UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

SEP 15 2009

To All Interested Government Agencies and Public Groups:

In accordance with the U.S. Environmental Protection Agency's (EPA) procedures for the preparation of environmental impact statements (EIS), an environmental review has been performed on the proposed agency action below:

Project Name:	Saratoga County Sewer District No. 1 (SCSD) Wastewater Treatment Plant (WWTP) Expansion
Purpose of Project:	This project is to enable the SCSD to handle current and future capacity demand for service within the District projected over the next 20 years, as well as to ensure that the WWTP provides the level of treatment required by the SPDES permit by addressing any existing deteriorating conditions.
Project Originator:	County of Saratoga, New York.
Project Location:	1002 Hudson River Rd, Town of Halfmoon, Saratoga County, N.Y. 12118
Project Description:	The Saratoga County Board of Supervisors proposed the WWTP's expansion from 21.30 million gallon per day (MGD) to 42.88 MGD and additional structural and system upgrades. The expansion involves the construction of new primary clarifiers and aeration basins as well as final clarifiers to augment the existing system capacity. Ancillary facilities are planned including new blowers, splitter boxes, a backup generator and yard piping. Improvements will be made to the main building, as a new maintenance garage will be constructed, additional parking will be provided for employees and visitors, and the entrance sign will be replaced. The entrance corridor will have upgraded landscaping. Odor control systems installed as part of the 1999 expansion will be enhanced.
Estimated Eligible Project Costs:	$ 45,000,000
EPA Grant:	$ 6,627,200

Our environmental review of this project indicates that no significant adverse environmental impacts will result from the proposed action. Consequently, we have made a decision not to prepare an EIS on the project. This decision is based on a careful review of the project's environmental information document and other supporting information. All of these documents, along with the Environmental Assessment (copy enclosed,) are on file at the offices of the EPA Region 2 and at the offices of the SCSD No. 1 located at the WWTP, the junction of Route 4 and 32 in the Town of Halfmoon, New York where they are available for public scrutiny upon request. The EA is also available on EPA Region 2's website at http://www.epa.gov/region02/spmm/r2nepa.htm#r2docs.

Comments supporting or disagreeing with this decision may be submitted to EPA for consideration. All comments must be received within 30 calendar days of the date of this finding of no significant impact (FNSI). Please address your comments to: Grace Musumeci, Chief, Environmental Review Section, at the above address. No administrative action will be taken on the project for at least 30 calendar days after the date of this FNSI.

Sincerely,

George Pavlou
Acting Regional Administrator

Enclosure

USEPA Region 2
290 Broadway
New York, NY 10007-1866

SARATOGA COUNTY SEWER DISTRICT No. 1

WASTEWATER TREATMENT PLANT EXPANSION

Environmental Assessment

SEPTEMBER, 2009

Environmental Assessment

I. Project Identification

Name of Project:	Saratoga County SD No. 1 WWTP Expansion
Name & Address of Applicant:	Saratoga County 40 McMaster Street Ballston Spa, N.Y. 12020
EPA Project Number:	XP-982817-01
Project Location:	1002 Hudson River Road Town of Halfmoon, Saratoga County, N.Y. 12118

II. Purpose and Need for the Project

The purpose and need of this project is to enable the Saratoga County Sewer District No. 1 (SCSD) to handle current and future capacity demand for service within the District projected over the next 20 years, as well as to ensure that the wastewater treatment plant (WWTP) provides the level of treatment required by the State Pollutant Discharge Elimination System (SPDES) permit by addressing any existing deteriorating and outdated conditions.

The SCSD owns and operates a 21.3 million gallon per day (MGD) activated sludge WWTP. The WWTP is located in the Town of Halfmoon, Saratoga County, New York (NY) (see figure 1). The system also includes over 175 miles of collection sewers and over 50 pumps, covering about 250 square miles throughout the City of Saratoga Springs, the City of Mechanicville, the villages of Ballston Spa and Round Lake, and the towns of Ballston, Clifton Park, Greenfield, Halfmoon, Malta, Milton, Saratoga, Stillwater and Wilton. In 1999, the WWTP was expanded due to capacity concerns and upgraded to comply with regulatory provisions in response to enforcement actions. More recently, further increase in demand for wastewater treatment capacity occurred due to subsequent growth and the near future prospect of a major semiconductor manufacturing facility to be constructed at the Luther Forest Technology Campus (LFTC) in the Town of Malta. The Saratoga County Board of Supervisors (SCBS) proposed the WWTP's expansion from 21.30 MGD to 42.88 MGD and additional upgrades.

In order to understand the future capacity demand, calculations were done to estimate the present capacity surplus of the WWTP. Information supplied by the SCSD and the Environmental Protection Agency (EPA) was used for this task. The parameters used for these estimations are: the SPDES permitted flow, the average monthly flow for years 2000-2008, flow from permitted projects, flow from projects partially completed,

reserved flow commitments, flow from projects already reviewed and projects for which flow has been conceptually established.

Current Situation – Average Monthly Flow	
Plant Capacity	*21.30 MGD*
Average Monthly Flow*	11.35 MGD
Permitted Projects	0.85 MGD
Partial Completions	1.10 MGD
Reserved Commitments	3.32 MGD
Reviewed Projects	0.48 MGD
Conceptual Projects	0.32 MGD
SURPLUS CAPACITY	**3.88 MGD**

Table 1(a): WWTP – Current Capacity Situation
(*) Average monthly flow from years 2000 to 2008.

The results of the calculation using average monthly flow indicate that the WWTP has a 3.88 MGD capacity surplus (see table 1[a]). Another calculation was done using the data from the years 2000 to 2008, but for this calculation the highest monthly values of raw flow through the WWTP were used. This second calculation showed 0.63 MGD capacity surplus (see table 1[b]). Therefore, the excess capacity of the existing 21.3 MGD WWTP is in the range of 3.88 to 0.63 MGD.

Current Situation Highest Monthly Flow	
Plant Capacity	*21.30 MGD*
Highest Monthly Flow*	14.6 MGD
Permitted Projects	0.85 MGD
Partial Completions	1.10 MGD
Reserved Commitments	3.32 MGD
Reviewed Projects	0.48 MGD
Conceptual Projects	0.32 MGD
SURPLUS CAPACITY	**0.63 MGD**

Table 1(b): WWTP – Current Capacity Situation
(*) Highest monthly flow from years 2000 to 2008.

