



April 13, 2015

Jeffrey A. Konsella, P.E.
New York Department of Environmental Conservation (NYSDEC)
Regional Water Engineer, Region 9
270 Michigan Avenue
Buffalo, New York 14203-2999

Re: Response: March 2, 2015 Letter
Final Draft Feasibility Study
Erie County Sewer District (ECSD) No. 6
Lackawanna Wastewater Treatment Plant (WWTP) Elimination Study – Phase 2

Dear Mr. Konsella:

The Buffalo Sewer Authority (BSA) and the Erie County Division of Sewerage Management (DSM) are in receipt of your March 2, 2015 letter providing the NYSDEC's general thoughts and comments on the above referenced study and report. Enclosed is an April 2, 2015 correspondence from CRA Infrastructure and Engineering (CRA) that addresses the technical concerns raised in that letter. The BSA and DSM believe that the additional analyses conducted and the information provided in this this letter address each issue the NYSDEC raises.

The BSA and DSM are disappointed in that, by the response contained in your March 2nd letter, it appears the NYSDEC has not taken into consideration the dialogue that occurred during our December 5, 2014 meeting in your office. The United States Environmental Protection Agency's (USEPA's) Integrated Planning framework was presented during that meeting as the core foundation for the watershed-based approach recommended in this study. A June 5, 2012 memorandum from Nancy Stoner and Cynthia Giles titled "Integrated Municipal Stormwater and Wastewater Planning Approach Framework" sets forth the USEPA's principles to guide the development of integrated plans. Both BSA and DSM believe that this project exemplifies the USEPA's Integrated Approach as an economically and environmentally justifiable strategy.

For your convenience, the above referenced EPA's Integrated Planning Approach principles are listed below (in *italics*) with the BSA and DSM's commentary in **bold**.

Item
6(e)

Integrated plans should:

- 1. Reflect State requirements and planning efforts and incorporate State input on priority setting and other key implementation issues.*

The Lackawanna WWTP State Pollutant Discharge Elimination System (SPDES) permit and the approved BSA Long Term Control Plan (LTCP) for Combined Sewer Overflow (CSO) control are requirements that were finalized in the last few years. The Lackawanna WWTP SPDES permit and the BSA LTCP will always govern and this project can easily fit into these regulatory requirements. With respect to 'State input', the BSA and DSM attempted to garner NYSDEC comments on the Lackawanna WWTP Elimination project well before the SPDES permits and LTCP were finalized. The enclosed CRA letter outlines those attempts. The BSA and DSM are appreciative that the NYSDEC presented general comments on this project last month, but considering impending SPDES permit deadlines established for the Lackawanna WWTP, as well as the schedule commitment for implementing the LTCP (including a number of large projects that must incorporate this concept), it is imperative that further NYSDEC feedback be provided in the development of this Integrated Plan. The BSA and DSM continue our commitment to a collaborative effort with the NYSDEC to assure that this option is fully vetted in the interest of the economic needs of our ratepayers and the environmental considerations that the proposed watershed based approach addresses.

- 2. Provide for meeting water quality standards and other CWA obligations by utilizing existing flexibilities in the CWA and its implementing regulations, policies and guidance.*

The Lackawanna WWTP SPDES permit requirements include a number of significantly more stringent limitations, with a schedule for developing approvable reports outlining the manner in which the limitations will be met. Specific technologies or methods are not specified, providing the necessary flexibility to implement innovative solutions. As noted in the enclosed CRA letter, adjustments to the design of one BSA LTCP project would result in the required level of control within the BSA system. These LTCP project adjustments will further enhance the quality of the region's waters as presented in the Lackawanna WWTP Elimination Study.

- 3. Maximize the effectiveness of funds through analysis of alternatives and the selection and sequencing of actions needed to address human health and water quality related challenges and non-compliance.*

Any solution to address the needs for the Lackawanna WWTP and the BSA LTCP will be expensive. This report has clearly demonstrated that the economically justifiable long-term solution for both municipalities is the watershed based approach. In addition, because of the potential benefits of this effort as it pertains to economic development in the City of Buffalo's Outer Harbor area, the BSA and DSM believe the watershed based approach will be looked upon more favorably for grant funding. Importantly, the report documents that the recommended alternative is in the best interest of the entire watershed both economically and environmentally.

- 4. Evaluate and incorporate, where appropriate, effective sustainable technologies, approaches and practices, particularly including green infrastructure measures, in integrated plans where they provide more sustainable solutions for municipal wet weather control.*

Section 8.5 of the report discusses the sustainability of the watershed based approach. Specifically, the watershed based approach would have a more significant overall water quality improvement, as well as a smaller carbon footprint when compared to the segregated approach, and hence has greater environmental justification.

5. *Evaluate and address community impacts and consider disproportionate burdens resulting from current approaches as well as proposed options.*

As noted in the enclosed CRA letter, the service area for this project is economically disadvantaged; therefore, it is imperative that whatever solution is implemented is done with the affected populations in mind. The integrated approach proposed by DSM and BSA not only factors in the area's economic condition, but as importantly, supports economic development within the Cities of Buffalo and Lackawanna.

