Appendix 1-1: Public Participation Plan
The Buffalo Sewer Authority offers the following public participation plan to educate and engage project stakeholders and to comply with Federal and State regulatory direction relative to Long-Term Control Plan (LTCP) development. The purpose of public participation is to inform, consult with, and involve stakeholders in the LTCP development process. By completing public participation activities, the LTCP will better reflect the diverse ideas and interests of the stakeholder group.

Ultimately, the intent of public participation is to represent the interests of the stakeholder base in the implementation of the LTCP. A partial list of potential stakeholders is included below. Additional stakeholders will be considered with a partial, potential list in Attachment A. The stakeholders will be invited to participate in the execution of the public participation plan.

This public participation plan is offered to cover the time frame during development of the revised LTCP. Implementation of capital improvements and operations and maintenance activities as a result of the approved revised LTCP is not the subject of this public participation plan. A future public participation plan will be developed accordingly to address the implementation/execution phase.

The BSA will administer the public participation plan with the assistance of Malcolm Pirnie and a specialist in public meetings facilitation (firm to be determined).

A detailed implementation plan for the BSA’s public participation program is included as Attachment B. The implementation plan provides a detailed approach to the public participation activities being carried out as part of the LTCP efforts.

**BSA LTCP Stakeholders:**

- BSA’s residential ratepayers.
- BSA’s contractual customers.
- BSA’s commercial and industrial customers.
- General public.
- Visitors to the City and Region.
- City elected officials.
- County elected officials.
- State elected officials.
- Federal elected officials.
- Environmental groups.
- Environmental regulators with jurisdiction.
The first item of business of the Public Participation Plan will be to form a Stakeholder Panel that will guide the process. The Stakeholder Panel will include:

- Two City Council members.
- Mayor’s representative.
- One County Legislator.
- Representative of State Legislature.
- Representative of elected Federal delegate.
- Representative of Buffalo Niagara RiverKeeper.
- Representative of regulators.
- Kim Irvine (Buffalo State College) or Joe Atkinson (University of Buffalo).
- BSA General Manager.
- Representative of Malcolm Pirnie.
- Olmsted conservancy representative.
- Fishing club/organization representative. There are several fishing clubs and organizations in western New York and the BSA will ask for representation from one of these organizations.
- Three representatives of City taxpayer groups. There are several taxpayer/civic organizations in the City and the BSA will ask for representation from three of these organizations.

The Stakeholder Group will meet bimonthly to receive status updates on the project, review proposed public participation materials, and establish direction for public materials to be developed. The Stakeholder Group is proposed to serve in an executive oversight function. At the initial Stakeholder Group meeting, rules of conduct and administration will be defined. The members of the Stakeholders Panel have been selected to represent a wide range of interests and viewpoints and will be the primary parties involved in discussions at public information meetings and at supplemental workshops as defined below.

As stated, the underlying elements of the Public Participation Plan will include:

- Inform.
- Consult.
- Involve.

**Inform**
At this initial level of public involvement, activities will be performed to present project information to the stakeholders and to the interested public. Tools such as newsletters, web sites and public presentations are utilized to provide general information to a large number of people, typically customers and the community-at-large. To the extent practical, notices of public participation activities will be included as handouts in water and sewer bills or through other public notice, such as newspaper ads, distribution to email lists, web page announcements, etc.
For this project, many of the stakeholder activities will be focused at the Inform level. We propose to initiate the public participation program by advertising the advent of the public participation program and the initial tools and events planned in support. Representatives of local media outlets will be engaged in the process at various stages as determined by the BSA. They will be invited to workshops as observers and will be allowed a segment of the event for questions and comment, if desired. Communication such as press releases and fact sheets will also be provided to the media representatives.

Inform tools will further include a webpage link on the City of Buffalo’s website, a newsletter to be prepared on a quarterly basis, and a series of public information presentations. The webpage will include general information concerning project purpose, goals, schedule, and status. Also, any public participation activities scheduled will be identified on the webpage. The webpage will include an area for the public to post comments.

The newsletters will be posted on the webpage, handed out during routine service calls, and made available at City Hall, at the Bird Island Wastewater Treatment Plant, at City public libraries and universities, at some grocery stores and shops, at community centers, at City Council representative’s offices, and at other locations as appropriate. The content of the newsletters will include ongoing project activities, news and notes, project status, frequently asked questions, and references to other LTCPs developed in other communities. These documents will serve to increase access to information for those individuals who are not comfortable with electronic access to documents via a project website and for those who lack access to a computer.

Three distinct, subject specific, public information meetings will be organized and delivered, including materials preparation (handouts and displays). Each meeting will be held at three different locations across the City. The locations at this time are proposed for south Buffalo, east Buffalo, and north Buffalo. Exact locations and times will be coordinated with local elected representatives. The public information content will include project description, project goals, project status, current findings, planned progress, schedule, and financial information as may be available. The first meeting series will be held just prior to completion of the water quality model and will focus on the purpose and goals of the project, including the Federal guidance on combined sewer overflows, collection system metering and modeling, water quality metering and modeling, real time control evaluation, and long term control plan document outline. The second meeting series will be held during the CSO control alternatives analysis part of the project so that the public can be informed and potentially provide input for BSA consideration on the selection of control alternatives. The third meeting series will be held during completion of the LTCP document and will focus on solutions to the problems/challenges identified during the modeling and investigative project phase.

LTCP documents will be made available to the public on the website and hard copies will be offered at public libraries within the City.

Consult
The second level of involvement is more dynamic than the Inform phase and will engage a more targeted, smaller group of stakeholders, including advocacy groups, contractual customers, and civic organizations. The intent is to engage this stakeholder group under the premise that they have more detailed knowledge on the subject matter than the general public. At this level, the stakeholders will be given more detailed project information and asked for input. Tools will include smaller meetings to elicit comment, input, and facilitate discussion.
Small group meetings will be held to directly engage contractual parties, taxpayer groups, and environmental advocacy groups. At least six meetings are anticipated for this project. The benefit of small group meetings will be a condensed agenda and a focused discussion to make the most use of available time and resources. All discussion and decisions made will be documented and presented to all engaged parties.

**Involve**

The next level of public involvement beyond Consult utilizes tools such as workshops and deliberative polling to engage the stakeholders in the process after being provided with detailed technical information about the project. This level begins to transfer some ownership of the decision-making process to the stakeholders without relinquishing control over final decisions by the leading agency. The primary method of involvement will be the performance of workshops with the Stakeholder Panel and others either invited to attend or attending based on their interest.

Workshops will be scheduled two months in advance and advertised through the outreach tools defined (webpage, newsletters, media outlets). The agenda for the workshops will be prepared by the BSA and will be finalized as approved by the Stakeholder Panel. Preliminary comments and issues may be solicited from stakeholder groups prior to the workshops to better tailor the agenda to the stakeholder concerns. Throughout the project, stakeholder input will be logged as part of the project administrative record. Input received by the BSA/City directly, through public comment cards, website comments and other feedback, will be included in the project documentation. If requested by the stakeholder representatives, confidentiality of input will be preserved by logging of comments as anonymous.

Workshops are proposed to focus on technical issues and other matters deemed important by the Stakeholder Panel. These matters may include communication, areas of interest, activities of interest, finances, regulatory guidance, and socioeconomic equity. Results from ongoing technical elements of the LTCP will largely drive the workshops, supplemented with specific activities such as the planned Watershed Recreational Use Study.

To supplement the Stakeholder Advisory Panel, a wide range of observers will be invited to the stakeholder workshops. The observers will be provided with opportunities to comment during public comment periods in the workshops and via written comment cards during or after the workshops. The observers may include elected officials and members of the press.

A professional workshop facilitator will lead the workshops and public meetings. However, BSA will lead all communication with the press, elected officials, general public, and other observers. Invitations to workshops will be issued by the BSA. Public comments and input will be reviewed with the Stakeholder Panel and integrated into the LTCP process as requested by the Panel and as approved by the BSA. BSA, as responsible party for the LTCP, will be the final arbitrator of what is ultimately included in the LTCP in consultation with the EPA and DEC.

Workshops are preliminarily planned to be held at the beginning of the LTCP alternatives evaluation process, during alternatives screening and vetting, and again prior to final selection of alternatives and once cost and rate impact information is defined.

The use of surveys and focus groups will allow BSA to continue to identify and address public concerns and issues related to the project. These will also serve as a “snapshot in time” of the
effectiveness of communication with the public and the establishment of meaningful dialogue. In this application, they will provide feedback for any adjustments that might need to be made in the project approach to public involvement. They can also be used to gauge public understanding/concerns/opinions about the various key issues of the project, goals, and objectives. Surveys will be posted on the webpage and handed out to the Stakeholder Advisory Panel for completion by voluntary participants and then interpreted by the Stakeholder Advisory Panel.

To conclude the public participation plan, a public participation plan summary will be developed in written format and distributed to the Stakeholder Panel and posted on the webpage. The summary will include a description of activities conducted, notable modifications to the process, key decisions made, schedule of any follow up activities, and references to technical documents.

**Public Participation Plan Implementation Checklist**

- ✓ Create Stakeholder Advisory Panel
- ✓ Advertise creation of public participation plan
- ✓ Hold first Stakeholder Advisory Panel meeting
- ✓ Create webpage link, format and content
- ✓ Create and distribute first newsletter
- ✓ Schedule and conduct first series of public information meetings
- ✓ Hold second Stakeholder Advisory Panel meeting
- ✓ Schedule and conduct first workshop
- ✓ Update webpage
- ✓ Conduct small group meetings
- ✓ Create and distribute second newsletter
- ✓ Hold third Stakeholder Advisory Panel meeting
- ✓ Schedule and conduct second workshop
- ✓ Update webpage
- ✓ Create and distribute survey
- ✓ Schedule and conduct second series of public information meetings
- ✓ Hold fourth Stakeholder Advisory Panel meeting
- ✓ Schedule and conduct final workshop
- ✓ Create and distribute third newsletter
- ✓ Update webpage
- ✓ Prepare Public Participation Plan summary report
Attachment A - Possible LTCP Interested Parties and Stakeholders

- Environmental Concentration of the University at Buffalo Law School (The State University of New York).
- Niagara Group of Sierra Club.
- Buffalo Olmsted Parks Conservancy.
- WNYCOSH.
- Community Foundation for Greater Buffalo.
- Buffalo Greens.
- Great Lakes Sport Fishing Council.
- Grassroots Gardens.US Steel Workers District 14/WNY.
- Buffalo First, Inc.
- Buffalo Audubon Society.
- Partnership for the Public Good.
- Apollo Alliance.Community Action Organization of Erie County.
- University at Buffalo Department of Chemistry.
- The Nature Conservancy of Central and WNY.
- Family Environmental Health Resources.
- Great Lakes United.
- League of Women Voters of Buffalo/Niagara.
- Massachusetts Avenue Project.
- Tuscarora Nation.Seneca Babcock Community Organization.
- Citizens Campaign for the Environment.
- Buffalo NYPIRG.
- Cornell ILR/WNY.
- Southtowns Walleye Association of WNY, Inc.
- Western New York Environmental Alliance.
- Niagara River Greenway Commission.
- Olmsted Parks Conservancy.
- Erie County Health Department.
- Erie County Water Authority.
- Town of Tonawanda Water.
- PUSH Buffalo.
- GO-Buffalo (Green Options Buffalo).
- Town of Grand Island Water.
This plan details the specific approach for the final Public Participation activities of the BSA’s LTCP, as discussed with the BSA staff. The Public Participation Plan submitted to the USEPA in September 2010 outlined the general components of a final public participation plan for the BSA to educate the public and engage project stakeholders in accordance with Federal and State regulatory direction relative to the LTCP development. This effort builds upon the public outreach conducted during the prior LTCP effort that culminated in the 2004 Draft LTCP.

Malcolm Pirnie has prepared this document to present the specific activities to be carried out during development of the updated LTCP (through completion of the Updated LTCP Report in 2011). Malcolm Pirnie will support the BSA in executing these public participation activities, along with assistance from the public relations firm, e3communications. The proposed schedule for the final public participation activities is attached.

**Background**

Prior to this detailed implementation plan of the formal public outreach program, the BSA has had extensive interaction and outreach with key stakeholders in the area, such as the Buffalo Niagara Riverkeepers (BNRK), about LTCP-related issues and cutting edge green infrastructure (GI) opportunities. They have involved the BNRK in a rain barrel pilot project and the BNRK have shared their draft *Green Infrastructure Solutions to Buffalo’s Sewer Overflow Challenge* report with the BSA and Malcolm Pirnie for review and use in the LTCP development.

The BSA has also conducted additional public outreach with other ongoing projects and initiatives. For example, the BSA has included several GI pilots in their CSO 060 Sewer Separation project (being designed by URS), such as rain gardens, porous pavement, and stormwater treatment structures (in lieu of/as catch basins). As part of this project, the BSA has involved the BNRK to help with the GI components (submitting a joint grant application) and the Buffalo Olmsted Parks Conservancy to obtain their input on the overall project (meeting with their board, incorporating their comments into design).

**Final Stakeholder Panel**

Malcolm Pirnie and e3communications will develop a list of potential members to be invited to serve on the Final Stakeholder Panel. The purpose of this Final Stakeholder Panel is to engage the members in the development and evaluation of CSO control alternatives for the updated LTCP. The list will be drafted based on the potential list of members included in Attachment A and discussions with the BSA. The BSA will then present this list to the Mayor’s office for approval. Once approved, letters requesting participation on the panel (to be drafted by e3communications) will be issued by the BSA.
The kickoff meeting for the Final Stakeholder Panel will include a site tour at the WWTP and informational meeting to present the purpose and goals of the LTCP project and engage the Final Stakeholder Panel in the process. Three Stakeholder Panel workshops will be held during the course of the project.

Three workshops will be held with the Final Stakeholder Panel to be scheduled in conjunction with the public information meetings timeframe. Each workshop will present a summary of the recent public information meetings and the next steps in the project. Malcolm Pirnie and e3communications will prepare materials for the workshops and assist with technical material presentations and facilitation of the meetings. As the sponsor, the BSA will kick-off and lead all meetings.

**Status Update:** The Final Stakeholder Panel has been formed and consists of the members listed below. Two meetings have been held with the Panel: the first one was a kickoff/informational meeting and the second meeting included a tour of the Bird Island Wastewater Treatment Plant (WWTP).

- Julie Barrett-O’Neill, Buffalo Niagara Riverkeeper
- Dr. Kim Irvine/Mary Perrelli, Buffalo State College
- Jeff Konsella, PE, NYSDEC (advisory role)
- Robert Locey, NYSDEC (advisory role)
- Brian Dold, Buffalo Olmstead Parks Conservancy
- Stephanie Barber, Hamlin Park Taxpayer’s Association
- Marge Ryan, South Buffalo Alive
- Honorable Mark J.F. Schroeder, New York State Assembly
- Honorable Barbara Miller-Williams, Erie County Legislature
- Honorable Joseph Golombek, Jr., North District Common Council Member
- Honorable Darius G. Pridden, Ellicott District Common Council Member
- Charles Martorana, Hiscock & Barclay, LLP (advisory role as BSA’s attorney)

**Information Activities**

Throughout the project, the BSA will present project information and updates to the stakeholders and interested public through a series of information activities. This includes the following:

- **Newsletters:** These newsletters (up to two) will be in electronic format for posting to the webpage (listed below), email via distribution lists, and potential handouts at public meetings. Malcolm Pirnie will draft these newsletters with input from the BSA and e3communications.

- **Webpage Link:** e3communications will provide assistance in the development of a webpage link on the City of Buffalo’s website. This includes developing the project webpage design with assistance from the Project Team on site content, production, updates, and maintenance of the webpage. The webpage will include general information about the project purpose and goals, schedule, status, as well as post the newsletters and other documents, and public information meeting announcements.

  **Status Update:** The project website is up and running, and will continue to be updated as more information becomes available (www.bsacsoimprovements.org).

- **Public Information Meetings:** Three separate public information meetings will be held through the project as outlined in the September 2010 Plan. The content for Meeting No. 1 will focus on project background, purpose and goals, regulatory requirements, and the approach for the LTCP. Meeting No. 2 will present the CSO control alternatives analysis. Meeting No. 3 will be held during the completion of the LTCP and will present the proposed LTCP findings and recommendations. Malcolm Pirnie will prepare the technical content for each meeting. e3communications will also coordinate the logistics of the public meetings, including venues and other needs such as recording comments. Each meeting will be held at three different locations.
within the City: one in the north, one in the south, and one in the center. Within each of the
general locations, each meeting location will be rotated around the City Council Districts; as
shown in Table 1.