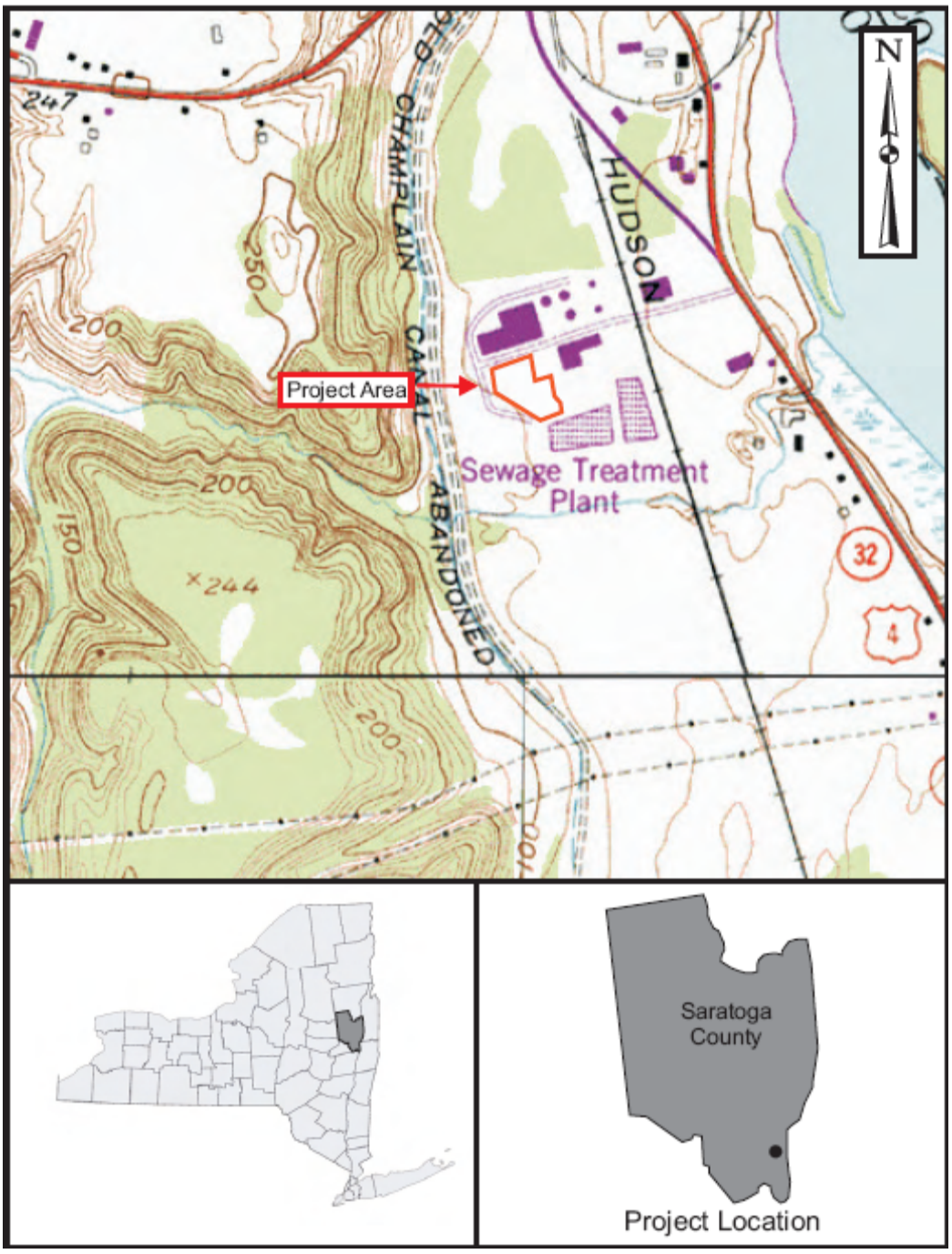

Figure 1: Proposed Action Location Area, Saratoga County, NY.

III. Alternatives

A. No Action Alternative

Presently, a number of systems and equipment at the WWTP are deteriorating as well as with the collection system that feeds into the Plant. The no action alternative would allow the deterioration to continue and result in more costly damage. For example, the existing pumping system with problems of corrosion in the pipe header could cause major operating difficulties in the case of a break. Additionally, primary and secondary clarifiers and aeration basin processes developed heavy concrete and metal structural deterioration. Furthermore, the WWTP is working with various outdated process equipment.

The No Action Alternative would not prevent additional adverse effects to the environment caused by *infiltration and inflow*[1] (I&I) via the collection system. The No Action Alternative would limit reasonable and effective solutions to potential future capacity demand. Additionally, No Action would preclude compliance with regulatory SPDES permit provisions, exacerbate the amounts of infiltration and inflow to the system which diminishes the WWTP's capacity, and worsen the extent of repairs.

B. I&I Remediation, Repairs and Future WWTP Expansion Alternative

The I&I Remediation, Repairs and Future WWTP Expansion Alternative would result in an increase in effective capacity, thereby allowing for a less extensive plant expansion. I&I decreases the available capacity in the treatment facility. By addressing I&I, costs of processing (e.g., less use of chemicals) and sorting the additional flow would decrease. Furthermore, this alternative would result in additional energy costs savings as the amount of pumping required at the sewer lift stations would decrease overall, specifically during peak flows. The physical repairs should be done to prevent safety hazards. Additionally, the upgrade of process equipment such as: the low pressure UV system would greatly reduce energy consumption. After addressing the above factors, the WWTP expansion plans could be developed in a more environmentally sustainable way by integrating I&I evaluations, necessary physical repairs, present data on local and national economy, real time population projections, the present feasibility of all proposed and conceptual projects, potential general funds, the project's burden on the local population and environmental conditions with the County's Master Plan. Future plant expansion would use a skillful and sensitive design to minimize negative environmental, economic and social impacts.

Measures to remediate I&I should be based on engineering judgment and the best available technologies. Infiltration should be mitigated first by repairing, then by rehabilitation and renovation, and last by replacement. Trenchless technology methods

[1] I&I: the quantity of water from infiltration and inflow without distinguishing the source. Infiltration - water other than wastewater that enters a sewer system (including sewer service connections and foundation drains) from the ground through means which include, but are not limited to, defective pipes, connections, or manholes. Inflow - water other than sanitary flow that enters a sewer system (including sewer service connections) roof leaders, cellar drains, area drains, drains from springs/swampy areas, manhole covers, cross connections between storm sewers and sanitary sewers, catch basins, cooling towers, surface runoff (see references section Guidelines for Performing Infiltration/Inflow Analyses .)

can be used where excavations are not possible. Inflow is preventable through removal of catch basins, roof leaders, drains, etc.

Flow and rainfall monitoring can better inform the comparison of SCSD alternatives and associated environmental and cost savings possibilities. Wastewater flows and the effect of precipitation on I&I entering the system need to be measured and reported. In order to plan correctly, system *flow modeling* should be put in place. Flow modeling can determine the condition of the facility's collection systems and indicate long term capacity to service existing and conceptually established flows.

A *desk top analysis*[2] was conducted as a first step in re-rating the Plant to determine the potential increase in capacity to be gained by remediating I&I. The desk top analysis was performed for the year 2006 (see figure 2) in which the average maximum monthly daily flow was 12.4 MGD. The result of this analysis showed that 3.4 MGD over the base wastewater flow of 9 MGD was I&I flow. In summary, I&I contributed about 27% of the overall average maximum monthly daily flow during 2006. Figure 2 illustrates rainfall affect on treatment facility flow that occurs via I&I.