6. *Ensure that existing requirements to comply with technology-based and core requirements are not delayed.*

As part of the Lackawanna WWTP SPDES permit, an approvable schedule will be provided to comply with the various requirements. An approved schedule has already been incorporated into the BSA LTCP.

7. *Ensure that a financial strategy is in place, including appropriate fee structures.*

This is a key hurdle. Identifying and securing funding assistance to the extent possible is identified as the next recommended action in Section 9.0 of report. Absent regulatory concurrence, the BSA and DSM have little chance of securing grant monies and other funding for this effort. Action Step No. 5 in Section 9.0 discusses development of an agreement for the fee structure between the BSA and the County. This is a future step in development of the final integrated plan. It is noteworthy that proceeding under the Segregated Approach is projected to result in a 230% increase in ECSD No. 6 annual budget over the planning horizon. These increases would be expected to be passed on to ratepayers with minimal chance of receiving offsetting funding incentives, whereby the Integrated Approach has a lower cost, and a significantly better chance of receiving outside funding offset.

8. *Provide appropriate opportunity for meaningful stakeholder input throughout the development of the plan.*

Section 9.0, Action Step No. 2 includes stakeholder input. BSA and DSM have already started the process with the NYSDEC as a critical stakeholder, and other stakeholders will be engaged once NYSDEC support for the project is confirmed.

Approval of this feasibility study is the first step in the BSA and DSM developing our Integrated Plan. The USEPA has directed that its staff work with "*states to engage our local partners regarding all of their National Pollutant Discharge Elimination System (NPDES) related obligations in an orderly manner.*" (USEPA Memorandum "Achieving Water Quality Through Integrated Municipal Stormwater and Wastewater Plans", October 2011). The BSA and DSM respectfully request that the NYSDEC continue to partner with us in the development of our Integrated Plan, as it is in the best interest of the entire watershed and the population served, and provides the approach with the greatest economic and environmental justification.

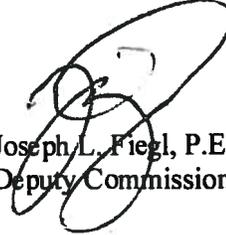
As the NYSDEC is well aware, time is of the essence. Regulatory concurrence on this concept is a critical step in allowing the BSA and DSM to continue our attempt to address other major challenges associated with the Integrated Plan – namely funding. The BSA and DSM are of the opinion that the enclosed letter fully addresses NYSDEC's concerns, and that a decision by the NYSDEC to approve the

concept based upon the facts should be forthcoming. Collectively, the BSA and DSM look forward to continuing to work with you on this important effort. To that end, we will be contacting you to set up a meeting to discuss this response and our Plan. In the meantime, please contact either of the undersigned should you have questions.

Sincerely,



David P. Comerford
General Manager – BSA



Joseph L. Fiegl, P.E.
Deputy Commissioner – DSM

Encl.

CC: BSA Board
ECSD No. 6 Board of Managers
J. Strickland – NYSDEC Region 9
D. Judd – NYSDEC Region 9
R. Locey – NYSDEC Region 9
B. Baker – NYSDEC Albany
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April 2, 2015

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Dear Messrs. Fiegl and Comerford:

Re: Final Draft Feasibility Study
Erie County Sewer District No. 6
Lackawanna Wastewater Treatment Plant
Elimination Study – Phase 2

As you know, the Erie County Department of Environment and Planning Division of Sewerage Management (DSM), the Buffalo Sewer Authority (BSA), and CRA Infrastructure & Engineering, Inc. (CRA) met with the New York State Department of Environmental Conservation (NYSDEC) on December 5, 2014 at NYSDEC's offices to present key findings and conclusions associated with the above-referenced study. During that meeting, BSA committed to provide additional flow analyses to address the NYSDEC's concerns about potential increases in CSO activations in the BSA collection system that could potentially result from the elimination of the Lackawanna wastewater treatment plant (WWTP), and conveyance of Erie County Sewer District (ECSD) No. 6 flows to the BSA system. This letter summarizes the results of those further analyses, and also provides responses to technical issues outlined in the March 2, 2015 letter from NYSDEC (copy attached) challenging the viability of the regional watershed approach that DSM and BSA have proposed and have been evaluating over the past 8 years.

At the outset, it is important to note that BSA and DSM provided a draft final informational report to NYSDEC on the proposed Lackawanna WWTP elimination plan in 2008 and requested comment; no written comments have ever been provided to our knowledge. Furthermore, the

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Work Plan to complete this current evaluation was sent to NYSDEC in 2010, again requesting comments so that potential regulatory concerns could be addressed during the evaluation. The goal for requesting comments up front was to establish a collaborative effort in solving a critical environmental issue while minimizing a substantial financial impact to the ECSD No. 6 ratepayers. Again, to our knowledge, no written comments were ever received from the NYSDEC on the Work Plan. Due to time constraints placed by impending SPDES Permit revisions, the BSA and DSM opted to proceed with the evaluation based on their best understanding of potential concerns, so that options were available to best serve system ratepayers. The result of those evaluations was the Draft Feasibility Study Report referenced in the subject line of this letter, which was submitted to the NYSDEC in September 2014 and reviewed with them in person on December 5, 2014.