**Status Update:** The first round of public meetings was held in early May (as noted on the
schedule).

**Table 1**

<table>
<thead>
<tr>
<th>City Location</th>
<th>Meeting No. 1</th>
<th>Meeting No. 2</th>
<th>Meeting No. 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>University</td>
<td>North</td>
<td>Delaware</td>
</tr>
<tr>
<td>Central</td>
<td>Niagara</td>
<td>Masten</td>
<td>Ellicott</td>
</tr>
<tr>
<td>South</td>
<td>South</td>
<td>Fillmore</td>
<td>Lovejoy</td>
</tr>
</tbody>
</table>

- **Small Group Meetings:** Based on input from the Final Stakeholder Panel and other interested
  parties, the BSA will hold up to six small group meetings to directly engage contractual parties,
taxpayer groups and environmental advocacy groups in the LTCP process. At least one meeting
with the Buffalo Niagara Riverkeepers will be held in support of this activity.

**Status Update:** One small group meeting has been held with the Buffalo Niagara Riverkeepers.
Another small group meeting is scheduled for late June with the tributary municipalities. A
meeting is also being planned with local businesses.

- **Project Fact Sheet:** Project fact sheets will be developed on an as needed basis, for handouts
  at Stakeholder meetings, public information meetings and posted on the webpage.

**Status Update:** Handouts developed for the first round of public meetings have been posted on
the website.

- **Frequently Asked Questions Document:** If deemed necessary or requested by interested
  parties during the project, the project team will develop a frequently asked questions document
for distribution via email and posting to the webpage.

**Status Update:** A list of questions asked at the first round of public meetings was compiled and
will be uploaded to the website.

- **Media Relations:** While the BSA will be the lead for the project, e3communications will help
  manage all aspects of media relations activities, including writing news releases, media alerts,
  and advertising public meetings.

**Status Update:** Press releases for the first round of public meetings were issued by
e3communications.
<table>
<thead>
<tr>
<th>ID</th>
<th>Task Name</th>
<th>Milestone</th>
<th>External Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LTCP Update Milestones &amp; Meetings</td>
<td>9/12</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Wkshp to select Preferred Alt, Level of Control, &amp; Schedule</td>
<td>10/5</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Submit draft LTCP to BSA for review</td>
<td>10/31</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>BSA and Legal Review &amp; Comment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Revise LTCP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Submit LTCP to EPA/DOJ/DEC for Review &amp; Comment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Public Participation Activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Final Stakeholder Panel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Form Final Stakeholder Panel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Kickoff Meeting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Information Activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Electronic Newsletters</td>
<td>4/26</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Website development and updates (ongoing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Public Information Meetings (PIM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Meeting 1 (Location 1) - Bkgd, Regs, Goals, Approach</td>
<td>5/11</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Meeting 1 (Location 2) - Bkgd, Regs, Goals, Approach</td>
<td>5/12</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Meeting 1 (Location 3) - Bkgd, Regs, Goals, Approach</td>
<td>5/17</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Meeting 2 (3 locations) - CSO Control Alt Analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Meeting 3 (3 locations) - Proposed LTCP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Final Stakeholder Panel Workshops</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Meeting 1 - Summary of PIM 1 + Next Steps</td>
<td>5/19</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Meeting 2 - Summary of PIM 2 + Next Steps</td>
<td>7/21</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Meeting 3 - Summary of PIM 3 + Next Steps</td>
<td>9/15</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Small Group Meetings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Meeting 1 (BNRK)</td>
<td>3/18</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Meeting 2 (Municipal Group)</td>
<td>6/24</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Meeting 3 (Businesses)</td>
<td>7/14</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Meeting 4 (TBD)</td>
<td>7/24</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Meeting 5 (TBD)</td>
<td>7/21</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Meeting 6 (TBD)</td>
<td>8/11</td>
<td></td>
</tr>
</tbody>
</table>
Buffalo Sewer Authority
Development of LTCP
for CSO Abatement

Public Meeting
Wednesday, June 11, 2003

Agenda

- Background
- BSA’s LTCP Development Framework
- System Mapping, Data Collection, and Model Development (Products from Stage 1)
- Development of District-specific LTCP’s (Products from Stage 2)
- Development of System-wide LTCP (Current Stage 3 Activities)
- Questions/Open Discussion
The BSA Collection System

- Consists of:
  - Separate Sanitary Sewer Systems (SSS)
  - Separate Storm Sewers
  - Combined Sewer Systems (CSS)
- More than 840 miles of sewers
- 790 miles of sewer are combined
- 258 Sewer Patrol Points (SPPs)
- 59 Permitted CSOs
- Serves 550,000 people including suburbs with SSS
- Covers an area of approximately 110 square miles

CSS and CSOs

- A Combined Sewer System (CSS) is a wastewater collection system that conveys sanitary sewage and storm water in a single pipe to a WWTP.
- A Combined Sewer Overflow (CSO) is a designed discharge point for release of wastewater when the capacity of the CSS is exceeded during wet weather.
The BSA Collection System Service Area

The BSA Bird Island WWTP

- Second largest plant in New York State
- 144 mgd average daily flow
- 118 mgd average dry weather flow
- Primary and secondary treatment facility
- Maximum capacity of WWTP = ~520 mgd
- Over $30 Million of capital improvements in past 10 years
BSA SPDES Discharge Permit

Requires:

- Best Management Practices for CSOs
- Development of Abatement Plan for CSOs
- Abatement plan must satisfy requirements for a LTCP as per USEPA CSO Control Policy
- To date BSA has invested over $7.5 Million in development of the LTCP

Approach to Development Of The CSO LTCP Included:

- Development of a project team comprised of:
  - Overall Systems Modeling Consultant – Malcolm Pirnie, Inc.
  - North District Consultant – O’Brien & Gere
  - Scajaquada District Consultant – Stearns & Wheler
  - South Central District Consultant – URS Corp.
  - Water Quality Modeling – Buffalo State College

Each of the above was retained by the Buffalo Sewer Authority in January, 2000, where initial efforts centered on data collection, model development, and waste steam characterization.

Data collection efforts commenced in April 2000 and were completed in November 2000.
BSA’s LTCP Development Framework

- Orderly staging of activities to achieve goals

**Stage 1**
System Mapping, Data Collection, and Model Development

**Stage 2**
Development of District-Specific Alternatives

**Stage 3**
Development of System-Wide LTCP

**Products From Stage 1**

- System mapping
- Flow monitoring report
- Water quality sampling report
- System model
- Existing condition assessment report
Enormous Effort To Complete
Stage 1

System Mapping
- 15,000 element GIS and digital map
- All pipes 24 inches and larger
- Over 300 miles of sewer pipes
- Foundation for the system model
- $1,000,000 to develop

Flow Monitoring
- 85 flow meters
- 21 rain gauges
- 8 month flow monitoring period

Water Quality Sampling
- 3 wet weather, 2 dry weather events
- Over 12,000 samples collected
- About 80 personnel involved
- 4 laboratories
- 14 hydrolabs

Enormous Effort To Complete
Stage 1 (cont.)

System Model
- All pipes 30” or greater
- Over 1,000 mini-basins (sewer sheds)
- Calibration and verification
- Analysis tool to support development of LTCP
- Predicts CSO frequency and volume
- Estimate benefit of alternatives

Existing Condition Assessment
- System model used to simulate existing system during wet weather
- Single event storms
- Continuous simulations
- Pollutant loading to RWB’s
- Establish baseline conditions
Products From Stage 2

- Development of District-specific LTCPs
  - Preliminary control objectives
  - SSP/CSO prioritization
  - Screening of technologies and alternatives
  - Alternative analysis

Technology Screening and Alternative Selection Flow Chart:

1. Define existing conditions - hydraulic and water quality
2. Define overall control objectives at District level
3. Categorize individual regulators for CSO control
4. End-of-pipe concerns (1)?
   - YES
   - Regulatory concerns?
     - YES
     - Aesthetic concerns?
       - YES
       - Infrastructure concerns?
         - YES
         - Candidate for minimal control
       - NO
     - NO
     - NO
     - Screen available technologies. Select appropriate technologies to meet control goals at least cost. Consider combinations of regulators where appropriate.
     - Identify desired level of control
5. NO
   - Develop individual level of control curves for each regulator
6. Combine individual regulator solutions into District-wide control alternatives
Buffalo Sewer Authority
Development of LTCP for CSO Abatement

Public Meeting
Wednesday, June 11, 2003
North District Service Area
O’Bien & Gere Engineers, Inc.

North District
BSA’s North District CSOs

- Total of 6 CSOs in 3 Subdistricts
- Ontario Basin
  - CSO 054: Crowley @ Niagara River
- Hertel Basin
  - CSO 055: Cornelius Creek
- Parish Basin
  - CSO 003: Austin @ Niagara River
  - CSO 056: Nottingham Terrace
  - CSO 057: Tonawanda Street
  - CSO 058: West Avenue on Tonawanda

Hertel Basin
## North District Sewer Patrol Points

<table>
<thead>
<tr>
<th>CSO Number</th>
<th>No. of Sewer Patrol Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSO 054</td>
<td>7 (was 8)</td>
</tr>
<tr>
<td>CSO 055</td>
<td>1</td>
</tr>
<tr>
<td>CSO 003</td>
<td>11</td>
</tr>
<tr>
<td>CSO 056</td>
<td>2</td>
</tr>
<tr>
<td>CSO 057</td>
<td>1</td>
</tr>
<tr>
<td>CSO 058</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: No wastewater sources are received from outside the District

## ND Annual Overflow Statistics

<table>
<thead>
<tr>
<th>CSO No</th>
<th>Volume, MG</th>
<th>Peak Flow, cfs</th>
<th>No. Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>054</td>
<td>24.2</td>
<td>240</td>
<td>36</td>
</tr>
<tr>
<td>055</td>
<td>900.2</td>
<td>2000</td>
<td>37</td>
</tr>
<tr>
<td>003</td>
<td>22.9</td>
<td>230</td>
<td>32</td>
</tr>
<tr>
<td>056</td>
<td>1.8</td>
<td>30</td>
<td>11</td>
</tr>
<tr>
<td>057</td>
<td>0.8</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>058</td>
<td>12.2</td>
<td>45</td>
<td>60</td>
</tr>
<tr>
<td>Total</td>
<td>962.1</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
ND Water Quality Issues

- Dissolved oxygen is not adversely impacted
- Elevated bacteria levels were noted in the River during wet weather events. However, recovery to background levels occurred quickly
- Heavy metals from CSO were not identified as a significant concern
- Aesthetic concerns (solids and floatables) appears to be the dominate water quality issue in the ND

CSO Alternatives - BMP and Ongoing

- Raising overflow weir elevations
- Enlarging orifice openings locations
- Elimination of CSOs, where possible
- Completion of sewer separation projects currently under way
- Completion of separation by Erie County Public Works in Ontario Basin
- Continue implementing planned separation activities by BSA
CSO Advanced Control Alternatives

- Off-line storage at existing CSOs
- Multiple upstream storage facilities
- Off-line storage with screening
- Off-line storage with separate force main for dewatering directly to WWTP
- In-line storage using inflatable dams
- Solids and floatables screening facilities

Example Schematic of Storage Followed by Screening
Cornelius Creek CSO Alternatives

- Off-line storage at existing outfall $ 67.8 million
- Multiple upstream storage facilities $ 99.0 million
- Off-line storage with screening $ 77.3 million
- Off-line storage with force main parallel to existing interceptor $ 60-90 million
- In-line storage using inflatable dams $ 6.3 million
- Solids and floatables screening facilities $ 8.8 million

North District Preliminary CSO Controls

<table>
<thead>
<tr>
<th>CSO</th>
<th>Action</th>
<th>Cost</th>
<th>Avg Annual Fraction Treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>054</td>
<td>S &amp; F</td>
<td>$ 395,000</td>
<td>71%</td>
</tr>
<tr>
<td>055</td>
<td>S &amp; F</td>
<td>$8,800,000</td>
<td>78%</td>
</tr>
<tr>
<td>003</td>
<td>S &amp; F</td>
<td>$ 890,000</td>
<td>&gt;99%</td>
</tr>
<tr>
<td>056</td>
<td>S &amp; F</td>
<td>$ 350,000</td>
<td>45%</td>
</tr>
<tr>
<td>057</td>
<td>Closure</td>
<td>$ 10,000</td>
<td>100%</td>
</tr>
<tr>
<td>058</td>
<td>S &amp; F</td>
<td>$ 430,000</td>
<td>&gt;99%</td>
</tr>
</tbody>
</table>
Buffalo Sewer Authority
Development of LTCP for CSO Abatement

Public Meeting
Wednesday, June 11, 2003
Scajacquada District Service Area
Stearns & Wheler, LLC
### ANNUAL OVERFLOW STATISTICS – CURRENT CONDITIONS

**SCAJAQUADA DISTRICT**

<table>
<thead>
<tr>
<th>CSO No.</th>
<th>Location</th>
<th>Volume, MG</th>
<th>No. Events</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>004</td>
<td>Bird Avenue</td>
<td>80.2</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>005</td>
<td>Potomac Avenue</td>
<td>1.7</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>006</td>
<td>W. Delavan Avenue</td>
<td>588.02</td>
<td>NA</td>
<td>1</td>
</tr>
<tr>
<td>007</td>
<td>W. Delavan Avenue</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>008</td>
<td>Brace Street</td>
<td>24.4</td>
<td>95</td>
<td>6</td>
</tr>
<tr>
<td>009</td>
<td>Auburn Street</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>010</td>
<td>Breckenridge Street</td>
<td>29.7</td>
<td>53</td>
<td>5</td>
</tr>
<tr>
<td>061</td>
<td>STI</td>
<td>52.5</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>053</td>
<td>Scajaquada Drain</td>
<td>301.5</td>
<td>NA</td>
<td>2</td>
</tr>
<tr>
<td>059</td>
<td>Dewitt Street</td>
<td>15.7</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>060</td>
<td>Elmwood Avenue</td>
<td>22.7</td>
<td>84</td>
<td>7</td>
</tr>
</tbody>
</table>
### SCAJAQUADA CREEK LOADINGS SUMMARY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>06/09 Event</th>
<th>08/23 Event</th>
<th>06/09 Event</th>
<th>08/23 Event</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upstream Mass Loading</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Scajaquada Creek (Metric Tons)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>50.71</td>
<td>41.06</td>
<td>4.23</td>
<td>3.167</td>
</tr>
<tr>
<td>Biochemical Oxygen Demand</td>
<td>1.92</td>
<td>1.25</td>
<td>.499</td>
<td>.376</td>
</tr>
<tr>
<td>Total Kjeldahl Nitrogen</td>
<td>.75</td>
<td>.89</td>
<td>.092</td>
<td>.102</td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>2.27E+13</td>
<td>1.14E+14</td>
<td>1.922E+13</td>
<td>2.746E+13</td>
</tr>
<tr>
<td>Mercury</td>
<td>ND</td>
<td>ND</td>
<td>.000003</td>
<td>.000003</td>
</tr>
<tr>
<td>Copper</td>
<td>.0034</td>
<td>.01</td>
<td>.001</td>
<td>.001</td>
</tr>
<tr>
<td>Lead</td>
<td>.004</td>
<td>.007</td>
<td>.002</td>
<td>.0014</td>
</tr>
<tr>
<td>Zinc</td>
<td>.042</td>
<td>.106</td>
<td>.005</td>
<td>.005</td>
</tr>
<tr>
<td><strong>CSO Mass Loading</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Scajaquada Creek (Metric Tons)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biochemical Oxygen Demand</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Kjeldahl Nitrogen</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mercury</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copper</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zinc</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### WATER QUALITY ISSUE SUMMARY

**SCAJAQUADA DISTRICT**

- Dissolved oxygen in Black Rock Canal and Scajaquada Creek is a concern.
- Elevated bacteria levels were noted in Black Rock Canal and Scajaquada Creek.
- Heavy metals from CSO were not identified as a significant concern.
- Aesthetic concerns (solids and floatables) appear to be the dominant water quality issue.
CONTROL ALTERNATIVES