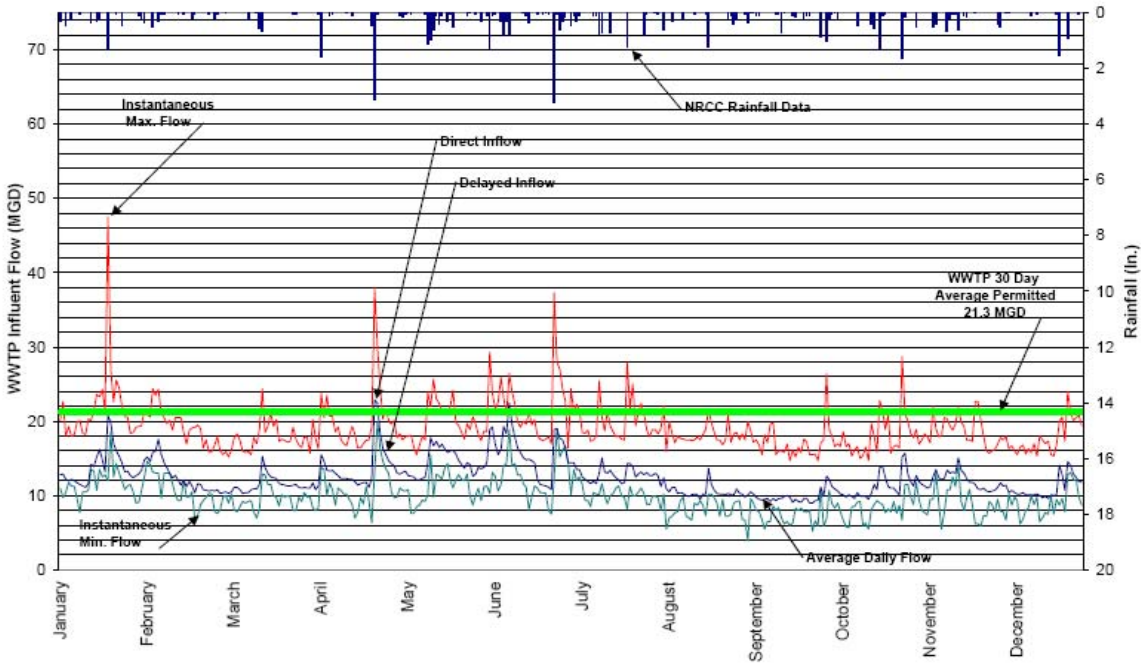

Figure 2: SCSD No. 1 WWTP Influent Flow: 2006.

The desk top analysis of 2006 data can also be used to identify those portions of the collection system where the most I&I is occurring. The five top contributing areas appear to provide a major portion of the extraneous (I&I) flows being treated by the

[2] The desk top analysis is based on review of existing data including: previous reports, Discharge Monitoring Reports (DMR's) for the WWTP, rainfall data obtained from the Northeast Regional Climate Center (NRCC) and pump station run times (see references section Desk Top I&I Study).

WWTP. Such information could be used to target remediation, making it more cost effective.

Studies have indicated that systems can also lose substantial amounts of capacity through aging and disrepair. Presently, EPA is encouraging utilities to monitor the condition of their infrastructure and to make risk-based decisions on maintaining and improving them. Collection system aging and deterioration contributes to: higher pumping rates, which are a source of energy inefficiency; emergency repairs, which pose hazards to public health; leaks, which increase the potential for soil and ground water contamination; and reductions in carrying capacity, which encourage the need for plant expansion. A well-maintained system is more desirable environmentally and economically.

Once needed repairs and upgrades are completed in conjunction with I&I remediation, surplus capacity should be re-evaluated. After achieving the new surplus capacity and conducting a thorough investigation to confirm the number of projects in need of wastewater treatment, the size of a more environmentally sustainable, cost-effective plant expansion can be determined.

In the United States, pumping water accounts for seven per cent of total electricity consumption (Brailey and Jacobs, 1980). When I&I contributes to over 20% of flows, this translates into a rather substantial energy cost burden on the local population being served. While the I&I alternative was not selected for implementation in this case, it presents several principles that can be generally applied in order to increase local sustainability. With regard to future investment strategies, the SCSD should take into account the enormous returns that could be achieved through reducing energy usage and this should be factored into the cost/benefit analyses of proposed projects.

C. WWTP Expansion from 21.3 MGD to a 43 MGD Capacity (Proposed Action)

The Proposed Action is a plant expansion (see figure 3) that includes several structural and system upgrades as part of the project. For the proposed action, each unit process at the facility was evaluated to determine its existing capacity, rehabilitation needs, expansion requirements to meet projected flows, and ability to be expanded and still maintain operations during the construction process. An ultimate plant design capacity was then selected based on the results of these considerations. Unit processes that were evaluated for the design were: influent screening, grit removal, main influent pumping, primary settling, activated sludge biological aeration, secondary clarification, return sludge pumping, UV disinfection, waste activated sludge thickening, and sludge handling (the incinerator).

The capacity of each unit process was evaluated based on Average Annual Daily Flow, Average Monthly Maximum Daily Flow and/or Peak Hourly Flow. In accordance with current regulatory standards and common engineering practice, each unit process requires a specific hydraulic design standard. The overall plant capacity is then rated as the capacity of the unit process with the smallest design capacity.

