

PRC Implementation Plan and Governance

Steering Committee Meeting
February 23, 2018
Woodstock, Ontario



Thames River

PHOSPHORUS REDUCTION COLLABORATIVE



- DAP commitment to achieve 40% P reduction in Western Lake Erie basin released yesterday.
 - Detailed workplan with responsible parties identified within year.
- IJC report on Fertilizer application and Lake Erie
 - Despite reduction in fertilizer application, increase in DRP, algal blooms
 - Legacy P and climate change contributing factors



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First Year Activities

- \$200K Growing Forward2 grant and \$100K in matching funding from participants to finance 1st year of activities.
- Established PRC Steering Committee, co-chaired by OFA and Cities Initiative, hired project manager (C. Lalonde)
- First Year activities focused on
 - Governance
 - Capacity Building
 - Science and Innovation
 - Communications and Outreach



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Current Status

- Seeking approval of 4-year budget, new governance structure at PRC Steering Ctee meeting, Feb 23rd
- Submit major funding proposals to Canadian Agricultural Partnership (CAP), Great Lakes Protection Initiative, foundations
- Meetings with Ohio partners to develop parallel Collaborative in Ohio.

Focus on Pathways When



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- Application and Retention are critical to reducing P loss from agricultural land.
- Last line of defense is to prevent P from entering waterways.
- Most P loss occurs in big storms and snow melts in non-growing season.