The NYSDEC letter of March 2, 2015 raises several potential concerns with the Lackawanna wastewater plant elimination plan. We have taken the liberty to outline those concerns following, and have provided a factual response for each issue in turn, based upon further investigation, modelling, analyses, and restatement of the relevant details.

I. Potential Increase in BSA CSO Activations

NYSDEC's March 2nd letter accurately states that *"...based upon the approved BSA CSO LTCP... mitigation would need to achieve a similar control standard – so that there are no net increase (sic) in CSO activations..."*. During the December 5, 2014 meeting, the BSA committed to NYSDEC that additional analyses would be performed to determine how adjustments to future CSO abatement projects – particularly the Northern Relief Tunnel (NRT) project – could offset potential impacts from receiving ECSD No. 6 flows.

Hydraulic modelling has confirmed that the only CSO location in the BSA system to sustain an increase in the number of activations under the Lackawanna WWTP elimination plan is CSO 055 at Cornelius Creek. A hydraulic modeling analysis has been recently completed that includes flows from ECSD No. 6, plus the recently-proposed RiverBend project (peak flow of 6 mgd). For the purpose of this modeling exercise, NRT capacity was adjusted by increasing its length by 2,000 linear feet (LF) over that modeled in the Preferred Alternative model. The results of this analysis are summarized in the following table:



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Cornelius Creek CSO Activations Summary – Typical Year			
CSO	<i>LTCP Preferred Alternative Model</i>	<i>LTCP + ECSD No. 6 Flows + RiverBend Project Flows (no change to NRT)</i>	<i>LTCP + ECSD No. 6 Flow + RiverBend Project Flows, with added 2,000 LF NRT Length</i>
055	9	11	9

As shown, with the NRT length increased by 2,000 LF, there would be no increase in CSO activations. These results demonstrate that the NRT design can be adjusted so that no net increase in the number of CSO activations established in the approved LTCP would occur as a result of added ECSD No. 6 flows.

II. BSA's Bird Island WWTP Bypass Flows

NYSDEC's March 2, 2015 letter appears to imply that any time a wet weather event occurs the Bird Island WWTP has a bypass. It further states that bypasses should not increase as a result of receiving ECSD No. 6 flows. The BSA WWTP has the ability to treat significant wet weather flows before a bypass occurs. Additionally, the BSA has committed to the implementation of the no feasible alternative (NFA), following which flows up to 400 mgd will receive full treatment at the Bird Island WWTP.

To address this concern, an evaluation has been performed on model output to determine the frequency and duration that flow would exceed 400 mgd. This evaluation was performed on the flows predicted at the completion of the implementation of the LTCP, not including Lackawanna and RiverBend, and then compared to the results including Lackawanna and RiverBend at LTCP completion.

The results of the analysis show that the NRT can be sized and controlled to mitigate any additional bypassing of flows at the WWTP: through a combination of proper storage tunnel sizing to account for the Lackawanna and RiverBend flows, and positive tunnel discharge control, the NRT discharge can be delayed during a wet weather event until total flow into the WWTP drops below 400 mgd, with the result being that there will be no increase in bypasses from those in the approved LTCP preferred alternative during the typical year.



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It is noteworthy that this analysis is conservative in that a uniform regional wet weather event is simulated in the model. Western New York weather patterns typically consist of localized variations in wet weather, particularly during the summer months.

III. Lackawanna WW Plant and System Issues

In their letter of March 2, 2015, NYSDEC has questioned the flow projections, treatment capacity needs, and new facility cost estimates related to the Lackawanna WWTP.

A. Flow Projections

ECSD No. 6 is facing critical long-term decisions that involve addressing growth, achieving permit compliance, rehabilitating an aging plant, and operating/maintaining/rehabilitating the Lackawanna collection system, while minimizing economic impact to its user base. Long-term planning is essential to assure that the District makes the most appropriate decisions for its ratepayers. This includes projecting long-term flow increases.

New thinking is needed with respect to flows to the Lackawanna WWTP. Previous conventional wisdom would suggest that the region's growth is stagnant and that flows to the treatment plant are and will remain unchanged. This is no longer the case. Over the past 5 years, downtown Buffalo has seen unprecedented development; Fuhrman Boulevard has been rebuilt; development has been expanding with the RiverBend project; and plans are under consideration for developing Buffalo's Outer Harbor.

ECSD No. 6 receives flows from within the City of Lackawanna, as well as portions of Buffalo's outer harbor (e.g., Lakeside Commerce Park) area. Growth has occurred within Lackawanna and along the former Bethlehem Steel property. The Lakeside Commerce Park has continued to grow, and other areas in Southwestern Buffalo are being considered for development where it would make financial sense for wastewater flows to be conveyed to ECSD No. 6.

