of Calgary
  - Monique Dietrich – AEP
  - Tracy Scott – Ducks Unlimited Canada
  - Leta van Duin – ALIDP

## Key Milestones

Date	Key Milestone or Action Required
Nov 30, 2013 – Mar 6, 2014	<b>Phase 1: [Complete]</b> Describe Indicator Selection Process to be inserted in final draft of the Phosphorus Management Plan.
Mar 6, 2014 – Dec 31, 2014	<b>Phase 2: [Complete]</b> Apply Indicator Selection Process to arrive at draft short-list of indicator topics to be presented to Implementation Committee for “green-light” to continue forward with work.
Jan 2, 2015 – Jun 30, 2015	<b>Phase 3: [Complete]</b> Indicator Refinement and Design. Further review short-list of indicator topics to determine the metric/data details, do a final test of relevance and prioritize reporting efforts.

Date	Key Milestone or Action Required
<b>Jun 30, 2015</b> – <b>Apr 31, 2016</b>	<b>Phase 4: [Complete]</b> The PMP municipal survey was completed along with the following three fact sheets which were included in the annual PMP summary report: <ul style="list-style-type: none"> <li>• Water Quality Indicators</li> <li>• Rural Non-Point BMP Indicators (i.e. AAF Data)</li> <li>• Urban and Rural Municipality Survey.</li> </ul>
<b>Apr 31, 2016</b> – <b>June 30, 2017</b>	<b>Phase 5: [Underway]</b> For this timeframe, it was suggested that work continues on developing fact sheets. The following fact sheets will be developed in 2016-17: <ol style="list-style-type: none"> <li>Irrigation BMPs</li> <li>Runoff Volume Targets and Nutrient Transport</li> <li>Livestock Management and Nutrient Transport Processes</li> </ol> <p>The “Water Quality” fact sheet completed in Phase 4 will also be updated on an annual basis to maintain the currency of information. Additional ‘sub-factsheets’ for water quality may be developed on each individual indicator for more in-depth analysis (e.g., phosphorus fact sheet, TSS fact sheet, DO fact sheet).</p> <p>Other fact sheets under consideration include: a) wetland conservation and restoration and b) innovative technology highlights.</p>

## APPENDIX A: PMP Progress Summary as of Sept. 8, 2016

#	ACTION	YEAR	STATUS
1.1	<b>Create education sub-team of BRPMP Implementation Committee to coordinate education activities and develop common messaging for various audiences.</b> <input type="checkbox"/> AEP/Rural and Urban Municipalities, ALIDP, DUC, TUC (April 2014)	3	<b>COMPLETED OR NEARING COMPLETION</b>
1.2	<b>By jurisdiction, determine the status and content of good housekeeping/pollution prevention programs and bylaws. (Ensure that programs address behaviors such as the following:</b> <ul style="list-style-type: none"> <li>- Wash vehicles at car washes rather than at home</li> <li>- Pick up pet feces</li> <li>- Maintain vehicles to reduce/eliminate oil leakage</li> <li>- Dry sweep rather than hose driveways).</li> </ul> <input type="checkbox"/> AEP/ALIDP, Urban and Rural Municipalities, TUC (Medium Term by End 2017)	3	<b>PROGRESS</b>
1.3	<b>Educate the public about household phosphorus (P) contributions and provide alternatives to current practices. (e.g., promote composting over garburators).</b> <input type="checkbox"/> Urban and Rural Municipalities/ AEP (Short Term by End 2015)	2	<b>PROGRESS</b>
1.4	<b>Coordinate rural education programs such as:</b> <ul style="list-style-type: none"> <li>- Ecosystem service values for riparian areas, wetlands</li> <li>- Value and benefits of 4-R nutrient stewardship (Right fertilizer source at the Right rate, at the Right time and in the Right place)</li> <li>- Septic system management and risks</li> <li>- Responsible recreation</li> <li>- Livestock grazing and watering management practices</li> <li>- Manure application practices to reduce P loss in runoff.</li> </ul> <input type="checkbox"/> BRBC, AEP/ DUC, Rural Municipalities (Medium Term by End 2017)	1	<b>PROGRESS</b>

