



Chazen Engineering, Land Surveying & Landscape Architecture Co., D.P.C.

Chazen Environmental Services, Inc.

375 Bay Road, Queensbury, NY 12804

PHONE: (518) 812-0513 FAX: (518) 812-2205

LETTER OF TRANSMITTAL

TO: New York State Department of Public Service
3 Empire State Plaza
Albany, NY 12223-1350

DATE: 3/22/2013

PROJECT # 31300.03

RE: FAB 8.2 PDD Proposal

RECEIVED
PUBLIC SERVICE
COMMISSION
EXEC-FILES-ALBANY
2013 MAR 28 AM 9:17

WE ARE SENDING YOU: ☒ Attached ☐ Separate cover **VIA:** ☐ Hand Delivery ☒ US Mail ☐ Pickup

☐ Courier: () Air bill # () Delivery: Overnight 2-Day Ground

The following items:

☐ Prints/Plans ☐ Shop drawings ☐ Report ☐ Specifications ☐ Samples
☐ Change order ☒ Letter ☐ Application ☐ Other: ↑(circle one)

COPIES	DATE	DWG NO.	DESCRIPTION
1	3/18/13		Global Foundries SSDEIS & Proposed Planned Development District Amendments - Technical Review Comment Letter

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit ___ copies for approval
☒ For your use ☐ Approved as noted ☐ Submit ___ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return ___ corrected prints
☐ For bids due ☐ Prints returned after loan to TCC
☐ For review and comment ☐ Other:

REMARKS:

To Whom It May Concern,

Enclosed please find the above referenced letter. This letter outlines technical comments regarding Global Foundries' Second Supplemental Draft Environmental Impact Statement and Planned Development District Amendments created on behalf of the lead agency, the Town of Malta. Your organization is an "Involved and Interested Agency" as it relates to SEQRA, therefore we are sending this for your review. Please be advised that the SEQRA public comment period will end on April 26th; the lead agency requests that you submit any comments you may have by that date. Comments can be submitted to: Floria Lowin, Town of Malta Planning Administrative Assistant, 2540 Route 9, Malta, NY 12020. Ph: 518-899-2685, Fax: 518-899-4719, Email: flowin@malta-town.org.

Thank you.

cc: Anthony Tozzi, Town of Malta

cc: Floria Lowin, Town of Malta

cc: File

cc:

Signed:

Printed:

Title:

Sent by:

Sean Doty

Senior Project Engineer

R Toleman for S Doty

IF ENCLOSURES ARE NOT AS NOTED, KINDLY NOTIFY US AT ONCE



North Country Office

375 Bay Road, Queensbury, NY 12804
P: (518) 812-0513 F: (518) 812-2205
www.chazencompanies.com

Hudson Valley Office (845) 454-3980
Capital District Office (518) 273-0055

RECEIVED
PUBLIC SERVICE
COMMISSION
EXEC-FILES-ALBANY
2013 MAR 28 AM 9:17

March 18, 2013

Supervisor Sausville and Town Board Members
Town of Malta
2540 Route 9
Malta, NY 12020

Re: *GLOBALFOUNDRIES FAB 8.2*
2013 PDD Amendments & Second Supplemental Draft Environmental Impact Statement
(SSDEIS) Review
Town of Malta, Saratoga County, New York
Chazen Project # 31301.03

Dear Supervisor Sausville and Town Board Members:

The Chazen Companies (Chazen) has received the Planned Development District Amendment Application package for the above referenced project, and has been requested to provide a "technical" review of the same. The Second Supplemental Draft Environmental Impact Statement (SSDEIS) was previously reviewed for "completeness" in regard to SEQR, and was found to be complete by the Malta Town Board on March 7, 2013. This review letter includes technical comments previously provided to the Applicant during completeness review (as depicted in our Memorandum to the Malta Town Board dated February 26, 2013), that were not addressed, as well additional technical comments generated from a complete technical review of the application material. Please accept the following comments for your consideration:

A. Town of Malta Planned Development District Application

1. The application references easements and other restrictions on this property as being attached in Appendix A. Based upon a review of Appendix A there are several easements noted as existing and one easement, subject to definition. A copy of each recorded easement is requested and as well as a copy of the proposed access easement. If a map is available that further describes the location of the easements, a copy is requested.

B. Second Supplemental Draft Environmental Impact Statement (SSDEIS)

2. A review of Section 3.2.2 includes a representation of proposed principal buildings as well as ancillary building that would be included with Fab 8.2. It is noted that ancillary buildings included a Sulfuric Building, Compressor Building, Pyrophoric Bunker Building and Silane building. Later in Section 3.4 there is reference made to a Fire Pump House with Storage. Please clarify if this is intended to represent an additional ancillary structure which should

be added to the list in Section 3.2.2 or if it is intended to be situated within an existing building or structure.