Attachments 1 and 2 summarize the flow projections developed for the Lackawanna WWTP under this project study. These projections were developed in 2007, and were presented in the draft final 2008 Information Report and the recent Lackawanna WWTP Elimination Study Report. The projections included a mix of residential, commercial and industrial development that was identified through coordination with the Erie County Industrial Development



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Corporation and the DSM. These are planning level estimates and are based on published information for water usage on a per capita basis for residential development, and on a per acre basis for industrial/commercial development. A factor was applied to reflect that baseline sewer flows are less than water use. Published peaking factors were applied to consider variation in flow. Note that Ten States Standards also requires the use of peaking factors in projecting flows. The peaking factor of 4 for residential units is typically recommended in the Ten States Standards for small developments. Because these developments would be in currently sewered areas, no additional allowance for Rainfall Derived Infiltration and Inflow (RDII) was included. Flow increases were projected over a 25-year period based on an assumed level of build out at various time steps.

Attachment 3 (summarized in the draft final 2008 Informational Report) indicates how the additional flow projections were applied to develop WWTP flow needs from 2007 through 2032. Note that the 2007 average daily flow of 2.8 mgd was used as the baseline. The maximum average monthly flow was projected by adding the estimated future additional flows within Lackawanna and the Outer Harbor to the current maximum monthly average flow of 4.5 mgd, which resulted in a projected maximum monthly flow of 6.7 mgd. With a plant estimated to need expansion by around 2022 (7 years from now), designing a plant to reach capacity 10-years into the future does not make sense. Therefore, a rated capacity of 8 mgd (16 mgd peak flow) was selected to provide flexibility for growth beyond 2032. Most notably, these projections do not assume increased RDII. Please note that this approach enables a conservative analysis of potential impacts to the BSA.

The development in ECSD No. 6 is real. For decades the former Bethlehem Steel property was stagnant with respect to new businesses locating there. Recently Welded Tube USA constructed a major facility on site. More companies are expected. Significantly, there have been projects enacted to develop the most eastern portion of the site near Route 5 into a business park. Erie County recently invested \$4.4 million to improve site access and the onsite rail infrastructure. It is expected that an additional \$5.5 million will be spent in the next 3 years on new infrastructure to support business park development. Furthermore, the City of Lackawanna has recently commenced an effort to construct infill housing in the City's first ward. The replacement of vacant properties (approximately 45 in all during this phase) with residences will further reverse the negative population trends.



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B. Historical Flows and RDII

Erie County has always been concerned about the presence of RDII in its collection systems. ECSD No. 6 for many years has incorporated a rigorous effort to maintain its collection system and reduce customer complaints, which resulted in reduced flow to the WWTP. Attachment 1 shows the average daily flow to the Lackawanna WWTP in 5-year blocks from 1985 (shortly after the County took over operations from the City of Lackawanna) through 2014. This period of time is after the shutdown of most industrial flow from the former Bethlehem Steel property.

Significantly, average plant influent flows steadily decreased (by about 25 percent) from 1985 through the early-2000s, even though annual precipitation increased. While about 0.36 mgd can be attributed to population decline, much of this remaining reduction is attributed to RDII elimination. This is a direct result of successful, perpetual efforts by the County in maintaining the collection system using methods presented in the I/I and SSES work plans previously submitted to the NYSDEC. It is noteworthy that a substantial benefit of these extensive efforts by the County has been an approximate 75 percent reduction in customer complaints since 1985, as well as an elimination of all recurring sanitary sewer overflow locations. For reference, this information was presented to the NYSDEC during an August 2013 meeting at the County's office.

Since the early-2000's growth has occurred within the District's service area. The Lakeside Commerce Park was constructed and has been expanded. Some residential and commercial development has occurred and the former Bethlehem Steel property is under development, including the previously referenced Welded Tube USA. This has resulted in increased flows to the plant. In reviewing Attachment 3, actual average flows from 2005 through 2014 have exceeded the 2012 projected average flow that was predicted in 2008, and have approached the 2017 projection. In three of the past four years, plant influent flows have ranged between 3.0 and 3.2 mgd, indicating an upward trend resulting from development. Note also that the average flow from 2010-2014 was 0.14 mgd higher even though average rainfall was slightly lower; this supports the conclusion that base flows are again increasing based on development.



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Lackawanna WWTP Average Daily Flow and Average Precipitation		
Years	Average Daily Flow (MGD)	Average Annual Precipitation (in.)
1985 – 1989	4.07	41.52
1990 – 1994	3.68	44.38
1995 – 1999	3.12	43.39
2000 – 2004	2.84	45.02
2005 – 2009	3.04	47.63
2010 – 2014	2.98	44.61

Most sanitary sewer systems in New York State are aging and face challenges in controlling RDII within their collection systems. Much of the RDII originates from private sources, including sump pumps, roof leaders, low lying lateral vents, fractured laterals, basement footing drains, etc. New York State law prevents public entities from spending money on private property. ECSD No. 6 has implemented many improvements in its system; however, to address the component the County has been quite successful with its house inspection program – one of the most robust programs in Western New York. The results are that through this effort of ECSD No. 6, the County has been able to successfully reduce plant flows through collection system maintenance and its RDII programs, and will continue to manage the system such that flow increases are due to growth and not RDII. Again, projected flow increases do not include RDII, but do include instead peaking factors to allow for variation in flow.

