1. Call to order

2. Roll call

3. Minutes (*Attachment A*)

4. Treasurer’s Report (*Attachment B – to be posted separately*)

5. Technical Committee report
   a. Draft Board resolution to DEP (*Attachment C*)

6. Annual Meeting/Election of Officers. Under Art. IV, Sec. 1., “The officers of the Corporation shall be a President/Chair, Vice-President/Vice-Chair, Treasurer, Secretary and Registered Agent.”

7. Executive Director’s report
   a. O&M Inspection Report landowner feedback
   b. 2012 StormCon attendance request (*Attachment D*)

8. WERF Award Nomination – to approve the submission of the WERF Award Nomination packet (*Attachment E*).

9. EPA video of Long Creek – EPA is developing a video of Long Creek and would like board input. EPA has identified several stories as follows:
   o the process to get everyone to agree to a plan, and participate financially in a general permit raising revenue to install BMPs
   o the role of the facilitator (Ann Gosline) to work behind the scenes (shuttle diplomacy) on getting everyone to the table
   o the ability of the project to quickly finance and install new, innovative BMPs within two years of establishment using flexibility in contracting and stormwater guidance
   o results of the monitoring

   EPA would also like input on who should be interviewed for the video.


11. Adjourn.
1. **Call to order** – 9:00 a.m.

2. **Roll call**
   Dan Bacon, David Russell, Curtis Bohlen, David Thomes, John Branscom (absent), Craig Gorris (absent), Brian Goldberg, Jim Hughes, Gerard Jalbert, John O’Hara (absent), Ed Palmer (absent), Adam Pitcher, Tom Raymond, Doug Roncarati, Stephen Tibbetts

3. **Minutes**
   Mr. Jalbert made the motion to accept the minutes as presented. Mr. Russell seconded the motion. The motion was approved unanimously.

4. **Treasurer’s report**

5. **Technical Committee report**
   Board discussion – draft board resolution to DEP was presented at the meeting as an option for the board to consider. The board provided input and a revised draft will be presented at the next board meeting.

6. **Executive Director’s report**
   a. Non-compliant parcels from the original DEP designation:
      - (CPSP (3) & Cornerbrook (1) – landowner served with complaint by DEP on April 11, 2012.
      - Outback Steakhouse & Sea Dog Brewery – landowner is V&E, but DEP determined that the leasees hold the responsibility for stormwater. DEP has communicated with the leasees, but we have yet to see payment or executed PLAs.
      - North Avenue Realty Trust – landowner served with Notice of Violation by DEP. North Avenue Realty Trust has paid and now needs to file PLA/MOU paperwork.
   b. Non-compliant parcels from second DEP designation:
      - BFE Ventures (Christmas Tree Shop); Goodwill Industries – landowners served with Notice of Violations by DEP; there has been no recent word from BFE or Goodwill Industries.
   c. Paul I. Busch Award through Water Environment Research Foundation – $100K. The goal of the research project will be to identify the pollution stressors for the macroinvertebrates in Long Creek. URS has developed a proposal to complete the work and CCSWCD will oversee the implementation. LCWMD will need to nominate URS and CCSWCD for the award. The nomination will be brought to the next board meeting.
   d. Construction projects – timing of future projects including engineering
      - C-08 – Texas Instruments & Fairchild – need to explore in lieu of payment structure; TI is not interested in providing easements and they are willing to take a lead on constructing the projects on their property that will meet the needs of the management plan.
   e. New owner automatic assignment of PLA and industrial landowners
      - When developing the PLA, participating landowners sought to make transfer of property within the watershed as easy as possible by allowing for automatic assignment of the PLA when parcels subject to it are sold so long as the new owner files an NOI under the General Permit.
      - DEP has conveyed that a NOI is not required for industrial landowners under the Long Creek Watershed General Permit rather they are under the multi-sector General Permit. LCWMD has interpreted that the intent of the PLA has been upheld through substituting the multi-sector General Permit for the Long Creek Watershed General Permit.

7. **Blanchette Brook (Catchment B-21) retrofit project**
The base bid is for the installation of one gravel wetland, five underdrained soil filters and one stormtech chamber system to treat 10.86 acres of impervious and 9.9 acres of grassed area ($26,692/acre).

Alternate #1 is the installation of a stormtech chamber system to treat 4.32 acres of impervious and 1.94 acres of grassed area. The cost will be $136,763.50 ($31,658/acre).