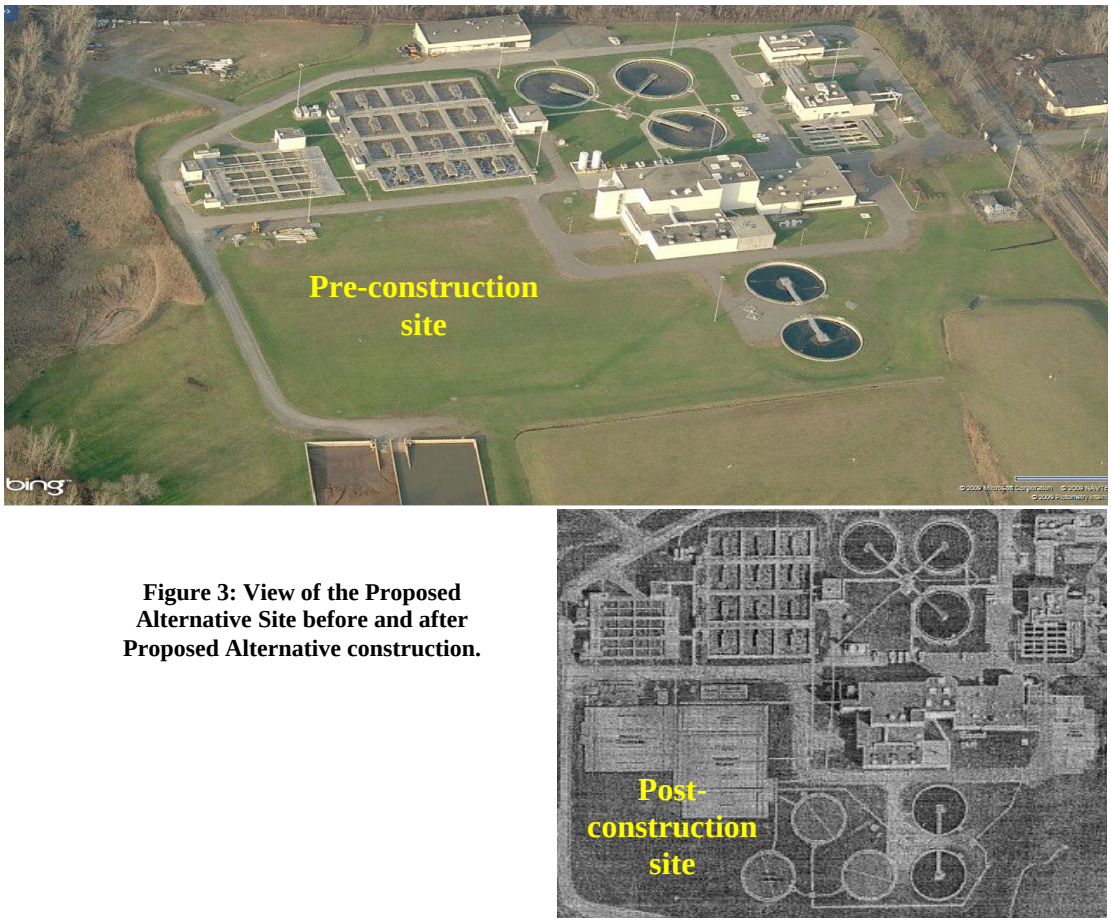

Figure 3: View of the Proposed Alternative Site before and after Proposed Alternative construction.

The existing facility currently operates under a NY State Department of Environmental Conservation Permit at a rated capacity of 21.3 MGD based on the Average Maximum Monthly Daily Flow. In addition to the unit processes, existing administration facilities, structural systems, odor control systems, and electrical systems were evaluated. Recommendations for upgrades to these systems were also included in this proposal.

Project Costs for the Proposed Action:

Total Project Cost……..$45,000,000 in capital costs
Total Eligible Project Cost……$45,000,000
Estimated EPA Grant Funds…….$ 6,627,200

IV. Affected Environment

The proposed action only involves improvements at the site of the existing WWTP, located in the Town of Halfmoon at the intersection of US Route 4/NYS Route 32 and South Main Street on the rear parcel west of the Delaware and Hudson railroad tracks. The project area consists of five acres of the total WWTP site.

The project area is located on a glacial lake terrace in the Hudson Valley; the elevation of the site is between 88 and 92 feet above sea level. The nearest major water source is the Hudson River located 1,745 feet to the east. The site for the proposed action was assessed for possible indicators of environmental concern.

1. Archaeology and Historical Resources

A Phase IA/IB Cultural Resources Survey was completed for the WWTP Expansion project. The area of potential effects (APE) included the entire area (five acres) proposed for ground disturbance as a result of the project. The APE also extends to a depth of five feet below the ground surface.

The Phase IA review indicated that the project is located at the southern end of a known prehistoric archaeological site, NYSM 6483, with seven additional prehistoric sites occurring within a one mile radius of the project area. For these reasons, the project vicinity is considered highly sensitive for prehistoric resources. The area is also considered highly sensitive for historic resources due to its proximity to two known historic archaeological sites and two National Register sites, including the Champlain Canal, which is located approximately 600 feet to the west.

A Phase IB field examination was conducted to test for cultural deposits that may be affected by the proposed project. The entire APE was surveyed using subsurface testing. No archaeological sites were identified as part of the Phase IA/IB survey.

2. Wetlands

Freshwater wetlands under the jurisdiction of the US Army Corps of Engineers and the NY State Department of Environmental Conservation (NYSDEC) can be found to the west, south and north of the project site. These wetlands are identified as FWW's ME-16 (22.8 acres Class III) and ME-17 (16.7 acres Class II)[3] as noted in the wetlands permit.

[3] **NYSDEC** wetlands (FWW = freshwater wetland), ME-16 is the NYSDEC wetland name (the ME refers to the US Geological Survey topographic quadrangle map), Class I = the best wetlands, Class II-III indicate good/moderate quality. Different wetlands provide different functions and benefits and in varying degrees. The Freshwater Wetland Act requires DEC to rank wetlands in one of four classes ranging from Class I, which represents the greatest benefits and is the most restrictive, to Class IV. The permit requirements are more stringent for a Class I wetland than for a Class IV wetland. Because of this, wetland classifications are important and are subject to public comment during the hearing process.

3. **Flood plains**

   The project site is not within 100-year or 500-year flood zones.

4. **Agricultural Lands**

   The proposed project site is not located within an agricultural district.

5. **Designated Coastal Zones**

   The project is not located in or adjacent to a designated coastal zone.

6. **Wild and Scenic Rivers**

   There are no wild or scenic rivers in the area of the proposed project.

7. **Endangered/Threatened Species**

   The project site is not located in or substantially contiguous to a state-designated Critical Environmental Area. Correspondence with the NYSDEC Natural Heritage Program confirmed the absence of any species of plant or animal life of concern, including those that are threatened or endangered.

8. **EPA-designated Sole Source Aquifers**

   The project site is not located over a primary, principal or sole source aquifer.

9. **Designated Wellhead Protection Areas**

   The project site is not located on or adjacent to any designated wellhead protection areas. The municipality's source water is the Hudson River and there are no private water systems located on, near or adjacent to the project site.

10. **Population Projections**

    After a decline in the 1970s, the population growth rate in the state of NY once again increased, but at a slower rate than the fast pace of the 1960's (see figure 4). Figure 5 illustrates Saratoga County's growth rate between 1970 and 2008. Following the State pattern, the County's population has grown at a decreasing rate.