C. Plant Capacity and Expansion Cost

For long-term planning purposes, the cost evaluation must be looked at as a whole, and not as individual parts. Investing the money needed to address new SPDES permit limits alone will not assure long term compliance. Portions of the Lackawanna WWTP date to the 1920s, the components of the last major facility upgrade are over 30 years old, and overall the WWTP faces significant capital investment to address structural rehabilitation and to ensure that the existing processes perform effectively. And even with these improvements, the plant will be facing an imminent expansion.

The NYSDEC's March 2nd letter appears to suggest that the Lackawanna WWTP can fully treat flows up to 14 mgd. The reality is that the plant can provide full treatment up to 8 mgd for



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short periods of time; greater flows bypass secondary treatment. ECSD No. 6 uses the Excess Flow Management Facility (EFMF) to limit plant peak flows to 8 mgd in order to avoid bypassing secondary treatment.

Over the past 10 years the maximum monthly plant flow has been close to or above the facility's capacity rating of 4.5 mgd, with monthly flows reaching as high as 4.9 mgd. While plant staff has maintained permit compliance during the maximum flow months, compliance will become significantly more challenging once ammonia treatment facilities are installed while influent flows continue to increase over the long term; nitrification is a difficult process to control and is highly dependent on upstream process performance.

There is limited available room to add new treatment processes or increase plant capacity on the current site, and there is no available adjacent property. An expansion would likely require implementing a high-rate process, which tends to require higher capital and O&M cost as compared to the current pure-oxygen process. In terms of cost, the estimates provided are in line with construction costs for other WWTPs. For example, the Village of Bath, NY has a 1 mgd WWTP, and has just started design to provide nutrient removal and capital rehabilitation of the existing facility for a projected cost of \$15.5 million. The Town of Kleinburg, Ontario recently completed a 1.5 mgd expansion of an extended aeration plant for \$20 million. These facilities are much smaller than the Lackawanna WWTP.

ECSD No. 6 will be obligated to continue collection system maintenance to control RDII no matter where the flows are treated. Conveying flow to the BSA would allow modifying EFMF operation to maximize flow discharges to the Bird Island WWTP, which will provide full treatment for flows up to 400 mgd upon implementation of its 'no feasible alternative' recommendations. This will in turn reduce impact to Smokes Creek, while adjustments to the future BSA LTCP NRT project outlined previously (design capacity adjustments and positive discharge control) will result in no net increase to CSO discharges, nor to WWTP bypasses.

Therefore, in brief summary, all of the issues and concerns raised by NYSDEC have been addressed, and/or can and will be mitigated by BSA via adjustments to the design of future LTCP improvements; the County's flow projections are reasonable and appropriate based on anticipated development; the cost projections for an upgraded WWTP are reasonable and backed up by recent project costs; and the County will continue its aggressive program of collection system maintenance to control RDII.



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We believe that it is important to note that, in addition to there being no adverse impacts to the BSA system or LTCP compliance from receiving ECSD No. 6 flows, there are significant positive impacts resulting from the Lackawanna WWTP Elimination Plan that must not be overlooked, including:

- **Regional Water Quality Improvement –**

The Lackawanna WWTP Elimination Study Report provides a detailed analysis showing substantial net water quality benefit to the Niagara River watershed. This includes a substantial improvement to Smokes Creek, an impaired stream that also is a walleye breeding area.

- **A More Affordable Alternative For Two Significantly Economically Disadvantaged Communities –**

NYSDEC should be well aware of the critical economic condition that exists within the City of Buffalo and its rate-paying base, by virtue of the Financial Capability Analysis that was performed and submitted to NYSDEC as part of BSA's Long Term Control Plan development process; Buffalo is ranked as one of the poorest cities of its size in the country, and it's ratepayers have little capacity for increases in wastewater utility costs.

