

## **Appendix D**

### Air Quality and Greenhouse Gas Emissions

**DRAFT**

**Air Quality & Greenhouse Gas (GHG)  
Construction Emissions  
Technical Memorandum**

Supplemental EIR for Rehabilitation of Runway 8R-26L and  
Associated Improvements at ONT

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## **Attachment 1**

### **Construction Emissions Analysis**

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Attachment 1-A: Project Schedule and ACEIT Scenarios Details

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Attachment 1-C: CalEEMod Emission Factors and Emissions Calculation

## 1 Introduction

Construction-related emissions are typically associated with the exhaust from heavy equipment (e.g., backhoes, graders, etc.), delivery trucks (e.g., dump trucks, construction materials delivery), and construction worker vehicles traveling to and from the construction site. There are also emissions (i.e., dust) associated with site preparation, land clearing, and equipment traversing unpaved areas. Construction emissions are temporary in nature and generally confined to the construction site and roads used to enter and exit the construction site. Emissions of CO, NO<sub>x</sub>, VOC, SO<sub>x</sub>, PM<sub>2.5</sub>, PM<sub>10</sub>, as well as Greenhouse Gas Emissions (GHG) (i.e., CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, and CO<sub>2e</sub>) were evaluated for the Proposed Project's three-year construction period, 2023, 2024 and 2025.

The Airport Construction Emissions Inventory Tool (ACEIT), developed by the Transportation Research Board (TRB) Airport Cooperative Research Program (ACRP) under Project 02-33, was used to identify the types of construction activities and equipment/vehicle activity data for the air quality analysis. For this analysis, ACEIT was also used to derive the hours of operation for off-road construction equipment and vehicle miles traveled (VMT) for on-road trucks and employee vehicles. Construction activities are based upon the phasing plans developed by HNTB, including the known areas (square feet) associated with the various project types (i.e., proposed pavement, pavement demolition, and building area). The construction activity levels developed in the ACEIT model were then used to model emissions in California Emissions Estimator Model® (CalEEMod) version 2020.4.0.<sup>1</sup>

A concrete batch plant is proposed to be located on Airport property in an industrial area along E. Avion Street. A concrete batch plant would reduce the total VMT needed for concrete delivery trucks, but would still require delivery of raw materials (i.e., portland cement and aggregate) to mix the concrete on-site. The construction activity levels developed in ACEIT and modeled in CalEEMod do not account for the use of a concrete batch plant and instead assume a conservative 40-mile roundtrip for concrete delivery. The health risk assessment completed as part of this Supplemental Environmental Impact Report (SEIR) includes an analysis of particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>) emissions associated with operation of the concrete batch plant. These emissions are summed with the construction emissions developed in CalEEMod to represent the full potential direct construction emissions for the Proposed Project.

## 2 ACEIT

ACEIT facilitates the modeling of emissions through user defined input of construction scenarios, project types, and overall project size inputs (i.e., cost and dimensions). Each construction scenario represents a specific year, season (winter or summer) and number of months. Associated with the user input project types, ACEIT provides default input data for construction activities, equipment types, fuel types, size details and emission factors. However, ACEIT allows the user to refine construction scenarios with specific activity data to reflect more accurate construction schedules and quantities. **Attachment 1-A** provides a summary of the project details

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<sup>1</sup> CalEEMod emission factors include OFFROAD2011 emission factors for non-road equipment and EMFAC2017 emission factors for on-road vehicles.

(schedule, scenarios, project size and cost) utilized in the ACEIT model. **Attachment 1-B** provides the ACEIT input summary sheets.

## 2.1 Scenarios

ACEIT requires project activity to be grouped by Scenario. A Scenario includes the project year, number of months, season (summer/winter), and average weather temperature inputs (average daily temperature, maximum and minimum daily temperature change). The season and weather inputs are used to determine emission factors. Because ACEIT emission factors are not ultimately used to calculate construction emissions, weather data was not collected and default “summer” and temperature inputs were used to set up the scenarios. There are eight Scenarios for this project, based on the projected construction phasing schedule<sup>2</sup>:

- Scenario 1: 2023 January - February (2 months)
- Scenario 2: 2023 January - February (2 months)
- Scenario 3: 2023 February - August (6 months)
- Scenario 4: 2023 August - October (3 months)
- Scenario 5: 2023 January - October (9 months)
- Scenario 6: 2024 January - October (9 months)
- Scenario 7: 2025 January - June (5 months)
- Scenario 8: 2025 June - October (5 months)

## 2.2 Project Type

Project types, construction activity types, fuel type and equipment were then selected for each scenario. To be conservative, all default construction activity types and diesel equipment were selected for project types, with the exception of identifying pavement types and removing clearing and grubbing as a construction activity for taxiway projects. Default ACEIT construction activities includes both concrete and asphalt placement for pavement project types, allowing the user to define the proposed pavement type. The construction activities and project details were refined to include the placement of both concrete (mainline) and asphalt (shoulders) pavements for runway/taxiways and demolition of both concrete (mainline) and asphalt (shoulders) pavements for the existing taxiway pavements present. The following summarizes the project types selected for each scenario. Unless noted otherwise, all default construction activity types were used for each project type.

- Scenario 1, 3 and 4 (2023): Taxiway improvement projects, including the following ACEIT project types, and associated construction activities were used in the model:
  - Taxiways: (asphalt placement, concrete placement, drainage, dust control, excavation, fencing, grading, hydroseeding, lighting, markings, soil erosion/sediment control, subbase placement, topsoil placement)
  - Demolition - Asphalt: (concrete demolition)

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<sup>2</sup> The construction phasing schedule does not align exactly with proposed runway closure periods, as it also includes time for mobilization and demobilization, as well as construction occurring when both runways are operational (June-October 2025).

- Demolition – Concrete: (asphalt demolition)
- NAVAIDS: Precision Approach Path Indicator (PAPI) (*Scenario 3 only*)
- Scenario 2 (2023): Taxiway improvement projects (partial depth reconstruction – all concrete), including the following ACEIT project type, and associated construction activities were used in the model:
  - Taxiways: (concrete placement, drainage, dust control, excavation, grading, fencing, hydroseeding, lighting, markings, soil erosion/sediment control, subbase placement, topsoil placement)
  - Runway Markings: (marking removal, markings)
- Scenario 5 (2023): South Electrical Vault Relocation, including the following ACEIT project type, and associated construction activities were used in the model:
  - Building - 10000 sqft- 1 story: (concrete foundations, construction mob & layout, exterior wall framing, interior build-out/finishes, roofing, security & safety systems, structural steel erection)
- Scenario 6 (2024): Runway 8R-26L rehabilitation, relocated vehicle service roadway and relocated localizer equipment building, including the following ACEIT project types, and associated construction activities were used in the model:
  - Runway Rehabilitation: (cold milling, concrete demo, concrete placement, asphalt placement, dust control, excavation, grading, hydroseeding, lighting, markings, sealing random cracks, soil erosion/sediment control, subbase placement, topsoil placement)
  - Service Road: (asphalt placement, drainage, dust control, excavation, grading, hydroseeding, markings, soil erosion/sediment control, subbase placement, topsoil placement)
  - NAVAIDS: (ILS Localizer)
- Scenario 7 (2025): Additional taxiway connector projects and relocated fencing, including the following ACEIT project types, and associated construction activities were used in the model:
  - Taxiways: (asphalt placement, concrete placement, drainage, dust control, excavation, grading, hydroseeding, lighting, markings, soil erosion/sediment control, subbase placement, topsoil placement)
  - Demolition – Concrete: (concrete demolition)
  - Fencing: (clearing and grubbing, excavation, fencing, grading, hydroseeding, soil erosion/sediment control, topsoil placement)
- Scenario 8 (2025): Additional taxiway connector projects, including the following ACEIT project types, and associated construction activities were used in the model:
  - Taxiways: (asphalt placement, concrete placement, drainage, dust control, excavation, grading, hydroseeding, lighting, markings, soil erosion/sediment control, subbase placement, topsoil placement)
  - Demolition – Concrete: (concrete demolition)



## 2.3 Overall Size

The ACEIT model requires a minimal set of overall project size and characteristic data to model each project type. Each project type requires input of estimated cost and dimensions (maximum length and width). Project dimensions were derived from project area quantities provided by design engineers. Cost estimates were based on a Cost/SY (determined from historical project costs for taxiway reconstruction) and the area quantities. Demolition costs were assumed to be 15% of the total reconstruction cost. Project dimensions were estimated based on area quantities provided by project designers, and assumed taxiway mainline and shoulder widths. The overall project size and characteristic data is utilized in ACEIT to estimate default size details (quantities) for construction activities.

## 2.4 Size Details

The ACEIT model generates size details for specific construction activities based on the overall project size data entered by the user (cost and dimensions). For example, ACEIT assumes default pavement depths to determine concrete volumes based on user input dimensions of a proposed taxiway. These size details were refined to reflect the known concrete depths of proposed pavements. *Attachment 1-A* provides the details of the construction scenarios, project types and user defined size details used in the model.

Size details can be modified by the user. While the majority of the ACEIT default size details were left unchanged, quantities associated with concrete and asphalt placement and demolition were modified to match preliminary design quantities (areas and volumes). For taxiway projects, both asphalt placement and concrete placement are selected construction activities to account for the taxiway surface (concrete) and the shoulder surface (asphalt). Based on the overall size inputs, the model assumes the full area (maximum length and width) of the project is constructed as both asphalt and concrete. These quantities were modified in the model to include volumes for concrete mainline and areas for asphalt shoulders based on quantities provided by project engineers.

## 2.5 Activity Data

ACEIT calculates activity levels for non-road equipment and on-road vehicles based on the defined scenarios and project size details. ACEIT makes the following assumptions for on-road activity:

- # employees based on the higher of two methods: (1) number of equipment and (2) multiplying the project cost in million by 11
- Average employee travels 30 miles round-trip from home to construction site each-day.
- Average on-road material delivery truck travels 40 miles round-trip

OIAA proposes to place a concrete batch plant on-Airport property, in an industrial area along E. Avion Street to minimize project costs, construction emissions and concrete material delivery vehicles on adjacent roadways. The assumed 40 mile round-trip for concrete delivery is a conservative estimate for VMT as it was estimated without consideration of a batch plant on-site.

Raw materials (i.e., Portland cement and aggregate) would still need to be delivered to the batch plant in order to mix the concrete on site however, it is expected that overall the VMT associated with concrete delivery will be less with a batch plant on-site.

The non-road equipment and on-road vehicle activity data developed in ACEIT for the proposed improvements in 2023, 2024 and 2025 are summarized in **Tables 1** and **2**.

Table 1  
**ACEIT Non-Road Equipment Activity Data**

Equipment Type	Load Factor	Avg Rated HP	2023 Equipment hours	2024 Equipment hours	2025 Equipment hours
40 Ton Crane	0.43	300	240	0	0
Air Compressor	0.43	100	370	747	164
Asphalt Paver	0.59	175	43	121	27
Backhoe	0.21	100	320	0	0
Chain Saw	0.7	11	0	14	2
Chipper/Stump Grinder	0.43	100	0	14	2
Cold Planer	0.59	175	0	185	0
Concrete Ready Mix Trucks	0.59	600	60	0	0
Concrete Saws	0.59	40	354	1,761	164
Concrete Truck	0.59	600	1,537	3,093	726
Crack Cleaner	0.59	40	0	15	0
Crack Filler (Trailer Mounted)	0.43	100	0	15	0
Crane	0.43	300	0	8	0
Dozer	0.59	175	2,143	694	989
Dump Truck	0.59	600	1,025	1,942	562
Dump Truck (12 cy)	0.59	600	3,434	2,674	1,701
Excavator	0.59	175	672	1,186	260
Excavator with Bucket	0.59	175	177	0	25
Excavator with Hoe Ram	0.59	175	177	0	25
Flatbed Truck	0.59	600	2,253	3,172	1,106
Fork Truck	0.59	100	1,640	0	0
Grader	0.59	300	116	37	58
High Lift	0.59	100	440	0	0
Hydraulic Hammer	0.59	175	0	1,022	0
Hydroseeder	0.59	600	104	8	52
Loader	0.59	175	354	140	159
Man Lift	0.21	75	1,200	0	0
Man Lift (Fascia Construction)	0.21	75	120	0	0
Material Deliveries	0.59	600	8	0	0
Off-Road Truck	0.59	600	104	8	52
Other General Equipment	0.43	175	3,756	6,166	1,870

Table 1  
**ACEIT Non-Road Equipment Activity Data**

Equipment Type	Load Factor	Avg Rated HP	2023 Equipment hours	2024 Equipment hours	2025 Equipment hours
Pickup Truck	0.59	600	6,243	7,541	2,832
Pressure Washer	0.43	25	3	0	0
Pumps	0.43	11	96	30	48
Roller	0.59	100	1,201	639	593
Rubber Tired Loader	0.59	175	354	4,088	164
Scraper	0.59	600	455	18	224
Skid Steer Loader	0.21	75	382	277	239
Slip Form Paver	0.59	175	354	4,088	164
Surfacing Equipment (Grooving)	0.59	25	410	4,242	199
Survey Crew Trucks	0.59	600	10	0	0
Sweepers	0.43	175	0	185	0
Sweepers/Scrubbers	0.43	175	3	0	0
Tool Truck	0.59	600	400	0	0
Tractor Trailer- Material Delivery	0.59	600	172	0	0
Tractor Trailer- Steel Deliveries	0.59	600	16	0	0
Tractor Trailers Temp Fac.	0.59	600	4	0	0
Tractors/Loader/Backhoe	0.21	100	532	210	303
Water Truck	0.59	600	3,123	3,545	2,160

Source: ACEIT input summary (derived from user defined project details), 2022.

Table 2  
**ACEIT On-road Vehicle Miles Traveled (VMT)**

On-road Activity	Vehicle	2023 VMT	2024 VMT	2025 VMT
Material Delivery (diesel)	Asphalt 18 Wheeler	14,259	20,041	7,022
	Cement Mixer	229,562	319,400	115,394
	Dump Truck	37,719	0	1,161
	Dump Truck - Asphalt	20,200	28,391	9,949
	Dump Truck Subbase Material	122,433	170,347	59,693
	Tractor Trailer	160	0	0
Employee Commute (gasoline)	Passenger Car	1,726,051	3,435,447	756,090

Source: ACEIT input summary (derived from user defined project details), 2022.

### 3 CalEEMod

The construction activity levels developed in the ACEIT model were used to model emissions in the California Emissions Estimator Model® (CalEEMod) version 2020.4.0.<sup>3</sup> CalEEMod was developed for the California Air Pollution Officers Association (CAPCOA) in collaboration with the California Air Districts<sup>4</sup>. It can model criteria pollutants including ROG, NOx, CO, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, Fugitive PM<sub>10</sub>, and Fugitive PM<sub>2.5</sub>. In addition, it can model GHGs including Biogenic Carbon Dioxide (Bio-CO<sub>2</sub>), Non-Biogenic Carbon Dioxide (Nbio-CO<sub>2</sub>), CO<sub>2</sub>, CH<sub>4</sub>, Nitrous Oxide (N<sub>2</sub>O), and CO<sub>2e</sub>. CalEEMod applies widely accepted methodologies for modeling emissions including the EPA AP-42 emission factors, California Air Resources Board (CARB) vehicle emission models, studies commissioned by California agencies such as the California Energy Commission (CEC) and CalRecycle. Default values are incorporated in the model to account for different policies and requirements for different California Air Districts. The ACEIT construction activity levels (equipment hours and VMT) were input into CalEEMod to determine construction emissions. ACEIT equipment types were matched to CalEEMod equipment types, and CalEEMod default equipment horsepower and load factors were used. ACEIT equipment hours by year were converted to hours/day in CalEEMod based on the total assumed days of work in each calendar year. Additionally, VMT derived in ACEIT were used to determine CalEEMod inputs for total number of trips and trip length by calendar year. CalEEMod also includes mitigated emission modeling which allows the user to define engine tier for equipment types included in the model.

See **Attachment 1-C** provides the CalEEMod Report including model inputs and construction emission summary.

Note that ONT requires the use of Tier 4 final engine emission standards for all off-road construction equipment. The construction emissions inventory was developed in CalEEMod with the assumption that all off-road construction equipment would use Tier 4 final engines (as indicated by “mitigated” emissions in *Attachment 1-C*). To ensure implementation, Tier 4 engine requirements would be included in construction contracts, plans and specifications as needed.

### 4 Regulatory Setting

ONT is located in San Bernardino County, California which is part of the South Coast Air Basin. The South Coast Air Quality Management District (SCAQMD) has jurisdiction over the South Coast Air Basin. The SCAQMD is responsible for ensuring that federal and state air quality standards are met by monitoring ambient air pollutant levels throughout the region and implementing strategies to attain the standards.

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<sup>3</sup> CalEEMod emission factors include OFFROAD2011 emission factors for non-road equipment and EMFAC2017 emission factors for on-road vehicles.

<sup>4</sup> California Emissions Estimator Model (CalEEMod), <http://www.caleemod.com/>, accessed January 2022.

#### 4.1 National Ambient Air Quality Standards (NAAQS)

**Table 3** summarizes the attainment status for the National Ambient Air Quality Standards (NAAQS) in the South Coast Air Basin, according to the U.S. EPA Green Book dated December 31, 2021.

Table 3  
**Current Attainment / Non-attainment Designations**

Pollutant	NAAQS	Designation
Carbon Monoxide (CO)	1971 Standard	Maintenance (Serious)
Ozone (O <sub>3</sub> )	2008 (8-Hour) Standard	Non-attainment (Extreme)
	2015 (8-Hour) Standard	Non-attainment (Extreme)
Nitrogen Dioxide (NO <sub>2</sub> )	1971 Standard	Maintenance
Sulfur Dioxide (SO <sub>2</sub> )	1971 Standard	Attainment
	2010 Standard	Attainment
Particulate Matter (PM <sub>10</sub> )	1987 Standard	Maintenance (Serious)
Particulate Matter (PM <sub>2.5</sub> )	1997 Standard	Non-attainment (Moderate)
	2006 Standard	Non-attainment (Serious)
	2012 Standard	Non-attainment (Moderate)
Lead (Pb)	1978 Standard	Attainment
	2008 Standard	Attainment

Source: Los Angeles – South Coast Air Basin, CA, EPA, Green Book at <https://www.epa.gov/green-book>, December 2021.

The General Conformity *de minimis* levels for these pollutants are summarized in **Table 4**.

Table 4  
**General Conformity *de minimis* Levels**

Pollutant	Tons per year
O <sub>3</sub> (extreme)	10 for NO <sub>x</sub> and 10 for VOCs
CO (maintenance)	100
NO <sub>2</sub> (maintenance)	100
PM <sub>10</sub> (maintenance)	100
PM <sub>2.5</sub> (serious)	70

Source: EPA, *de minimis* emission levels, <https://www.epa.gov/general-conformity/de-minimis-tables>, December 2021.

## 4.2 SCAQMD Standards

CARB manages air quality, regulates mobile emissions sources, and oversees the activities of county and regional air districts within California. As it relates to California Ambient Air Quality Standards (CAAQS), the SCAQMD area does not meet standards for O<sub>3</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>. The SCAQMD sets the criteria pollutant and precursors thresholds of significance for construction, shown in **Table 5**.

Table 5  
**SCAQMD Thresholds of Significance for Construction-Related  
 Criteria Air Pollutants and Precursors**

Pollutant/Precursor	Daily Thresholds (lbs/day)
NO <sub>x</sub>	100
VOC	75
PM <sub>10</sub>	150
PM <sub>2.5</sub>	55
SO <sub>x</sub>	150
CO	550

Notes:  
 VOC and NO<sub>x</sub> are precursors to ozone.

Source: South Coast AQMD CEQA Handbook (South Coast AQMD, 1993), <https://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2>

## 4.3 Greenhouse Gases (GHG)

Neither EPA nor SCAQMD have adopted thresholds of significance for construction GHG emissions.

## 5 Proposed Project Construction Emissions

The Proposed Project Alternative assumes construction will occur over three years, with the following construction periods each year (and five workdays/week):

- 2023: January 15-October 15 (195 days)
- 2024: January 15-October 15 (197 days)
- 2025: January 15 -October 15 (196 days)

### 5.1 Air Quality Impacts

**Table 6** summarizes the Proposed Project direct construction emissions in 2023, 2024 and 2025 resulting from construction activities developed in ACEIT and modeled in CalEEMod. These construction emissions assume implementation of Tier 4 final standards for all off-road equipment,

which serves to significantly reduce NO<sub>x</sub> and PM emissions. To ensure implementation, Tier 4 engine requirements are included by ONT in all applicable construction contracts, plans and specifications. Therefore, the construction emissions inventory was developed in CalEEMod with a Tier 4 final engines input for all off-road construction equipment.

**Table 7** summarizes the Proposed Project concrete batch plant operation emissions in 2023, 2024 and 2025 developed as part of the health risk assessment of this SEIR.<sup>5</sup>

**Table 8** summarizes the total Proposed Project direct construction emissions in 2023, 2024 and 2025, as compared to the NAAQS and SCAQMD thresholds of significance. As shown, the direct construction-related emissions are below the applicable NAAQS and SCAQMD thresholds for all pollutants/precursors and construction years.

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<sup>5</sup> Emissions from the concrete batch plant operation were determined using the controlled emission factors from USEPA AP-42 Chapter 11.12, *Concrete Batching*. "Controlled" emission factors assume typical control measures such as fabric filtration wherever possible for transfer of dry ingredients (a "baghouse") and spraying water in other areas.

Table 6  
**Proposed Project CalEEMod Direct Construction Emissions**

Year	Pollutants (tons/year)						Pollutants (lbs/day)					
	CO	NO <sub>x</sub>	VOC	SO <sub>2</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	CO	NO <sub>x</sub>	VOC	SO <sub>2</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>
2023 Proposed Project	12	2	<1	<1	<1	1	125	24	4	<1	3	9
2024 Proposed Project	18	3	1	<1	<1	2	178	32	7	1	5	16
2025 Proposed Project	5	1	<1	<1	<1	<1	56	11	2	<1	1	4

Notes:

Volatile organic compounds (VOCs) are referred as reactive organic gases (ROG) in CalEEMod.

Source: CalEEMod, HNTB analysis 2022.

Table 7  
**Proposed Project Concrete Batch Plant PM Emissions**

Year	Pollutants (tons/year)		Pollutants (lbs/day)	
	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>
2023 Proposed Project	0.5	0.9	5	9
2024 Proposed Project	0.4	0.7	4	7
2025 Proposed Project	0.2	0.4	2	4

Source: USEPA AP-42 Chapter 11.12, *Concrete Batching*, HNTB and HELIX analysis, 2022.



Table 8  
**Proposed Project Total Direct Construction Emissions**

Year	Pollutants (tons/year)						Pollutants (lbs/day)					
	CO	NO <sub>x</sub>	VOC	SO <sub>2</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	CO	NO <sub>x</sub>	VOC	SO <sub>2</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>
2023 Proposed Project	12	2	<1	<1	1	2	125	24	4	<1	8	18
2024 Proposed Project	18	3	1	<1	1	2	178	32	7	1	9	23
2025 Proposed Project	5	1	<1	<1	<1	1	56	11	2	<1	4	8
<i>NAAQS or SCAQMD threshold of significance</i>	<i>100</i>	<i>10</i>	<i>10</i>	<i>--</i>	<i>70</i>	<i>100</i>	<i>550</i>	<i>100</i>	<i>75</i>	<i>150</i>	<i>150</i>	<i>55</i>
<i>Exceeds Thresholds?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>--</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>--</i>	<i>--</i>	<i>No</i>	<i>No</i>

Notes:

Volatile organic compounds (VOCs) are referred as reactive organic gases (ROG) in CalEEMod.

Source: CalEEMod, HNTB analysis 2022.

The concrete batch plant proposed to be located on Airport property would likely reduce the total VMT assumed in the emissions analysis for concrete delivery trucks but would still include delivery of raw materials (i.e., portland cement and aggregate) to mix the concrete on-site. A closer look at the CalEEMod output indicates emissions specific to on-road hauling, as summarized in **Table 9**. While not insignificant, the on-road hauling emissions account for a fraction of the total emissions, with off-road equipment accounting for the majority of construction emissions.

Table 9  
**Proposed Project - CalEEMod Emissions for On-Road Hauling (tons/year)**

Year	ROG/VOC <sup>1</sup>	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2023	0.02	1.1	0.3	0.01	0.2	0.06
2024	0.02	1.4	0.3	0.01	0.3	0.08
2025	0.01	0.5	0.1	0.003	0.1	0.03

Notes:

<sup>1</sup> Volatile organic gases (VOCs) are referred as Reactive organic gases (ROG) in CalEEMod.

Source: CalEEMod, HNTB analysis 2022.

## 5.2 GHG Impacts

**Table 10** depicts the total construction GHG emissions on an annual basis in metric tons for all construction years.

Table 10  
**Proposed Project - Total GHG Emissions (MT/Year)**

Year	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2e</sub>
2023	2,869	0.6	0.1	<b>2,918</b>
2024	4,086	0.8	0.1	<b>4,147</b>
2025	1,307	0.3	0.04	<b>1,327</b>

Sources: HNTB Analysis, 2022.

As noted previously, the concrete batch plant would likely reduce the total VMT assumed in the GHG emissions analysis for concrete delivery trucks but would still include delivery of raw materials (i.e., portland cement and aggregate) to mix the concrete on-site. As summarized in **Table 11**, a closer look at the CalEEMod output indicates GHG emissions specific to on-road hauling accounts for between 18-21% of the total direct GHG construction emissions in each construction year. Utilizing a concrete batch plant on-site would likely serve to reduce total on-road hauling VMT, and thus reduce total GHG emissions, but the Proposed Project would still result in a net increase in total GHG emissions during the construction period.

Table 11  
**Proposed Project – GHG Emissions for On-Road Hauling Compared to Total GHG Emissions (MT/Year)**

Year	On-Road Hauling				Total CO <sub>2e</sub> (Table 10)	% GHG Emissions due to On-Road Hauling
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	Total CO <sub>2e</sub>		
2023	573	0.02	0.09	<b>601</b>	2,918	<b>21%</b>
2024	714	0.03	0.11	<b>749</b>	4,147	<b>18%</b>
2025	251	0.01	0.04	<b>263</b>	1,327	<b>20%</b>

Sources: HNTB Analysis, 2022.

## 6 Two-Year Program Alternative Construction Emissions

A reduced construction schedule alternative was carried forward for environmental analysis, the Two-Year Program Alternative. This alternative would include identical project components included as part of the Proposed Project, however would be implemented over a two-year schedule (2023 and 2024). The Two-Year Program Alternative assumes that the construction proposed in 2025 under the Proposed Project would occur in 2023. In order to analyze the impact on construction emissions, the ACEIT activity data calculated for 2023 and 2025 for the Proposed Project was combined and assumed to occur in 2023 for the Two-Year Program Alternative. Additionally, the concrete batch plant emissions calculated for 2023 and 2025 for the Proposed Project was combined and assumed to occur in 2023 for the Two-Year Program Alternative. Construction proposed in 2024 remains the same between alternatives. The Two-Year Program Alternative assumes construction will occur over two years, with the following construction periods each year (and five workdays/week):

- 2023: January 15 - October 15 (195 days)
- 2024: January 15 - October 15 (197 days)

### 6.1 Air Quality Impacts

**Table 12** summarizes the Two-Year Program Alternative direct construction emissions in 2023 and 2024 resulting from construction activities developed in ACEIT and modeled in CalEEMod. These construction emissions assume implementation of Tier 4 final standards for all off-road equipment, which serves to significantly reduce NO<sub>x</sub> and PM emissions. To ensure implementation, Tier 4 engine requirements are included by ONT in all applicable construction contracts, plans and specifications. Therefore, the construction emissions inventory was developed in CalEEMod with a Tier 4 final engines input for all off-road construction equipment.

**Table 13** summarizes the Two-Year Program Alternative concrete batch plant operation emissions in 2023 and 2024 developed as part of the health risk assessment of this SEIR.<sup>6</sup>

**Table 14** summarizes the total Two-Year Program Alternative direct construction emissions in 2023 and 2024, as compared to the NAAQS and SCAQMD thresholds of significance. As shown, the 2024 Two-Year Program Alternative emissions are identical to the 2024 Proposed Project emissions. The 2023 Two-Year Program Alternative emissions are slightly greater, but comparable, to the sum of the 2023 and 2025 Proposed Project emissions. As shown, the direct construction-related emissions are below the applicable NAAQS and SCAQMD thresholds for all pollutants/precursors and construction years.

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<sup>6</sup> Emissions from the concrete batch plant operation were determined using the controlled emission factors from USEPA AP-42 Chapter 11.12, *Concrete Batching*. “Controlled” emission factors assume typical control measures such as fabric filtration wherever possible for transfer of dry ingredients (a “baghouse”) and spraying water in other areas.

Table 12  
**Two-Year Program Alternative CalEEMod Direct Construction Emissions**

Year	Pollutants (tons/year)						Pollutants (lbs/day)					
	CO	NO <sub>x</sub>	VOC	SO <sub>2</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	CO	NO <sub>x</sub>	VOC	SO <sub>2</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>
2023 Proposed Project	18	3	1	<1	<1	1	182	36	6	1	4	13
2024 Proposed Project	18	3	1	<1	<1	2	178	32	7	1	5	16

Notes:

Volatile organic compounds (VOCs) are referred as reactive organic gases (ROG) in CalEEMod.

Source: CalEEMod, HNTB analysis 2022.

Table 13  
**Two-Year Program Alternative Concrete Batch Plant PM Emissions**

Year	Pollutants (tons/year)		Pollutants (lbs/day)	
	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>
2023 Proposed Project	0.7	1.3	8	13
2024 Proposed Project	0.4	0.7	4	7

Source: USEPA AP-42 Chapter 11.12, *Concrete Batching*, HNTB and HELIX analysis, 2022.

Table 14  
**Two-Year Program Alternative Total Direct Construction Emissions**

Year	Pollutants (tons/year)						Pollutants (lbs/day)					
	CO	NO <sub>x</sub>	VOC	SO <sub>2</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	CO	NO <sub>x</sub>	VOC	SO <sub>2</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>
2023 Proposed Project	18	3	1	<1	1	3	182	36	6	1	12	26
2024 Proposed Project	18	3	1	<1	1	2	178	32	7	1	9	23
<i>NAAQS or SCAQMD threshold of significance</i>	<i>100</i>	<i>10</i>	<i>10</i>	<i>--</i>	<i>70</i>	<i>100</i>	<i>550</i>	<i>100</i>	<i>75</i>	<i>150</i>	<i>150</i>	<i>55</i>
<i>Exceeds Thresholds?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>--</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>--</i>	<i>--</i>	<i>No</i>	<i>No</i>

Notes:

Volatile organic compounds (VOCs) are referred as reactive organic gases (ROG) in CalEEMod.

Source: CalEEMod, HNTB analysis 2022.

## 6.2 GHG Impacts

**Table 15** depicts the total construction GHG emissions on an annual basis in metric tons for all construction years of the Two-Year Program Alternative.