Alternate #2 is the installation of brentwood stormtank system to treat 1.21 acres of impervious and 1.14 acres of grassed area. The cost will be $42,766.20 ($35,344/acre).

a. **Budget approval** – base bid is $289,874.42; two alternates were bid to provide more treatment of both volume and pollutants of concern. Alternate #1: $136,763.50 and Alternate #2: $42,766.20. Construction line item for Blanchette Brook is $343,030.

  - **Budget options:**
    - $50K built into FY2012 & FY2013 budgets for construction maintenance – this is the maintenance of the BMPs built by LCWMD. We were extremely conservative in our estimates for maintenance because good information did not exist regarding long term maintenance cost of these systems. Chris Baldwin has inspected all of the systems and created a punch list for this year’s maintenance. It is anticipated that our maintenance costs will be $10K or less for this year and next.
    - $50K built into FY2012 & FY2013 budgets for maintenance carry forward. This has been set up to create a maintenance bank for future maintenance needs.
    - $81,342 built into FY2012 budget for administration carry forward.
      - Mr. Russell made the motion to move FY2012 line items as follows: $40K from FY2012 construction maintenance line item to B-21 construction; $50K from FY2012 maintenance carry forward line item to B-21 construction; and $45K from FY2012 admin carry forward line item to B-21 construction. Mr. Jalbert seconded the motion. The motion was approved unanimously.

b. **Contract Services, Catchment B-21 Engineering.** Mr. Goldberg made the motion to award a contract for base bid and two alternates for the construction of Blanchette Brook retrofits on Thomas Drive, Westbrook, Maine and to authorize the LCWMD Chair/President to execute documents necessary thereto. Mr. Hughes seconded the motion. The motion was approved unanimously.

c. **Easement approval.** Mr. Jalbert made the motion to authorize board chair to execute easement deeds and accept easements over the following properties (Colonel Westbrook Associates: Map 3 Lots 101 & 101A; Millenium Development Map 3 Lot 104; Westport Realty, LLC Map 3 Lot 104; Lanco Properties, LLC Map 3 Lots 106 & 107; United Rentals (Peter Holmes) Map 3 Lot 103). Mr. Russell seconded the motion. The motion was approved unanimously.

8. **Annual meeting** – board recommendation for next year was to be sure to have a sound system.

9. **EPA video of Long Creek** – Tamara provided an overview of EPA’s input to date. The board recommended providing this information in writing prior to the next meeting for further discussion.
   - **Video topic suggestions:** Why this approach worked including the nature of the land use in this watershed; Long Creek as a potential model for a regional approach; Carrot & stick; until we had a structure in place all we had was a plan; How this stand-alone entity would mesh with municipalities moving forward with stormwater utilities.

10. **Public Comments.**

11. **Adjourn.** Mr. Russell made the motion to adjourn the meeting. Mr. Jalbert seconded the motion. The motion was approved unanimously.
Resolution of the Long Creek Watershed Management District Board of Directors

Whereas chloride salts degrade water quality, soil quality and ecosystems.

Whereas chloride salts are a statewide problem and prevention of contamination by chlorides is of statewide importance.

Whereas the “Maine Winter Roads: Salt, Safety, Environment and Cost” report by the Margaret Chase Smith Policy Center at the University of Maine (February 2010) concluded that:

- new policies are needed to encourage the use of chemicals and technologies that have fewer environmental effects than those of sand and salt;
- investigation into private contractor practices and training is necessary to identify possible efficiency gains;
- based on information gathered, expand training at municipal and state levels.

Whereas the Long Creek Watershed Management District is responsible for implementing the Long Creek Watershed Management Plan, an effort to improve the water quality of one of 31 urban impaired streams statewide.

Whereas the Long Creek Watershed Management District enlisted the input of private contractors as part of the implementation of the Long Creek Management Plan and identified that parking lot winter maintenance bmps need to be developed and contractor certification needs to be established should be explored as a way to reduce winter salt use.

Whereas the Long Creek Watershed Management District does not have the structure to implement a contractor certification program and DEP does have the structure to implement a contractor certification program.

Be it resolved that we direct our Board president to contact DEP Commissioner, Patricia Aho, to request that the Maine Department of Environmental Protection:

1. Work to direct some staff resources to the investigation of cost effective best management practices for parking lot winter maintenance;
2. Enlist the support of national experts on the reduction of salt use that maintains the same level of service;
3. Develop BMP manual and implement outreach to salt applicator contractors; and
4. Develop a State certification program for private salt applicators.
Memo

To: Long Creek Watershed Management District Board of Directors
From: Tamara Lee Pinard
Date: May 14, 2012
Re: Request for attendance at StormCon

I am writing to request your approval for my attendance at the 2012 StormCon conference in Denver, CO from August 20 – 23, 2012. The following abstract, “The Pinch of Salt: Winter Maintenance Strategies within the Long Creek Watershed” was accepted and I would be honored to be able to attend this conference to share this piece of the great story of Long Creek.

