



Oneida County

Griffiss International Airport

Rome, New York

Air Quality
Assessment for Obstruction
Removal

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Section 1—Introduction

1.1 Introduction

Oneida County (County) is preparing an Environmental Assessment to support the removal of tree obstructions at Griffiss International Airport (RME) during the winter of 2021. The purpose of this project is to remove trees and shrubs that may obstruct or negatively impact use of airport runways. Construction of the proposed project generally includes:

- Removal of 70 acres of tree canopy areas on airport property
- Removal of 15 acres of tree canopy areas off airport property

The purpose of this document is to quantify criteria pollutant and greenhouse gas emissions associated with the construction of the Proposed Project and to assess and propose mitigation measures for potential impacts relating to air quality, as necessary. This document summarizes the results as well as describes the technical approach, methodology, and data sources developed in support of the criteria pollutant and greenhouse gas emissions inventory for RME.

1.2 Regulatory Setting

In accordance with FAA requirements, air quality requires consideration under both the Clean Air Act (CAA) and the National Environmental Policy Act (NEPA).

1.2.1 Clean Air Act

Under the Federal Clean Air Act (CAA) (42 U.S.C. § 7401-7671q), the USEPA has established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), particulate matter (PM₁₀ and PM_{2.5}), ozone, and lead. Under the CAA, if a proposed action is subject to Federal funding or approval, it must conform to the goals set forth for eliminating or reducing the number of violations of the NAAQS in the state or region in which the action is to take place. An area that violates a national primary or secondary NAAQS for one or more of the USEPA designated criteria pollutants is referred to as ‘nonattainment’. According to the CAA, the NAAQS are applicable to all areas of the United States and associated territories. Each nonattainment area is required to have an applicable State Implementation Plan (SIP) that prescribes mitigation measures and timelines necessary to bring ambient concentrations of criteria pollutants below the NAAQS. When a nonattainment area successfully reduces criteria pollutant concentrations below the NAAQS, EPA re-designates the area a ‘maintenance area’. For actions planned to occur in a nonattainment or maintenance area, the proposed impacts to air quality must conform to the conditions of the applicable SIP, also known as *General Conformity*.



1.2.2 Conformity

The General Conformity Rule ensures that federal actions comply with the NAAQS. In order to meet the CAA requirement, a federal agency must demonstrate that every action that it undertakes, approves, permits or supports will conform to the appropriate state implementation plan (SIP). The USEPA promulgated the initial conformity regulations in 1993¹ to assist federal agencies in complying with the SIP by specifying rules for two categories of federal actions: transportation actions and general actions. The two rules have separate and distinct applicability and evaluation requirements. Transportation conformity applies to highway and transit projects, while general conformity regulations apply to other federal actions that are not transportation projects, such as federal funding for maintenance and repair and new construction projects at existing airports.

The General Conformity Rule, published under 40 CFR Part 93, applies only to an action that is federally-funded or federally-approved and only for pollutants causing the area to be designated as nonattainment or maintenance. The net increase in emissions of the applicable pollutants are compared against the threshold levels established in the Rule, known as the *de minimis* thresholds, published at 40 CFR 93.153(b)(1)-(b), Applicability Analysis. Under the General Conformity Rule, if the net increase in emissions due to a federal action equals or exceeds USEPA established *de minimis* thresholds, a General Conformity Determination would be required. As previously mentioned, the General Conformity Rule applies to a federal action that is located in an area designated nonattainment or maintenance by the USEPA. The project is located in Oneida County, which is classified as in attainment according to the USEPA Green-Book, dated January 31, 2019. Therefore, General Conformity Applicability does not apply to this project.

1.2.3 NEPA

In 1970, the National Environmental Policy Act (NEPA) and its amendments, established a broad national policy to protect the quality of the human environment and provide for the establishment of a Council on Environmental Quality (CEQ). The act provides policies and goals to ensure that environmental considerations are given careful attention and appropriate weight in all decisions of the Federal Government. The NEPA environmental review process discloses these impacts on the human environment. As part of the NEPA process, the proposed action's impact on air quality is assessed by evaluating the impact of the proposed action on the NAAQS.