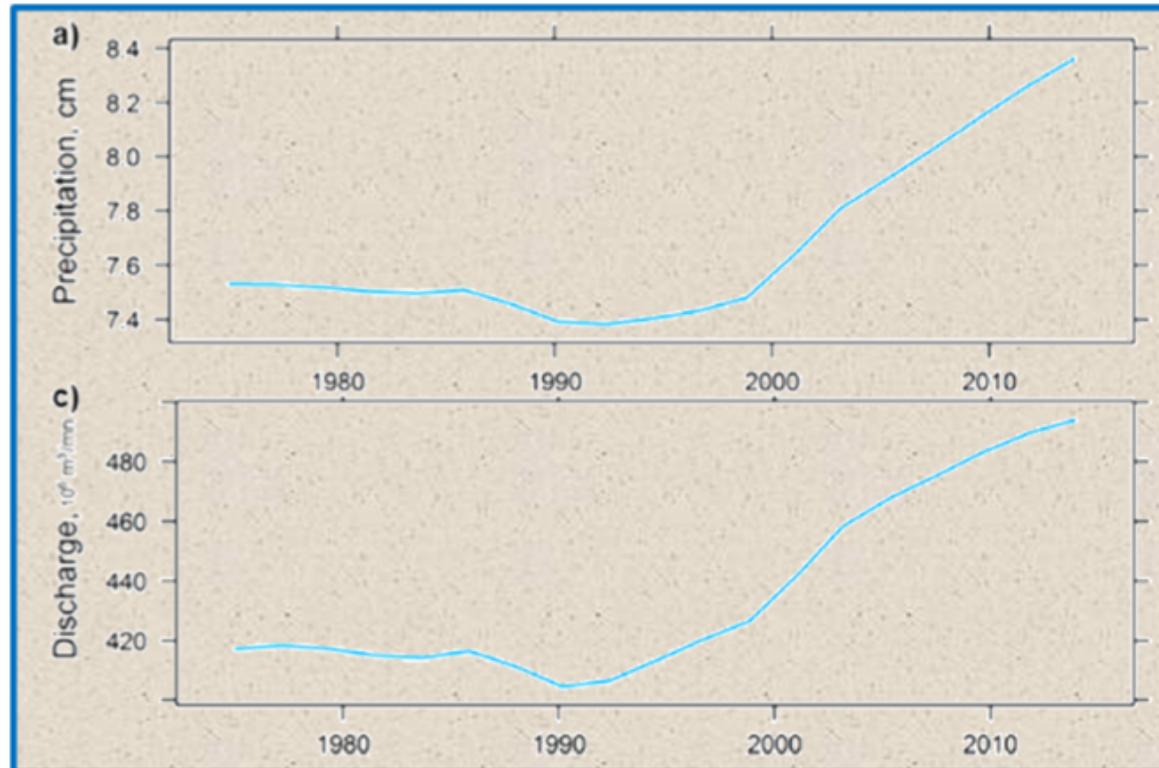
Focus on Pathways When



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Monthly average precipitation for Ohio Region 1 (top) and Maume River discharge (bottom) for 1975-2013. (reprinted with permission from Stow et al. 2015. Copyright 2015 American Chemical Society)



Focus on Pathways Where



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1. P treatment/recovery from edge of field and at blind inlet
2. P Treatment/recovery in drainage system



Implementation Plan 2018 Workplan



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Spring 2018:

- Fundraising
- Characterization outreach

Summer 2018

- Conduct drainage system characterization
- Farmer/landowner sign-on
- Establish monitoring protocols
- Seek approvals

Fall 2018:

- Begin installations, monitoring during non growing season

Implementation Plan Scale Up at Drain Level



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- Work at lot level, 3 x each type of project, total 9 projects
- Multiply projects along single municipal drain to have measurable impact on P loadings

From the field ...



to the drain...



...not to the Thames



Implementation Plan

Three Pathways



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1. Surface runoff –edge of field filtration

- Novel double filtration box design created by a team led by Kevin McKague of the Ontario Ministry of Agricultural and Rural Affairs.
- Filtration boxes are located underground at the corner of the field,
- Runoff conveyed into the boxes and run over a filter containing sorbtive material that reacts to, and removes phosphorus.
- The filtered runoff is then discharged into the municipal drain.
- System being installed on farm in Chatham-Kent using in-kind donations.



Implementation Plan

Three Pathways

2. Tile Inlet filtration

- Captures and treats runoff as it enters the tile drainage system,
- A bed of phosphorus reactive sorptive material is constructed around the inlet.
- Inlet is raised during the non growing season, allowing the water to pool around the inlet and drain through the sorptive material before collecting in the tile drain.



Implementation Plan

Three Pathways



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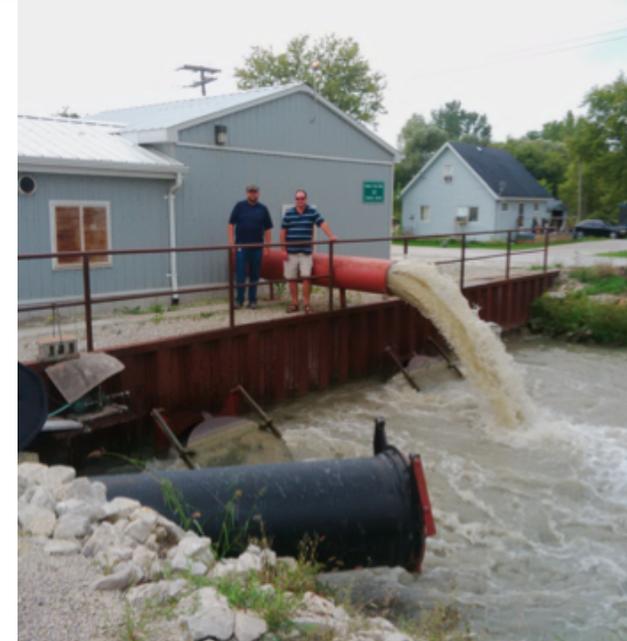
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3. In-drain treatment

Install phosphorus treatment systems in municipal drains at a collection point, eg. pumping station.

- 'plug and play' technology with a small footprint
- located outdoors, works in cold climate
- removes low concentrations of soluble reactive phosphorus,
- can treat water at a capacity ranging from 5,000 to 500,000 litres per minute.