The City of Lackawanna is in similarly stressed economic condition. The population of Lackawanna has sustained significant economic decline in recent decades. Even with recent development, the poverty rate for Lackawanna is among the highest in New York State. In 1980 the poverty rate was below the State and national averages. Poverty rates have since doubled in Lackawanna, now being 50 percent greater than 2010 State and national averages. Poverty rate statistics for Buffalo and Lackawanna as compared to State and national averages:

Historic Poverty Rate Comparison		
	1980	2010
Buffalo	20.7%	29.6%
Lackawanna	11.2%	21.2%
NY State	13.4%	14.2%
USA	13.0%	13.8%



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Over that same 30-year period (1980 – 2010), the population of both cities has decreased dramatically compared to state-wide statistics:

Population Change			
	1980	2010	Change
Buffalo	357,870	261,310	(24.5%)
Lackawanna	22,701	18,141	(20.0 %)
All NY Cities	9,545,505	10,410,320	+ 9.1 %
NY State	17,558,072	19,378,102	+10.2 %

In addition, property taxes in both cities as a percentage of household income are among the highest in the country:

Property Tax Comparison		
	% of home value	% of household income
Erie County (Lackawanna & Buffalo)	2.46%	4.64%
USA	0.96%	2.85%

Unfortunately, either wastewater treatment alternative for Lackawanna / ECSD No. 6 – whether construction of a new WWTP in Lackawanna, or construction of transmission facilities to convey flow to BSA for treatment – will place a high economic burden on the residents of the City of Lackawanna. **However the economic burden is much less severe under the WWTP elimination plan. And in addition, significant economic benefit would accrue to residents of both cities with the future sharing of costs to utilize the existing excess treatment capacity that currently exists at the BSA WWTP.**

In closing summary, the Lackawanna WWTP Elimination plan proposed by Erie County and BSA will do the following:

- Maintain the CSO control and WWTP bypass reduction standards established in the approved BSA LTCP



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- Provide economic justice to residents of two significantly economically disadvantaged communities, by:
 - Dramatically reducing the capital investment burden to be placed upon Lackawanna resident
 - Allowing both communities to share in the lower cost of wastewater treatment in an existing facility that has available excess capacity
- Achieve a significant net improvement in regional water quality
- Result in a more sustainable solution to wastewater treatment for the region in accordance with EPA's integrated approach

Please contact us should you have any questions or require additional information on any item addressed in this letter.

Very truly yours,

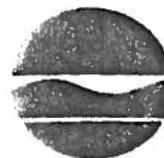
CRA INFRASTRUCTURE & ENGINEERING, INC.

Bryan T. Smith, P.E.
President

BTS/jap/001
Attachments

cc: Oluwole A. McFoy, P.E. - BSA
Christopher P. Martin, P.E. - CRA
Paul M. McGarvey, P.E. - GHD
Mr. Gregory McCorkhill - GHD

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Joe Martens
Commissioner

March 2, 2015

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Dear Mr. Fiegl:

**Final Draft Feasibility Study
Erie County Sewer District No. 6
Lackawanna Wastewater Treatment Plant
Eliminations Study – Phase 2**

This letter is a follow-up to the December 5, 2014 meeting between the Department, Erie County Division of Sewerage Management (ECDSM), Buffalo Sewer Authority (BSA), and CRA Infrastructure and Engineering representatives. The purpose of the meeting was to allow ECDSM and BSA to present an overview of the above referenced report, and solicit feedback from the Department on the proposed concept.

ECDSM emphasized its desire to get timely Department feedback on the plant elimination concept due to the need for the County to meet upcoming deliverables within the Lackawanna WWTP SPDES permit Schedule of Compliance. The Department appreciates this need, and at the meeting agreed to provide feedback and written comments on the report. This letter conveys the Department's general comments, but in the interest of timeliness, the letter is not intended to provide detailed comments on all aspects of the report, nor on all the information and assumptions contained therein.

The report portrays the plant elimination concept as a "regional watershed approach", and describes: potential watershed benefits from eliminating loadings to Smokes Creek; ability to handle projected increases in service area development; and projected capital and O&M cost savings from the proposed approach. As mentioned above, the Department does not necessarily agree with all assumptions and calculations used as the basis for this recommended approach.

There is no question that BSA has sufficient capacity to effectively treat dry weather flows from the ECSD No. 6 collection system. However, under wet weather conditions, flows in the BSA sewer system increase until there is no available capacity, and CSOs result. Additionally, the ECSD No. 6 collection system has significant I/I issues which result in substantial wet weather flows, and under the plant elimination scenario much of these transmitted wet weather flows would be discharged to surface waters, either at BSA CSOs or at the Bird Island WWTP as part of wet weather bypasses. The report estimates an anticipated wet weather flow increases at each of the 23 affected BSA CSOs, ranging from 0.01% to 19.72%.

The elimination of the Lackawanna plant and conveyance to the BSA sewer system would reportedly increase the total annual CSO volume by about 16.6MG after completion of the BSA LTCP (2032). The report states that earlier modeling projected a near term (2010) annual CSO volume increase of about 32MG, but it did not provide any updates on expected near term increases. The report also does not mention or account for the volume of ECSD No. 6 flows which would reach the plant during wet weather events, and would only receive partial treatment during the Bird Island WWTP's wet weather bypass operating mode.

The existing Lackawanna WWTP plant is currently providing full secondary treatment of wastewater flows within ECSD No. 6, and is doing so without significant SSO discharges during wet weather events. The Lackawanna WWTP reportedly currently experiences maximum 30-day average flows of 4.5 MGD. However, peak flows reportedly reach 14 MGD. This increase indicates significant I/I during wet weather events.