#	ACTION	YEAR	STATUS
1.5	<p><b>Develop and coordinate urban public education programs such as:</b></p> <ul style="list-style-type: none"> <li>- Green Calgary Rain Barrels, Yellow Fish Road, Conservation landscaping management practices, Downspout management, How-to guides.</li> <li>□ Urban Municipalities/ AEP, ALIDP (Medium Term by End 2017)</li> </ul>	2	<b>PROGRESS</b>
1.6	<p><b>Support stormwater practitioners and associated disciplines with education, tools and training to plan, design, implement, operate and maintain urban storm drainage systems.</b></p> <ul style="list-style-type: none"> <li>□ ALIDP/Urban and Rural Municipalities, AEP (Short Term by End 2015)</li> </ul>	1	<b>PROGRESS</b>
1.7	<p><b>Share innovative solutions and best practices among wastewater treatment personnel.</b></p> <ul style="list-style-type: none"> <li>□ Municipalities, BRBC</li> </ul>	3	<b>PROGRESS</b>
2.1	<p><b>Develop policy to distribute load allocations among contributing parties and develop policy tools to address cumulative effects issues.</b></p> <ul style="list-style-type: none"> <li>□ AEP (Short Term by End 2015)</li> </ul>	1	<b>SUSTAINABLE PROGRESS</b>
2.2	<p><b>Ensure use of best practices among wastewater treatment facilities through the following:</b></p> <ul style="list-style-type: none"> <li>- As new WWTPs are added to the area, require them to develop action plans when five year forecasting brings phosphorus levels to approval limit; submit to AEP (required for existing approval holders).</li> <li>- Coordinate a meeting among all Environmental Performance Plans (EPP) holders for AEP to share loadings information for the reach, as well as learnings and practices.</li> <li>- Establish the assimilative capacity of the river for all reaches, and develop guidelines for meeting those targets. Base Total Loading Objectives for phosphorus on the receiving water's cumulative effects assessments, considering the triggers for phosphorus in the South Saskatchewan Region Surface Water Quality Management Framework</li> <li>-Encourage a cumulative effects approach to loading management where regulated municipalities in the reach share their loadings information with each other.</li> <li>□ AEP/WWTP in planning area: The City of Calgary, Heritage Pointe, Strathmore, Okotoks/new WWTP, EPP Holders, BRBC (to coordinate information) (Medium Term by End 2017)</li> </ul>	2	<b>PROGRESS</b>
3.1	<p><b>Continue to monitor water quality at Long-Term River Network sites and The City of Calgary sites, report results annually to BRPMP Implementation Committee, evaluate and enhance monitoring where appropriate.</b></p> <ul style="list-style-type: none"> <li>□ AEP, The City of Calgary/ BRBC, WSGs (Ongoing)</li> </ul>	1	<b>SUSTAINABLE PROGRESS</b>
3.2	<p><b>Conduct water quality sampling at appropriate locations on tributaries, such as the Sheep and Highwood Rivers and West/East Arrowwood and Crowfoot Creeks.</b></p> <ul style="list-style-type: none"> <li>□ AEP/WSGs (for local monitoring), BRBC (for advice) (Start April 2014)</li> </ul>	1	<b>SUSTAINABLE PROGRESS</b>
3.3	<p><b>Conduct water quality sampling in irrigation district supply water and regional return flow.</b></p> <ul style="list-style-type: none"> <li>□ WID/ ARD/Municipalities (Ongoing)</li> </ul>	2	<b>SUSTAINABLE PROGRESS</b>
3.4	<p><b>Implement appropriate stormwater monitoring, and report on findings.</b></p> <ul style="list-style-type: none"> <li>□ All Municipalities, AEP, Monitoring Agency (Short Term and Long term)</li> </ul>	1	<b>PROGRESS</b>