3 potential companies identified that can adapt their existing technologies to meet design criteria.



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Characterization of Drain



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First Step is to characterize drain and farms that drain into it, to:

- map topography of participating farms to assess type and number of features needed on the land to intercept water
- determine expenditures on each site based on number of features, location.
- gather baseline data on P loadings



Implementation Plan Summary



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1. Focus on the When and the Where of P Loss

- Where P leaves field, enters drainage system
- Seeking impact at scale of individual drainage system
- concentrate projects on farms located on one municipal drain in Lower Thames, one drain in Upper Thames, in strategic sites within drain.
- Focused on non-growing season

2. Prioritize three types of projects

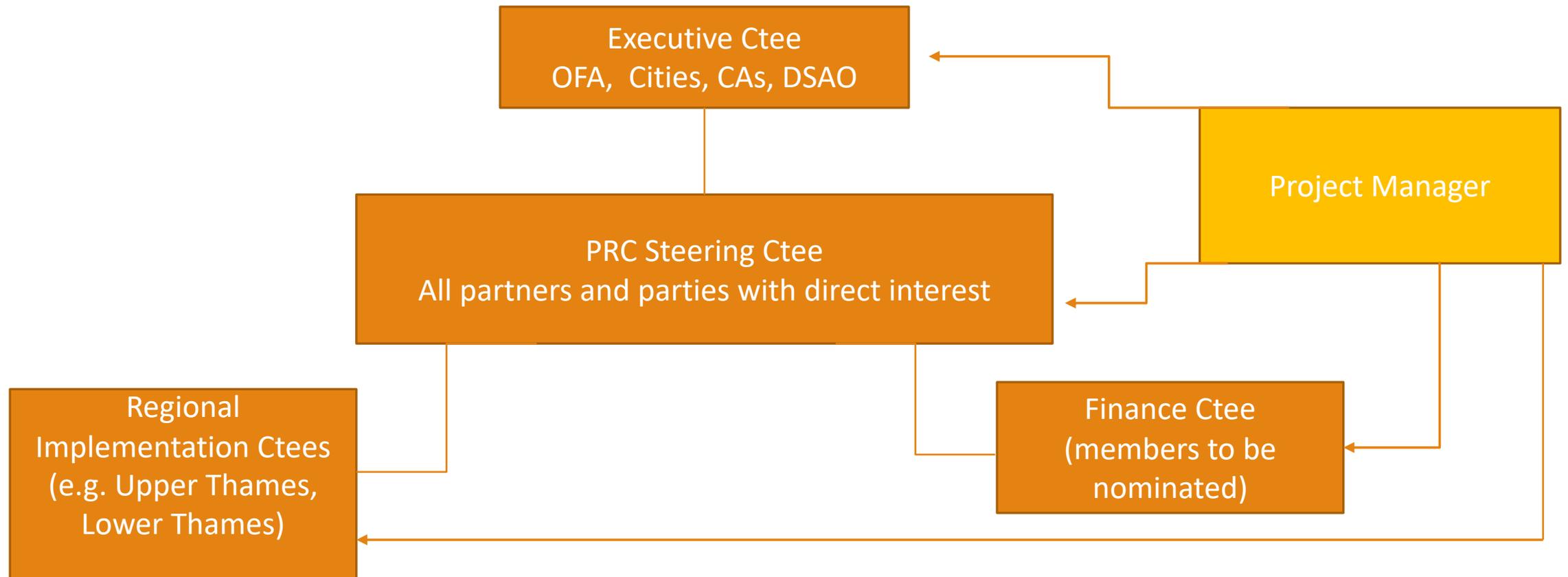
- In field treatment boxes, 3 sites on one drain in Lower Thames
- Sorbtive material around raised inlet, 3 sites on one drain in Upper Thames
- Treatment in municipal drain, in strategic sites within municipal drain (at pumping station, dam)

Preparing for Implementation PRC Governance Structure



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DISCUSSION