Table 15  
**Two Year Program Alternative - Total GHG Emissions (MT/Year)**

<b>Year</b>	<b>CO<sub>2</sub></b>	<b>CH<sub>4</sub></b>	<b>N<sub>2</sub>O</b>	<b>CO<sub>2e</sub></b>
2023	4,199	0.9	0.1	<b>4,266</b>
2024	4,086	0.8	0.1	<b>4,147</b>

Sources: HNTB Analysis, 2022.

**Attachment 1-A**  
Project Schedule and ACEIT Scenarios Details

Attachment 1-A - Project Schedule and Scenarios Details

ACEIT Inputs

Scenario	Year	Months	# of Months	Total Cost (\$M)	Total Cost (\$)
Scenario 1	2023	Jan-Feb	2	\$ 1.17	\$ 1,174,522
Scenario 2	2023	Jan-Feb	2	\$ 4.83	\$ 4,829,533
Scenario 3	2023	Feb-August	6	\$ 27.09	\$ 27,090,219
Scenario 4	2023	Aug-Oct	3	\$ 7.34	\$ 7,343,099
Scenario 5	2023	Jan-Oct	9	\$ 3.00	\$ 3,000,000
Scenario 6	2024	Jan-Oct	9	\$ 47.00	\$ 47,003,115.56
Scenario 7	2025	Jan-June	5	\$ 8.28	\$ 8,281,868.44
Scenario 8	2025	June-Oct	5	\$ 10.77	\$ 10,769,546.67
<b>Total</b>	--		--	\$ 109.49	\$ 109,491,904

Project	Work Area	Scenario
1	4, 5	6 REHABILITATE RUNWAY 8R-26L
2	2, 2A	3 MODIFY EXISTING CONNECTOR TAXIWAY F AND REDESIGNATE AS TAXIWAY E
3	2, 3	3, 4 REMOVE EXISTING TAXIWAY F BETWEEN RUNWAYS 8L-26R AND 8R-26L AND CONSTRUCT NEW EXIT TAXIWAY F
4	2, 2A	3 CONSTRUCT EXIT TAXIWAY S5
5	1	1 RECONSTRUCT EXISTING EXIT TAXIWAY K
6	2, 2A	3 RECONSTRUCT EXISTING EXIT TAXIWAY P TO A HIGH-SPEED EXIT AND REDESIGNATE AS TAXIWAY S8
7	2, 3	3 REMOVE EXISTING TAXIWAY P BETWEEN RUNWAYS 8L-26R AND 8R-26L
8	2, 2A	3 CONSTRUCT BYPASS TAXIWAY S11
9	2, 3	3, 4 CONSTRUCT CROSSING TAXIWAY E BETWEEN RUNWAYS 8R-26L AND 8L-26R
10	2, 2A	3 CONSTRUCT BYPASS TAXIWAY S3
11	6, 10	7, 8 CONSTRUCT CROSSING TAXIWAY E BETWEEN RUNWAYS 8L-26R AND TAXIWAY N
12	6, 10	7, 8 RECONSTRUCT EXISTING TAXIWAY L AS A HIGH-SPEED EXIT TAXIWAY
13	6, 10	7, 8 CONSTRUCT BYPASS TAXIWAY N2
14	1	2 RESURFACE TAXIWAY D, TAXIWAY S1 AND TAXIWAY U PAVEMENT
15	6, 10	7, 8 CONSTRUCT FILLET MODIFICATIONS ON TAXIWAY F BETWEEN RUNWAY 8L-26R AND TAXIWAY N
16	7, 11	7, 8 CONSTRUCT FILLET MODIFICATIONS ON TAXIWAY K BETWEEN RUNWAY 8L-26R AND TAXIWAY N



**ACEIT Model Notes and Assumptions**

**Project Setup**

Weather data affects the emission factors used in ACEIT. ACEIT model is used to derive construction equipment hours and VMT, and MOVES emission factors are used to calculate emissions. Therefore, precise weather data is not needed and weather is set to Summer for all scenarios to run ACEIT model. Scenario Years and months are based on preliminary phasing schedule.

**Project Types**

Taxiways - "Clearing and grubbing" construction activity type removed. All remaining default construction activity types used, including both asphalt placement (shoulders) and concrete placement (taxiways). Demolition - Asphalt and Demolition - Concrete - All default activity types used. Construction equipment fuel type assumed to be diesel and all default equipment used.

**Overall Size**

Taxiway and demolition size details are based on area quantities provided by design engineers. Maximum width of "demolition - asphalt" assumed to be 50' to represent taxiway shoulders. Maximum length calculated based on area quantities provided by design engineers. Maximum width of "demolition - concrete" assumed to be 100' to represent taxiway mainline. Maximum length calculated based on area quantities provided by design engineers. Maximum width of "taxiways" assumed to be 200' to represent 100' taxiway mainline and 50' shoulders. Cost details are rough order of magnitude costs based on historical reconstruction costs used to determine a cost/SY. Demolition costs are assumed to be 15% of total reconstruction cost.

Attachment 1-A - Project Schedule and Scenarios

Details **Scenario 1 (Work Area 1)**

<b>New Pavement Area (SY):</b>	2047
<b>Demolition Pavement Area (SY):</b>	2117

**Projects Included**

5 RECONSTRUCT EXISTING EXIT TAXIWAY K

TAXIWAY DEMOLITION (Demolition - Asphalt, Demolition - Concrete)							
Location	Length (ft)	Width (ft)	Thickness (in)	Area (SF)	Area (SY)		Cost
Taxiway K							
Asphalt Shoulders	191	50	--	9528.00	1058.67		\$88,089.13
Concrete Taxiway	95	100	--	9528.00	1058.67		\$88,089.13
			<b>TOTAL</b>	<b>19,056</b>	<b>2117</b>		<b>\$176,178.27</b>

Assume 50' wide shoulders and 100' wide taxiway (50% asphalt shoulders and 50% concrete taxiway)

TAXIWAY CONSTRUCTION (Taxiways)							
Location	Length (ft)	Width (ft)	Thickness (in)	Area (SF)	Area (SY)	Volume (CY)	Cost
Taxiway K							
Full Depth			23	18418.00	2046.44	1307.45	\$730,580.67
Shoulders			14	11432.00	1270.22	493.98	\$267,762.84
	92	200	<b>TOTAL</b>	<b>18418</b>	<b>2047</b>		<b>\$998,343.51</b>

Mainline-PCC	\$859,506.67
Shoulders-AC	\$315,015.11
<b>TOTAL COST</b>	<b>\$1,174,521.78</b>

Attachment 1-A - Project Schedule and Scenarios Details

**Scenario 2 (Work Area 1)**

<b>Reconstruction Pavement Area (SY):</b>	<b>11499</b>
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**Projects Included**

- 20 RELOCATE HOLDING POSITION MARKINGS
- 14 RESURFACE TAXIWAY D, TAXIWAY S1 AND TAXIWAY U PAVEMENT

TAXIWAY RECONSTRUCTION (Taxiways)							
Location	Length (ft)	Width (ft)	Thickness (in)	Area (SF)	Area (SY)	Volume (CY)	Cost
Partial Depth, D, S1, U	1,035	100	10	103490.00	11498.89	3194.14	\$4,829,533.33
<b>TOTAL</b>				<b>103490</b>	<b>11499</b>		<b>\$4,829,533.33</b>

"Concrete Placement" assumed for partial depth taxiway reconstruction. No asphalt placement.

HOLDING POSITION MARKINGS (Runway Markings Project Type)							50,000
800 ft x 4 ft							

**TOTAL COST** **\$4,829,533.33**

**Scenario 3 (Work Area 2 and 2A)**

<b>New Pavement Area (SY):</b>	<b>75761</b>
<b>Demolition Pavement Area (SY):</b>	<b>22545</b>

**Projects Included**

- 2 MODIFY EXISTING CONNECTOR TAXIWAY F AND REDESIGNATE AS TAXIWAY E
- 3\* REMOVE EXISTING TAXIWAY F BETWEEN RUNWAYS 8L-26R AND 8R-26L AND CONSTRUCT NEW EXIT TAXIWAY F
- 4 CONSTRUCT EXIT TAXIWAY S5
- 6 RECONSTRUCT EXISTING EXIT TAXIWAY P TO A HIGH-SPEED EXIT AND REDESIGNATE AS TAXIWAY S8
- 7 REMOVE EXISTING TAXIWAY P BETWEEN RUNWAYS 8L-26R AND 8R-26L
- 8 CONSTRUCT BYPASS TAXIWAY S11
- 9\* CONSTRUCT CROSSING TAXIWAY E BETWEEN RUNWAYS 8R-26L AND 8L-26R
- 21 RELOCATE RUNWAY 8R PAPI
- 10 CONSTRUCT BYPASS TAXIWAY S3
- 17 REPLACE/REHABILITATE PANELS ON TAXIWAY K BETWEEN RUNWAYS
- 19 CONSTRUCT FILLET MODIFICATIONS ON TAXIWAY Q BETWEEN RUNWAYS

\*Project construction overlaps Scenario 3 and 4.

TAXIWAY DEMOLITION (Demolition - Asphalt, Demolition - Concrete)						
Location	Length (ft)	Width (ft)	Thickness (in)	Area (SF)	Area (SY)	Cost
Taxiway Demolition, F, P						
Asphalt Shoulders	2,029	50		101452.00	11272.44	\$2,031,766.43
Concrete Taxiway	1,015	100		101452.00	11272.44	\$2,031,766.43
			<b>TOTAL</b>	<b>202904</b>	<b>22545</b>	<b>\$4,063,533.00</b>

Assume 50' wide shoulders and 100' wide taxiway (50% asphalt shoulders and 50% concrete taxiway)

TAXIWAY CONSTRUCTION (Taxiways)							
Location	Length (ft)	Width (ft)	Thickness (in)	Area (SF)	Area (SY)	Volume (CY)	Cost
Taxiways S3, E, F, S5, S8, Q, K, S11							
Full Depth			23	434389.00	48265.44	30836.26	\$17,230,763.67
Shoulders			14	247454.00	27494.89		\$5,795,922.58
	3,409	200	<b>TOTAL</b>	<b>681843</b>	<b>75761</b>		<b>\$23,026,686.24</b>

RELOCATE RUNWAY 8R PAPI (NAVAIDS - PAPI)

\$100,000

Mainline-PCC

\$20,271,486.67

Attachment 1-A - Project Schedule and Scenarios

Details **Scenario 4 (Work Area 3)**

<b>New Pavement Area (SY):</b>	19890
<b>Demolition Pavement Area (SY):</b>	4854

**Projects Included**

- 3\* REMOVE EXISTING TAXIWAY F BETWEEN RUNWAYS 8L-26R AND 8R-26L AND CONSTRUCT NEW EXIT TAXIWAY F
- 9\* CONSTRUCT CROSSING TAXIWAY E

\*Project construction overlaps Scenario 3 and 4.

TAXIWAY DEMOLITION (Demolition - Asphalt, Demolition - Concrete)							
Location	Length (ft)	Width (ft)	Thickness (in)	Area (SF)	Area (SY)		Cost
Taxiways P,Q, F							
Asphalt Shoulders	437	50	--	21844.00	2427.11		\$550,732.40
Concrete Taxiway	218	100	--	21844.00	2427.11		\$550,732.40
			<b>TOTAL</b>	<b>43,688</b>	<b>4854.22</b>		<b>\$1,101,465.00</b>

Assume 50' wide shoulders and 100' wide taxiway (50% asphalt shoulders and 50% concrete taxiway)

TAXIWAY CONSTRUCTION (Taxiways)							
Location	Length (ft)	Width (ft)	Thickness (in)	Area (SF)	Area (SY)	Volume (CY)	Cost
Taxiways E, F, P and T							
Full Depth			23	126136.00	14015.11	8954.10	\$5,003,394.67
Shoulders			14	52866.00	5874.00		\$1,238,239.20
	895	200	<b>TOTAL</b>	<b>179002</b>	<b>19890</b>		<b>\$6,241,634.00</b>

Mainline-PCC	\$5,886,346.67
Shoulders-AC	\$1,456,752.00
<b>TOTAL COST</b>	<b>\$7,343,099.00</b>

Attachment 1-A - Project Schedule and Scenarios

Details **Scenario 5 (Work Area 3A)**

*Projects Included*

25 RELOCATE SOUTH ELECTRICAL VAULT

RELOCATED ELECTRICAL VAULT (Building - 10000 sqft - 1 story)

**TOTAL COST**

**\$3,000,000.00**

**Scenario 6 (Work Area 4 and 5)**

<b>New Pavement Area (SY):</b>	700
<b>Demolition Pavement Area (SY):</b>	0
<b>Reconstruction Pavement Area (SY):</b>	56774

**Projects Included**

- 1 REHABILITATE RUNWAY 8R-26L
- 23 RELOCATE RUNWAY 26L (8R END) LOCALIZER EQUIPMENT BUILDING
- 24 MODIFY EXISTING VEHICLE SERVICE ROAD

RUNWAY8R/26L DEMO/CONSTRUCTION (Rehabilitate Runway)							
Location	Length (ft)	Width (ft)	Thickness (in)	Area (SF)	Area (SY)	Volume (CY)	Cost
RNWY 8R/26L Keel (concrete)	3,406	150	23	510966.00	56774.00	36272.28	\$23,845,080.00
Shoulders (asphalt)	12,648	50	14	632417.00	70268.56	27326.66	\$17,426,601.78
Blast Pads (asphalt)	796	250	23	198923.00	22102.56	14121.08	\$5,481,433.78
	5,369	250	<b>TOTAL</b>	<b>1342306.00</b>	<b>56774</b>		<b>\$46,753,115.56</b>

VSR (Service Road)							
Location	Length (ft)	Width (ft)	Thickness (in)	Area (SF)	Area (SY)	Volume (CY)	Cost
VSR Pavement (asphalt)	1,298	30	12	38946.00	4327.33	1442.44	\$150,000.00
			<b>TOTAL</b>		<b>4328</b>		<b>\$150,000.00</b>

\*Approximately 700 SY of 4328 SY is new VSR pavement.

Relocated Localizer (NAVAIDS - ILS Localizer)      \$100,000 Cost

**Scenario 7 (Work Area 6 and 7)**

<b>New Pavement Area (SY):</b>	13757
<b>Demolition Pavement Area (SY):</b>	501

**Projects Included**

- 11\* CONSTRUCT CROSSING TAXIWAY E BETWEEN RUNWAYS 8L-26R AND TAXIWAY N
- 15\* CONSTRUCT FILLET MODIFICATIONS ON TAXIWAY F BETWEEN RUNWAY 8L-26R AND TAXIWAY N
- 16\* CONSTRUCT FILLET MODIFICATIONS ON TAXIWAY K BETWEEN RUNWAY 8L-26R AND TAXIWAY N
- 12\* RECONSTRUCT EXISTING TAXIWAY L AS A HIGH-SPEED TAXIWAY
- 18\* CONSTRUCT FILLET MODIFICATIONS ON TAXIWAY Q BETWEEN RUNWAY 8L-26R AND TAXIWAY N
- 13\* CONSTRUCT BYPASS TAXIWAY N2
- 22 RELOCATE PERIMETER FENCE AND REMOVE OBJECTS WITHIN ROFA

\*Project construction overlaps Scenario 2 and 3.

TAXIWAY DEMOLITION (Demolition - concrete)							
Location	Length (ft)	Width (ft)	Thickness (in)	Area (SF)	Area (SY)	Volume (CY)	Cost
Taxiway K (concrete)	45	100		4505.00	500.56		\$1,212,280.27
				<b>TOTAL</b>	<b>501</b>		<b>\$1,212,280.27</b>

TAXIWAY CONSTRUCTION (Taxiways)							
Location	Length (ft)	Width (ft)	Thickness (in)	Area (SF)	Area (SY)	Volume (CY)	Cost
Taxiways N2, E, F, K, L and Q							
Full depth	1,238	100	23	123812.00	13756.89	8789.12	\$4,911,209.33
Shoulders	1,672	50	14	83612.00	9290.22	3612.86	\$1,958,378.84
	1,037	200	<b>TOTAL</b>	<b>207424.00</b>	<b>13757</b>		<b>\$6,869,588.18</b>

Perimeter Fence (Fencing) Cost \$200,000  
 Length 1500 ft

Mainline-PCC \$ 5,777,893.33  
 Shoulders-AC \$ 2,303,975.11



**Scenario 8 (Work Areas 10 and 11)**

<b>New Pavement Area (SY):</b>	30726
<b>Demolition Pavement Area (SY):</b>	1586

**Projects Included**

- 11\* CONSTRUCT CROSSING TAXIWAY E
- 15\* CONSTRUCT FILLET MODIFICATIONS ON TAXIWAY F BETWEEN RUNWAY 8L-26R AND TAXIWAY N
- 16\* CONSTRUCT FILLET MODIFICATIONS ON TAXIWAY K BETWEEN RUNWAY 8L-26R AND TAXIWAY N
- 12\* RECONSTRUCT EXISTING TAXIWAY L AS A HIGH-SPEED TAXIWAY
- 18\* CONSTRUCT FILLET MODIFICATIONS ON TAXIWAY P BETWEEN RUNWAY 8L-26R AND TAXIWAY N
- 13\* CONSTRUCT BYPASS TAXIWAY N2

\*Project construction overlaps Scenario 2 and 3.

TAXIWAY DEMOLITION (Demolition - Concrete)							
Location	Length (ft)	Width (ft)	Thickness (in)	Area (SF)	Area (SY)	Volume (CY)	Cost
Taxiway L (concrete)	143	100		14270.00	1585.56		\$ 1,615,432.00
				<b>TOTAL</b>	<b>1586</b>		<b>\$ 1,615,432.00</b>

TAXIWAY CONNECTOR CONSTRUCTION (Taxiways)							
Location	Length (ft)	Width (ft)	Thickness (in)	Area (SF)	Area (SY)	Volume (CY)	Cost
Taxiways N2, E, F, K, L and P							
Full Depth	1,648	100	23	164808.00	18312.00	11699.33	\$ 6,537,384.00
Shoulder	2,234	50	14	111720.00	12413.33	4827.41	\$ 2,616,730.67
	1,383	200	<b>TOTAL</b>	<b>276528.00</b>	<b>30726</b>		<b>\$ 9,154,114.67</b>

Mainline-PCC	\$ 7,691,040.00
Shoulders-AC	\$ 3,078,506.67
<b>TOTAL COST</b>	<b>\$ 10,769,546.67</b>

**Attachment 1-B**  
ACEIT Input Summary

Attachment 1-B

Airport Construction Emission Inventory Tool (ACEIT)  
Version 1.0

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Setup  
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Study Name  
ONT Supplemental EIR

Study Description  
ONT Supplemental EIR for the the Rehabilitation of Runway 8R-26L and Associated Airfield Improvements

State/County  
California  
San Bernardino County

Scenario ID	Year	Number of Months	Season	Average Daily Max Daily Temp Chang	Min Daily Temp Change (degF)
1	2023		2 Summer	50 < T <= 80	10 <= Change in T < 2010 <= Change in T < 20
2	2023		2 Summer	50 < T <= 80	10 <= Change in T < 2010 <= Change in T < 20
3	2023		6 Summer	50 < T <= 80	10 <= Change in T < 2010 <= Change in T < 20
4	2023		3 Summer	50 < T <= 80	10 <= Change in T < 2010 <= Change in T < 20
5	2023		9 Summer	50 < T <= 80	10 <= Change in T < 2010 <= Change in T < 20
6	2024		9 Summer	50 < T <= 80	10 <= Change in T < 2010 <= Change in T < 20
7	2025		5 Summer	50 < T <= 80	10 <= Change in T < 2010 <= Change in T < 20
8	2025		5 Summer	50 < T <= 80	10 <= Change in T < 2010 <= Change in T < 20
9					

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Project  
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Scenario ID  
1  
2  
3  
4  
5  
6  
7  
8

Selected Project

1 Demolition - Asphalt SetSelected  
1 Demolition - Concrete SetSelected  
1 Taxiways SetSelected  
2 Runway Markings SetSelected  
2 Taxiways SetSelected  
3 Demolition - Asphalt SetSelected  
3 Demolition - Concrete SetSelected  
3 NAVAIDS SetSelected  
3 Taxiways SetSelected  
4 Demolition - Asphalt SetSelected  
4 Demolition - Concrete SetSelected  
4 Taxiways SetSelected  
5 Building - 10000 sqft- 1 story SetSelected  
6 NAVAIDS SetSelected  
6 Rehabilitate Runway SetSelected  
6 Service Road SetSelected  
7 Fencing SetSelected  
8 Demolition - Concrete SetSelected  
8 Taxiways SetSelected

Selected Construction Activities

1 Demolition - Asphalt Asphalt Demolition SetSelected  
1 Demolition - Concrete Concrete Demolition SetSelected  
1 Taxiways Asphalt Placement SetSelected  
1 Taxiways Concrete Placement SetSelected  
1 Taxiways Drainage - 24 inch SICPP SetSelected  
1 Taxiways Drainage - 6 inch Perforated Underdrain SetSelected  
1 Taxiways Dust Control SetSelected  
1 Taxiways Excavation (Borrow) SetSelected  
1 Taxiways Excavation (Cut to Fill) SetSelected  
1 Taxiways Excavation (Topsoil Stripping) SetSelected  
1 Taxiways Fencing SetSelected  
1 Taxiways Grading SetSelected  
1 Taxiways Hydroseeding SetSelected  
1 Taxiways Lighting SetSelected  
1 Taxiways Markings SetSelected  
1 Taxiways Soil Erosion/Sediment Control SetSelected  
1 Taxiways Subbase Placement SetSelected  
1 Taxiways Topsoil Placement SetSelected  
2 Runway Markings Marking Removal SetSelected  
2 Runway Markings Markings SetSelected  
2 Taxiways Asphalt Placement SetSelected  
2 Taxiways Concrete Placement SetSelected  
2 Taxiways Drainage - 24 inch SICPP SetSelected  
2 Taxiways Drainage - 6 inch Perforated Underdrain SetSelected  
2 Taxiways Dust Control SetSelected  
2 Taxiways Excavation (Borrow) SetSelected  
2 Taxiways Excavation (Cut to Fill) SetSelected  
2 Taxiways Excavation (Topsoil Stripping) SetSelected  
2 Taxiways Fencing SetSelected  
2 Taxiways Grading SetSelected  
2 Taxiways Hydroseeding SetSelected  
2 Taxiways Lighting SetSelected  
2 Taxiways Markings SetSelected  
2 Taxiways Soil Erosion/Sediment Control SetSelected  
2 Taxiways Subbase Placement SetSelected  
2 Taxiways Topsoil Placement SetSelected  
3 Demolition - Asphalt Asphalt Demolition SetSelected  
3 Demolition - Concrete Concrete Demolition SetSelected  
3 NAVAIDS Precision Approach Path Indicator (PAPI) SetSelected  
3 Taxiways Asphalt Placement SetSelected  
3 Taxiways Concrete Placement SetSelected  
3 Taxiways Drainage - 24 inch SICPP SetSelected  
3 Taxiways Drainage - 6 inch Perforated Underdrain SetSelected  
3 Taxiways Dust Control SetSelected  
3 Taxiways Excavation (Borrow) SetSelected  
3 Taxiways Excavation (Cut to Fill) SetSelected  
3 Taxiways Excavation (Topsoil Stripping) SetSelected  
3 Taxiways Fencing SetSelected  
3 Taxiways Grading SetSelected  
3 Taxiways Hydroseeding SetSelected  
3 Taxiways Lighting SetSelected  
3 Taxiways Markings SetSelected  
3 Taxiways Soil Erosion/Sediment Control SetSelected  
3 Taxiways Subbase Placement SetSelected  
3 Taxiways Topsoil Placement SetSelected  
4 Demolition - Asphalt Asphalt Demolition SetSelected  
4 Demolition - Concrete Concrete Demolition SetSelected  
4 Taxiways Asphalt Placement SetSelected  
4 Taxiways Concrete Placement SetSelected  
4 Taxiways Drainage - 24 inch SICPP SetSelected  
4 Taxiways Drainage - 6 inch Perforated Underdrain SetSelected  
4 Taxiways Dust Control SetSelected  
4 Taxiways Excavation (Borrow) SetSelected  
4 Taxiways Excavation (Cut to Fill) SetSelected  
4 Taxiways Excavation (Topsoil Stripping) SetSelected  
4 Taxiways Fencing SetSelected  
4 Taxiways Grading SetSelected  
4 Taxiways Hydroseeding SetSelected  
4 Taxiways Lighting SetSelected  
4 Taxiways Markings SetSelected  
4 Taxiways Soil Erosion/Sediment Control SetSelected  
4 Taxiways Subbase Placement SetSelected  
4 Taxiways Topsoil Placement SetSelected  
5 Building - 10000 sqft- 1 story Concrete Foundations SetSelected  
5 Building - 10000 sqft- 1 story Construction Mob & Layout SetSelected  
5 Building - 10000 sqft- 1 story Exterior Wall Framing SetSelected  
5 Building - 10000 sqft- 1 story Interior Build-Out/ Finishes SetSelected  
5 Building - 10000 sqft- 1 story Roofing SetSelected  
5 Building - 10000 sqft- 1 story Security & Safety Systems SetSelected  
5 Building - 10000 sqft- 1 story Structural Steel Erection SetSelected  
6 NAVAIDS Instrument Landing System (ILS) Localizer SetSelected  
6 Rehabilitate Runway Asphalt Placement SetSelected  
6 Rehabilitate Runway Cold Milling SetSelected  
6 Rehabilitate Runway Concrete Demolition SetSelected  
6 Rehabilitate Runway Concrete Placement SetSelected  
6 Rehabilitate Runway Dust Control SetSelected  
6 Rehabilitate Runway Excavation (Cut to Fill) (Assume 20% reconstruction) SetSelected  
6 Rehabilitate Runway Excavation (Topsoil Stripping) SetSelected  
6 Rehabilitate Runway Grading SetSelected  
6 Rehabilitate Runway Hydroseeding SetSelected  
6 Rehabilitate Runway Lighting SetSelected  
6 Rehabilitate Runway Markings SetSelected  
6 Rehabilitate Runway Sealing Random Cracks SetSelected  
6 Rehabilitate Runway Soil Erosion/Sediment Control SetSelected  
6 Rehabilitate Runway Subbase Placement SetSelected  
6 Rehabilitate Runway Topsoil Placement SetSelected  
6 Service Road Asphalt Placement SetSelected  
6 Service Road Clearing and Grubbing SetSelected  
6 Service Road Concrete Placement SetSelected  
6 Service Road Drainage - 24 inch SICPP SetSelected  
6 Service Road Drainage - 6 inch Perforated Underdrain SetSelected  
6 Service Road Dust Control SetSelected  
6 Service Road Excavation (Borrow) SetSelected  
6 Service Road Excavation (Cut to Fill) SetSelected  
6 Service Road Excavation (Topsoil Stripping) SetSelected  
6 Service Road Fencing SetSelected  
6 Service Road Grading SetSelected  
6 Service Road Hydroseeding SetSelected  
6 Service Road Markings SetSelected  
6 Service Road Soil Erosion/Sediment Control SetSelected  
6 Service Road Subbase Placement SetSelected  
6 Service Road Topsoil Placement SetSelected  
7 Demolition - Concrete Concrete Demolition SetSelected  
7 Fencing Clearing and Grubbing SetSelected