- Source Controls
- Collection System Controls
- In-Line Storage Technologies
- Floatable Control Technologies
**Sewer System Diagram**

- **Storm Relief**
- **Combined Sanitary**
- **Interceptor**
- **Storm/Storm Overflow**
- **Sewer System**

**Sources of CSOs Tributary to Black Rock Canal**
- **CONTRACTOR**
  - **BUFFALO SEWER AUTHORITY**
  - **BSA CSO LTCP**
  - **SCAJAQUADA DISTRICT**

**Control Structures for In-Line Storage/Real Time Control Applications**

**Date:** 11/02
**Job No:** 90282

---

**Inflatable Dam**

**Sensor Location**

**Storage Area**

**Motor Actuated Valve**
### Projected Water Quality Improvements

#### Scajaquada District

<table>
<thead>
<tr>
<th>Floatables &amp; Gross Solids</th>
<th>Treated Volume (CF)</th>
<th>Total Overflow Volume (CF)</th>
<th>Percent Treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Rock Canal</td>
<td>96,309,500</td>
<td>103,813,700</td>
<td>92.77%</td>
</tr>
<tr>
<td>Scajaquada Creek</td>
<td>43,025,400</td>
<td>45,520,000</td>
<td>94.52%</td>
</tr>
<tr>
<td><strong>District Total</strong></td>
<td>139,334,900</td>
<td>149,333,700</td>
<td>93.30%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bacteria &amp; Other Pollutants</th>
<th>Treated Volume (CF)</th>
<th>Total Overflow Volume (CF)</th>
<th>Percent Treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Rock Canal</td>
<td>20,116,700</td>
<td>106,229,700</td>
<td>18.94%</td>
</tr>
<tr>
<td>Scajaquada Creek</td>
<td>10,052,600</td>
<td>50,210,000</td>
<td>20.02%</td>
</tr>
<tr>
<td><strong>District Total</strong></td>
<td>30,169,300</td>
<td>156,439,700</td>
<td>19.28%</td>
</tr>
</tbody>
</table>

### Estimated Total Project Cost of Preliminary Long-Term Control Plan by Phase

<table>
<thead>
<tr>
<th>Project Group</th>
<th>Projects</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Separation projects for CSOs 059, 060, and 053</td>
<td>$5,200,000</td>
</tr>
<tr>
<td>2</td>
<td>Remaining separation of areas contributing to the Black Rock Canal</td>
<td>9,400,000</td>
</tr>
<tr>
<td>3</td>
<td>Floatable control facilities and in-line storage at Hagen, Texas, Colorado, and Bailey</td>
<td>14,200,000</td>
</tr>
<tr>
<td>4</td>
<td>Remaining floatable control facilities on the Scajaquada Drain</td>
<td>10,900,000</td>
</tr>
<tr>
<td>5</td>
<td>In-line storage/RTC for Bird Avenue trunk sewer and floatable control facilities for Black Rock Canal discharges</td>
<td>9,000,000</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>$48,700,000</strong></td>
</tr>
</tbody>
</table>
Buffalo Sewer Authority
Development of LTCP for CSO Abatement

Public Meeting
Wednesday, June 11, 2003
South Central District Service Area
URS Corporation

South Central District

- 12,650 Acres In the District
- Roughly Albany Street South to Lackawanna
- 42 Permitted CSO’s/30 Represented in the Model (71%)
- 147 Tributary Regulators/103 Represented in the Model (70%)
- Collection System Features
South Central District
Collection System Features

- 535 Million cu.ft. Total Discharge Citywide Annually
- 7 of Top 10 CSO’s 178.4 million cu.ft./417.5 million cu.ft. (43%)
- Smith Street, Hamburg Drain, Albany, Swan Trunk, Boone, S. Ogden and Salem
## Ranking of CSO’s Based Upon Annual Discharge Volume

<table>
<thead>
<tr>
<th>Rank</th>
<th>CSO</th>
<th>Location</th>
<th>Annual Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>055</td>
<td>Cornelius Creek</td>
<td>120,213,333</td>
</tr>
<tr>
<td>2</td>
<td>006</td>
<td>Delmar Drain</td>
<td>78,630,000</td>
</tr>
<tr>
<td>3</td>
<td>026</td>
<td>Smith Street</td>
<td>46,773,333</td>
</tr>
<tr>
<td>4</td>
<td>017</td>
<td>Hamburg Drain</td>
<td>40,760,000</td>
</tr>
<tr>
<td>5</td>
<td>053</td>
<td>Spaugh Drains</td>
<td>40,300,000</td>
</tr>
<tr>
<td>6</td>
<td>012</td>
<td>Albany Street</td>
<td>23,937,333</td>
</tr>
<tr>
<td>7</td>
<td>011</td>
<td>Albany Street</td>
<td>20,918,667</td>
</tr>
<tr>
<td>8</td>
<td>028</td>
<td>Boone Street</td>
<td>20,285,333</td>
</tr>
<tr>
<td>9</td>
<td>066</td>
<td>S. Ogden Street</td>
<td>14,693,333</td>
</tr>
<tr>
<td>10</td>
<td>037</td>
<td>Salem Street</td>
<td>11,025,333</td>
</tr>
</tbody>
</table>

Total Volume Discharged Annually: 525,000,000
Total Volume Discharged from SCD Annually: 243,982,815
Percent Total Annual Discharge: 46%
South Central District

Assess Available CSO Control Technologies

- System Optimization BMP’s
  - Raising Weirs
  - Supplemental Capacity
  - Redirection of Flow
  - Floatables Control

- Resultant CSO Discharge Reduction 10.0% District Wide (Annually)

Example Discharge Reduction/Increase

<table>
<thead>
<tr>
<th>CSO</th>
<th>Location</th>
<th>Original Volume</th>
<th>Volume After BMP Implementation</th>
<th>% Reduction/Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>013</td>
<td>Vignaas Street</td>
<td>6,093,000.00</td>
<td>1,246,000.00</td>
<td>-79.50</td>
</tr>
<tr>
<td>044</td>
<td>Steveston Street</td>
<td>3,769,000.00</td>
<td>1,285,000.00</td>
<td>-63.60</td>
</tr>
<tr>
<td>014</td>
<td>Swan @ Georgia</td>
<td>6,957,000.00</td>
<td>3,395,000.00</td>
<td>-51.80</td>
</tr>
<tr>
<td>050</td>
<td>Seneca Street</td>
<td>1,729,000.00</td>
<td>1,838,000.00</td>
<td>-5.90</td>
</tr>
<tr>
<td>051</td>
<td>Frank Street</td>
<td>1,277,000.00</td>
<td>1,347,000.00</td>
<td>-5.20</td>
</tr>
<tr>
<td>052</td>
<td>S. Copley</td>
<td>4,648,000.00</td>
<td>3,707,000.00</td>
<td>-24.20</td>
</tr>
<tr>
<td>017</td>
<td>Hamburg Drain</td>
<td>40,760,000.00</td>
<td>35,669,000.00</td>
<td>-11.60</td>
</tr>
<tr>
<td>011</td>
<td>Swan Trunk</td>
<td>20,919,000.00</td>
<td>17,565,000.00</td>
<td>-16.60</td>
</tr>
<tr>
<td>016</td>
<td>Erie Street</td>
<td>1,195,500.00</td>
<td>1,842,000.00</td>
<td>-36.00</td>
</tr>
<tr>
<td>026</td>
<td>Smith Street</td>
<td>46,773,000.00</td>
<td>42,356,000.00</td>
<td>-9.40</td>
</tr>
<tr>
<td>028</td>
<td>Rhus Street</td>
<td>20,258,000.00</td>
<td>20,000,000.00</td>
<td>-1.40</td>
</tr>
<tr>
<td>012</td>
<td>Albany Street</td>
<td>25,937,000.00</td>
<td>25,910,000.00</td>
<td>-0.10</td>
</tr>
<tr>
<td>037</td>
<td>Selwyn Street</td>
<td>11,029,000.00</td>
<td>11,449,000.00</td>
<td>3.8</td>
</tr>
<tr>
<td>033</td>
<td>Bailey Avenue</td>
<td>10,426,000.00</td>
<td>10,908,000.00</td>
<td>4.6</td>
</tr>
<tr>
<td>025</td>
<td>Hamburg Street</td>
<td>1,094,000.00</td>
<td>1,871,000.00</td>
<td>66.6</td>
</tr>
<tr>
<td>027</td>
<td>Bodisco Street</td>
<td>7,000,000.00</td>
<td>3,713,000.00</td>
<td>-48.5</td>
</tr>
<tr>
<td>046</td>
<td>Mammford Street</td>
<td>656,000.00</td>
<td>1,835,000.00</td>
<td>17.2</td>
</tr>
</tbody>
</table>

Net Reduction District Wide: -.9
South Central District

Hamburg Drain Outfall

- System Optimization Partial Sewer Separation
  - Includes BMP’s & Plus Partial Sewer Separation
- Resultant CSO Discharge Reduction -17.4% District Wide (Annually)
- BMP’s & Partial Sewer Separation Result in 91.7% Capture Rate for SC District
- CSO Policy Target Capture Rate 85%
Volume Reduction/Increase Comparison Following Implementation of BMP’s & Partial Sewer Separation

<table>
<thead>
<tr>
<th>CSO</th>
<th>Location</th>
<th>Original Volume</th>
<th>Volume After BMP’s &amp; Partial Separation</th>
<th>% Reduction/Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>044</td>
<td>Stevens Street</td>
<td>2,769,000.00</td>
<td>1,043,000.00</td>
<td>-62.28</td>
</tr>
<tr>
<td>050</td>
<td>Seneca Street</td>
<td>1,728,000.00</td>
<td>792,000.00</td>
<td>-55.28</td>
</tr>
<tr>
<td>051</td>
<td>Frank Street</td>
<td>1,277,000.00</td>
<td>765,000.00</td>
<td>-39.20</td>
</tr>
<tr>
<td>014</td>
<td>Swan &amp; Georgia</td>
<td>6,557,000.00</td>
<td>3,443,000.00</td>
<td>-48.50</td>
</tr>
<tr>
<td>037</td>
<td>Salem Street</td>
<td>11,029,000.00</td>
<td>7,579,000.00</td>
<td>-31.3</td>
</tr>
<tr>
<td>052</td>
<td>S. Ogden</td>
<td>4,648,000.00</td>
<td>3,231,000.00</td>
<td>-30.50</td>
</tr>
<tr>
<td>025</td>
<td>Hamburg Street</td>
<td>1,056,000.00</td>
<td>716,000.00</td>
<td>-30.1</td>
</tr>
<tr>
<td>017</td>
<td>Hamburg Drain</td>
<td>40,700,000.00</td>
<td>31,211,000.00</td>
<td>-23.40</td>
</tr>
<tr>
<td>011</td>
<td>Swan Trunk</td>
<td>20,919,000.00</td>
<td>16,315,000.00</td>
<td>-22.00</td>
</tr>
<tr>
<td>026</td>
<td>Smith Street</td>
<td>46,773,000.00</td>
<td>39,098,000.00</td>
<td>-16.50</td>
</tr>
<tr>
<td>046</td>
<td>Meredith Street</td>
<td>656,000.00</td>
<td>548,000.00</td>
<td>-16.4</td>
</tr>
<tr>
<td>016</td>
<td>Eeu Street</td>
<td>1,155,500.00</td>
<td>1,048,000.00</td>
<td>-9.00</td>
</tr>
<tr>
<td>033</td>
<td>Bailey Avenue</td>
<td>10,456,000.00</td>
<td>9,346,000.00</td>
<td>-11.0</td>
</tr>
<tr>
<td>028</td>
<td>Boone Street</td>
<td>20,280,000.00</td>
<td>19,651,000.00</td>
<td>-3.10</td>
</tr>
<tr>
<td>012</td>
<td>Albany Street</td>
<td>23,937,000.00</td>
<td>23,880,000.00</td>
<td>-0.20</td>
</tr>
</tbody>
</table>

Net Reduction District Wide: -17.4%

South Central District

Advanced CSO Control Alternatives

- Off-Line Storage
  - Below Ground Basin
  - Deep Rock Tunnel
- Off-line Treatment
  - Swirl Concentrator
  - Sand Filters
- Capacity Based Upon Design Storm Total Volume Treated
**Estimated Construction Cost**

<table>
<thead>
<tr>
<th>BEST MANAGEMENT PRACTICES</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weir Modification</td>
<td>$919,200</td>
</tr>
<tr>
<td>New Sewer Installation</td>
<td>$3,207,500</td>
</tr>
<tr>
<td>Dynamic Regulator</td>
<td>$843,700</td>
</tr>
<tr>
<td>Floatables Control</td>
<td>$15,232,000</td>
</tr>
<tr>
<td><strong>TOTAL - BEST MANAGEMENT PRACTICES (2002)</strong></td>
<td><strong>$20,202,400</strong></td>
</tr>
<tr>
<td><strong>TOTAL - PARTIAL SEWER SEPARATION (2002)</strong></td>
<td><strong>$110,857,000</strong></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$131,159,400</strong></td>
</tr>
</tbody>
</table>

**Advanced Control Alternatives Estimated Cost Range:** $77.2 to $3,123.3 m

**Water Quality Sampling Sites**

[Map of Water Quality Sampling Sites]
South Central District

Fecal Coliform Levels, Event 1, June 9-11, 2000

Fecal Coliform Levels, Event 2, August 23-25, 2000
Dissolved Oxygen, Non-compliance (<4 mg/L)  
Periods, 4/17-11/18/00

<table>
<thead>
<tr>
<th>Site</th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>S4</th>
<th>S5</th>
<th>S6</th>
<th>S7</th>
<th>S8</th>
<th>S9</th>
<th>S10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hrs &lt;4 mg/L</td>
<td>17</td>
<td>0</td>
<td>589</td>
<td>760</td>
<td>298</td>
<td>0</td>
<td>131</td>
<td>0</td>
<td>570</td>
<td>366</td>
</tr>
<tr>
<td>% Time &lt;4 mg/L</td>
<td>0.62</td>
<td>0</td>
<td>21.5</td>
<td>27.8</td>
<td>10.8</td>
<td>0</td>
<td>4.7</td>
<td>0</td>
<td>20.8</td>
<td>13.4</td>
</tr>
</tbody>
</table>

South Central District

CSO Smith St.  
Event 25-9/8-9/10/00

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Site 2</td>
<td>4.0</td>
<td>4.5</td>
<td>5.0</td>
</tr>
<tr>
<td>Site 3</td>
<td>5.0</td>
<td>5.5</td>
<td>6.0</td>
</tr>
<tr>
<td>Site 4</td>
<td>6.0</td>
<td>6.5</td>
<td>7.0</td>
</tr>
<tr>
<td>Site 7</td>
<td>7.0</td>
<td>7.5</td>
<td>8.0</td>
</tr>
</tbody>
</table>
UB D.O. Studies Concluded:

- Stratification in river at low flows reduces aeration due to mixing
- High SOD, together with long residence times due to hydraulics of system, and background BOD can produce low D.O.
- CSOs had minimal impact on D.O. in the river (see also our Hydrolab data)
- Increased BRIC pumping during low flows could improve D.O. levels

South Central District

Turbidity & Dissolved Oxygen
Albany St. Week 10 6/7-6/14/00
South Central District

CSO Smith St.
Event 7 - 6/8-6/10/00

Turbidity NTU

Date

Site 2
Site 3
Site 4
Site 7

Buffalo River Metals Loadings

1-Month Design Storm
2-Month Design Storm
3-Month Design Storm
6-Month Design Storm
12-Month Design Storm

Load, lb

Pb Cu Zn

Update 4
Not attached

Update 4
Not attached

Update 4
Not attached

Update 4
Not attached

Update 4
Not attached
Hg Loadings for Design Storms and Buffalo River Watershed

Current Stage 3 Activities

- Integrate the District-specific LTCPs
- Establish system-wide alternatives
- Analyze system-wide alternatives
- Ongoing WWTP efforts
- Perform cost-affordability analysis
- Rank alternatives and select preferred plan
- Develop implementation schedule and post-construction monitoring plan
Integrate The District – Specific LTCPS

- Establish system-wide control objectives
- Establish system-wide prioritization of CSOs
- Define level of control goals at targeted regulators
- Refine and consolidate technology selections