3. Regarding Building Metrics, The SSDEIS should discuss how a larger cleanroom associated with FAB 8.2 will affect other impacts, such as increased chemical deliveries, use of gasses and the potential need for increased emergency response.
4. Regarding Building Metrics, The SSDEIS should discuss what potential impacts are associated with the elimination of the cleanroom threshold size within the PDD. For example, with no limits on cleanroom size, there may be no limits on the use of chemicals, gasses and other materials needed for cleanroom operations.
5. In Section 3.2.4 miscellaneous details include descriptions of construction related workforce. Provide a summary of the accumulated construction work force related to concurrent construction operations anticipated and related construction schedules.
6. General design criteria for Fab 8.2, as described in Section 3.4 suggest limited or no changes from the general design criteria established with prior SEQRA Findings Statements and PDD Legislation for LFTC. Of those elements noted in this section, noise mitigation is of most interest and related abatement measures beyond those employed for construction related impacts should be fully characterized. Certain additional design measures have been implemented and included with the TDC and were represented to be included in related structures for Fab 8.2. However, the Town of Malta has not received the proposed design, nor has it accepted or approved it for the TDC. Describe, in detail, the proposed noise mitigation measures to be employed for Fab 8.2.
7. What are the anticipated sound levels, by octave band, at the previously identified receptor locations? What are the anticipated sound levels, by octave band, at the nearest residence on Featherfoil Way? What are the anticipated sound levels, by octave band level, at the nearest residence in the Town of Stillwater?
8. In Section 3.5 storm water management practices are described. Implementation of current standards is represented. The ownership, operation and maintenance responsibilities of these measures should be clarified.
9. In Section 3.10 it is stated that an overhead 115kV power transmission system will be extended from the existing LFTC Substation to a high voltage (HV) electrical substation to provide a circuit to the CUB-ESB. A figure depicting the new overhead wire route should be provided in the SSDEIS for review.
10. Section 3.17 describes permits and approvals necessary to support this application. In review of supporting reports included under separate appendices, it is apparent that certain services to support the project will require certain improvements and related approvals/permits and or approvals to support service, such as the SCWA and the SCSD#1. Provide a summary of approvals and permits required by supporting authorities that are required to service the proposed action.

11. The SSEIS should discuss public safety impacts, particularly additional emergency response calls and coordination with local responders, as a result of the new Fab, based on experience with the existing Fab.
12. The Applicant will be using large areas of LFTC off their property for construction. How will this affect the potential to build out the rest of the campus? Applicant to clarify.
13. Regarding construction logistics, the development of FAB 8.2 will increase employment from 1,900 to 2,500 construction workers. Construction efforts indicate that large areas off the Applicant's property will be needed for parking, laydown areas, soil disturbance, the proposed batch plant, stormwater, electric and temporary roads. The SSDEIS does not provide an assessment of simultaneous construction of TDC and FAB 8.2 as it relates to these impacts. This assessment should be provided.
14. The Applicant shall document the statement on pages 16/17 that "...extensive hazmat training" for local providers is being provided.
15. Quantify increased demands on local emergency responders in light of the experience to date from Fab 8.1. Quantify the resultant cost implications.
16. Have local emergency responders been involved in the preparation of the Community Notification and Evacuation Plan, Hazard Analysis and the Integrated Contingency Plan (ICP). What is the status of these plans?
17. Based on experience to date, compare the risk of tractor trailer accidents on roadways from traffic associated with Fab 8.2 to that calculated in the original GEIS, or to that calculated from tractor trailer accident data from a source acceptable to the Town of Malta.
18. Discuss how changes in chemicals employed in Fab 8.2 affect the risk analysis as discussed in the GEIS.
19. Discuss the safety of the roundabout at the intersection of Rt. 9 and the Round Lake By-Pass. Specifically, discuss the design and safety of this roundabout in light of increased truck traffic as a result of Fab 8.2.
20. Identify and illustrate at the concept plan level the "complete streets" alternative to the proposed improvements at the Rt. 9/67 Dunning Street roundabout discussed in the GEIS. What are the pros and cons of this alternative? What are the costs?
21. If additional traffic from the project is not routed onto Dunning Street as assumed in the traffic analysis, assess the impacts to the rest of the transportation system.
22. Section 5.3 states that the total average water usage rate for the FAB 8 Campus (including FAB 8.2) is 10.7 MGD. The Applicant should also identify what the current existing demand is at the SCWA plant, and describe the specific proposed water system improvements required to serve Fab 8.2. Additionally, the Applicant shall describe the approval status of such improvements. Are the improvements consistent with those discussed in the GEIS and SGEIS? Will there be sufficient capacity to service the remainder of the LFTC park at full

build-out? Provide verification from the Saratoga County Water Corporation that service can be provided and the schedule for the same.