#	ACTION	YEAR	STATUS
4.1	<p><b>Initiate a proof of concept in a small watershed (with available LiDAR data) to develop a process for identifying Critical Source Areas, i.e., areas contributing the most runoff and phosphorus.</b></p> <p>☐ AAF/ILWG, DUC, Rural Municipalities, AEP, Cows &amp; Fish, WSGs, BRBC (Short Term by End 2015)</p>	1	<b>SUSTAINABLE PROGRESS</b>
4.2	<p><b>Complete accurate inventory and health assessments of current, drained and altered wetlands and riparian areas in the planning area.</b></p> <p>☐ AEP/ DUC, AAF, Municipalities, WSGs, Prairie Conservation Forum, Spray Lake Sawmills, Cows and Fish, developers, AB Transportation (Short Term by End 2015)</p>	1	<b>SUSTAINABLE PROGRESS</b>
4.3	<p><b>Update mapping of land layers, precipitation, etc., and integrate inventories into Geographic Information System (GIS). Update landscape mapping from Canada Farm Census.</b></p> <p><b>Track inventories and health assessments and create a database of subsequent BMP implementation for non-point sources of phosphorus.</b></p> <p>☐ AEP, AAF, Municipalities/ DUC, PCF, Spray Lake Sawmills, Cows and Fish, developers, AB Transportation (Short Term by End 2015 and Medium Term)</p>	1	<b>COMPLETED OR NEARING COMPLETION</b>
5.1	<p><b>Foster and coordinate research opportunities related to phosphorus management and mitigation (e.g. new technologies).</b></p> <p>☐ AEP/DUC, Urban Municipalities, Universities, ALIDP, others (Short Term by End 2015)</p>	2	<b>PROGRESS</b>
5.2	<p><b>Disseminate research to relevant stakeholders.</b></p> <p>☐ BRBC/ALIDP</p>	3	<b>SUSTAINABLE PROGRESS</b>
5.3	<p><b>Refine information used to populate the assumptions for the Investment Framework for Environmental Resources (INFFER) for Benefit: Cost ratio. Apply INFFER to Rural Non-Point actions using refined data.</b></p> <p>☐ AAF/AEP, DUC (Short Term by End 2015)</p>	2	<b>SUSTAINABLE PROGRESS</b>
5.4	<p><b>Evaluate urban and rural stormwater management practices for their ability and efficiency to treat phosphorus.</b></p> <p>☐ Urban and Rural Municipalities, ALIDP, AEP (Short Term by End 2015)</p>	1	<b>PROGRESS</b>
5.5	<p><b>Conduct research on the effectiveness of wetlands in the planning area to manage phosphorus.</b></p> <p>☐ DUC, Research Institutes</p>	2	<b>SUSTAINABLE PROGRESS</b>
6.1	<p><b>Update and refine water quality modelling to take into account phosphorus management activities.</b></p> <p>☐ AEP/ AAF (Short Term)</p>	2	<b>PROGRESS</b>
6.2	<p><b>Update and refine stormwater modelling to take into account phosphorus management activities.</b></p> <p>☐ All Municipalities/ AEP, others (Short Term)</p>	2	<b>PROGRESS</b>
6.3	<p><b>Evaluate the contribution of urban stormwater management practices on private land.</b></p> <p>☐ ALIDP, urban municipalities (Short Term)</p>	2	<b>PROGRESS</b>
7.1	<p><b>Conduct a regulatory review to evaluate municipal legislative and policy options to address issues related to small acreage development and land and livestock management.</b></p> <p>☐ BRBC/Rural Municipalities, AEP, AAF (Medium Term by End 2017)</p>	2	<b>PROGRESS</b>
7.2	<p><b>Conduct a regulatory review to evaluate municipal legislative and policy options to address implementing urban BMPs on private land.</b></p> <p>☐ ALIDP/ Urban municipalities, BRBC (Short Term)</p>	3	<b>COMPLETED OR NEARING COMPLETION</b>