1.2.4 Climate Change

There are no federal or state standards for aviation-related greenhouse gas (GHG) emissions. The CEQ has indicated that climate should be considered in NEPA analyses. As noted

¹ 40 CFR Part 51 and Part 93



by CEQ, “federal agencies, to remain consistent with NEPA, should consider the extent to which a proposed action and its reasonable alternatives contribute to climate change through GHG emissions and take into account the ways in which a changing climate over the life of the proposed project may alter the overall environmental implications of such actions” (CEQ December 18, 2014).

1.3 Significant Impact Threshold

1.3.1 Criteria Pollutants

Potentially significant air quality impacts would occur if a proposed project would cause pollutant concentrations to exceed one or more of the NAAQS for any of the time periods analyzed or to increase the frequency or severity of any such existing violations. **Table 1** presents the applicable *de minimis* thresholds for pollutants based on their nonattainment status under the General Conformity Rule.

Table 1: Clean Air Act *De Minimis* Thresholds

Pollutant	Nonattainment Area Threshold (tons per year)	Maintenance Area Threshold (tons per year)
Carbon Monoxide (CO)	100	100
Particulate Matter (PM₁₀)		100
Moderate Nonattainment Area	100	
Serious Nonattainment Area	70	
Particulate Matter (PM_{2.5})		
Direct Emissions	100	100
SO ₂	100	100
NO _x	100	100
VOC or Ammonia	100	100
Sulfur Dioxide (SO₂)	100	
Nitrogen Dioxide (NO₂)	100	
Lead (Pb)	25	25
Ozone (O₃)	<i>VOC/NO_x</i>	<i>VOC/NO_x</i>
Serious Nonattainment Area	50/50	
Severe Nonattainment Area	25/25	
Extreme Nonattainment Area	10/10	
Inside an ozone transport region:	50/100	50/100
Outside an ozone transport region:	100/100	100/100

Source: 40 CFR 93.153(b)(1) & (2)



As previously mentioned, the General Conformity Rule applies only to a federal action that is located in an area designated nonattainment or maintenance by the USEPA. Since the Proposed Project is located in an attainment area, General Conformity Applicability does not apply to this project. However in accordance with the requirements in the FAA *Air Quality Handbook*, the *de minimis* thresholds are still used to compare inventory results to determine air impacts.

1.3.2 Greenhouse Gas Pollutants

Since there are no federal or state standards for aviation-related GHG emissions, there is no significant impact threshold for GHGs.



Section 2—Methodology

In accordance with the FAA *Air Quality Handbook*, a construction emissions inventory was conducted to determine the expected emissions associated with heavy equipment, deliveries, and worker mobilization. The construction vehicle fleet properties were not known at the time of this analysis; therefore the software contained in the *ACRP Report 102: Guidance for Estimating Airport Construction Emissions* was utilized to generate default equipment lists for each construction project. ACRP Report 102 provides guidance and an interactive modeling tool, called Airport Construction Emissions Inventory Tool (ACEIT), to assist airports and other stakeholders in developing airport construction emission inventories. It should be noted that representatives from USEPA participated on the ACRP panel for the ACEIT modeling tool.

ACEIT can model projects based on known equipment use information, or based on known project types. For this analysis, project types (i.e., demolition, service road, detention basin, etc.) that match the scope of the work were selected and the model automatically selected a standard mix of activities for the project type. If a project was not listed within the model, similar project types were selected and the equipment usage was adjusted proportionally. For example, ACEIT has a project type for “Site Work – 10000 sqft”; this was selected to represent the tree removal and site restoration. The operational hours of construction equipment were increased by 370.26 times ($3,702,615^2/10,000$) to achieve proper scale when modeling. The user is later prompted to enter overall size information, such as the overall cost of the project. These inputs are used to calculate an assumed construction equipment usage in hours.

ACEIT has emission factors for fugitive and mobile sources incorporated into the software, however the emission factors for mobile sources have been updated and rereleased in other models. Therefore, fugitive source emissions were calculated through ACEIT while emission factors for each of the equipment types specified in ACEIT were generated through the latest version of USEPA’s Motor Vehicle Emission Simulator (MOVES2014a). MOVES2014a is the latest version of emissions modeling software for mobile sources that was developed as a combination of two legacy models – NONROAD (which was previously only for off-road vehicles) and MOVES2012 (which was previously only for on-road vehicles).

In order to be conservative, it was assumed that all equipment would be operating on diesel, with the exception of chain saws and on-road passenger vehicles for construction employees which are assumed to operate on gasoline.