23. Regarding Section 5.4 – What is the current natural gas demand from the Global Foundries project and how does it compare to the estimates in the GEIS? Describe proposed natural gas system improvements by National Grid required to serve Fab 8.2. Describe the approval status of such improvements. Are the improvements consistent with those discussed in the GEIS and SGEIS? Provide verification from National Grid that natural gas service can be provided and the schedule for the same. Will there be sufficient capacity to service the remainder of the LFTC park at full build-out?
24. Section 5.5 states “The existing two (2) double circuit 115 Kv lines have the capability of providing a significant amount of electric power to the FAB 8 Campus.” The Applicant shall quantify the term “significant” used in the referenced sentence. What is the current electric demand from the Global Foundries project and how does it compare to the estimates in the GEIS? Further, the Applicant shall describe proposed electric system improvements by National Grid required to serve Fab 8.2. Describe the approval status of such improvements. Are the improvements consistent with those discussed in the GEIS and SGEIS? Will there be sufficient capacity to service the remainder of the LFTC park at full build-out? Provide verification from National Grid that electric service can be provided and the schedule for the same.
25. Regarding Section 5.6; the Applicant shall provide verification from SCSD#1 that sewer service can be provided to FAB 8.2. Will there be sufficient capacity to service the remainder of the LFTC park at full build-out?

Appendix A - Proposed PDD Amendments

26. The PDD amendments should include a modification that, should an offsite emergency occur from a product to be delivered to GF, that GF be required to immediately notify the Village and the Town, and that they also send appropriate personnel to the emergency scene so they can assist first responders to understand the nature of the material involved.

Appendix B - Part 1 of Full Environmental Assessment Form (EAF)

No Comments

Appendix C - Global Foundries Industry Requirements Report (IRR)

27. The Applicant should show a redlined version to reflect changes between 2008 and 2013 IRRs, as they relate to FAB 8.2 and submit the same for review by the Town.

Appendix D - Summary of Emission Point Modeling Using AEROM Software

28. Please refer to the attached comment letter prepared by Air Resources Group, LLC, dated February 14, 2013.
29. Regarding air dispersion modeling results; it is requested that the Applicant provide updated figures based on increasing the stack height by 5-, 10- and 15-feet respectively. Following compilation of the requested information, please compare this to the currently proposed stack height air dispersion modeling and provide an analysis of the statistical significance of each interval of increased stack height. This has been requested by the Town of Stillwater Planning Board.

Appendix E - Visual Impact Assessment

30. The Application indicates that the GIS viewshed analysis is based on a combination of USGS National Elevation Dataset (NED) 10 meter Digital Elevation Models (DEM). The Applicant should consider conducting an additional GIS viewshed analysis that is based on USGS DEM's only in order establish a visual baseline that does not include assumed vegetative heights.
31. The Applicant indicates that the control points for the GIS viewshed analysis were located near the center of the FAB 8.2 building envelope. Given the size of the proposed project, control points should be located at the four corners, and/or along the edge, of the building envelope (similar to the balloon visibility analysis) in order to determine its potential visibility within the five-mile study area.
32. It is noted in the GIS viewshed analysis that heights of 80 feet were applied to the National Land Cover Dataset's (NLCD) "Evergreen" and "Mixed Forest" land cover classifications and heights of 25 feet were applied to "Woody Wetland" and "Shrub/Scrub" land cover classifications. The Applicant should identify how they arrived at these estimated land cover heights. In addition, the NLCD includes additional land cover classifications that are not identified in the GIS viewshed analysis, including "Deciduous Forest," which is identified as one of the primary land covers in section 3.4.1, Vegetation. The Applicant should incorporate such land cover classification(s), along with the respective estimated heights, into the GIS viewshed analysis. Finally, the analysis should include a discussion regarding visibility conditions during leaf-on and leaf-off conditions. As an alternative, the Applicant may choose not to include "Deciduous Forest" land cover classifications if the intent is to demonstrate leaf-off conditions. If this is the Applicant's intention, then such a discussion should be included in the analysis.
33. Because visibility may decrease as distances increase, it would be helpful if the Applicant added concentric rings that identified one-mile increments from the center of FAB 8.2 to figure's 2A and 2D.
34. Given the size and location of the proposed building, along with the surrounding topography, it appears that the northern and eastern portions of the proposed building envelope have the greatest visibility potential within the study area. The Balloon visibility study indicates that balloon representing the northeast corner "could not be located close

to its intended position" due to overhead wiring. As such, the balloon visibility study should discuss how the inability to locate a balloon at the northeast corner may or may not have impacted the overall Visibility Study.