#	ACTION	YEAR	STATUS
7.3	<b>Remove regulatory barriers to the use of innovative BMPs for rainwater, stormwater and wastewater, including reuse of same.</b> <input type="checkbox"/> <b>AEP (Policy)/</b> Municipalities, Municipal Affairs (Medium Term by End 2017)	1	<b>SUSTAINABLE PROGRESS</b>
8.1	<b>Complete risk assessments for commercial livestock operations and encourage adoption of practices to mitigate risk associated with: manure application; CFO livestock feeding; and seasonal feeding and bedding sites. Promote BMP implementation in high priority areas.</b> <input type="checkbox"/> <b>AAF/</b> Livestock industry (ILWG), rural municipalities (Short term)	1	<b>SUSTAINABLE PROGRESS</b>
9.1	<b>Investigate the feasibility and desirability of a phosphorus fertilizer restriction for both private and public realms for various urban contexts (Provincial scale).</b> <input type="checkbox"/> <b>AEP (Policy)/</b> WSGs, BRBC	3	<b>COMPLETED OR NEARING COMPLETION</b>
9.2	<b>Work with industries to control loadings to wastewater treatment facilities (source control).</b> <input type="checkbox"/> Municipalities; All Treatment facilities	2	<b>PROGRESS</b>
10.1	<b>Ensure developers and land owners adhere to current legislation and the new Alberta Wetland Policy and Wetland Mitigation Process.</b> <input type="checkbox"/> <b>AEP</b> (Wetland Policy implementation plan due Fall 2014. New policy states “wetlands and their functions are conserved and restored in areas where losses have been high”). (Short Term / Ongoing)	1	<b>PROGRESS</b>
10.2	<b>Utilize current tools (including legislation and enforcement) and incentive programs to preserve wetlands, and if necessary develop new conservation tools.</b> <input type="checkbox"/> <b>AEP, AAF/</b> DUC, All municipalities, Cows and Fish, WSGs, BRBC	2	<b>PROGRESS</b>
11.1	<b>Promote wetland restoration in areas where wetland losses have been high (links to 4.2).</b> <input type="checkbox"/> <b>DUC/AEP, ARD, Municipalities</b> (Medium Term by end of 2017)	1	<b>PROGRESS</b>
11.2	<b>Promote current incentive programming (e.g. Growing Forward 2; wetland restoration and conservation easements via AEP Wetland Mitigation /Compensation program.)</b> <input type="checkbox"/> <b>Rural Municipalities, DUC/AAF, Rural Landowners</b> (Short Term, Under-way, Ongoing)	1	<b>PROGRESS</b>
11.3	<b>Develop new conservation and restoration tools (Ecosystem Services).</b> <input type="checkbox"/> <b>GOA (AEP, AAF), DUC, All Municipalities/</b> Land owner producer groups, WSGs, others (Medium Term)	2	<b>PROGRESS</b>
12.1	<b>Utilize extension programs, policy, codes of practice and conservation tools to promote protection and restoration of riparian areas in the planning area, starting in priority areas. Incorporate buffers and stormwater management facilities into landscape planning and development, e.g., buffers between upland development and riparian areas, along streams, and around wetlands.</b> <input type="checkbox"/> <b>Rural and Urban Municipalities/</b> Cows and Fish, Growing Forward, AEP, BRBC, TUC, WSGs (Short Term)	1	<b>PROGRESS</b>
12.2	<b>Increase the adoption of livestock grazing and off-stream watering BMPs through:</b> - Coordinating extension outreach and incentive programs. - Conducting risk assessment on erosion risk and phosphorus loss for riparian areas. - Implement buffers and stormwater management facilities to minimize impacts on riparian areas along streams and around wetlands from excessive sediment and nutrient loadings. <input type="checkbox"/> <b>AAF/ AEP, Cows and Fish, WSGs Municipalities</b> (Medium Term by End 2017)	1	<b>SUSTAINABLE PROGRESS</b>