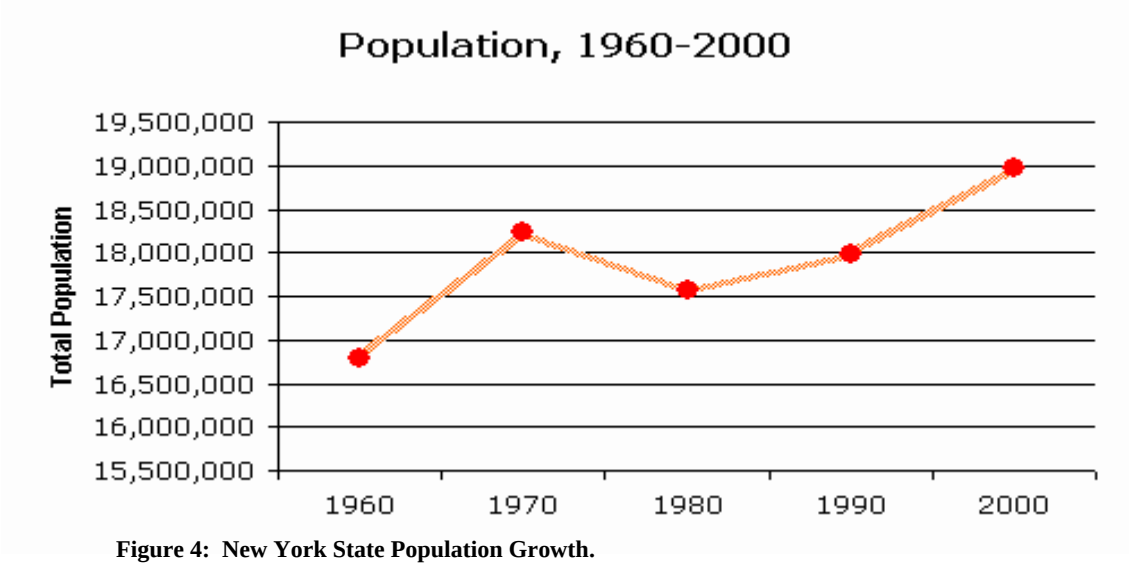

Figure 4: New York State Population Growth.

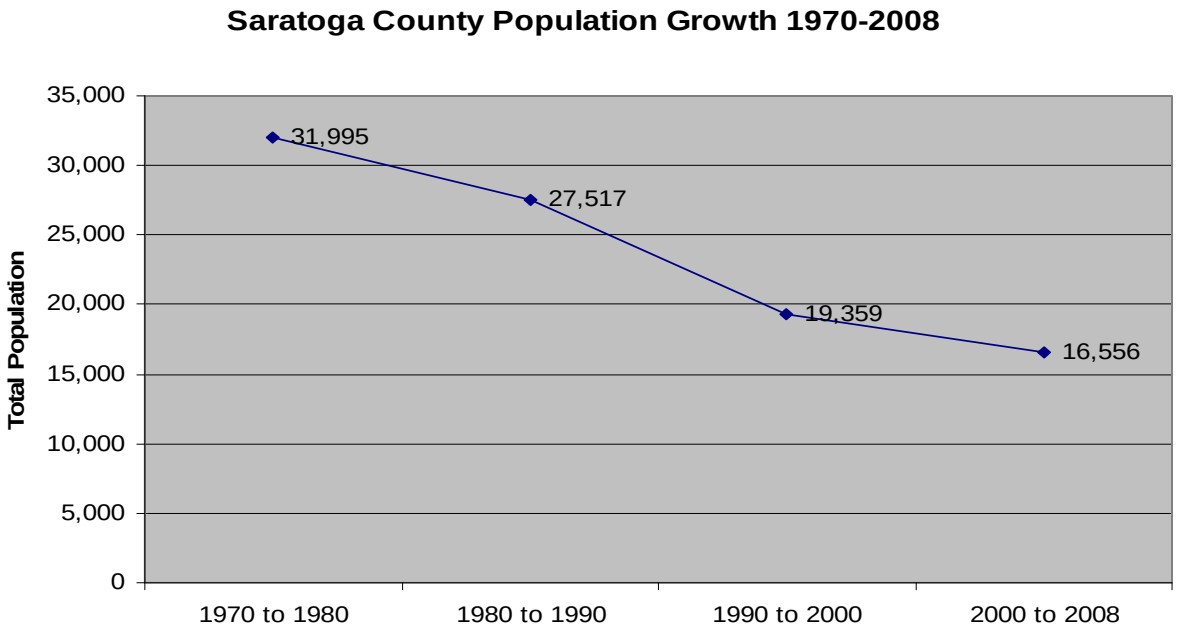

Figure 5: Saratoga County Population Growth. Total inhabitants growth per decade.

11. **Air Quality**

According to the EPA Greenbook, Saratoga County is located in an Ozone non-attainment area under the Clean Air Act (CAA). As of June 05, 2009, Saratoga County is ranked as non-attainment for the *8-Hr Ozone* standard until reclassification of the area is finalized.

12. **Ground Water**

Ground water at the site of the proposed action is present near the ground surface.

13. **Environmental Justice**

The Region 2 Environmental Justice (EJ) Analysis supports EPA Region 2's Interim Policy for Environmental Justice (IP). The specific community that is under evaluation for inclusion in the Region's EJ program is referred to as the Community of Concern (COC) in the IP. The evaluation process hinges on the comparison of the respective levels of the environmental burden, minority representation, and low income representation between the COC and its statistical reference area.

For environmental burden analysis, Region 2 advances the concept of an "Environmental Load Profile (ELP)." The profile provides a representation of the environmental load (i.e., relative environmental burden) within a community.

The ELP serves to identify communities that may bear a disproportionate environmental load in comparison to statewide-derived thresholds. Currently, the Environmental Load Profile consists of the following three indicators: Toxics Release Inventory (TRI) Air Emissions, Air Toxics, and Facility Density. The ELP summary report provides a numeric value for each indicator of the state threshold and the community of concern indicator (COC Indicator). If the calculated value for the particular community exceeds the state threshold, the indicator value is ranked to provide a measure of magnitude.

Application of the Environmental Load Analysis for the Saratoga area indicates that none of the indicators evaluated exceeds the respective NY State thresholds (see table 2).

Indicators	State Threshold	COC Indicator	Ranking
TRI Indicator:	2.6	.66	0
Facility Density Indicator:	56	59.83	1
Air Toxics Cancer Indicator:	63.55	28.13	0
Air Toxics Non_cancer Indicator:	11.3	4.86	0

Table 2: Environmental Load Analysis.

V. Environmental Consequences of the Proposed Action

1. **Archaeology and Historical Resources**

The findings of the Phase IA/IB Cultural Resource Survey indicated that this project is expected to have “no impact” on cultural resources. In an August 30, 2007 letter, the Office of Parks, Recreation and Historic Preservation advocated this position. If historic and/or prehistoric artifacts and/or features are encountered during the construction phase, all work will halt immediately and a qualified archaeologist will be consulted prior to allowing construction work to continue.

2. **Socioeconomics and Population**

The cost of the project will be bonded by the County and the cost of the bonded debt to the average ratepayer will be less than $50 per year. This rate required review by the NYS Office of the Comptroller since it exceeded the "low cost district" threshold for 2008. The Office of the Comptroller reviewed the project and has found that the proposed increase is not an undue burden to the average ratepayer. In addition, a demographic analysis (see table 3) illustrates that the COC's minority and poverty levels are well below the State thresholds.

Indicators	State Thresholds	COC Indicator	Urban/Rural
Percent Minority:	34.73	2.9	rural
Percent Poverty:	23.59	6.45	rural

Table 3: Demographic Analysis.

As previously discussed, three MGD of the WWTP's capacity is reserved for the planned LFTC. Only 300 of the 7,500 to 10,000 jobs that the semiconductor manufacturing facility has projected to bring to the local area are predicted to be for local residents. As such, the LFTC will be attracting new residents to the area, affecting patterns of population growth and increasing the demand for land, water, energy, transportation and public services use.