35. The balloon visibility analysis indicates that the field team was unable to find public access to the Round Lake Preserve on November 30, 2012. However, the Applicant indicates that the line-of-sight between FAB 8.2 and Round Lake Preserve was examined using three-dimensional modeling. The Applicant should indicate if this analysis is intended to supplement the balloon visibility analysis. If so, It would be helpful if the Application provided a more detailed account of how three-dimensional model was developed and used to evaluate potential visibility. Finally, traditional line-of-site analysis includes line-of-site profiles that depict distance and elevation. The application should consider included such a figure in this analysis.
36. The general direction of the proposed building should be identified in Figures 5A-5F, Existing Conditions Photos.
37. In order to evaluate relevant lighting and seasonal conditions, the date and time of the photographs that were used in the Photo/Simulations/Project Visualization should be identified.
38. The small, red labeling on Figures 7B and 8B is difficult to read due to font size and respective contrast with background images. These figures should be revised accordingly.
39. In Figures 7B and 7C and Figures 8B and 8C of the Photo Simulations/Project Visualization, it appears that the proposed building is a brown hue. However, the building appears to be white in the Fab 8.2 Architectural Renderings. The Applicant should verify the proposed building color and ensure that the photo simulations accurately reflect the proposed conditions.
40. The contrast on Figures 7A-8C appears dark, making it difficult to distinguish buildings, land forms/land cover, and distances. It appears that the photos may have been taken during poor weather conditions and/or during evening or early morning hours. As such, tethered balloons and photo simulations are difficult to discern. Because the proposed building may have greater illumination/reflectivity during better weather conditions, earlier times of day, and during different seasons, the Applicant should consider providing revised simulations that illustrate these varying light conditions.
41. Figures 7C and 8C illustrate hypothetical locations of rooftop equipment and stacks. The Applicant should indicate if these locations are based on any existing plans or concepts. Furthermore, the Applications should indicate what materials this equipment will be made of, its color, and weather it has any lighting.
42. In Figure 8C, Project Visualizations, when compared to the 110 foot line in Figure 8B, along with nearby vegetated horizon characteristics, it appears that the proposed building's roofline is dissimilar. The Applicant should review these two figures and verify the accuracy of the photo simulation with respect to the proposed building height a vegetative horizon.

43. The Applicant indicates in the Summary and Conclusion section that "no identified sensitive visual resources within the 5-mile study area will be adversely impacted." The Applicant should provide a brief description or comment, for any of the sensitive visual resources that the project may be visible from, that identifies how the existing and proposed conditions will mitigate any potential visual impacts.
44. The photo simulations and the summary and conclusions indicate that portions of the proposed building may be visible, particularly through the "intervening vegetation" and above the "vegetated horizon," and that anything over the vegetated horizon may introduce elements that are visually contrasting with "the natural landscape of Saratoga Lake." Because it anticipated that the proposed building will be visible from Saratoga Lake (on the water), which is a local and regionally significant natural and recreational resource, without additional mitigation measures, it may not be "reasonable to conclude that simple visibility of the proposed rooftop appurtenances at or slightly above the tree line will not result in a detrimental effect on the perceived beauty of Saratoga Lake."

Appendix F - Preliminary Water and Wastewater Plan

45. Section 2.0 states that peak water usages is estimated as 125% of the average day flows based on GLOBALFOUNDRIES operation experience. While noted, it is requested that the Applicant provide documentation (meter readings, etc.) demonstrating the same. Also, based on the projected wastewater flows, it appears that the Applicant is indicating that approximately 3.4% of water used at the plant is not discharged to the wastewater system. More information regarding this "loss" of water is requested. It is noted that correctly identifying the anticipated water and wastewater rates is especially important as it relates to the capacity of the existing 30" sewer line (installed between LFTC and the SCSD#1 trunk sewer). The proposed average daily flow of the FAB 8 campus has been noted to be 9.5 MGD, and the capacity of the existing 30" sewer is 10 MGD. The Applicant has appropriately recognized this, by stating that "Once FAB 8.2 is at full capacity, the 30-inch sewer would be at 95% of its design flow..." Given the fact that the Applicant intends to utilized 95% of the capacity of the 30" sewer owned and operated by SCSD#1, it appears prudent that the Applicant provide a letter of service and consent by the SCSD#1 that they do not require improvements to this sewer, or any other portion of their system.
46. Section 4.2 states that due to the anticipated water supply demands (10.7 MGD) of the FAB 8 campus (inc. FAB 8.2), Phase II improvements will be needed at the SCWA plant. It is also noted that in Section 4.1 states that Phase II improvements at the SCWA plant would increase its capacity to 12 MGD. This section should discuss what the existing demands are at the SCWA plant, as the proposed addition of FAB 8.2 could promulgate demands greater than 12MGD, demanding on existing demands, thus requiring Phase III improvements to be made. Applicant to clarify.
47. Section 4.2 discusses that Phase II upgrades will be needed at the SCWA plant, however, there is no discussion regarding the potential additional water storage that may be needed in the SCWA system. Additional storage may be required by either the SCWA or NYSDOH to support the additional water supply demands sought by the Applicant. As such, the

Applicant should discuss whether or not additional storage will be required and where this may be sited.