Establish System-Wide Alternatives

- Baseline alternative to represent short-term improvements
- Combination of District-specific plans
Analyze System-Wide Alternatives

- Use collection system model to estimate benefit of alternatives during single events and continuous periods
  - Volume reduction
  - Frequency reduction
  - Duration reduction
- Combine end-of-pipe measures with water quality assessment to estimate water-quality benefits

Ongoing WWTP Efforts

- Development of wet weather operating plan
- Replacement of RAS/WAS pumps
- Construction of grit removal system modifications
- Installation of supplemental influent channel

*Improvements will increase maximum capacity of WWTP from 520 to 600 mgd.*
Current Stage 3 Activities

- Integrate the District-specific LTCPs
- Establish system-wide alternatives
- Analyze system-wide alternatives
- Ongoing WWTP efforts
- Perform cost-affordability analysis
- Rank alternatives and select preferred plan
- Develop implementation schedule and post-construction monitoring plan

Schedule for Activities

- Complete wet weather operations plan – July
- Prepare cost affordability analysis – July
- Analyze system-wide alternatives – July/August
- Rank system-wide alternatives and select preferred plan – September
- Prepare draft LTCP – October/November
- Submit LTCP to NYSDEC – December 2003
- Review and Comment Period – Commences December 2003
- Conduct public meeting – Early 2004
Questions/Open Discussion
INTRODUCTION

- Project Background
- Overview of the BSA
  - the Organization
  - the Collection System
  - the Wastewater Treatment Plant
- The LTCP Project
- Stakeholder Involvement
- Questions and Answers
INTRODUCTION: BSA LTCP FOR CSOS

- Multi-million dollar 10-15 year program to abate impacts of CSOs and improve the environment
- Drivers
  - EPA CSO Policy
  - NYSDEC Permit
- Requires public participation
- Requires stakeholder issues to be addressed

FORMATION OF BSA: HISTORY OF WASTEWATER PROBLEMS
FORMATION OF BSA

- Before the BSA:
  - 39 mgd of raw sewage entering the Niagara River
  - Bacterial pollution in evidence 17 miles below Buffalo
  - Significant health problems
- Act of State Legislature 1935 created the BSA
- The BSA today:
  - Covers 110 Square Miles
  - Serves 550,000 people

THE BSA: REGIONAL SERVICE

- Towns & Villages
  - Cheektowaga
  - Lancaster
  - West Seneca
  - Village of Sloan
  - Village of Depew
- Sewer Districts
  - Tonawanda #1
  - Cheektowaga #3,#5, #6 and Cochrane
  - West Seneca #1-6, #8,-10, #12-15
  - Elma #2
  - Leydecker
  - Orchard Park #8, #14, #16, #17
  - County of Erie #1, #3, #4,
BSA has Achieved Financial Stability while Decreasing Tax Payers’ Rates
Total Expenditures show Record Decline in BSA Operating Costs

THE BSA: MAJOR OPERATING DIVISIONS

- Collection System
- Treatment Plant
THE BSA COLLECTION SYSTEM

- Consists of:
  - Separate Sanitary Sewer Systems (SSS)
  - Separate Storm Sewers
  - Combined Sewer Systems (CSS)

- More than 840 miles of sewers,
- 790 miles of sewer are combined
- 258 Sewer Patrol Points (SPPs)
- 68 Permitted CSOs (3 at WWTP)
- Suburbs with SSS

CSS AND CSOs

- A Combined Sewer System (CSS) is a wastewater collection system which conveys sanitary sewage and storm water in a single pipe to a WWTP
- A Combined Sewer Overflow (CSO) is a designed discharge point for release of wastewater when the capacity of the CSS is exceeded during wet weather
CSOs were constructed in the past to reduce surcharging of interceptors and prevent over loading of the system.

In the USA, CSS serve approximately 43 million people in 1,100 communities nationwide.

Today CSOs are being eliminated or minimized because the discharges may contain many different contaminants and may impact water quality, the aquatic environment, human health and aesthetics.
THE BSA COLLECTION SYSTEM

– ARC VIEW MAP OF Location of the CSOs with watersheds

CSS IMPROVEMENT PROJECTS

- CSO Planning and Improvements 1988-1992 > $28 million
- Storm Water Sewer Improvements > $10 million
- Scajaquada Tunnel $40 million
- CSO LTCP $7.5 million
CSO ABATEMENT
PLANNING INVOLVES HIGH-STAKE DECISIONS

- Northeast Ohio Regional Sewer District:
  - Mill Creek Tunnel @ $180M dollars
  - Westerly District $120 million
  - Addresses two of four service areas.
- City of Akron - Integrated system alternative @ $100M to $200M
- City of Fort Wayne - $100M to abate CSOs for service area of 200,000 people

CSO SIGNS

N.Y.S. PERMITTED DISCHARGE POINT
(Wet Weather Discharge)
SPDES PERMIT NO.: 0028410

OUTFALL NO.__________

For information about this permitted discharge contact:
Permittee Name: Buffalo Sewer Authority
Permittee Contact: Plant Superintendent
Permittee Phone: (716) 883 1820 extension 201

or

NYSDEC Division of Water Regional Office Address:
NYSDEC Region 9
270 Michigan Avenue
Buffalo NY
NYSDEC Division of Water Regional Phone (716) 851 7070
BSA WASTEWATER TREATMENT PLANT

- 2nd Largest Plant in New York State
- 20th Largest in Country
- $20 Million of Capital Investments in Past 5 Years

DEVELOPMENT OF BSA WASTEWATER TREATMENT PLANT

- 1936-1939: Primary Treatment Facility
- 1975-1979: Secondary Treatment Facility
Protecting WNY’s Waters

More than 90% of Pollutants Removed

1994-1999: $30 Million in Capital Improvements to Enhance Treatment
  - Bar Screen
  - Fine Bubble Diffusers
  - SCADA
BSA: PLANNED PROJECTS

$25 Million in Planned Projects Critical to Long-Term Reliability

- Grit
- Centrifuges
- Incinerators
- Pump Stations
- Wet Weather Operating Plan
- CSO Abatement (Real Time Control)

Cost of Services is amongst the Lowest in the Region

<table>
<thead>
<tr>
<th>Treatment Cost Comparison</th>
<th>BSA</th>
<th>Town of Tonawanda</th>
<th>Town of Amherst</th>
<th>Erie County STA</th>
<th>Erie County-Lackawanna</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Capacity (Avg. MGD)</td>
<td>180</td>
<td>30</td>
<td>36</td>
<td>16</td>
<td>4.5</td>
</tr>
<tr>
<td>Current Average Flow (MGD)</td>
<td>144.2</td>
<td>17</td>
<td>22.5</td>
<td>14.3</td>
<td>4</td>
</tr>
<tr>
<td>Cost per MG Treated:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WWTP Only</td>
<td>$293</td>
<td>$877</td>
<td></td>
<td>$1,266(1)</td>
<td>$1,033</td>
</tr>
<tr>
<td>WWTP + Collections</td>
<td>$345</td>
<td></td>
<td></td>
<td>$1,487(1,3)</td>
<td></td>
</tr>
<tr>
<td>Total Operations(2)</td>
<td>$722</td>
<td>$1,030(1,3)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTES:
(1) Based on customer sewer rates.
(2) BSA total operations includes Admin, WWTP, Industrial, Engineering, Sewer, Fring Benefits & Other Costs, and Debt Service costs.
(3) Possibly total operations.
BSA SPDES DISCHARGE PERMIT

- 68 permitted outfalls - 3 at WWTP, 65 in the collection system
- Discharge notification requirements
- Discharge effluent limitations
- Monitoring requirements
- Industrial Pretreatment Program requirements
- Best Management Practices for CSOs
- Abatement Plan for CSOs including LTCP as per USEPA National CSO Policy Requirements
- Schedule for compliance

BSA SPDES PERMIT: BMPS

- 13 Best Management Practices to Control CSO impacts (Equivalent to EPA Nine Minimum Controls)
- Include
  - CSO maintenance/Inspection
  - Maximizing use of CSS for storage
  - Industrial pretreatment
  - Maximizing flow to WWTP
  - Wet Weather Operations Plan
BSA SPDES PERMIT: BMPS (cont)

- Prohibition of Dry Weather Overflows
- Control of Floatables
- CSS Separation
- Control of Runoff
- Public Notification

THE LTCP PROGRAM: TEAM MEMBERS

- BSA
- Malcolm Pirnie: Overall LTCP Coordinator
- URS: South Central District Analysis
- O’Brien & Gere: North District Analysis
- Stearns & Wheler: Scajaquada District Analysis
- Dr Kim Irvine: Technical Advisor (Buffalo State College)
FEDERAL CSO POLICY

- Drivers
  - Water Quality
  - Clean Water Act
  - Aquatic Biota
  - Public Health
  - CSO Control Complexity and Variability
    - site-specific variables
    - significant financial impacts (EPA estimated CSO abatement costs for the 1100 communities at $41.2 billion)
FEDERAL CSO STRATEGY/ POLICY

- CSO Strategy 1989
- CSO Policy 1994
  - Dry weather overflows prohibited
  - CSO impacts on water quality, aquatic biota and human health must be minimized
  - States charged with developing state-wide permitting strategies to reduce and eliminate CSOs
  - Ensures public involvement in the decision making process.
  - Allows a flexible and phased approach to implementing CSO controls
  - Requires permittees to implement the Nine Minimum Controls
  - Requires permittees to develop LTCPs

FEDERAL LTCP REQUIREMENTS

- 3 main steps
  - #1 System characterization monitoring and modelling of the CSS for selection and design of CSO controls
  - #2 Evaluation of alternatives
  - #3 Selection and implementation of controls
FEDERAL LTCP REQUIREMENTS

- Key elements to address in the 3 steps include
  - A public participation process actively involving affected public in decision making to select long-term CSOs
  - Cost performance considerations
  - Operational plan revision to include CSO controls
  - Implementation Schedule
  - Post-Construction compliance monitoring program

STATE CSO PROGRAM

- SPDES Permit Requirements
  - Implementation of NMC through BMPS
  - Development of LTCP
  - Schedule for Compliance
  - Monitoring
BSA LTCP PROGRAM
COMPONENTS

1 Define Existing Conditions
   – Map System
   – Flow and Rainfall Monitoring Program
   – Water Quality Sampling Program
   – Develop SWMM model

2 Develop LTCP
   – Analysis of Alternatives
   – Balance Cost-Benefits
   – Recommend Schedule

3 Implement

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>Stage 2</td>
<td>Stage 3</td>
</tr>
<tr>
<td>10 months</td>
<td>6 months</td>
<td>3 months</td>
</tr>
</tbody>
</table>

Malcolm Pirnie

URSGWC Central/South
OB&G North
S&W Scajaquada

System-Wide Maps
System-Wide Field Data
System-Wide Model

URSGWC Central/South
OB&G North
S&W Scajaquada

District-Specific Alternatives
Final System-Wide LTCP
#1 DEFINING EXISTING CONDITIONS

- System Mapping

Flow Monitoring: April-May 2000
- 71 flow monitoring locations
- 18 rain gauges installed
- 60 day monitoring of rainfall and dry and wet weather flows at 5 minute intervals
- Weekly data download, review and validation
- Input to SWMM model
ARC VIEW OF FM LOCATIONS

1. DEFINING EXISTING CONDITIONS
   - Water Quality Monitoring: April-May 2000
     - 36 Water Quality Monitoring Stations
       • In-system (CSS) location: key overflows
       • Buffalo River
       • Black Rock Canal
       • Scajaquada Creek
       • Cazenovia Creek
       • Cornelius Creek
       • Erie Basin Marina
#1 DEFINING EXISTING CONDITIONS

- Water Quality Monitoring:
  - April-May 2000
  - Real time weather monitoring
  - 3 wet weather and 2 dry weather events
  - Analysis of 23 different parameters
  - Builds on previous studies

ARC VIEW of WQ locations
#1 DEFINING EXISTING CONDITIONS

- Collection System SWMM Modeling
  - Builds on previous BSA modeling
  - Provides information on CSO response

BSA’s CSO modeling program

- Bird Avenue RTC Project
  - Regulator specific planning
- 1988 System-Wide Model
  - System-wide performance and planning
- District analyses to support CSO LTCP
#2 DEVELOPMENT OF LTCP

Schedule for LTCP Development

July 2001

- Alternative Analysis
- Cost-Benefit Analysis
- Consideration of
  - Stakeholder Objectives
  - Regulatory Requirements
- Recommend Schedule
#3 IMPLEMENTATION

- Phased Implementation
- Schedule to be determined by:
  - Stakeholders
  - NYSDEC
  - BSA
  - Rate Impacts

STAKEHOLDER INVOLVEMENT

- Public participation:
  - involvement in program scope
  - involvement in evaluation and selection of alternatives
  - informing citizens/businesses
    - scope of program
    - areas affected by construction
    - impacts on user fees and rates
    - cost-benefits of selections
    - water quality impacts
PUBLIC PARTICIPATION PROGRAM SCHEDULE

- First Public Meeting: April 13th 2000
- Written Comments: May 13th 2000
- Special Interest Group Meetings
  - RAPs
  - Rate Payers
- Flow Monitoring and Water Quality Data Reports: July 2000
- Biannual Newsletter
- Draft LTCP: Spring/Summer 2001
- Public meeting to discuss Draft LTCP: Spring/Summer 2001

BSA LTCP GOALS/BENEFITS

- Public Awareness
- WWTP efficiencies
- Minimized Operational Costs
- Understood system
- Regional Cooperation
- Environmental benefits
  - WQ benefits
  - Aesthetic improvements
STAKEHOLDER GOALS
What are they?
AGENDA

- Tour WWTP
- Summary of Round 1 Public Meetings
  - Attendance
  - Questions Fielded at Meetings
- Suggestions for Next Round of Public Meetings
- Update on USEPA/NYSDEC Negotiations
- Next Stakeholder Meeting
<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
<th>Phone Number</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert Locay</td>
<td>NYSDEC</td>
<td>851-2070</td>
<td><a href="mailto:RLocayt@gw.dec.state.ny.us">RLocayt@gw.dec.state.ny.us</a></td>
</tr>
<tr>
<td>Jeff Kanselle</td>
<td>NYSDEC - Buffalo</td>
<td>851-7070</td>
<td><a href="mailto:jkansel@gw.dec.state.ny.us">jkansel@gw.dec.state.ny.us</a></td>
</tr>
<tr>
<td>Earl Wells</td>
<td>E3communications</td>
<td>854-8182</td>
<td><a href="mailto:Ewells@e3communications.com">Ewells@e3communications.com</a></td>
</tr>
<tr>
<td>BRIAN DOLO</td>
<td>BOPC</td>
<td>200-6110</td>
<td><a href="mailto:BRIAN@BROOKPARKS.COM">BRIAN@BROOKPARKS.COM</a></td>
</tr>
<tr>
<td>Oluwole A. McFoy</td>
<td>Buffalo Sewer Authority</td>
<td>851-4664</td>
<td><a href="mailto:omcfoy@acci.buffalo.ny.us">omcfoy@acci.buffalo.ny.us</a></td>
</tr>
<tr>
<td>Margel Ryan</td>
<td>South Buffalo Alive</td>
<td>826-3158</td>
<td></td>
</tr>
<tr>
<td>Stephanie Barber</td>
<td>Get P Lots</td>
<td>240-8418</td>
<td><a href="mailto:Sabarb@hotmail.com">Sabarb@hotmail.com</a></td>
</tr>
<tr>
<td>Julie O'Neil</td>
<td>Buffalo Niagara Riverkeeper</td>
<td>716-7413</td>
<td><a href="mailto:Jbonel1@bnrkeeper.org">Jbonel1@bnrkeeper.org</a></td>
</tr>
<tr>
<td>Patrick Curry</td>
<td>NYS Assembly-Scholar</td>
<td>876-0152</td>
<td><a href="mailto:curryp@assembly.state.ny.us">curryp@assembly.state.ny.us</a></td>
</tr>
<tr>
<td>DAVE CAMBIANO</td>
<td>ASA</td>
<td>851-4661</td>
<td><a href="mailto:DAVE@CMCI.AS.A.BUFFALO.NY.US">DAVE@CMCI.AS.A.BUFFALO.NY.US</a></td>
</tr>
<tr>
<td>Mike Gunn</td>
<td>MPI/Arcaus</td>
<td>667-6610</td>
<td>MGI@<a href="mailto:arcaus@arcaus.com">arcaus@arcaus.com</a></td>
</tr>
<tr>
<td>Lisa Derrigan</td>
<td>Malcolm Pirnie Arcaden</td>
<td>667-6644</td>
<td><a href="mailto:Lisa.Derrigan@arcaus-us.com">Lisa.Derrigan@arcaus-us.com</a></td>
</tr>
</tbody>
</table>
Buffalo Sewer Authority
Long Term Control Plan for
Combined Sewer Overflows