² 3,702,615 square feet = 85 acres



Based on the results of the construction emissions inventory, the emissions of criteria pollutants and greenhouse gases during construction of the proposed project are listed in **Table 2**. Modeling results are provided in **Attachment 1**.

Table 2: Temporary Construction Emissions (2021)

Criteria Pollutants	<i>De Minimis</i> ¹ Thresholds (tons)	NonRoad Emissions (tons)	OnRoad Emissions (tons)	Fugitive Emissions (tons)	2019 Total Emissions (tons)
Carbon Monoxide	Not applicable	32.03	8.76	--	40.79
VOCs	50	9.94	1.89	--	11.83
Oxides of Nitrogen	100	48.16	31.36	--	79.52
Sulfur Dioxide	Not applicable	0.08	0.05	--	0.13
PM10	Not applicable	2.96	1.23	0.015	4.20
PM2.5	Not applicable	2.84	1.14	--	3.98
Greenhouse Gases		(metric tons)	(metric tons)	(metric tons)	(metric tons)
Carbon Dioxide Equivalents	Not applicable ²	739.080	5,153.31	--	5,892.39

Note 1: *De Minimis* thresholds only apply to projects within nonattainment or maintenance areas. Oneida County is in attainment for all criteria pollutants, therefore the thresholds do not apply. However, New York is part of the ozone transport region and would be subject to limits for VOCs and NOx.

Note 2: No thresholds exist for greenhouse gas pollutants.



Section 3—Analysis of Results

3.1 Regulatory Review

3.1.1 NEPA

Under NEPA, federal agencies are required to assess the impacts federal actions may have on air quality and the human environment. As part of the NEPA process, the proposed action's impact on air quality is assessed by evaluating the impact of the proposed action on the NAAQS. The methodology for evaluating the need to conduct an air quality analysis is provided in the FAA document, *Aviation Emissions and Air Quality Handbook Version 3* dated January 2015 (*Air Quality Handbook*). In accordance with procedures outlined in that document, the proposed project impacts to air quality were evaluated based on the following:

Indirect Source Review

New York State regulations for indirect sources apply only to the County of New York south of 60th Street. The Proposed Project is taking place in Oneida County. Therefore, the Proposed Project does not require an indirect source review.

General Conformity with SIP

As previously mentioned, the General Conformity Rule applies to a federal action that is located in an area designated nonattainment or maintenance by the USEPA. The project is located in Oneida County, which is classified as attainment according to the USEPA Green-Book, dated January 31, 2019. Therefore, General Conformity Applicability does not apply to this project.

Greenhouse Gas Emissions

Greenhouse gas emissions associated with the project were also calculated for carbon dioxide, methane, and nitrous oxide. There are currently no federal requirements for reporting greenhouse gases from aviation sources and no significance thresholds.

3.1.2 NAAQS Assessment

Since the proposed project would cause an increase in emissions, the FAA *Air Quality Handbook* requires completion of an emissions inventory. Based on the results of the construction inventories, **Table 3** presents the expected emissions of all criteria pollutants and CO₂e. As illustrated in **Table 3**, the net emissions resulting from the Proposed Project were below the *de minimis* thresholds levels. Given the information detailed above, the Proposed Project would not significantly impact air quality.

Attachment 1: Construction Emissions

Onroad Sources

Onroad Obstruction Removal Griffis Airfield	Project	Vehicle Type*	Total Project VMT*	CO (g/mi)**	VOC (g/mi)**	SOx (g/mi)**	NOx (g/mi)**	PM10 Total (g/mi)**	PM2.5 Total (g/mi)**	CO2 (g/mi)**	CH4 (g/mi)**	CO2e (g/mi)**	CO (ST)	VOC (ST)	SOx (ST)	NOx (ST)	PM10 Total (ST)	PM2.5 Total (ST)	CO2 (MT)	CH4 (MT)	CO2e (MT)	
Winter 2021	Tree Obstruction Removal	Combination Short-Haul Truck	2,126,105	2.60	0.47	0.01	10.47	0.41	0.38	1,686.26	0.03	1,687.12	6.10	1.11	0.03	24.53	0.97	0.89	3,585.16	0.07	3,586.98	
		Passenger Car	42,570	1.46	0.02	0.00	0.11	0.01	0.01	282.04	0.00	282.08	0.07	0.00	0.00	0.00	0.00	0.00	0.00	12.01	0.00	12.01
		Single Unit Short-Haul Truck	1,556,318	1.51	0.46	0.01	3.98	0.16	0.14	997.65	0.04	998.71	2.59	0.78	0.01	6.82	0.27	0.25	1,552.65	0.07	1,554.32	
Total Emissions													8.76	1.89	0.05	31.36	1.23	1.14	5,149.82	0.14	5,153.31	