#	ACTION	YEAR	STATUS
13.1	<b>Create inventory of natural channels subject to erosion risk and prioritize areas to be addressed.</b> □ Irrigation Districts/AEP, AAF (Short Term)	3	<b>PROGRESS</b>
13.2	<b>Increase the adoption for erosion control measures.</b> □ AAF; Rural Municipalities / Irrigation Districts (Short Term)	3	<b>PROGRESS</b>
13.3	<b>Convert canals to pipelines where possible to reduce return flow from irrigated lands.</b> □ Irrigation Districts (Short Term)	3	<b>SUSTAINABLE PROGRESS</b>
14.1	<b>Require the adoption of Erosion and Sediment Control (ESC) BMPs during construction and repair activities and coordinated compliance of ESC (BMPs include erosion control at the source, reduction of the allowable size of open construction sites, length of time these sites can be left exposed and minimization of soil compaction.)</b> □ GOA, AER /Urban and Rural municipalities, contractors	2	<b>PROGRESS</b>
14.2	<b>Require Erosion and Sediment Control (ESC) designers and inspectors to obtain professional certification. Consider this in the revision of the <i>Municipal Government Act</i>.</b> □ GOA (MA, Transportation)/ Urban and Rural municipalities, contractors (Medium Term)	2	<b>PROGRESS</b>
14.3	<b>Identify and reclaim unused &amp; unofficial recreation trails on Public Lands and Parks.</b> □ AEP, TPR	3	<b>PROGRESS</b>
14.4	<b>Enhance enforcement of responsible recreation trail use on Public Lands and Parks.</b> □ AEP, TPR/ Solicitor General	3	<b>PROGRESS</b>
15.1	<b>Initiate pilot projects to remove phosphorus from lagoons e.g., construct wetlands downstream from lagoons and harvest vegetation to remove phosphorus. Identify potential locations for wetland restoration/ compensation projects; pilot new technologies.</b> □ Municipalities, Lagoon Operators, AEP (re: Code of Practice) (Medium Term by End 2017)	2	<b>SUSTAINABLE PROGRESS</b>
16.1	<b>Establish and enforce runoff volume targets for development in all watersheds in the planning area.</b> <b>Establish protocols for compensation in particular land development instances where achieving the applicable volume target onsite is demonstrated to be infeasible.</b> □ Municipalities, AEP, BRBC (Short term by end 2015)	1	<b>PROGRESS</b>
16.2	<b>Establish and enforce, where possible, phosphorus loading targets for development in all watersheds in the planning area.</b> <b>Establish protocols for compensation in particular land development instances where achieving the applicable phosphorus quality target onsite is demonstrated to be infeasible.</b> □ Municipalities, AEP, BRBC (Short Term by End 2015)	3	<b>PROGRESS</b>
17.1	<b>Seek opportunities to implement upstream phosphorus management actions to reduce phosphorus inputs in the planning area, e.g. wetland construction.</b> □ The City of Calgary, AEP, University of Alberta (Medium Term by End 2017)	3	<b>PROGRESS</b>
17.2	<b>Examine the feasibility and best timing to introduce new strategies for removing P from wastewater.</b> □ WWTP in planning area: Calgary, Heritage Pointe, Okotoks Strathmore, /new WWTPs (Medium Term by End 2017)	3	<b>PROGRESS</b>



#	ACTION	YEAR	STATUS
18.1	<p><b>Review Code of Practice for lagoons and, if feasible, revise:</b></p> <ul style="list-style-type: none"> <li>- To clarify guidelines for piloting unproven or innovative and alternative technologies for lagoons</li> <li>- To allow innovative upgrades for phosphorus removal and water re-use practices, without triggering the re-classification to mechanical treatment plant (e.g., treatment techniques to enable P to settle out in lagoons);</li> <li>- To include the requirement for regular monitoring of phosphorus as measures of the effectiveness of lagoons</li> <li>- To require long term planning.</li> </ul> <p><input type="checkbox"/> AEP, Lagoon Operators/All municipalities, Municipal Affairs (Medium Term by End 2018)</p>	3	<b>PROGRESS</b>
19.1	<p><b>Have lagoon operators work together to determine optimal times for releasing effluent from lagoons.</b></p> <p><input type="checkbox"/> Lagoon Operators, AEP (Short Term)</p>	3	<b>PROGRESS</b>