In addition, attendance at this conference will benefit Long Creek in the following ways:

1. Increase exposure of the Long Creek project, which will assist in developing partnerships with potential funders and solicitation of products from vendors;

2. Provide face time with vendors to solicit donation of products for use on innovative Long Creek retrofits. In particular, I am interested in pursuing the donation of an “EPIC Green Solutions” system that has great potential for our Maine Mall restoration project slated for FY2014. I spoke to Firestone last year and the EPIC system has yet to be utilized in the Northeast. Long Creek projects have been selected for StormCon presentations for the last two years, which highlights the interest of our work on a National scale.

3. Lastly, this is the stormwater conference for leading consultants, municipal professionals and researchers and is an opportunity for me to get up to date on successfully implemented technologies and cost effective solutions for stormwater management.

The cost of the conference is estimated as follows:

- Conference registration $ 495
- Hotel $ 500 (3 nights at $145 plus 14.75% tax)
- Flight and transport to hotel $ 500
- Per diem expenses $ 120 (4 days @ $30/day)
- Total $1,615

Thank you for consideration of this request.
Title: Framework for Evaluating Potential Impacts to Benthic Macroinvertebrate Communities Exposed to Chloride from De-icing Agents in the Long Creek Watershed, an Urban Impaired Stream System in Portland, Scarborough, South Portland, and Westbrook, Maine.

Applicant: Cumberland County Soil & Water Conservation District in partnership with URS Corporation. Team members include: Kate McDonald (CCSWCD Project Scientist and Team Lead), Barry Baker (URS Corporation, Principal GIS Specialist - Information Management Solutions Group Leader), Weldon Bosworth, Ph.D. (URS Corporation, Senior Scientist), Gary Long (URS Corporation, Principal Ecologist), Frederik Schuele (URS Corporation, Hydrogeologist)

Address: Cumberland County Soil & Water Conservation District
Attn: Kate McDonald
35 Main Street
Windham, ME 04062
(207)892-4700 (o)
(207)229-7562 (m)
kmcdonald@cumberlandswcd.org
Executive Summary

Road salt usage has increased throughout the cold regions of the United States as expectations for bare surfaces on parking lots, walkways, driveways, and roads have increased: safety is the ultimate driver. Transportation departments have implemented “bare roads” policies, while private landowners also use large quantities of salt on their parking areas and walkways. This salt usage not only impacts the land, but also water sources that receive runoff from roadways. There is no way to remove salt from the runoff, thus compounding the problem of salt contamination. Despite the prevalence of private roads, parking areas and snow stockpiles in areas that drain to polluted streams, there has been very little effort to evaluate, monitor or manage salt usage on private parcels. Since municipalities and highway departments are large and visible salt applicators, substantial resources have been devoted to salt reduction and improved application practices for roads and highways. Private property has been largely ignored.

The project site is the Long Creek Watershed, a commercial/retail district in the greater Portland, Maine area. In 2009, the United States Environmental Protection Agency began requiring landowners with one or more acres of impervious cover (e.g. rooftops, roads and parking lots) within the Long Creek Watershed to obtain a stormwater permit. This led to the establishment of the Long Creek Watershed Management District (LCWMD) that implements the permit requirements for 70% of the watershed’s impervious area.

LCWMD’s landowner permit fees fund an extensive monitoring program. These data have been used to develop a model to calculate estimated continuous salt concentrations in the stream. The model identifies variations in concentrations both seasonally and across the watershed and will be used to evaluate significant sources of salt during low flow conditions.

From an academic standpoint, it is logical to address the salt contamination in Long Creek by enforcing stringent salt application guidelines within the watershed. However, when dealing with more than one hundred landowners who operate commercial, office, retail, and manufacturing spaces as well as three municipalities, two state road entities, an airport, and the associated liability of each property owner if a client or resident slips and falls, a salt ban is not acceptable. The salt limitation discussion cannot begin without irrefutable evidence that only a ban on salt will clean up Long Creek and therefore relieve landowners of their annual permitting fees.

The current regulatory system focuses on impervious cover to represent all pollutants rather than identifying what is actually polluting the stream. Impervious cover reduction is expensive and a political challenge while a pollutant ranking model could be a much more cost effective and business-friendly approach to addressing water quality issues. Such models are not being funded under available State and Federal grant programs, and LCWMD provides the perfect structure to make the case for utilizing this approach to restore polluted streams.