The construction and operation of the "Excess Flow Management Facility" (aka overflow retention facility or ORF) has significantly reduced overflows during wet weather periods. The design and construction of the ORF was approved by the Department to provide an interim means of handling wet weather flows to ensure full secondary treatment. However, the long term solution for reduction of wet weather flows involves a more aggressive program of identifying and eliminating I/I from the collection system.

The County is obligated to address excessive I/I under Part 750 – 2.9(a)(3), and under the ECSD No. 6 SPDES permit. The County previously submitted I/I and SSES work plans for ECSD No. 6. The Department determined that these work plans were not approvable, and written comments were provided. The County's subsequent revisions to these work plans did not address the Department's comments, and the work plans remain unable to be approved. The I/I and SSES work plans, and associated compliance with the current SPDES permit will be addressed separately with the County.

The approved BSA CSO LTCP includes CSO controls designed for existing wet weather flows. It does not account for additional flows resulting from the elimination of existing treatment plants. In order to maintain the approved level of control for such additional flows, additional CSO control measures would have to be implemented. The mitigation would need to achieve a similar control standard - so that there are no net increase in CSO activations, and no net increases to Bird Island WWTP bypasses.

The report's recommendation to pursue elimination of the Lackawanna WWTP relies heavily on the report's projected costs savings from the "Regional Watershed Approach" option. These cost estimates are based on numerous assumptions. One of the assumptions used for costs associated with the continued operation of the Lackawanna WWTP option appears to significantly and dramatically increase those cost projections.

The report projects an average annual flow increase at the Lackawanna WWTP of 23% by year 2032 (per Table 2.5, described as "full build out" of potential new service areas), but an increase in maximum 30-day average flow of about 50%. The report (Section 3.1.3) assumes a Lackawanna WWTP capacity increase to 8 MGD, or approximately double its current capacity. It states that based on projected full build-out by 2032, the Lackawanna WWTP would need expansion in approximately 15 years (2029). It also states that the incremental expansion needs for smaller development were not considered.

Joseph L. Fiegl, P.E.
March 2, 2015
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The need for a WWTP capacity increase of nearly 80% does not appear to be well founded. The report appears to indicate that that I/I will continue to increase during the period until 2032, and thus will require increases in plant capacity. If this is one of the assumptions, then this would further illustrate the need to direct resources toward I/I reductions in the system.

This major increase in plant capacity results in nearly \$52M of the total \$89M capital costs (Tables 3.5 and 3.6). Additional significant costs associated with the capacity increase are included in projected long term O&M expenses for this option (Table 3.7). In contrast, the capital costs projected for SPDES permit related upgrades is approximately \$9.1M.

The Department recognizes and appreciates the considerable financial challenges the County and BSA face in owning, operating, and maintaining collection systems and WWTPs. The Department also endorses the concept of "Regionalization" to consolidate and reduce operating and capital expenses whenever possible. However, such "Regionalization" cannot be endorsed when it results in significant additional discharges of untreated or partially treated wastewater to waters of the State.

A long term and viable regionalization approach, to be protective of the waters of the State, needs to ensure that there are no net increases in CSO discharges or WWTP bypasses as part of this approach. Should the County and BSA wish to propose additional measures to ensure this goal, the Department would be available to discuss them at another meeting. If you have any additional questions or would like to arrange for such a meeting, please contact me at 851-7070.

Sincerely,



for Jeffrey A. Konsella, P.E.
Regional Water Engineer

ecc: Mr. James Strickland, Regional Engineer
Mr. Daniel Judd, Division of Water, Buffalo
Mr. Robert Locey, Division of Water, Buffalo
Mr. Brian Baker, Division of Water, Albany
Mr. Koon Tang, Division of Water, Albany
Mr. Joseph DiMura, Division of Water, Albany
Mr. David Comerford, BSA

ATTACHMENT 1



Ref: 630407
 Created By: CMA
 Checked By: CPM
 Date: June-07

Lackawanna Development Projected Sewer Flows

Area Description	Size	Unit	Water Demand per Unit (gpd) ²	Avg. Daily Water Demand (gpd)	Sewering Factor (%)	100% Build Out - 2032		
						Avg. Daily Flow (gpd)		
						Peaking Factor ⁸		
						Peak Daily Flow (gpd)		
Michelle Drive Subdivision ^{3,4} - Residential	30	homes	417	12,510	0.7	9,000	4	36,000
Bethlehem Steel Property - Industrial	300	acres	1945	583,500	0.8	467,000	2.5	1,168,000
Proposed Hotel	100	rooms	106	10,600	0.9	10,000	4	40,000
Residential District By School ^{3,4,5} - Residential	20	homes	417	8,340	0.7	6,000	4	24,000
Creekside Commercial Corridor ^{6,7} - Commercial	27	acres	2,040	55,080	0.8	45,000	2.5	113,000
Totals (gpd)						537,000		1,381,000