Appendix G - Traffic Impact Analysis

48. Regarding Chapter I, Study Area and Methodology: The intersections along the access roadways of Luther Forest Boulevard, Stonebreak Road, and Hermes Road should be included in the study. All existing and future site traffic use/will use these intersections.
49. Regarding Chapter II, Existing Volumes: The 2012 counts were only conducted for one hour periods. The basis for this should be presented.
50. Regarding Chapter II, Existing Volumes: Table 2.2 appears to be mistitled.
51. Regarding Chapter II, Existing Conditions: Discussion of the construction worker travel demand management techniques should be quantified as to the extent that the techniques are currently being used and if the techniques such as shuttle buses, ride-sharing and expansion of security checkpoints are practical and realistic.
52. Regarding Chapter II.D, Accident History: The Route 9/Route 67/Dunning Street roundabout is a critical location. NYSDOT modified lane assignments at this intersection in 2009 to eliminate the eastbound and westbound inside lanes from proceeding straight through to Dunning Street and Route 67 due to safety concerns.

Provide collision diagrams and data summaries to enable a review of the crashes. Obtain the actual police reports for the significant number of non-reportable crashes at the Route 9/Route 67/Dunning Street roundabout and include them in the diagrams and summaries. Calculate the crash rates and compare to statewide averages.

Provide the crash history, diagrams, and summaries for the crash history of the Route 9/Route 67/Dunning Street roundabout prior to the change in lane usage on the eastbound and westbound approaches.

Identify the "safety concerns" about the Curry Road/Round Lake Road Bypass intersection and whether the data justifies those concerns. Provide a review of the design plans/as-built plans to verify that the roundabout meets the standards to accommodate the level of trucks using the intersection.

The concluding statements at the end of this section cannot be evaluated at this point without the additional information requested above. Identify the increase in crashes, if any, which may occur as a result of re-installing the original lane usage at the Route 9/Route 67/Dunning Street roundabout. Provide crash reduction factors and calculations to support anticipated, if any, crash reductions.

53. Regarding Chapter III, Build Year: A build year of 2022 was selected. While the footnote provides some rationale for a 2022 build year, the past history of project progress seems to indicate that this is a very conservative build year, bringing with it a conservative analysis,

via higher background growth. A more accurate picture may have been developed by using a more realistic build year, or analyzing for an interim build year such as 2018.

54. Regarding Chapter III, No Build Volumes: In addition to a background growth factor, estimates trips from specific other projects are included in the compilation of the No Build volumes. Appendix B provides background data on these trips. However, the revised TIS present figures indicating the Existing volumes and then goes directly to figures presenting the No Build volumes. Figures showing the total volumes associated with the specific other projects should be provided.
55. Regarding Chapter III, Site Volumes: The data collected at the security booths should be presented in tabular format.
56. Regarding Chapter III, Trip Distribution: Trip distribution is noted as taking into account existing travel patterns, a review of previous distribution used in the original TIS, and a review of roadway/intersection improvements in the study area. A more detailed discussion should be presented indicating differences in trip distribution between the original study and the 2013 study and the reasons for any differences. Have the distributions been verified by CDTC as in the original study? If a zip code analysis was conducted, the data should be presented. Why is more traffic from I-87 north expected to use Exit 11 instead of Exit 12? Are there significant travel time savings in using Exit 11?
57. Regarding Chapter III. B, Trip Generation: Provide rational for using original trip generation assumption of the 80% factor versus calculating new trips using the current rate of trips per employee based on data collected at the security booths.
58. Regarding Chapter IV, Capacity/Level of Service: It is noted that the Capacity/Level of Service Analysis was conducted using software that automates the procedures contained in the 2000 Highway Capacity Manual (HCM). A later version HCM (2010) is available and the latest resources should be utilized in the analysis. Although NYSDOT has not officially endorsed the HCM 2010, they are considering the procedures and Synchro 8 software acceptable. Further, the NYSDOT Highway Design Manual states that capacity analyses are to be consistent with the most recent version of the HCM.

The HCM 2010 has been in use entering its third year. At a minimum, the build conditions for signalized intersections should be re-evaluated using the HCM 2010 procedures, and additional mitigation should be provided where necessary. The procedures affect how multiple lane approaches are handled and they have reduced the base saturation flow rate. As an example, for the PM Build condition at Route 9/Malta Avenue, the average intersection delay increases over 100 seconds/vehicle from 100 seconds/vehicle to over 200 seconds/vehicle when using the HCM 2010.

Include volume-to-capacity ratios with the level of service results. The volume of circulating traffic per lane, and entering traffic for approaches at roundabouts should be presented. This information in schematic format will facilitate review for the agencies and the public.

Provide complete printouts, not just summary sheets, that show all inputs and outputs, of the signalized and roundabout analyses of the critical intersections.