Attachment 1-B

7 Fencing	Excavation (Cut to Fill)	SetSelected	
7 Fencing	Fencing	SetSelected	
7 Fencing	Grading	SetSelected	
7 Fencing	Hydroseeding	SetSelected	
7 Fencing	Soil Erosion/Sediment Control	SetSelected	
7 Fencing	Topsoil Placement	SetSelected	
7 Taxiways	Asphalt Placement	SetSelected	
7 Taxiways	Concrete Placement	SetSelected	
7 Taxiways	Drainage - 24 inch SICPP	SetSelected	
7 Taxiways	Drainage - 6 inch Perforated Underdrain	SetSelected	
7 Taxiways	Dust Control	SetSelected	
7 Taxiways	Excavation (Borrow)	SetSelected	
7 Taxiways	Excavation (Cut to Fill)	SetSelected	
7 Taxiways	Excavation (Topsoil Stripping)	SetSelected	
7 Taxiways	Fencing	SetSelected	
7 Taxiways	Grading	SetSelected	
7 Taxiways	Hydroseeding	SetSelected	
7 Taxiways	Lighting	SetSelected	
7 Taxiways	Markings	SetSelected	
7 Taxiways	Soil Erosion/Sediment Control	SetSelected	
7 Taxiways	Subbase Placement	SetSelected	
7 Taxiways	Topsoil Placement	SetSelected	
8 Demolition - Concrete	Concrete Demolition	SetSelected	
8 Taxiways	Asphalt Placement	SetSelected	
8 Taxiways	Concrete Placement	SetSelected	
8 Taxiways	Drainage - 24 inch SICPP	SetSelected	
8 Taxiways	Drainage - 6 inch Perforated Underdrain	SetSelected	
8 Taxiways	Dust Control	SetSelected	
8 Taxiways	Excavation (Borrow)	SetSelected	
8 Taxiways	Excavation (Cut to Fill)	SetSelected	
8 Taxiways	Excavation (Topsoil Stripping)	SetSelected	
8 Taxiways	Fencing	SetSelected	
8 Taxiways	Grading	SetSelected	
8 Taxiways	Hydroseeding	SetSelected	
8 Taxiways	Lighting	SetSelected	
8 Taxiways	Markings	SetSelected	
8 Taxiways	Soil Erosion/Sediment Control	SetSelected	
8 Taxiways	Subbase Placement	SetSelected	
8 Taxiways	Topsoil Placement	SetSelected	
Selected Fuel Types			
1 Diesel			
2 Diesel			
3 Diesel			
4 Diesel			
5 Diesel			
6 Diesel			
7 Diesel			
8 Diesel			
Selected Equipment			
1 Demolition - Asphalt	Asphalt Demolition	Dozer	SetSelected
1 Demolition - Asphalt	Asphalt Demolition	Excavator	SetSelected
1 Demolition - Asphalt	Asphalt Demolition	Pickup Truck	SetSelected
1 Demolition - Concrete	Concrete Demolition	Excavator with Bucket	SetSelected
1 Demolition - Concrete	Concrete Demolition	Excavator with Hoe Ram	SetSelected
1 Demolition - Concrete	Concrete Demolition	Pickup Truck	SetSelected
1 Taxiways	Asphalt Placement	Asphalt Paver	SetSelected
1 Taxiways	Asphalt Placement	Dump Truck	SetSelected
1 Taxiways	Asphalt Placement	Other General Equipment	SetSelected
1 Taxiways	Asphalt Placement	Pickup Truck	SetSelected
1 Taxiways	Asphalt Placement	Roller	SetSelected
1 Taxiways	Asphalt Placement	Skid Steer Loader	SetSelected
1 Taxiways	Asphalt Placement	Surfacing Equipment (Grooving)	SetSelected
1 Taxiways	Concrete Placement	Air Compressor	SetSelected
1 Taxiways	Concrete Placement	Concrete Saws	SetSelected
1 Taxiways	Concrete Placement	Concrete Truck	SetSelected
1 Taxiways	Concrete Placement	Other General Equipment	SetSelected
1 Taxiways	Concrete Placement	Pickup Truck	SetSelected
1 Taxiways	Concrete Placement	Rubber Tired Loader	SetSelected
1 Taxiways	Concrete Placement	Slip Form Paver	SetSelected
1 Taxiways	Concrete Placement	Surfacing Equipment (Grooving)	SetSelected
1 Taxiways	Drainage - 24 inch SICPP	Dozer	SetSelected
1 Taxiways	Drainage - 24 inch SICPP	Dump Truck	SetSelected
1 Taxiways	Drainage - 24 inch SICPP	Excavator	SetSelected
1 Taxiways	Drainage - 24 inch SICPP	Loader	SetSelected
1 Taxiways	Drainage - 24 inch SICPP	Other General Equipment	SetSelected
1 Taxiways	Drainage - 24 inch SICPP	Pickup Truck	SetSelected
1 Taxiways	Drainage - 24 inch SICPP	Roller	SetSelected
1 Taxiways	Drainage - 6 inch Perforated Underdrain	Dump Truck	SetSelected
1 Taxiways	Drainage - 6 inch Perforated Underdrain	Loader	SetSelected
1 Taxiways	Drainage - 6 inch Perforated Underdrain	Other General Equipment	SetSelected
1 Taxiways	Drainage - 6 inch Perforated Underdrain	Pickup Truck	SetSelected
1 Taxiways	Drainage - 6 inch Perforated Underdrain	Tractors/Loader/Backhoe	SetSelected
1 Taxiways	Dust Control	Water Truck	SetSelected
1 Taxiways	Excavation (Borrow)	Dozer	SetSelected
1 Taxiways	Excavation (Borrow)	Dump Truck (12 cy)	SetSelected
1 Taxiways	Excavation (Borrow)	Pickup Truck	SetSelected
1 Taxiways	Excavation (Borrow)	Roller	SetSelected
1 Taxiways	Excavation (Cut to Fill)	Dozer	SetSelected
1 Taxiways	Excavation (Cut to Fill)	Dump Truck (12 cy)	SetSelected
1 Taxiways	Excavation (Cut to Fill)	Excavator	SetSelected
1 Taxiways	Excavation (Cut to Fill)	Pickup Truck	SetSelected
1 Taxiways	Excavation (Cut to Fill)	Roller	SetSelected
1 Taxiways	Excavation (Cut to Fill)	Scraper	SetSelected
1 Taxiways	Excavation (Cut to Fill)	Dozer	SetSelected
1 Taxiways	Excavation (Topsoil Stripping)	Concrete Truck	SetSelected
1 Taxiways	Fencing	Dump Truck	SetSelected
1 Taxiways	Fencing	Other General Equipment	SetSelected
1 Taxiways	Fencing	Pickup Truck	SetSelected
1 Taxiways	Fencing	Skid Steer Loader	SetSelected
1 Taxiways	Fencing	Tractors/Loader/Backhoe	SetSelected
1 Taxiways	Grading	Dozer	SetSelected
1 Taxiways	Grading	Grader	SetSelected
1 Taxiways	Grading	Roller	SetSelected
1 Taxiways	Hydroseeding	Hydroseeder	SetSelected
1 Taxiways	Hydroseeding	Off-Road Truck	SetSelected
1 Taxiways	Lighting	Dump Truck	SetSelected
1 Taxiways	Lighting	Loader	SetSelected
1 Taxiways	Lighting	Other General Equipment	SetSelected
1 Taxiways	Lighting	Pickup Truck	SetSelected
1 Taxiways	Lighting	Skid Steer Loader	SetSelected
1 Taxiways	Lighting	Tractors/Loader/Backhoe	SetSelected
1 Taxiways	Markings	Flatbed Truck	SetSelected
1 Taxiways	Markings	Other General Equipment	SetSelected
1 Taxiways	Markings	Pickup Truck	SetSelected
1 Taxiways	Soil Erosion/Sediment Control	Other General Equipment	SetSelected
1 Taxiways	Soil Erosion/Sediment Control	Pickup Truck	SetSelected
1 Taxiways	Soil Erosion/Sediment Control	Pumps	SetSelected
1 Taxiways	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	SetSelected
1 Taxiways	Subbase Placement	Dozer	SetSelected
1 Taxiways	Subbase Placement	Dump Truck (12 cy)	SetSelected
1 Taxiways	Subbase Placement	Pickup Truck	SetSelected
1 Taxiways	Subbase Placement	Roller	SetSelected
1 Taxiways	Topsoil Placement	Dozer	SetSelected
1 Taxiways	Topsoil Placement	Dump Truck	SetSelected
1 Taxiways	Topsoil Placement	Pickup Truck	SetSelected
2 Runway Markings	Marking Removal	Pickup Truck	SetSelected
2 Runway Markings	Marking Removal	Pressure Washer	SetSelected
2 Runway Markings	Marking Removal	Sweepers/Scrubbers	SetSelected
2 Runway Markings	Marking Removal	Water Truck	SetSelected
2 Runway Markings	Markings	Flatbed Truck	SetSelected
2 Runway Markings	Markings	Other General Equipment	SetSelected
2 Runway Markings	Markings	Pickup Truck	SetSelected
2 Taxiways	Asphalt Placement	Asphalt Paver	SetSelected
2 Taxiways	Asphalt Placement	Dump Truck	SetSelected
2 Taxiways	Asphalt Placement	Other General Equipment	SetSelected
2 Taxiways	Asphalt Placement	Pickup Truck	SetSelected
2 Taxiways	Asphalt Placement	Roller	SetSelected
2 Taxiways	Asphalt Placement	Skid Steer Loader	SetSelected
2 Taxiways	Asphalt Placement	Surfacing Equipment (Grooving)	SetSelected
2 Taxiways	Concrete Placement	Air Compressor	SetSelected
2 Taxiways	Concrete Placement	Concrete Saws	SetSelected
2 Taxiways	Concrete Placement	Concrete Truck	SetSelected
2 Taxiways	Concrete Placement	Other General Equipment	SetSelected
2 Taxiways	Concrete Placement	Pickup Truck	SetSelected
2 Taxiways	Concrete Placement	Rubber Tired Loader	SetSelected
2 Taxiways	Concrete Placement	Slip Form Paver	SetSelected
2 Taxiways	Concrete Placement	Surfacing Equipment (Grooving)	SetSelected
2 Taxiways	Drainage - 24 inch SICPP	Dozer	SetSelected
2 Taxiways	Drainage - 24 inch SICPP	Dump Truck	SetSelected
2 Taxiways	Drainage - 24 inch SICPP	Excavator	SetSelected
2 Taxiways	Drainage - 24 inch SICPP	Loader	SetSelected
2 Taxiways	Drainage - 24 inch SICPP	Other General Equipment	SetSelected
2 Taxiways	Drainage - 24 inch SICPP	Pickup Truck	SetSelected
2 Taxiways	Drainage - 24 inch SICPP	Roller	SetSelected
2 Taxiways	Drainage - 6 inch Perforated Underdrain	Dump Truck	SetSelected
2 Taxiways	Drainage - 6 inch Perforated Underdrain	Loader	SetSelected
2 Taxiways	Drainage - 6 inch Perforated Underdrain	Other General Equipment	SetSelected
2 Taxiways	Drainage - 6 inch Perforated Underdrain	Pickup Truck	SetSelected
2 Taxiways	Drainage - 6 inch Perforated Underdrain	Tractors/Loader/Backhoe	SetSelected
2 Taxiways	Dust Control	Water Truck	SetSelected
2 Taxiways	Excavation (Borrow)	Dozer	SetSelected
2 Taxiways	Excavation (Borrow)	Dump Truck (12 cy)	SetSelected
2 Taxiways	Excavation (Borrow)	Pickup Truck	SetSelected
2 Taxiways	Excavation (Borrow)	Roller	SetSelected
2 Taxiways	Excavation (Cut to Fill)	Dozer	SetSelected
2 Taxiways	Excavation (Cut to Fill)	Dump Truck (12 cy)	SetSelected
2 Taxiways	Excavation (Cut to Fill)	Excavator	SetSelected
2 Taxiways	Excavation (Cut to Fill)	Pickup Truck	SetSelected
2 Taxiways	Excavation (Cut to Fill)	Roller	SetSelected
2 Taxiways	Excavation (Cut to Fill)	Scraper	SetSelected
2 Taxiways	Excavation (Cut to Fill)	Dozer	SetSelected
2 Taxiways	Excavation (Topsoil Stripping)	Concrete Truck	SetSelected
2 Taxiways	Fencing	Dump Truck	SetSelected
2 Taxiways	Fencing	Other General Equipment	SetSelected
2 Taxiways	Fencing	Pickup Truck	SetSelected
2 Taxiways	Fencing	Skid Steer Loader	SetSelected
2 Taxiways	Fencing	Tractors/Loader/Backhoe	SetSelected
2 Taxiways	Grading	Dozer	SetSelected



Attachment 1-B

4 Taxiways	Topsoli Placement	Dump Truck	SetSelected
4 Taxiways	Topsoli Placement	Pickup Truck	SetSelected
5 Building - 10000 sqft- 1 story	Concrete Foundations	Backhoe	SetSelected
5 Building - 10000 sqft- 1 story	Concrete Foundations	Concrete Ready Mix Trucks	SetSelected
5 Building - 10000 sqft- 1 story	Concrete Foundations	Fork Truck	SetSelected
5 Building - 10000 sqft- 1 story	Concrete Foundations	Tool Truck	SetSelected
5 Building - 10000 sqft- 1 story	Concrete Foundations	Tractor Trailer- Material Delivery	SetSelected
5 Building - 10000 sqft- 1 story	Construction Mob & Layout	Survey Crew Trucks	SetSelected
5 Building - 10000 sqft- 1 story	Construction Mob & Layout	Tractor Trailers Temp Fac.	SetSelected
5 Building - 10000 sqft- 1 story	Exterior Wall Framing	Fork Truck	SetSelected
5 Building - 10000 sqft- 1 story	Exterior Wall Framing	Man Lift	SetSelected
5 Building - 10000 sqft- 1 story	Exterior Wall Framing	Tool Truck	SetSelected
5 Building - 10000 sqft- 1 story	Exterior Wall Framing	Tractor Trailer- Material Delivery	SetSelected
5 Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Fork Truck	SetSelected
5 Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Man Lift	SetSelected
5 Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Tool Truck	SetSelected
5 Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Tractor Trailer- Material Delivery	SetSelected
5 Building - 10000 sqft- 1 story	Roofing	High Lift	SetSelected
5 Building - 10000 sqft- 1 story	Roofing	Man Lift (Fascia Construction)	SetSelected
5 Building - 10000 sqft- 1 story	Roofing	Material Deliveries	SetSelected
5 Building - 10000 sqft- 1 story	Roofing	Tractor Trailer- Material Delivery	SetSelected
5 Building - 10000 sqft- 1 story	Security & Safety Systems	High Lift	SetSelected
5 Building - 10000 sqft- 1 story	Security & Safety Systems	Tool Truck	SetSelected
5 Building - 10000 sqft- 1 story	Structural Steel Erection	40 Ton Crane	SetSelected
5 Building - 10000 sqft- 1 story	Structural Steel Erection	Fork Truck	SetSelected
5 Building - 10000 sqft- 1 story	Structural Steel Erection	Tool Truck	SetSelected
5 Building - 10000 sqft- 1 story	Structural Steel Erection	Tractor Trailer- Steel Deliveries	SetSelected
6 NAVAIDS	Instrument Landing System (ILS) Localizer	Air Compressor	SetSelected
6 NAVAIDS	Instrument Landing System (ILS) Localizer	Crane	SetSelected
6 NAVAIDS	Instrument Landing System (ILS) Localizer	Dozer	SetSelected
6 NAVAIDS	Instrument Landing System (ILS) Localizer	Dump Truck	SetSelected
6 NAVAIDS	Instrument Landing System (ILS) Localizer	Excavator	SetSelected
6 NAVAIDS	Instrument Landing System (ILS) Localizer	Other General Equipment	SetSelected
6 NAVAIDS	Instrument Landing System (ILS) Localizer	Pickup Truck	SetSelected
6 NAVAIDS	Instrument Landing System (ILS) Localizer	Skid Steer Loader	SetSelected
6 NAVAIDS	Instrument Landing System (ILS) Localizer	Tractors/Loader/Backhoe	SetSelected
6 NAVAIDS	Instrument Landing System (ILS) Localizer	Asphalt Paver	SetSelected
6 Rehabilitate Runway	Asphalt Placement	Dump Truck	SetSelected
6 Rehabilitate Runway	Asphalt Placement	Other General Equipment	SetSelected
6 Rehabilitate Runway	Asphalt Placement	Pickup Truck	SetSelected
6 Rehabilitate Runway	Asphalt Placement	Roller	SetSelected
6 Rehabilitate Runway	Asphalt Placement	Skid Steer Loader	SetSelected
6 Rehabilitate Runway	Asphalt Placement	Surfacing Equipment (Grooving)	SetSelected
6 Rehabilitate Runway	Cold Milling	Cold Planer	SetSelected
6 Rehabilitate Runway	Cold Milling	Dump Truck	SetSelected
6 Rehabilitate Runway	Cold Milling	Pickup Truck	SetSelected
6 Rehabilitate Runway	Cold Milling	Sweepers	SetSelected
6 Rehabilitate Runway	Cold Milling	Water Truck	SetSelected
6 Rehabilitate Runway	Concrete Demolition	Concrete Saws	SetSelected
6 Rehabilitate Runway	Concrete Demolition	Dump Truck	SetSelected
6 Rehabilitate Runway	Concrete Demolition	Excavator	SetSelected
6 Rehabilitate Runway	Concrete Demolition	Hydraulic Hammer	SetSelected
6 Rehabilitate Runway	Concrete Demolition	Other General Equipment	SetSelected
6 Rehabilitate Runway	Concrete Placement	Pickup Truck	SetSelected
6 Rehabilitate Runway	Concrete Placement	Air Compressor	SetSelected
6 Rehabilitate Runway	Concrete Placement	Concrete Saws	SetSelected
6 Rehabilitate Runway	Concrete Placement	Concrete Truck	SetSelected
6 Rehabilitate Runway	Concrete Placement	Other General Equipment	SetSelected
6 Rehabilitate Runway	Concrete Placement	Pickup Truck	SetSelected
6 Rehabilitate Runway	Concrete Placement	Rubber Tired Loader	SetSelected
6 Rehabilitate Runway	Concrete Placement	Slip Form Paver	SetSelected
6 Rehabilitate Runway	Concrete Placement	Surfacing Equipment (Grooving)	SetSelected
6 Rehabilitate Runway	Dust Control	Water Truck	SetSelected
6 Rehabilitate Runway	Excavation (Cut to Fill) (Assume 20% reconstruction)	Dozer	SetSelected
6 Rehabilitate Runway	Excavation (Cut to Fill) (Assume 20% reconstruction)	Dump Truck (12 cy)	SetSelected
6 Rehabilitate Runway	Excavation (Cut to Fill) (Assume 20% reconstruction)	Excavator	SetSelected
6 Rehabilitate Runway	Excavation (Cut to Fill) (Assume 20% reconstruction)	Pickup Truck	SetSelected
6 Rehabilitate Runway	Excavation (Cut to Fill) (Assume 20% reconstruction)	Roller	SetSelected
6 Rehabilitate Runway	Excavation (Cut to Fill) (Assume 20% reconstruction)	Dozer	SetSelected
6 Rehabilitate Runway	Excavation (Topsoil Stripping)	Dozer	SetSelected
6 Rehabilitate Runway	Grading	Grader	SetSelected
6 Rehabilitate Runway	Grading	Roller	SetSelected
6 Rehabilitate Runway	Hydroseeding	Hydroseeder	SetSelected
6 Rehabilitate Runway	Hydroseeding	Off-Road Truck	SetSelected
6 Rehabilitate Runway	Lighting	Dump Truck	SetSelected
6 Rehabilitate Runway	Lighting	Loader	SetSelected
6 Rehabilitate Runway	Lighting	Other General Equipment	SetSelected
6 Rehabilitate Runway	Lighting	Pickup Truck	SetSelected
6 Rehabilitate Runway	Lighting	Skid Steer Loader	SetSelected
6 Rehabilitate Runway	Lighting	Tractors/Loader/Backhoe	SetSelected
6 Rehabilitate Runway	Markings	Flatbed Truck	SetSelected
6 Rehabilitate Runway	Markings	Other General Equipment	SetSelected
6 Rehabilitate Runway	Markings	Pickup Truck	SetSelected
6 Rehabilitate Runway	Markings	Crack Cleaner	SetSelected
6 Rehabilitate Runway	Markings	Crack Filler (Trailer Mounted)	SetSelected
6 Rehabilitate Runway	Sealing Random Cracks	Flatbed Truck	SetSelected
6 Rehabilitate Runway	Sealing Random Cracks	Other General Equipment	SetSelected
6 Rehabilitate Runway	Sealing Random Cracks	Pickup Truck	SetSelected
6 Rehabilitate Runway	Sealing Random Cracks	Other General Equipment	SetSelected
6 Rehabilitate Runway	Sealing Random Cracks	Pickup Truck	SetSelected
6 Rehabilitate Runway	Soil Erosion/Sediment Control	Other General Equipment	SetSelected
6 Rehabilitate Runway	Soil Erosion/Sediment Control	Pickup Truck	SetSelected
6 Rehabilitate Runway	Soil Erosion/Sediment Control	Pumps	SetSelected
6 Rehabilitate Runway	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	SetSelected
6 Rehabilitate Runway	Subbase Placement	Dozer	SetSelected
6 Rehabilitate Runway	Subbase Placement	Dump Truck (12 cy)	SetSelected
6 Rehabilitate Runway	Subbase Placement	Pickup Truck	SetSelected
6 Rehabilitate Runway	Subbase Placement	Roller	SetSelected
6 Rehabilitate Runway	Subbase Placement	Dozer	SetSelected
6 Rehabilitate Runway	Topsoli Placement	Dump Truck	SetSelected
6 Rehabilitate Runway	Topsoli Placement	Pickup Truck	SetSelected
6 Service Road	Asphalt Placement	Asphalt Paver	SetSelected
6 Service Road	Asphalt Placement	Dump Truck	SetSelected
6 Service Road	Asphalt Placement	Other General Equipment	SetSelected
6 Service Road	Asphalt Placement	Pickup Truck	SetSelected
6 Service Road	Asphalt Placement	Roller	SetSelected
6 Service Road	Asphalt Placement	Skid Steer Loader	SetSelected
6 Service Road	Asphalt Placement	Surfacing Equipment (Grooving)	SetSelected
6 Service Road	Clearing and Grubbing	Chain Saw	SetSelected
6 Service Road	Clearing and Grubbing	Chipper/Stump Grinder	SetSelected
6 Service Road	Clearing and Grubbing	Pickup Truck	SetSelected
6 Service Road	Concrete Placement	Air Compressor	SetSelected
6 Service Road	Concrete Placement	Concrete Saws	SetSelected
6 Service Road	Concrete Placement	Concrete Truck	SetSelected
6 Service Road	Concrete Placement	Other General Equipment	SetSelected
6 Service Road	Concrete Placement	Pickup Truck	SetSelected
6 Service Road	Concrete Placement	Rubber Tired Loader	SetSelected
6 Service Road	Concrete Placement	Slip Form Paver	SetSelected
6 Service Road	Concrete Placement	Surfacing Equipment (Grooving)	SetSelected
6 Service Road	Drainage - 24 inch SICPP	Dozer	SetSelected
6 Service Road	Drainage - 24 inch SICPP	Dump Truck	SetSelected
6 Service Road	Drainage - 24 inch SICPP	Excavator	SetSelected
6 Service Road	Drainage - 24 inch SICPP	Loader	SetSelected
6 Service Road	Drainage - 24 inch SICPP	Other General Equipment	SetSelected
6 Service Road	Drainage - 24 inch SICPP	Pickup Truck	SetSelected
6 Service Road	Drainage - 24 inch SICPP	Roller	SetSelected
6 Service Road	Drainage - 6 inch Perforated Underdrain	Dump Truck	SetSelected
6 Service Road	Drainage - 6 inch Perforated Underdrain	Loader	SetSelected
6 Service Road	Drainage - 6 inch Perforated Underdrain	Other General Equipment	SetSelected
6 Service Road	Drainage - 6 inch Perforated Underdrain	Pickup Truck	SetSelected
6 Service Road	Drainage - 6 inch Perforated Underdrain	Tractors/Loader/Backhoe	SetSelected
6 Service Road	Dust Control	Water Truck	SetSelected
6 Service Road	Excavation (Borrow)	Dozer	SetSelected
6 Service Road	Excavation (Borrow)	Dump Truck (12 cy)	SetSelected
6 Service Road	Excavation (Borrow)	Pickup Truck	SetSelected
6 Service Road	Excavation (Borrow)	Roller	SetSelected
6 Service Road	Excavation (Cut to Fill)	Dozer	SetSelected
6 Service Road	Excavation (Cut to Fill)	Dump Truck (12 cy)	SetSelected
6 Service Road	Excavation (Cut to Fill)	Excavator	SetSelected
6 Service Road	Excavation (Cut to Fill)	Pickup Truck	SetSelected
6 Service Road	Excavation (Cut to Fill)	Roller	SetSelected
6 Service Road	Excavation (Cut to Fill)	Scrapper	SetSelected
6 Service Road	Excavation (Topsoil Stripping)	Dozer	SetSelected
6 Service Road	Fencing	Concrete Truck	SetSelected
6 Service Road	Fencing	Dump Truck	SetSelected
6 Service Road	Fencing	Other General Equipment	SetSelected
6 Service Road	Fencing	Pickup Truck	SetSelected
6 Service Road	Fencing	Skid Steer Loader	SetSelected
6 Service Road	Fencing	Tractors/Loader/Backhoe	SetSelected
6 Service Road	Grading	Dozer	SetSelected
6 Service Road	Grading	Grader	SetSelected
6 Service Road	Grading	Roller	SetSelected
6 Service Road	Hydroseeding	Hydroseeder	SetSelected
6 Service Road	Hydroseeding	Off-Road Truck	SetSelected
6 Service Road	Markings	Flatbed Truck	SetSelected
6 Service Road	Markings	Other General Equipment	SetSelected
6 Service Road	Markings	Pickup Truck	SetSelected
6 Service Road	Markings	Other General Equipment	SetSelected
6 Service Road	Soil Erosion/Sediment Control	Pickup Truck	SetSelected
6 Service Road	Soil Erosion/Sediment Control	Pumps	SetSelected
6 Service Road	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	SetSelected
6 Service Road	Subbase Placement	Dozer	SetSelected
6 Service Road	Subbase Placement	Dump Truck (12 cy)	SetSelected
6 Service Road	Subbase Placement	Pickup Truck	SetSelected
6 Service Road	Subbase Placement	Roller	SetSelected
6 Service Road	Subbase Placement	Dozer	SetSelected
6 Service Road	Topsoli Placement	Dump Truck	SetSelected
6 Service Road	Topsoli Placement	Pickup Truck	SetSelected
7 Demolition - Concrete	Concrete Demolition	Excavator with Bucket	SetSelected
7 Demolition - Concrete	Concrete Demolition	Excavator with Hoe Ram	SetSelected
7 Demolition - Concrete	Concrete Demolition	Pickup Truck	SetSelected
7 Fencing	Clearing and Grubbing	Chain Saw	SetSelected
7 Fencing	Clearing and Grubbing	Chipper/Stump Grinder	SetSelected
7 Fencing	Clearing and Grubbing	Pickup Truck	SetSelected
7 Fencing	Excavation (Cut to Fill)	Dozer	SetSelected
7 Fencing	Excavation (Cut to Fill)	Dump Truck (12 cy)	SetSelected
7 Fencing	Excavation (Cut to Fill)	Excavator	SetSelected
7 Fencing	Excavation (Cut to Fill)	Pickup Truck	SetSelected
7 Fencing	Excavation (Cut to Fill)	Roller	SetSelected
7 Fencing	Fencing	Concrete Truck	SetSelected
7 Fencing	Fencing	Dump Truck	SetSelected
7 Fencing	Fencing	Other General Equipment	SetSelected

Attachment 1-B

7 Fencing	Fencing	Pickup Truck	SetSelected
7 Fencing	Fencing	Skid Steer Loader	SetSelected
7 Fencing	Fencing	Tractors/Loader/Backhoe	SetSelected
7 Fencing	Grading	Dozer	SetSelected
7 Fencing	Grading	Grader	SetSelected
7 Fencing	Grading	Roller	SetSelected
7 Fencing	Hydroseeding	Hydroseeder	SetSelected
7 Fencing	Hydroseeding	Off-Road Truck	SetSelected
7 Fencing	Soil Erosion/Sediment Control	Other General Equipment	SetSelected
7 Fencing	Soil Erosion/Sediment Control	Pickup Truck	SetSelected
7 Fencing	Soil Erosion/Sediment Control	Pumps	SetSelected
7 Fencing	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	SetSelected
7 Fencing	Topsoli Placement	Dozer	SetSelected
7 Fencing	Topsoli Placement	Dump Truck	SetSelected
7 Fencing	Topsoli Placement	Pickup Truck	SetSelected
7 Taxiways	Asphalt Placement	Asphalt Paver	SetSelected
7 Taxiways	Asphalt Placement	Dump Truck	SetSelected
7 Taxiways	Asphalt Placement	Other General Equipment	SetSelected
7 Taxiways	Asphalt Placement	Pickup Truck	SetSelected
7 Taxiways	Asphalt Placement	Roller	SetSelected
7 Taxiways	Asphalt Placement	Skid Steer Loader	SetSelected
7 Taxiways	Asphalt Placement	Surfacing Equipment (Grooving)	SetSelected
7 Taxiways	Concrete Placement	Air Compressor	SetSelected
7 Taxiways	Concrete Placement	Concrete Saws	SetSelected
7 Taxiways	Concrete Placement	Concrete Truck	SetSelected
7 Taxiways	Concrete Placement	Other General Equipment	SetSelected
7 Taxiways	Concrete Placement	Pickup Truck	SetSelected
7 Taxiways	Concrete Placement	Rubber Tired Loader	SetSelected
7 Taxiways	Concrete Placement	Slip Form Paver	SetSelected
7 Taxiways	Concrete Placement	Surfacing Equipment (Grooving)	SetSelected
7 Taxiways	Drainage - 24 inch SICPP	Dozer	SetSelected
7 Taxiways	Drainage - 24 inch SICPP	Dump Truck	SetSelected
7 Taxiways	Drainage - 24 inch SICPP	Excavator	SetSelected
7 Taxiways	Drainage - 24 inch SICPP	Loader	SetSelected
7 Taxiways	Drainage - 24 inch SICPP	Other General Equipment	SetSelected
7 Taxiways	Drainage - 24 inch SICPP	Pickup Truck	SetSelected
7 Taxiways	Drainage - 24 inch SICPP	Roller	SetSelected
7 Taxiways	Drainage - 6 inch Perforated Underdrain	Dump Truck	SetSelected
7 Taxiways	Drainage - 6 inch Perforated Underdrain	Loader	SetSelected
7 Taxiways	Drainage - 6 inch Perforated Underdrain	Other General Equipment	SetSelected
7 Taxiways	Drainage - 6 inch Perforated Underdrain	Pickup Truck	SetSelected
7 Taxiways	Drainage - 6 inch Perforated Underdrain	Tractors/Loader/Backhoe	SetSelected
7 Taxiways	Dust Control	Water Truck	SetSelected
7 Taxiways	Excavation (Borrow)	Dozer	SetSelected
7 Taxiways	Excavation (Borrow)	Dump Truck (12 cy)	SetSelected
7 Taxiways	Excavation (Borrow)	Pickup Truck	SetSelected
7 Taxiways	Excavation (Borrow)	Roller	SetSelected
7 Taxiways	Excavation (Cut to Fill)	Dozer	SetSelected
7 Taxiways	Excavation (Cut to Fill)	Dump Truck (12 cy)	SetSelected
7 Taxiways	Excavation (Cut to Fill)	Excavator	SetSelected
7 Taxiways	Excavation (Cut to Fill)	Pickup Truck	SetSelected
7 Taxiways	Excavation (Cut to Fill)	Roller	SetSelected
7 Taxiways	Excavation (Cut to Fill)	Scraper	SetSelected
7 Taxiways	Excavation (Cut to Fill)	Dozer	SetSelected
7 Taxiways	Excavation (Topsoil Stripping)	Concrete Truck	SetSelected
7 Taxiways	Fencing	Dump Truck	SetSelected
7 Taxiways	Fencing	Other General Equipment	SetSelected
7 Taxiways	Fencing	Pickup Truck	SetSelected
7 Taxiways	Fencing	Skid Steer Loader	SetSelected
7 Taxiways	Fencing	Tractors/Loader/Backhoe	SetSelected
7 Taxiways	Grading	Dozer	SetSelected
7 Taxiways	Grading	Grader	SetSelected
7 Taxiways	Grading	Roller	SetSelected
7 Taxiways	Hydroseeding	Hydroseeder	SetSelected
7 Taxiways	Hydroseeding	Off-Road Truck	SetSelected
7 Taxiways	Lighting	Dump Truck	SetSelected
7 Taxiways	Lighting	Loader	SetSelected
7 Taxiways	Lighting	Other General Equipment	SetSelected
7 Taxiways	Lighting	Pickup Truck	SetSelected
7 Taxiways	Lighting	Skid Steer Loader	SetSelected
7 Taxiways	Lighting	Tractors/Loader/Backhoe	SetSelected
7 Taxiways	Markings	Flatbed Truck	SetSelected
7 Taxiways	Markings	Other General Equipment	SetSelected
7 Taxiways	Markings	Pickup Truck	SetSelected
7 Taxiways	Markings	Other General Equipment	SetSelected
7 Taxiways	Soil Erosion/Sediment Control	Pickup Truck	SetSelected
7 Taxiways	Soil Erosion/Sediment Control	Pumps	SetSelected
7 Taxiways	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	SetSelected
7 Taxiways	Subbase Placement	Dozer	SetSelected
7 Taxiways	Subbase Placement	Dump Truck (12 cy)	SetSelected
7 Taxiways	Subbase Placement	Pickup Truck	SetSelected
7 Taxiways	Subbase Placement	Roller	SetSelected
7 Taxiways	Subbase Placement	Dozer	SetSelected
7 Taxiways	Topsoli Placement	Dump Truck	SetSelected
7 Taxiways	Topsoli Placement	Pickup Truck	SetSelected
7 Taxiways	Topsoli Placement	Excavator with Bucket	SetSelected
8 Demolition - Concrete	Concrete Demolition	Excavator with Hoe Ram	SetSelected
8 Demolition - Concrete	Concrete Demolition	Pickup Truck	SetSelected
8 Demolition - Concrete	Concrete Demolition	Asphalt Paver	SetSelected
8 Taxiways	Asphalt Placement	Dump Truck	SetSelected
8 Taxiways	Asphalt Placement	Other General Equipment	SetSelected
8 Taxiways	Asphalt Placement	Pickup Truck	SetSelected
8 Taxiways	Asphalt Placement	Roller	SetSelected
8 Taxiways	Asphalt Placement	Skid Steer Loader	SetSelected
8 Taxiways	Asphalt Placement	Surfacing Equipment (Grooving)	SetSelected
8 Taxiways	Concrete Placement	Air Compressor	SetSelected
8 Taxiways	Concrete Placement	Concrete Saws	SetSelected
8 Taxiways	Concrete Placement	Concrete Truck	SetSelected
8 Taxiways	Concrete Placement	Other General Equipment	SetSelected
8 Taxiways	Concrete Placement	Pickup Truck	SetSelected
8 Taxiways	Concrete Placement	Rubber Tired Loader	SetSelected
8 Taxiways	Concrete Placement	Slip Form Paver	SetSelected
8 Taxiways	Concrete Placement	Surfacing Equipment (Grooving)	SetSelected
8 Taxiways	Drainage - 24 inch SICPP	Dozer	SetSelected
8 Taxiways	Drainage - 24 inch SICPP	Dump Truck	SetSelected
8 Taxiways	Drainage - 24 inch SICPP	Excavator	SetSelected
8 Taxiways	Drainage - 24 inch SICPP	Loader	SetSelected
8 Taxiways	Drainage - 24 inch SICPP	Other General Equipment	SetSelected
8 Taxiways	Drainage - 24 inch SICPP	Pickup Truck	SetSelected
8 Taxiways	Drainage - 24 inch SICPP	Roller	SetSelected
8 Taxiways	Drainage - 6 inch Perforated Underdrain	Dump Truck	SetSelected
8 Taxiways	Drainage - 6 inch Perforated Underdrain	Loader	SetSelected
8 Taxiways	Drainage - 6 inch Perforated Underdrain	Other General Equipment	SetSelected
8 Taxiways	Drainage - 6 inch Perforated Underdrain	Pickup Truck	SetSelected
8 Taxiways	Drainage - 6 inch Perforated Underdrain	Tractors/Loader/Backhoe	SetSelected
8 Taxiways	Dust Control	Water Truck	SetSelected
8 Taxiways	Excavation (Borrow)	Dozer	SetSelected
8 Taxiways	Excavation (Borrow)	Dump Truck (12 cy)	SetSelected
8 Taxiways	Excavation (Borrow)	Pickup Truck	SetSelected
8 Taxiways	Excavation (Borrow)	Roller	SetSelected
8 Taxiways	Excavation (Cut to Fill)	Dozer	SetSelected
8 Taxiways	Excavation (Cut to Fill)	Dump Truck (12 cy)	SetSelected
8 Taxiways	Excavation (Cut to Fill)	Excavator	SetSelected
8 Taxiways	Excavation (Cut to Fill)	Pickup Truck	SetSelected
8 Taxiways	Excavation (Cut to Fill)	Roller	SetSelected
8 Taxiways	Excavation (Cut to Fill)	Scraper	SetSelected
8 Taxiways	Excavation (Cut to Fill)	Dozer	SetSelected
8 Taxiways	Excavation (Topsoil Stripping)	Concrete Truck	SetSelected
8 Taxiways	Fencing	Dump Truck	SetSelected
8 Taxiways	Fencing	Other General Equipment	SetSelected
8 Taxiways	Fencing	Pickup Truck	SetSelected
8 Taxiways	Fencing	Skid Steer Loader	SetSelected
8 Taxiways	Fencing	Tractors/Loader/Backhoe	SetSelected
8 Taxiways	Grading	Dozer	SetSelected
8 Taxiways	Grading	Grader	SetSelected
8 Taxiways	Grading	Roller	SetSelected
8 Taxiways	Hydroseeding	Hydroseeder	SetSelected
8 Taxiways	Hydroseeding	Off-Road Truck	SetSelected
8 Taxiways	Lighting	Dump Truck	SetSelected
8 Taxiways	Lighting	Loader	SetSelected
8 Taxiways	Lighting	Other General Equipment	SetSelected
8 Taxiways	Lighting	Pickup Truck	SetSelected
8 Taxiways	Lighting	Skid Steer Loader	SetSelected
8 Taxiways	Lighting	Tractors/Loader/Backhoe	SetSelected
8 Taxiways	Markings	Flatbed Truck	SetSelected
8 Taxiways	Markings	Other General Equipment	SetSelected
8 Taxiways	Markings	Pickup Truck	SetSelected
8 Taxiways	Markings	Other General Equipment	SetSelected
8 Taxiways	Soil Erosion/Sediment Control	Pickup Truck	SetSelected
8 Taxiways	Soil Erosion/Sediment Control	Pumps	SetSelected
8 Taxiways	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	SetSelected
8 Taxiways	Subbase Placement	Dozer	SetSelected
8 Taxiways	Subbase Placement	Dump Truck (12 cy)	SetSelected
8 Taxiways	Subbase Placement	Pickup Truck	SetSelected
8 Taxiways	Subbase Placement	Roller	SetSelected
8 Taxiways	Subbase Placement	Dozer	SetSelected
8 Taxiways	Topsoli Placement	Dump Truck	SetSelected
8 Taxiways	Topsoli Placement	Pickup Truck	SetSelected
Final Selections			
1 Demolition - Asphalt	Asphalt Demolition	Dozer	Diesel
1 Demolition - Asphalt	Asphalt Demolition	Excavator	Diesel
1 Demolition - Asphalt	Asphalt Demolition	Pickup Truck	Diesel
1 Demolition - Concrete	Concrete Demolition	Excavator with Bucket	Diesel
1 Demolition - Concrete	Concrete Demolition	Excavator with Hoe Ram	Diesel
1 Demolition - Concrete	Concrete Demolition	Pickup Truck	Diesel
1 Taxiways	Asphalt Placement	Asphalt Paver	Diesel
1 Taxiways	Asphalt Placement	Dump Truck	Diesel
1 Taxiways	Asphalt Placement	Other General Equipment	Diesel
1 Taxiways	Asphalt Placement	Pickup Truck	Diesel
1 Taxiways	Asphalt Placement	Roller	Diesel
1 Taxiways	Asphalt Placement	Skid Steer Loader	Diesel
1 Taxiways	Asphalt Placement	Surfacing Equipment (Grooving)	Diesel
1 Taxiways	Concrete Placement	Air Compressor	Diesel
1 Taxiways	Concrete Placement	Concrete Saws	Diesel
1 Taxiways	Concrete Placement	Concrete Truck	Diesel
1 Taxiways	Concrete Placement	Other General Equipment	Diesel
1 Taxiways	Concrete Placement	Pickup Truck	Diesel
1 Taxiways	Concrete Placement	Rubber Tired Loader	Diesel
1 Taxiways	Concrete Placement	Slip Form Paver	Diesel