Nonroad Sources

Nonroad Obstruction Removal Griffis Airfield	Project	Equipment*	Hours of Activity*	CO (g/mi)**	VOC (g/mi)**	SOx (g/mi)**	NOx (g/mi)**	PM10 Total (g/mi)**	PM2.5 Total (g/mi)**	CO2 (g/mi)**	CH4 (g/mi)**	CO (tons)	VOC (tons)	SOx (tons)	NOx (tons)	PM10 (tons)	PM2.5 (tons)	CO2 (MT)	CH4 (MT)	CO2e (MT)	
Winter 2021	Tree Obstruction Removal	Bulldozer	14,810	106.02	44.07	0.71	275.42	12.99	12.60	140,152.97	3.61	1.73	0.72	0.01	4.50	0.21	0.21	2,075.67	0.05	2,077.48	
		Chain Saws	14,810	919.79	257.05	0.02	5.77	33.45	30.77	2,577.81	4.71	15.02	4.20	0.00	0.09	0.55	0.50	38.18	0.07	40.55	
		Compacting Equipment	8,886	28.31	4.46	0.03	33.31	2.72	2.63	4,434.43	0.38	0.28	0.04	0.00	0.33	0.03	0.03	39.40	0.00	39.52	
		Forktruck (Hoist)	29,621	83.80	17.97	0.29	134.57	11.41	11.06	55,103.00	1.43	2.74	0.59	0.01	4.39	0.37	0.36	1,632.21	0.04	1,633.64	
		Front Loader	14,810	126.55	43.34	0.69	332.10	17.95	17.41	130,868.73	3.41	2.07	0.71	0.01	5.42	0.29	0.28	1,938.17	0.05	1,939.88	
		Grub the site down 2'-0	14,810	74.25	16.20	0.15	157.98	11.73	11.38	23,778.08	0.93	1.21	0.26	0.00	2.58	0.19	0.19	352.15	0.01	352.62	
		Log Chipper	14,810	143.68	39.36	0.46	388.08	24.10	23.38	79,298.73	2.05	2.35	0.64	0.01	6.34	0.39	0.38	1,174.41	0.03	1,175.45	
		Mulcher	14,810	143.68	39.36	0.46	388.08	24.10	23.38	79,298.73	2.05	2.35	0.64	0.01	6.34	0.39	0.38	1,174.41	0.03	1,175.45	
		Roller	14,810	53.94	16.49	0.27	121.94	7.16	6.95	51,598.70	1.36	0.88	0.27	0.00	1.99	0.12	0.11	764.18	0.02	764.86	
		Seed Truck Spreader	5,924	224.03	135.36	2.04	1,271.24	26.93	26.12	419,887.13	11.27	1.46	0.88	0.01	8.30	0.18	0.17	2,487.41	0.07	2,489.68	
		Small Dozer	8,886	106.02	44.07	0.71	275.42	12.99	12.60	140,152.97	3.61	1.04	0.43	0.01	2.70	0.13	0.12	1,245.40	0.03	1,246.49	
		Survey Crew Trucks	3,703	224.03	135.36	2.04	1,271.24	26.93	26.12	419,887.13	11.27	0.91	0.55	0.01	5.19	0.11	0.11	1,554.84	0.04	1,556.26	
Total Emissions													32.03	9.94	0.08	48.16	2.96	2.84	14,476.43	0.45	14,491.89

Fugitive Sources*

Nonroad Obstruction Removal Griffis Airfield	Project	Fugitive Source Type	Number of Months	CO	NOx	SO2	PM10	VOC
Winter 2021	Griffis Obstruction Removal	Material Movement (Paved Roads)	6	0	0	0	0.00299	0
		Material Movement (Unpaved Roads)	6	0	0	0	0.00920	0
		Soil Handling	6	0	0	0	0.00283	0
		Unstabilized Land and Wind Erosion	6	0	0	0	0.00000	0
Total Emissions				0	0	0	0.015024	0

*provided by ACEIT
**provided by MOVES