59. Regarding Chapter IV, Capacity/Level of Service: Quantify the traffic volumes expected to use the series of connector roads that may reduce the congestion at Route 9/Route 67/Dunning Street as the alternative mitigation plan in lieu of major reconstruction. It is noted that one of the connector roads is already a basis of their analysis – i.e the western leg at Route 9 at Stonebreak Road – and therefore cannot be considered as alternative mitigation. Using the Town's connector road design guidelines that show narrow streets with parking on both sides, is it realistic to consider 15-25% of the turning movement counts diverting to the connectors?

Regarding the concept plan for the mitigation measures at the Route 9/Route 67/Dunning Street intersection, explain the traffic control for the northbound and westbound bypass lanes. Identify the assumptions for the merging distances east of the roundabout for taking three lanes down to one. Explain why an hourglass concept is preferred for the westbound lanes west of the roundabout.

Additional safety analysis is also requested as stated in earlier comments.

60. Regarding Chapter IV, Capacity/Level of Service: Identify ITS components or other mitigation to be implemented that will alert drivers to divert to Exit 11 if unacceptable congestion occurs at Route 9/Route 67/Dunning Street. Include a travel time analysis of using the connector roads and Exit 11 versus using the Route 9/Route 67/Dunning Street intersection.

The discussion also indicates that traffic may divert to Exit 11 if heavy congestion is experienced. While this may help the Route 9/Route 67/Dunning Street intersection, it would add traffic to Exit 11 intersections above that analyzed. What impact would this additional traffic have?

61. Regarding Chapter IV, Capacity/Level of Service: Provide a LOS and delay analysis of the impacts on the proposed road network in the 2022 design year assuming build-out of 500,000, 1,000,000, 1,500,000 and 2,000,000 square feet of additional manufacturing/office space in the LFTC, as was included in the original GEIS.
62. Regarding Chapter IV, Capacity/Level of Service, Appendix E Exit 11A Sensitivity Analysis: Provide a comparative analysis of the LOS/delay impacts on critical – i.e. mitigated - intersections using the same assumptions as the SSDEIS traffic study, but including Exit 11a instead of the alternative mitigation. The analysis should be consistent in terms of trips, trip distribution, and roadway conditions. Also perform the analysis with the same assumptions about LFTC traffic as in the comment above.
63. Regarding Chapter V, Mitigation Phasing and Costs: For the Exit 11 ramps, identify the biggest challenge to coordinating the signals. If they can't be coordinated, what other mitigation is needed? For intersections 3, 4, and 5 identify if the required right-of-way is obtainable, and therefore, if the mitigation is practical and achievable.

Conclusion and Recommendations

Based upon the review completed, we recommend that the Applicant address these comments and provide updated information in subsequent submissions.

If you have any questions regarding the above, please do not hesitate to me at (518) 824-1926.

Sincerely,

A handwritten signature in black ink, appearing to read 'S M Doty', followed by a horizontal line.

Sean M. Doty, P.E., LEED AP
Senior Project Engineer
Municipal Engineering

For: Joseph M. Lanaro, PE, M.ASCE
Principle, Vice President of Engineering

cc: Town of Stillwater Planning Board (via email only)
Town of Stillwater Town Board (via email only)
Town of Malta Planning Board (via email only)
Richard Butler, T. Stillwater, Acting Director, Building Planning and Development Dept. (via email)
Lindsay Zepko, T. Stillwater, Planner (via email only)
Tony Tozzi, T. Malta Planning Director (via email only)
Nancy Vlahos, T. Malta Senior Planner (via email only)
Floria Lowin, T. Malta, Planning Administrative Assistant (via email only)
Joseph Lanaro, P.E. Chazen, Principal, VP of Engineering (via email only)
Mark Schachner, Esq, Miller, Mannix, Schachner & Hafner, LLC T. Malta Attorney (via email only)
Leah Everhart, Esq., Miller, Mannix, Schachner & Hafner, LLC T. Malta Attorney (via email only)
Tom Peterson, Esq., T. Malta Attorney (via email only)
Stuart Mesinger, AICP, Chazen, Vice President, Land Development (via email only)
Mike Hartman, PE, Chazen, Senior Transportation Engineer (via email only)
Chad Cooke, Executive Director, Saratoga County Sewer District #1
Ed Hernandez, Executive Director, Saratoga County Water Authority
Mark Kennedy, Traffic Engineer, NYSDOT, Region One
Kevin Novak, NYSDOT, Traffic, Region One



Electronically submitted:
sdoty@chazencompanies.com

February 14, 2013

Re: GLOBALFOUNDRIES (GF) Proposed Fab 8.2
Air Modeling Summary (revised January 30, 2013)

Sean Doty
The Chazen Companies
100 Glen Street, Suite 3B
Glens Falls, New York 12801

Dear Mr. Doty:

At your request on behalf of the Town of Malta (NY), ARG reviewed Appendix D (Preliminary Summary of Emission Point Modeling Using AERMOD Software) from the *January 31, 2013 Environmental Impact Statement (SSDEIS)/Fab 8 Campus at LFTC-Proposed Fab 8.2*. Our comments are attached and items highlighted in blue invite clarification.