Stakeholder Panel
Kickoff Meeting
April 26, 2011

Agenda

- Introductions
- Overview of the BSA Facilities
- Project Drivers
- Project History
- Public Participation / Stakeholder Panel
- Questions
Agenda

- Introductions
- **Overview of the BSA Facilities**
- Project Drivers
- Project History
- Public Participation / Stakeholder Panel
- Questions

Formation of BSA

- Before the BSA:
  - 39 mgd of raw sewage was entering the Niagara River
  - Bacterial pollution evidence 17 miles below Buffalo
  - Significant health problems
- Act of State Legislature 1935 created the BSA
- The BSA today:
  - Covers 110 Square Miles
  - Serves 450,000 people
Development of BSA Wastewater Treatment Plant (WWTP)

- 1936-1939: Primary Treatment Facility
- 1975-1979: Secondary Treatment Facility
BSA Bird Island WWTP

- Second largest plant in New York State
- 144 mgd average daily flow
- 118 mgd average dry weather flow
- Primary and secondary treatment facility
- Maximum capacity of WWTP over 550 mgd
- Treat 85% of combined wastewater entering the system
- Tens of millions in capital improvements over past 15 years

WWTP Improvements

- **1994-2010 Capital Improvements to Enhance Treatment**
  - Bar Screen
  - Fine Bubble Diffusers
  - SCADA
  - Grit
  - Centrifuges
  - Other
BSA Collection System

- Consists of:
  - Separate Sanitary Sewer Systems (SSS)
  - Separate Storm Sewers
  - Combined Sewer Systems (CSS)
- More than 850 miles of sewers
- 790 miles of sewer are combined
- 258 Sewer Patrol Points (SPPs)
- 59 Permitted Combined Sewer Overflows (CSOs)

CSS and CSOs

- A Combined Sewer System (CSS) is a wastewater collection system that conveys sanitary sewage and stormwater in a single pipe to a WWTP.
- A Combined Sewer Overflow (CSO) is a designed discharge point for release of wastewater when the capacity of the CSS is exceeded during wet weather.
CSOs were constructed in the past to prevent over loading of the system and basement / street flooding.

In the U.S., CSS serve approximately 43 million people in 1,100 communities nationwide.
CSS Communities in the U.S.

Today CSOs are being eliminated or minimized, pursuant to the Clean Water Act, because the discharges may contain many different contaminants and may impact water quality, the aquatic environment, human health and aesthetics.
North District
- 6 CSOs
- Main Receiving Water – Niagara River

South Central District
- 42 CSOs
- Main Receiving Waters – Cazenovia Creek and Buffalo River

Scajaquada District
- 11 CSOs
- Main Receiving Waters – Black Rock Canal and Scajaquada Creek

Agenda
- Introductions
- Overview of the BSA Facilities
  **Project Drivers**
  - Project History
  - Public Participation / Stakeholder Panel
  - Questions
Federal CSO Policy

- Basis for Policy:
  - Water Quality
  - Clean Water Act Compliance
  - Aquatic Biota Protection
  - Public Health
  - CSO Control Complexity and Variability
    - Site-specific variables
    - Significant financial impacts

Federal CSO Strategy/ Policy

- CSO Strategy - 1989
- CSO Policy - 1994
  - Dry weather overflows prohibited
  - CSO impacts on water quality, aquatic biota and human health must be minimized
  - States charged with developing state-wide permitting strategies to reduce and eliminate CSOs
  - Ensures public involvement in the decision making process.
  - Allows a flexible and phased approach to implementing CSO controls
  - Requires permittees to implement the Nine Minimum Controls (operations and maintenance efforts)
  - Requires permittees to develop LTCPs
Federal LTCP Requirements

Three Main Steps

1. System Characterization, Monitoring, and Modeling of the CSS for Selection and Design of CSO Controls
2. Evaluation of Alternatives
3. Selection and Implementation of Controls

Key Elements to Address in the Three Steps Include
- A public participation process actively involving affected public in decision making to select long-term CSOs
- Cost performance considerations
- Operational plan revision to include CSO controls
- Implementation Schedule
- Post-Construction compliance monitoring program
State CSO Program

- SPDES Permit Requirements
  - Implementation of Nine Minimum Controls (NMC) through Best Management Practices (BMPs)
  - Development of LTCP
  - Schedule for Compliance
  - Monitoring

What is a Consent Decree?

A Consent Decree is a legally binding document with environmental regulators outlining an accelerated program of activities designed to further improve water quality and ensure compliance with the Clean Water Act.
Advantages of a Consent Decree

- Compliance with the Clean Water Act
- Protection of Water Resources
- Protection of Public Health and Welfare
- Avoid Costly Litigation
- Facilitates Bonding with State Agencies

Agenda

- Introductions
- Overview of the BSA Facilities
- Project Drivers
  - **Project History**
- Public Participation / Stakeholder Panel
- Questions
BSA LTCP For CSOs

- Multi-million dollar multi-year program to abate impacts of CSOs and improve water quality
- Drivers
  - USEPA CSO Policy
  - NYSDEC Permit
  - Consent Decree
- Requires public participation
- Requires stakeholder issues to be addressed
- To date BSA (since 2000) has invested over $10 Million in development of the LTCP

2004 BSA LTCP Program Components

1. Define Existing Conditions
   - Map System
   - Flow and Rainfall Monitoring Program
   - Water Quality Sampling Program
   - Develop SWMM (hydraulic) Model
2. Develop LTCP
   - Analysis of Alternatives
   - Balance Cost-Benefits
   - Recommend Schedule
3. Implement
Project Since 2004 LTCP Submitted

- Submitted LTCP Report to NYSDEC – July 2004
- Received Comments from NYSDEC in 2006
- NYSDEC/USEPA Requested Additional Evaluations
- Additional LTCP Work Started in 2008 and Consisted of:
  - Additional Flow/Rainfall Monitoring
  - Collection System Model Refinement
  - Water Quality Sampling
  - Receiving Water Quality Model Development
  - Revised Financial Capability Analysis
- Over $30 Million Invested in CSO Controls Since 2004
- Negotiation of Consent Decree began in 2009

Additional System Monitoring and Sampling
Water Quality Model Development

Hydraulic Model

- Hydraulic Model Updated to Include all System Improvements Completed since 2004
Financial Capability Analysis (FCA)

- **Goals**
  - Achieve water quality goals
  - Evaluate the financial resources available
  - Consider the financial impact on residential users
  - Establish an implementation schedule for the long term control plan (LTCP)

### USEPA’s Financial Capability Indicators

<table>
<thead>
<tr>
<th>Financial Capability Indicators Score</th>
<th>Residential Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low (&lt;1%)</td>
<td>Mid-Range (1 to 2%)</td>
</tr>
<tr>
<td>Weak (&lt;1.5)</td>
<td>Medium</td>
</tr>
<tr>
<td>Mid-Range (1.5 to 2.5)</td>
<td>Low</td>
</tr>
<tr>
<td>Strong (≥2.5)</td>
<td>Low</td>
</tr>
</tbody>
</table>

**Some Factors:** Mean Household Income, Indebtedness, Unemployment, Revenue Collection Rates, and Property Values
Next Steps for Updated LTCP

- 2011 Updated LTCP to Build Upon Previous Efforts
- Develop and Evaluate Abatement Alternatives to Reflect New Data and Modeling
- Traditional Technologies (Gray Infrastructure)
  - Storage
  - Treatment
  - Separation
- Emerging Technologies
  - Green Infrastructure
  - Real Time Control (RTC)

Traditional Technologies
Emerging Technologies

- Green Infrastructure Examples
  - Rain Gardens
  - Rain Barrels
  - Permeable Pavement

Emerging Technologies

- RTC Examples
  - Inline Storage
  - Offline Storage
BSA Updated LTCP Objectives

- Meet USEPA/NYSDEC Water Quality Goals
- Satisfy Consent Decree
- Improve Water Quality in Local Water Bodies
- Provide Affordable Solution and Reasonable Implementation Schedule
- Utilize Appropriate Mixture of Traditional (Gray) and Emerging (Green) Technologies

Agenda

- Introductions
- Overview of the BSA Facilities
- Project Drivers
- Project History
- Public Participation / Stakeholder Panel
- Questions
Public Participation

- Purpose
  - Involvement in program scope
  - Involvement in evaluation and selection of alternatives
  - Informing citizens/businesses
    - Electronic media information
    - Public meetings
- Groups
  - Stakeholder Panel
  - General Public
  - Focus Groups

Stakeholder Panel Role

- Engage the Panel Members in the Development and Evaluation of CSO Control Alternatives for the Updated LTCP
- Provide Public Participation Oversight
- Assist in Development of Public Meeting Agenda(s)
Project Contact Information

- BSA: Dave Comerford, General Manager
  - 851-4664
  - LTCP@sa.ci.buffalo.ny.us

- Malcolm Pirnie/ARCADIS: Mike Quinn, Project Manager
  - 667-0900
  - Michael.J.Quinn@arcadis-us.com

Questions
AGENDA

- Tour WWTP

- Summary of Round 1 Public Meetings
  - Attendance
  - Questions Fielded at Meetings

- Suggestions for Next Round of Public Meetings

- Update on USEPA/NYSDEC Negotiations

- Next Stakeholder Meeting
# Sign In Sheet

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
<th>Phone Number</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicole Cipp</td>
<td>BNRK</td>
<td>852-7985</td>
<td>nhippebriverkeeper.org</td>
</tr>
<tr>
<td>Mark Brodan</td>
<td>BNRK</td>
<td>11</td>
<td><a href="mailto:mboydan@briverkeeper.org">mboydan@briverkeeper.org</a></td>
</tr>
<tr>
<td>Jeff Konsele</td>
<td>NYSDEC Reg 9</td>
<td>851-7070</td>
<td><a href="mailto:jakonsel@gw.dec.state.ny.us">jakonsel@gw.dec.state.ny.us</a></td>
</tr>
<tr>
<td>Earl Wells</td>
<td>33Communications</td>
<td>854-8182</td>
<td><a href="mailto:ewells@33communications.com">ewells@33communications.com</a></td>
</tr>
<tr>
<td>Mark Schroepen</td>
<td>145 A D</td>
<td>826-0152</td>
<td><a href="mailto:mark.jf.schroepen@qmail.com">mark.jf.schroepen@qmail.com</a></td>
</tr>
<tr>
<td>Tom Paul</td>
<td>Hiscock &amp; Barclay</td>
<td>315-350-1330</td>
<td><a href="mailto:tpaul@hlbow.com">tpaul@hlbow.com</a></td>
</tr>
<tr>
<td>Rob Locay</td>
<td>NYSDEC</td>
<td>851-7070</td>
<td><a href="mailto:rillocy@gw.dec.state.nyu">rillocy@gw.dec.state.nyu</a></td>
</tr>
<tr>
<td>Mary Peirce</td>
<td>Buffalo State College</td>
<td>878-3699</td>
<td><a href="mailto:percelmf@buffalostate.edu">percelmf@buffalostate.edu</a></td>
</tr>
<tr>
<td>BRIAN DUD</td>
<td>Bofe</td>
<td>2808110</td>
<td><a href="mailto:briandud@bparks.com">briandud@bparks.com</a></td>
</tr>
<tr>
<td>Charles C. Martorana</td>
<td>Hiscock &amp; Barclay</td>
<td>716-566-1517</td>
<td><a href="mailto:cmartorana@hsr.cw.com">cmartorana@hsr.cw.com</a></td>
</tr>
<tr>
<td>Stephanie Barker</td>
<td>Hamlin Paul Taps</td>
<td>716-8148</td>
<td><a href="mailto:sopher@hotmail.com">sopher@hotmail.com</a></td>
</tr>
</tbody>
</table>
This memorandum is intended to provide the Stakeholder Panel with a report on the current status of the development of the Updated Long Term Control Plan (LTCP) for the abatement of the Buffalo Sewer Authority’s (BSA) combined sewer overflows (CSOs).

Since the last meeting of the Stakeholder Panel on May 19th, the BSA team has continued to work toward the submission of a final Update to the LTCP document that will provide for a cost effective approach to the CSO abatement program and provide for the protection of water quality. The following sections highlight the major developments since our last meeting:

- **Project Schedule** – During our last meeting, the anticipated due date was identified as June 30, 2011. However, over the course of the last few months, the USEPA/NYSDEC have offered a number of comments on documents and other information that has been submitted for review, which has required that the schedule be revised to reflect a new due date of October 31, 2011. The October 31 date was subsequently accepted by all parties. More recently, the USEPA has asked that the BSA revisit a number of our original assumptions and in particular to update the data that was used to develop the hydraulic model used for the LTCP update efforts. In light of this development, the BSA has requested additional time to respond to the additional information requested by the USEPA before the submission of the Updated LTCP document. To date, this revised date has yet to be established.
- **Consent Decree** – In parallel with the development of the LTCP, the BSA continues to negotiate the Joint USEPA/NYSDEC Consent Decree. Currently the BSA legal and technical teams are working with these Agencies to address a few remaining items required to finalize the documents.

- **Technical Update** – Since the last Stakeholder Panel meeting and the first round of Public Meetings, the BSA team has continued to refine the hydraulic and water quality models. Recently the BSA has placed an increased emphasis on water quality to the extent that the alternatives being developed will be based primarily on options that improve water quality in impacted water bodies with less focus on those areas where CSO abatement will have little impact on improving water quality. In general all areas of the BSA system located in the city of Buffalo will receive attention but the bulk of the work will focus on areas tributary to the Black Rock Canal, Erie Basin Marina and Scajaquada Creek.

With regard to the abatement alternatives, the BSA has shifted its approach to include significantly more Green Infrastructure (GI) in the program than was originally anticipated. As stated previously, green infrastructure, although largely unproven in this environment, shows the promise of being equally effective but less costly than traditional gray infrastructure alternatives, such as storage tanks and tunnels for example. Since our last meeting, the BSA has begun the implementation of three demonstration projects intended to evaluate the effectiveness of GI as compared to traditional sewer separation projects. In conjunction with these efforts, the BSA has requested that the construction schedule for a number of projects that are to be completed early in the program be extended to accommodate a full evaluation of the effectiveness of GI. Assuming that GI techniques prove effective it is the intention of the BSA to ultimately substitute GI for originally planned separation projects.

- **Watershed Recreational Use Study** – This document has undergone a significant revision since the last round of meetings. In general the document has been revised to include a much more robust evaluation of sensitive areas. Under the USEPA guidance, any CSO tributary to a sensitive area, defined to include areas of primary contact (swimming), those having endangered species, etc., must receive additional focus in the LTCP. Following this evaluation, two sensitive areas were identified, Scajiquada Creek and the Erie Basin Marina. As required, both of these areas will receive additional consideration in the final LTCP.

- **Rain Barrel/Downspout Disconnect Program** – The BSA is continuing efforts to implement the pilot program in the Hamlin Park neighborhood. To date, rain gauges and flow meters have been installed and are collecting baseline rainfall and flow data. It is anticipated that the downspout disconnect/rain barrel installation phase will begin in late August with the focus being placed on the area of Meech Street between Hughes and Hedley. During this pilot, the BSA anticipates the focus to be on downspout disconnects with rain barrels being installed if requested or where necessary based on site conditions. All installation work will be completed by BSA staff. In
parallel, the BSA is also going to revisit the 2009 First Ward pilot area using a similar approach. No flow monitoring will be completed in the First Ward. The BSA continues to work with the Buffalo Niagara Riverkeeper on public outreach efforts associated with both of these programs.

- **Public Participation** – Needless to say, the originally anticipated schedule for the second round of public meetings has been deferred to address new and additional USEPA/NYSDEC comments and subsequent revisions. For planning purposes, and assuming an October 31 due date, it is anticipated that the next round of public meetings, including the associated Stakeholder Panel meetings, will be held in mid to late September.