Attachment 1-B

1	Taxiways	Concrete Placement	Surfacing Equipment (Grooving)	Diesel
1	Taxiways	Drainage - 24 inch SICPP	Dozer	Diesel
1	Taxiways	Drainage - 24 inch SICPP	Dump Truck	Diesel
1	Taxiways	Drainage - 24 inch SICPP	Excavator	Diesel
1	Taxiways	Drainage - 24 inch SICPP	Loader	Diesel
1	Taxiways	Drainage - 24 inch SICPP	Other General Equipment	Diesel
1	Taxiways	Drainage - 24 inch SICPP	Pickup Truck	Diesel
1	Taxiways	Drainage - 24 inch SICPP	Roller	Diesel
1	Taxiways	Drainage - 6 inch Perforated Underdrain	Dump Truck	Diesel
1	Taxiways	Drainage - 6 inch Perforated Underdrain	Loader	Diesel
1	Taxiways	Drainage - 6 inch Perforated Underdrain	Other General Equipment	Diesel
1	Taxiways	Drainage - 6 inch Perforated Underdrain	Pickup Truck	Diesel
1	Taxiways	Drainage - 6 inch Perforated Underdrain	Tractors/Loader/Backhoe	Diesel
1	Taxiways	Drainage - 6 inch Perforated Underdrain	Dust Control	Diesel
1	Taxiways	Excavation (Borrow)	Dozer	Diesel
1	Taxiways	Excavation (Borrow)	Dump Truck (12 cy)	Diesel
1	Taxiways	Excavation (Borrow)	Pickup Truck	Diesel
1	Taxiways	Excavation (Borrow)	Roller	Diesel
1	Taxiways	Excavation (Cut to Fill)	Dozer	Diesel
1	Taxiways	Excavation (Cut to Fill)	Dump Truck (12 cy)	Diesel
1	Taxiways	Excavation (Cut to Fill)	Excavator	Diesel
1	Taxiways	Excavation (Cut to Fill)	Pickup Truck	Diesel
1	Taxiways	Excavation (Cut to Fill)	Roller	Diesel
1	Taxiways	Excavation (Cut to Fill)	Scraper	Diesel
1	Taxiways	Excavation (Topsoil Stripping)	Dozer	Diesel
1	Taxiways	Fencing	Concrete Truck	Diesel
1	Taxiways	Fencing	Dump Truck	Diesel
1	Taxiways	Fencing	Other General Equipment	Diesel
1	Taxiways	Fencing	Pickup Truck	Diesel
1	Taxiways	Fencing	Skid Steer Loader	Diesel
1	Taxiways	Fencing	Tractors/Loader/Backhoe	Diesel
1	Taxiways	Grading	Dozer	Diesel
1	Taxiways	Grading	Grader	Diesel
1	Taxiways	Grading	Roller	Diesel
1	Taxiways	Hydroseeding	Hydroseeder	Diesel
1	Taxiways	Hydroseeding	Off-Road Truck	Diesel
1	Taxiways	Lighting	Dump Truck	Diesel
1	Taxiways	Lighting	Loader	Diesel
1	Taxiways	Lighting	Other General Equipment	Diesel
1	Taxiways	Lighting	Pickup Truck	Diesel
1	Taxiways	Lighting	Skid Steer Loader	Diesel
1	Taxiways	Lighting	Tractors/Loader/Backhoe	Diesel
1	Taxiways	Markings	Flatbed Truck	Diesel
1	Taxiways	Markings	Other General Equipment	Diesel
1	Taxiways	Markings	Pickup Truck	Diesel
1	Taxiways	Soil Erosion/Sediment Control	Other General Equipment	Diesel
1	Taxiways	Soil Erosion/Sediment Control	Pickup Truck	Diesel
1	Taxiways	Soil Erosion/Sediment Control	Pumps	Diesel
1	Taxiways	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	Diesel
1	Taxiways	Subbase Placement	Dozer	Diesel
1	Taxiways	Subbase Placement	Dump Truck (12 cy)	Diesel
1	Taxiways	Subbase Placement	Pickup Truck	Diesel
1	Taxiways	Subbase Placement	Roller	Diesel
1	Taxiways	Topsoil Placement	Dozer	Diesel
1	Taxiways	Topsoil Placement	Dump Truck	Diesel
1	Taxiways	Topsoil Placement	Pickup Truck	Diesel
2	Runway Markings	Marking Removal	Pickup Truck	Diesel
2	Runway Markings	Marking Removal	Pressure Washer	Diesel
2	Runway Markings	Marking Removal	Sweepers/Scrubbers	Diesel
2	Runway Markings	Marking Removal	Water Truck	Diesel
2	Runway Markings	Markings	Flatbed Truck	Diesel
2	Runway Markings	Markings	Other General Equipment	Diesel
2	Runway Markings	Markings	Pickup Truck	Diesel
2	Taxiways	Asphalt Placement	Asphalt Paver	Diesel
2	Taxiways	Asphalt Placement	Dump Truck	Diesel
2	Taxiways	Asphalt Placement	Other General Equipment	Diesel
2	Taxiways	Asphalt Placement	Pickup Truck	Diesel
2	Taxiways	Asphalt Placement	Roller	Diesel
2	Taxiways	Asphalt Placement	Skid Steer Loader	Diesel
2	Taxiways	Asphalt Placement	Surfacing Equipment (Grooving)	Diesel
2	Taxiways	Concrete Placement	Air Compressor	Diesel
2	Taxiways	Concrete Placement	Concrete Saws	Diesel
2	Taxiways	Concrete Placement	Concrete Truck	Diesel
2	Taxiways	Concrete Placement	Other General Equipment	Diesel
2	Taxiways	Concrete Placement	Pickup Truck	Diesel
2	Taxiways	Concrete Placement	Rubber Tired Loader	Diesel
2	Taxiways	Concrete Placement	Slip Form Paver	Diesel
2	Taxiways	Concrete Placement	Surfacing Equipment (Grooving)	Diesel
2	Taxiways	Drainage - 24 inch SICPP	Dozer	Diesel
2	Taxiways	Drainage - 24 inch SICPP	Dump Truck	Diesel
2	Taxiways	Drainage - 24 inch SICPP	Excavator	Diesel
2	Taxiways	Drainage - 24 inch SICPP	Loader	Diesel
2	Taxiways	Drainage - 24 inch SICPP	Other General Equipment	Diesel
2	Taxiways	Drainage - 24 inch SICPP	Pickup Truck	Diesel
2	Taxiways	Drainage - 24 inch SICPP	Roller	Diesel
2	Taxiways	Drainage - 6 inch Perforated Underdrain	Dump Truck	Diesel
2	Taxiways	Drainage - 6 inch Perforated Underdrain	Loader	Diesel
2	Taxiways	Drainage - 6 inch Perforated Underdrain	Other General Equipment	Diesel
2	Taxiways	Drainage - 6 inch Perforated Underdrain	Pickup Truck	Diesel
2	Taxiways	Drainage - 6 inch Perforated Underdrain	Tractors/Loader/Backhoe	Diesel
2	Taxiways	Dust Control	Water Truck	Diesel
2	Taxiways	Excavation (Borrow)	Dozer	Diesel
2	Taxiways	Excavation (Borrow)	Dump Truck (12 cy)	Diesel
2	Taxiways	Excavation (Borrow)	Pickup Truck	Diesel
2	Taxiways	Excavation (Borrow)	Roller	Diesel
2	Taxiways	Excavation (Cut to Fill)	Dozer	Diesel
2	Taxiways	Excavation (Cut to Fill)	Dump Truck (12 cy)	Diesel
2	Taxiways	Excavation (Cut to Fill)	Excavator	Diesel
2	Taxiways	Excavation (Cut to Fill)	Pickup Truck	Diesel
2	Taxiways	Excavation (Cut to Fill)	Roller	Diesel
2	Taxiways	Excavation (Cut to Fill)	Scraper	Diesel
2	Taxiways	Excavation (Topsoil Stripping)	Dozer	Diesel
2	Taxiways	Fencing	Concrete Truck	Diesel
2	Taxiways	Fencing	Dump Truck	Diesel
2	Taxiways	Fencing	Other General Equipment	Diesel
2	Taxiways	Fencing	Pickup Truck	Diesel
2	Taxiways	Fencing	Skid Steer Loader	Diesel
2	Taxiways	Fencing	Tractors/Loader/Backhoe	Diesel
2	Taxiways	Grading	Dozer	Diesel
2	Taxiways	Grading	Grader	Diesel
2	Taxiways	Grading	Roller	Diesel
2	Taxiways	Hydroseeding	Hydroseeder	Diesel
2	Taxiways	Hydroseeding	Off-Road Truck	Diesel
2	Taxiways	Lighting	Dump Truck	Diesel
2	Taxiways	Lighting	Loader	Diesel
2	Taxiways	Lighting	Other General Equipment	Diesel
2	Taxiways	Lighting	Pickup Truck	Diesel
2	Taxiways	Lighting	Skid Steer Loader	Diesel
2	Taxiways	Lighting	Tractors/Loader/Backhoe	Diesel
2	Taxiways	Markings	Flatbed Truck	Diesel
2	Taxiways	Markings	Other General Equipment	Diesel
2	Taxiways	Markings	Pickup Truck	Diesel
2	Taxiways	Soil Erosion/Sediment Control	Other General Equipment	Diesel
2	Taxiways	Soil Erosion/Sediment Control	Pickup Truck	Diesel
2	Taxiways	Soil Erosion/Sediment Control	Pumps	Diesel
2	Taxiways	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	Diesel
2	Taxiways	Subbase Placement	Dozer	Diesel
2	Taxiways	Subbase Placement	Dump Truck (12 cy)	Diesel
2	Taxiways	Subbase Placement	Pickup Truck	Diesel
2	Taxiways	Subbase Placement	Roller	Diesel
2	Taxiways	Topsoil Placement	Dozer	Diesel
2	Taxiways	Topsoil Placement	Dump Truck	Diesel
2	Taxiways	Topsoil Placement	Pickup Truck	Diesel
3	Demolition - Asphalt	Asphalt Demolition	Dozer	Diesel
3	Demolition - Asphalt	Asphalt Demolition	Excavator	Diesel
3	Demolition - Asphalt	Asphalt Demolition	Pickup Truck	Diesel
3	Demolition - Concrete	Concrete Demolition	Excavator with Bucket	Diesel
3	Demolition - Concrete	Concrete Demolition	Excavator with Hoe Ram	Diesel
3	Demolition - Concrete	Concrete Demolition	Pickup Truck	Diesel
3	NAVAIDS	Precision Approach Path Indicator (PAPI)	Air Compressor	Diesel
3	NAVAIDS	Precision Approach Path Indicator (PAPI)	Dump Truck	Diesel
3	NAVAIDS	Precision Approach Path Indicator (PAPI)	Other General Equipment	Diesel
3	NAVAIDS	Precision Approach Path Indicator (PAPI)	Pickup Truck	Diesel
3	NAVAIDS	Precision Approach Path Indicator (PAPI)	Skid Steer Loader	Diesel
3	NAVAIDS	Precision Approach Path Indicator (PAPI)	Tractors/Loader/Backhoe	Diesel
3	Taxiways	Asphalt Placement	Asphalt Paver	Diesel
3	Taxiways	Asphalt Placement	Dump Truck	Diesel
3	Taxiways	Asphalt Placement	Other General Equipment	Diesel
3	Taxiways	Asphalt Placement	Pickup Truck	Diesel
3	Taxiways	Asphalt Placement	Roller	Diesel
3	Taxiways	Asphalt Placement	Skid Steer Loader	Diesel
3	Taxiways	Asphalt Placement	Surfacing Equipment (Grooving)	Diesel
3	Taxiways	Concrete Placement	Air Compressor	Diesel
3	Taxiways	Concrete Placement	Concrete Saws	Diesel
3	Taxiways	Concrete Placement	Concrete Truck	Diesel
3	Taxiways	Concrete Placement	Other General Equipment	Diesel
3	Taxiways	Concrete Placement	Pickup Truck	Diesel
3	Taxiways	Concrete Placement	Rubber Tired Loader	Diesel
3	Taxiways	Concrete Placement	Slip Form Paver	Diesel
3	Taxiways	Concrete Placement	Surfacing Equipment (Grooving)	Diesel
3	Taxiways	Drainage - 24 inch SICPP	Dozer	Diesel
3	Taxiways	Drainage - 24 inch SICPP	Dump Truck	Diesel
3	Taxiways	Drainage - 24 inch SICPP	Excavator	Diesel
3	Taxiways	Drainage - 24 inch SICPP	Loader	Diesel
3	Taxiways	Drainage - 24 inch SICPP	Other General Equipment	Diesel
3	Taxiways	Drainage - 24 inch SICPP	Pickup Truck	Diesel
3	Taxiways	Drainage - 24 inch SICPP	Roller	Diesel
3	Taxiways	Drainage - 6 inch Perforated Underdrain	Dump Truck	Diesel
3	Taxiways	Drainage - 6 inch Perforated Underdrain	Loader	Diesel
3	Taxiways	Drainage - 6 inch Perforated Underdrain	Other General Equipment	Diesel
3	Taxiways	Drainage - 6 inch Perforated Underdrain	Pickup Truck	Diesel
3	Taxiways	Drainage - 6 inch Perforated Underdrain	Tractors/Loader/Backhoe	Diesel
3	Taxiways	Dust Control	Water Truck	Diesel
3	Taxiways	Excavation (Borrow)	Dozer	Diesel
3	Taxiways	Excavation (Borrow)	Dump Truck (12 cy)	Diesel
3	Taxiways	Excavation (Borrow)	Pickup Truck	Diesel
3	Taxiways	Excavation (Borrow)	Roller	Diesel
3	Taxiways	Excavation (Cut to Fill)	Dozer	Diesel
3	Taxiways	Excavation (Cut to Fill)	Dump Truck (12 cy)	Diesel
3	Taxiways	Excavation (Cut to Fill)	Excavator	Diesel



Attachment 1-B

3	Taxiways	Excavation (Cut to Fill)	Pickup Truck	Diesel
3	Taxiways	Excavation (Cut to Fill)	Roller	Diesel
3	Taxiways	Excavation (Cut to Fill)	Scraper	Diesel
3	Taxiways	Excavation (Topsoil Stripping)	Dozer	Diesel
3	Taxiways	Fencing	Concrete Truck	Diesel
3	Taxiways	Fencing	Dump Truck	Diesel
3	Taxiways	Fencing	Other General Equipment	Diesel
3	Taxiways	Fencing	Pickup Truck	Diesel
3	Taxiways	Fencing	Skid Steer Loader	Diesel
3	Taxiways	Fencing	Tractors/Loader/Backhoe	Diesel
3	Taxiways	Grading	Dozer	Diesel
3	Taxiways	Grading	Grader	Diesel
3	Taxiways	Grading	Roller	Diesel
3	Taxiways	Hydroseeding	Hydroseeder	Diesel
3	Taxiways	Hydroseeding	Off-Road Truck	Diesel
3	Taxiways	Lighting	Dump Truck	Diesel
3	Taxiways	Lighting	Loader	Diesel
3	Taxiways	Lighting	Other General Equipment	Diesel
3	Taxiways	Lighting	Pickup Truck	Diesel
3	Taxiways	Lighting	Skid Steer Loader	Diesel
3	Taxiways	Lighting	Tractors/Loader/Backhoe	Diesel
3	Taxiways	Markings	Flatbed Truck	Diesel
3	Taxiways	Markings	Other General Equipment	Diesel
3	Taxiways	Markings	Pickup Truck	Diesel
3	Taxiways	Soil Erosion/Sediment Control	Other General Equipment	Diesel
3	Taxiways	Soil Erosion/Sediment Control	Pickup Truck	Diesel
3	Taxiways	Soil Erosion/Sediment Control	Pumps	Diesel
3	Taxiways	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	Diesel
3	Taxiways	Subbase Placement	Dozer	Diesel
3	Taxiways	Subbase Placement	Dump Truck (12 cy)	Diesel
3	Taxiways	Subbase Placement	Pickup Truck	Diesel
3	Taxiways	Subbase Placement	Roller	Diesel
3	Taxiways	Subbase Placement	Dozer	Diesel
3	Taxiways	Topsoil Placement	Dump Truck	Diesel
3	Taxiways	Topsoil Placement	Pickup Truck	Diesel
4	Demolition - Asphalt	Asphalt Demolition	Dozer	Diesel
4	Demolition - Asphalt	Asphalt Demolition	Excavator	Diesel
4	Demolition - Asphalt	Asphalt Demolition	Pickup Truck	Diesel
4	Demolition - Concrete	Concrete Demolition	Excavator with Bucket	Diesel
4	Demolition - Concrete	Concrete Demolition	Excavator with Hoe Ram	Diesel
4	Demolition - Concrete	Concrete Demolition	Pickup Truck	Diesel
4	Taxiways	Asphalt Placement	Asphalt Paver	Diesel
4	Taxiways	Asphalt Placement	Dump Truck	Diesel
4	Taxiways	Asphalt Placement	Other General Equipment	Diesel
4	Taxiways	Asphalt Placement	Pickup Truck	Diesel
4	Taxiways	Asphalt Placement	Roller	Diesel
4	Taxiways	Asphalt Placement	Skid Steer Loader	Diesel
4	Taxiways	Asphalt Placement	Surfacing Equipment (Grooving)	Diesel
4	Taxiways	Concrete Placement	Air Compressor	Diesel
4	Taxiways	Concrete Placement	Concrete Saws	Diesel
4	Taxiways	Concrete Placement	Concrete Truck	Diesel
4	Taxiways	Concrete Placement	Other General Equipment	Diesel
4	Taxiways	Concrete Placement	Pickup Truck	Diesel
4	Taxiways	Concrete Placement	Rubber Tired Loader	Diesel
4	Taxiways	Concrete Placement	Slip Form Paver	Diesel
4	Taxiways	Concrete Placement	Surfacing Equipment (Grooving)	Diesel
4	Taxiways	Drainage - 24 inch SICPP	Dozer	Diesel
4	Taxiways	Drainage - 24 inch SICPP	Dump Truck	Diesel
4	Taxiways	Drainage - 24 inch SICPP	Excavator	Diesel
4	Taxiways	Drainage - 24 inch SICPP	Loader	Diesel
4	Taxiways	Drainage - 24 inch SICPP	Other General Equipment	Diesel
4	Taxiways	Drainage - 24 inch SICPP	Pickup Truck	Diesel
4	Taxiways	Drainage - 24 inch SICPP	Roller	Diesel
4	Taxiways	Drainage - 6 inch Perforated Underdrain	Dump Truck	Diesel
4	Taxiways	Drainage - 6 inch Perforated Underdrain	Loader	Diesel
4	Taxiways	Drainage - 6 inch Perforated Underdrain	Other General Equipment	Diesel
4	Taxiways	Drainage - 6 inch Perforated Underdrain	Pickup Truck	Diesel
4	Taxiways	Drainage - 6 inch Perforated Underdrain	Tractors/Loader/Backhoe	Diesel
4	Taxiways	Dust Control	Water Truck	Diesel
4	Taxiways	Excavation (Borrow)	Dozer	Diesel
4	Taxiways	Excavation (Borrow)	Dump Truck (12 cy)	Diesel
4	Taxiways	Excavation (Borrow)	Pickup Truck	Diesel
4	Taxiways	Excavation (Borrow)	Roller	Diesel
4	Taxiways	Excavation (Cut to Fill)	Dozer	Diesel
4	Taxiways	Excavation (Cut to Fill)	Dump Truck (12 cy)	Diesel
4	Taxiways	Excavation (Cut to Fill)	Excavator	Diesel
4	Taxiways	Excavation (Cut to Fill)	Pickup Truck	Diesel
4	Taxiways	Excavation (Cut to Fill)	Roller	Diesel
4	Taxiways	Excavation (Cut to Fill)	Scraper	Diesel
4	Taxiways	Excavation (Topsoil Stripping)	Dozer	Diesel
4	Taxiways	Fencing	Concrete Truck	Diesel
4	Taxiways	Fencing	Dump Truck	Diesel
4	Taxiways	Fencing	Other General Equipment	Diesel
4	Taxiways	Fencing	Pickup Truck	Diesel
4	Taxiways	Fencing	Skid Steer Loader	Diesel
4	Taxiways	Fencing	Tractors/Loader/Backhoe	Diesel
4	Taxiways	Grading	Dozer	Diesel
4	Taxiways	Grading	Grader	Diesel
4	Taxiways	Grading	Roller	Diesel
4	Taxiways	Hydroseeding	Hydroseeder	Diesel
4	Taxiways	Hydroseeding	Off-Road Truck	Diesel
4	Taxiways	Lighting	Dump Truck	Diesel
4	Taxiways	Lighting	Loader	Diesel
4	Taxiways	Lighting	Other General Equipment	Diesel
4	Taxiways	Lighting	Pickup Truck	Diesel
4	Taxiways	Lighting	Skid Steer Loader	Diesel
4	Taxiways	Lighting	Tractors/Loader/Backhoe	Diesel
4	Taxiways	Markings	Flatbed Truck	Diesel
4	Taxiways	Markings	Other General Equipment	Diesel
4	Taxiways	Markings	Pickup Truck	Diesel
4	Taxiways	Soil Erosion/Sediment Control	Other General Equipment	Diesel
4	Taxiways	Soil Erosion/Sediment Control	Pickup Truck	Diesel
4	Taxiways	Soil Erosion/Sediment Control	Pumps	Diesel
4	Taxiways	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	Diesel
4	Taxiways	Subbase Placement	Dozer	Diesel
4	Taxiways	Subbase Placement	Dump Truck (12 cy)	Diesel
4	Taxiways	Subbase Placement	Pickup Truck	Diesel
4	Taxiways	Subbase Placement	Roller	Diesel
4	Taxiways	Subbase Placement	Dozer	Diesel
4	Taxiways	Topsoil Placement	Dump Truck	Diesel
4	Taxiways	Topsoil Placement	Pickup Truck	Diesel
5	Building - 10000 sqft- 1 story	Concrete Foundations	Backhoe	Diesel
5	Building - 10000 sqft- 1 story	Concrete Foundations	Concrete Ready Mix Trucks	Diesel
5	Building - 10000 sqft- 1 story	Concrete Foundations	Fork Truck	Diesel
5	Building - 10000 sqft- 1 story	Concrete Foundations	Tool Truck	Diesel
5	Building - 10000 sqft- 1 story	Concrete Foundations	Tractor Trailer- Material Delivery	Diesel
5	Building - 10000 sqft- 1 story	Construction Mob & Layout	Survey Crew Trucks	Diesel
5	Building - 10000 sqft- 1 story	Construction Mob & Layout	Tractor Trailers Temp Fac.	Diesel
5	Building - 10000 sqft- 1 story	Exterior Wall Framing	Fork Truck	Diesel
5	Building - 10000 sqft- 1 story	Exterior Wall Framing	Man Lift	Diesel
5	Building - 10000 sqft- 1 story	Exterior Wall Framing	Tool Truck	Diesel
5	Building - 10000 sqft- 1 story	Exterior Wall Framing	Tractor Trailer- Material Delivery	Diesel
5	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Fork Truck	Diesel
5	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Man Lift	Diesel
5	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Tool Truck	Diesel
5	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Tractor Trailer- Material Delivery	Diesel
5	Building - 10000 sqft- 1 story	Roofing	High Lift	Diesel
5	Building - 10000 sqft- 1 story	Roofing	Man Lift (Fascia Construction)	Diesel
5	Building - 10000 sqft- 1 story	Roofing	Material Deliveries	Diesel
5	Building - 10000 sqft- 1 story	Roofing	Tractor Trailer- Material Delivery	Diesel
5	Building - 10000 sqft- 1 story	Security & Safety Systems	High Lift	Diesel
5	Building - 10000 sqft- 1 story	Security & Safety Systems	Tool Truck	Diesel
5	Building - 10000 sqft- 1 story	Structural Steel Erection	40 Ton Crane	Diesel
5	Building - 10000 sqft- 1 story	Structural Steel Erection	Fork Truck	Diesel
5	Building - 10000 sqft- 1 story	Structural Steel Erection	Tool Truck	Diesel
5	Building - 10000 sqft- 1 story	Structural Steel Erection	Tractor Trailer- Steel Deliveries	Diesel
6	NAVAIDS	Instrument Landing System (ILS) Localizer	Air Compressor	Diesel
6	NAVAIDS	Instrument Landing System (ILS) Localizer	Crane	Diesel
6	NAVAIDS	Instrument Landing System (ILS) Localizer	Dozer	Diesel
6	NAVAIDS	Instrument Landing System (ILS) Localizer	Dump Truck	Diesel
6	NAVAIDS	Instrument Landing System (ILS) Localizer	Excavator	Diesel
6	NAVAIDS	Instrument Landing System (ILS) Localizer	Other General Equipment	Diesel
6	NAVAIDS	Instrument Landing System (ILS) Localizer	Pickup Truck	Diesel
6	NAVAIDS	Instrument Landing System (ILS) Localizer	Skid Steer Loader	Diesel
6	NAVAIDS	Instrument Landing System (ILS) Localizer	Tractors/Loader/Backhoe	Diesel
6	Rehabilitate Runway	Asphalt Placement	Asphalt Paver	Diesel
6	Rehabilitate Runway	Asphalt Placement	Dump Truck	Diesel
6	Rehabilitate Runway	Asphalt Placement	Other General Equipment	Diesel
6	Rehabilitate Runway	Asphalt Placement	Pickup Truck	Diesel
6	Rehabilitate Runway	Asphalt Placement	Roller	Diesel
6	Rehabilitate Runway	Asphalt Placement	Skid Steer Loader	Diesel
6	Rehabilitate Runway	Asphalt Placement	Surfacing Equipment (Grooving)	Diesel
6	Rehabilitate Runway	Cold Milling	Cold Planer	Diesel
6	Rehabilitate Runway	Cold Milling	Dump Truck	Diesel
6	Rehabilitate Runway	Cold Milling	Pickup Truck	Diesel
6	Rehabilitate Runway	Cold Milling	Sweepers	Diesel
6	Rehabilitate Runway	Cold Milling	Water Truck	Diesel
6	Rehabilitate Runway	Concrete Demolition	Concrete Saws	Diesel
6	Rehabilitate Runway	Concrete Demolition	Dump Truck	Diesel
6	Rehabilitate Runway	Concrete Demolition	Excavator	Diesel
6	Rehabilitate Runway	Concrete Demolition	Hydraulic Hammer	Diesel
6	Rehabilitate Runway	Concrete Demolition	Other General Equipment	Diesel
6	Rehabilitate Runway	Concrete Demolition	Pickup Truck	Diesel
6	Rehabilitate Runway	Concrete Placement	Air Compressor	Diesel
6	Rehabilitate Runway	Concrete Placement	Concrete Saws	Diesel
6	Rehabilitate Runway	Concrete Placement	Concrete Truck	Diesel
6	Rehabilitate Runway	Concrete Placement	Other General Equipment	Diesel
6	Rehabilitate Runway	Concrete Placement	Pickup Truck	Diesel
6	Rehabilitate Runway	Concrete Placement	Rubber Tired Loader	Diesel
6	Rehabilitate Runway	Concrete Placement	Slip Form Paver	Diesel
6	Rehabilitate Runway	Concrete Placement	Surfacing Equipment (Grooving)	Diesel
6	Rehabilitate Runway	Dust Control	Water Truck	Diesel
6	Rehabilitate Runway	Excavation (Cut to Fill) (Assume 20% reconstruction)	Dozer	Diesel
6	Rehabilitate Runway	Excavation (Cut to Fill) (Assume 20% reconstruction)	Dump Truck (12 cy)	Diesel
6	Rehabilitate Runway	Excavation (Cut to Fill) (Assume 20% reconstruction)	Excavator	Diesel
6	Rehabilitate Runway	Excavation (Cut to Fill) (Assume 20% reconstruction)	Pickup Truck	Diesel
6	Rehabilitate Runway	Excavation (Cut to Fill) (Assume 20% reconstruction)	Roller	Diesel
6	Rehabilitate Runway	Excavation (Topsoil Stripping)	Dozer	Diesel
6	Rehabilitate Runway	Grading	Dozer	Diesel
6	Rehabilitate Runway	Grading	Grader	Diesel