Very truly yours,

electronic submission

Sander Bonvell

COMMENTS TO:
FAB 8.2 AIR MODELING SUMMARY
Appendix D
Summary of Emission Point Modeling Using AERMOD Software
from
Second Supplemental
Draft Environmental Impact Statement
Fab 8 Campus at LFTC Proposed Fab 8.2
(C.T. Male revision January 31, 2013)

Completeness for Environmental Impact Statement

Most of the air section written description remains generically the same as previous versions. The POU control vents and other stack types, sizes and air flows of the Fab 8.2 are consistent with those previously modeled. The Fab 8.2 *SSDEIS* proposes stacks to have a height up to 125 feet, corresponding to a 15-foot height increase from other on-site stacks and ought to have a positive effect on air dispersion.

Hourly emission rates for the Fab 8 Campus manufacturing processes represent post-control emissions allocated to different types of stacks (e.g., acid scrubbers, caustic scrubbers, oxidizers) and weighted by their stack flow rates. The following contribute to yearly (8760 hours) campus air combustion emissions:

- Natural gas fired boilers at 65% load, 8,760 hours.
- Dual fuel fired boilers at 65% load on natural gas for 8,748 hours
- Dual fuel fired boilers at 100% load on fuel oil for 12 hours per year
- Point of use abatement devices at 50% maximum firing rate for 8,760 hours
- Oxidizers at maximum capacity for 8,760 hours
- Backup emergency power generators for 38 hours

There are numerous manufacturing process substances (i.e., non-combustion) from many sources that contribute to the campus air emissions. Estimating these emissions is based on operations at similar GF facilities and the continually changing technology market. Over the past few years the facility has modeled different operating scenarios, and emission rates and concentrations, air flows, etc. have gone up or down relative to these iterations; it is more important to understand that emissions are consistently low compared to their NAAQS, AGC or SGC standards.

The air modeling summary report states that the amount and types of air emissions for Fab 8.2 are not significantly different than previously presented in the prior SEQRA Findings Statement and PDD legislation which evaluated cumulative air emission impacts from three phases of Fab development. In terms of modeled air quality this is true, since adding more emissions 'chemistry' is accompanied by adding more corresponding carrier air so increases in mass are offset by increases in volume, and (mass to volume) concentrations remain in the same ballpark. The following table of primary NAAQS (and HF) shows no exceedance of regulatory limits and air modeling guidance values (expressed as mass per volume, concentration), though PM and HF increase substantially with Fab 8.2:

Pollutant	Time Period Standard or Guidance	% of Regulatory Standard Previous w TDC	% of Regulatory Standard Including Fab 8.2
CO	1-hour	4	4
CO	8-hour	12	12
PM2.5	24-hour	76	82
PM2.5	Annual hourly	63	71 [^] (89 ⁺)
SO2	1-hour	3	3
SO2	3-hour (Secondary)	3	3
NO2	1-hour	88	88
NO2	Annual hourly	19	20
HF [#]	12-hour	26	66
HF [#]	24-hour	31	64
HF [#]	1-month	36	96

[^] Reported vs. old standard

⁺ Corrected to new standard effective January 15, 2013

[#] Because simpler air dispersion modeling programs are not capable of generating averaging periods to handle DEC's ambient *fluoride* air quality standards for 12-hour, 24-hour, 1-week, and 1-month, DEC converted the standards into "equivalent" 1-hour SGC and annual AGC values (guidance concentrations), which serve only as screening surrogates for assessing compliance. When a screening impact exceeds an equivalent standard, compliance is to be reassessed using more refined modeling. The modeling summary states that refined modeling was followed relative to select fluoride emissions (i.e., hydrogen fluoride [HF] and nitrogen trifluoride [NF3]), and indicated conformance with the 6NYCRR Part 257-8 standard. Appendix B of "Appendix D" contains USEPA Memoranda for refined modeling of NOx and SO2, but not for the halogens so I'd like to clarify what modeling refinement was performed for HF or other halogens in particular.

Absent from the modeling summary tables produced for the TDC (October 2012) but in data tables I have from July 2008 and April 2010, the Fab 8.2 report contains a Multi-Chemical Analysis Model Run (for non-HAPs and HAPs at insignificant levels) showing modeled concentrations relative to their AGCs and SGCs, as well as rate in tons per year, for a host of parameters. The 'largest' emission of a single process parameter is nitrous oxide (> 1200 tpy), with one of the highest pound per hour discharge rates, and is only 28% of its AGC. The high numbers should be verified by C.T. Male. Cl2, HCl and HF are emitted from about two dozen acid scrubbers, and another five dozen emission points generate chemicals modeled for comparison to a few dozen AGC and SGC. Of all these only three compounds (from the Model Run #1 / file), show an increase exceeding 50% (my random choice for evaluation) of their NYSDEC Annual Guidance (AGC) concentration guidelines: sulfur hexafluoride, 58%; silicon tetrafluoride, 64%; and tungsten hexafluoride, 63%.