During the time since the last Stakeholder Panel meeting the BSA has continued other aspects of the public participation program including population of the project website and conducting small group meetings. The updated website can be viewed at [www.bsacsoimprovements.org](http://www.bsacsoimprovements.org). With regard to the small group meetings, the BSA established and met with a group of officials representing the areas outside of the City of Buffalo that are tributary to the BSA system. This meeting was held to introduce the group to the project and to discuss the interrelation of the municipalities and potential impacts of the program. Finally, the BSA has begun the process of establishing a small advisory group made up of local business leaders. As a precursor, the BSA met with representatives from the Buffalo Niagara Enterprise and will soon be meeting with the Buffalo Urban Development Corporation to discuss the update of the LTCP project.
This memorandum is intended to provide the Stakeholder Panel with an update on the current status of the development of the Updated Long Term Control Plan (LTCP) for the abatement of the Buffalo Sewer Authority’s (BSA) combined sewer overflows (CSOs).

Since the last update provided to the Stakeholder Panel (technical memorandum dated August 18, 2011), the BSA team has continued to work on evaluating CSO abatement alternatives, addressing technical comments from the USEPA and NYSDEC, as well as continued ongoing Consent Decree (CD) negotiations with the USEPA, NYSDEC, and USDOJ.

A summary of the recent LTCP developments and activities are presented below:

- **Project Schedule** – Previously we had indicated that all involved parties had agreed upon an October 31, 2011 due date for the delivery of the LTCP documents; however, the USEPA/NYSDEC had asked that the BSA revisit a number of our original assumptions and in particular to update the data (typical year precipitation data) that was used to develop the hydraulic model used for the LTCP update efforts. Following an assessment of this request, the BSA agreed to reevaluate the typical year precipitation data and rerun the hydraulic and water quality models using the new data. In order to complete this effort, the BSA requested additional time for the submission of the Updated LTCP document. The BSA later submitted a revised schedule, attached, to the USEPA/NYSDEC that was contingent upon the regulatory agencies.
acceptance of the updated hydraulic model data (typical year), and proposed a new LTCP submittal date of January 20, 2012. Following a lengthy review of the new information and in particular the BSA’s approach to the development of the typical year precipitation data, the USEPA/NYSDEC subsequently questioned the method by which the precipitation data was developed, as well as the updated hydraulic model data, and provided additional comments. The USEPA/NYSDEC (Agencies) also provided an agency-preferred approach for developing the typical year and requested that the BSA again revisit the typical year data used in the hydraulic model. The BSA team has finalized its re-evaluation and conducted a conference call with the regulatory agencies to discuss the outcome on December 20, 2011. The conference call resulted in the Agencies and the BSA agreeing that a new typical year may be beneficial to both parties. Due to this delay and potential rework, the previously submitted schedule is on hold and the BSA anticipates developing an updated schedule for submission of the Updated LTCP following the meeting.

- **Consent Decree** – In parallel with the development of the LTCP, the BSA continues to negotiate the Joint USEPA/NYSDEC Consent Decree. Currently the BSA legal and technical teams are working with these Agencies to address the remaining items required to finalize the documents. The major outstanding Consent Decree items include:
  - Green Infrastructure language
  - Program schedule
  - Dispute resolution clause

- **Technical Update** – Since the last Stakeholder Panel update, the BSA team has been working to address the USEPA/NYSDEC comments/requests for additional data evaluation of the typical precipitation year for the hydraulic model and running both the hydraulic and water quality models based on the revised data. The models have been used to begin the development of a number of alternatives for CSO abatement. In general the team has been developing system-wide alternatives as requested by the regulatory agencies as well as the BSA preferred receiving stream-specific water quality based alternatives. Recall, however, that currently the precipitation data is in question and the typical year evaluation must be resolved prior to final modeling of the improvement alternatives. The BSA team is committed to evaluating alternatives that focus on improving water quality in the most cost effective manner. The alternatives will include an appropriate blend of traditional/gray technologies (tunnels, storage, and treatment) and green infrastructure technologies (rain gardens, permeable pavement, etc.). The BSA is currently in the process of designing two real time control (RTC) demonstration projects (Bird Avenue and Texas Street) that will evaluate the effectiveness of automatically controlled in-system storage. Also, construction of a green infrastructure demonstration project for CSO 060 will begin in spring 2012, which will help establish metrics to determine the role of green infrastructure in future projects.
Finally a concept is being developed for the construction of a wetland treatment system at the foot of Smith Street, which will collect and treat the overflow from a nearby CSO.

- **Rain Barrel/Downspout Disconnect Program** – The pilot program in the Hamlin Park neighborhood began in October 2011. The BSA, Malcolm Pirnie, and Buffalo Niagara Riverkeeper attended the Hamlin Park Taxpayer Association monthly meeting on October 6, 2011 and gave a brief presentation on the pilot program. A letter describing the pilot program was mailed to Hamlin Park residents on October 17, 2011 (copy attached). The Buffalo Niagara Riverkeeper will soon be conducting a door-to-door canvassing of the Hamlin Park study area, as well as revisiting the First Ward area (initial pilot program from 2010), to disseminate information about the program. Note that while the focus of the program will be downspout disconnection, the BSA will provide rain barrels free of charge where necessary and if requested by the homeowner. All installation work will be conducted by the BSA staff beginning in the spring of 2012. To date, approximately 34 homeowners have signed up for the program (either downspout disconnection or rain barrels). The BSA continues to work with the Buffalo Niagara Riverkeeper on public outreach efforts associated with these programs.

- **Public Participation** – The BSA team recently completed its second round of public meetings in the Fillmore, Masten, and North council districts (December 5, 6, and 8). This round presented an update on the project as well as introduced the approach to the process and control alternatives being evaluated to reduce or eliminate the combined sewer overflows as part of the LTCP Update. We plan to hold the follow-up Stakeholder Panel meeting in early January. The project website has been updated to include the presentation and will be updated with the list of questions from the second round of public meetings, as well as other project updates, including a summary of the recent CSO 060 Green Infrastructure project and the real time control demonstration project. The updated website can be viewed at [www.bsacsoimprovements.org](http://www.bsacsoimprovements.org).

- **Small Group Meetings** – The BSA continued to hold various small group meetings to introduce the program. During recent months, the BSA met with leaders of the nine satellite or tributary communities. The focus of this meeting was to provide some background on the project and to discuss the risks that the municipalities face since by contract the municipalities will pay a portion of the program costs. In addition, the BSA met with representatives of the Buffalo Niagara Enterprise to again introduce the program and to solicit input from the business community on the impact of a program of this size on the already diminishing commercial base in the area.
October 17, 2011

Attention: Hamlin Park Home Owners/Residents:

The Buffalo Sewer Authority (BSA) is conducting a downspout disconnect/rain barrel pilot program in your neighborhood starting this fall. This program is a joint effort by the BSA and the Buffalo Niagara Riverkeeper. The purpose of this program is to protect water quality and control future sewer rate increases. The BSA staff will perform the necessary work to disconnect your downspouts from the sewers for diversion to green areas, or install a rain barrel to capture the stormwater from the downspouts for beneficial reuse, all at no charge to the home owner. In some cases, a rain barrel may need to be installed if a traditional downspout disconnect is not feasible at a particular site. Although this is currently a pilot program with voluntary participation, please be aware that the downspout disconnect program may eventually become mandatory within the City, and when it does, the BSA will no longer fund the work as it is doing so now. The BSA and Buffalo Niagara Riverkeeper strongly encourage you to participate in this important pilot program. Data obtained will be used to fashion a city wide program in the near future.

If you are interested in participating in the downspout disconnect/rain barrel program, please contact Kerri Bentkowski Li of the Buffalo Niagara Riverkeeper at kentkowski@briverkeeper.org or 852-RIVER, ext. 11 to sign up for the program. You may also contact the Buffalo Sewer Authority at 851-4664 with questions.

Sincerely,

[Signature]

David P. Conerford
General Manager, Buffalo Sewer Authority
AGENDA

- Summary of Round 2 Public Meetings
  - Attendance
  - Questions Fielded at Meetings
- Website Updates
- Questions Received through LTCP email
- LTCP Construction Projects Update
  - Hamburg Drain Screens
  - Smith Street
  - Real Time Control Demonstration
- Status of Consent Decree Negotiations
- Update on LTCP Development Process
  - Schedule
  - SEQR
- Round 3 Public Meeting Timeframe
- Other Outreach Opportunities (Hamlin Park)
- Next Stakeholder Meeting
# Sign In Sheet

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
<th>Phone Number</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert Leary</td>
<td>NYSDEC</td>
<td>851-7070</td>
<td><a href="mailto:RLL@cwe.gov">RLL@cwe.gov</a></td>
</tr>
<tr>
<td>Renata Kraft</td>
<td>RIVOLKEEPER</td>
<td>852-7487 237</td>
<td><a href="mailto:RKRAFT@RIVOLKEEPER.ORG">RKRAFT@RIVOLKEEPER.ORG</a></td>
</tr>
<tr>
<td>Jeff Konsella</td>
<td>NYSDEC</td>
<td>851-7070</td>
<td><a href="mailto:JAKONS@GW.DEC.NY.US">JAKONS@GW.DEC.NY.US</a></td>
</tr>
<tr>
<td>Brian Gould</td>
<td>E3Communications</td>
<td>854-8182</td>
<td><a href="mailto:bgould@E3Communications.com">bgould@E3Communications.com</a></td>
</tr>
<tr>
<td>Marci Ryan</td>
<td>S.B. ALIVE</td>
<td>826-3158</td>
<td></td>
</tr>
<tr>
<td>CC Martorana</td>
<td>Hiecker Consulting</td>
<td>566-1512</td>
<td><a href="mailto:CMARTORANA@EBLAW.COM">CMARTORANA@EBLAW.COM</a></td>
</tr>
<tr>
<td>Donald A. Maroy</td>
<td>BELO SWA Authority</td>
<td>851-4641</td>
<td>OMC得以@ECA.gov</td>
</tr>
<tr>
<td>Mike Quinn</td>
<td>BPI-AREA, NY</td>
<td>662-6690</td>
<td><a href="mailto:njquinn@BPI-AREA.COM">njquinn@BPI-AREA.COM</a></td>
</tr>
<tr>
<td>Brian Dold</td>
<td>BOPC</td>
<td>280.8118</td>
<td><a href="mailto:BRIAN@BELOPARKS.OPT">BRIAN@BELOPARKS.OPT</a></td>
</tr>
<tr>
<td>Dave Compton</td>
<td>BSA</td>
<td>851-4664</td>
<td><a href="mailto:DPCOM@CI.BUFFALO.NY.US">DPCOM@CI.BUFFALO.NY.US</a></td>
</tr>
<tr>
<td>Lisa Derrigan</td>
<td>Malcolm Pirnie</td>
<td>667-6464</td>
<td></td>
</tr>
<tr>
<td>Contact</td>
<td>Interested?</td>
<td>Availability</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>--------------</td>
<td></td>
</tr>
</tbody>
</table>
| **BSA Public Participation**  
**Stakeholder Panel Contact List** | | |
| **Contact** | **Interested?** | **Availability** | |
| Julie Barrett-O’Neill, Executive Director  
Buffalo Niagara Riverkeeper  
1250 Niagara St. Buffalo, NY 14213  
jboneill@bnriverkeeper.org  
716.852.7483, Ext. 20 | YES (4/14) | Out wk of 18th except Fri  
Contact Kate Scott, secretary (ext. 10) to schedule  
4/14 – spoke w/ Julie  
4/15 – lft msg for Kate re: 26th mtg |
| **UPDATED CONTACTS:**  
Jessie Fisher, Director of Greenway Programs and Projects,  
jfisher@bnriverkeeper.org, Ext. 36 | | |
| Renata Niedzwiecka Kraft, Director of Greenway Planning and Landscape Architecture,  
rkraft@bnriverkeeper.org, Ext. 37 | | |
| Dr. Kimberley N. Irvine, Professor  
Buffalo State College  
1300 Elmwood Avenue  
Buffalo, NY 14222  
Classroom Building A213  
irvinekn@buffalostate.edu  
(716) 878-6204 |
| Mary Perrelli  
PERRELMF@BuffaloState.edu | Yes (4/15) | Not avail on 26th (teaching), keep Kim posted  
4/14 – lft msg  
4/15 spoke with Kim |
| Jeff Konsella, PE – Regional Water Engineer  
cc: Robert Locey (Robert Smythe)  
New York State Department of Environmental Conservation  
Region 9 Office  
270 Michigan Avenue  
Buffalo, NY 14203  
jakonsel@gw.dec.state.ny.us  
rlocey@gw.dec.state.ny.us  
716-851-7070 | | 4/14 – lft msg  
4/14 – spoke w/ Robert Smythe (advisory role)– Locey out this week, haven’t discussed w/ Jeff; will get back to us next week (told him to contact Quinn) |
| Thomas Herrera-Mishler  
Or Brian Dold (cell 280-8118)  
Buffalo Olmstead Parks Conservancy  
84 Parkside Ave,  
Buffalo NY 14214  
(716) 838 – 1249, ext 13  
info@bflpoparks.org  
brian@bflpoparks.org | | 4/14 – lft msg |
<table>
<thead>
<tr>
<th>Contact</th>
<th>Interested?</th>
<th>Availability</th>
</tr>
</thead>
</table>
| **Paul Jackson** - President  
**Niagara River Anglers Association, Inc.**  
PO Box 203 LaSalle Station  
Niagara Falls, NY 14304  
nraa@niagarariveranglers.com | | 4/14 – sent email msg  
SMALL GROUP INSTEAD?  
George Johnson – 818-3410 (per Stephanie) |
| **Charles Martorana**, Partner  
**Hiscock & Barclay, LLP**  
1100 M&T Center  
3 Fountain Plaza  
Buffalo, NY 14203  
CMartorana@hblaw.com  
(716) 566-1512 | Yes | 4/14 – lft msg  
4/15 – spoke with Charlie, let him know if we have prep mtg /need his help |
| **Stephanie Barber**  
President  
**Hamlin Park Taxpayer’s Association**  
174 Blaine Avenue  
Buffalo, New York 14208  
566-8148  
sabarb@hotmail.com | | 4/14 – phone was out of service; e3 working on getting number |
| **Honorable Brian M. Higgins**  
**New York State Congress, 27th District**  
726 Exchange Street  
Buffalo, NY 14210 | DECLINED | |
| **Marge Ryan**  
**South Buffalo Alive**  
25 Coolidge Road  
Buffalo, New York 14220  
826-3158 | Yes | Told her of 4/26 mtg – she will try and make it (does not always have access to car)  
No email, best to call/mail |
| **Honorable Mark J.F. Schroeder**  
**New York State Assembly**  
2189 Seneca Street  
Buffalo, New York 14210  
826-0152  
Staff:  
Patrick Curry – curryp@assmebly.state.ny.us  
Assistant: Nicole Swallow  
nicole.swallow@gmail.com | | 4/14 – spoke with staff Nicole, call back Fri  
4/15 – Nicole – still deciding, call back Tues. |
| **Honorable Barbara Miller-Williams**  
Chair  
**Erie County Legislature**  
427 William Street  
Buffalo, New York 14204 | | 4/14 – lft msg with secretary |
## BSA Public Participation
### Stakeholder Panel Contact List

<table>
<thead>
<tr>
<th>Contact</th>
<th>Interested?</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>842-0490 <a href="mailto:bmw@erie.gov">bmw@erie.gov</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistants: Lisa Feliciano</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TuWanner Cleveland <a href="mailto:clevelat@erie.gov">clevelat@erie.gov</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honorable Joseph Golombek, Jr.</td>
<td></td>
<td>4/14 – lft msg with staff</td>
</tr>
<tr>
<td><strong>North District Common Council Member</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>City of Buffalo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1502 City Hall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buffalo, NY 14202</td>
<td></td>
<td></td>
</tr>
<tr>
<td>851-5116 <a href="mailto:jgolombek@city-buffalo.com">jgolombek@city-buffalo.com</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honorable Darius G. Pridgen</td>
<td></td>
<td>4/14 – spoke with staff (Nelson)</td>
</tr>
<tr>
<td><strong>Ellicott District Common Council Member</strong></td>
<td></td>
<td>4/15 – Nelson – can’t find letter, faxed it over to him (fax (851-6576)</td>
</tr>
<tr>
<td>City of Buffalo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1408 City Hall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buffalo, NY 14202</td>
<td></td>
<td></td>
</tr>
<tr>
<td>851-4980 <a href="mailto:dpridgen@city-buffalo.com">dpridgen@city-buffalo.com</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistant: Janice White</td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="mailto:jewhite@ch.ci.buffalo.ny.us">jewhite@ch.ci.buffalo.ny.us</a></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The purpose of the workshop was to continue the coordination and cooperation between the Buffalo Sewer Authority (BSA) and Buffalo Niagara Riverkeeper organization (BNRK) as BSA completes the update of its long-term control plan (LTCP) for combined sewer overflow (CSO) control. Specific objectives for this workshop included:

- Establish an approach for incorporating GI into BSA’s updated LTCP
- Establish feasible techniques for GI analysis
- Identify areas where further GI analysis is warranted

The meeting agenda was structured to cover a number of key topics, as follows:

**BNRK Draft GI Feasibility Study**

Following introductions and a review of the meeting agenda and objectives, Malcolm Pirnie / ARCADIS (Pirnie/ARCADIS) presented an overview of the BNRK June 2010 draft green infrastructure feasibility study. That study included a comprehensive review of Buffalo’s water resources, a history of regulatory actions and plans related to sewer overflows, and a preliminary analysis of the potential benefits of green infrastructure. This study also included a list of over 30 potential GI projects to be implemented throughout Buffalo.
BNRK clarified that the project list from their 2010 work was largely based on an approach of incorporating green infrastructure features into on-going, independently-developed projects that appeared to be good candidates for GI. They also noted that they are continuing with these discussions and specifically referenced Buffalo State University and the Olmsted Park System as potential partners on future GI projects. Lastly, they indicated that they have been involved with a number of completed GI projects, some of which were designed for a 4-inch storm event.