3. **Ground Water**

The potential impacts to surface and groundwater resulting from the project include the discharge of storm water during construction and operation of the project and the discharge of effluent into the Hudson River after the project is complete. The construction site will need to be dewatered prior to excavation due to very high groundwater levels. Even following dewatering, significant quantities of groundwater may still seep into the excavation area due to groundwater levels.

4. **Wetlands**

Erosion into NYSDEC-designated wetlands (see figure 6) and adjacent areas are of concern. Installation of a 42-inch diameter forcemain and construction of a concrete pad for grit storage will occur in those adjacent areas. The FWW permit, issued by NYSDEC on March 12, 2008, was contingent upon strict compliance with permit conditions such as erosion control devices to prevent any silt or sediment from entering the wetlands or adjacent areas. Specific measures to prevent environmental degradation and mitigate impacts were the permittee's responsibility.

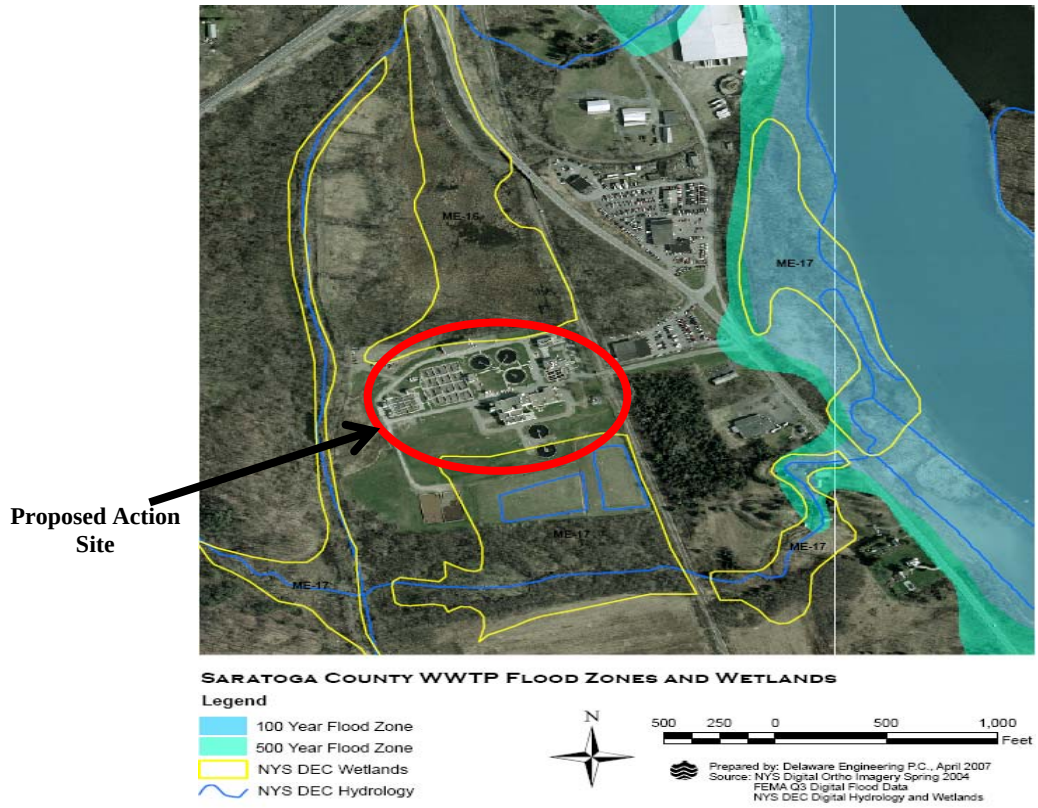

Figure 6: Wetlands and Flood Zones.

5. **Noise**

The equipment that will be installed and operated is not substantially different from the existing plant operation, thus no changes in noise generation are expected. The WWTP currently operates on a 24 hour a day; seven day a week basis; there will be some changes to this operational schedule as a result of the project. One such change will be the increase in hours of incinerator operation.

6. **Traffic**

Through the 18-month construction phase of the project, a temporary increase in traffic will be noticed due to the need to bring equipment, materials and labor onto the project site. The project will not directly generate any long-term changes in traffic patterns, volumes or create any traffic safety concerns at the site. Nevertheless, this project will allow projects such as the LFTC to be built, bringing new traffic patterns to the area.

7. **Aesthetics**

Many of the improvements involve construction of ground level or slightly higher tankage. The tankage and facilities will be similar to the existing facilities. None of the improvements will be visible from the state highway or any important scenic area

accessible to the public. The project involves installation of a new sign at the site entrance on the public highway.

8. **Energy Usage and Greenhouse Gas Emissions**

The expansion of the WWTP will produce an estimated total of 147.3 tons of carbon dioxide (CO_2) from various fuel sources during construction. Approximately, 111.5 tons of CO_2 will be generated from off-road construction equipment and 35.8 tons will come from on-road vehicles. It is likely that additional greenhouse gas emissions (GHG) could be generated from the operation of other vehicles or smaller equipment unaccounted for during the construction of the WWTP; the primary focus of this assessment is to quantify the larger sources of GHGs.

As shown in Table 4, the energy consumption analysis indicates that the new WWTP will require 63 percent and 87 percent additional energy to meet its operational needs in 2020 and 2030, respectively. However, replacing the medium pressure UV system with the low pressure UV system reduces the energy consumption by approximately 50 percent. However, if the WWTP reaches full capacity, energy consumption would increase 145 percent. In addition, operating process equipment in a contact stabilization mode with the proposed high intensity low pressure UV system slightly reduces energy consumption (by 4 percent) over the conventional operating mode.

The GHG generation analysis shown in Table 5 indicates that the existing WWTP typically emits approximately 2,085 to 2,153 tons of CO_2 (depending on the operational mode of process equipment) into the atmosphere annually, at an average daily flow of 12.5 MGD. The proposed CO_2 emissions from the WWTP upgrade will reduce this to approximately 1,791 to 1,860 tons after the first year of operation because of the upgrade of various process equipment, most noticeably because of the low pressure UV system. However, if the WWTP average daily flowrates increase to 27.5 MGD after 10 years and to 32 MGD after 20 years, the annual CO_2 emissions will almost double due to the increase in energy consumption.

For these calculations, the life expectancy of this proposed WWTP is thirty years (see Table 6). It is anticipated that once the WWTP reaches its full operational capacity, it will continue to operate at average daily flow of 32 MGD for another ten years. Therefore, the total GHG to be emitted to the atmosphere from this action is approximately 91,873 to 95,692 tons of CO_2 (CO_2 emissions equivalent to approximately 530 passenger vehicles annually) from both construction and operation of the WWTP (based on conventional vs. contact stabilization operational mode).