Lackawanna Development Sewer Flows Future Outlook

Year	Build Out %	Projected Average Daily Flows (gpd)	Projected Peak Daily Flows (gpd)
0	0	0	0
5	10	54,000	138,000
10	25	134,000	345,000
25	100	537,000	1,381,000

Basis of Calculations:

- Calculations include all anticipated development within the City of Lackawanna
- Water Demand Values (*Water Distribution Systems Handbook*)
- Dwellings consist of average of 3.5 residents/Unit
- 119 gallons per capita per day, New York State Average (*Solley et al. 1993*)
- Residential District consists of 1 acre lots
- Creekside Commercial Corridor develops 1/2 of the project area
- Commercial and Industrial areas are considered medium density
- Peaking Factor (*Civil Engineering Reference Manual*)

note: The sewer connection point for Michelle Drive Subdivision and Residential District by School is on Brown Avenue

note: The proposed hotel and Bethlehem Steel property would be located on Route 5 and Odell Street

note: The sewer connection point for the Creekside Commercial Corridor will be in the vicinity of Donna St.

Attachment 2



Ref: 630407
 Created By: CMA
 Checked By: CPM
 Date: June-07

Future Buffalo Outer Development Projected Sewer Flows Expected to be Conveyed to Lackawanna WWTP

Area Description	Size	Unit	Water Demand per Unit (gpd) ¹	Avg. Daily Water Demand (gpd)	Sewering Factor (%)	Avg. Daily Flow (gpd)	Peaking Factor ⁴	Peak Daily Flow (gpd)
Lakeside Commerce Park	64.4	acres	1,945	125,258	0.8	101,000	2.5	253,000
Steeleanna Industrial Park ^{5,6}	22	acres	1,945	42,790	0.8	35,000	2.5	88,000
Small Boat Marina Retail	0.8	acres	4,000	3,200	0.8	3,000	2.5	8,000
Residential Rt.5 Development ^{2,3}	300	condos.	417	125,100	0.8	101,000	4	404,000
Totals (gpd)						240,000		753,000

Future Buffalo Outer Development Projected Sewer Flows Expected to be Conveyed to Lackawanna WWTP

Year	Build Out %	Projected Average Daily Flows (gpd)	Projected Peak Daily Flows (gpd)
0	0	0	0
5	25	60,000	188,000
10	50	120,000	376,000
25	100	240,000	753,000

Basis of Calculation:

1. Water Demand Values (Water Distribution Systems Handbook)
2. Dwellings consist of average of 3.5 residents/Unit
3. 119 gallons per capita per day, New York State Average (Solley et al. 1993)
4. Peaking Factor (Civil Engineering Reference Manual)
5. Steeleanna Industrial Park develops 1/2 of the project area
6. Commercial and Industrial areas are considered medium density

note: All development in the Outer Harbor between Freezer Queen and the Lackawanna City Line is anticipated to be conveyed to the ECSD No.6.

note: The pumping station capacity which was previously calculated in June of 2006 by Clough Harbour & Associates was estimated to be 930,000(gpd), therefore the total estimated flow of 753,000(gpd) appears reasonable.

note: The sewer flow data for the existing building in Lakeside Commerce Park shows wastewater production of 1,785(gpd/acre) therefore the use of a unit flow of 1,945(gpd/acre) is suitable.

Attachment 3



CRA Infrastructure & Engineering, Inc.

Ref: 630407
 Created By: CMA
 Checked By: CPM
 Date: June-07

	2007			2012		2017		2032	
	Average Daily Flow (MGD)	Maximum Monthly Average Flow (MGD)		Average Daily Flow (MGD)	Maximum Monthly Average Flow (MGD)	Average Daily Flow (MGD)	Maximum Monthly Average Flow (MGD)	Average Daily Flow (MGD)	Maximum Monthly Average Flow (MGD)
Lackawanna WWTP	2.80	4.50		2.91	4.81	3.05	5.23	3.58	6.63
"S" Pumping Station w/o Lackawanna WWTP	1.50	2.00		1.56	2.23	1.65	2.58	2.10	4.30
"S" Pumping Station w/ Lackawanna WWTP	4.30	6.50		4.47	7.04	4.70	7.81	5.68	10.93
Buffalo Inner Harbor	0.00	0.00		0.01	0.04	0.05	0.15	0.05	0.15

Lackawanna WWTP Flows Consist of:

- Existing Lackawanna WWTP Flows, plus
- Future Lackawanna Development, plus
- Outer Harbor Flows to be Directed to Lackawanna WWTP

note: Maximum Monthly Average Flow is based on an average of maximum 30-day average flows from 2002-2006
 note: Average Daily Flow is based on flow records from 2001-2006

"S" Pumping Station Flows Consist of:

- Existing "S" Station Flows, plus
- Future Outer Harbor Development to be directed to BSA, plus
- Lackawanna (optional)

note: The average and peak flows of 1.50 & 2.00(mgd) are reported values from the BSA

Buffalo Inner Harbor

- Calculated flows include all anticipated development in the Inner Harbor Development Plans