## Appendix B: Top Ten Priorities for 2016/2017

Education (To be coordinated by EOWG)			
1.4	<p><b>Coordinate rural education programs such as:</b></p> <ul style="list-style-type: none"> <li>- Ecosystem service values for riparian areas, wetlands</li> <li>- Value and benefits of 4-R nutrient stewardship (Right fertilizer source at the Right rate, at the Right time and in the Right place)</li> <li>- Septic system management and risks</li> <li>- Responsible recreation</li> <li>- Livestock grazing and watering management practices</li> <li>- Manure application practices to reduce P loss in runoff.</li> </ul> <p><input type="checkbox"/> BRBC, AEP/ DUC, Rural Municipalities (Medium Term by End 2017)</p>	1	<b>PROGRESS</b>
9.1	<p><b>Investigate the feasibility and desirability of a phosphorus fertilizer restriction for both private and public realms for various urban contexts.</b></p> <p><input type="checkbox"/> AEP (Policy)/ WSGs, BRBC (Note from Leta: Looking for educational programming so parks staff will eliminate from general maintenance blend.)</p>	3	<b>COMPLETED OR NEARING COMPLETION</b>
1.2 & 1.3	<p><b>By jurisdiction, determine the status and content of good housekeeping/pollution prevention programs and bylaws. (Ensure that programs address behaviors such as the following:</b></p> <ul style="list-style-type: none"> <li>- Wash vehicles at car washes rather than at home</li> <li>- Pick up pet feces</li> <li>- Maintain vehicles to reduce/eliminate oil leakage</li> <li>- Dry sweep rather than hose driveways).</li> </ul> <p><input type="checkbox"/> AEP/ALIDP, Urban and Rural Municipalities, TUC (Medium Term by End 2017)</p> <p><b>Educate the public about household phosphorus (P) contributions and provide alternatives to current practices. (e.g., promote composting over garburators).</b></p> <p>Urban and Rural Municipalities/ AEP (Short Term by End 2015)</p>	3 & 2	<b>PROGRESS</b>

<b>Wetlands and Riparian Areas (Nov. 2016)</b>			
12.1	<p><b>Utilize extension programs, policy, codes of practice and conservation tools to promote protection and restoration of <i>wetland and</i> riparian areas in the planning area, starting in priority areas.</b></p> <p><b>Incorporate buffers and stormwater management facilities into landscape planning and development, e.g., buffers between upland development and riparian areas, along streams, and around wetlands.</b></p> <p><input type="checkbox"/> <b>Rural and Urban Municipalities/</b> Cows and Fish, Growing Forward, AEP, BRBC, TUC, WSGs (Short Term)</p>	1	<b>PROGRESS</b>
<b>Innovative Use of Water (Jan. 2017)</b>			
7.3	<p><b>Remove regulatory barriers to the use of innovative BMPs for rainwater, stormwater and wastewater, including reuse of same.</b></p> <p><input type="checkbox"/> <b>AEP (Policy)/</b> Municipalities, Municipal Affairs (Medium Term by End 2017)</p>	1	<b>SUSTAINABLE PROGRESS</b>
<b>Stormwater and Total Loading Management (Feb. 2016)</b>			
3.4	<p><b>Implement appropriate stormwater monitoring, and report on findings.</b></p> <p><input type="checkbox"/> <b>All Municipalities,</b> AEP, Monitoring Agency (Short Term and Long term)</p>	1	<b>PROGRESS</b>
16.1	<p><b>Establish and enforce runoff volume targets for development in all watersheds in the planning area.</b></p> <p><b>Establish protocols for compensation in particular land development instances where achieving the applicable volume target onsite is demonstrated to be infeasible.</b></p> <p><input type="checkbox"/> Municipalities, AEP, BRBC (Short term by end 2015)</p>	1	<b>PROGRESS</b>
<b>Industry Source Control (Mar. 2017)</b>			
9.2	<p><b>Work with industries to control loadings to wastewater treatment facilities (source control).</b></p> <p><input type="checkbox"/> Municipalities; All Treatment facilities</p>	2	<b>PROGRESS</b>
<b>Research (Mar. 2017)</b>			
5.1	<p><b>Foster and coordinate research opportunities related to phosphorus management and mitigation (e.g. new technologies).</b></p> <p><input type="checkbox"/> <b>AEP/DUC,</b> Urban Municipalities, Universities, ALIDP, others (Short Term by End 2015)</p>	2	<b>PROGRESS</b>
5.4	<p><b>Evaluate urban and rural stormwater management practices for their ability and efficiency to treat phosphorus.</b></p> <p><input type="checkbox"/> <b>Urban and Rural Municipalities,</b> ALIDP, AEP (Short Term by End 2015)</p>	1	<b>PROGRESS</b>