Attachment 1-B

7	Taxiways	Markings	Flatbed Truck	Diesel
7	Taxiways	Markings	Other General Equipment	Diesel
7	Taxiways	Markings	Pickup Truck	Diesel
7	Taxiways	Soil Erosion/Sediment Control	Other General Equipment	Diesel
7	Taxiways	Soil Erosion/Sediment Control	Pickup Truck	Diesel
7	Taxiways	Soil Erosion/Sediment Control	Pumps	Diesel
7	Taxiways	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	Diesel
7	Taxiways	Subbase Placement	Dozer	Diesel
7	Taxiways	Subbase Placement	Dump Truck (12 cy)	Diesel
7	Taxiways	Subbase Placement	Pickup Truck	Diesel
7	Taxiways	Subbase Placement	Roller	Diesel
7	Taxiways	Subbase Placement	Dozer	Diesel
7	Taxiways	Topsail Placement	Dump Truck	Diesel
7	Taxiways	Topsail Placement	Pickup Truck	Diesel
8	Demolition - Concrete	Concrete Demolition	Excavator with Bucket	Diesel
8	Demolition - Concrete	Concrete Demolition	Excavator with Hoe Ram	Diesel
8	Demolition - Concrete	Concrete Demolition	Pickup Truck	Diesel
8	Taxiways	Asphalt Placement	Asphalt Paver	Diesel
8	Taxiways	Asphalt Placement	Dump Truck	Diesel
8	Taxiways	Asphalt Placement	Other General Equipment	Diesel
8	Taxiways	Asphalt Placement	Pickup Truck	Diesel
8	Taxiways	Asphalt Placement	Roller	Diesel
8	Taxiways	Asphalt Placement	Skid Steer Loader	Diesel
8	Taxiways	Asphalt Placement	Surfacing Equipment (Grooving)	Diesel
8	Taxiways	Concrete Placement	Air Compressor	Diesel
8	Taxiways	Concrete Placement	Concrete Saws	Diesel
8	Taxiways	Concrete Placement	Concrete Truck	Diesel
8	Taxiways	Concrete Placement	Other General Equipment	Diesel
8	Taxiways	Concrete Placement	Pickup Truck	Diesel
8	Taxiways	Concrete Placement	Rubber Tired Loader	Diesel
8	Taxiways	Concrete Placement	Slip Form Paver	Diesel
8	Taxiways	Concrete Placement	Surfacing Equipment (Grooving)	Diesel
8	Taxiways	Drainage - 24 inch SICPP	Dozer	Diesel
8	Taxiways	Drainage - 24 inch SICPP	Dump Truck	Diesel
8	Taxiways	Drainage - 24 inch SICPP	Excavator	Diesel
8	Taxiways	Drainage - 24 inch SICPP	Loader	Diesel
8	Taxiways	Drainage - 24 inch SICPP	Other General Equipment	Diesel
8	Taxiways	Drainage - 24 inch SICPP	Pickup Truck	Diesel
8	Taxiways	Drainage - 24 inch SICPP	Roller	Diesel
8	Taxiways	Drainage - 6 inch Perforated Underdrain	Dump Truck	Diesel
8	Taxiways	Drainage - 6 inch Perforated Underdrain	Loader	Diesel
8	Taxiways	Drainage - 6 inch Perforated Underdrain	Other General Equipment	Diesel
8	Taxiways	Drainage - 6 inch Perforated Underdrain	Pickup Truck	Diesel
8	Taxiways	Drainage - 6 inch Perforated Underdrain	Tractors/Loader/Backhoe	Diesel
8	Taxiways	Dust Control	Water Truck	Diesel
8	Taxiways	Excavation (Borrow)	Dozer	Diesel
8	Taxiways	Excavation (Borrow)	Dump Truck (12 cy)	Diesel
8	Taxiways	Excavation (Borrow)	Pickup Truck	Diesel
8	Taxiways	Excavation (Borrow)	Roller	Diesel
8	Taxiways	Excavation (Cut to Fill)	Dozer	Diesel
8	Taxiways	Excavation (Cut to Fill)	Dump Truck (12 cy)	Diesel
8	Taxiways	Excavation (Cut to Fill)	Excavator	Diesel
8	Taxiways	Excavation (Cut to Fill)	Pickup Truck	Diesel
8	Taxiways	Excavation (Cut to Fill)	Roller	Diesel
8	Taxiways	Excavation (Cut to Fill)	Scraper	Diesel
8	Taxiways	Excavation (Topsail Stripping)	Dozer	Diesel
8	Taxiways	Fencing	Concrete Truck	Diesel
8	Taxiways	Fencing	Dump Truck	Diesel
8	Taxiways	Fencing	Other General Equipment	Diesel
8	Taxiways	Fencing	Pickup Truck	Diesel
8	Taxiways	Fencing	Skid Steer Loader	Diesel
8	Taxiways	Fencing	Tractors/Loader/Backhoe	Diesel
8	Taxiways	Grading	Dozer	Diesel
8	Taxiways	Grading	Grader	Diesel
8	Taxiways	Grading	Roller	Diesel
8	Taxiways	Hydroseeding	Hydroseeder	Diesel
8	Taxiways	Hydroseeding	Off-Road Truck	Diesel
8	Taxiways	Lighting	Dump Truck	Diesel
8	Taxiways	Lighting	Loader	Diesel
8	Taxiways	Lighting	Other General Equipment	Diesel
8	Taxiways	Lighting	Pickup Truck	Diesel
8	Taxiways	Lighting	Skid Steer Loader	Diesel
8	Taxiways	Lighting	Tractors/Loader/Backhoe	Diesel
8	Taxiways	Markings	Flatbed Truck	Diesel
8	Taxiways	Markings	Other General Equipment	Diesel
8	Taxiways	Markings	Pickup Truck	Diesel
8	Taxiways	Soil Erosion/Sediment Control	Other General Equipment	Diesel
8	Taxiways	Soil Erosion/Sediment Control	Pickup Truck	Diesel
8	Taxiways	Soil Erosion/Sediment Control	Pumps	Diesel
8	Taxiways	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	Diesel
8	Taxiways	Subbase Placement	Dozer	Diesel
8	Taxiways	Subbase Placement	Dump Truck (12 cy)	Diesel
8	Taxiways	Subbase Placement	Pickup Truck	Diesel
8	Taxiways	Subbase Placement	Roller	Diesel
8	Taxiways	Subbase Placement	Dozer	Diesel
8	Taxiways	Topsail Placement	Dump Truck	Diesel
8	Taxiways	Topsail Placement	Pickup Truck	Diesel

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Overall Size  
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Scenario ID	Project	Project Size Questions	User Input	Unit
1	Demolition - Asphalt	What is the estimated cost of the project?	0.088	\$ Million(s)
1	Demolition - Asphalt	What is the maximum length of demolition area (L) in feet?	191	Feet
1	Demolition - Asphalt	What is the maximum width of demolition area (W) in feet?	50	Feet
1	Demolition - Concrete	What is the estimated cost of the project?	0.088	\$ Million(s)
1	Demolition - Concrete	What is the maximum length of demolition area (L) in feet?	95	Feet
1	Demolition - Concrete	What is the maximum width of demolition area (W) in feet?	100	Feet
1	Taxiways	What is the estimated cost of the project?	0.998	\$ Million(s)
1	Taxiways	What is the maximum length of the taxiway (L) in feet?	92	Feet
1	Taxiways	What is the maximum width of the taxiway (W) in feet?	200	Feet
2	Runway Markings	What is the estimated cost of the project?	0.05	\$ Million(s)
2	Runway Markings	What is the maximum length (L) of the markings in feet?	800	Feet
2	Runway Markings	What is the maximum width (W) of the markings in feet?	4	Feet
2	Taxiways	What is the estimated cost of the project?	4.829	\$ Million(s)
2	Taxiways	What is the maximum length of the taxiway (L) in feet?	1035	Feet
2	Taxiways	What is the maximum width of the taxiway (W) in feet?	100	Feet
3	Demolition - Asphalt	What is the estimated cost of the project?	2.032	\$ Million(s)
3	Demolition - Asphalt	What is the maximum length of demolition area (L) in feet?	2029	Feet
3	Demolition - Asphalt	What is the maximum width of demolition area (W) in feet?	50	Feet
3	Demolition - Concrete	What is the estimated cost of the project?	2.032	\$ Million(s)
3	Demolition - Concrete	What is the maximum length of demolition area (L) in feet?	1015	Feet
3	Demolition - Concrete	What is the maximum width of demolition area (W) in feet?	100	Feet
3	NAVAIDS	What is the estimated cost of the project?	0.1	\$ Million(s)
3	NAVAIDS	What is the maximum length of the project area (L) in feet?	150	Feet
3	NAVAIDS	What is the maximum width of the project area (W) in feet?	6	Feet
3	NAVAIDS	What is the number of approach lighting (AL) lights indicated to be install	0	--
3	NAVAIDS	What is the number of instrument landing system glide slopes (ILS-GS) to	0	--
3	NAVAIDS	What is the number of instrument landing system localizers (ILS-L) to be i	0	--
3	NAVAIDS	What is the number of precision approach path indicators (PAPI) to be ins	4	--
3	NAVAIDS	What is the number of rotating beacons (RB) to be installed?	0	--
3	NAVAIDS	What is the number of windcones (WC) to be installed?	0	--
3	Taxiways	What is the estimated cost of the project?	23.027	\$ Million(s)
3	Taxiways	What is the maximum length of the taxiway (L) in feet?	3409	Feet
3	Taxiways	What is the maximum width of the taxiway (W) in feet?	200	Feet
4	Demolition - Asphalt	What is the estimated cost of the project?	0.551	\$ Million(s)
4	Demolition - Asphalt	What is the maximum length of demolition area (L) in feet?	437	Feet
4	Demolition - Asphalt	What is the maximum width of demolition area (W) in feet?	50	Feet
4	Demolition - Concrete	What is the estimated cost of the project?	0.551	\$ Million(s)
4	Demolition - Concrete	What is the maximum length of demolition area (L) in feet?	218	Feet
4	Demolition - Concrete	What is the maximum width of demolition area (W) in feet?	100	Feet
4	Taxiways	What is the estimated cost of the project?	6.242	\$ Million(s)
4	Taxiways	What is the maximum length of the taxiway (L) in feet?	895	Feet
4	Taxiways	What is the maximum width of the taxiway (W) in feet?	200	Feet
5	Building - 10000 sqft- 1 story	What is the estimated cost of the project?	3	\$ Million(s)
6	NAVAIDS	What is the estimated cost of the project?	0.1	\$ Million(s)
6	NAVAIDS	What is the maximum length of the project area (L) in feet?	150	Feet
6	NAVAIDS	What is the maximum width of the project area (W) in feet?	50	Feet
6	NAVAIDS	What is the number of approach lighting (AL) lights indicated to be install	0	--
6	NAVAIDS	What is the number of instrument landing system glide slopes (ILS-GS) to	0	--
6	NAVAIDS	What is the number of instrument landing system localizers (ILS-L) to be i	1	--
6	NAVAIDS	What is the number of precision approach path indicators (PAPI) to be ins	0	--
6	NAVAIDS	What is the number of rotating beacons (RB) to be installed?	0	--
6	NAVAIDS	What is the number of windcones (WC) to be installed?	0	--
6	Rehabilitate Runway	What is the estimated cost of the project?	46.753	\$ Million(s)
6	Rehabilitate Runway	What is the maximum length of rehabilitation (L) in feet?	5369	Feet
6	Rehabilitate Runway	What is the maximum width of rehabilitation (W) in feet?	250	Feet
6	Service Road	What is the estimated cost of the project?	0.15	\$ Million(s)
6	Service Road	What is the maximum length of the service road (L) in feet?	1298	Feet
6	Service Road	What is the maximum width of the service road (W) in feet?	30	Feet
7	Demolition - Concrete	What is the estimated cost of the project?	1.212	\$ Million(s)
7	Demolition - Concrete	What is the maximum length of demolition area (L) in feet?	45	Feet
7	Demolition - Concrete	What is the maximum width of demolition area (W) in feet?	100	Feet
7	Fencing	What is the estimated cost of the project?	0.2	\$ Million(s)
7	Fencing	What is the maximum length of the fence (L) in feet?	1500	Feet
7	Taxiways	What is the estimated cost of the project?	6.87	\$ Million(s)
7	Taxiways	What is the maximum length of the taxiway (L) in feet?	1037	Feet
7	Taxiways	What is the maximum width of the taxiway (W) in feet?	200	Feet
8	Demolition - Concrete	What is the estimated cost of the project?	1.615	\$ Million(s)
8	Demolition - Concrete	What is the maximum length of demolition area (L) in feet?	143	Feet
8	Demolition - Concrete	What is the maximum width of demolition area (W) in feet?	100	Feet
8	Taxiways	What is the estimated cost of the project?	9.154	\$ Million(s)
8	Taxiways	What is the maximum length of the taxiway (L) in feet?	1383	Feet
8	Taxiways	What is the maximum width of the taxiway (W) in feet?	200	Feet

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Size Detail  
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ScenarioID	Project	Construction Activity	Default Activity Size	Unit	User Activity Size
1	Demolition - Asphalt	Asphalt Demolition		9550 Square Feet	
1	Demolition - Concrete	Concrete Demolition		9500 Square Feet	
1	Taxiways	Asphalt Placement		1270 Square Yards	
1	Taxiways	Concrete Placement		1307 Cubic Yards	
1	Taxiways	Drainage - 24 inch SICPP		102 Linear Feet	
1	Taxiways	Drainage - 6 inch Perforated Underdrain		204 Linear Feet	
1	Taxiways	Dust Control		60 Days	
1	Taxiways	Excavation (Borrow)		851 Cubic Yards	
1	Taxiways	Excavation (Cut to Fill)		851 Cubic Yards	

Attachment 1-B

1	Taxiways	Excavation (Topsoil Stripping)	2042.4 Square Yards
1	Taxiways	Fencing	92 Linear Feet
1	Taxiways	Grading	2377.6 Square Yards
1	Taxiways	Hydroseeding	21420 Square Feet
1	Taxiways	Lighting	584 Linear Feet
1	Taxiways	Markings	18400 Square Feet
1	Taxiways	Soil Erosion/Sediment Control	0.5 Acres
1	Taxiways	Subbase Placement	2042.4 Square Yards
1	Taxiways	Subbase Placement	680.8 Cubic Yards
1	Taxiways	Topsoil Placement	396.3 Cubic Yards
2	Runway Markings	Marking Removal	3200 Square Feet
2	Runway Markings	Markings	3200 Square Feet
2	Taxiways	Asphalt Placement	0 Square Yards
2	Taxiways	Concrete Placement	3194 Cubic Yards
2	Taxiways	Drainage - 24 inch SICPP	1045 Linear Feet
2	Taxiways	Drainage - 6 inch Perforated Underdrain	2090 Linear Feet
2	Taxiways	Dust Control	60 Days
2	Taxiways	Excavation (Borrow)	4786.9 Cubic Yards
2	Taxiways	Excavation (Cut to Fill)	4786.9 Cubic Yards
2	Taxiways	Excavation (Topsoil Stripping)	11488.5 Square Yards
2	Taxiways	Fencing	1035 Linear Feet
2	Taxiways	Grading	12759.5 Square Yards
2	Taxiways	Hydroseeding	114950 Square Feet
2	Taxiways	Lighting	2270 Linear Feet
2	Taxiways	Markings	103500 Square Feet
2	Taxiways	Soil Erosion/Sediment Control	2.6 Acres
2	Taxiways	Subbase Placement	11488.5 Square Yards
2	Taxiways	Subbase Placement	3829.5 Cubic Yards
2	Taxiways	Topsoil Placement	2126.6 Cubic Yards
3	Demolition - Asphalt	Asphalt Demolition	101450 Square Feet
3	Demolition - Concrete	Concrete Demolition	101500 Square Feet
3	NAVAIDS	Precision Approach Path Indicator (PAPI)	4 Units
3	Taxiways	Asphalt Placement	27495 Square Yards
3	Taxiways	Concrete Placement	30836 Cubic Yards
3	Taxiways	Drainage - 24 inch SICPP	3419 Linear Feet
3	Taxiways	Drainage - 6 inch Perforated Underdrain	6838 Linear Feet
3	Taxiways	Dust Control	180 Days
3	Taxiways	Excavation (Borrow)	31533.3 Cubic Yards
3	Taxiways	Excavation (Cut to Fill)	31533.3 Cubic Yards
3	Taxiways	Excavation (Topsoil Stripping)	75679.8 Square Yards
3	Taxiways	Fencing	3409 Linear Feet
3	Taxiways	Grading	79696.9 Square Yards
3	Taxiways	Hydroseeding	717990 Square Feet
3	Taxiways	Lighting	7218 Linear Feet
3	Taxiways	Markings	681800 Square Feet
3	Taxiways	Soil Erosion/Sediment Control	16.5 Acres
3	Taxiways	Subbase Placement	75679.8 Square Yards
3	Taxiways	Subbase Placement	25226.6 Cubic Yards
3	Taxiways	Topsoil Placement	13282.8 Cubic Yards
4	Demolition - Asphalt	Asphalt Demolition	21850 Square Feet
4	Demolition - Concrete	Concrete Demolition	21800 Square Feet
4	Taxiways	Asphalt Placement	5874 Square Yards
4	Taxiways	Concrete Placement	8954 Cubic Yards
4	Taxiways	Drainage - 24 inch SICPP	905 Linear Feet
4	Taxiways	Drainage - 6 inch Perforated Underdrain	1810 Linear Feet
4	Taxiways	Dust Control	90 Days
4	Taxiways	Excavation (Borrow)	8278.8 Cubic Yards
4	Taxiways	Excavation (Cut to Fill)	8278.8 Cubic Yards
4	Taxiways	Excavation (Topsoil Stripping)	19869 Square Yards
4	Taxiways	Fencing	895 Linear Feet
4	Taxiways	Grading	21095.6 Square Yards
4	Taxiways	Hydroseeding	190050 Square Feet
4	Taxiways	Lighting	2190 Linear Feet
4	Taxiways	Markings	179000 Square Feet
4	Taxiways	Soil Erosion/Sediment Control	4.4 Acres
4	Taxiways	Subbase Placement	19869 Square Yards
4	Taxiways	Subbase Placement	6623 Cubic Yards
4	Taxiways	Topsoil Placement	3515.9 Cubic Yards
6	NAVAIDS	Instrument Landing System (ILS) Localizer	1 Units
6	Rehabilitate Runway	Asphalt Placement	92371 Square Yards
6	Rehabilitate Runway	Cold Milling	92371 Square Yards
6	Rehabilitate Runway	Concrete Demolition	0 Square Feet
6	Rehabilitate Runway	Concrete Demolition	510966 Square Feet
6	Rehabilitate Runway	Concrete Placement	36272 Cubic Yards
6	Rehabilitate Runway	Dust Control	210 Days
6	Rehabilitate Runway	Excavation (Cut to Fill) (Assume 20% reconstruction)	12415.8 Cubic Yards
6	Rehabilitate Runway	Excavation (Topsoil Stripping)	29798 Square Yards
6	Rehabilitate Runway	Grading	31047.6 Square Yards
6	Rehabilitate Runway	Hydroseeding	31047.6 Square Feet
6	Rehabilitate Runway	Lighting	11238 Linear Feet
6	Rehabilitate Runway	Markings	1342250 Square Feet
6	Rehabilitate Runway	Sealing Random Cracks	5369 Linear Feet
6	Rehabilitate Runway	Soil Erosion/Sediment Control	6.4 Acres
6	Rehabilitate Runway	Subbase Placement	148989.8 Square Yards
6	Rehabilitate Runway	Subbase Placement	49663.3 Cubic Yards
6	Rehabilitate Runway	Topsoil Placement	5174.6 Cubic Yards
6	Service Road	Asphalt Placement	4322.3 Square Yards
6	Service Road	Clearing and Grubbing	1.2 Acres
6	Service Road	Concrete Placement	0 Cubic Yards
6	Service Road	Drainage - 24 inch SICPP	1308 Linear Feet
6	Service Road	Drainage - 6 inch Perforated Underdrain	2616 Linear Feet
6	Service Road	Dust Control	210 Days
6	Service Road	Excavation (Borrow)	1801 Cubic Yards
6	Service Road	Excavation (Cut to Fill)	1801 Cubic Yards
6	Service Road	Excavation (Topsoil Stripping)	4322.3 Square Yards
6	Service Road	Fencing	1298 Linear Feet
6	Service Road	Grading	5807.5 Square Yards
6	Service Road	Hydroseeding	52320 Square Feet
6	Service Road	Markings	38940 Square Feet
6	Service Road	Soil Erosion/Sediment Control	1.2 Acres
6	Service Road	Subbase Placement	4322.3 Square Yards
6	Service Road	Subbase Placement	1440.8 Cubic Yards
6	Service Road	Topsoil Placement	967.9 Cubic Yards
7	Demolition - Concrete	Concrete Demolition	4500 Square Feet
7	Fencing	Clearing and Grubbing	0.2 Acres
7	Fencing	Excavation (Cut to Fill)	346.9 Cubic Yards
7	Fencing	Fencing	1500 Linear Feet
7	Fencing	Grading	838.1 Square Yards
7	Fencing	Hydroseeding	7550 Square Feet
7	Fencing	Soil Erosion/Sediment Control	0.2 Acres
7	Fencing	Topsoil Placement	349.2 Cubic Yards
7	Taxiways	Asphalt Placement	9290 Square Yards
7	Taxiways	Concrete Placement	8789 Cubic Yards
7	Taxiways	Drainage - 24 inch SICPP	1047 Linear Feet
7	Taxiways	Drainage - 6 inch Perforated Underdrain	2094 Linear Feet
7	Taxiways	Dust Control	120 Days
7	Taxiways	Excavation (Borrow)	9592.3 Cubic Yards
7	Taxiways	Excavation (Cut to Fill)	9592.3 Cubic Yards
7	Taxiways	Excavation (Topsoil Stripping)	23021.4 Square Yards
7	Taxiways	Fencing	1037 Linear Feet
7	Taxiways	Grading	24405.6 Square Yards
7	Taxiways	Hydroseeding	219870 Square Feet
7	Taxiways	Lighting	2474 Linear Feet
7	Taxiways	Markings	207400 Square Feet
7	Taxiways	Soil Erosion/Sediment Control	5.1 Acres
7	Taxiways	Subbase Placement	23021.4 Square Yards
7	Taxiways	Subbase Placement	7673.8 Cubic Yards
7	Taxiways	Topsoil Placement	4067.6 Cubic Yards
8	Demolition - Concrete	Concrete Demolition	14300 Square Feet
8	Taxiways	Asphalt Placement	12413 Square Yards
8	Taxiways	Concrete Placement	11699 Cubic Yards
8	Taxiways	Drainage - 24 inch SICPP	1393 Linear Feet
8	Taxiways	Drainage - 6 inch Perforated Underdrain	2786 Linear Feet
8	Taxiways	Dust Control	150 Days
8	Taxiways	Excavation (Borrow)	12792.8 Cubic Yards
8	Taxiways	Excavation (Cut to Fill)	12792.8 Cubic Yards
8	Taxiways	Excavation (Topsoil Stripping)	30702.6 Square Yards
8	Taxiways	Fencing	1383 Linear Feet
8	Taxiways	Grading	32470.8 Square Yards
8	Taxiways	Hydroseeding	292530 Square Feet
8	Taxiways	Lighting	3166 Linear Feet
8	Taxiways	Markings	276600 Square Feet
8	Taxiways	Soil Erosion/Sediment Control	6.7 Acres
8	Taxiways	Subbase Placement	30702.6 Square Yards
8	Taxiways	Subbase Placement	10234.2 Cubic Yards
8	Taxiways	Topsoil Placement	5411.8 Cubic Yards

Activity: Non-Road

Scenario ID	Project	Construction Activity	Equipment	Fuel Type	Activity Size	Activity Ra	Default Act	Activity Un	User	Activity Data
1	Demolition - Asphalt	Asphalt Demolition	Dozer	Diesel	9550.00 SF	8	Hours pe	9.55	hours	21.85
1	Demolition - Asphalt	Asphalt Demolition	Excavator	Diesel	9550.00 SF	8	Hours pe	9.55	hours	21.85
1	Demolition - Asphalt	Asphalt Demolition	Pickup Truck	Diesel	9550.00 SF	8	Hours pe	19.1	hours	43.7
1	Demolition - Concrete	Concrete Demolition	Excavator with Bucket	Diesel	9500.00 SF	8	Hours pe	12.66667	hours	19.07
1	Demolition - Concrete	Concrete Demolition	Excavator with Hoe Ram	Diesel	9500.00 SF	8	Hours pe	12.66667	hours	19.07
1	Demolition - Concrete	Concrete Demolition	Pickup Truck	Diesel	9500.00 SF	8	Hours pe	25.33333	hours	38.13
1	Taxiways	Asphalt Placement	Asphalt Paver	Diesel	2042.40 SY	8	Hours pe	2.553	hours	15.52
1	Taxiways	Asphalt Placement	Dump Truck	Diesel	2042.40 SY	8	Hours pe	9.194823	hours	55.88
1	Taxiways	Asphalt Placement	Other General Equipment	Diesel	2042.40 SY	16	Hours p	5.106	hours	31.03
1	Taxiways	Asphalt Placement	Pickup Truck	Diesel	2042.40 SY	8	Hours pe	2.553	hours	15.52
1	Taxiways	Asphalt Placement	Roller	Diesel	2042.40 SY	8	Hours pe	2.553	hours	15.52
1	Taxiways	Asphalt Placement	Skid Steer Loader	Diesel	2042.40 SY	8	Hours pe	2.553	hours	15.52
1	Taxiways	Asphalt Placement	Surfacing Equipment (Grooving)	Diesel	2042.40 SY	8	Hours pe	3.26784	hours	19.86
1	Taxiways	Concrete Placement	Air Compressor	Diesel	851.00 CY	8	Hours pe	6.808	hours	93.59
1	Taxiways	Concrete Placement	Concrete Saws	Diesel	851.00 CY	8	Hours pe	6.808	hours	93.59
1	Taxiways	Concrete Placement	Concrete Truck	Diesel	851.00 CY	8	Hours pe	28.36667	hours	389.97
1	Taxiways	Concrete Placement	Other General Equipment	Diesel	851.00 CY	16	Hours p	13.616	hours	187.18
1	Taxiways	Concrete Placement	Pickup Truck	Diesel	851.00 CY	24	Hours p	20.424	hours	280.78
1	Taxiways	Concrete Placement	Rubber Tired Loader	Diesel	851.00 CY	8	Hours pe	6.808	hours	93.59
1	Taxiways	Concrete Placement	Slip Form Paver	Diesel	851.00 CY	8	Hours pe	6.808	hours	93.59
1	Taxiways	Concrete Placement	Surfacing Equipment (Grooving)	Diesel	851.00 CY	8	Hours pe	6.808	hours	93.59
1	Taxiways	Drainage - 24 inch SICPP	Dozer	Diesel	102.00 LF	8	Hours pe	3.264	hours	44.58
1	Taxiways	Drainage - 24 inch SICPP	Dump Truck	Diesel	102.00 LF	8	Hours pe	3.264	hours	44.58
1	Taxiways	Drainage - 24 inch SICPP	Excavator	Diesel	102.00 LF	8	Hours pe	3.264	hours	44.58
1	Taxiways	Drainage - 24 inch SICPP	Loader	Diesel	102.00 LF	8	Hours pe	3.264	hours	44.58
1	Taxiways	Drainage - 24 inch SICPP	Other General Equipment	Diesel	102.00 LF	8	Hours pe	3.264	hours	44.58
1	Taxiways	Drainage - 24 inch SICPP	Pickup Truck	Diesel	102.00 LF	8	Hours pe	3.264	hours	44.58
1	Taxiways	Drainage - 24 inch SICPP	Roller	Diesel	102.00 LF	8	Hours pe	3.264	hours	44.58