WWTP Operational Equipment	Current Avg. Daily Flow (12.5 mgd)	2020 Avg. Daily Flow (27.25 mgd)	2030 Avg. Daily Flow (32 mgd)	Percentage Change 10 & 20 yrs
Total – Existing System				
Influent pump config/blowers conventional/med pressure UV/sludge conventional	13,104	NA[2]	NA	NA
Influent pump config/blowers contact stabiliz/med pressure UV/sludge contact stabilization	12,762	NA	NA	NA
Total – Proposed WWTP Upgrade				
Influent pump reconfig/blowers conventional/low pressure UV/sludge conventional	10,940	17,813	20,447	63 % - 87 %
Influent pump reconfig/blowers contact stabilization/low pressure UV/sludge contact stabilization	10,567	17,249	19,620	63 % - 86 %
Percentage Change	3.5 %	3.3 %	4.2 %	NA

Table 4: Estimated Annual WWTP Energy Consumption (KWh/day)[1].
1-Based on Energy Consumption Analysis from SCSD.
2-NA means not applicable.

WWTP Operational Equipment	Current Avg. Daily Flow (12.5 mgd)	2020 Avg. Daily Flow (27.25 mgd)	2030 Avg. Daily Flow (32 mgd)
Total – Existing System			
Influent pump config/blowers conventional/med pressure UV/sludge conventional	2,153	NA[2]	NA
Influent pump config/blowers contact stabiliz/med pressure UV/sludge contact stabilization	2,085	NA	NA
Total – Proposed WWTP Upgrade			
Influent pump reconfig/blowers conventional/low pressure UV/sludge conventional	1,860	3,166 (70 % change)	3,649 (96 % change)
Influent pump reconfig/blowers contact stabilization/low pressure UV/sludge contact stabilization	1,791	3,054 (70 % change)	3,492 (95 % change)

Table 5: Estimated Annual WWTP GHG Generation (tons CO_2/year)[1].
1-Based on Energy Consumption Analysis in Appendix W of SCSD EID.
2-NA means not applicable.

WWTP Operational Equipment	2010 (after 1 year) 12.5 mgd[1]	2010 – 2020 (after 10 yrs) 12.5 - 27.25 mgd	2010 – 2030 (after 20 yrs) 27.25 - 32 mgd	2010 – 2040 (after 30 yrs) 32 mgd
Influent pump reconfig/blowers conventional/low pressure UV/sludge conventional	1,860	25,130	59,205	95,692
Influent pump reconfig/blowers contact stabilization/low pressure UV/sludge contact stabilization	1,791	24,227	56,957	91,873

Table 6: GHG Projections from 2010 to 2040 (tons CO_2).
1-Average Daily Flow.

9. **Air Quality**

EPA performed a general conformity applicability analysis. Table 7 shows the results. Emissions of nitrogen oxides and volatile organic compounds, the precursors of ozone, during the project's construction phase are below the applicable deminimis threshold values; therefore, the project is presumed to conform and no further action is necessary. Additionally, air quality will be impacted due to the incinerator's proposed increase in operational hours.

2009 CONSTRUCTION EMISSIONS SUMMARY FOR GENERAL CONFORMITY		
POLLUTANT	**VOC**	**NOx**
OFF-ROAD CONSTRUCTION EMISSIONS (tons/year)	0.106	0.922
ON-ROAD CONSTRUCTION EMISSIONS (tons/year)	0.011	0.054
TOTAL CONSTRUCTION EMISSIONS (tons/year)	**0.117**	**0.976**
GENERAL CONFORMITY THRESHOLD (tons/year)	**50**	**100**
PERCENTAGE OF THRESHOLD	**0.23%**	**0.98%**

Table 7: 2009 Construction Emissions Summary for General Conformity.

Table 8 below summarizes impacts of each alternative. The first three impacts regard commercial factors, while the next five focus on environmental aspects.

Comparison of Alternatives Evaluated

CONSIDERATIONS	ALTERNATIVES		
	A (No Action)	B (I&I Remediation)	C (WWTP Expansion)
OPERATIONAL			
Site size	No impact	Several locations	5 acres
Potential conflict with other Activities	No impact	Yes, but workable	No impact since primarily on site
Jobs created for local economy/duration	No new direct or indirect jobs created	Long term jobs	Short term jobs
ENVIRONMENTAL			
Effects on ground water	Leaks continue and potential impacts during WWT operation	Leak repairs throughout a large area	Leaks continue and potential impacts during construction and operation
Energy & GHG	Systems aging & deterioration leads to higher pumping rates	Maintained system decreases energy consumption	Systems aging & deterioration leads to higher pumping rates. Increasing run time of the incinerator
Air	Impact during operation	Impact during construction	Impact during construction and operation
Wetlands	No impact	Work on existing infrastructure	Permanent impact on adjacent areas
Hudson River	Impact from discharging	Maintained system decreases discharge	Increased impact from increased discharge

Table 8: Comparison of Alternatives Evaluated.

VI. Indirect and Cumulative Impacts

The National Environmental Policy Act requires the consideration of past, present and reasonably foreseeable actions that may also affect area resources in addition to direct and indirect project impacts. Overall, all types of infrastructure investments stimulate and/or induce indirect effects in the form of associated investments and often change local patterns of economic and social activities. The proposed action brings more indirect and cumulative effects than the anticipated direct effects from the action.

The SCSD has committed treatment capacity of 3 MGD to LFTC. Additionally, the SCSD has reserved capacity for projects that have not obtained permits and appropriate reviews and lack assurance of being built. When any of these projects is built, it will contribute to indirect impacts such as changes in traffic and air quality. Further, a variety of changes in land, water, and energy usage from increased population would occur in the area. Public services such as schools would need to accommodate new demand.

In order to address the additional hours of operation as well as additional regulatory requirements for the emissions from operations of the WWTP expanded incinerator, the facility air permit issued by NYSDEC was modified. As such, air impacts from the incinerator will be increasing over time as operations increase until reaching full capacity.

The level of traffic impacts in the area would increase over the time in combination with future development.

VII. Steps to Minimize Adverse Effects on the Environment

- Erosion and Sedimentation – a Stormwater Pollution Prevention Plan was prepared and accepted by NYSDEC. This Plan addresses both control of sediment and erosion during construction as well as post-construction stormwater attenuation and treatment.
- Wetlands – mitigation/restoration of the disturbance to the wetlands adjacent areas should be planned. Improvements to the wetlands around the area should be considered.
- Traffic – the level of impacts can be mitigated by early planning. Planning should be in conjunction with a County wide Master Plan.
- Air quality - the operation of the incinerator for additional hours due to the increase in sludge disposal was evaluated and a modified permit was issued to address the increase in run hours as well as additional regulatory requirements.
- Energy – the Plant was enrolled in the NY Energy $mart SM Enhanced C/I Performance Program.[4]

[4] In 1998, NYSERDA created a NY Energy $mart Commercial/Industrial (C/I) Performance Program to support development of the energy service industry in NYS and to encourage consumers to invest in the installation of energy efficient equipment. The C/I Performance Program provides performance-based incentives to energy services companies and other contractors to promote energy efficiency capital improvement projects.