This project proposes to determine whether salt contamination is a major pollutant impacting stream life in Long Creek. Because of EPA’s permitting requirements within the Long Creek Watershed, the project team has an extensive dataset from which to draw and landowners who are motivated to implement science-based conservation practices to restore the stream.

This project will identify monitoring requirements and recommendations based on a model developed from the Long Creek data. These recommendations will provide a framework for other watershed management groups to target their monitoring programs and implementation to reduce the financial impact and address stakeholders’ concerns on an individual and aggregate basis. While the findings of this proposed project are specific to Long Creek, the methodology used to identify pollutants and thus guide restoration efforts will be applicable throughout the state and region.
1. Introduction
In 2009 the United States Environmental Protection Agency (USEPA) exercised its Residual Designation Authority (RDA) in the Long Creek Watershed, a commercial/retail district in the Greater Portland, Maine area. The RDA provision requires stormwater permitting for any landowner with one or more acres of impervious cover. This precedent-setting use of RDA led to the establishment of the Long Creek Watershed Management District (LCWMD), which implements the permit requirements for 70% of the watershed’s impervious area. This unique regulatory situation allows LCWMD to evaluate water quality solutions based on site-specific data and implement nontraditional approaches to water quality based upon sound science.

As with many urban impaired streams, Long Creek and its tributaries are impacted by a variety of contaminants in stormwater that effect water quality and aquatic life. The proposed study will investigate the potential impacts of chloride on benthic macroinvertebrate communities in the watershed.

1.1 Problem Formulation
USEPA identified chloride salts from de-icing agents as a probable cause of impairment to benthic macroinvertebrate communities in the Long Creek Watershed; however, the importance of chloride as a stressor to benthic macroinvertebrate communities compared to other watershed stressors is not well defined. This project will use a phased approach to evaluate the relative importance of chloride as a stressor to benthic communities and assess whether further investigation is necessary to support effective management strategies for the watershed. These studies will evaluate whether potential effects vary spatially within the watershed under acute (e.g., snow melt runoff) and chronic (e.g., late summer) exposure conditions. This investigation will identify the chloride concentrations above which the benthic test organisms are affected and Long Creek is considered to be “impaired.”

1.2 Objectives
The objectives of this project are to: (1) Evaluate the relative importance of chloride as a stressor for aquatic communities in the Long Creek Watershed; (2) Characterize spatial and temporal characteristics of potential adverse effects from chloride; (3) Identify potential chloride concentrations that can support management practices to minimize impacts; and, (4) Develop a semi-quantitative ranking of stressors using a relative risk model (RRM) that will be used to guide decision-making.

1.3 Approach
Water quality and environmental/geospatial data collected from the Long Creek Watershed will be used to implement a phased evaluation of chloride as a benthic community stressor. The proposed project will include the following: (1) Evaluate potential impacts to benthic macroinvertebrate communities associated with chloride and other stressors identified in the watershed using a literature review; (2) Develop an RRM based upon available data and the literature review to evaluate the relative importance of chloride compared to other stressors in the watershed; (3) Conduct field and laboratory toxicity testing to identify potential thresholds of chloride effects; and (4) Identify potential risk management measures that may minimize the effect(s) of chloride.

2 Literature Review and Relative Risk Model Development
The RRM is a watershed-scale assessment framework that integrates environmental and geospatial information on biological stressors, habitats, and impacts to predict relative ecological risk. The existing analytical database is the foundation of the RRM. The database provides the basis for identifying effects on invertebrates, stressor identification, and habitat evaluation. The overlay of the identified stressors and associated habitat quality enable a semi-quantitative analysis of relative watershed risks.
Model and database development will be supported by a literature review of potential benthic invertebrate community impacts associated with chloride and other identified stressors. The RRM will expand upon the *Causal Analysis of Biological Impairment in Long Creek: A sandy-bottomed stream in coastal southern Maine* (USEPA 2007) by geospatially integrating the identified stressors with an assessment of relative habitat quality within the watershed.

The project team has successfully applied the RRM methodology on multiple scales, including the Delaware River Estuary RRM and a 272-square mile watershed in the Shenandoah Valley, Virginia. This experience ensures that the team can work efficiently within the 3.45-square mile Long Creek Watershed, and will leverage prior experience implementing the RRM methodology to optimize the effectiveness of this tool for supporting management decision making within Long Creek and developing a model for other watersheds.