**First Ward Downspout Disconnection Pilot Program (D2P2)**

The next topic of discussion was a review of the joint BSA-BNRK downspout disconnection / rain barrel program in the First Ward neighborhood. Pirnie/ARCADIS presented a summary of the First Ward project approach, which utilizes separate study and control areas that have been quantified for relevant factors such as drainage area, roof area, roadway pavement area, etc. Flow monitoring data collected in 2010 from the project was presented along with an analysis of how future data would be utilized to measure program effectiveness.

During this discussion, the issue of participation and overall progress was raised by BSA. BNRK, who has been responsible for distributing the rain barrels, explained that the late 2010 start to the program hindered initial progress but expected to see substantial improvement in the spring 2011 with the approach of the gardening season. BSA indicated that although the lack of progress and public participation in the First Ward was a concern, it was still open to a large-scale program that might be implemented similar to Buffalo’s “blue box” recycling program. BSA also pointed out that the ultimate success of the program would likely be more related to the downspout disconnection aspect rather than the optimal use of the rain barrels. Finally, BSA indicated some concern about getting the participation rates necessary to complete this study in the First Ward. BNRK also noted that it had sold a total of 1,200 rain barrels and would likely be able to provide a degree of tracking information on the location of those units.

Pirnie/ARCADIS provided a review of monitoring data collected to date in the pilot and control basins. Overall, data quality (in terms of availability of data and characterizing system responses) was good; however, the control basin meter exhibited significant backwater during nearly all storm events. As a result, this site will difficult to use for comparison to the pilot area. Several approaches for developing the required statistics for pre/post installation comparison were discussed. BSA indicated that the GI pilot projects that are currently underway in the CSO 060 basin will include significant rain barrel application. Potentially, the effectiveness monitoring could be relocated to that basin. Overall, the installation of the post-construction monitoring would need to be delayed in the current pilot area until more rain barrels are installed.

**Malcolm Pirnie / ARCADIS Green Infrastructure Analysis**

Malcolm Pirnie / ARCADIS presented an overview of its completed GI sensitivity analysis for BSA that was based on coarse-scale adjustments to impervious surface in the BSA sewer system model. The maximum adjustment level used, 60%, was roughly correlated with the impervious surface management goals presented in the BNRK feasibility study.

A key result of this work was the calculation of annual overflow frequencies and volumes at each CSO within the BSA system. The results of this analysis were used to identify CSO basins with the greatest potential CSO control benefit from GI, and then to identify specific areas and technologies for GI application within those basins. Data tables of the results were distributed at the meeting along with a number of detailed GI opportunities analysis figures. These opportunities figures were aerial-mapping based graphics that provide basic land use and impervious area statistics for individual CSO sewersheds.
BNRK was interested in reviewing the Pirnie/ARCADIS analysis in more detail, and it was agreed that they would be provided with the data tables and figures. They were also supportive of this approach that would allow for the prediction of CSO-specific overflow volume reduction resulting from the use of green infrastructure. It was agreed that Pirnie/ARCADIS would develop similar GI opportunities analysis figures for the CSO basins identified from the sensitivity analysis with high potential of CSO control from GI. BNRK would then review these figures, in conjunction with the projects identified in their draft report and other data, and recommend specific technologies for application within these basins.

GI Costs / LTCP Update Completion / GI Technologies

The meeting closed with a discussion of high-level costs for green infrastructure, BSA’s short-term plans for completing its LTCP update, and GI techniques that would be technically feasible in Buffalo. Pirnie/ARCADIS presented unit costs for various GI technologies, some taken from general references (US EPA, Groundwater Foundation) and others from completed projects (Portland, OR, Northern Kentucky). BNRK recommended that additional GI cost information could be obtained from the Environmental Finance Center at Syracuse University and the Center for Neighborhood Technology.

Pirnie/ARCADIS indicated that additional GI-focused modeling for the LTCP update was necessary and will be completed with a more refined approach that represented targeted technologies. Towards that end, there was an interest in soliciting BNRK’s input on the selection of target areas and potential projects for this analysis.

The lack of highly permeable soils throughout a majority of Buffalo was a focus of the technically feasible green infrastructure technologies discussion. The concern of BSA and Pirnie/ARCADIS was that infiltration would be difficult to achieve in such soils and could limit the benefits of certain GI projects. As a result, BSA and Pirnie/ARCADIS indicated their belief that sewer separation was a legitimate approach to green infrastructure in Buffalo. BNRK’s position was that research into the topic of infiltration into clay soils was on-going (University of New Hampshire was mentioned) and those results might provide more support for infiltration-based GI projects. Further, they explained that they were opposed to sewer separation because surface water runoff in streams could not be utilized for groundwater recharge. Pirnie/ARCADIS agreed to look into these issues further.
<table>
<thead>
<tr>
<th>NAME</th>
<th>ORGANIZATION</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earl Wells</td>
<td>E3 Communications</td>
<td><a href="mailto:ewells@e3communications.com">ewells@e3communications.com</a></td>
</tr>
<tr>
<td>Mark Lenz</td>
<td>Malcolm Pickie/ARCADIS</td>
<td><a href="mailto:Mark.Lenz@ARCADIS-US.COM">Mark.Lenz@ARCADIS-US.COM</a></td>
</tr>
<tr>
<td>Eric Harold</td>
<td></td>
<td><a href="mailto:eric.harold@arcdis-us.com">eric.harold@arcdis-us.com</a></td>
</tr>
<tr>
<td>Jim Turner</td>
<td></td>
<td><a href="mailto:Jim.Turner@arcdis-us.com">Jim.Turner@arcdis-us.com</a></td>
</tr>
<tr>
<td>Jessie Fisher</td>
<td>BN Niagara Riverkeeper</td>
<td><a href="mailto:jfisher@bnriverkeeper.org">jfisher@bnriverkeeper.org</a></td>
</tr>
<tr>
<td>Dona Lee McVey</td>
<td>Buffalo Niagara Arts Council</td>
<td><a href="mailto:donalee@bnriverkeeper.org">donalee@bnriverkeeper.org</a></td>
</tr>
<tr>
<td>Jim Egan</td>
<td></td>
<td><a href="mailto:jine@sa.ci.buffalo.ny.us">jine@sa.ci.buffalo.ny.us</a></td>
</tr>
<tr>
<td>Paul McGarvey</td>
<td>GHD</td>
<td><a href="mailto:paul.mcgarvey@ghd.com">paul.mcgarvey@ghd.com</a></td>
</tr>
<tr>
<td>Dave Camerlindo</td>
<td>BSA</td>
<td><a href="mailto:dcamerlindo@sa.ci.buffalo.ny">dcamerlindo@sa.ci.buffalo.ny</a></td>
</tr>
<tr>
<td>Julie O'Neill</td>
<td>Riverkeeper</td>
<td><a href="mailto:julie@bnriverkeeper.org">julie@bnriverkeeper.org</a></td>
</tr>
<tr>
<td>Brian Goff</td>
<td>E3 Communications</td>
<td><a href="mailto:bgoff@e3communications.com">bgoff@e3communications.com</a></td>
</tr>
<tr>
<td>Mark Bogdan</td>
<td>Buffalo Niagara Riverkeeper</td>
<td><a href="mailto:mbogdan@bnriverkeeper.org">mbogdan@bnriverkeeper.org</a></td>
</tr>
<tr>
<td>Frank DiMascio</td>
<td>GHD</td>
<td><a href="mailto:franklin.dimascio@ghd.com">franklin.dimascio@ghd.com</a></td>
</tr>
<tr>
<td>Mike Quinn</td>
<td>MPA/ARCADIS</td>
<td><a href="mailto:mechanix.quinn@arcdis-us.com">mechanix.quinn@arcdis-us.com</a></td>
</tr>
<tr>
<td>Jerry Klevina</td>
<td>Malcolm Pickie/ARCADIS</td>
<td><a href="mailto:jerry.klevina@arcdis-us.com">jerry.klevina@arcdis-us.com</a></td>
</tr>
</tbody>
</table>
BUFFALO SEWER AUTHORITY
MUNICIPAL OFFICIALS MEETING
JUNE 24, 2011
AGENDA

I. INTRODUCTION – Introduction of attendees

II. SYSTEM DESCRIPTION – Provide map and description of flow
(direction/connection points, annual average flow etc.)
   a. Discussion of Satellite Community Consent Orders

III. LTCP UPDATE – Status of where we have gone and where we are now
   a. 2004 effort
   b. 2011 effort and goals
   c. Proposed program
      i. Water Quality Modeling
      ii. Hydraulic Modeling
      iii. Green Infrastructure
      iv. Additional flows from satellites

IV. SCHEDULE – Discussion on the proposed schedule for submission of the LTCP
    document and the implementation period

V. COST IMPACTS –
   a. Capital Cost Discussion
   b. Financial Capability Analysis
   c. Cost sharing approach
   d. Rate impacts

VI. NEXT STEPS
<table>
<thead>
<tr>
<th>NAME</th>
<th>ORGANIZATION</th>
<th>TEL. NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>William Pugh</td>
<td>Engr. (T) Cheektowaga</td>
<td>897-7288</td>
</tr>
<tr>
<td>Mary Holtz</td>
<td>Sup &amp; '10</td>
<td>686-3465</td>
</tr>
<tr>
<td>Gary Ambrose</td>
<td>Village Lancaster</td>
<td>683-2105</td>
</tr>
<tr>
<td>Joe Fiel</td>
<td>Erie Co. (ECSD No. 1;4)</td>
<td>888-7537</td>
</tr>
<tr>
<td>Jules Pecora</td>
<td>Trustee Depew</td>
<td>907-9694</td>
</tr>
<tr>
<td>Dave Cofield</td>
<td>Buffalo Glenn Puth</td>
<td>851-4664</td>
</tr>
<tr>
<td>Steve Huffman</td>
<td>Village of Depew</td>
<td>870-7614</td>
</tr>
<tr>
<td>Bob Gizzi</td>
<td>Town of Lancaster</td>
<td>683-1610</td>
</tr>
<tr>
<td>Bob Harris</td>
<td>Wm. Schutt/Ti Lancaster</td>
<td>683-5961</td>
</tr>
<tr>
<td>Walter Piekarski</td>
<td>Town of West Seneca</td>
<td>949-3015</td>
</tr>
</tbody>
</table>
Buffalo Sewer Authority
Long Term Control Plan for
Combined Sewer Overflows
Municipal Officials Meeting
June 24, 2011

Agenda
- Introductions
- System Description
- LTCP Update
- Schedule
- Cost Impacts
- Next Steps
- Questions
BSA Service Area

BSA Service Area Statistics

- Total Service Area
  - Population – 450,000
  - 110 Square Miles
  - Average Daily Flow – 133 MGD (48.5 Billion Gallons)
- City of Buffalo
  - Households - 110,000
  - Average Daily Flow – 100 MGD
- ESCD Nos. 1 and 4 (incl. Depew and Lancaster)
  - Households – 19,000
  - Average Daily Flow – 17.5 MGD
- Town of Cheektowaga (incl. Sloan)
  - Households – 24,000
  - Average Daily Flow – 10.2 MGD
- Town of West Seneca
  - Households – 13,000
  - Average Daily Flow – 5.9 MGD

Source: 2010 Financial Capability Analysis (CRA)
Development of BSA Wastewater Treatment Plant (WWTP)

- 1936-1939: Primary Treatment Facility
- 1975-1979: Secondary Treatment Facility

BSA Bird Island WWTP

- Second largest plant in New York State
- 144 mgd average daily flow
- 118 mgd average dry weather flow
- Primary and secondary treatment facility
- Maximum capacity of WWTP over 550 mgd
- Treat 85% of combined wastewater entering the system
BSA Collection System

- Consists of:
  - Separate Sanitary Sewer Systems (SSS)
  - Separate Storm Sewers
  - Combined Sewer Systems (CSS)
- More than 850 miles of sewers
- 790 miles of sewer are combined
- 258 Sewer Patrol Points (SPPs)
- 59 Permitted Combined Sewer Overflows (CSOs)

North District
- 6 CSOs
- Main Receiving Water – Niagara River

South Central District
- 42 CSOs
- Main Receiving Waters – Cazenovia Creek and Buffalo River

Scajaquada District
- 11 CSOs
- Main Receiving Waters – Black Rock Canal and Scajaquada Creek
Satellite Collection Systems

- Towns of Cheektowaga, West Seneca and Lancaster, Villages of Depew, Lancaster and Sloan and Erie County Sewer Districts No. 1 and 4
- Separate Sanitary Sewer Systems (SSS)
- Originally Included Municipal WWTP’s
- All Treatment now at BSA’s Bird Island WWTP
- Roughly 500 miles of Sewer Mains
- 3 Overflow Retention/Excess Flow Management Facilities
- Numerous Sanitary Sewer Overflows (SSO’s)
- Multiple Orders on Consent

Why Are We Here?