- GHG – according to calculations via GHG tools, in order to offset emissions from the 30 year operation of this project, 605 acres of forest would need to be preserved from deforestation. According to the energy supplier National Grid, there is a proposal to launch a pilot program called "Smart Grid," which can be combined with green energy technology in Saratoga County. This Smart Grid will improve efficiency, reliability and safety of electricity delivery and use in the area. In addition, Smart Grid will provide new technologies to consumers to monitor and reduce energy consumption. National Grid will also be exploring and implementing green energy technologies to allow energy users to purchase electricity from renewable resources.

Several internet sites on energy efficient products, programs, and practices that may prove useful in guiding similar facility construction and operation decisions are listed below:

EPA's websites, *Energy Star for Wastewater Plants and Drinking Water Systems*
http://www.energystar.gov/index.cfm?c=government.wastewater_drinking_water
Energy Star Performance Ratings: Technical Methodology for Wastewater Treatment Plant
http://www.energystar.gov/ia/business/evaluate_performance/wastewater_tech_desc.pdf
Sustainable Infrastructure for Water and Wastewater
http://www.epa.gov/waterinfrastructure/bettermanagement_energy.html
Wastes – Resource Conservation – Reduce, Reuse, Recycle – Industrial Materials Recycling
http://www.epa.gov/osw/conserve/rrr/imr/indust.htm#cd-materials
and *Clean Energy*
http://www.epa.gov/cleanenergy
contain guidance and technical information on improving performance, construction, and energy conservation for wastewater treatment systems that could provide additional energy saving strategies for the new WWTP to reduce GHG emissions.

VIII. Coordination of Environmental Review

Process and Public Participation

Public participation concerning the proposed action has been carried out in different ways. Some of these activities included:

- At least 19 monthly meetings were conducted by the SCSD starting in December of 2006.
- A presentation to the Planning Board during a public session was conducted in the Town of Halfmoon on October 27, 2007.
- Notices for public comments were issued for every NYSDEC permit.
- Local newspapers published several articles regarding this proposal.
- The January 9, 2008, March 12, 2008 and June 11, 2008 meetings of the County Board of Supervisors Law and Finance Committee were

announced and open to the public and the proposal was discussed, including financing of the project, at those meetings.

- The SCBS had a formal presentation by the Sewer Commission Chairman at its budget session on November 20, 2008.
- NYSDEC publicly announced the availability of three permits for the proposal for public comment. These permits included a SPDES permit, a wetland permit and an air facility permit.
- Comments from regulatory agencies, the Board of Supervisors, the Sewer Commissioners and the Town of Halfmoon Planning Board were received and addressed either by responses to questions or by modifications to the project.
- No comments were received from the public sector.
- The EID is on file at the offices of the SCSD No. 1 located at the WWTP, the junction of Route 4 and 32 in the Town of Halfmoon, NY.

IX. REFERENCES AND FIGURES

A. References

- Desk Top I&I Study. Environmental Information Document. Saratoga County Sewer District No.1 Wastewater Treatment Plant Expansion. Saratoga County Board of Supervisors. January, 2009.

- Environmental Information Document. Saratoga County Sewer District No.1 Wastewater Treatment Plant Expansion. Saratoga County Board of Supervisors. January, 2009.

- Environmental Information Document. Wastewater Treatment Plant Upgrade and Related Improvements. Saratoga County, NY. April, 1995.

- Environmental Protection Agency. http://www.epa.gov/otaq/climate/420f05003.htm#greenhouse

- Evaluation of Infiltration/Inflow Program. EPA. July, 1980.

- Global warming resources. Bloch and Carbonify. http://www.carbonify.com/carbon-calculator.htm

- Guidelines for Performing Infiltration/Inflow Analyses and Sewer System Evaluation Survey. Commonwealth Of Massachusetts, Executive Office of Environmental Affairs, Department of Environmental Protection. January, 1993.

- Greenhouse Gas Equivalencies Calculator. EPA Clean Energy. February, 2009. http://www.epa.gov/cleanenergy/energy-resources/calculator.html

- Indirect CO2 Emissions from the Consumption of Purchased Electricity, Heat, and/or Steam Guide to calculation worksheets. WRI/WBCSD GHG Protocol Initiative January, 2007. www.ghgprotocol.org

- Inflow and Infiltration Study City of Santa Rosa. Santa Rosa, California. January, 2006. http://ci.santa-rosa.ca.us/docLib/Documents/IIStudyJan06.pdf

- NYS Department of Agriculture and Markets. Robert Somers, Ph.D., Manager, Agricultural Protection Unit. 2009.

- Population –Google- Public Data. Data Source: U.S. Census Bureau, Population Division - Last updated July 31, 2009. http://www.google.com/publicdata?ds=uspopulation&met=population&idim=county:36091&q=Saratoga+population+graphs

- Regional Infiltration and Inflow Control Program. King County, Washington. October, 2004. http://www.kingcounty.gov/environment/wastewater/II.aspx

- Sustainable Infrastructure for Water & Wastewater. EPA. 2009. http://www.epa.gov/waterinfrastructure/basicinformation.html

- Sustaining Our Nation's Water Infrastructure. EPA. August 2006.

- The American Society of Civil Engineers (ASCE). The Infrastructure Report Card. 2009. http://www.infrastructurereportcard.org/index

- The Clean Water and Drinking Water Infrastructure Gap Analysis. EPA. September 2002. http://www.epa.gov/owm/gapreport.pdf

- USEPA Greenbook. 2009. http://www.epa.gov/oar/oaqps/greenbook/gncs.html#NEW YORK

B. FIGURES

1. Proposed action Location Area, Saratoga County, NY.

2. SCSD No. 1 WWTP Influent Flow. Environmental Information Document. Wastewater Treatment Plant Expansion. Saratoga County Board of Supervisors. Saratoga County, NY. January, 2009.

3. View of the Proposed Action Site before and after Proposed Action (bing maps).

4. NY State Population Growth. Census 2000 analyzed by the Social Science Data Analysis Network (SSDAN).

5. Saratoga County Population Growth.

6. Wetlands and Flood Zones. SCSD Environmental Information Document. 2009.

C. TABLES

1. (a) WWTP – Current Situation. Average Monthly Flow.
   (b) WWTP – Current Situation. Highest Monthly Flow.

2. Environmental Load Analysis. EPA tool. 2009.

3. Demographic Analysis. EPA tool. 2009.

4. Estimated Annual WWTP Energy Consumption. WRI/WBCSD GHG Protocol Initiative. www.ghgprotocol.org

5. Estimated Annual WWTP GHG Generation. WRI/WBCSD GHG Protocol Initiative. www.ghgprotocol.org

6. GHG Projections from 2010 to 2040. WRI/WBCSD GHG Protocol Initiative. www.ghgprotocol.org

7. 2009 Construction Emissions Summary for General Conformity. EPA calculations. 2009.

8. Comparison of Alternatives Evaluated.