3 Model Implementation & Management Direction

Output from the RRM will be used to guide further field/laboratory investigations that will evaluate spatial and seasonal impacts of chloride on benthic communities, including supporting the overall study design, the selection of study stations, the timing of the investigation, etc. Specific elements of the study design that will be considered are summarized in Table 1.

The findings of these studies will be integrated with existing water quality and biological monitoring data for the Long Creek Watershed to support a weight-of-evidence evaluation of potential chloride-associated impacts. LCWMD is currently collecting continuous water quality monitoring data, as well as periodic chemistry data during storm and baseflow periods. These water quality data will be used to relate spatial and temporal chloride exposure conditions to exposure conditions represented by the field/laboratory investigation. Existing benthic community data will be evaluated to identify potential relationships between benthic community structure and composition with the findings of the field/laboratory investigations of potential chloride-associated impacts.

<table>
<thead>
<tr>
<th>Test Methodology</th>
<th>Sampling Events</th>
<th>Test Locations</th>
<th>Analysis</th>
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</thead>
<tbody>
<tr>
<td>Laboratory Bioassay</td>
<td>Snow melt - acute exposure</td>
<td>1 Reference station</td>
<td>• Chronic aqueous exposure to a dilution series of surface water collected from study stations (6.25%, 12.5%, 25%, 50%, and 100%)</td>
</tr>
<tr>
<td></td>
<td>Late summer – chronic exposure</td>
<td>3 Study stations (e.g., low, medium, high chloride)</td>
<td>• Test organism: Relevant benthic-dwelling organism with known sensitivity to chloride</td>
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<td></td>
<td></td>
<td></td>
<td>• Endpoints: survival and growth</td>
</tr>
<tr>
<td>In Situ Bioassay</td>
<td></td>
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<td>• Chronic aqueous exposure (7-day) in <em>in situ</em> chambers coinciding with laboratory bioassay</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Test organism: Relevant benthic-dwelling organism consistent with laboratory bioassay</td>
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<td></td>
<td>• Endpoints: survival and growth</td>
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<tr>
<td>Water Quality Analyses</td>
<td></td>
<td></td>
<td>• Discrete samples during collection of surface water for laboratory bioassay</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Analytes: Chloride; metals (filtered/unfiltered)</td>
</tr>
</tbody>
</table>
The team will integrate the phased data collection results into a ‘white paper’ report that will present a weight-of-evidence evaluation of chloride-associated impacts on benthic communities in the Long Creek Watershed. Specific objectives of the report will be to: (1) Evaluate the representativeness of toxicity testing conditions based on water quality monitoring data; (2) Integrate the findings of laboratory and *in situ* toxicity testing to evaluate the relevance of the laboratory exposure to field conditions; (3) Evaluate the applicability of toxicity testing results to potential community-level responses based on comparisons to the integrated community/water quality datasets; and (4) Identify potential effects thresholds for chloride based on the weight-of-evidence evaluation. This report will identify areas within the Long Creek Watershed where best management practices (BMPs) may be most effective at minimizing impairment to benthic macroinvertebrate communities.

4 Benefits and Outcomes

The proposed research team is evaluating Long Creek’s existing environmental and geospatial data using an approach that is commonly used for regional environmental risk assessments on hazardous waste sites. Urban impaired streams do not have the benefit of Superfund legislation and funds. Municipalities are typically responsible for cleaning up these streams, and they are generally unable to implement extensive monitoring programs. The Long Creek Watershed falls into a unique category because of RDA. The team therefore has an extensive dataset from which to draw and a group of landowners who are motivated to implement BMPs to improve water quality.

While other urban impaired stream watershed management groups would not be able to take the findings of the RRM and use them in their own watersheds, the project team will be evaluating the data that has been included in the model and providing recommendations for targeted data collection that will support other watershed-specific RRMIs. In this way, the project will provide managers of urban streams with a cost effective, targeted approach to make informed decisions about the stressors and applicable BMPs to clean up their streams.

Finally, the project team has been researching chloride contamination and BMPs on behalf of LCWMD and has identified very few projects or studies that evaluate chloride inputs from private landowner sources such as parking areas and snow stockpiles. A study in New Hampshire identified private parking lots and roads as contributing nearly 35% of the total chloride contribution within the Interstate 93 Corridor. This chloride contribution cannot be ignored in watersheds like Long Creek, where private parking areas comprise 55% of the impervious cover. This project will develop a streamlined and comprehensive approach to identify stressors from stormwater in order to target our urban impaired stream monitoring and restoration funds. While the findings of this proposed project are specific to Long Creek, the methodology used to identify pollutants and thus guide restoration efforts will be applicable to all urban streams.