Attachment 1-B

3	Taxiways	Fencing	Skid Steer Loader	Diesel	3409.00 LF	8 Hours pe	151.5111 hours	61.47
3	Taxiways	Fencing	Tractors/Loader/Backhoe	Diesel	3409.00 LF	8 Hours pe	151.5111 hours	61.47
3	Taxiways	Grading	Dozer	Diesel	79696.90 SY	8 Hours pe	79.6969 hours	32.47
3	Taxiways	Grading	Grader	Diesel	79696.90 SY	8 Hours pe	79.6969 hours	32.47
3	Taxiways	Grading	Roller	Diesel	79696.90 SY	8 Hours pe	79.6969 hours	32.47
3	Taxiways	Hydroseeding	Hydroseeder	Diesel	717990.00 SF	8 Hours pe	71.799 hours	29.25
3	Taxiways	Hydroseeding	Off-Road Truck	Diesel	717990.00 SF	8 Hours pe	71.799 hours	29.25
3	Taxiways	Lighting	Dump Truck	Diesel	7218.00 LF	8 Hours pe	48.12 hours	21.11
3	Taxiways	Lighting	Loader	Diesel	7218.00 LF	8 Hours pe	48.12 hours	21.11
3	Taxiways	Lighting	Other General Equipment	Diesel	7218.00 LF	8 Hours pe	48.12 hours	21.11
3	Taxiways	Lighting	Pickup Truck	Diesel	7218.00 LF	8 Hours pe	48.12 hours	21.11
3	Taxiways	Lighting	Skid Steer Loader	Diesel	7218.00 LF	8 Hours pe	48.12 hours	21.11
3	Taxiways	Lighting	Tractors/Loader/Backhoe	Diesel	7218.00 LF	8 Hours pe	48.12 hours	21.11
3	Taxiways	Markings	Flatbed Truck	Diesel	681800.00 SF	8 Hours pe	1558.4 hours	632.23
3	Taxiways	Markings	Other General Equipment	Diesel	681800.00 SF	8 Hours pe	1558.4 hours	632.23
3	Taxiways	Markings	Pickup Truck	Diesel	681800.00 SF	8 Hours pe	1558.4 hours	632.23
3	Taxiways	Soil Erosion/Sediment Control	Other General Equipment	Diesel	16.50 Acre	4 Hours pe	66 hours	26.8
3	Taxiways	Soil Erosion/Sediment Control	Pickup Truck	Diesel	16.50 Acre	8 Hours pe	132 hours	53.6
3	Taxiways	Soil Erosion/Sediment Control	Pumps	Diesel	16.50 Acre	4 Hours pe	66 hours	26.8
3	Taxiways	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	Diesel	16.50 Acre	4 Hours pe	66 hours	26.8
3	Taxiways	Subbase Placement	Dozer	Diesel	75679.80 SY	8 Hours pe	159.3259 hours	64.64
3	Taxiways	Subbase Placement	Dump Truck (12 cy)	Diesel	25226.60 CY	8 Hours pe	1121.182 hours	454.85
3	Taxiways	Subbase Placement	Pickup Truck	Diesel	75679.80 SY	8 Hours pe	159.3259 hours	64.64
3	Taxiways	Subbase Placement	Roller	Diesel	25226.60 CY	8 Hours pe	155.2406 hours	62.98
3	Taxiways	Topsail Placement	Dozer	Diesel	13282.80 CY	8 Hours pe	177.104 hours	72.16
3	Taxiways	Topsail Placement	Dump Truck	Diesel	13282.80 CY	8 Hours pe	177.104 hours	72.16
3	Taxiways	Topsail Placement	Pickup Truck	Diesel	13282.80 CY	8 Hours pe	177.104 hours	72.16
4	Demolition - Asphalt	Asphalt Demolition	Dozer	Diesel	21850.00 SF	8 Hours pe	21.85 hours	
4	Demolition - Asphalt	Asphalt Demolition	Excavator	Diesel	21850.00 SF	8 Hours pe	21.85 hours	
4	Demolition - Asphalt	Asphalt Demolition	Pickup Truck	Diesel	21850.00 SF	8 Hours pe	43.7 hours	
4	Demolition - Concrete	Concrete Demolition	Excavator with Bucket	Diesel	21800.00 SF	8 Hours pe	29.06667 hours	19.07
4	Demolition - Concrete	Concrete Demolition	Excavator with Hoe Ram	Diesel	21800.00 SF	8 Hours pe	29.06667 hours	19.07
4	Demolition - Concrete	Concrete Demolition	Pickup Truck	Diesel	21800.00 SF	8 Hours pe	58.13333 hours	38.13
4	Taxiways	Asphalt Placement	Asphalt Paver	Diesel	19869.00 SY	8 Hours pe	24.83625 hours	15.52
4	Taxiways	Asphalt Placement	Dump Truck	Diesel	19869.00 SY	8 Hours pe	89.44963 hours	55.88
4	Taxiways	Asphalt Placement	Other General Equipment	Diesel	19869.00 SY	16 Hours p	49.6725 hours	31.03
4	Taxiways	Asphalt Placement	Pickup Truck	Diesel	19869.00 SY	8 Hours pe	24.83625 hours	15.52
4	Taxiways	Asphalt Placement	Roller	Diesel	19869.00 SY	8 Hours pe	24.83625 hours	15.52
4	Taxiways	Asphalt Placement	Skid Steer Loader	Diesel	19869.00 SY	8 Hours pe	24.83625 hours	15.52
4	Taxiways	Asphalt Placement	Surfacing Equipment (Grooving)	Diesel	19869.00 SY	8 Hours pe	31.7904 hours	19.86
4	Taxiways	Concrete Placement	Air Compressor	Diesel	8278.80 CY	8 Hours pe	66.2304 hours	93.59
4	Taxiways	Concrete Placement	Concrete Saws	Diesel	8278.80 CY	8 Hours pe	66.2304 hours	93.59
4	Taxiways	Concrete Placement	Concrete Truck	Diesel	8278.80 CY	8 Hours pe	275.96 hours	389.97
4	Taxiways	Concrete Placement	Other General Equipment	Diesel	8278.80 CY	16 Hours p	132.4608 hours	187.18
4	Taxiways	Concrete Placement	Pickup Truck	Diesel	8278.80 CY	24 Hours p	198.6912 hours	280.78
4	Taxiways	Concrete Placement	Rubber Tired Loader	Diesel	8278.80 CY	8 Hours pe	66.2304 hours	93.59
4	Taxiways	Concrete Placement	Slip Form Paver	Diesel	8278.80 CY	8 Hours pe	66.2304 hours	93.59
4	Taxiways	Concrete Placement	Surfacing Equipment (Grooving)	Diesel	8278.80 CY	8 Hours pe	66.2304 hours	93.59
4	Taxiways	Drainage - 24 inch SICPP	Dozer	Diesel	905.00 LF	8 Hours pe	28.96 hours	44.58
4	Taxiways	Drainage - 24 inch SICPP	Dump Truck	Diesel	905.00 LF	8 Hours pe	28.96 hours	44.58
4	Taxiways	Drainage - 24 inch SICPP	Excavator	Diesel	905.00 LF	8 Hours pe	28.96 hours	44.58
4	Taxiways	Drainage - 24 inch SICPP	Loader	Diesel	905.00 LF	8 Hours pe	28.96 hours	44.58
4	Taxiways	Drainage - 24 inch SICPP	Other General Equipment	Diesel	905.00 LF	8 Hours pe	28.96 hours	44.58
4	Taxiways	Drainage - 24 inch SICPP	Pickup Truck	Diesel	905.00 LF	8 Hours pe	28.96 hours	44.58
4	Taxiways	Drainage - 24 inch SICPP	Roller	Diesel	905.00 LF	8 Hours pe	28.96 hours	44.58
4	Taxiways	Drainage - 6 inch Perforated Underdrain	Dump Truck	Diesel	1810.00 LF	8 Hours pe	16.08889 hours	24.76
4	Taxiways	Drainage - 6 inch Perforated Underdrain	Loader	Diesel	1810.00 LF	8 Hours pe	16.08889 hours	24.76
4	Taxiways	Drainage - 6 inch Perforated Underdrain	Other General Equipment	Diesel	1810.00 LF	8 Hours pe	16.08889 hours	24.76
4	Taxiways	Drainage - 6 inch Perforated Underdrain	Pickup Truck	Diesel	1810.00 LF	8 Hours pe	16.08889 hours	24.76
4	Taxiways	Drainage - 6 inch Perforated Underdrain	Tractors/Loader/Backhoe	Diesel	1810.00 LF	8 Hours pe	16.08889 hours	24.76
4	Taxiways	Dust Control	Water Truck	Diesel	90.00 Day	8 Hours pe	720 hours	1200
4	Taxiways	Excavation (Borrow)	Dozer	Diesel	8278.80 CY	8 Hours pe	110.384 hours	170.57
4	Taxiways	Excavation (Borrow)	Dump Truck (12 cy)	Diesel	8278.80 CY	8 Hours pe	110.384 hours	170.57
4	Taxiways	Excavation (Borrow)	Pickup Truck	Diesel	8278.80 CY	8 Hours pe	110.384 hours	170.57
4	Taxiways	Excavation (Borrow)	Roller	Diesel	8278.80 CY	8 Hours pe	50.94646 hours	78.73
4	Taxiways	Excavation (Cut to Fill)	Dozer	Diesel	8278.80 CY	8 Hours pe	82.788 hours	127.93
4	Taxiways	Excavation (Cut to Fill)	Dump Truck (12 cy)	Diesel	8278.80 CY	8 Hours pe	220.768 hours	341.14
4	Taxiways	Excavation (Cut to Fill)	Excavator	Diesel	8278.80 CY	8 Hours pe	66.2304 hours	102.34
4	Taxiways	Excavation (Cut to Fill)	Pickup Truck	Diesel	8278.80 CY	8 Hours pe	66.2304 hours	102.34
4	Taxiways	Excavation (Cut to Fill)	Roller	Diesel	8278.80 CY	8 Hours pe	66.2304 hours	102.34
4	Taxiways	Excavation (Cut to Fill)	Scrapper	Diesel	8278.80 CY	8 Hours pe	82.788 hours	127.93
4	Taxiways	Excavation (Topsoil Stripping)	Dozer	Diesel	19869.00 SY	8 Hours pe	31.16706 hours	48.16
4	Taxiways	Fencing	Concrete Truck	Diesel	895.00 LF	2 Hours pe	9.944444 hours	15.37
4	Taxiways	Fencing	Dump Truck	Diesel	895.00 LF	8 Hours pe	39.77778 hours	61.47
4	Taxiways	Fencing	Other General Equipment	Diesel	895.00 LF	8 Hours pe	39.77778 hours	61.47
4	Taxiways	Fencing	Pickup Truck	Diesel	895.00 LF	8 Hours pe	39.77778 hours	61.47
4	Taxiways	Fencing	Skid Steer Loader	Diesel	895.00 LF	8 Hours pe	39.77778 hours	61.47
4	Taxiways	Fencing	Tractors/Loader/Backhoe	Diesel	895.00 LF	8 Hours pe	39.77778 hours	61.47
4	Taxiways	Grading	Dozer	Diesel	21095.60 SY	8 Hours pe	21.0956 hours	32.47
4	Taxiways	Grading	Grader	Diesel	21095.60 SY	8 Hours pe	21.0956 hours	32.47
4	Taxiways	Grading	Roller	Diesel	21095.60 SY	8 Hours pe	21.0956 hours	32.47
4	Taxiways	Hydroseeding	Hydroseeder	Diesel	190050.00 SF	8 Hours pe	19.005 hours	29.25
4	Taxiways	Hydroseeding	Off-Road Truck	Diesel	190050.00 SF	8 Hours pe	19.005 hours	29.25
4	Taxiways	Lighting	Dump Truck	Diesel	2190.00 LF	8 Hours pe	14.6 hours	21.11
4	Taxiways	Lighting	Loader	Diesel	2190.00 LF	8 Hours pe	14.6 hours	21.11
4	Taxiways	Lighting	Other General Equipment	Diesel	2190.00 LF	8 Hours pe	14.6 hours	21.11
4	Taxiways	Lighting	Pickup Truck	Diesel	2190.00 LF	8 Hours pe	14.6 hours	21.11
4	Taxiways	Lighting	Skid Steer Loader	Diesel	2190.00 LF	8 Hours pe	14.6 hours	21.11
4	Taxiways	Lighting	Tractors/Loader/Backhoe	Diesel	2190.00 LF	8 Hours pe	14.6 hours	21.11
4	Taxiways	Markings	Flatbed Truck	Diesel	179000.00 SF	8 Hours pe	409.1429 hours	632.23
4	Taxiways	Markings	Other General Equipment	Diesel	179000.00 SF	8 Hours pe	409.1429 hours	632.23
4	Taxiways	Markings	Pickup Truck	Diesel	179000.00 SF	8 Hours pe	409.1429 hours	632.23
4	Taxiways	Soil Erosion/Sediment Control	Other General Equipment	Diesel	4.40 Acre	4 Hours pe	17.6 hours	26.8
4	Taxiways	Soil Erosion/Sediment Control	Pickup Truck	Diesel	4.40 Acre	8 Hours pe	35.2 hours	53.6
4	Taxiways	Soil Erosion/Sediment Control	Pumps	Diesel	4.40 Acre	4 Hours pe	17.6 hours	26.8
4	Taxiways	Soil Erosion/Sediment Control	Tractors/Loader/Backhoe	Diesel	4.40 Acre	4 Hours pe	17.6 hours	26.8
4	Taxiways	Subbase Placement	Dozer	Diesel	19869.00 SY	8 Hours pe	41.82947 hours	64.64
4	Taxiways	Subbase Placement	Dump Truck (12 cy)	Diesel	6623.00 CY	8 Hours pe	294.3556 hours	454.85
4	Taxiways	Subbase Placement	Pickup Truck	Diesel	19869.00 SY	8 Hours pe	41.82947 hours	64.64
4	Taxiways	Subbase Placement	Roller	Diesel	6623.00 CY	8 Hours pe	40.75692 hours	62.98
4	Taxiways	Topsail Placement	Dozer	Diesel	3515.90 CY	8 Hours pe	46.87867 hours	72.16
4	Taxiways	Topsail Placement	Dump Truck	Diesel	3515.90 CY	8 Hours pe	46.87867 hours	72.16
4	Taxiways	Topsail Placement	Pickup Truck	Diesel	3515.90 CY	8 Hours pe	46.87867 hours	72.16
5	Building - 10000 sqft- 1 story	Concrete Foundations	Backhoe	Diesel	10000.00 SF	0.032 Hour	320 hours	
5	Building - 10000 sqft- 1 story	Concrete Foundations	Concrete Ready Mix Trucks	Diesel	10000.00 SF	0.006 Hour	60 hours	
5	Building - 10000 sqft- 1 story	Concrete Foundations	Fork Truck	Diesel	10000.00 SF	0.032 Hour	320 hours	
5	Building - 10000 sqft- 1 story	Concrete Foundations	Tool Truck	Diesel	10000.00 SF	0.008 Hour	80 hours	
5	Building - 10000 sqft- 1 story	Concrete Foundations	Tractor Trailer- Material Delivery	Diesel	10000.00 SF	0.0016 Hol	16 hours	
5	Building - 10000 sqft- 1 story	Construction Mob & Layout	Survey Crew Trucks	Diesel	10000.00 SF	0.001 Hour	10 hours	
5	Building - 10000 sqft- 1 story	Construction Mob & Layout	Tractor Trailers Temp Fac.	Diesel	10000.00 SF	0.0004 Hol	4 hours	
5	Building - 10000 sqft- 1 story	Exterior Wall Framing	Fork Truck	Diesel	10000.00 SF	0.024 Hour	240 hours	
5	Building - 10000 sqft- 1 story	Exterior Wall Framing	Man Lift	Diesel	10000.00 SF	0.024 Hour	240 hours	
5	Building - 10000 sqft- 1 story	Exterior Wall Framing	Tool Truck	Diesel	10000.00 SF	0.006 Hour	60 hours	
5	Building - 10000 sqft- 1 story	Exterior Wall Framing	Tractor Trailer- Material Delivery	Diesel	10000.00 SF	0.0024 Hol	24 hours	
5	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Fork Truck	Diesel	10000.00 SF	0.096 Hour	960 hours	
5	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Man Lift	Diesel	10000.00 SF	0.096 Hour	960 hours	
5	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Tool Truck	Diesel	10000.00 SF	0.012 Hour	120 hours	
5	Building - 10000 sqft- 1 story	Interior Build-Out/ Finishes	Tractor Trailer- Material Delivery	Diesel	10000.00 SF	0.012 Hour	120 hours	
5	Building - 10000 sqft- 1 story	Roofing	High Lift	Diesel	10000.00 SF	0.012 Hour	120 hours	
5	Building - 10000 sqft- 1 story	Roofing	Man Lift (Fascia Construction)	Diesel	10000.00 SF	0.012 Hour	120 hours	
5	Building - 10000 sqft- 1 story	Roofing	Material Deliveries	Diesel	10000.00 SF	0.0008 Hol	8 hours	
5	Building - 10000 sqft- 1 story	Roofing	Tractor Trailer- Material Delivery	Diesel	10000.00 SF	0.0012 Hol	12 hours	
5	Building - 10000 sqft- 1 story	Security & Safety Systems	High Lift	Diesel	10000.00 SF	0.032 Hour	320 hours	
5	Building - 10000 sqft- 1 story	Security & Safety Systems	Tool Truck	Diesel	10000.00 SF	0.008 Hour	80 hours	
5	Building - 10000 sqft- 1 story	Structural Steel Erection	40 Ton Crane	Diesel	10000.00 SF	0.024 Hour	240 hours	
5	Building							







**Attachment 1-C**  
CalEEMod Report

ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements**

**San Bernardino-South Coast County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	434.00	19,000,000.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	10			<b>Operational Year</b>	2026
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MWhr)</b>	390.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

- Project Characteristics -
- Land Use - Airport
- Construction Phase - Runway and taxiway paving in 2023, 2024 and 2025 (Proposed Project)
- Off-road Equipment - ffff
- Off-road Equipment - ACEIT estimated hours
- Off-road Equipment - ACEIT estimated hours
- Off-road Equipment - ACEIT estimated hours
- Off-road Equipment - ACEIT estimated hours
- Trips and VMT - ACEIT VMT assumptions
- Construction Off-road Equipment Mitigation - Assume Tier 4 equipment for mitigation

ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	36.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	7,750.00	195.00
tblConstructionPhase	NumDays	550.00	195.00
tblConstructionPhase	NumDays	550.00	197.00
tblConstructionPhase	NumDays	550.00	196.00
tblLandUse	LandUseSquareFeet	0.00	19,000,000.00
tblLandUse	LotAcreage	0.00	434.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	UsageHours	7.00	1.20
tblOffRoadEquipment	UsageHours	8.00	6.80
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	5.60
tblOffRoadEquipment	UsageHours	8.00	1.00

ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

tblOffRoadEquipment	UsageHours	8.00	6.20
tblOffRoadEquipment	UsageHours	8.00	3.20
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	7.00	1.60
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripNumber	0.00	93.00
tblTripsAndVMT	HaulingTripNumber	0.00	10,516.00
tblTripsAndVMT	HaulingTripNumber	0.00	13,454.00
tblTripsAndVMT	HaulingTripNumber	0.00	4,830.00
tblTripsAndVMT	VendorTripLength	6.90	40.00
tblTripsAndVMT	VendorTripLength	6.90	40.00
tblTripsAndVMT	VendorTripLength	6.90	40.00
tblTripsAndVMT	VendorTripLength	6.90	40.00
tblTripsAndVMT	VendorTripNumber	3,114.00	0.00
tblTripsAndVMT	WorkerTripLength	14.70	30.00
tblTripsAndVMT	WorkerTripLength	14.70	30.00
tblTripsAndVMT	WorkerTripLength	14.70	30.00
tblTripsAndVMT	WorkerTripLength	14.70	30.00
tblTripsAndVMT	WorkerTripNumber	7,980.00	33.00
tblTripsAndVMT	WorkerTripNumber	70.00	262.00
tblTripsAndVMT	WorkerTripNumber	123.00	581.00
tblTripsAndVMT	WorkerTripNumber	53.00	129.00

**2.0 Emissions Summary**

ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**2.1 Overall Construction**

**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	1.0593	8.3701	8.5917	0.0317	0.8259	0.3025	1.1284	0.2210	0.2792	0.5002	0.0000	2,869.2244	2,869.2244	0.6118	0.1028	2,915.1503
2024	1.4307	10.2305	12.5189	0.0452	1.5116	0.3661	1.8777	0.4035	0.3387	0.7422	0.0000	4,086.4143	4,086.4143	0.8103	0.1351	4,146.9401
2025	0.4559	3.2618	3.6797	0.0145	0.3659	0.1138	0.4797	0.0979	0.1050	0.2030	0.0000	1,306.9682	1,306.9682	0.2873	0.0443	1,327.3408
<b>Maximum</b>	<b>1.4307</b>	<b>10.2305</b>	<b>12.5189</b>	<b>0.0452</b>	<b>1.5116</b>	<b>0.3661</b>	<b>1.8777</b>	<b>0.4035</b>	<b>0.3387</b>	<b>0.7422</b>	<b>0.0000</b>	<b>4,086.4143</b>	<b>4,086.4143</b>	<b>0.8103</b>	<b>0.1351</b>	<b>4,146.9401</b>

**Mitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.4343	2.3719	12.1662	0.0317	0.8259	0.0488	0.8747	0.2210	0.0480	0.2690	0.0000	2,869.2223	2,869.2223	0.6118	0.1028	2,915.1481
2024	0.6649	3.1586	17.5556	0.0452	1.5116	0.0661	1.5776	0.4035	0.0649	0.4684	0.0000	4,086.4114	4,086.4114	0.8103	0.1351	4,146.9372
2025	0.1900	1.0847	5.4904	0.0145	0.3659	0.0225	0.3884	0.0979	0.0222	0.1201	0.0000	1,306.9672	1,306.9672	0.2873	0.0443	1,327.3398
<b>Maximum</b>	<b>0.6649</b>	<b>3.1586</b>	<b>17.5556</b>	<b>0.0452</b>	<b>1.5116</b>	<b>0.0661</b>	<b>1.5776</b>	<b>0.4035</b>	<b>0.0649</b>	<b>0.4684</b>	<b>0.0000</b>	<b>4,086.4114</b>	<b>4,086.4114</b>	<b>0.8103</b>	<b>0.1351</b>	<b>4,146.9372</b>

ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	56.24	69.74	-42.04	0.00	0.00	82.44	18.50	0.00	81.31	40.67	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-16-2023	4-15-2023	3.1050	0.9215
2	4-16-2023	7-15-2023	3.1225	0.9148
3	7-16-2023	10-15-2023	3.1602	0.9282
4	10-16-2023	1-15-2024	0.0423	0.0139
5	1-16-2024	4-15-2024	3.8449	1.2588
6	4-16-2024	7-15-2024	3.8221	1.2361
7	7-16-2024	10-15-2024	3.8686	1.2541
8	10-16-2024	1-15-2025	0.0135	0.0046
9	1-16-2025	4-15-2025	1.2177	0.4164
10	4-16-2025	7-15-2025	1.2238	0.4136
11	7-16-2025	9-30-2025	1.0355	0.3499
		Highest	3.8686	1.2588

ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**2.2 Overall Operational**

**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	77.4630	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>77.4630</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>3.0000e-005</b>



ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**2.2 Overall Operational**

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	77.4630	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>77.4630</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>3.0000e-005</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	2023 - South Elec Vault, Scenario 5	Building Construction	1/15/2023	10/15/2023	5	195	
2	2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Paving	1/15/2023	10/15/2023	5	195	

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

3	2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Paving	1/15/2024	10/15/2024	5	197
4	2025 - Paving/Demo, Scenario 7 & 8	Paving	1/15/2025	10/15/2025	5	196

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
2023 - South Elec Vault, Scenario 5	Cranes	1	1.20	231	0.29
2023 - South Elec Vault, Scenario 5	Forklifts	1	6.80	89	0.20
2023 - South Elec Vault, Scenario 5	Off-Highway Trucks	1	3.40	402	0.38
2023 - South Elec Vault, Scenario 5	Rough Terrain Forklifts	2	5.30	100	0.40
2023 - South Elec Vault, Scenario 5	Tractors/Loaders/Backhoes	1	1.60	97	0.37
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Air Compressors	1	1.90	78	0.48
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Concrete/Industrial Saws	1	1.80	81	0.73
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Excavators	1	5.30	158	0.38
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Graders	1	0.60	187	0.41
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Off-Highway Trucks	11	8.30	402	0.38
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Other Construction Equipment	3	6.40	172	0.42
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Pavers	1	2.00	130	0.42
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Pumps	1	0.50	84	0.74
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Rollers	1	6.20	80	0.38
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Rubber Tired Dozers	2	5.50	247	0.40

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Rubber Tired Loaders	1	3.60	203	0.36
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Scrapers	1	2.30	367	0.48
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Skid Steer Loaders	1	2.00	65	0.37
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Surfacing Equipment	1	2.10	263	0.30
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Tractors/Loaders/Backhoes	1	2.70	97	0.37
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Air Compressors	1	3.80	78	0.48
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Concrete/Industrial Saws	2	4.50	81	0.73
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Cranes	1	0.10	231	0.29
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Excavators	1	6.00	158	0.38
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Graders	1	0.20	187	0.41
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Off-Highway Trucks	18	6.20	402	0.38
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Other Construction Equipment	6	6.10	172	0.42
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Pavers	4	5.60	130	0.42
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Pumps	1	0.20	84	0.74
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Rollers	1	3.20	80	0.38
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Rubber Tired Dozers	1	3.50	247	0.40
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Rubber Tired Loaders	4	5.40	203	0.36
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Scrapers	1	0.10	367	0.48
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Skid Steer Loaders	1	1.40	65	0.37
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Surfacing Equipment	4	5.40	263	0.30
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Sweepers/Scrubbers	1	0.90	64	0.46
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Tractors/Loaders/Backhoes	1	1.10	97	0.37
2025 - Paving/Demo, Scenario 7 & 8	Air Compressors	1	0.80	78	0.48
2025 - Paving/Demo, Scenario 7 & 8	Concrete/Industrial Saws	1	0.80	81	0.73

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2025 - Paving/Demo, Scenario 7 & 8	Excavators	1	1.60	158	0.38
2025 - Paving/Demo, Scenario 7 & 8	Graders	1	0.30	187	0.41
2025 - Paving/Demo, Scenario 7 & 8	Off-Highway Trucks	6	7.80	402	0.38
2025 - Paving/Demo, Scenario 7 & 8	Other Construction Equipment	2	4.80	172	0.42
2025 - Paving/Demo, Scenario 7 & 8	Pavers	1	1.00	130	0.42
2025 - Paving/Demo, Scenario 7 & 8	Pumps	1	0.20	84	0.74
2025 - Paving/Demo, Scenario 7 & 8	Rollers	1	3.00	80	0.38
2025 - Paving/Demo, Scenario 7 & 8	Rubber Tired Dozers	1	5.00	247	0.40
2025 - Paving/Demo, Scenario 7 & 8	Rubber Tired Loaders	1	1.60	203	0.36
2025 - Paving/Demo, Scenario 7 & 8	Scrapers	1	1.10	367	0.48
2025 - Paving/Demo, Scenario 7 & 8	Skid Steer Loaders	1	1.20	65	0.37
2025 - Paving/Demo, Scenario 7 & 8	Surfacing Equipment	1	1.00	263	0.30
2025 - Paving/Demo, Scenario 7 & 8	Tractors/Loaders/Backhoes	1	1.50	97	0.37

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
2023 - South Elec Vault, Scenario 5	6	33.00	0.00	93.00	30.00	40.00	40.00	LD_Mix	HDT_Mix	HHDT
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	28	262.00	0.00	10,516.00	30.00	40.00	40.00	LD_Mix	HDT_Mix	HHDT
2024- Runway Rehab, Service Road, NAVAID	49	581.00	0.00	13,454.00	30.00	40.00	40.00	LD_Mix	HDT_Mix	HHDT
2025 - Paving/Demo, Scenario 7 & 8	21	129.00	0.00	4,830.00	30.00	40.00	40.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Use Cleaner Engines for Construction Equipment

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 2023 - South Elec Vault, Scenario 5 - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0511	0.4939	0.5970	1.2700e-003		0.0199	0.0199		0.0183	0.0183	0.0000	111.1121	111.1121	0.0359	0.0000	112.0105
<b>Total</b>	<b>0.0511</b>	<b>0.4939</b>	<b>0.5970</b>	<b>1.2700e-003</b>		<b>0.0199</b>	<b>0.0199</b>		<b>0.0183</b>	<b>0.0183</b>	<b>0.0000</b>	<b>111.1121</b>	<b>111.1121</b>	<b>0.0359</b>	<b>0.0000</b>	<b>112.0105</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.6000e-004	9.8300e-003	2.2500e-003	5.0000e-005	1.6000e-003	1.1000e-004	1.7100e-003	4.4000e-004	1.0000e-004	5.4000e-004	0.0000	5.0234	5.0234	2.2000e-004	8.0000e-004	5.2661
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0184	0.0153	0.1955	6.0000e-004	0.0720	3.5000e-004	0.0723	0.0191	3.2000e-004	0.0194	0.0000	54.9515	54.9515	1.0700e-003	1.3400e-003	55.3765
<b>Total</b>	<b>0.0186</b>	<b>0.0252</b>	<b>0.1977</b>	<b>6.5000e-004</b>	<b>0.0736</b>	<b>4.6000e-004</b>	<b>0.0740</b>	<b>0.0196</b>	<b>4.2000e-004</b>	<b>0.0200</b>	<b>0.0000</b>	<b>59.9749</b>	<b>59.9749</b>	<b>1.2900e-003</b>	<b>2.1400e-003</b>	<b>60.6426</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 2023 - South Elec Vault, Scenario 5 - 2023**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0155	0.0672	0.7628	1.2700e-003		2.0700e-003	2.0700e-003		2.0700e-003	2.0700e-003	0.0000	111.1120	111.1120	0.0359	0.0000	112.0104
<b>Total</b>	<b>0.0155</b>	<b>0.0672</b>	<b>0.7628</b>	<b>1.2700e-003</b>		<b>2.0700e-003</b>	<b>2.0700e-003</b>		<b>2.0700e-003</b>	<b>2.0700e-003</b>	<b>0.0000</b>	<b>111.1120</b>	<b>111.1120</b>	<b>0.0359</b>	<b>0.0000</b>	<b>112.0104</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.6000e-004	9.8300e-003	2.2500e-003	5.0000e-005	1.6000e-003	1.1000e-004	1.7100e-003	4.4000e-004	1.0000e-004	5.4000e-004	0.0000	5.0234	5.0234	2.2000e-004	8.0000e-004	5.2661
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0184	0.0153	0.1955	6.0000e-004	0.0720	3.5000e-004	0.0723	0.0191	3.2000e-004	0.0194	0.0000	54.9515	54.9515	1.0700e-003	1.3400e-003	55.3765
<b>Total</b>	<b>0.0186</b>	<b>0.0252</b>	<b>0.1977</b>	<b>6.5000e-004</b>	<b>0.0736</b>	<b>4.6000e-004</b>	<b>0.0740</b>	<b>0.0196</b>	<b>4.2000e-004</b>	<b>0.0200</b>	<b>0.0000</b>	<b>59.9749</b>	<b>59.9749</b>	<b>1.2900e-003</b>	<b>2.1400e-003</b>	<b>60.6426</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 2023 - Paving/Demo, Scenarios 1, 2, 3 and 4 - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.8257	6.6181	5.9910	0.0193		0.2673	0.2673		0.2464	0.2464	0.0000	1,693.8367	1,693.8367	0.5416	0.0000	1,707.3756
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.8257</b>	<b>6.6181</b>	<b>5.9910</b>	<b>0.0193</b>		<b>0.2673</b>	<b>0.2673</b>		<b>0.2464</b>	<b>0.2464</b>	<b>0.0000</b>	<b>1,693.8367</b>	<b>1,693.8367</b>	<b>0.5416</b>	<b>0.0000</b>	<b>1,707.3756</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0177	1.1110	0.2540	5.7400e-003	0.1810	0.0121	0.1931	0.0497	0.0116	0.0613	0.0000	568.0190	568.0190	0.0245	0.0901	595.4654
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1462	0.1218	1.5520	4.7600e-003	0.5714	2.7400e-003	0.5741	0.1517	2.5200e-003	0.1542	0.0000	436.2817	436.2817	8.5100e-003	0.0106	439.6562
<b>Total</b>	<b>0.1640</b>	<b>1.2329</b>	<b>1.8060</b>	<b>0.0105</b>	<b>0.7524</b>	<b>0.0149</b>	<b>0.7672</b>	<b>0.2014</b>	<b>0.0141</b>	<b>0.2155</b>	<b>0.0000</b>	<b>1,004.3007</b>	<b>1,004.3007</b>	<b>0.0330</b>	<b>0.1007</b>	<b>1,035.1216</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 2023 - Paving/Demo, Scenarios 1, 2, 3 and 4 - 2023**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2363	1.0467	9.3997	0.0193		0.0314	0.0314		0.0314	0.0314	0.0000	1,693.8347	1,693.8347	0.5416	0.0000	1,707.3735
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.2363</b>	<b>1.0467</b>	<b>9.3997</b>	<b>0.0193</b>		<b>0.0314</b>	<b>0.0314</b>		<b>0.0314</b>	<b>0.0314</b>	<b>0.0000</b>	<b>1,693.8347</b>	<b>1,693.8347</b>	<b>0.5416</b>	<b>0.0000</b>	<b>1,707.3735</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0177	1.1110	0.2540	5.7400e-003	0.1810	0.0121	0.1931	0.0497	0.0116	0.0613	0.0000	568.0190	568.0190	0.0245	0.0901	595.4654
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1462	0.1218	1.5520	4.7600e-003	0.5714	2.7400e-003	0.5741	0.1517	2.5200e-003	0.1542	0.0000	436.2817	436.2817	8.5100e-003	0.0106	439.6562
<b>Total</b>	<b>0.1640</b>	<b>1.2329</b>	<b>1.8060</b>	<b>0.0105</b>	<b>0.7524</b>	<b>0.0149</b>	<b>0.7672</b>	<b>0.2014</b>	<b>0.0141</b>	<b>0.2155</b>	<b>0.0000</b>	<b>1,004.3007</b>	<b>1,004.3007</b>	<b>0.0330</b>	<b>0.1007</b>	<b>1,035.1216</b>