- Buffalo Sewer Authority Combined Sewer Overflows
- Long Term Control Plan
- USEPA/NYSDEC Joint Consent Decree
- One System/Multiple Owners
- Long Term/Big Picture Concerns
Federal CSO Strategy/Policy

- CSO Strategy - 1989
- CSO Policy - 1994
  - Dry weather overflows prohibited
  - CSO impacts on water quality, aquatic biota and human health must be minimized
  - States charged with developing state-wide permitting strategies to reduce and eliminate CSOs
  - Ensures public involvement in the decision making process.
  - Allows a flexible and phased approach to implementing CSO controls
  - Requires permittees to implement the Nine Minimum Controls (operations and maintenance efforts)
  - Requires permittees to develop LTCPs

State CSO Program

- SPDES Permit Requirements
  - Implementation of Nine Minimum Controls (NMC) through Best Management Practices (BMPs)
  - Development of LTCP
  - Schedule for Compliance
  - Monitoring
BSA LTCP For CSOs

- Multi-million dollar multi-year program to abate impacts of CSOs and improve water quality
- Drivers
  - USEPA CSO Policy
  - NYSDEC Permit
  - Consent Decree
- Requires public participation
- Must Involve Satellite Communities
- To date BSA (since 2000) has invested over $10 Million in development of the LTCP

2004 BSA LTCP Program Components

1. Defined Existing Conditions
   - Map System
   - Flow and Rainfall Monitoring Program
   - Water Quality Sampling Program
   - Develop SWMM (hydraulic) Model
2. Developed LTCP
   - Analysis of Alternatives
   - Balance Cost-Benefits
   - Recommend Schedule
Project Since 2004 LTCP Submitted

- Received Comments from NYSDEC in 2006
- NYSDEC/USEPA Requested Additional Evaluations
- Additional LTCP Work Started in 2008 and Consisted of:
  - Additional Flow/Rainfall Monitoring
  - Collection System Model Refinement
  - Water Quality Sampling
  - Receiving Water Quality Model Development
  - Revised Financial Capability Analysis
- Negotiation of Consent Decree began in 2009
- Over $30 Million Invested in CSO Controls Since 2004

Current LTCP Efforts

- 2011 Updated LTCP to Build Upon Previous Efforts
- Revised Financial Capabilities Analysis
- Develop and Evaluate Abatement Alternatives to Reflect New Data and Modeling
- Traditional Technologies (Gray Infrastructure)
  - Storage
  - Treatment
  - Separation
- Emerging Technologies
  - Green Infrastructure
  - Real Time Control (RTC)
Hydraulic Model

- Hydraulic Model Updated to Include all System Improvements Completed since 2004

Water Quality Model Development
Financial Capability Analysis (FCA)

- Goals
  - Achieve water quality goals
  - Evaluate the financial resources available
  - Consider the financial impact on residential users
  - Establish an implementation schedule for the long term control plan (LTCP)

USEPA’s Financial Capability Indicators

<table>
<thead>
<tr>
<th>Financial Capability Indicators Score</th>
<th>Residential Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low (&lt;1%)</td>
</tr>
<tr>
<td></td>
<td>Mid-Range (1 to 2%)</td>
</tr>
<tr>
<td></td>
<td>High (&gt;2%)</td>
</tr>
<tr>
<td>Weak (&lt;1.5)</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>Mid-Range (1.5 to 2.5)</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>Strong (&gt;2.5)</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
</tr>
</tbody>
</table>

Some Factors: Mean Household Income, Indebtedness, Unemployment, Revenue Collection Rates, and Property Values
BSA Updated LTCP Objectives

- Meet USEPA/NYSDEC Water Quality Goals
- Satisfy Consent Decree
- Improve Water Quality in Local Water Bodies
- Provide Affordable Solution and Reasonable Implementation Schedule
- Utilize Appropriate Mixture of Traditional (Gray) and Emerging (Green) Technologies
- Consider additional flows from Satellite Communities to assist in reducing SSO’s

LTCP Costs

- Historical Comparison
  - Cleveland – $3 Billion
  - Pittsburg - $3 Billion
  - St. Louis - $4.7 Billion
- 2004 LTCP Preferred Alternative
  - $580 Million
  - All Gray Infrastructure
  - 15 Years Implementation Period
- 2011 Goal
  - Provide Affordable Solution (TBD)
  - Reasonable Implementation Schedule (20 years minimum)
  - Appropriate Mixture of Traditional (Gray) and Emerging (Green) Technologies
Challenges to Implementation

- Buffalo/Western NY Economy (3rd poorest City in US)
- Already High Tax Burden
- Continually Aging Infrastructure
- Decreasing Population Base
- Decreasing Commercial/Industrial Base
- Municipal Boundaries
- Intermunicipal Agreement/Contracts
- Multiple Regulatory Agencies
- Unproven Water Quality Benefit

Next Steps (Preferred)

- Complete Water Quality/Hydraulic Modeling
- Determine List of Alternatives
- Cost Benefit Analysis
- Complete and Submit LTCP Document (October 2011 ??)
- Negotiate Consent Decree (USDOJ)
- Negotiate Scope and Schedule (USEPA/NYSDEC)
- Implement Program
- Post Construction Monitoring
Next Steps (Option 2)

- Complete Water Quality/Hydraulic Modeling
- Determine List of Alternatives
- Cost Benefit Analysis
- Complete and Submit LTCP Document (October 2011 ???)
- Scope and Schedule Dictated to BSA
- Consent Decree Terms Dictated
- Prolonged Lawsuit

Project Contact Information

- BSA: David Comerford, General Manager
  - 851-4664
  - LTCP@sa.ci.buffalo.ny.us

- Malcolm Pirnie/ARCADIS: Michael Quinn, Project Manager
  - 667-0900
  - Michael.J.Quinn@arcadis-us.com

- Project Website: www.bsacsoimprovements.org
Questions
Joseph Fiegl, PE  
Deputy Commissioner  
Erie County Department of Environment & Planning  
95 Franklin Street, Room 1034  
Buffalo, New York 14202  
(716) 858-8387

Mary F. Holtz  
Supervisor  
Town Hall  
3301 Broadway, Room 201  
Cheektowaga, New York 14227  
(716) 686-3465  
mholtz@tocny.org

Wallace C. Piotrowski  
Supervisor  
Town Hall  
1250 Union Road  
West Seneca, New York 14224  
(716) 558-3253  
wpiotrowski@twny.org

Robert H. Giza  
Supervisor  
Town Hall  
21 Central Avenue  
Lancaster, New York 14086  
(716) 683-1610

Steven P. Hoffman  
Mayor  
85 Manitou Street  
Depew, New York 14043  
(716) 683-7451

William G. Cansdale  
Mayor  
5423 Broadway  
Lancaster, New York 14086  
(716) 683-2105

Leonard C. Szymanski  
Mayor  
425 Reiman Street  
Sloan, New York 14212  
(716) 897-1560
HAMLIN PARK COMMUNITY & TAXPAYERS' ASSOCIATION, INC

GENERAL MEMBERSHIP MEETING
Thursday, October 6, 2011...6:00 to 8:00 PM
At the Hamlin Park Community School # 74

AGENDA

6:05 PM Call to Order.................................................................S. Geter
Opening Prayer

Business Meeting Reports:
1. Last Meeting Information..................................................E. Greene
2. Where's the Money?..............................................................A. Neely

Community Forum:
- Results of Community Meeting................Hedley Street Block Club
- Buffalo Water Barrel Program.....Kerri Li-Buffalo Riverkeepers
- VOICE Buffalo.................................................................Organizational Leadership
- Wohlers Avenue Project.................................Caesandra Seawell
- National Designation.........................................................Jason Yots
- 60 Hedley Street-Status of Bids/Expected Construction Start
- Medicare Changes......Marie Francois, Bankers Conseco
- Holiday Event Chairs
- Update on Scholarship Committee Fundraising
- National Preservation Conference - October 18-22

- Special Report by Masten District Councilmember D. Smith
- Special Guests

- Announcements and Special Events

8:00 PM Closing Prayer

Notes:
Minutes

6:15pm - Call to order: Stephanie Geter-President
Prayer – Damon Palmer

Minutes - August 2011 minutes distributed for review.

Finance Report- Report by Treasurer Arlene Neely. Current balance- $8565.39 plus collected tonight- $10.00 Sunshine; Scholarship donations:
- Clarke Eaton, Jr. $250.00
- John Eberhart $100.00
- Edith Davis (HPCTA oldest member) donated $25.00 for school supplies for Hamlin Park School

Education Report- Reva Betha reports the following members have provided the requested school supplies for Hamlin Park School #74: Idella Counts, Cynthia Wilson, Beverly Blue, Ed Harwell, Ruby Siggers, Dyanne Johnson, Yvonne Corley, and Reva Betha
Thank you all for continuing generosity!

Rain Barrel Project- Presentation by Kerry Lott, Buffalo River Keepers & OJ McFoyBuffalo Sewer Authority for Commissioner David Comer ford on the downspout disconnect program that will soon be mandatory in City of Buffalo. President Barber has volunteered Hamlin Park to participate in the trials which are expected to demonstrate improved water quality by diverting 60 to 120 gallons per house of rainwater from the sewer. Presenters indicate concern that our water filtration system currently in place lacks the capacity to filter the volumes of rain water being sent directly into the sewers. As small as it is 60 to 120 gallons per house will help. Each house participating can receive 2, 60gallon barrels. Barrels for the trials are free. Presenters will return for the October meeting to accept volunteers.
Groundworks Buffalo- Presenter Tim Fulton announced that Hamlin Park received the $5000.00 Community Grant submitted by our President Stephanie Barber for beautification of the lots on the Wohlers corridor. This project needs community volunteers. All interested should contact the Goulding Block Club ladies. Start site is Goulding & Wohlers. Trees are the London Plane related to the native Sycamore found in Buffalo. Special fire hydrant taps will be used for watering. Start date is 9/5 or 9/6/11. Volunteers are needed for Saturday, October 8th from 9AM to 12:00 noon on the corner of Wohlers and Goulding Streets. Young people in need of school community service credits should come out and volunteer.

Councilman's Report-
1. Store on corner of East Ferry & Wohlers is on Preservation Board schedule for 9/8/11 @ 10am. Receiving bids on 29th & 30th.
2. Paint color for the store is light beige & brown. Color sample has been shared via email. Owners will purchase the paint.
3. Groundworks Project- See preceding report.

Neighborhood Concerns for Councilman; Update at next meeting-
- Guard rails on Humboldt Pkwy Main to E. Utica are rusted needing repair.
- Same area traffic signs are faded & weeds need removal.
- Lot @ 499 E. Ferry needs street light
- E. Delavan Jefferson to Humboldt in need of trees
- 2 fire hydrants on E. Ferry don't work
- Butler & Wohlers, vacant house porch falling down
- Community Garden @ School 53 needs to be revisited

Hedley, Meech Student Problem-
Need immediate intervention less violence should erupt between youth & home owners. Students have intimidated area residents destroying numerous carriage lights, house signs, urinating on homes of others, drinking from open alcohol containers, smoking marijuana on porches, sleeping & parking on front lawns, blocking driveways. Weekend parties last well into early morning hours and police have not responded timely. Problem houses on Hedley are 152, 172, 151, and 170.
Suggestions for future incidents- Call 911, District E Lieutenant, 311 next business day, call Anita Guess who has phone tree. Take pictures, post on YouTube, contact Alumni Association & Terry Mangione Dean of Students, Canisius. Another concern is that police & college can't stop these situations; perhaps we should explore having local faith group monitor situation.
Sick Report - Betty Norward. Card has been sent

Report on long term care by Marie Francois, Bankers Conesco Life Insurance

Meeting adjourned 7:30pm

Prayer-

Respectfully submitted,
Esterphine A. Greene

Next meeting is Thursday October 6, 2011, 6pm, P-74 cafeteria.
Attention Hamlin Park Area Block Clubs and Residents

Please join us for an informational presentation on the Downspout Disconnection and Rain Barrel Pilot Program for the Hamlin Park area.

If you or the members of your block club live in the Hamlin Park area your home may be eligible for a free downspout disconnection and rain barrel. **The Buffalo Sewer Authority is beginning a pilot program with will focus on the area of Meech between Loring and East Delavan (on Hughes, Blaine, and Hedley) near Canisius College** however other properties will also be considered on an first come first basis as part of a larger neighborhood wide effort.

The Downspout Disconnection and Rain Barrel pilot program is an initiative that will to help reduce the amount of stormwater entering the combined sewer system. For homeowners, this could translate into long term sewer rate controls and more immediate cost savings on your water bill should you opt for a rain barrel.

**The presentation will be given by the Buffalo Sewer Authority and our partners, the Buffalo Niagara Riverkeeper and Malcolm Pirnie, as part of the Hamlin Park Taxpayers’ Association Monthly Meeting.**

**Date:** Thursday, October 6, 2011

**Time:** 6:00 pm

**Location:** Public School # 74 (Hamlin Park, 126 Donaldson Road, Buffalo)

If you cannot attend the Hamlin Park Taxpayer’s Association meeting, we are also available to present at your Block Club Meetings to spread the word about this unique opportunity for Buffalo’s neighbors.

For more information, please contact Kerri Li at (716) 852-7483 ext. 11 or email k bentkowski@bnriverkeeper.org.
Downspout Disconnection Pilot Program

Hamlin Park Community Presentation

Presented by
Buffalo Sewer Authority – David Comerford, General Manager
Buffalo Niagara Riverkeeper - Kerri Bentkowski Li,
Malcolm Pirnie/ARCADIS - Michael Quinn, PE

October 6, 2011

Agenda

• Welcome & Introductions
• Sewers and Stormwater Basics
• Review Goals of Program
• Downspout Disconnection & Rain Barrel Installation
• Schedule of Activities
• Questions and Answers
• Sign Up!
Sewer Basics

COMBINED SEWER SYSTEM

Combined Sewers During Dry Weather

All Wastewater flow to the treatment plant
Combined Sewers During Wet Weather

Overflow is combination of stormwater and sewage (15% of flow)

85% of all flow collected goes to the treatment plant

Stormwater Runoff in the City

In a combined sewer system, much of the runoff goes into the sewer and contributes to CSO volumes

30% evapotranspiration

55% runoff

10% shallow infiltration

5% deep infiltration

75%-100% Impervious Surface
Impervious surfaces include roof tops, driveways, sidewalks and even turf grass.

Scajaquada Creek Drainage Basin

Hamlin Park Community Meeting
October 6, 2011
Hamlin Park Program Goals

1) Disconnect downspouts at 150 dwellings (Blaine, Hedley, Hughes, Meech) effectively reducing the impervious surface by 50%

2) Measure the impact of stormwater reduction in the sewer through flow monitoring

3) Measure community participation

Hamlin Park Study Components

Study Area
(Hughes, Blaine, Hedley & Meech)

Control Area
(Hamlin, Brunswick, Butler & Lonsdale)
What is Downspout Disconnection?

Downspout Disconnection Example

BEFORE

AFTER
Economic Benefits

- Reductions in stormwater volume to the combined sewers will lead to reduced CSO compliance costs

- 1 in. (of rainfall) * 1,000 sq.ft. = 600 gal. (of rainwater)

- $2-5 /gallon for traditional gray CSO controls (tunnels/treatment)

- BSA Staff will perform disconnection – no capital expense to the property owner

Environmental Benefits

- Over 4 billion gallons of combined sewer overflows (CSOs) enter into our Buffalo area waterways every year

- Based on BNRK’s Draft Feasibility Study on Green Infrastructure (June 2010) for a 1-inch rainfall event (1):
  - 590 million gallons of runoff are collected in the system
  - Assuming 60% participation citywide, downspout disconnections will remove approximately 59 million gallons (10% reduction)

(1) 95% of all rainfall events in Buffalo are less than 1.1-inch (USEPA)
Rain Barrels & Disconnection

Rain Barrels Can Save Water, and Save $$

- 1 in. (of rainfall) * 1,000 sq.ft. = 600 gal. (of rainwater)
- A rain barrel will save most homeowners about 1,300 gallons of water during the peak summer months
- Homeowners will save approximately $34 during peak summer months
Next Steps

- Sign up by responding to the letter
- Decide if you’d like a rain barrel or a downspout disconnect only (note, in some circumstances, may not have option)
- Complete waiver if necessary
- BSA will disconnect the storm drain and install rain barrel if necessary
- Control area will be put on waiting list until after flow monitoring is complete

Schedule of Activities

<table>
<thead>
<tr>
<th>Task</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting 1 with Hamlin Park Taxpayers Group</td>
<td>October 6, 2011</td>
</tr>
<tr>
<td>First Mailing of Letters to Study Areas</td>
<td>October 10, 2011</td>
</tr>
<tr>
<td>Door-to-Door Canvassing – Round 1</td>
<td>October 17, 2011 – October 31, 2011</td>
</tr>
<tr>
<td>Downspout Disconnections/ Rain Barrel Installations</td>
<td>October 24, 2011 – November 30, 2011 (weather permitting) and March 2012 – May 2012</td>
</tr>
<tr>
<td>Meeting 2 with Hamlin Park Taxpayers Group</td>
<td>1st week of April 2012</td>
</tr>
<tr>
<td>Second Mailing of Letters to Study Areas</td>
<td>2nd week of April 2012</td>
</tr>
<tr>
<td>Door-to-Door Canvassing – Round 2</td>
<td>3rd and 4th weeks of April 2012</td>
</tr>
<tr>
<td>Installation of Flow Monitors</td>
<td>TBD (Spring 2012)</td>
</tr>
<tr>
<td>Remove Flow Monitors</td>
<td>November 2012</td>
</tr>
<tr>
<td>Submit Program Summary Report</td>
<td>January 2013</td>
</tr>
</tbody>
</table>
Sign Up Today!

Questions?
Before Downspout Disconnect: Buffalo Niagara Riverkeeper, kbentkowski@bnriverkeeper.org or 852-RIVER ext. 11

After Downspout Disconnect: Buffalo Sewer Authority, 851-4664