NYSDEC Policy CP-33, Assessing and Mitigating Impacts of Fine Particulate Matter Emissions (<http://www.dec.ny.gov/chemical/8912.html>) has a de minimus threshold that if PM10 emissions from a project do not exceed 15 tpy, then PM2.5 impacts are deemed insignificant. The **Fab** Title V permit application estimated total PM at 12 tpy, and the TDC modeling summary showed over 14 tpy (assume total PM).

EPA just recently (January 2013) lowered the NAAQS annual PM2.5 standard from 15 to 12 micrograms per cubic meter. Since modeling is performed as PM2.5 and I've seen no PM10 information, it is appropriate to inquire about the correlation between site generated PM, PM10 and PM2.5, since at least total PM will exceed 15 tpy with Fab 8.2. If PM10/PM2.5 policy criteria are met, including direct emissions and/or secondary formation in the atmosphere, then further addressing under SEQRA may be warranted. GF should address this.

Issues Not Directly Related to the Environmental Impact Statement

	Fab 8.1 + Extension*	TDC*	Total Facility as of Fab 8.2 (File MC01)
NO _x	45.24	13.49	
SO ₂	2.18	1.35	
PM	9	5.13	
HF	2.54	0.54	6.67
HCl	4.62	0.99	13.48
Cl ₂	2.73	0.92	2.43
Total HAP	9.89	2.45	

Units in tpy

* Air Modeling Summary, October 19, 2012; no equivalent table for January 2013 update.

The data in the table to the left showing tons per year emissions came from the modeling summary for the TDC. Neither the January 31, 2013 Second Supplemental DEIS nor its ("Appendix D") Fab 8.2 modeling summary reports total facility or Fab 8.2 anticipated tpy increases for NAAQS.

The April 2012 Title V permit application shows that NO_x (and SO₂, but not important) has a potential to emit (PTE) defined as maximum emissions based on 8760 hours/year which exceeds the ASF permit NO_x cap of 90 tpy. Even with the TDC, anticipated 'actual' emissions were below the cap. Fab 8.2's similar if not greater

emissions could exceed the cap, although such a cap will not exist in the Title V permit (unless restricted voluntarily or otherwise), the new limit being set by the PTE, which is by the way not necessarily always 'maximum'. It would be supportive of our understanding of the Fab Campus emissions and air quality to know the NAAQS increases (or otherwise changes) for the Fab 8.2 addition and for the total facility.

The table to the right shows emissions in tons per year (from Multi-Chemical Analysis - Model Run #1 File Name: MC01) that were estimated at the time of the TDC and now for the Fab 8.2; column headings indicate the associated modeling summary report and row headings indicate the specific FAB building from which the emissions arise. Note the shifting but also the general increases.

Source	Cl ₂		HCl		HF	
	TDC	Fab 8.2	TDC	Fab 8.2	TDC	Fab 8.2
Fab 8.1	1.55	0.13	3.35	2.65	1.84	1.61
8.1 Ext.	1.18	0.35	1.27	3.96	0.7	1.6
TDC	0.918	0.049	0.99	1.37	0.54	0.77
Fab 8.2	---	1.90	---	5.50	---	2.69
Total	3.65	2.43	5.61	13.48	3.08	6.67

Modeling for air quality is based on standards of air concentrations (mass/volume = ug/M³) and not rates, as in tons per year or pounds per hour, which contribute to modeling but do not drive the compliance; however, they do contribute to the basis for permit conditions, such as the need for the facility having to go to Title V initially due to greenhouse gas reporting. It would be useful to know all circumstances that contribute to the need for, or result from, transitioning from an ASF to a Title V permit.

Notes for correction/update

- EPA just recently (January 15, 2013) lowered the NAAQS annual PM_{2.5} standard from 15 to 12 micrograms per cubic meter. Thus Particulate Matter (PM_{2.5}) Model Run #2 which reported a concentration 70.88% of the standard (15ug/M³) is actually 88.6% of the new standard, up from 63% after the TDC was added. File PM02 (PDF Page 48; table on page 28 of 30).

- In *Summary of Air Modeling Results* (Table page 1 of 30) the SO₂ Run #01 did not total correctly from the 'maximum' and 'background'; the correct total should be 46.41 ug/M³.
- The *Draft PDD Amendment, Air Pollution Control*, states that "...*The first phase of development will be below Title V thresholds (i.e., not a Major Source of air pollutants) and will be permitted under a NYSDEC State Facility Permit.*" This is old language; verb tenses need updating to better reflect that the facility will now be operating with a Title V air permit.

End