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 2024- Runway Rehab, Service Road, NAVAID, Scenario 6 - 2024**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.1031	8.5625	8.9668	0.0276		0.3449	0.3449		0.3186	0.3186	0.0000	2,423.2840	2,423.2840	0.7627	0.0000	2,442.3505
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>1.1031</b>	<b>8.5625</b>	<b>8.9668</b>	<b>0.0276</b>		<b>0.3449</b>	<b>0.3449</b>		<b>0.3186</b>	<b>0.3186</b>	<b>0.0000</b>	<b>2,423.2840</b>	<b>2,423.2840</b>	<b>0.7627</b>	<b>0.0000</b>	<b>2,442.3505</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0224	1.4272	0.3263	7.2200e-003	0.2316	0.0153	0.2469	0.0636	0.0146	0.0782	0.0000	714.0614	714.0614	0.0304	0.1132	748.5539
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.3052	0.2409	3.2257	0.0104	1.2800	5.9000e-003	1.2859	0.3399	5.4300e-003	0.3453	0.0000	949.0688	949.0688	0.0172	0.0219	956.0357
<b>Total</b>	<b>0.3276</b>	<b>1.6680</b>	<b>3.5520</b>	<b>0.0176</b>	<b>1.5116</b>	<b>0.0212</b>	<b>1.5328</b>	<b>0.4035</b>	<b>0.0201</b>	<b>0.4235</b>	<b>0.0000</b>	<b>1,663.1302</b>	<b>1,663.1302</b>	<b>0.0476</b>	<b>0.1351</b>	<b>1,704.5896</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 2024- Runway Rehab, Service Road, NAVAID, Scenario 6 - 2024**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3373	1.4906	14.0036	0.0276		0.0449	0.0449		0.0449	0.0449	0.0000	2,423.2812	2,423.2812	0.7627	0.0000	2,442.3476
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.3373</b>	<b>1.4906</b>	<b>14.0036</b>	<b>0.0276</b>		<b>0.0449</b>	<b>0.0449</b>		<b>0.0449</b>	<b>0.0449</b>	<b>0.0000</b>	<b>2,423.2812</b>	<b>2,423.2812</b>	<b>0.7627</b>	<b>0.0000</b>	<b>2,442.3476</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0224	1.4272	0.3263	7.2200e-003	0.2316	0.0153	0.2469	0.0636	0.0146	0.0782	0.0000	714.0614	714.0614	0.0304	0.1132	748.5539
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.3052	0.2409	3.2257	0.0104	1.2800	5.9000e-003	1.2859	0.3399	5.4300e-003	0.3453	0.0000	949.0688	949.0688	0.0172	0.0219	956.0357
<b>Total</b>	<b>0.3276</b>	<b>1.6680</b>	<b>3.5520</b>	<b>0.0176</b>	<b>1.5116</b>	<b>0.0212</b>	<b>1.5328</b>	<b>0.4035</b>	<b>0.0201</b>	<b>0.4235</b>	<b>0.0000</b>	<b>1,663.1302</b>	<b>1,663.1302</b>	<b>0.0476</b>	<b>0.1351</b>	<b>1,704.5896</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.5 2025 - Paving/Demo, Scenario 7 & 8 - 2025**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3851	2.7073	2.9038	9.7200e-003		0.1071	0.1071		0.0987	0.0987	0.0000	853.6037	853.6037	0.2733	0.0000	860.4365
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.3851</b>	<b>2.7073</b>	<b>2.9038</b>	<b>9.7200e-003</b>		<b>0.1071</b>	<b>0.1071</b>		<b>0.0987</b>	<b>0.0987</b>	<b>0.0000</b>	<b>853.6037</b>	<b>853.6037</b>	<b>0.2733</b>	<b>0.0000</b>	<b>860.4365</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.9600e-003	0.5073	0.1170	2.5400e-003	0.0831	5.4600e-003	0.0886	0.0228	5.2300e-003	0.0281	0.0000	250.8621	250.8621	0.0106	0.0398	262.9779
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0629	0.0472	0.6588	2.2100e-003	0.2828	1.2400e-003	0.2840	0.0751	1.1400e-003	0.0762	0.0000	202.5023	202.5023	3.3900e-003	4.4900e-003	203.9265
<b>Total</b>	<b>0.0709</b>	<b>0.5545</b>	<b>0.7758</b>	<b>4.7500e-003</b>	<b>0.3659</b>	<b>6.7000e-003</b>	<b>0.3726</b>	<b>0.0979</b>	<b>6.3700e-003</b>	<b>0.1043</b>	<b>0.0000</b>	<b>453.3645</b>	<b>453.3645</b>	<b>0.0140</b>	<b>0.0443</b>	<b>466.9043</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.5 2025 - Paving/Demo, Scenario 7 & 8 - 2025**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1192	0.5302	4.7146	9.7200e-003		0.0158	0.0158		0.0158	0.0158	0.0000	853.6027	853.6027	0.2733	0.0000	860.4355
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.1192</b>	<b>0.5302</b>	<b>4.7146</b>	<b>9.7200e-003</b>		<b>0.0158</b>	<b>0.0158</b>		<b>0.0158</b>	<b>0.0158</b>	<b>0.0000</b>	<b>853.6027</b>	<b>853.6027</b>	<b>0.2733</b>	<b>0.0000</b>	<b>860.4355</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.9600e-003	0.5073	0.1170	2.5400e-003	0.0831	5.4600e-003	0.0886	0.0228	5.2300e-003	0.0281	0.0000	250.8621	250.8621	0.0106	0.0398	262.9779
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0629	0.0472	0.6588	2.2100e-003	0.2828	1.2400e-003	0.2840	0.0751	1.1400e-003	0.0762	0.0000	202.5023	202.5023	3.3900e-003	4.4900e-003	203.9265
<b>Total</b>	<b>0.0709</b>	<b>0.5545</b>	<b>0.7758</b>	<b>4.7500e-003</b>	<b>0.3659</b>	<b>6.7000e-003</b>	<b>0.3726</b>	<b>0.0979</b>	<b>6.3700e-003</b>	<b>0.1043</b>	<b>0.0000</b>	<b>453.3645</b>	<b>453.3645</b>	<b>0.0140</b>	<b>0.0443</b>	<b>466.9043</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**4.0 Operational Detail - Mobile**

**4.1 Mitigation Measures Mobile**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.545300	0.056532	0.173573	0.132281	0.025040	0.006914	0.012148	0.017464	0.000548	0.000245	0.024607	0.000958	0.004391

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.2 Energy by Land Use - NaturalGas**

**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	77.4630	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	77.4630	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

**6.2 Area by SubCategory**

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	8.8065					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	68.6565					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
<b>Total</b>	<b>77.4630</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>3.0000e-005</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**6.2 Area by SubCategory**

**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	8.8065					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	68.6565					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
<b>Total</b>	<b>77.4630</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>3.0000e-005</b>

**7.0 Water Detail**

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**7.1 Mitigation Measures Water**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**7.2 Water by Land Use**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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**ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements**

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**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	434.00	19,000,000.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	10	<b>Operational Year</b>		2025	
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MWhr)</b>	390.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

- Project Characteristics -
- Land Use - Airport
- Construction Phase - Runway and taxiway paving in 2023 and 2024 (Two-Year Alternative)
- Off-road Equipment - ffff
- Off-road Equipment - ACEIT input
- Off-road Equipment - ACEIT estimated hours
- Off-road Equipment - ACEIT estimated hours
- Off-road Equipment - ACEIT estimated hours
- Trips and VMT - ACEIT VMT assumptions
- Construction Off-road Equipment Mitigation - Assume Tier 4 equipment for mitigation

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	36.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	7,750.00	195.00
tblConstructionPhase	NumDays	550.00	195.00
tblConstructionPhase	NumDays	550.00	196.00
tblConstructionPhase	NumDays	550.00	197.00
tblLandUse	LandUseSquareFeet	0.00	19,000,000.00
tblLandUse	LotAcreage	0.00	434.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	UsageHours	7.00	1.20
tblOffRoadEquipment	UsageHours	8.00	6.80
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	5.60

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

tblOffRoadEquipment	UsageHours	8.00	6.20
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.20
tblOffRoadEquipment	UsageHours	7.00	1.60
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripNumber	0.00	93.00
tblTripsAndVMT	HaulingTripNumber	0.00	10,516.00
tblTripsAndVMT	HaulingTripNumber	0.00	4,830.00
tblTripsAndVMT	HaulingTripNumber	0.00	13,454.00
tblTripsAndVMT	VendorTripLength	6.90	40.00
tblTripsAndVMT	VendorTripLength	6.90	40.00
tblTripsAndVMT	VendorTripLength	6.90	40.00
tblTripsAndVMT	VendorTripLength	6.90	40.00
tblTripsAndVMT	VendorTripNumber	3,114.00	0.00
tblTripsAndVMT	WorkerTripLength	14.70	30.00
tblTripsAndVMT	WorkerTripLength	14.70	30.00
tblTripsAndVMT	WorkerTripLength	14.70	30.00
tblTripsAndVMT	WorkerTripLength	14.70	30.00
tblTripsAndVMT	WorkerTripNumber	7,980.00	33.00
tblTripsAndVMT	WorkerTripNumber	70.00	262.00
tblTripsAndVMT	WorkerTripNumber	53.00	129.00
tblTripsAndVMT	WorkerTripNumber	123.00	581.00

**2.0 Emissions Summary**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**2.1 Overall Construction**

**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	1.5532	12.2355	12.4583	0.0464	1.1918	0.4419	1.6337	0.3189	0.4078	0.7267	0.0000	4,199.7244	4,199.7244	0.9006	0.1494	4,266.7612
2024	1.4307	10.2305	12.5189	0.0452	1.5116	0.3661	1.8777	0.4035	0.3387	0.7422	0.0000	4,086.4143	4,086.4143	0.8103	0.1351	4,146.9401
<b>Maximum</b>	<b>1.5532</b>	<b>12.2355</b>	<b>12.5189</b>	<b>0.0464</b>	<b>1.5116</b>	<b>0.4419</b>	<b>1.8777</b>	<b>0.4035</b>	<b>0.4078</b>	<b>0.7422</b>	<b>0.0000</b>	<b>4,199.7244</b>	<b>4,199.7244</b>	<b>0.9006</b>	<b>0.1494</b>	<b>4,266.7612</b>

**Mitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.6340	3.4727	17.7655	0.0464	1.1918	0.0715	1.2634	0.3189	0.0704	0.3893	0.0000	4,199.7212	4,199.7212	0.9006	0.1494	4,266.7581
2024	0.6649	3.1586	17.5556	0.0452	1.5116	0.0661	1.5776	0.4035	0.0649	0.4684	0.0000	4,086.4114	4,086.4114	0.8103	0.1351	4,146.9372
<b>Maximum</b>	<b>0.6649</b>	<b>3.4727</b>	<b>17.7655</b>	<b>0.0464</b>	<b>1.5116</b>	<b>0.0715</b>	<b>1.5776</b>	<b>0.4035</b>	<b>0.0704</b>	<b>0.4684</b>	<b>0.0000</b>	<b>4,199.7212</b>	<b>4,199.7212</b>	<b>0.9006</b>	<b>0.1494</b>	<b>4,266.7581</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	56.47	70.48	-41.41	0.00	0.00	82.97	19.09	0.00	81.87	41.61	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-16-2023	4-15-2023	4.5331	1.3463
2	4-16-2023	7-15-2023	4.5589	1.3368
3	7-16-2023	10-15-2023	4.6138	1.3563
4	10-16-2023	1-15-2024	0.0582	0.0186
5	1-16-2024	4-15-2024	3.8449	1.2588
6	4-16-2024	7-15-2024	3.8221	1.2361
7	7-16-2024	9-30-2024	3.2341	1.0459
		Highest	4.6138	1.3563

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**2.2 Overall Operational**

**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	77.4630	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>77.4630</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>3.0000e-005</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**2.2 Overall Operational**

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	77.4630	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>77.4630</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>3.0000e-005</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	2023 - South Elec Vault, Scenario 5	Building Construction	1/15/2023	10/15/2023	5	195	
2	2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Paving	1/15/2023	10/15/2023	5	195	

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3	2023 - Paving/Demo, Scenario 7 & 8	Paving	1/15/2023	10/16/2023	5	196
4	2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Paving	1/15/2024	10/15/2024	5	197

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
2023 - South Elec Vault, Scenario 5	Cranes	1	1.20	231	0.29
2023 - South Elec Vault, Scenario 5	Forklifts	1	6.80	89	0.20
2023 - South Elec Vault, Scenario 5	Off-Highway Trucks	1	3.40	402	0.38
2023 - South Elec Vault, Scenario 5	Rough Terrain Forklifts	2	5.30	100	0.40
2023 - South Elec Vault, Scenario 5	Tractors/Loaders/Backhoes	1	1.60	97	0.37
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Air Compressors	1	1.90	78	0.48
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Concrete/Industrial Saws	1	1.80	81	0.73
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Excavators	1	5.30	158	0.38
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Graders	1	0.60	187	0.41
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Off-Highway Trucks	11	8.30	402	0.38
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Other Construction Equipment	3	6.40	172	0.42
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Pavers	1	2.00	130	0.42
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Pumps	1	0.50	84	0.74
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Rollers	1	6.20	80	0.38
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Rubber Tired Dozers	2	5.50	247	0.40

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2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Rubber Tired Loaders	1	3.60	203	0.36
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Scrapers	1	2.30	367	0.48
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Skid Steer Loaders	1	2.00	65	0.37
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Surfacing Equipment	1	2.10	263	0.30
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	Tractors/Loaders/Backhoes	1	2.70	97	0.37
2023 - Paving/Demo, Scenario 7 & 8	Air Compressors	1	0.80	78	0.48
2023 - Paving/Demo, Scenario 7 & 8	Concrete/Industrial Saws	1	0.80	81	0.73
2023 - Paving/Demo, Scenario 7 & 8	Excavators	1	1.60	158	0.38
2023 - Paving/Demo, Scenario 7 & 8	Graders	1	0.30	187	0.41
2023 - Paving/Demo, Scenario 7 & 8	Off-Highway Trucks	6	7.80	402	0.38
2023 - Paving/Demo, Scenario 7 & 8	Other Construction Equipment	2	4.80	172	0.42
2023 - Paving/Demo, Scenario 7 & 8	Pavers	1	1.00	130	0.42
2023 - Paving/Demo, Scenario 7 & 8	Pumps	1	0.20	84	0.74
2023 - Paving/Demo, Scenario 7 & 8	Rollers	1	3.00	80	0.38
2023 - Paving/Demo, Scenario 7 & 8	Rubber Tired Dozers	1	5.00	247	0.40
2023 - Paving/Demo, Scenario 7 & 8	Rubber Tired Loaders	1	1.60	203	0.36
2023 - Paving/Demo, Scenario 7 & 8	Scrapers	1	1.10	367	0.48
2023 - Paving/Demo, Scenario 7 & 8	Skid Steer Loaders	1	1.20	65	0.37
2023 - Paving/Demo, Scenario 7 & 8	Surfacing Equipment	1	1.00	263	0.30
2023 - Paving/Demo, Scenario 7 & 8	Tractors/Loaders/Backhoes	1	1.50	97	0.37
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Air Compressors	1	3.80	78	0.48
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Concrete/Industrial Saws	2	4.50	81	0.73
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Cranes	1	0.10	231	0.29
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Excavators	1	6.00	158	0.38
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Graders	1	0.20	187	0.41
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Off-Highway Trucks	18	6.20	402	0.38



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2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Other Construction Equipment	6	6.10	172	0.42
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Pavers	4	5.60	130	0.42
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Pumps	1	0.20	84	0.74
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Rollers	1	3.20	80	0.38
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Rubber Tired Dozers	1	3.50	247	0.40
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Rubber Tired Loaders	4	5.40	203	0.36
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Scrapers	1	0.10	367	0.48
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Skid Steer Loaders	1	1.40	65	0.37
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Surfacing Equipment	4	5.40	263	0.30
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Sweepers/Scrubbers	1	0.90	64	0.46
2024- Runway Rehab, Service Road, NAVAID, Scenario 6	Tractors/Loaders/Backhoes	1	1.10	97	0.37

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
2023 - South Elec Vault, Scenario 5	6	33.00	0.00	93.00	30.00	40.00	40.00	LD_Mix	HDT_Mix	HHDT
2023 - Paving/Demo, Scenarios 1, 2, 3 and 4	28	262.00	0.00	10,516.00	30.00	40.00	40.00	LD_Mix	HDT_Mix	HHDT
2023 - Paving/Demo, Scenario 7 & 8	21	129.00	0.00	4,830.00	30.00	40.00	40.00	LD_Mix	HDT_Mix	HHDT
2024- Runway Rehab, Service Road, NAVAID	49	581.00	0.00	13,454.00	30.00	40.00	40.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Use Cleaner Engines for Construction Equipment

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**3.2 2023 - South Elec Vault, Scenario 5 - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0511	0.4939	0.5970	1.2700e-003		0.0199	0.0199		0.0183	0.0183	0.0000	111.1121	111.1121	0.0359	0.0000	112.0105
<b>Total</b>	<b>0.0511</b>	<b>0.4939</b>	<b>0.5970</b>	<b>1.2700e-003</b>		<b>0.0199</b>	<b>0.0199</b>		<b>0.0183</b>	<b>0.0183</b>	<b>0.0000</b>	<b>111.1121</b>	<b>111.1121</b>	<b>0.0359</b>	<b>0.0000</b>	<b>112.0105</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.6000e-004	9.8300e-003	2.2500e-003	5.0000e-005	1.6000e-003	1.1000e-004	1.7100e-003	4.4000e-004	1.0000e-004	5.4000e-004	0.0000	5.0234	5.0234	2.2000e-004	8.0000e-004	5.2661
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0184	0.0153	0.1955	6.0000e-004	0.0720	3.5000e-004	0.0723	0.0191	3.2000e-004	0.0194	0.0000	54.9515	54.9515	1.0700e-003	1.3400e-003	55.3765
<b>Total</b>	<b>0.0186</b>	<b>0.0252</b>	<b>0.1977</b>	<b>6.5000e-004</b>	<b>0.0736</b>	<b>4.6000e-004</b>	<b>0.0740</b>	<b>0.0196</b>	<b>4.2000e-004</b>	<b>0.0200</b>	<b>0.0000</b>	<b>59.9749</b>	<b>59.9749</b>	<b>1.2900e-003</b>	<b>2.1400e-003</b>	<b>60.6426</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 2023 - South Elec Vault, Scenario 5 - 2023**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0155	0.0672	0.7628	1.2700e-003		2.0700e-003	2.0700e-003		2.0700e-003	2.0700e-003	0.0000	111.1120	111.1120	0.0359	0.0000	112.0104
<b>Total</b>	<b>0.0155</b>	<b>0.0672</b>	<b>0.7628</b>	<b>1.2700e-003</b>		<b>2.0700e-003</b>	<b>2.0700e-003</b>		<b>2.0700e-003</b>	<b>2.0700e-003</b>	<b>0.0000</b>	<b>111.1120</b>	<b>111.1120</b>	<b>0.0359</b>	<b>0.0000</b>	<b>112.0104</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.6000e-004	9.8300e-003	2.2500e-003	5.0000e-005	1.6000e-003	1.1000e-004	1.7100e-003	4.4000e-004	1.0000e-004	5.4000e-004	0.0000	5.0234	5.0234	2.2000e-004	8.0000e-004	5.2661
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0184	0.0153	0.1955	6.0000e-004	0.0720	3.5000e-004	0.0723	0.0191	3.2000e-004	0.0194	0.0000	54.9515	54.9515	1.0700e-003	1.3400e-003	55.3765
<b>Total</b>	<b>0.0186</b>	<b>0.0252</b>	<b>0.1977</b>	<b>6.5000e-004</b>	<b>0.0736</b>	<b>4.6000e-004</b>	<b>0.0740</b>	<b>0.0196</b>	<b>4.2000e-004</b>	<b>0.0200</b>	<b>0.0000</b>	<b>59.9749</b>	<b>59.9749</b>	<b>1.2900e-003</b>	<b>2.1400e-003</b>	<b>60.6426</b>

ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 2023 - Paving/Demo, Scenarios 1, 2, 3 and 4 - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.8257	6.6181	5.9910	0.0193		0.2673	0.2673		0.2464	0.2464	0.0000	1,693.8367	1,693.8367	0.5416	0.0000	1,707.3756
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.8257</b>	<b>6.6181</b>	<b>5.9910</b>	<b>0.0193</b>		<b>0.2673</b>	<b>0.2673</b>		<b>0.2464</b>	<b>0.2464</b>	<b>0.0000</b>	<b>1,693.8367</b>	<b>1,693.8367</b>	<b>0.5416</b>	<b>0.0000</b>	<b>1,707.3756</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0177	1.1110	0.2540	5.7400e-003	0.1810	0.0121	0.1931	0.0497	0.0116	0.0613	0.0000	568.0190	568.0190	0.0245	0.0901	595.4654
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1462	0.1218	1.5520	4.7600e-003	0.5714	2.7400e-003	0.5741	0.1517	2.5200e-003	0.1542	0.0000	436.2817	436.2817	8.5100e-003	0.0106	439.6562
<b>Total</b>	<b>0.1640</b>	<b>1.2329</b>	<b>1.8060</b>	<b>0.0105</b>	<b>0.7524</b>	<b>0.0149</b>	<b>0.7672</b>	<b>0.2014</b>	<b>0.0141</b>	<b>0.2155</b>	<b>0.0000</b>	<b>1,004.3007</b>	<b>1,004.3007</b>	<b>0.0330</b>	<b>0.1007</b>	<b>1,035.1216</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 2023 - Paving/Demo, Scenarios 1, 2, 3 and 4 - 2023**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2363	1.0467	9.3997	0.0193		0.0314	0.0314		0.0314	0.0314	0.0000	1,693.8347	1,693.8347	0.5416	0.0000	1,707.3735
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.2363</b>	<b>1.0467</b>	<b>9.3997</b>	<b>0.0193</b>		<b>0.0314</b>	<b>0.0314</b>		<b>0.0314</b>	<b>0.0314</b>	<b>0.0000</b>	<b>1,693.8347</b>	<b>1,693.8347</b>	<b>0.5416</b>	<b>0.0000</b>	<b>1,707.3735</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0177	1.1110	0.2540	5.7400e-003	0.1810	0.0121	0.1931	0.0497	0.0116	0.0613	0.0000	568.0190	568.0190	0.0245	0.0901	595.4654
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1462	0.1218	1.5520	4.7600e-003	0.5714	2.7400e-003	0.5741	0.1517	2.5200e-003	0.1542	0.0000	436.2817	436.2817	8.5100e-003	0.0106	439.6562
<b>Total</b>	<b>0.1640</b>	<b>1.2329</b>	<b>1.8060</b>	<b>0.0105</b>	<b>0.7524</b>	<b>0.0149</b>	<b>0.7672</b>	<b>0.2014</b>	<b>0.0141</b>	<b>0.2155</b>	<b>0.0000</b>	<b>1,004.3007</b>	<b>1,004.3007</b>	<b>0.0330</b>	<b>0.1007</b>	<b>1,035.1216</b>

ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 2023 - Paving/Demo, Scenario 7 & 8 - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4134	3.2948	2.9818	9.7200e-003		0.1325	0.1325		0.1221	0.1221	0.0000	853.6967	853.6967	0.2734	0.0000	860.5316
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.4134</b>	<b>3.2948</b>	<b>2.9818</b>	<b>9.7200e-003</b>		<b>0.1325</b>	<b>0.1325</b>		<b>0.1221</b>	<b>0.1221</b>	<b>0.0000</b>	<b>853.6967</b>	<b>853.6967</b>	<b>0.2734</b>	<b>0.0000</b>	<b>860.5316</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.1400e-003	0.5103	0.1167	2.6400e-003	0.0831	5.5600e-003	0.0887	0.0228	5.3200e-003	0.0282	0.0000	260.8912	260.8912	0.0113	0.0414	273.4973
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0724	0.0603	0.7681	2.3500e-003	0.2828	1.3600e-003	0.2841	0.0751	1.2500e-003	0.0763	0.0000	215.9121	215.9121	4.2100e-003	5.2500e-003	217.5821
<b>Total</b>	<b>0.0805</b>	<b>0.5706</b>	<b>0.8847</b>	<b>4.9900e-003</b>	<b>0.3659</b>	<b>6.9200e-003</b>	<b>0.3728</b>	<b>0.0979</b>	<b>6.5700e-003</b>	<b>0.1045</b>	<b>0.0000</b>	<b>476.8032</b>	<b>476.8032</b>	<b>0.0155</b>	<b>0.0466</b>	<b>491.0794</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 2023 - Paving/Demo, Scenario 7 & 8 - 2023**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1192	0.5302	4.7146	9.7200e-003		0.0158	0.0158		0.0158	0.0158	0.0000	853.6957	853.6957	0.2734	0.0000	860.5306
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.1192</b>	<b>0.5302</b>	<b>4.7146</b>	<b>9.7200e-003</b>		<b>0.0158</b>	<b>0.0158</b>		<b>0.0158</b>	<b>0.0158</b>	<b>0.0000</b>	<b>853.6957</b>	<b>853.6957</b>	<b>0.2734</b>	<b>0.0000</b>	<b>860.5306</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.1400e-003	0.5103	0.1167	2.6400e-003	0.0831	5.5600e-003	0.0887	0.0228	5.3200e-003	0.0282	0.0000	260.8912	260.8912	0.0113	0.0414	273.4973
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0724	0.0603	0.7681	2.3500e-003	0.2828	1.3600e-003	0.2841	0.0751	1.2500e-003	0.0763	0.0000	215.9121	215.9121	4.2100e-003	5.2500e-003	217.5821
<b>Total</b>	<b>0.0805</b>	<b>0.5706</b>	<b>0.8847</b>	<b>4.9900e-003</b>	<b>0.3659</b>	<b>6.9200e-003</b>	<b>0.3728</b>	<b>0.0979</b>	<b>6.5700e-003</b>	<b>0.1045</b>	<b>0.0000</b>	<b>476.8032</b>	<b>476.8032</b>	<b>0.0155</b>	<b>0.0466</b>	<b>491.0794</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.5 2024- Runway Rehab, Service Road, NAVAID, Scenario 6 - 2024**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.1031	8.5625	8.9668	0.0276		0.3449	0.3449		0.3186	0.3186	0.0000	2,423.2840	2,423.2840	0.7627	0.0000	2,442.3505
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>1.1031</b>	<b>8.5625</b>	<b>8.9668</b>	<b>0.0276</b>		<b>0.3449</b>	<b>0.3449</b>		<b>0.3186</b>	<b>0.3186</b>	<b>0.0000</b>	<b>2,423.2840</b>	<b>2,423.2840</b>	<b>0.7627</b>	<b>0.0000</b>	<b>2,442.3505</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0224	1.4272	0.3263	7.2200e-003	0.2316	0.0153	0.2469	0.0636	0.0146	0.0782	0.0000	714.0614	714.0614	0.0304	0.1132	748.5539
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.3052	0.2409	3.2257	0.0104	1.2800	5.9000e-003	1.2859	0.3399	5.4300e-003	0.3453	0.0000	949.0688	949.0688	0.0172	0.0219	956.0357
<b>Total</b>	<b>0.3276</b>	<b>1.6680</b>	<b>3.5520</b>	<b>0.0176</b>	<b>1.5116</b>	<b>0.0212</b>	<b>1.5328</b>	<b>0.4035</b>	<b>0.0201</b>	<b>0.4235</b>	<b>0.0000</b>	<b>1,663.1302</b>	<b>1,663.1302</b>	<b>0.0476</b>	<b>0.1351</b>	<b>1,704.5896</b>



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.5 2024- Runway Rehab, Service Road, NAVAID, Scenario 6 - 2024**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3373	1.4906	14.0036	0.0276		0.0449	0.0449		0.0449	0.0449	0.0000	2,423.2812	2,423.2812	0.7627	0.0000	2,442.3476
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.3373</b>	<b>1.4906</b>	<b>14.0036</b>	<b>0.0276</b>		<b>0.0449</b>	<b>0.0449</b>		<b>0.0449</b>	<b>0.0449</b>	<b>0.0000</b>	<b>2,423.2812</b>	<b>2,423.2812</b>	<b>0.7627</b>	<b>0.0000</b>	<b>2,442.3476</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0224	1.4272	0.3263	7.2200e-003	0.2316	0.0153	0.2469	0.0636	0.0146	0.0782	0.0000	714.0614	714.0614	0.0304	0.1132	748.5539
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.3052	0.2409	3.2257	0.0104	1.2800	5.9000e-003	1.2859	0.3399	5.4300e-003	0.3453	0.0000	949.0688	949.0688	0.0172	0.0219	956.0357
<b>Total</b>	<b>0.3276</b>	<b>1.6680</b>	<b>3.5520</b>	<b>0.0176</b>	<b>1.5116</b>	<b>0.0212</b>	<b>1.5328</b>	<b>0.4035</b>	<b>0.0201</b>	<b>0.4235</b>	<b>0.0000</b>	<b>1,663.1302</b>	<b>1,663.1302</b>	<b>0.0476</b>	<b>0.1351</b>	<b>1,704.5896</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.543085	0.056300	0.173085	0.134258	0.025645	0.007009	0.011926	0.017481	0.000552	0.000248	0.024848	0.000550	0.004606

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.2 Energy by Land Use - NaturalGas**

**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	77.4630	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	77.4630	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

**6.2 Area by SubCategory**

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	8.8065					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	68.6565					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
<b>Total</b>	<b>77.4630</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>3.0000e-005</b>

ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**6.2 Area by SubCategory**

**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	8.8065					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	68.6565					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
<b>Total</b>	<b>77.4630</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>3.0000e-005</b>

**7.0 Water Detail**

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**7.1 Mitigation Measures Water**



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**7.2 Water by Land Use**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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ONT Runway 8R-26L Rehabilitation and Additional Airfield Improvements - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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## **Attachment 2**

### Operational Emissions Analysis

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**ATTACHMENTS**

Attachment 2-A: Fleet Mix

## 1 Introduction

This document presents the overall data, assumptions, approach, and methodology for preparing criteria pollutant and pollutant precursor, and greenhouse gas (GHG) emissions inventories for operations at Ontario International Airport (ONT). The aircraft emissions inventories were prepared for the following scenarios:

- Baseline Conditions (2019/2020 Hybrid)
- No Project Alternative (2023)
- Proposed Project (2023)
- Two-Year Program Alternative (2023)
- No Project Alternative (2024)
- Proposed Project / Two-Year Program Alternative (2024)
- No Project Alternative (2025)
- Proposed Project (2025)

The 2019/2020 Hybrid Baseline Conditions represents the existing environment in 2019 and 2020. The hybrid base year (2019/2020) fleet mix was based on the ONT Airport Noise Monitoring System (ANOMS) radar data from 2019 and 2020, and FAA's Traffic Flow Management System Count (TFMSC). Passenger air carriers, air taxi, and General Aviation (GA) operations were obtained from the 2019 ANOMS data and the all-cargo operations were obtained from the 2020 ANOMS data. This approach represents Baseline Conditions which recognizes the reduction in passenger carrier and air taxi operations, and the increase in all-cargo operations, attributable to the COVID-19 pandemic.

The future scenarios include years 2023, 2024, and 2025, encompassing the entire proposed construction period. This study analyzed three alternatives including the no project alternative (No Project), a three-year construction alternative (Proposed Project) and a two-year construction alternative (Two-Year Program Alternative). The Proposed Project assumed the following runway rehabilitation phasing:

- 2023 – maximum nine months of runway closure
  - Runway 8L-26R will be closed for four months (from mid-January to mid-May)
  - Runway 8R-26L will be closed for five months (from June to October)
- 2024 – maximum nine months of runway closure
  - Runway 8R-26L will be closed for nine months (from mid-January to mid-October)
- 2025 – maximum five months of runway closure
  - Runway 8L-26R will be closed for five months (from mid-January to mid-June)

The Two-Year Program Alternative assumed the following runway rehabilitation phasing:

- 2023 – maximum nine months of runway closure
  - Runway 8L-26R will be closed for six months (mid-Jan to mid-July)

- Runway 8R-26L will be closed for three months (mid-July to mid-October)
- 2024 – maximum nine months of runway closure
  - Runway 8R-26L will be closed for nine months (mid-Jan to mid-October)

In 2024, the Proposed Project construction phasing is identical to the Two-Year Program Alternative construction phasing. Therefore, the 2024 air quality model outputs of the two alternatives are expected to be identical.

The air quality emissions inventories were prepared for carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter less than 10 micrometers in diameter (coarse or PM<sub>10</sub>), and particulate matter less than 2.5 micrometers in diameter (fine or PM<sub>2.5</sub>).

The climate emissions inventory was prepared for carbon dioxide (CO<sub>2</sub>). As is customary for greenhouse gas (GHG) emissions inventories, the results are reported in units of metric tons (MT) of carbon dioxide equivalents (CO<sub>2</sub>e), by source, on an annual basis.

For the purpose of disclosing the increase or decrease in pollutant and pollutant precursor emissions with the improvements to the airport, the inventories were prepared only for the emission sources that would be affected by the improvements – aircraft (including Ground Support Equipment (GSE), Auxiliary Power Units (APU)), and construction activity (see *Attachment 1, Construction Emissions Analysis*).

## 2 Operations

Emissions produced from airport operations include those from aircraft, engine maintenance run-up, GSE, and APU.

### 2.1 Aircraft

The aircraft-related emission inventories were prepared using FAA's Aviation Environmental Design Tool (AEDT, Version 3d). With the exception of the number of operations, and for consistency, the aircraft operational data (i.e., fleet, aircraft engine assignments, and runway use) input to the AEDT were data developed in support of the analysis for Noise and Noise Compatible Land Use of this SEIR. Aircraft with at least 183 operations annually (more than 0.5 operations daily) were retained in the fleet mix for air quality analysis as they represent the majority of the operations. The retained operations were scaled up to match the total number of operations developed in the fleet mix. The average weighted departure stage lengths were applied. Default GSE and APU assignments in AEDT were applied. Because it is customary for criteria air pollutant and pollutant precursor inventories to be reported in tons on an annual basis, the number of operations used in the noise analysis were factored to reflect the actual annual (year 2019/2020) and future forecast (year 2023, 2024, and 2025) level of operations for the air quality analysis. Detailed fleet mixes are included in *Attachment 2-A of this Appendix*.

Except for ground-based taxi-in/taxi-out, including apron idling and departure runway queue delay, the default aircraft operating times in AEDT by aircraft mode (e.g., approach, take-off,



climbout) were used. For the Baseline Conditions, airport-specific times-in-mode for taxi-in and taxi-out were obtained from the FAA Aviation System Performance Metrics (ASPM) database. It was determined that the Baseline Conditions airfield-wide average taxi-in time was 5 minutes and 17 seconds and the average taxi-out time was 12 minutes and 11 seconds.

Future scenario taxi-in/taxi-out times were obtained through simulations using AirTOP. AirTOP is a gate-to-gate air traffic and airport simulation and assessment software. Future scenario simulations were set up in a way that was consistent with the proposed runway closures, temporary suspension of Contra Flow during construction, and taxiway improvements in the future years. The taxi time outputs from future scenario simulations were compared with the Baseline Conditions simulation output and adjustment factors were calculated. The adjustment factors were applied to the Baseline Conditions annual average taxi times from FAA ASPM database to obtain the future scenario taxi times.

**Table 1** provides the aircraft operation, engine run-up, and taxi-in/taxi-out time inputs to AEDT by year and alternative. As shown, the runway rehabilitation would increase the taxi-in times and decrease taxi-out times. This is a result of the suspension of Contra Flow, which improves departure taxi efficiency. With the proposed taxiway improvements, the 2025 taxi-in times are expected to decrease compared with the 2024 taxi-in times.

**Table 1: Air Quality Model Inputs**

Year	Scenario	Operation	Run-up	Taxi-in	Taxi-out
2019/2020	Baseline Conditions	106,026	95.0	5:17	12:11
2023	No Project Alternative	110,368	99.5	5:17	13:32
	Proposed Project	110,368	99.5	5:43	11:02
	Two-Year Program Alternative	110,368	99.5	5:43	11:01
2024	No Project Alternative	113,826	103.2	5:21	13:35
	Proposed Project	113,826	103.2	5:44	11:10
2025	No Project Alternative	117,625	107.2	5:20	13:36
	Proposed Project	117,625	107.2	5:36	12:15

Source: FAA ASPM and HNTB analysis, 2022.

## 2.2 Engine Maintenance Run-up

Aircraft maintenance engine run-ups emissions can be modeled in AEDT 3d. The Airport provided detailed engine 2019 run-up logs for use in the Baseline Conditions engine run-up emission modeling. Future scenario run-up operations were adjusted based on growth of each aircraft in the fleet mix from the Baseline Conditions to the future scenarios. **Table 2** summarizes the run-up operation inputs. Run-up inputs are the same for the same year.

**Table 2: Run-up Operation Inputs**

AEDT Aircraft	Engines	Baseline Conditions	2023	2024	2025
Boeing 737-700 Series	CFM56-7B24	2.2	1.8	1.9	2.0
Boeing 737-800 Series	CFM56-7B27	0.5	0.3	0.4	0.4
Boeing 757-200 Series	PW2040	9.2	9.3	9.7	10.0
Airbus A300B4-600 Series	PW4158	1.6	1.6	1.7	1.7
Airbus A320-200 Series	CFM56-5B4/2	1.0	0.4	0.4	0.4
Airbus A320-200 Series	V2527-A5	1.1	0.9	0.9	0.9
Dassault Falcon 900	TFE731-3	2.3	2.5	2.5	2.6
Cessna 750 Citation X	AE3007C	2.8	3.6	3.8	3.9
Boeing 747-400 Series Freighter	CF6-80C2B1F	1.1	1.1	1.1	1.2
Boeing 757-200 Series Freighter	RB211-535E4	9.0	9.1	9.5	9.8
Boeing MD-11 Freighter	CF6-80C2D1F	6.4	4.6	4.7	4.9
Boeing MD-11 Freighter	PW4460	12.4	7.8	8.1	8.4
Boeing 767-300 ER Freighter	CF6-80C2B6F	45.3	56.4	58.5	60.8
<b>Grand Total</b>		<b>95.0</b>	<b>99.5</b>	<b>103.2</b>	<b>107.2</b>

Source: ONT run-up logs and HNTB analysis, 2022

### 2.3 GSE and APU

GSE includes ground equipment essential for passenger and aircraft services, such as air conditioner, baggage tractor, and various service trucks. APU provides power to sufficiently large commercial aircraft. In addition to aircraft emissions, GSE and APU are also sources of CO, VOC, NO<sub>x</sub>, SO<sub>2</sub>, PM<sub>2.5</sub>, and PM<sub>10</sub>, among other parameters.

AEDT provides default APU and GSE assignment to commercial aircraft, as well as emission factors. The default assignment and emission factors were applied to the aircraft in the Baseline Conditions, No Project, and Proposed Project and annual emissions for criteria pollutants and GHGs were calculated. There are three freighters that do not have default AEDT GSE equipment assignments, which include Boeing 767-200 Freighter, Boeing 767-300 ER Freighter, and Boeing MD-11 Freighter. For these three aircraft types, default AEDT GSE assignments of similar freighter aircraft were applied.

### 2.4 Operational Emissions

**Table 3** provides the Baseline Conditions, No Project, Proposed Project, and Two-Year Program Alternative operational emissions for criteria pollutants.

**Table 3: Operation Emissions (tons per year)**

Year	Alternative	Category	CO	NOx	VOC	SO <sub>2</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>
2019/2020	Baseline Conditions	Aircraft	578.3	581.7	120.3	48.0	4.1	4.1
		GSE	102.7	11.4	4.0	0.1	0.6	0.7
		APU	9.5	11.3	0.7	1.4	1.3	1.3
		<b>Total</b>	<b>690.5</b>	<b>604.4</b>	<b>125.0</b>	<b>49.4</b>	<b>6.0</b>	<b>6.1</b>
2023	No Project	Aircraft	616.0	622.0	125.3	49.3	4.0	4.0
		GSE	94.0	9.8	3.7	0.1	0.6	0.6
		APU	9.8	12.1	0.7	1.5	1.3	1.3
		<b>Total</b>	<b>719.8</b>	<b>643.9</b>	<b>129.7</b>	<b>50.9</b>	<b>5.9</b>	<b>5.9</b>
	Proposed Project	Aircraft	555.9	614.4	114.2	47.1	3.8	3.8
		GSE	94.0	9.8	3.7	0.1	0.6	0.6
		APU	9.8	12.1	0.7	1.5	1.3	1.3
		<b>Total</b>	<b>659.7</b>	<b>636.3</b>	<b>118.6</b>	<b>48.6</b>	<b>5.7</b>	<b>5.7</b>
	Two-Year Program	Aircraft	555.4	614.3	114.1	47.1	3.8	3.8
		GSE	94.0	9.8	3.7	0.1	0.6	0.6
		APU	9.8	12.1	0.7	1.5	1.3	1.3
		<b>Total</b>	<b>659.2</b>	<b>636.2</b>	<b>118.6</b>	<b>48.6</b>	<b>5.7</b>	<b>5.7</b>
2024	No Project	Aircraft	638.9	643.5	129.8	51.0	4.1	4.1
		GSE	93.1	9.5	3.7	0.1	0.6	0.6
		APU	10.1	12.5	0.8	1.5	1.4	1.4
		<b>Total</b>	<b>742.1</b>	<b>665.5</b>	<b>134.3</b>	<b>52.6</b>	<b>6.1</b>	<b>6.1</b>
	Proposed Project/ Two-Year Program	Aircraft	577.5	636.0	118.6	48.8	4.0	4.0
		GSE	93.1	9.5	3.7	0.1	0.6	0.6
		APU	10.1	12.5	0.8	1.5	1.4	1.4
		<b>Total</b>	<b>680.7</b>	<b>657.9</b>	<b>123.0</b>	<b>50.4</b>	<b>5.9</b>	<b>5.9</b>
2025	No Project	Aircraft	665.7	679.3	134.8	53.3	4.3	4.3
		GSE	93.3	9.3	3.7	0.1	0.6	0.6
		APU	10.3	12.9	0.8	1.6	1.4	1.4
		<b>Total</b>	<b>769.3</b>	<b>701.5</b>	<b>139.3</b>	<b>55.0</b>	<b>6.3</b>	<b>6.3</b>
	Proposed Project	Aircraft	631.6	675.1	128.6	52.1	4.2	4.2
		GSE	93.3	9.3	3.7	0.1	0.6	0.6
		APU	10.3	12.9	0.8	1.6	1.4	1.4
		<b>Total</b>	<b>735.2</b>	<b>697.3</b>	<b>133.1</b>	<b>53.8</b>	<b>6.2</b>	<b>6.2</b>

Source: FAA ASPM and HNTB analysis, 2022.

In 2023, the No Project Alternative emissions are expected to increase from the Baseline Conditions as a result of higher operations and higher taxi-out times. The Proposed Project emissions are expected to be lower than the No Project Alternative as a result of lower taxi-out times. Although the taxi-in times are projected to increase under the Proposed Project, they would

be offset by the substantial decrease in the taxi-out times as departure taxi movements improve without Contra Flow during the runway rehabilitation. The Two-Year Program Alternative air emissions are very close to the Proposed Project emissions because of the identical fleet mix, identical run-up operations, and similar taxi times.

In 2024 and 2025, the Proposed Project emissions are expected to be lower than the No Project Alternative. Since the Proposed Project and the No Project Alternatives have identical fleet mixes and run-up operations, the main cause of the decrease in the emissions is the lower taxi-out times. When the runway is under rehabilitation, Contra Flow is not implemented, which improves the departure flight taxi efficiency that reduces taxi-out times. Although the taxi-in times are expected to increase slightly, they would be offset by the decrease in taxi-out times. In addition, the proposed taxiway improvements are expected to reduce taxi times as well.

**Table 4** provides the GHG emissions for all alternatives.

**Table 4: Aircraft Operation CO<sub>2</sub>e Emissions (MT per year)**

Year	Alternative	Total (CO <sub>2</sub> e)
2019/2020	Baseline Conditions	129,183
2023	No Project Alternative	132,600
	Proposed Project	126,829
	Two-Year Program Alternative	126,782
2024	No Project Alternative	137,476
	Proposed Project / Two-Year Program Alternative	131,586
2025	No Project Alternative	143,695
	Proposed Project	140,421

Note: MT = metric ton; CO<sub>2</sub>e = carbon dioxide equivalent

The product of each GHG emission and its Global Warming Potential (GWP) is known as “carbon dioxide equivalent” (CO<sub>2</sub>e). GWPs used for this analysis are 1 for CO<sub>2</sub>.

There are no CO<sub>2</sub> emissions from GSEs or APUs.

Source: AEDT and HNTB analysis, 2022.

## 2.5 Aircraft Taxiing / Indirect Construction Emissions

While Table 3 and Table 4 present the total operational emissions of the Baseline Conditions and future scenarios, it should be noted that the analysis of air quality and GHG emissions in this SEIR is focused on the indirect impacts of aircraft taxiing times from the proposed temporary runway and taxiway closures. Because aircraft operational levels would be identical whether or not a project is implemented, the emissions from APU/GSE and aircraft landings/take-offs is not impacted by the Proposed Project or Two-Year Program Alternative. **Table 5** and **Table 6** present criteria pollutant and CO<sub>2</sub> emissions from aircraft taxiing for all alternatives, which is used in the analysis of indirect construction emissions in air quality and GHG analysis of this SEIR.

**Table 5: Aircraft Taxiing Emissions**

Year	Alternative	Pollutants (tons/year)						Pollutants (lbs/day)					
		CO	NOx	VOC	SO <sub>2</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	CO	NOx	VOC	SO <sub>2</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>
2019/2020	Baseline Conditions	517	63	96	18	2	2	2,832	346	527	101	9	9
2023	No Project	551	67	101	20	2	2	3,019	369	554	107	9	9
	Proposed Project	490	60	90	17	1	1	2,686	328	493	95	8	8
	Two-Year Program	490	60	90	17	1	1	2,686	328	493	95	8	8
2024	No Project	572	70	105	20	2	2	3,125	383	573	111	9	9
	Proposed Project / Two-Year Program Alternative	510	63	94	18	2	2	2,790	342	511	99	8	8
2025	No Project	597	73	109	21	2	2	3,270	402	596	116	10	10
	Proposed Project	563	69	103	20	2	2	3,083	379	562	110	9	9

Source: AEDT and HNTB analysis, 2022.

**Table 6: Aircraft Taxiing CO<sub>2</sub>e Emissions (MT per year)**

<b>Year</b>	<b>Alternative</b>	<b>CO<sub>2</sub>e</b>
2019/2020	Baseline Conditions	49,520
2023	No Project Alternative	52,700
	Proposed Project	46,919
	Two-Year Program Alternative	46,872
2024	No Project Alternative	54,849
	Proposed Project / Two-Year Program Alternative	48,958
2025	No Project Alternative	57,217
	Proposed Project	53,944

Note: MT = metric ton; CO<sub>2</sub>e = carbon dioxide equivalent

The product of each GHG emission and its Global Warming Potential (GWP) is known as “carbon dioxide equivalent” (CO<sub>2</sub>e). GWPs used for this analysis are 1 for CO<sub>2</sub>.

There are no CO<sub>2</sub> emissions from GSEs or APUs.

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Source: AEDT and HNTB analysis, 2022.

## **Attachment 2-A**

### Fleet Mix

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Table A-1: Fleet Mixes

Aircraft	Engine	Operation Type	Stage Length	Baseline Conditions	2023	2024	2025
Airbus A320NEO Series	LEAP-1A26/26E1	A	1	524	761	786	811
Airbus A320NEO Series	LEAP-1A26/26E1	D	3	524	761	786	811
Airbus A321NEO Series	LEAP-1A35A/33/33B2/32/30	A	1	-	1,216	1,254	1,296
Airbus A321NEO Series	LEAP-1A35A/33/33B2/32/30	D	2	-	1,216	1,254	1,296
Airbus A321NEO Series	PW1133G-JM	A	1	-	403	404	404
Airbus A321NEO Series	PW1133G-JM	D	2	-	403	404	404
Airbus A300-600/622R	PW4158	A	1	2,884	2,921	3,013	3,113
Airbus A300-600/622R	PW4158	D	3	2,884	2,921	3,013	3,113
Airbus A319 series	CFM56-5B6/2P	A	1	227	244	252	261
Airbus A319 series	CFM56-5B6/2P	D	2	-	244	252	261
Airbus A320 series	V2527-A5	A	1	339	342	353	365
Airbus A320 series	V2527-A5	D	2	-	342	353	365
Airbus A320 series	CFM56-5B4/2	A	1	725	541	559	578
Airbus A320 series	CFM56-5B4/2	D	2	-	541	559	578
Airbus A320 series	V2527-A5 SelectOne Package	A	1	472	389	401	415
Airbus A320 series	V2527-A5 SelectOne Package	D	2	-	389	401	415
Beechcraft 1900D	PT6A-67B	A	1	258	260	269	278
Beechcraft 1900D	PT6A-67B	D	1	258	260	269	278
Beechcraft Super King Air 350/300B	PT6A-60AG	A	1	-	234	234	233
Beechcraft Super King Air 350/300B	PT6A-60AG	D	1	-	234	234	233
Boeing 737 MAX 8	LEAP-1B27	A	1	-	2,158	2,226	2,301
Boeing 737 MAX 8	LEAP-1B27	D	3	-	2,158	2,226	2,301
Boeing 737 MAX 8	LEAP-1B28B2C	A	1	-	2,212	2,281	2,357
Boeing 737 MAX 8	LEAP-1B28B2C	D	3	-	2,212	2,281	2,357
Boeing 737 MAX 9	LEAP-1B28/28B2/28B1/28B3	A	1	-	215	222	230
Boeing 737 MAX 9	LEAP-1B28/28B2/28B1/28B3	D	1	-	215	222	230
Boeing 737-700	CFM56-7B20	A	1	7,742	6,477	6,681	6,904



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Aircraft	Engine	Operation Type	Stage Length	Baseline Conditions	2023	2024	2025
Boeing 737-700	CFM56-7B20	D	1	7,742	6,477	6,681	6,904
Boeing 737-700	CFM56-7B22	A	1	731	610	629	651
Boeing 737-700	CFM56-7B22	D	1	731	610	629	651
Boeing 737-700	CFM56-7B24	A	1	2,954	2,467	2,544	2,629
Boeing 737-700	CFM56-7B24	D	1	2,954	2,467	2,544	2,629
Boeing 737-700	CFM56-7B24/3	A	1	791	661	682	704
Boeing 737-700	CFM56-7B24/3	D	1	791	661	682	704
Boeing 737-800	CFM56-7B24	A	1	1,220	482	497	515
Boeing 737-800	CFM56-7B24	D	2	1,220	482	497	515
Boeing 737-800	CFM56-7B27	A	1	2,583	1,404	1,448	1,497
Boeing 737-800	CFM56-7B27	D	2	2,583	1,404	1,448	1,497
Boeing 737-800	CFM56-7B27E/B1	A	1	1,935	1,954	2,015	2,084
Boeing 737-800	CFM56-7B27E/B1	D	2	1,935	1,954	2,015	2,084
Boeing 737-900	CFM56-7B27E/B1	A	1	1,178	551	567	587
Boeing 737-900	CFM56-7B27E/B1	D	2	1,178	551	567	587
Boeing 747-400	CF6-80C2B1F	A	1	372	377	390	403
Boeing 747-400	CF6-80C2B1F	D	4	372	377	390	403
Boeing 747-800	GEnx-2B67	A	1	463	468	483	500
Boeing 747-800	GEnx-2B67	D	4	463	468	483	500
Boeing 757-200	RB211-535E4	A	1	1,205	1,220	1,258	1,301
Boeing 757-200	RB211-535E4	D	3	1,205	1,220	1,258	1,301
Boeing 757-200	PW2040	A	1	1,060	1,072	1,107	1,144
Boeing 757-200	PW2040	D	3	1,060	1,072	1,107	1,144
Boeing 767-200	CF6-80A	A	1	687	696	718	742
Boeing 767-200	CF6-80A	D	4	687	696	718	742
Boeing 767-200	CF6-80A2	A	1	419	425	437	452
Boeing 767-200	CF6-80A2	D	4	419	425	437	452
Boeing 767-300	CF6-80C2B6F	A	1	5,951	7,635	7,875	8,138

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Aircraft	Engine	Operation Type	Stage Length	Baseline Conditions	2023	2024	2025
Boeing 767-300	CF6-80C2B6F	D	3	5,951	7,635	7,875	8,139
Boeing 767-300	CF6-80C2B7F	A	1	217	221	228	236
Boeing 767-300	CF6-80C2B7F	D	3	217	221	228	236
Boeing 767-300	PW4062	A	1	537	544	561	580
Boeing 767-300	PW4062	D	3	537	544	561	580
Boeing 777F	GE90-110B1	A	1	-	465	480	495
Boeing 777F	GE90-110B1	D	3	-	465	480	495
Beechcraft Airliner Model 99	PT6A-28	A	1	1,168	1,183	1,220	1,261
Beechcraft Airliner Model 99	PT6A-28	D	1	1,168	1,183	1,220	1,261
Cessna 172 Single Engine SEPF	IO-360-B	A	1	1,061	1,245	1,242	1,240
Cessna 172 Single Engine SEPF	IO-360-B	D	1	1,061	1,245	1,242	1,240
Cessna 206 Stationair	TIO-540-J2B2	A	1	220	241	240	240
Cessna 206 Stationair	TIO-540-J2B2	D	2	220	241	240	240
Cessna 208 Caravan I	PT6A-114A	A	1	2,865	2,910	2,999	3,097
Cessna 208 Caravan I	PT6A-114A	D	1	2,865	2,910	2,999	3,097
Cessna CitationJet CJ3, 525B	JT15D-1 series	A	1	253	592	591	592
Cessna CitationJet CJ3, 525B	JT15D-1 series	D	1	253	592	591	592
Cessna CitationJet CJ4, 525C	UNKNOWN	A	1	-	231	231	231
Cessna CitationJet CJ4, 525C	UNKNOWN	D	1	-	231	231	231
Cessna 560XL Citation Excel	PW530	A	1	331	481	481	480
Cessna 560XL Citation Excel	PW530	D	1	331	481	481	480
Cessna 750 series/Citation X	AE3007C	A	1	248	349	349	348
Cessna 750 series/Citation X	AE3007C	D	2	248	349	349	348
Bombardier Challenger 300	AE3007A1	A	1	349	546	545	547
Bombardier Challenger 300	AE3007A1	D	2	349	546	545	547
Canadair Bombardier CL600/610 Challenger Twin Jet	CF34-3B/-3B1	A	1	325	316	315	315
Canadair Bombardier CL600/610 Challenger Twin Jet	CF34-3B/-3B1	D	1	325	316	315	315

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Aircraft	Engine	Operation Type	Stage Length	Baseline Conditions	2023	2024	2025
Bombardier CRJ 200 Regional Jet	CF34-3A1	A	1	1,470	902	929	958
Bombardier CRJ 200 Regional Jet	CF34-3A1	D	1	1,470	902	929	958
Bombardier CRJ 900 Regional Jet	CF34-8C5	A	1	1,158	1,017	1,049	1,084
Bombardier CRJ 900 Regional Jet	CF34-8C5	D	1	1,158	1,017	1,049	1,084
Embraer EMB-120 Brasilia	PW118	A	1	282	286	294	304
Embraer EMB-120 Brasilia	PW118	D	1	282	286	294	304
Embraer ERJ-145	AE3007A1/1	A	1	-	435	432	430
Embraer ERJ-145	AE3007A1/1	D	1	-	435	432	430
Embraer ERJ-175	CF34-8E5	A	1	655	574	590	609
Embraer ERJ-175	CF34-8E5	D	2	655	574	590	609
Embraer ERJ-175	CF34-8E5	A	1	800	701	722	745
Embraer ERJ-175	CF34-8E5	D	2	800	701	722	745
Dassault Falcon 900	TFE731-3	A	1	219	243	243	242
Dassault Falcon 900	TFE731-3	D	2	219	243	243	242
Dassault Falcon 50	TFE731-3	A	1	289	311	311	310
Dassault Falcon 50	TFE731-3	D	2	289	311	311	310
McDonnell Douglas MD-11 (Mixed)	CF6-80C2D1F	A	1	938	623	643	664
McDonnell Douglas MD-11 (Mixed)	CF6-80C2D1F	D	3	938	623	643	664
McDonnell Douglas MD-11 (Mixed)	PW4460	A	1	709	437	451	467
McDonnell Douglas MD-11 (Mixed)	PW4460	D	3	709	437	451	467
McDonnell Douglas MD-11 (Mixed)	CF6-80C2D1F	A	1	462	350	361	374
McDonnell Douglas MD-11 (Mixed)	CF6-80C2D1F	D	3	462	350	361	374
McDonnell Douglas MD-11 (Mixed)	PW4062	A	1	859	551	568	587
McDonnell Douglas MD-11 (Mixed)	PW4062	D	3	859	551	568	587
Piper PA-31 Navajo	TIO-540-J2B2	A	1	295	300	308	319
Piper PA-31 Navajo	TIO-540-J2B2	D	1	295	300	308	319
Pilatus PC-12	PT6A-67B	A	1	-	220	220	220
Pilatus PC-12	PT6A-67B	D	1	-	220	220	220

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Aircraft	Engine	Operation Type	Stage Length	Baseline Conditions	2023	2024	2025
Raytheon 390 Premier	JT15D-1 series	A	1	297	303	303	302
Raytheon 390 Premier	JT15D-1 series	D	1	297	303	303	302
Cirrus SR22	TIO-540-J2B2	A	1	-	212	212	212
Cirrus SR22	TIO-540-J2B2	D	1	-	212	212	212
Airbus A319 series	CFM56-5B6/2P	D	1	227	-	-	-
Airbus A319 series	V2522-A5	A	1	279	-	-	-
Airbus A319 series	V2522-A5	D	1	279	-	-	-
Airbus A320 series	V2527-A5	D	3	339	-	-	-
Airbus A320 series	CFM56-5B4/2	D	3	725	-	-	-
Airbus A320 series	CFM56-5B4/3	A	1	263	-	-	-
Airbus A320 series	CFM56-5B4/3	D	3	263	-	-	-
Airbus A320 series	V2527-A5 SelectOne Package	D	3	472	-	-	-
Airbus A321 series	V2530-A5	A	1	237	-	-	-
Airbus A321 series	V2530-A5	D	2	237	-	-	-
Airbus A350-900	Trent XWB-84	A	1	317	-	-	-
Airbus A350-900	Trent XWB-84	D	8	317	-	-	-
Boeing 737-800	CFM56-7B24/3	A	1	517	-	-	-
Boeing 737-800	CFM56-7B24/3	D	2	517	-	-	-
Boeing 737-900	CFM56-7B26/3	A	1	233	-	-	-
Boeing 737-900	CFM56-7B26/3	D	2	233	-	-	-
McDonnell Douglas DC-10	CF6-6D	A	1	440	-	-	-
McDonnell Douglas DC-10	CF6-6D	D	2	440	-	-	-
Boeing 737-800	CFM56-7B26	A	1	-	-	210	217
Boeing 737-800	CFM56-7B26	D	2	-	-	210	217
Boeing 777-300ER	GE90-115B	A	1	-	-	-	213
Boeing 777-300ER	GE90-115B	D	8	-	-	-	213
Total				106,026	110,368	113,826	117,625

Source: HNTB analysis 2022.